Mass transfer at an organic solid – organic liquid interface within reservoir rock under creeping flow conditions

by

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Abstract

There is a growing recognition that knowledge gaps related to the molecular and phase state complexity of hydrocarbon resources, and their interactions within production and processing environments have begun impeding development of new or improved processes that protect the natural environment and provide the ongoing social licence to operate in an increasingly regulated industrial sector. This work focuses on understanding mass transfer at a solvent-hydrocarbon resource interface within reservoir rock. Solvent injection is one of a suite of proposed enhanced oil recovery processes for improving their environmental and economic performance. More specifically, the displacement of wax (*n*-octacosane) by imbibed heptane in porous silica and limestone is explored as a first step toward studying the displacement of bitumen with solvent in porous media. The experimental measurement method, based on local speed of sound measurements is validated, and governing mass transfer relationships are explored at a spatial resolution of ~ 200 μm. The physical orientations of the interface and nature of the porous medium are the principle variables. Under creeping flow conditions, Single-File diffusion appears to influence mass transfer at these interfaces.

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1 Chapter 1: Introduction

Solvent injection inspired many production processes. Whether it is about chromatography[1,2] or liquid-solid or liquid-liquid extractions[3,4], solvent choice and injection conditions hold a key role for good production rates. The field of bitumen recovery also relies heavily on injection-based techniques. Among them, steam injection is one of the main, foundational and still relevant method, aiming at decreasing viscosity of oil by injecting steam and using gravity (Steam-assisted gravity drainage or SAGD) to recover the heavy oils from hydrocarbons reservoirs. However, efficiency and economical requirements, related to the diversity of reservoir types, water-consumption and heat-loss issues led researchers and industrials to find ways to partly or totally replace water with solvent. In 1991, a vapor extraction technique (VAPEX) was engineered by Butler and Mokys as an alternative to water-only methods, introducing the use of solvent at boiling point[5]. Since then the number of methods aiming at enhanced oil recovery kept increasing, whether water is partly (co-injection)[6], or totally replaced, involving for example cycling process[7] and gaseous or liquid solvents[8-12]. Hence, the importance of understanding and optimizing these processes since the use of solvent can still turn out to be costly, in particular if used pure. Many articles revolve around the optimization of parameters[10,13-15] such as temperature, pressure, the choice of solvent, impact of the nature of the reservoir core, etc.

Likewise, understanding the mechanisms of mass transfer between solvent and heavy hydrocarbons is also part of the challenges, directly impacting models used for oil production. For example, Das and Butler observed better results than expected from models while investigating the performances of the VAPEX process[16]. They notably proposed an explanation based on a phenomenon of convection they named surface renewal. However, Stewart and Shaw recently noted discrepancies between modelled and actual production rates in the case of processes using solvent for bitumen recovery[17], underscoring misconceptions that lead to erroneous models and predictions in the case of solvent and bitumen mixtures. In particular, the authors note that the diffusion coefficients input into typical reservoir production models are fit and do not reflect or respect known diffusion rates or mechanisms. Values in terms of diffusion coefficient can be orders of magnitude too high[16,18] compared to data and other mechanism(s) rather than diffusion must control the production rates.

Reservoir rocks comprise solid porous media. Even in the presence of soluble fluids, once pore core-section dimensions fall below a transition range highly dependent on the size of the diffusive molecules, transition from isotropic Fickian diffusion to non-isotropic and non-Fickian diffusion are expected. Thus, Chen et al. studied the influence of nanopores diameter on the transition of Single-File to Fickian diffusion of mixtures of Lennard-Jones fluids in single-walled carbon nanotubes[19]. Kumar also modelled the crossover of Single-File to Fickian diffusion in zeolite by increasing the size of the particles[20]. Non-Fickian diffusion behavior has also been discussed with reference to diffusion in reservoirs[21-24].

The goal of this thesis is to illustrate diffusion processes in reservoir rock to improve the understanding of diffusion at solid/fluid interfaces within pores and provide insights into behavior at interfaces between solvent and heavy hydrocarbons within porous media. This would unlock the systematic search for mesoscale controlling mechanisms that facilitate solvent aided production processes.

This thesis comprises five chapters, including this introductory chapter.

Chapter 2 - a literature review chapter where specific challenges around the nature and types of rock reservoirs and diffusion mechanism are addressed.

Chapter 3 – an experimental chapter where procedures for experiments, data collection and treatment are detailed.

Chapter 4 - a result and discussion work chapter where rock properties and the influence of interface orientation and flow conditions are presented and discussed.

Chapter 5 - a conclusions and future work chapter where the main research outcomes are summarized, and future work is proposed.

2 Chapter 2: Literature Review

2.1 Nature of the reservoirs

2.1.1 Property differences

Reservoir cores can be of several types, such as carbonate and sandstone, and can vary according to their origin or age. Because of different properties such as porosity and permeability among others, they can display variations when it comes to fluids speed and displacement as well as production rates in the oil industry. Levva-Gomez and Babadagli compared oil recovery factors obtained by hot-solvent injection with Berea and Indiana limestone samples, raising the higher permeability and porosity of the sandstones over the carbonates to explain the better results with Berea rocks[15]. Babadagli and Trivedi studied the recovery rate from core samples saturated with oil via constant solvent (heptane) injection and the influence of several parameters, including the rock type and again noticed better final results with Berea compared to Limestone, although the optimal solvent flowrate was determined to be the same[25]. Overall, the type of reservoir is a parameter that is useful to investigate to apprehend fluid displacement mechanism and optimal production rates.

2.1.2 Fractured reservoirs

One of the main characteristics that can alter the way to consider a reservoir in a production process is if fractures are present in its matrix. Caused by diverse stressing phenomena ranging from water loss to seismic activity[26], reservoirs can be characterized by the presence of fractures and voids altering their porosity and matrix.

As explained in the chapter 10 of the Fundamentals of fracture reservoir engineering by T.D. Van Golf-Racht[26], the behaviour of components within fractured reservoirs can not necessarily be based on conventional reservoir behaviours. At stake different mechanisms which involve vugs and void space and modify the fluids displacement. As an example, gas would have the tendency to flow towards the top of a reservoir through fractures. This naturally leads to different production outcomes and thinking through while modeling. Thus, the necessity to consider the eventuality of cracks, faults or joints within the reservoir and to separate the two cases: conventional and fractured reservoirs. Besides, the system may require using a double-porosity definition, consisting of primary and secondary porosity as described in the chapter 4 of this

book. Van Golf-Racht explains that primary porosity originates from void between grains of the rock, while secondary porosity comes from the presence of the fractures in the matrix.
It is also relevant to mention the influence of the orientations of the cracks, along with their position within the reservoir which must have an influence on production mechanisms of heavy oil and bitumen recovery processes, as studied in many works[27-30], listing effects such as shielding and fingering (the way solvent proceeds through the pores), influence on the dispersion and the front shape of the solvent within the porous medium. Although some of these points will not be treated in this work, the impact of the orientation of the solvent injection on the fluids flow and displacement is something that has been addressed. In this way, the effect of gravity can also be investigated, as it can compete or complement the phenomenon of diffusion[25,31], although closely related to the size of the sample.

2.2 Diffusion mechanism

2.2.1 Fickian diffusion

The relevance of diffusion in recovery techniques has been stressed by da Silva and Belery[32], stating that oil production rates can be improved if diffusion is considered by comparing simulated oil rate production within fractured reservoir with and without molecular diffusion term.

Fickian diffusion is used to describe the distribution of molecules driven by a gradient of concentration over time.

In one dimension, in an isotropic medium and with a constant coefficient of diffusion, Fick's second law of diffusion can be expressed by[33]:

$$\frac{\partial C}{\partial t} = D\frac{\partial^2 C}{\partial x^2} \; (2.1)$$

$$With\ an\ analytical\ solution:$$

$$C(x,t) = C\left(\frac{x}{t^n}\right), with\ n = \frac{1}{2}$$

Where C is the concentration in kg.m^{-3}, t the time in s, x the distance in m, and D the mutual diffusion coefficient in m².s^{-1}.

For fluids exhibiting Fickian diffusion, profiles of composition versus the joint variable x/t^n taken at different times overlap, as shown in Figure 2.1. For free diffusion, as illustrated in the work of Alizadehgiashi and Shaw profiles of concentration versus distance also exhibit an elevation with time invariant composition[22]. An example is also displayed in Figure 2.2.

The value of the mutual diffusion coefficient, whose definition is sometimes mixed with other definitions - some of which presented in the work of Shackelford and Moore[34]- allows to evaluate the relative effectiveness of the diffusion.

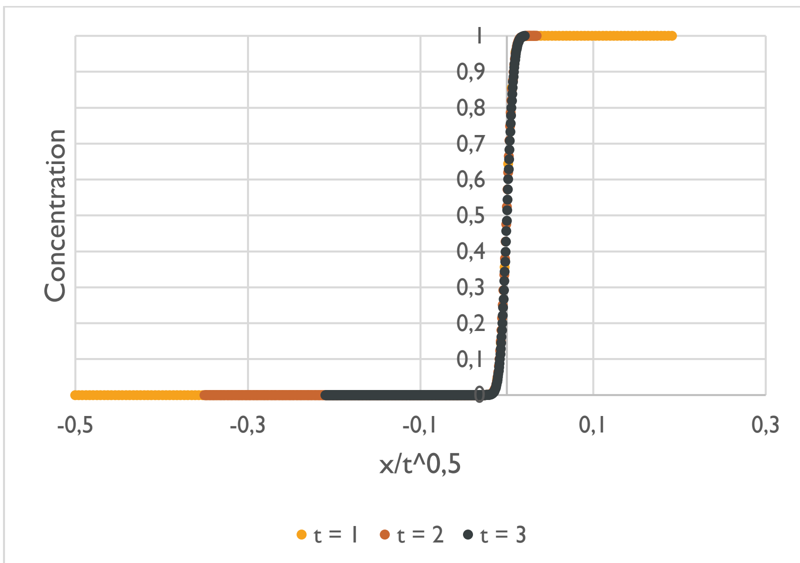


Figure 2.1 Example of concentration versus x/t^n profile for Fickian diffusion with n = 0,5

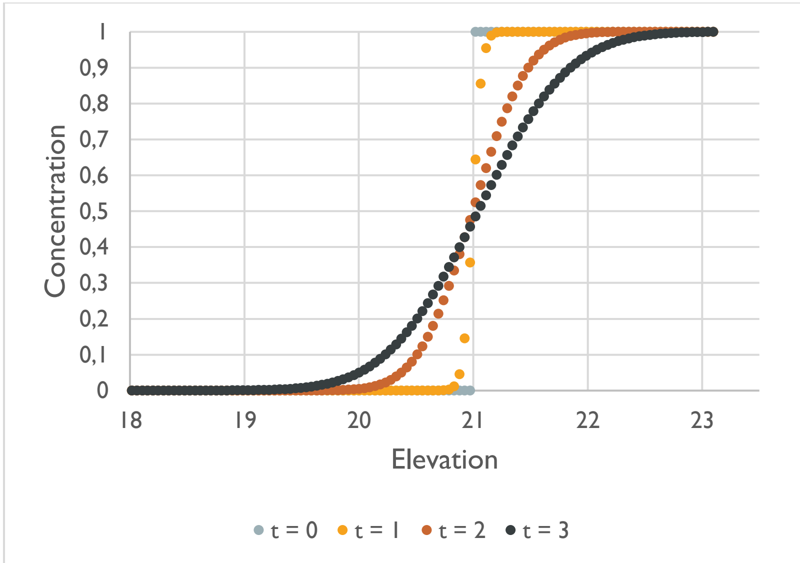


Figure 2.2 Example of concentration versus distance profiles for Fickian diffusion

2.2.2 Diffusion at an interface solvent/hydrocarbon

The diffusion of solvent into bitumen was studied via both X-Rays Computer-Assisted Tomography scanning and low field NMR by Wen et al[35]. In their experiments, solvent was placed on top of the bitumen and fluid movements and gradient of concentration were tracked over time, in order to determine diffusion coefficients using Fickian model of diffusion. Several combinations of solvent and bitumen were tested. They presented in particular the results for heptane diffusing in Cold Lake bitumen. They obtained concentration-distance curves corresponding to Fickian diffusion and similar coefficient of diffusion for both methods.

Luo et al. also used X-Rays Computer-Assisted Tomography scanning to study the diffusion of heptane in heavy oil. This time, the experiments were conducted for both bulk fluids and for heavy oil saturated sand[36], taking into account the impact of porosity of a porous reservoir on the diffusion of solvent and the value of calculated diffusion coefficients. They also obtained profile of diffusion corresponding to Fickian diffusion.

Finally, Pathak and Babadagli injected solvents in porous media in order to investigate the mechanics of recovery of heavy oil and bitumen via solvent injection. In particular, they injected hot and gaseous propane and butane in Berea cores filled with heavy oil and used pressure data and Fick's second law of diffusion to determine the diffusion coefficient for both solvent in the oil. They also studied the displacement of heavy oil by pentane and decane in a Hele-Shaw cell, injecting solvent from the top and followed fluids displacement with a camera. They observed asphaltene precipitation along the initial interface between the solvent and the heavy oil.

2.2.3 Single-File diffusion

Single-File diffusion arises when molecules cannot pass each other, due to their size and the dimensions of their environment. In this model, concentration profiles in free diffusion experiments are a function of the joint variable:

$$C(x,t) = C\left(\frac{x}{t^{1/4}}\right)$$

Single-File diffusion has been observed in various cases, including diffusion of xenon[38] or proteins[39] in nanochannels, or diffusion of ethane in molecular sieve[40].

The importance of Single-File diffusion has therefore started to appear and been investigated for better understanding. For example, Nelissen et al. worked on the dependence of Single-File diffusion to interparticle interaction in nanopores[41], and Lei et al. used neopentane to study the influence of Single-File diffusion on the energy of catalytic reactions[42].

2.2.4 Transition between Fickian and Single-File diffusion

Transitions from Fickian to Single-File diffusion lead to time distance joint variables where the exponent n falls between 0.5 and 0.25. Transitions have been observed between these two diffusion mechanisms in a number of cases.

Nelson and Auerbach showed in their simulation work[43] using a zeolite membrane the conditions under which transitions between Single-File diffusion and Fickian diffusion occur, exhibiting a transition time called vacancy diffusion time, in relation with the length of the zeolite.

Kumar simulated the diffusion of particles in zeolite and studied the crossover between Fickian to Single-File diffusion[20], ranging the diameter of the particles from 2.0 to 5.3 Å to demonstrate the influence of the size of the molecules, compared to the dimensions of the channels, on the mechanism of diffusion.

In a similar vein, diffusion of methane and ethane in cylindrical channels was simulated by Keffer et al.[44]. Investigating the diffusivity of the two gases, they showed that unlike smaller methane molecules, ethane molecules can rarely pass each other in the channels and displayed a combination of Single-Filed and unidirectional diffusion mechanism.

Alizadehgiashi and Shaw investigated the influence of heavy oil mass fraction on the value of the exponent n from the joint variable x/t^n and the mechanism governing the diffusion for mixtures of light hydrocarbons and heavy oil[22]. They observed that low mass fraction mixtures diffusing in nano- and microstructured hydrocarbon cores obey to Single-File diffusion as opposed to high mass fraction mixtures which are governed by Fickian diffusion, with exponent n values ranging between 0.25 and 0.5 for intermediary cases.

Pourmohammadbagher observed and studied transition from Fickian to Single-File diffusion in nano-colloids[45], highlighting the impact of nearest neighbor distance within the system on the transition.

2.3 Summary

Production rates of recovery processes of heavy oil and bitumen from porous reservoirs are highly dependent on the knowledge and understanding of the diffusion mechanisms.

In an isotropic medium and with a constant coefficient of diffusion, Fick's second law can be used to model the distribution of the molecules, as long as they are free to pass each other. If not, Single-File diffusion may be predominant.

Mechanisms of diffusion are impacted not only by the dimensions of the porous matrix in relation to the size of molecules involved in the mass transfer, but also by the state of the reservoir (fractured or not) and the interactions between the molecules.

In this regard, the mass transfer at a solid/liquid interface within three types of porous rock samples has been investigated to get a better understanding of the behaviour of heavy hydrocarbons at the interface with liquid solvent. Tracking the displacement of the interface during injection of solvent within the porous medium is aimed at identifying the mechanism of diffusion. It also focuses on evaluating the influence of parameters comprising the orientation of the injection of solvent and the type of rock reservoir on the mass transfer.

3 Chapter 3: Experimental

3.1 Materials

The rocks used for the experiments, sandstone and carbonate rock samples from Kocurek Industries comprise sedimentary rocks that can naturally serve as reservoir rocks for bitumen and heavy oil. These rock samples with the dimensions: 30 mm × 50 mm × 7 mm, are natural materials with property differences from one piece to another. Their characteristics are presented in Table 3.1.

Table 3.1 List of the rocks used and their property

Rock	Variety	Porosity* (vol %)	Mean pore radius (microns)
Berea	Sandstone	18-21	4.45-9.08*
Indiana Limestone	Carbonate	19	~0.201**
Desert Pink	Carbonate	29	~1.60**

*value corresponding to the average pore-throat radius at 35% Mercury Saturation derived from data provided by the supplier Kocurek Industries[46,47]

**values derived from measurements by mercury intrusion porosimetry and provided by the energy system design laboratory of the University of Alberta, Engineering department

The pore size distribution graphs for the Indiana Limestone and the Desert Pink samples are shown in Figures 3.1 and 3.2. Calculations were done based on the Washburn equation and are presented in Appendix A. According to these pore size distribution curves, there were two kinds of pores with different radius in the Limestone sample, one around 0.4 and another around 5.5 microns. The Desert Pink sample had a pore radius of around 5 microns.

The rocks were imbibed with octacosane (n-$C_{28}H_{58}$, melting point of 61°C) and n-heptane (99%) from Fisher Scientific.

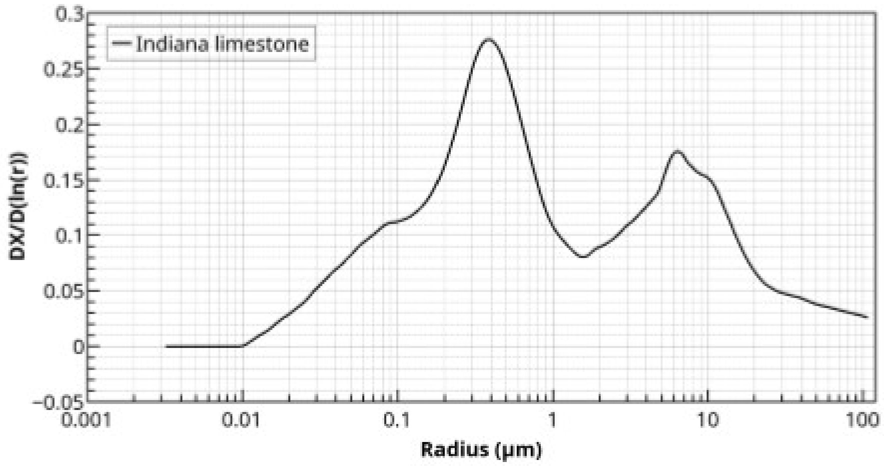


Figure 3.1 Pore size distribution for the Indiana Limestone sample

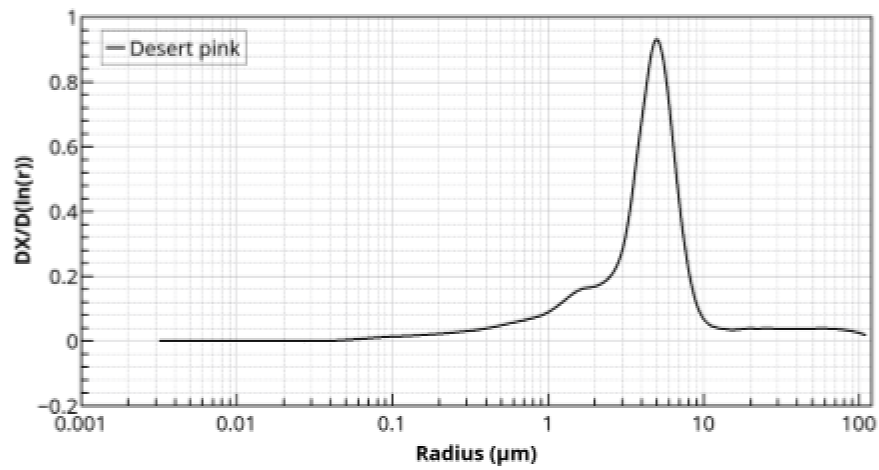


Figure 3.2 Pore size distribution for the Desert Pink sample

3.2 Acoustic measurements equipment

Acoustic measurements were performed using an acoustic coupling gel, the High Z HV High Viscosity and acoustic probes 10L64-A2 from Olympus NDT™. The data were processed with the TomoView™ software from Olympus NDT™ and analyzed using a Matlab code provided by Olympus NDT™.

Two different kinds of settings were used depending on the experiment type.

In the case of acoustic measurements within liquids or solids without any medium, samples were contained in a custom-made cell of polybenzimidazole (Figure 3.3). The cell was placed within a cylindrical frame made of aluminum. The frame comprises openings so that the probes could be screwed on the sides of the cell. The acoustic waves were then sent through the walls of the cell which were 6.7 mm thick in total and through the sample, contained in a cavity of 16 mm[48].

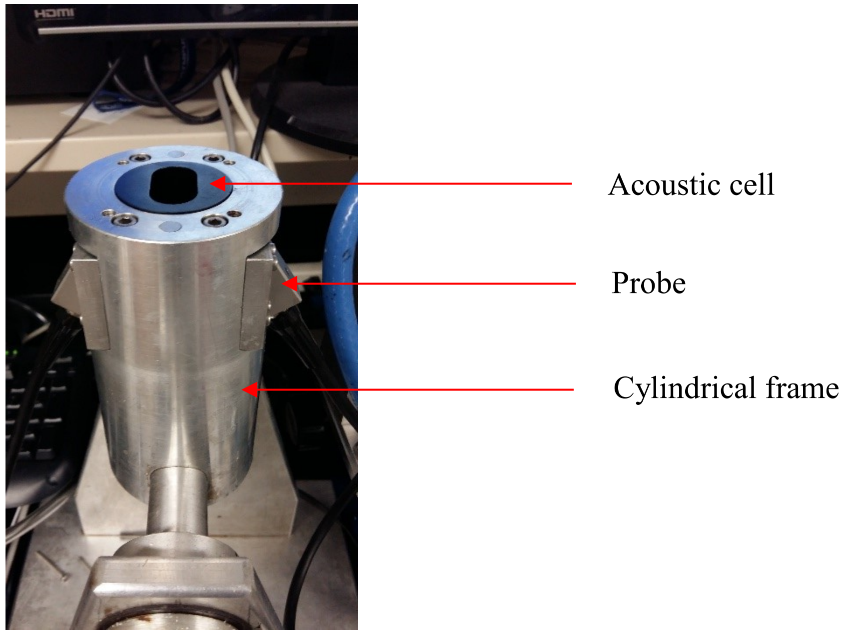


Figure 3.3 Picture of the acoustic cell used without porous medium

In order to track the components within a porous sample, the probes have to be positioned on both sides of the rock sample. To do so, shims were maintained on both sides of the rock sample and tied together by four bolts (Figure 3.4) so the system could remain completely still. The probes were then screwed on both sides of the shims and connected to the data acquisition hardware TomoScan FOCUS LT™ front panel. Thus, the distance travelled by the acoustic waves corresponded to the width of the rock, namely 30 mm.

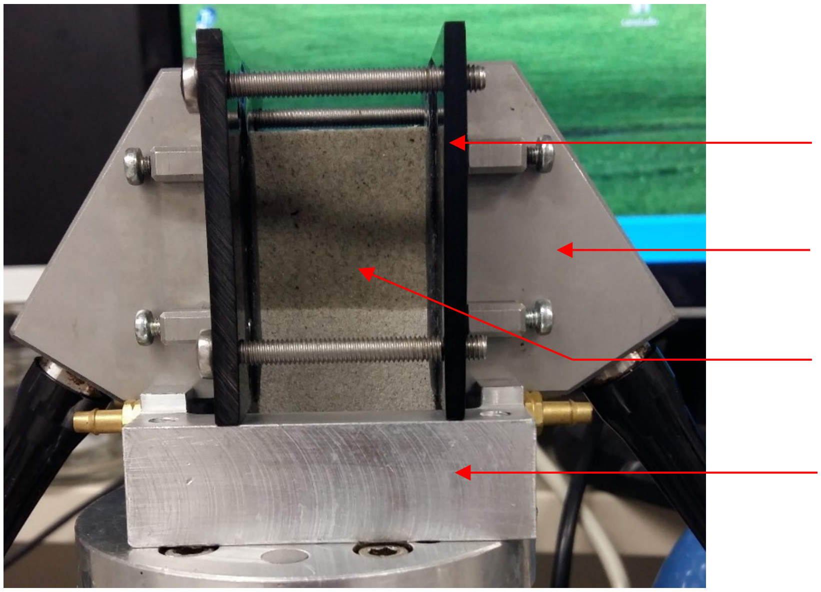


Figure 3.4 Set-up for an injection of solvent in a Berea rock from the bottom

It is to be noted that the sensors of the probes get damaged when exposed to extreme temperatures and a safe range would be from -40 to 40°C. A setting can be implemented to perform the experiments at controlled temperature. Nevertheless, this was not an issue since the experiments were conducted at atmospheric pressure and room temperature.

3.3 Measurement principle

Acoustic waves were used to observe accurately and in a non-destructive way the position of the interface between a liquid and a solid contained in an acoustic cell. It was also used to determine the concentration of the solvent and wax imbibed in rocks to eventually characterize the diffusion of the former in the latter. For each acquisition, 113 beams were sent via 64 sensor elements from one probe to another. Elements had a width of 7 mm and a height of 0.6 mm. This resulted in the measurement of 112 values for time of flight, the time spent by the waves within the samples, each of them corresponding to a different elevation, from 2.1 to 35.4 mm. Elevations were accurate to within 0.5 mm. Time of flight values were characteristic of what had been crossed by the waves and give an indication of the nature of the components within the pores of the rock or in the acoustic cell. This method has been developed in other publications before[48,49]. However, in this work the exact values of time of flight or speed of sound were not as important as for the previous works since relative time of flight gaps were enough to identify the phases and locate the interface.

Multiple regular measurements were performed during an experiment. Each measurement thus provided a profile of time of flight versus elevation at one given time. Time zero was set to be right before the first injection.

3.4 Acoustic measurement without porous medium

3.4.1 Sample treatment procedure

The wax was first placed in a beaker and melted in an oven at 80°C, alongside a glass funnel. Once melted, the liquid wax was poured in the acoustic cell which had been cleaned with acetone, dried and left at room temperature beforehand. The warm funnel was used to pour the wax without dropping any on the sides of the cell. The cell was then immediately put in a vacuum oven (no heat required) for the wax to solidify without trapping any air.
Once at room temperature, a roughly flat surface was obtained, see Figure 3.5.

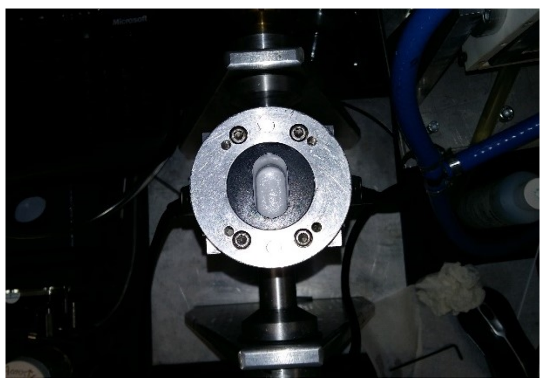


Figure 3.5 Acoustic cell containing solidified wax in the lower part – top view

The cell containing solid wax was then prepared for acoustic measurements, with acoustic gel and probes on the outer sides.
Measurements consisted on pouring heptane over the wax and then obtaining a signal over time. Once the solvent was added, the upper part of the cell was covered with a lid to prevent solvent evaporation. The duration of an experiment was a few days.

3.4.2 Signal treatment and measurements

The TomoView^{TM} software enables to observe the signal in real time of the content of the cell as shown in Figures 3.6 and 3.7. On the right part of the screen an elevation is selected while on the left screen corresponding peaks are displayed. The peaks allowed to obtain time of flight values. Figure 3.7 shows how the peak changed between the two measurements. A choice of threshold was made to differentiate noise from actual signal, and after using Matlab, time of flight versus elevation profiles were derived. The influence of the threshold is discussed in Appendix B.

No signal was obtained for the part containing wax. Only heptane was observable. Regarding the absence of signal, one explanation is that while solidified, the wax does not bond perfectly with the material of the cell and a gap is created between them. Hence, during the measurements the signal is lost at this interface. Attenuation of the signal is another possibility.

The signal corresponding to the solvent was used to determine the position of the interface. The elevation at which the signal faded indicated where the wax part began, and the progression of heptane in the system was observable with time. Thus, the evolution of the interface could be tracked.

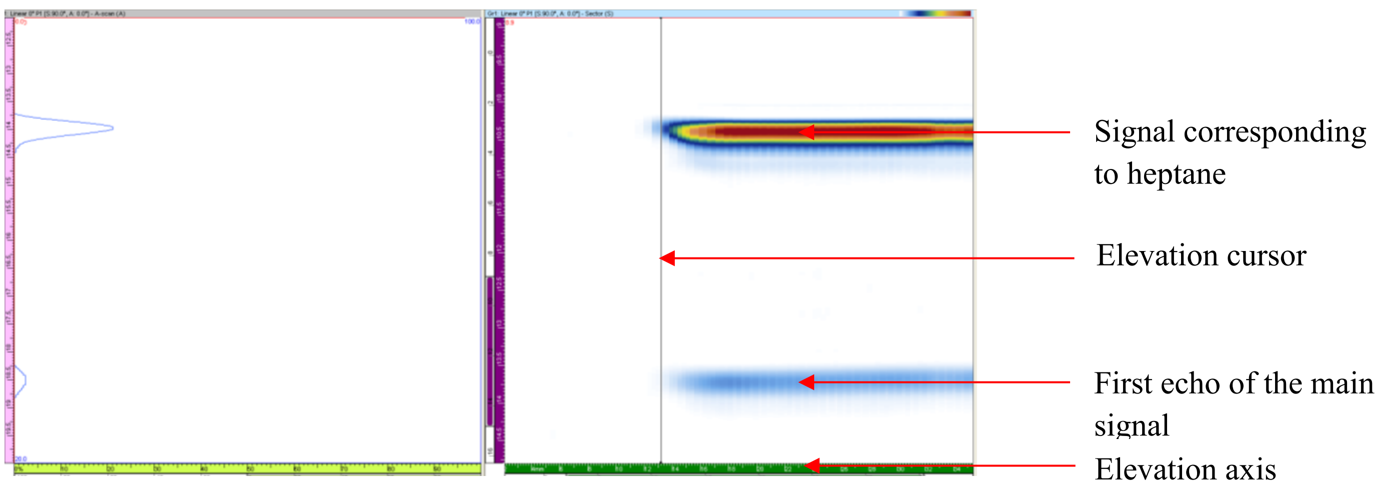


Figure 3.6 Screenshot of TomoView™ software from Olympus NDT™ – example of signal during the observation of the interface solid wax – liquid heptane at t = 124 min

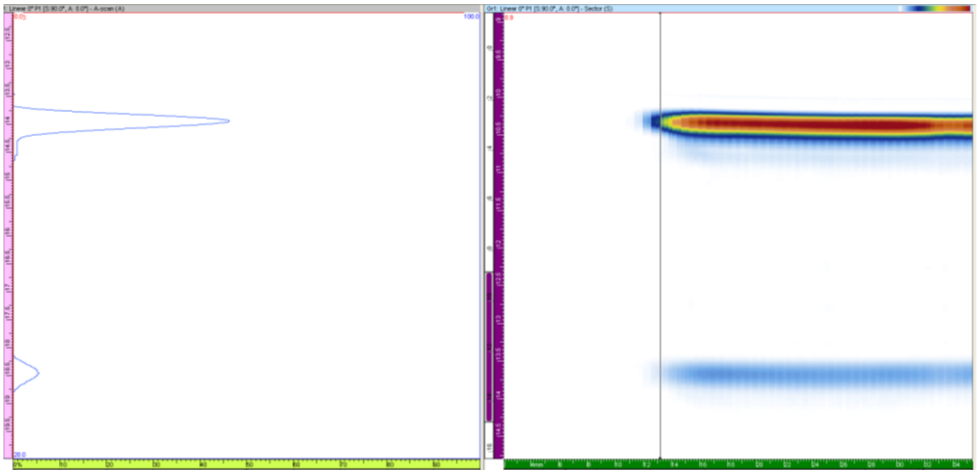


Figure 3.7 Screenshot of TomoView™ software from Olympus NDT™ – example of signal during the observation of the interface solid wax – liquid heptane at t = 1402 min

3.5 Acoustic measurement in solids

3.5.1 Sample treatment procedure

A piece of rock was only ever used once to avoid any properties and behavior modification that could be potentially involved after cleaning.

3.5.1.1 Preparation

At first, a clean rock was partially imbibed with a long *n*-alkane while the other part was soaked with an *n*-alkane solvent. The idea was to create a clear interface between wax-imbibed and solvent-soaked pores to start with. To imbibe the lower part, the rock was dipped in a small layer of liquid wax (1 g of octacosane, n-$C_{28}H_{58}$) in a 100 mL beaker and stored in an oven at 80°C. Both wax and rock were stored a few minutes in the oven beforehand, for the wax to be melted and the rock to be at the oven temperature. The required time for imbibition was estimated through a calibration curve which, depending on the amount of wax in the beaker enabled to get the desired elevation of wax in the rock (example of calibration curve Figure 3.8 below). The data for calibration curves for the three types of rocks are attached in Appendix C1.

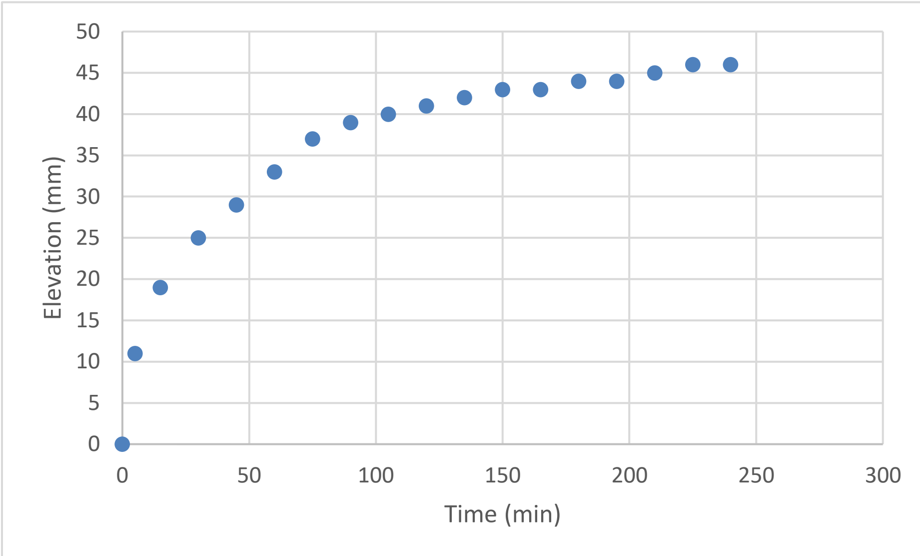


Figure 3.8 Calibration curve for Berea rock in 1g of octacosane

Elevation was aimed for the wax to imbibe around half of the rock. Once the general elevation was reached, the rock was taken out of the remaining wax and cooled at room temperature.

It was then put upside down and the part without wax was immersed in a small quantity of heptane (liquid, still at room temperature) in a beaker while the acoustic equipment was prepared.

Acoustic gel was applied on both sides of the shims where the rock and the acoustic probes were to be situated. The rock was taken out of the beaker containing heptane and placed between the shims, the wax part oriented in accordance with the case investigated. Tightening of the bolts was essential and was a critical stage of the setting in order to get a clear signal.

3.5.2 Experimental protocol

One experiment lasted in general around 200 minutes during which regular solvent injections were done.

3.5.2.1 Injection at the top and from the side of a rock

Heptane was slowly and manually dripped with a pipet on the upper part or from the side of the rock during all the data acquisition. Complete saturation of the rock with heptane had to be avoided to prevent the solvent from flowing on the edges of the rock and affecting the measurements. On the other hand, the complete evaporation of the solvent was also counterproductive.

3.5.2.2 Injection from the bottom of a rock

The rock was directly dipped in a reservoir full of solvent, which was regularly refilled, making the injection at the bottom a steadier process than the other cases.

3.5.3 Acoustic measurement in rocks

As well as for the case with the acoustic cell, the TomoView™ software enables to see the signal corresponding to what was contained in the rock (Figure 3.9). At time zero, two distinct parts were expected and observed: one for the rock filled with air, and another for the rock imbibed with wax. Once the experiment began, the section filled with air would become imbibed by heptane, and a transition zone would appear, in which the signal would gradually evolve and display intermediary time of flights values, neither characteristic of the wax part nor of the solvent part alone.

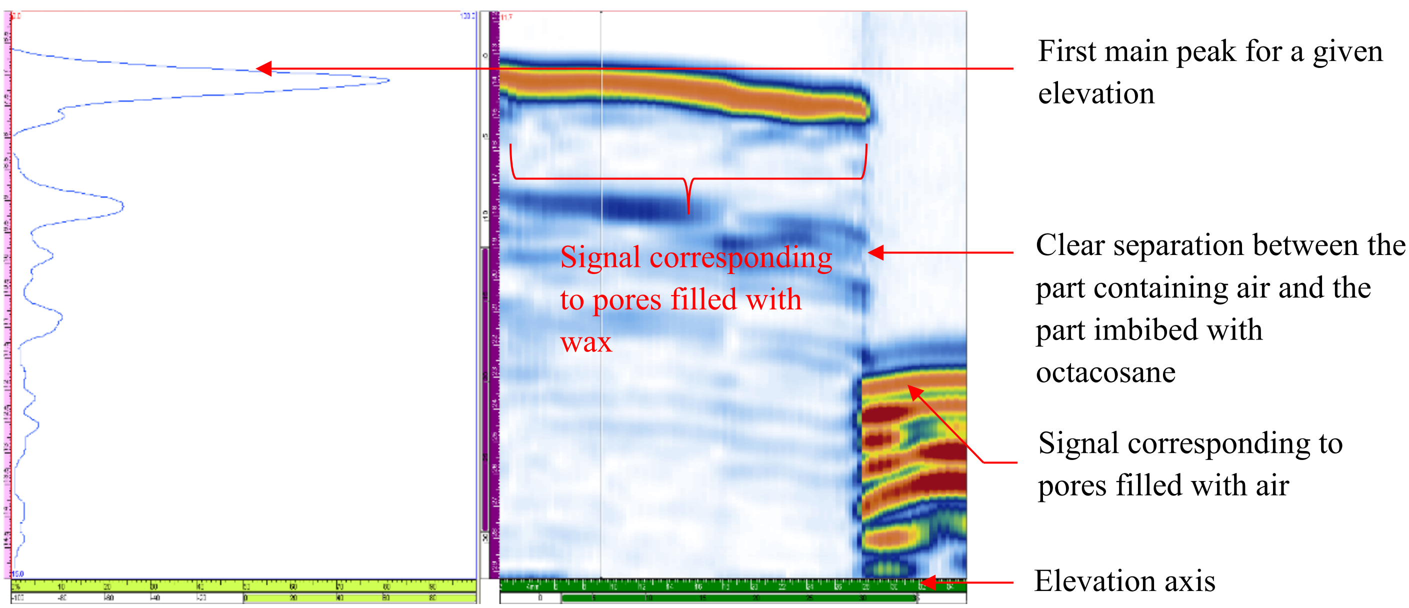


Figure 3.9 Screenshot of TomoView™ software from Olympus NDT™ - Acoustic measurements from Berea rock filled with wax and air

3.5.4 Normalization

Sound is often faster when going through denser or more viscous materials[50] as it propagates more easily. In accordance with this, the acoustic waves were spending a shorter time through the rock when it was imbibed with wax compared to when it was filled with air or imbibed with solvent. Nevertheless, the qualitative values depend mainly on the type of rock and the tightening of the set-up.

To make possible comparisons between measurements from different sets of experiments the values were normalized. To do so, the trends of the data at low and high elevation (data were collected where the signal was supposedly unaffected by the experiment, or before injecting any solvent) were first extended to obtain a lower baseline (LB) and an upper baseline (UB) at all elevation. To extend these, a corrective factor (offset) was directly applied to the data to keep the shape of the trend.

Values of the different corrective factors used for each case along with the table of data for the baselines of the first experiment can be found in Appendix C3, as well as an example in Figure 3.10.

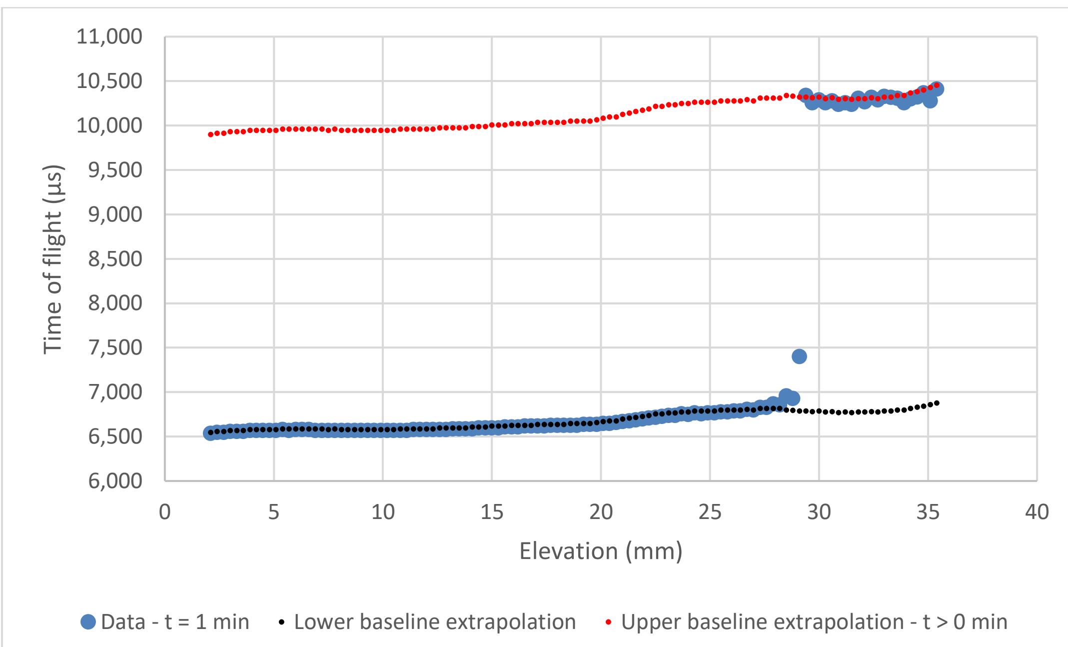


Figure 3.10 Example of extrapolation of the baselines derived from data of the 'Injection at the top - Without coating' - Experiment #3

Once the baselines were determined, the normalization was applied at each elevation using the formula:

$$\frac{data(elevation) - LB(elevation)}{UB(elevation) - LB(elevation)}$$

The normalized values ranged from 0 to 1. A value close to 0 indicated that at that elevation, the rock was only filled with wax, while the value 1 showed a prevalence of solvent within the pores.
A change in the initial trend thus testified of a displacement of the wax/solvent within the pores and of the organic solid – organic liquid interface.

Due to uncertainty of measurements, some data points can sometimes slightly go below 0 or instead exceed 1 after normalization.

3.6 Identification of the mechanism of diffusion

For each set of experiment and for each time data were produced, the displacement of the interface x_i was tracked and collected. It was then multiplied by t_i^n, where t_i was the time of the measurement in minutes and n was at first equal to 0.25 according to the Single-File diffusion model presented in section 2.2.2 of the literature review page 5. Since x and t are joint variables, the average $x/t^n{}_{moy}$ was taken. Finally, to model the displacement of the interface with time and compare the model to the data, $x_{i,model}$ was determined by $x_{i,model} = x/t^n{}_{moy} * t_i^n$. In the end, x_i and $x_{i,model}$ were compared, and the value of n was fitted for the interface displacement values derived from both data and model to coincide at best. The nature of the mechanism of diffusion was then inferred accordingly with the value of n.

3.7 Validation of the method

To be certain to be able to track solvent and wax accurately and not, for example a mixture of both, the possibility of the occurrence of a eutectic system between octacosane and heptane was considered. The solubility of octacosane in heptane was estimated to be 0.038 (molar fraction) at 293.15 K using the ideal solution approximation:

$$\ln x_w = \frac{-\Delta H_f}{R}\left(\frac{1}{T_f} - \frac{1}{T_1}\right)$$

Where x_w = solubility of the wax (molar fraction),

ΔH_f = latent heat of fusion,

R = 8.314 $J.mol^{-1}.K^{-1}$ (ideal gas constant),

T_f = melting point, and

T_1 = room temperature.

Property data are given in Table 3.2.

Table 3.2 Miscellaneous properties of Octacosane and Heptane from the NIST database

Component	Melting point (K)	Latent heat of fusion ($kJ.mol^{-1}$)	Liquid density ($g.cm^{-3}$)
Octacosane	334 ± 1	~ 65	0.78 at 334 K
Heptane	182.6 ± 0.4	~ 14	0.68 at 293 K

Solubility was tested by carefully pouring solid octacosane in heptane until solid crystals became visible. Carried out three times, the results gave successively a solubility (molar fraction) around $8.07.10^{-3}$, $6.82.10^{-3}$ and $8,73.10^{-3}$ which were even lower than the value previously calculated. This can be explained by the fact that the ideal solution model ignores molecular interactions that can hamper the dissolution process.

Besides, the solubility of *n*-octacosane in heptane was also investigated by gas chromatography by Provost et al.[51]. Their work has shown that no eutectic was observable for the binary heptane – *n*-octacosane.

Solubility of octacosane in heptane seems therefore to be marginal at best.

Moreover, within porous Berea the differences in value of time of flight for the wax-imbibed, air-filled and solvent-imbibed parts were wide enough to enable proper identification via acoustic measurements. The order of magnitude of the values of times of flight for the different kinds of signal encountered with Berea rocks are presented in Table 3.3.

Table 3.3 Order of magnitude of the times of flight of the acoustic waves when sent through Berea rocks

Signal type	Berea filled with air	Berea imbibed with wax	Berea filled with solvent
Corresponding time of flight (µs)	10-11	6-7	9-10

3.8 Overview of the experiments

In total, three different types of experiments were conducted in this work. The first one served as mechanistic baseline for the following experiments and consisted of studying the displacement of wax by solvent without any (porous) medium. These experiments were conducted with the acoustic cell. Two similar sets of experiments were carried to mimic two natural situations as presented in Figure 3.11. In both cases, solvent was injected into a porous piece of natural rock that has previously been imbibed with hydrocarbons. In the first case, the displacement of hydrocarbons caused by the injection has been observed to be primarily sideways, even leading to deposits of hydrocarbons on the edges of the rock. To prevent the deposits and favor a displacement in a horizontal direction an impermeable coating has been applied on the rock. The first case corresponds to bitumen within reservoir rock with cracks in it while the second one would match a rock without cracks.

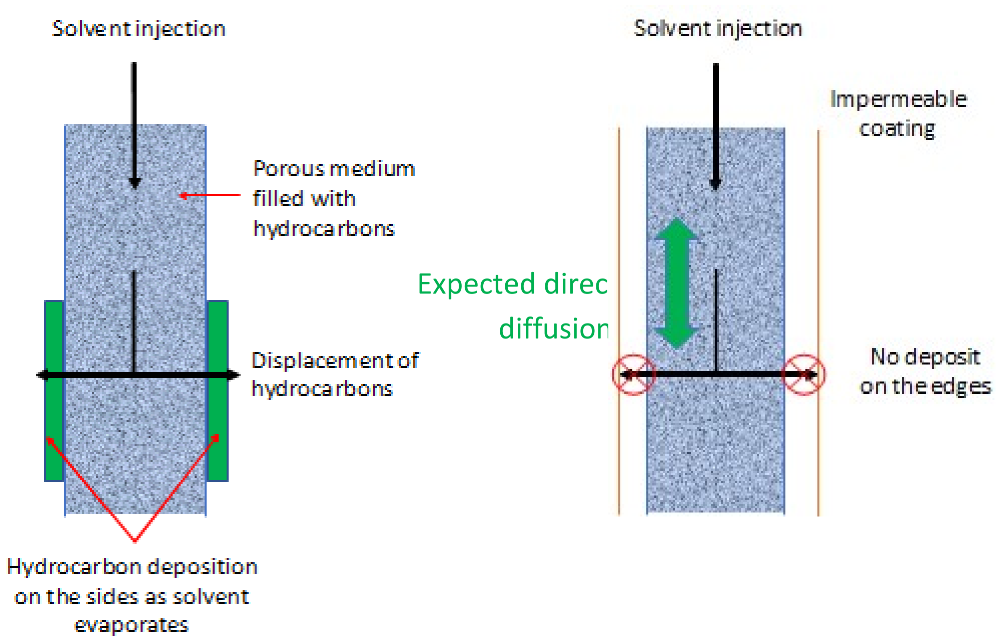


Figure 3.11 Presentation of the desired effects of solvent injection on a porous rock filled with hydrocarbons
On the left: Recovery of the hydrocarbons by displacement to the sides of the reservoir
On the right: Recovery of the hydrocarbons by vertical diffusion after application of a coating on the sides

To reach the objectives, the displacement of an organic wax phase (*n*-octacosane, $C_{28}H_{58}$) by imbibed heptane through porous silica reservoir rocks (Berea sandstone) and carbonates reservoir rocks (Indiana limestone and Desert pink) was explored. Measurements were done via acoustic waves to observe the displacement of the organic solid/organic liquid interface and characterize speed and model of diffusion. Three orientations for solvent injection were tested as shown in Figure 3.12, while the rock was coated or not with acoustic gel.

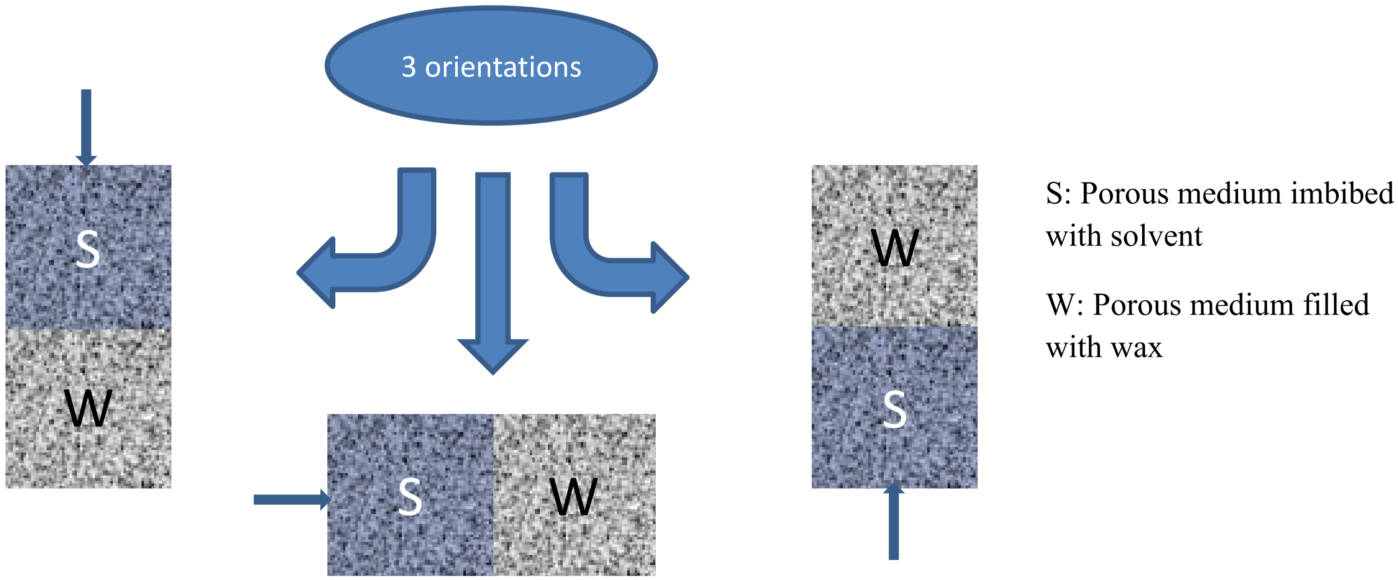


Figure 3.12 Overview of the three orientations investigated during the experiments:
On the left: injection of solvent et the top
In the middle: injection of solvent from the side
On the right: injection of solvent at the bottom

4 Chapter 4: Results and Discussion

4.1 Displacement of a wax/solvent interface without any medium

4.1.1 Time of flight profiles: determination of the interface

For purposes of testing repeatability, this experiment has been conducted twice, with concordant results. The tables of data for both experiments are respectively available in Table 4.1 and Appendix B2, and the data of the first experiment are presented in Figure 4.1.

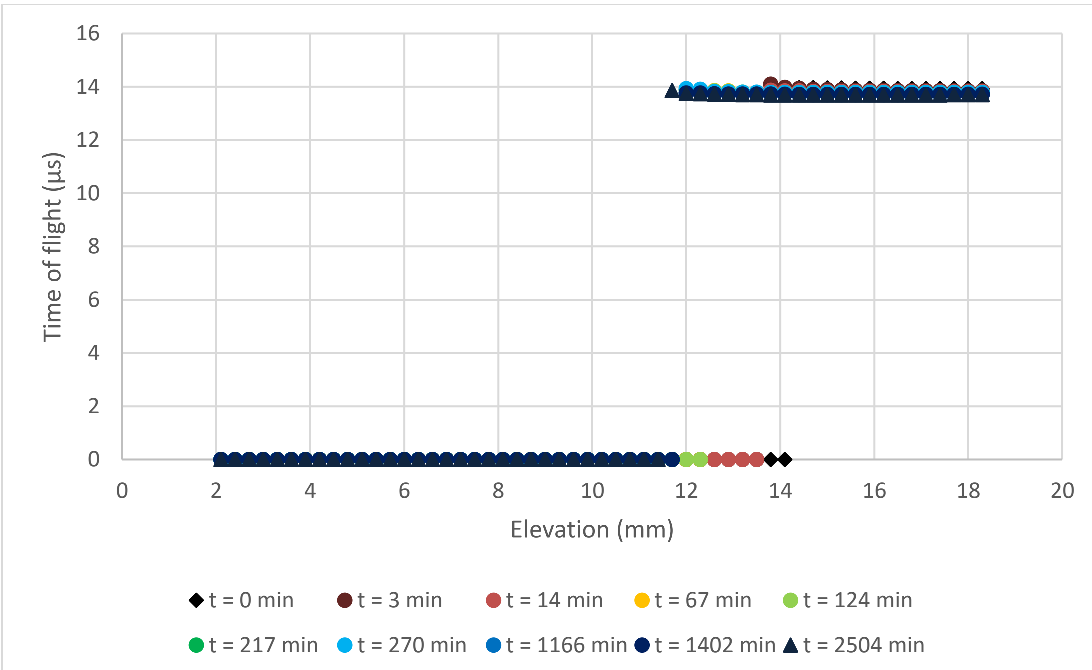


Figure 4.1 Profile of time of flight versus elevation obtained with the acoustic cell containing solid octacosane and liquid heptane – Experiment #1

Due to the absence of signal for the wax part, the value zero for the times of flight has been manually assigned at the corresponding elevations. As for the heptane part, a decrease of the values over time can be observed. It is a clue that the solvent has been progressively diluted by the wax during the experiment.

4.1.2 Interface displacement

Table 4.1 Evolution of the values of time of flight (µs) with time (min) for elevations between 10.5 and 18.3 mm – Experiment #1

Elevation (mm)	t = 0	t = 3	t = 14	t = 67	t = 124	t = 217	t = 270	t = 1166	t = 1402	t = 2504
10,5	0	0	0	0	0	0	0	0	0	0

10,8	0	0	0	0	0	0	0	0	0	0
11,1	0	0	0	0	0	0	0	0	0	0
11,4	0	0	0	0	0	0	0	0	0	0
11,7	0	0	0	0	0	0	0	0	0	13,86
12	0	0	0	0	0	13,88	13,93	13,77	13,76	13,75
12,3	0	0	0	0	0	13,85	13,9	13,77	13,76	13,74
12,6	0	0	0	13,86	13,85	13,79	13,82	13,73	13,74	13,72
12,9	0	0	0	13,85	13,83	13,76	13,81	13,73	13,72	13,71
13,2	0	0	0	13,79	13,8	13,75	13,8	13,72	13,72	13,7
13,5	0	0	0	13,78	13,79	13,75	13,8	13,73	13,72	13,7
13,8	0	14,1	13,87	13,76	13,79	13,75	13,79	13,72	13,72	13,69
14,1	0	13,98	13,85	13,76	13,78	13,75	13,79	13,72	13,71	13,69
14,4	13,97	13,94	13,84	13,75	13,78	13,75	13,78	13,7	13,71	13,69
14,7	13,97	13,91	13,82	13,75	13,78	13,74	13,78	13,7	13,71	13,69
15	13,95	13,89	13,82	13,75	13,78	13,74	13,78	13,7	13,71	13,69
15,3	13,95	13,88	13,82	13,74	13,78	13,74	13,78	13,7	13,71	13,69
15,6	13,94	13,87	13,82	13,74	13,78	13,74	13,78	13,7	13,71	13,69
15,9	13,94	13,87	13,82	13,74	13,78	13,74	13,78	13,7	13,71	13,69
16,2	13,94	13,87	13,82	13,74	13,78	13,75	13,78	13,7	13,71	13,69
16,5	13,93	13,86	13,81	13,74	13,78	13,75	13,78	13,7	13,71	13,69
16,8	13,93	13,86	13,81	13,74	13,78	13,75	13,78	13,71	13,71	13,69
17,1	13,93	13,86	13,81	13,74	13,78	13,75	13,78	13,71	13,71	13,69
17,4	13,93	13,86	13,81	13,74	13,78	13,75	13,78	13,71	13,71	13,69
17,7	13,93	13,85	13,81	13,74	13,79	13,76	13,78	13,71	13,71	13,7
18	13,93	13,85	13,81	13,74	13,79	13,76	13,78	13,72	13,71	13,7
18,3	13,93	13,85	13,82	13,74	13,79	13,76	13,78	13,72	13,71	13,7

For each time the interface was determined to be between the last elevation featuring a zero value and the first elevation comprising a non-zero one, due to the discrete nature of the measurements. Thus, according to the Table 4.1 the interface has clearly been displaced from 14.25 ± 0.5 mm at time zero to 11.55 ± 0.5 mm for the last measurement at 2504 minutes.

4.1.3 Mechanistic discussion

The displacement of the interface (Table 4.2 and Appendix B6.1) was modelled with equation using the diffusion model x/t^n described in Chapter 3 section 3.6 page 18.

The range of n values that fall within the elevation measurement uncertainty is illustrated in Figure 4.2 for Experiment #1 and the ranges for the n values for Experiments #1 and #2 are presented in Table 4.3. They overlap for the interval n = 0.15 ± 0.08. While this range is valid for the data set as a whole, initially and for times inferior to 270 minutes the values and corresponding ranges are higher, as presented in Figure 4.3 for Experiment #1, where n = 0.32 ± 0.12. And the values and the range decline and narrow over time.

Table 4.2 Evolution with time of the displacement of the interface derived from the data for the case 'Liquid heptane over solid octatosane without medium' - Experiment #1

Time (min)	Lower interface elevation (mm)	Interface displacement within an uncertainty of ± 0.5 (mm)
0	14,25	0
3	13,65	0,6
14	13,65	0,6
67	12,45	1,8
124	12,45	1,8
217	11,85	2,4
270	11,85	2,4
1166	11,85	2,4
1402	11,85	2,4
2504	11,55	2,7

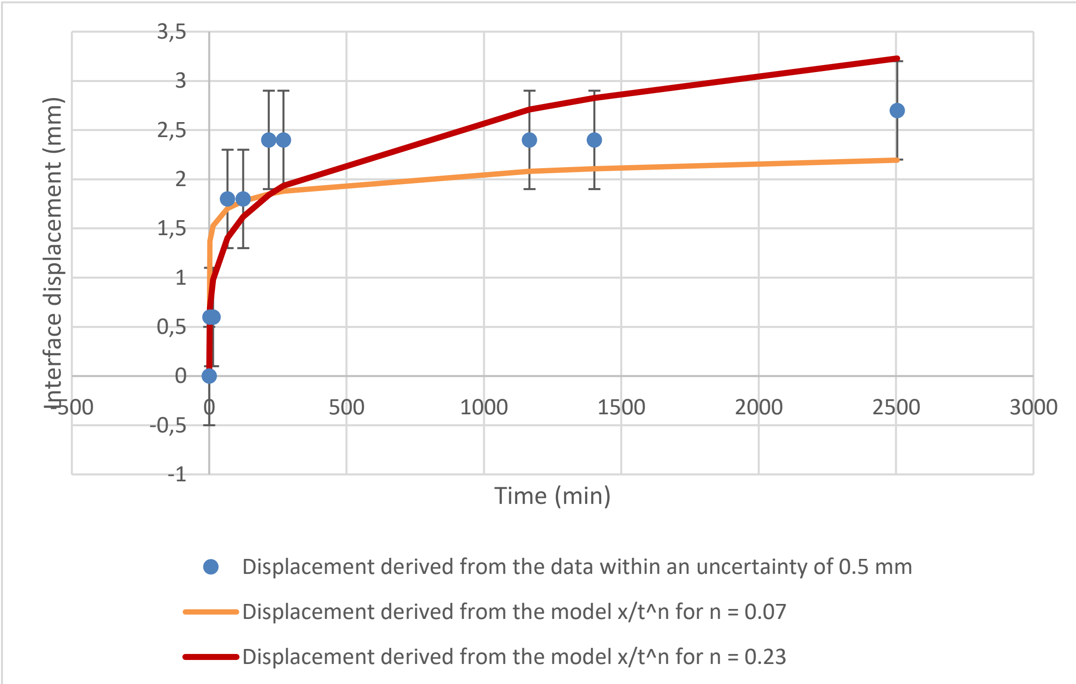


Figure 4.2 Comparison between the displacement of the interface with time in the experiment 'Liquid heptane over solid octatosane without medium' derived from the data within an uncertainty of ± 0.5 mm and from the model x/t^n, with the two extreme suitable values for the coefficient n – Experiment #1

Table 4.3 Values of the exponent n within their uncertainty for the two experiments conducted with wax and solvent without any medium

# Experiment	Range of the coefficient n
1	0.07-0.23
2	0.07-0.28

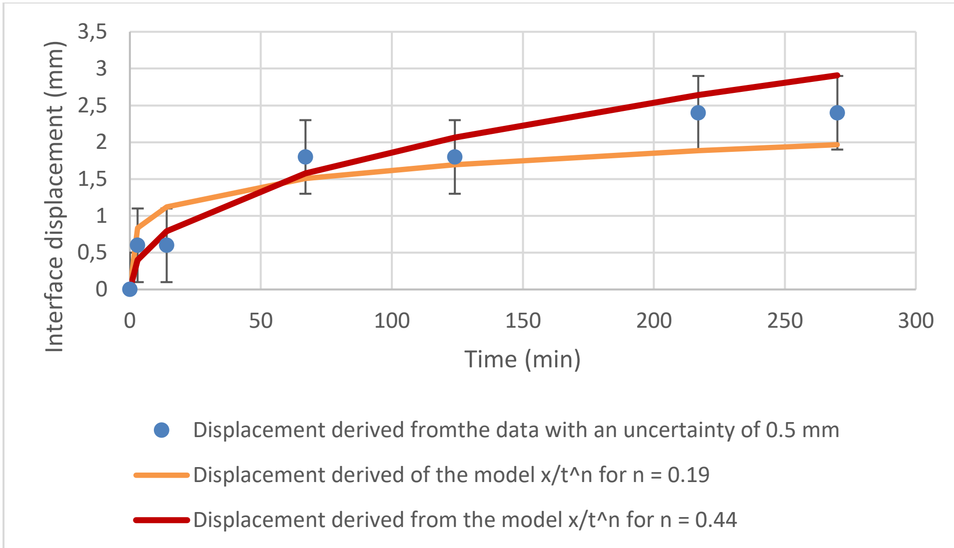


Figure 4.3 Comparison between the displacement of the interface with time between 0 and 270 min in the experiment 'Liquid heptane over solid octatosane without medium' derived from the data within an uncertainty of ± 0.5 mm and from the model x/t^n, with the two extreme suitable values for the coefficient n – Experiment #1

4.2 Displacement of a hydrocarbon phase within a porous medium – Experiments with Berea sandstone

4.2.1 Time of flight profiles and wax displacement after injection of solvent for 3 orientations without coating

These three types of experiment were performed several times each, namely three times for the injections at the top (Experiments #3 to 5), three times for the injections at the bottom (Experiments #6 to 8), and twice for the injections from the side (Experiments #9 and 10), with similar results.

Figures 4.4 to 4.6 present the profiles of normalized times of flight as a function of elevation in Berea rocks of the first experiment for each kind of orientations investigated. Corresponding tables of data are collected in Appendix C4 for all the experiments, including those not directly presented here.

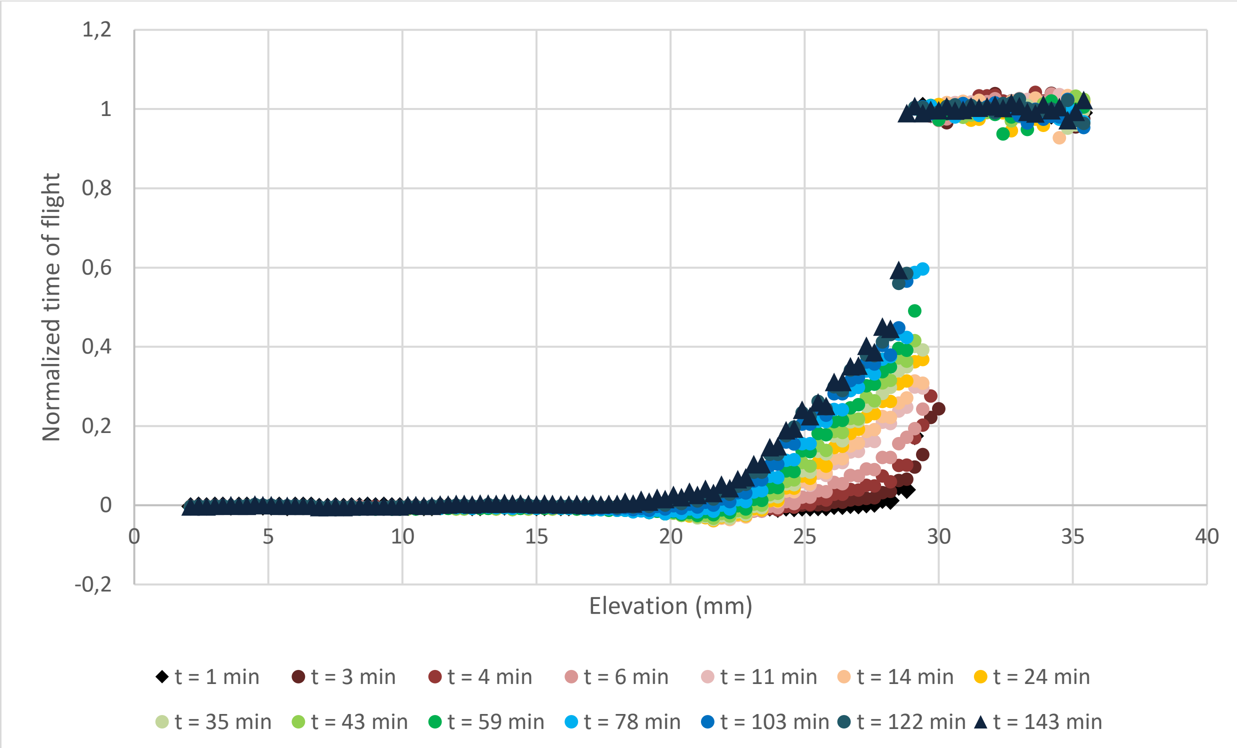


Figure 4.4 Overview of the normalized time of flight versus elevation in mm in the case 'Injection at the top – Without coating' for a Berea rock – Experiment #3

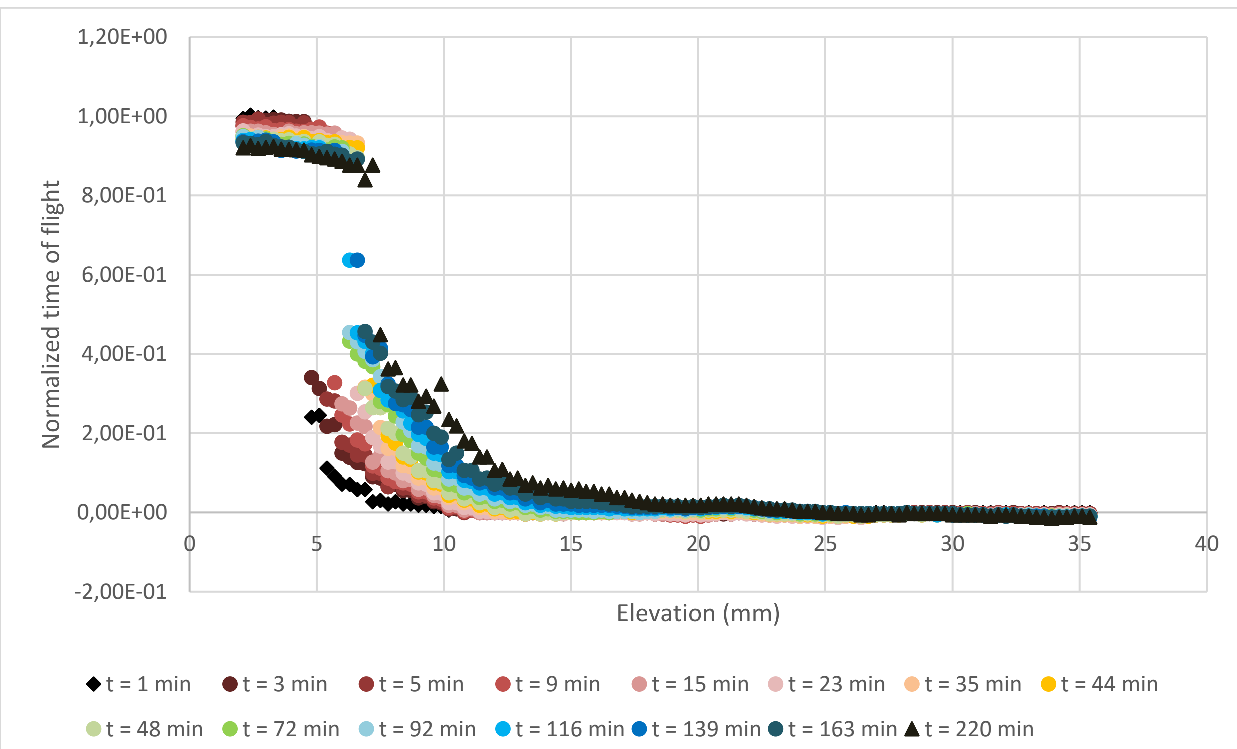


Figure 4.5 Overview of the normalized time of flight versus elevation in mm in the case 'Injection at the bottom – Without coating' for a Berea rock– Experiment #6

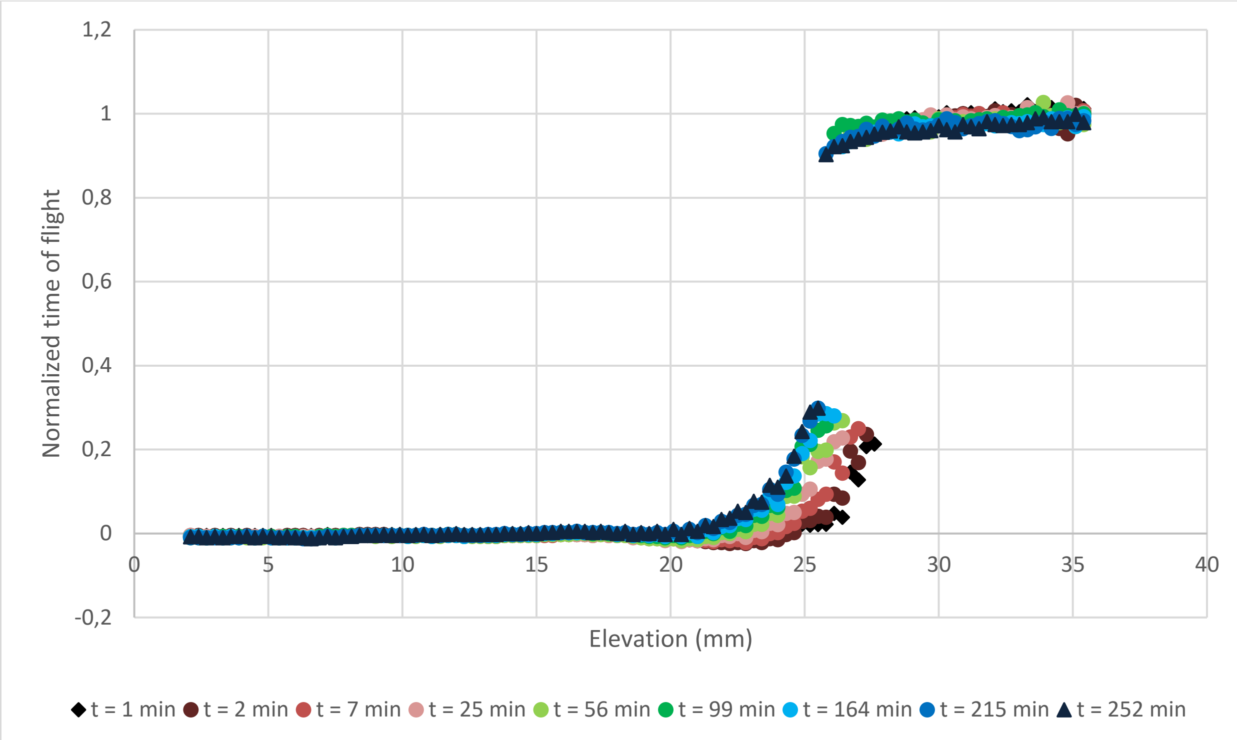


Figure 4.6 Overview of the normalized time of flight versus elevation in mm in the case 'Injection from the side – Without coating' for a Berea rock– Experiment #9

These graphs show similar results for the three cases. There is a part characterized by small times of flight for the wax, one with high values of times of flight for the solvent, and one with intermediary values, called transition zone. Although always similar throughout an experiment, profiles kept shifting with time. In the transition zone, values of time of flight tended to gradually increase, which indicates a change of composition from mostly wax concentrated to more solvent filled in the pores at these elevations. Trend-wise, it is not a purely diffusion profile as no point of invariant concentration with time in the transition zone can be identified.

Additionally, the more solvent was injected, the more wax was displaced. Until, over time, the wax started to deposit on the outer surface of the rock as the solvent evaporated (see Figure 4.7). The shifts on the time of flight versus elevation profiles therefore corroborated the displacement of wax.

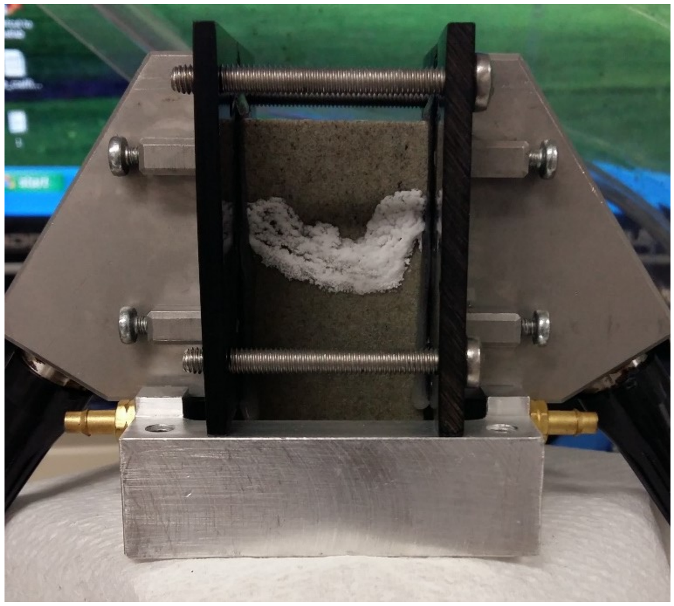


Figure 4.7 Wax deposit on the side of a berea rock after the end of an experiment 'injection at the bottom – no coating'

4.2.2 Mechanism identification

4.2.2.1 Single-File diffusion model

Normalized acoustic measurements give an idea of the normalized concentrations of wax and solvent in the rock.

To determine in what extent the data are in agreement with a Single-File model of diffusion, displacement of the interface between solvent and wax within the pores was investigated and compared to the model x/t^n.

Because of the presence of the transition zone in which both wax and solvent are supposed to be filling the pores, the position of the interface is not as clear as when the experiment is at time zero, or in the case of the experiment without medium. Therefore, the elevation at which wax ceased to be the only component in the pores (elevation of the 'lower interface') was considered to determine the interface elevation. For each experiment the elevation of the lower interface Li was tracked with time, and then subtracted from the initial position L_0 to obtain the interface displacement $xi = |L_0 - Li|$. The end of the method follows what is explained in the subsection 3.6.

4.2.2.2 Lower interface determination

The determination of the interface has been done with an uncertainty of ± 0.5 mm in terms of elevation. After normalization, the criterion 'value of the normalized data < $1.2\ 10^{-2}$' has been applied to determine the elevation of the lower baseline. This criterion has been determined to be suitable to indicate the elevation at which the signal shows an actual shift to the transition zone based on the global observation of the data points tables.

Results for each case are compiled in Appendix B6.

4.2.2.3 Determination of the coefficient n from the model x/t^n

A range of value for n has been determined for each experiment and compiled in the Table 4.4 (presented in section 4.2.3).

In some cases the results show clearly a change of behavior between data at short and at longer times. An example is presented with the Figure 4.8. These cases are also indicated in the table. It is important to note that occasionally, some data points were considered outlier and were not taken into account when determining the ranges of value for n.

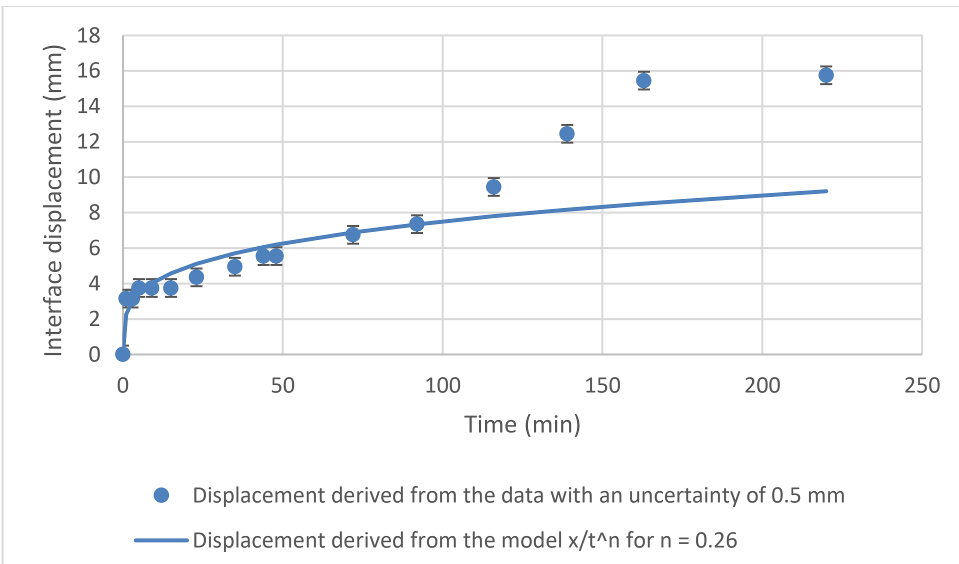


Figure 4.8 Comparison between the displacement of the interface with time in the experiment 'Injection at the bottom – Without coating' derived from the data and from the model x/t^n for n = 0.26 – Experiment #6

Even though each case has high uncertainty for n determination, the overlap ranges define the most probable values. Thus:

- Injections at the top are consistent with a value of n of 0.21 ± 0.04
- Injections at the bottom work with a value ~ 0.26
- Injections from the side indicate a value of 0.24 ± 0.05

According to these results, n ~ 0.25 suggests that Single-File diffusion dominates.

However, one experiment does not match these observations. Despite the fact nothing seemingly different appeared during the third experiment of 'Injection at the bottom', the range derived from it is smaller, pointing to irregularity in the rock itself such as in the pore fraction, the pore size distribution, or pore surface properties.

While the orientation did not have much influence on the mechanism of diffusion, cases marked with an asterisk may exhibit more than one mechanism. n appears to increase over time. This may arise because the heptane flows on the outer surface of the rock, although there might be other explanations.

4.2.2.4 Time of flight versus x/t_i^n profiles

As explained in the literature review section 2.1.1 page 5, a way to test the relevance of the model x/t^n for diffusion is to draw profiles of concentration versus x/t_i^n profiles and see if they capture the exponent n, namely if they superimpose for a given n. This is shown in Figure 4.9 in which data from the second experiment 'Injection at the bottom - Without coating' have been used with a value for n of 0.26, according to the observations on range made previously. See Appendix C5 for the corresponding table of data. x was obtained by subtracting the elevation of the initial interface 10.05 mm to each elevation from 2.1 to 35.4 mm. Profiles do overlap well after 19 minutes in the transition zone, supporting the suitability of the model of diffusion. In order for the profiles corresponding to times between 10 and 19 min to overlap better with the others, n can be increased around 0.3, but shorter time profiles do not overlap much more.

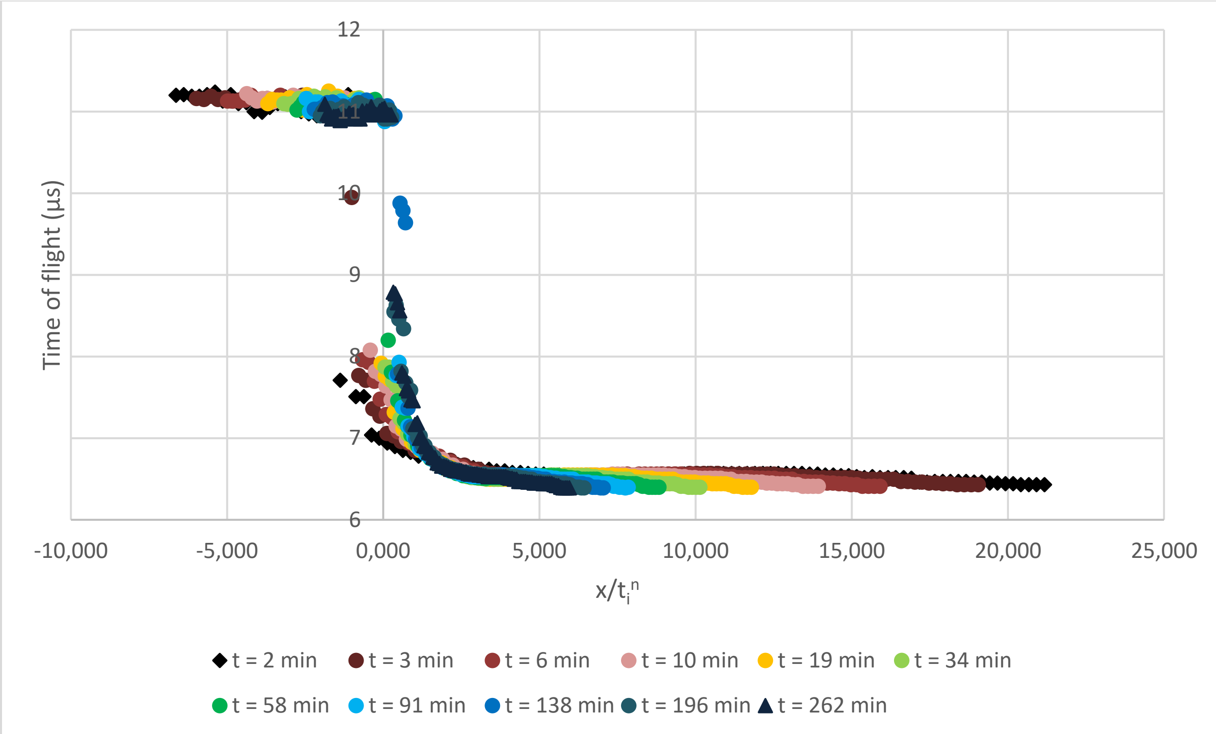


Figure 4.9 Profile of the time of flight versus the joint variable x/t^n in the case 'Injection at the bottom – Without coating' for a Berea rock with n = 0.26 – Experiment #7

4.2.3 Influence of the coating of the outer surface of the rock on the displacement of the wax/solvent interface

The same types of experiment were performed after having applied a coating made of acoustic gel to the rock sample beforehand (as shown in Figure 4.10) to prevent flow of heptane along the outer surface of the rock samples and try to minimize wax displacement in a direction perpendicular to the injection. The experiments were performed twice for the injections at the top (Experiment #11 and 12), twice for the injections at the bottom (Experiment #13 and 14), and once for the injection from the side (Experiment #15) with consistent results.

Figure 4.10 Berea rock partly imbibed with octacosane and coated with acoustic gel before an experiment

After the experiment, the first impact of the coating is visual as no deposit of wax was visible on the surface of the rock (see Figure 4.11). Besides, a shading was directly observable in the area of the initial interface.

Figure 4.11 Berea rock coated with acoustic gel after an experiment

Profiles of normalized time of flight as a function of elevation are presented in the Figures 4.12 to 4.14 and corresponding tables of data are gathered in Appendix C4. Despite the absence of deposit, similarly to the experiment without coating trend shift and non-purely diffusion profiles were still observable in all three cases. Wax did get displaced, but not necessarily as vertically as desired.

Ranges of value for n were estimated for each experiment following the method previously described and are compiled in the Table 4.5 along with the values from the previous experiments for comparison.

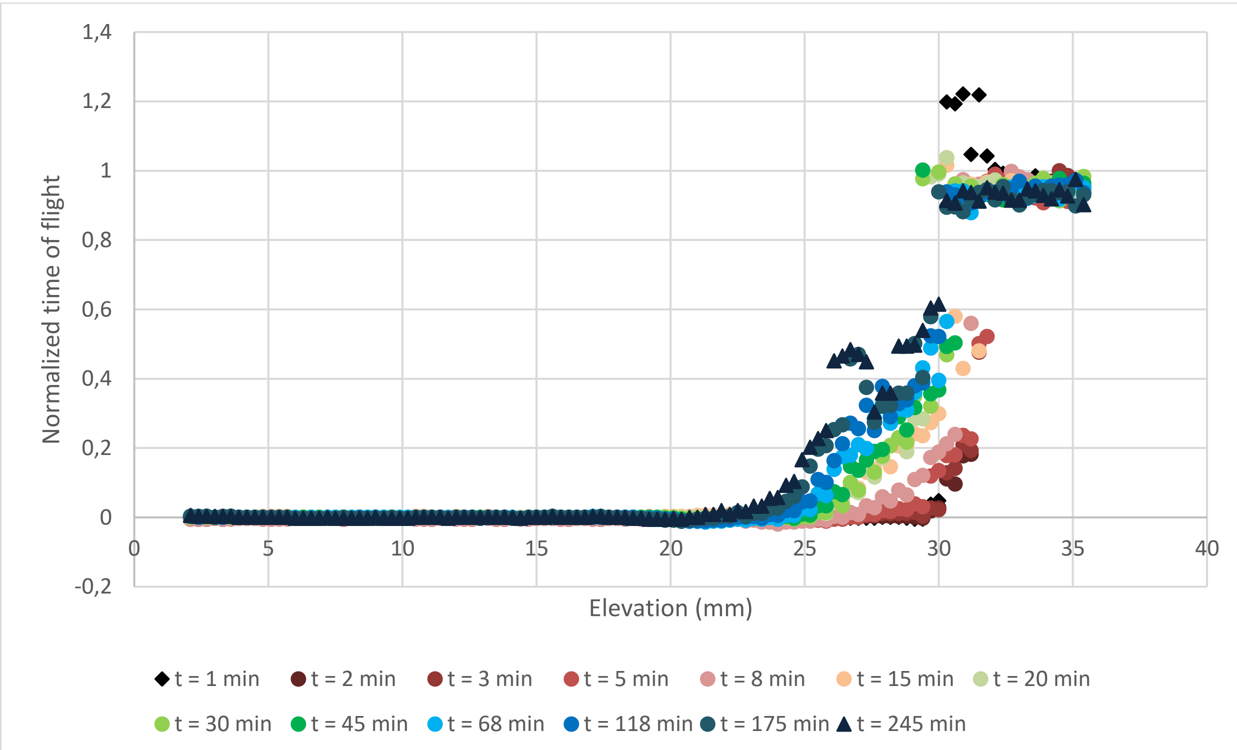


Figure 4.12 Overview of the normalized time of flight versus elevation in mm in the case 'Injection at the top – With coating' for a Berea rock - Experiment #11

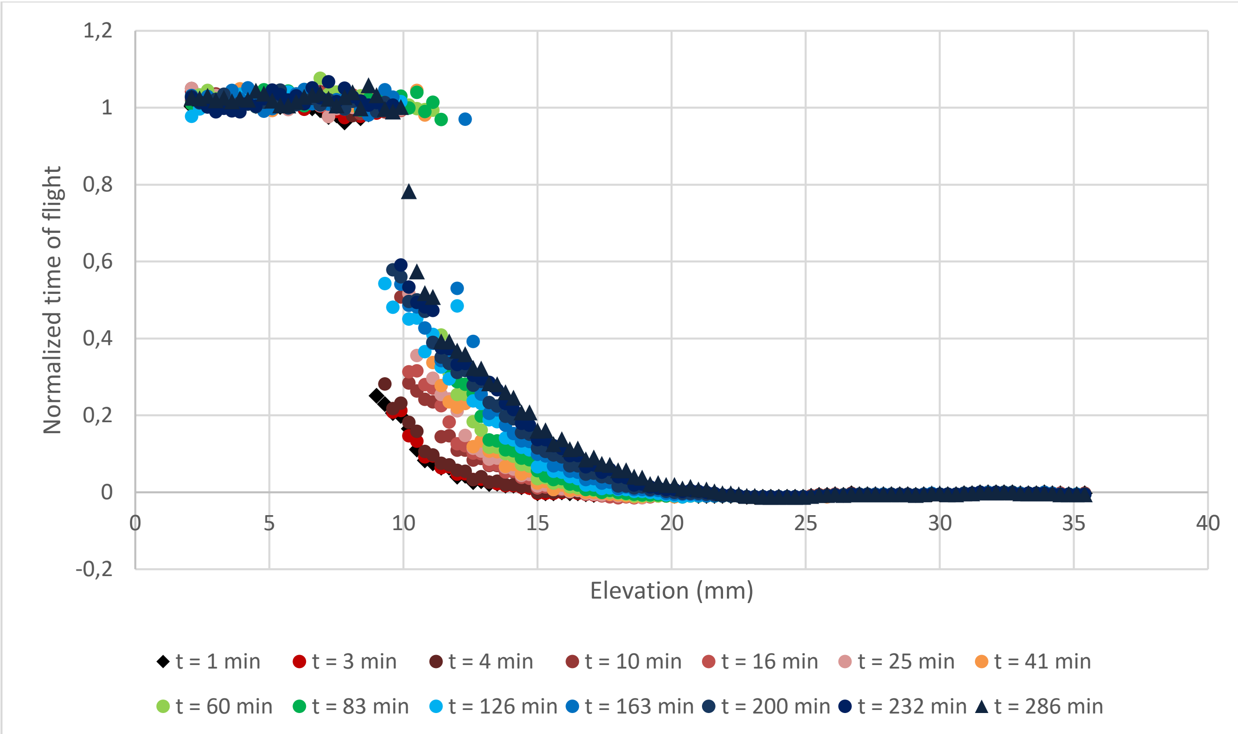


Figure 4.13 Overview of the normalized time of flight versus elevation in mm in the case 'Injection at the bottom – With coating' for a Berea rock - Experiment #13

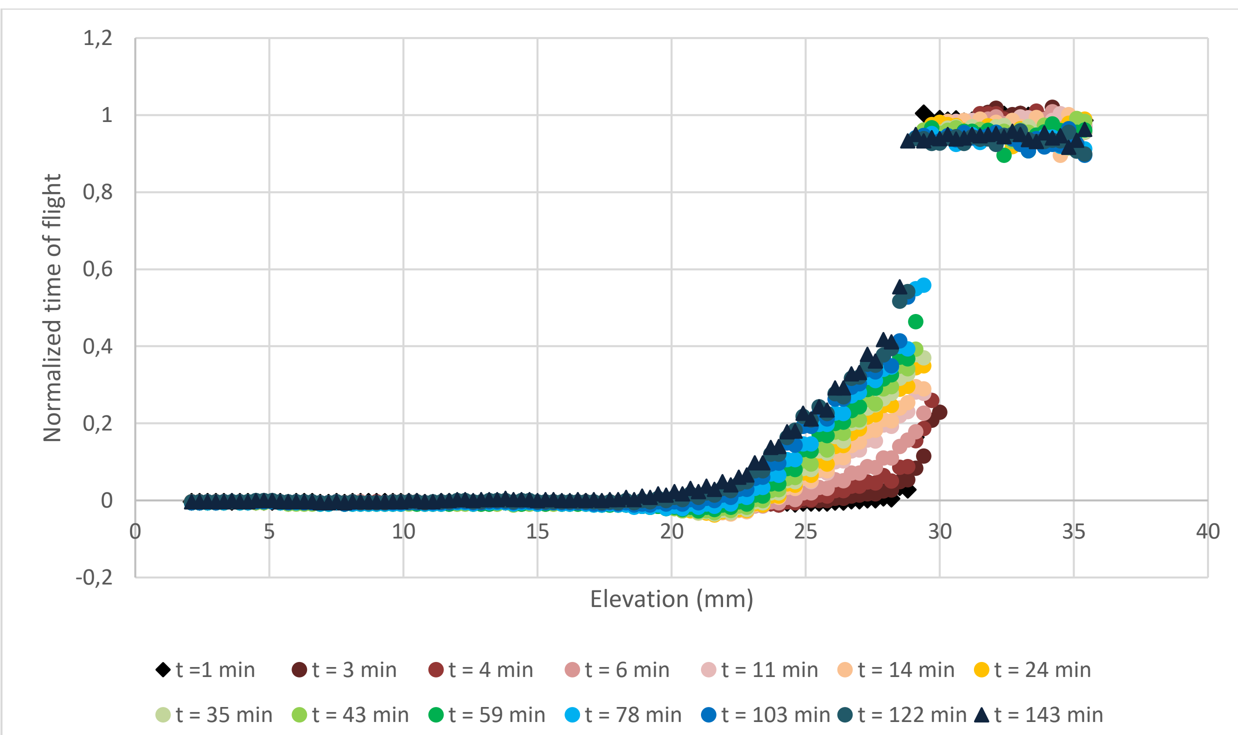


Figure 4.14 Overview of the normalized time of flight versus elevation in mm in the case 'Injection from the side – With coating' for a Berea rock - Experiment #15

Table 4.4 Compilation of the values of the exponent n within their uncertainty and corresponding range of time for each set of experiments

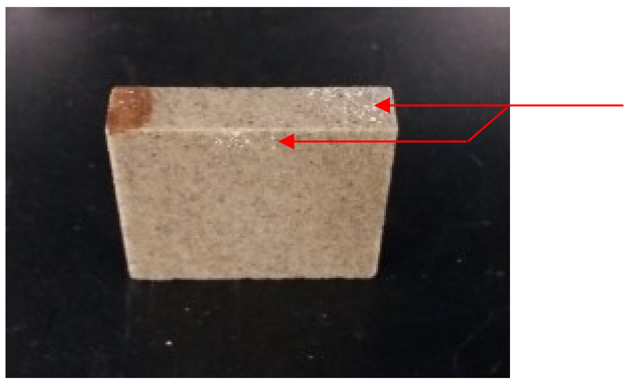
Injection type	Coating	# Experiment	Exponent n range	Time range (min)
At the top	No	3	0,17 - 0,28*	0 - 78
At the top	No	4	0,14 - 0,24	0 - 60
At the top	No	5	0,12 - 0,25	0 - 206
At the bottom	No	6	0,21 - 0,26*	0 - 92
At the bottom	No	7	0,26 - 0,31	0 - 262
At the bottom	No	8	0,12 - 0,16	0 - 264
From the side	No	9	0,15 - 0,29	0 - 252
From the side	No	10	0,19 - 0,27*	0 - 164
At the top	Yes	11	0,24 - 0,30	0 - 245
At the top	Yes	12	0,37 - 0,46	0 - 244
At the bottom	Yes	13	0,23 - 0,27	0 - 286
At the bottom	Yes	14	0,34 - 0,38	0 - 290
From the side	Yes	15	0,20 - 0,27	0 - 325

* the data for these experiments presented an obvious change of behavior from the end of the range of time indicated in the table

In general, range of value for n are very similar for experiment with or without coating, while sometimes a bit larger with coating. Nevertheless, from a mechanistic point of view coating appeared of limited impact on the penetration of heptane and interface displacement as the mass transfer can again be attributed to Single-File diffusion, whereas rate of penetration was expected to be more important when coating was involved. However, as it is discussed in the section 4.3.1 where limits of the experiments are addressed, rate of penetration was not comparable between the experiments and was not consistent between experiments of the same kind, hindering the estimation of the influence of coating on this aspect of the experiment.

Since the influence of coating on the wax displacement seemed to be limited, the assumption was made that the wax was still mostly displaced towards the edges of the pieces of rock during the experiments involving coating. In an attempt to verify this hypothesis, some of the rocks were cut in half at the elevation where the interface was believed to be situated after the experiment (an example of section axis is presented in Figure 4.15) and after the coating ran off the piece of rock by gravity. As shown in Figure 4.16, some of the rocks indeed displayed some wax deposit, mostly located towards the edges of the piece of rock.

Figure 4.15 Section axis along which some of the rock samples were cut after an experiment with coating



Wax deposit in the middle and on the edges of the area where the interface was located after the experiment with coating was over and the coating removed

Figure 4.16 Half section of a Berea rock cut after the experiment 'Injection at the bottom - With coating' - Experiment #14

4.2.4 Investigation of the mutual diffusion coefficient D

The model used to predict the diffusion assumes that the mutual diffusion coefficient D is constant during an experiment. In order to get an idea of a fitting value of mutual coefficient in Berea if the diffusion was Fickian, a Matlab code Mohammad Pourmohammadbagher wrote for his thesis[35] has been used and applied with the concentration profile data. Based on the resolution of partial differential equations and the finite difference for parabolic equations[36], the code enables to extrapolate profiles of concentration of solvent versus elevation over time, given initial conditions and assuming the two following boundary conditions:

- Concentration of solvent is maximal at the maximum elevation
- Concentration of solvent is equal to 0 at the minimum elevation

With this code, profiles of concentration of solvent were generated and compared to the data in order to adjust the mutual coefficient of diffusion so that model and data fit and provide a suitable order of magnitude for D. Example of fitted profiles are presented in Figure 4.17 and 4.18.

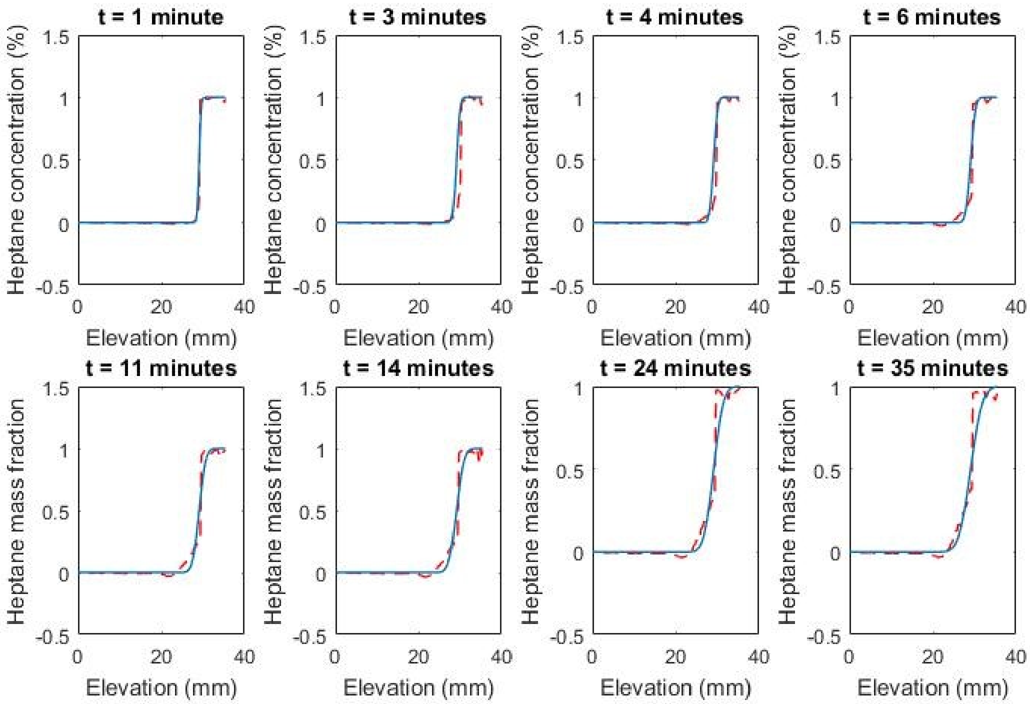


Figure 4.17 Profiles of concentration of Heptane (%) versus elevation (mm) derived from the data of the experiment 'Injection at the top - Without coating' (Experiment #1) compared to profiles derived from Fickian model of diffusion, fitted with Matlab with a mutual coefficient of diffusion $D = 2.10^{-9}$ $m^2.s^{-1}$ for times between 1 and 35 minutes

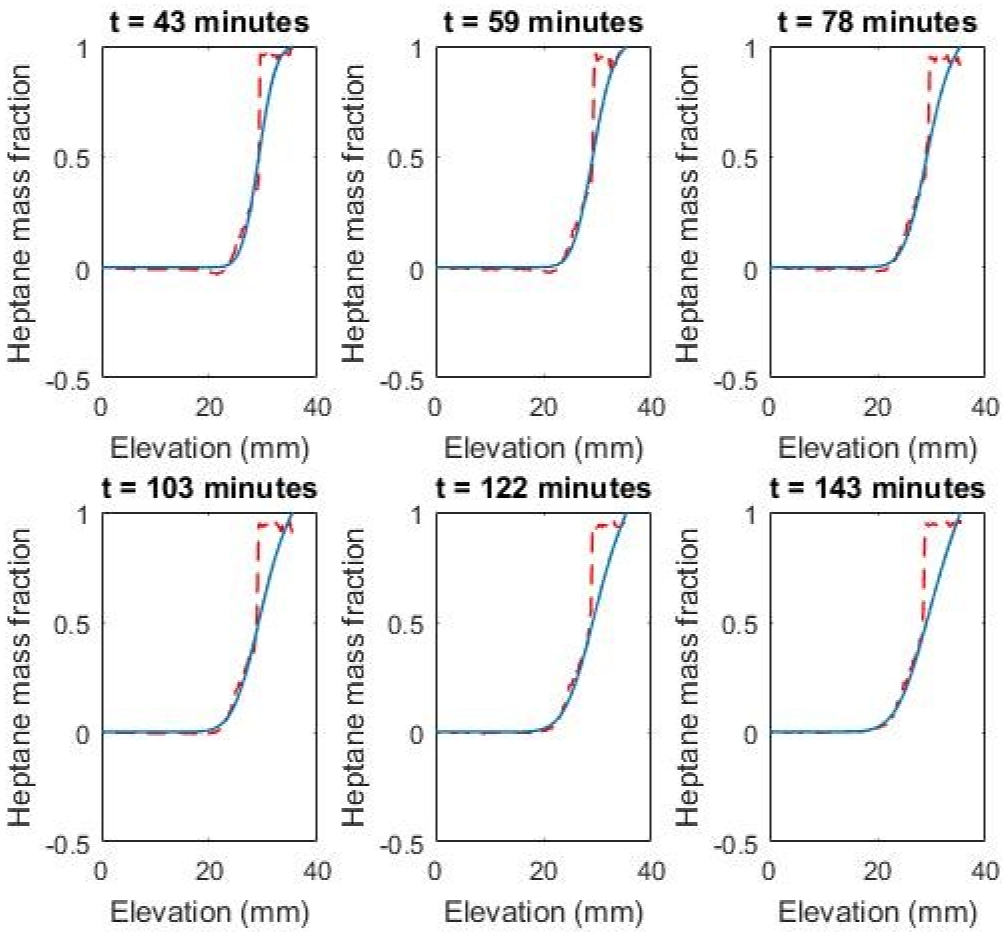


Figure 4.18 Profiles of concentration of Heptane (%) versus elevation (mm) derived from the data of the experiment 'Injection at the top - Without coating' (Experiment #1) compared to profiles derived from Fickian model of diffusion, fitted with Matlab with a mutual coefficient of diffusion D = 2.10^{-9} $m^2.s^{-1}$ for times between 45 and 143 minutes

Fits have been done for all the experiments, including experiments performed with coating. The fits are primarily done in a way that the data and the model overlap at the beginning of the transition zone, where mass transfer is believed to be the most significant and could match the most a model of Fickian diffusion. For all of the cases, suitable values of mutual diffusion coefficient were estimated to be between 5.10^{-10} and 2.10^{-9} $m^2.s^{-1}$. These measurements differ from estimates from Murgich et al.[21] who suggested that at room temperature the equilibrium diffusion constant of oil from Venezuelan reservoir rocks in Berea (of an average size of pore estimated around 40 Å) could be between 5 and 20.10^{-12} $m^2.s^{-1}$ and stated that the one of water in Berea was 5.10^{-10} $m^2.s^{-1}$.

4.3 Limits of the experiment

4.3.1 Influence of the orientation - Comparison of penetration rate and speed of displacement

The penetration rate and speed were evaluated by comparing the total displacement of the lower interface for each experiment after 60, 140 and 200 minutes. The results are collected in Table 4.5.

Table 4.5 Compilation of the values of the maximum displacement with an accuracy of 0.5 mm after approximately 60, 140 and 200 minutes when available for each set of experiments

Injection type	Coating	# Experiment	Displacement after 60 min within an uncertainty of ± 0.5 (mm)	Displacement after 140 min within an uncertainty of ± 0.5 (mm)	Displacement after 200 min within an uncertainty of ± 0.5 (mm)
At the top	No	1	5,55	9,15	/
At the top	No	2	9,45	/	/
At the top	No	3	3,75	4,35	4,95
At the bottom	No	1	6,15	12,45	15,6
At the bottom	No	2	6,15	8,55	9,75
At the bottom	No	3	9,45	10,05	10,35
From the side	No	1	3,75	4,95	5,55
From the side	No	2	3,15	4,35	5,85
At the top	Yes	1	4,95	6,45	7,65
At the top	Yes	2	4,35	6,75	7,95
At the bottom	Yes	1	8,25	10,35	10,65
At the bottom	Yes	2	4,35	7,35	7,95
From the side	Yes	1	2,85	3,75	4,35

Overall, injections from the side resulted in a lesser displacement of the interface wax/solvent than the other two orientations. For most of the experiments, the interface has been displaced by more than half of the final displacement distance within the first 60 minutes. Nevertheless, from one experiment to another of the same kind (injection-wise), total displacements were inconstant. At first the influence of the flowrate of the injection was questioned, but the fact that experiments with injections at the bottom, where the impact of the operator is lessened, were also subjected to inconsistency undermined this argument. On another hand, the rock samples are natural materials whose properties differ from one to another and impact fluids movement, in particular for experiments of short duration. Thus, speed of displacement and penetration rate seemed inconsistent and not derivable from these experiments, whether coating was involved or not.

4.3.2 Rock type

4.3.2.1 Desert Pink

For Desert Pink (carbonate rock), the wax was also displaced by the solvent (see Figure 4.19). However, the acoustic measurements were too insensitive to detect the difference between wax-imbibed and air or solvent-imbibed section of the rock as presented in Figure 4.20.

Geerstema investigated the influence of porosity on the velocity of acoustic waves in porous rocks saturated with liquids by Sonic log and ultrasonic techniques[52]. In the case of carbonate rocks, the presence of calcite and dolomite impact the values of speed of sound by having different matrix velocity, making velocity values varying a lot because of their difference of grain densities, porosity and compressibility of their matrix. This would make interpretations more complicated than in sandstone.

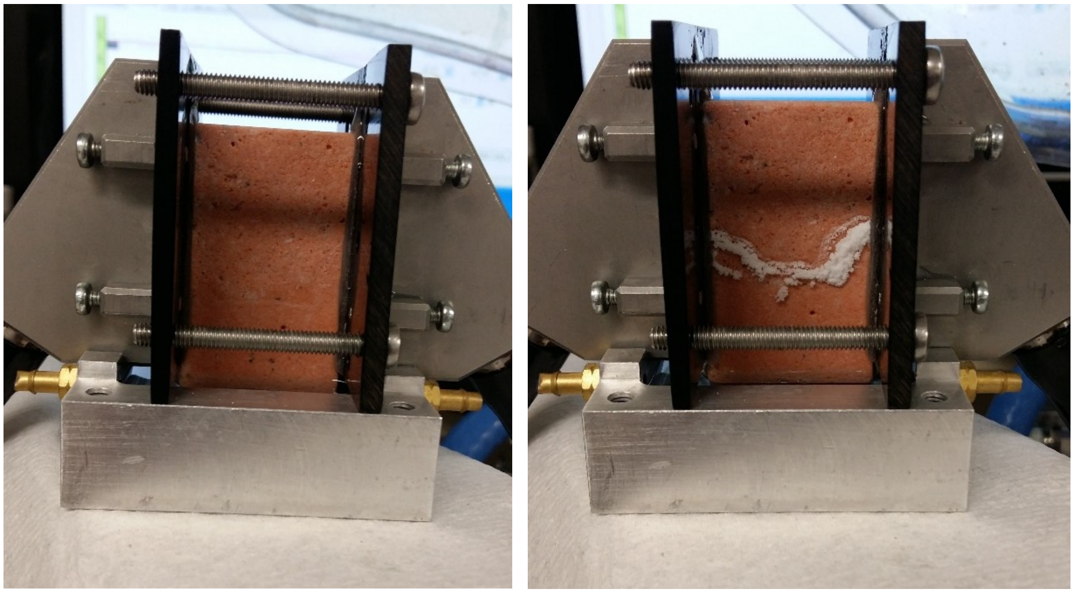


Figure 4.19 Displacement of wax within a Pink Desert rock type via solvent injection at the bottom
On the left: beginning of the experiment
On the right: end of the experiment, deposit of wax on the side of the rock

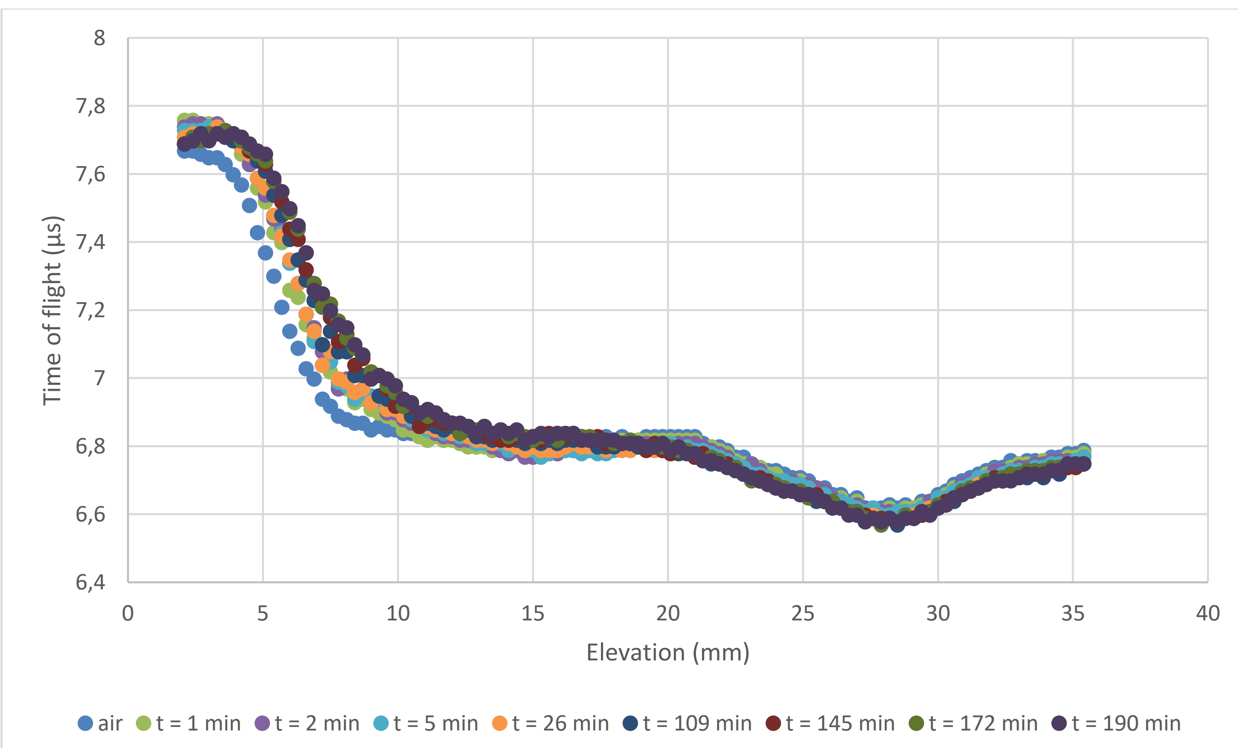


Figure 4.20 Profile of time of flight versus elevation in the case 'Injection at the bottom – Without coating' for a Desert Pink rock

4.3.2.2 Indiana Limestone

In these carbonate samples, diffusion of heptane was much slower to the point where the solvent front barely reached the elevation of wax if it did, and no signal disturbance was observable during any of the experiments done with it.

At first, diffusion of heptane was tested in a clean piece of rock (see Figure 4.21). For this experiment, the rock was dipped in 20mL of heptane (with regular refill) and the movement of the front of the solvent was tracked by sight. After 3 hours, the solvent did not seem to go any further.

The diffusion was then tested with a piece of rock previously half imbibed with octacosane, with the part non-imbibed dipped in 20 mL of heptane (Figure 4.22). This time, solvent did reach the interface with the wax, but did not create any wax displacement. The same setting has also been investigated while performing acoustic waves measurements. However, this time the solvent did not reach the interface. It may be explained by the fact that the quantity of solvent in which the rock was dipped was smaller due to the size of the reservoir for liquid, resulting in weaker driving capillary force. Another hypothesis is that diffusion is much slower in these samples due to pores characteristics and a permeability much lower compared to the other kind of samples, being around ten times lower according to data from the supplier[43,44], thus requiring much longer injection times.

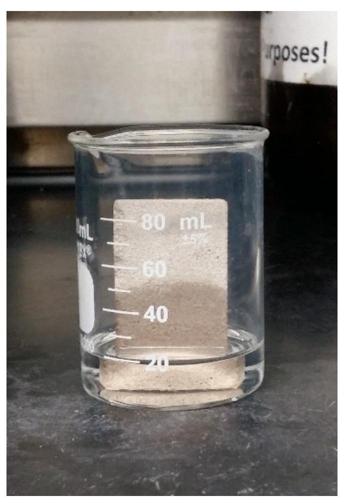


Figure 4.21 Imbibition of heptane in Indiana Limestone - Max elevation (2.6 cm) reached by the heptane after 3 hours

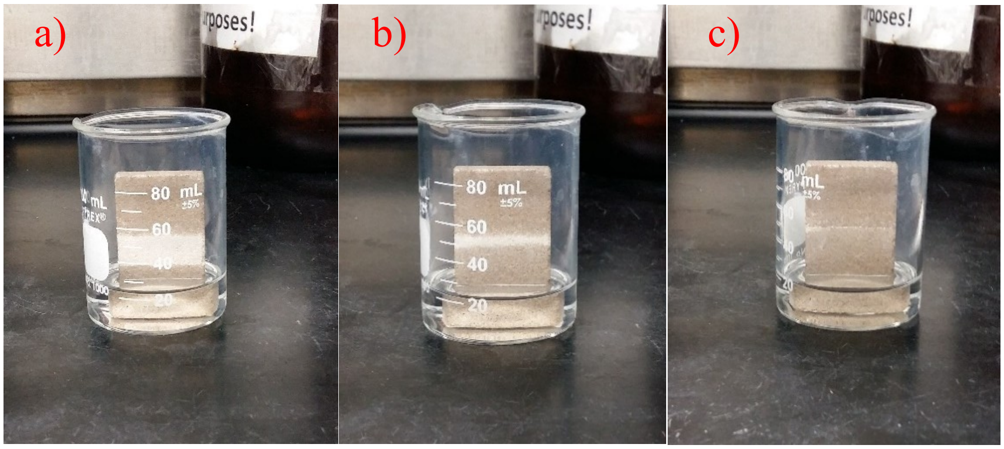


Figure 4.22 Imbibition of heptane over time in a piece of Indiana Limestone previously half imbibed with octacosane
a) t = 10 min, b) t = 40 min, c) t = 80 min

5 Chapter 5: Conclusion and Future work

5.1 Conclusions

The displacement of an interface made of solid wax (octacosane) and liquid solvent (heptane) within natural porous media under creeping flow conditions was investigated in this work, with the aim of determining the mechanism of diffusion involved in the mass transfer at the interface. Measurements conducted in the absence of a medium comprised showed that the displacement was initially intermediate between Fickian (n = 0.5) and Single-File (n = 0.25) and trended to lower n values with time.

The displacement of the interface within porous sandstone showed that Single-File diffusion plays a key role in the interface displacement. For some experiments n increased with time, illustrating that Fickian diffusion also played a role. This latter effect is attributed to the flow of heptane and octacosane on the outer surface of the rock samples during these experiments. However, coating exterior rock sample surfaces, to minimize this effect, had little impact on penetration rate and diffusion mechanisms.

Interface orientation had a measurable impact on penetration rates and diffusion mechanisms in sandstone, but the impact was smaller and more difficult to discriminate than anticipated. Solvent injection at the top and the bottom of a horizontal interface resulted in larger displacements than injection from the side of a vertically oriented interface. It is not clear whether this poor discrimination arose because of the variability of the natural sandstone materials or has another attribution.

Interfaces in two carbonate rocks (Desert Pink and Indiana Limestone) could not be detected using time of flight acoustic measurements and were abandoned.

5.2 Recommendations for future work

To obtain interface displacement results with carbonate samples, in particular with Desert Pink and Indiana Limestone, three strategies could be pursued:

a. Change the detection technique, for example use attenuation rather than time of flight acoustic measurements.

b. Use longer exposure and solvent injection times. To do so, stable injection technique with flow rates less than 0.001 $mL.min^{-1}$ might be required and robust closures seals at the point of contact with the rock sample.
c. Use another solvent with a greater contrast between the rock imbibed with solvent and rock filled with wax.

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Appendix A: Excerpt of the mercury intrusion porosimetry summary provided by the Energy Systems Design Laboratory

A1 Nomenclature

English Letters

m	The mass of samples or samples with mercury
ΔP	The pressure difference between applied pressure and residuary gas pressure within the penetrometer
r	The pore radius
V_{pore}	The volume of mercury intruded into the pores of samples
V_{atm}	The volume of mercury displaced by samples at atmospheric pressure
$V_{int,atm}$	The volume of mercury intruded up to 14.7 psi (atmospheric pressure)
$V_{int,33000psi}$	The volume of mercury intruded up to 33000 psi (the maximum pressure PoreMaster attainable)
V_{total}	The total volume of samples containing solid material volume and pores volume
X	The volume of the pores intruded at radius r divided by the total pore volume of the entire sample

Greek Letters

ρ_{Hg}	The density of mercury at room temperature and pressure
γ	The surface tension of mercury on the sample material at room temperature and pressure
θ	The contact angle of mercury on the sample material at room temperature and pressure
ϵ	The porosity of Sigracet samples

A2 Parameters

The following constants are needed for calculations:

• ρ_{Hg}, the density of mercury at room temperature and pressure: 13.5 g/cm3

• γ, the surface tension of mercury on the sample material at room temperature and pressure: 480 dyne/cm

• θ, the contact angle of mercury on the sample material at room temperature and pressure: 140°

A3 Procedure and Theory

Mercury Intrusion Porosimetry (MIP) tests are performed using a PoreMaster 33 Mercury Porosimeter manufactured by Quantachrome Instruments. To perform the Mercury Intrusion Porosimetry tests, the sample is first placed inside the bulb of a glass penetrometer cell with 0.5 cc stem volume. The penetrometer cell is then inserted into one of the low-pressure stations and evacuated to an absolute pressure of 0.004 psi and further evacuated for another 10 minutes. After evacuation, the penetrometer is filled with mercury and the mercury is then pressurized to 50 psi. Following low-pressure analysis, the penetrometer is filled with mercury and weighted, and the high-pressure analysis is performed by further pressuring the mercury to a maximum pressure of 33000 psi. The change in volume of mercury in the stem of the penetrometer is recorded as a function of applied pressure. The plot of the cumulative amount of volume intruded at each step, plotted against the pressure at each step, gives the cumulative intruded volume curve.

A3.1 Pore Size Distribution (PSD) calculation

The pressure at which intrusion occurs can be related to the presence of pores within the sample using the Washburn equation:

$$\Delta P = -\frac{2\gamma cos(\theta)}{r} \quad (1)$$

where ΔP is the differential pressure, which equals to the applied pressure minutes the residual gas pressure within the penetrometer. Here the differential pressure is assumed to be equal to the applied pressure as the residual gas pressure within the penetrometer is small enough (less than 0.002 psi), then ΔP = P. r is the pore radius, γ is the surface tension of mercury, and θ is the contact angle between the mercury and the sample material. The logarithmic pore size distribution, $\frac{DX}{D(ln(r))}$, for a given pressure, P_i, normalized with respect to total pores volume, is calculated using the following equations:

$$P \cdot r = -2\gamma\cos(\theta) = \text{const} \quad (2)$$

$$dP \cdot r + dr \cdot P = 0 \quad (3)$$

$$\frac{dP}{P} = -\frac{dr}{r} \quad (4)$$

$$D(\ln(P)) = -D(\ln(r)) \quad (5)$$

$$\frac{DX}{D(ln(r))} = -\frac{DX}{D(ln(P))} = -\frac{(V_i - V_{i-1})/Vpore}{ln(P_i) - ln(P_{i-1})} \quad (6)$$

where V_i is the absolute intruded volume measured up to pressure P_i, and V_{pore} is the total measured intruded volume. $\frac{DX}{D(ln(r))}$ represents the fractional volume of pores with a pore radius of r. We plot $\frac{DX}{D(ln(r))}$ versus r, which gives a pore size distribution graph that can best represent the relative number of each pore size within the sample. DX is the volume of the pores ΔV intruded at radius r divided by the total pore volume of the entire sample V_{pore}. In this way, X represents the pore volume of each pore size normalized with respect to the total pore volume.

The value X is used rather than ΔV so that when multiple tests are done with different sample volumes, the tests can be directly compared. Note that, because smaller pores contain significantly less volume than larger ones, we need to adjust the pore size distribution graph to make the smaller pores in the sample more visible. To do this, we use ln(r) instead of r for the above graph, and we use a logarithmic scale for the x axis. This allows us to see more clearly the areas we are most interested in (i.e. those pores of 10 µm or smaller).

A3.2 Porosity calculation

There are three distinct values for porosity calculation that must be found for a given sample: total volume (V_{total}), pore volume (V_{pore}) and solid material volume (V_{solid}). The following section will explain the difference between each type and the calculations used to find them.

For these calculations, the cumulative intruded volume curve as described above is needed. Also needed is the value Vatm, which is defined as the volume of mercury displaced by the sample when the mercury is pressurized to atmospheric pressure (around 14.7 psi). To measure this value, another test procedure known as pycnometry is performed. The procedure for a pycnometry test is as follows:

1. The penetrometer cell is evacuated and filled with mercury while no sample is inserted inside.

2. The mass of the cell filled with mercury, $m_{cell+Hg}$, is weighted under atmospheric pressure.

3. The mass of the cell with both mercury and sample, $m_{cell+Hg+sample}$, is weighted during MIP tests process, again at atmospheric pressure.

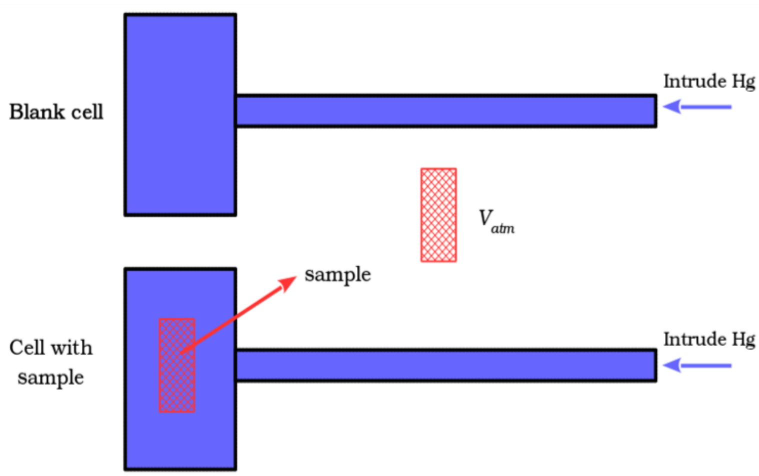

Figure A.1 Illustration of displaced mercury

The difference in mass between these two measurements plus the mass of the sample itself, m_{sample}, corresponds to the mass of mercury displaced by the sample at atmospheric conditions. The equation used to find V_{atm} is:

$$V_{atm} = \frac{m_{cell+Hg} - m_{cell+Hg+sample} + m_{sample}}{\rho_{Hg}} \quad (7)$$

Once the value of V_{atm} is found, it can be used to find more significant volume values. The first of these is total volume, V_{total}, which is defined as the volume taken up by the solid sample material, as well as the volume of sample pores. This volume cannot be directly measured by the MIP tests, but we can estimate this volume to be the volume of mercury displaced by the sample when the mercury is under extremely low pressure. The total volume, V_{total}, is calculated as follows:

$$V_{total} = V_{atm} + V_{int,atm} \quad (8)$$

where V_{atm} is defined as above and $V_{int,atm}$ is defined as the volume intruded from 0.004 psi to 14.7 psi (atmospheric pressure), which can be directly obtained from the MIP test. The second useful is solid material volume, V_{solid}, which is defined as the volume taken up by only the solid material of the sample. The solid material volume, V_{solid}, is calculated as follows:

$$V_{solid} = V_{total} - V_{int,33000psi} \quad (9)$$

where V_{total} is defined as above and $V_{int,33000psi}$ is defined as the volume intruded from 0.004 psi to 33000 psi (the maximum pressure attainable by the PoreMaster), which can be obtained directly from the MIP test. Now, with these volumes determined, we can calculate porosity. Porosity, in general, is given as the ratio of pore volume, V_{pore}, to the total volume, V_{total}, of a material. In general, porosity ϵ is calculated as:

$$\epsilon = \frac{V_{total} - V_{solid}}{V_{total}} = \frac{V_{int,33000psi}}{V_{atm} + V_{int,atm}} \quad (10)$$

Appendix B: Threshold discussion

Sometimes, during measurements the attenuation is too significant, and the signal is too weak to be treated numerically. In that case, the gain can be increased to magnify the signal, knowingly increasing the noise too. The threshold is the criterium used to differentiate noise from actual signal. Once a peak is detected to have an amplitude higher than x% of the maximum amplitude for the measurement, where x is the threshold, the peak is considered not to be noise and the time of flight value at x% of the maximum amplitude is saved. As a mean of discussion about the influence of the choice of the threshold on the results presented in this thesis, data from the experiment 'Injection at the bottom - Without coating' #7 were generated using threshold values of 30 and 45% and are compared in this appendix. Tables B.1 to B.4 display the data generated with a threshold of 30%, respectively, time of flight data at different times, baselines data and normalized time of flight data. To determine the baselines displayed in Table B.3, the following coefficients have been applied: 0.555 for the lower baseline, 1.81 for the upper baseline for t = 0 and 0.93 for the upper baseline for t > 0. * in Table B.3 indicates data points that have been slightly adjusted to obtain a consistent trend.

Table B.1 Time of flight values at different elevations over time (between 0 and 19 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #7 - Threshold = 30%

Elevation (mm)	0 min	0 min bis	2 min	3 min	6 min	10 min	19 min
2,1	12,008	12,008	11,098	11,038	11,028	11,088	10,998
2,4	12,018	12,008	11,108	11,058	10,998	11,018	10,998
2,7	12,008	12,008	11,000	11,080	10,938	10,990	11,028
3	12,008	12,008	11,098	10,910	10,988	11,038	10,968
3,3	12,008	12,008	11,078	11,060	11,010	11,040	10,940
3,6	12,008	12,018	11,138	10,970	11,040	10,998	10,988
3,9	12,018	12,008	11,020	11,040	11,000	11,040	11,008
4,2	12,018	12,008	11,088	11,108	11,000	11,020	10,978
4,5	12,008	12,008	10,980	11,060	10,948	11,018	10,918
4,8	12,018	12,018	11,000	11,048	11,078	11,038	11,080
5,1	12,018	12,008	10,870	11,040	11,030	11,068	11,038
5,4	12,018	12,008	10,890	11,010	11,010	11,098	10,990
5,7	12,018	12,008	10,900	11,030	11,000	10,980	10,990
6	12,028	12,018	10,980	10,988	10,950	11,058	10,970
6,3	12,018	12,018	11,018	11,000	11,018	10,988	11,008
6,6	12,028	12,028	10,970	11,060	10,938	11,008	10,968
6,9	12,038	12,028	10,900	10,945	11,038	10,988	10,970
7,2	12,028	12,018	10,870	11,058	10,968	10,978	11,048
7,5	12,028	12,038	10,860	10,920	10,948	10,980	10,988
7,8	12,038	12,038	10,940	10,968	10,938	11,018	11,008
8,1	12,038	12,038	7,898	11,008	11,028	10,968	10,958
8,4	12,058	12,048	7,608	7,838	10,938	10,978	10,988
8,7	12,058	12,058	7,718	7,848	10,998	10,968	10,978
9	12,068	12,058	7,438	7,478	7,878	8,048	8,208
9,3	12,068	12,068	7,428	7,638	7,810	7,948	8,198
9,6	12,078	12,068	6,958	7,208	7,528	7,688	7,830
9,9	12,078	12,078	6,938	7,178	7,390	7,678	7,778
10,2	6,998	7,008	6,888	6,978	7,158	7,320	7,558
10,5	6,958	6,968	6,848	6,968	7,158	7,348	7,470
10,8	6,858	6,858	6,808	6,898	7,008	7,078	7,158
11,1	6,828	6,838	6,798	6,888	6,988	6,968	7,200
11,4	6,768	6,768	6,738	6,798	6,868	6,890	7,048

11,7	6,748	6,758	6,748	6,818	6,888	6,908	6,958
12	6,718	6,718	6,688	6,758	6,798	6,848	6,888
12,3	6,698	6,698	6,688	6,748	6,818	6,828	6,878
12,6	6,678	6,668	6,648	6,688	6,748	6,778	6,798
12,9	6,668	6,658	6,648	6,698	6,748	6,788	6,818
13,2	6,628	6,628	6,618	6,638	6,688	6,708	6,748
13,5	6,628	6,618	6,618	6,638	6,678	6,708	6,728
13,8	6,608	6,598	6,598	6,598	6,628	6,648	6,658
14,1	6,608	6,598	6,598	6,588	6,628	6,638	6,668
14,4	6,588	6,578	6,578	6,558	6,578	6,588	6,608
14,7	6,578	6,578	6,568	6,548	6,578	6,598	6,608
15	6,568	6,568	6,558	6,528	6,538	6,548	6,568
15,3	6,568	6,558	6,558	6,528	6,538	6,538	6,558
15,6	6,558	6,548	6,548	6,518	6,518	6,518	6,528
15,9	6,548	6,548	6,538	6,518	6,508	6,518	6,518
16,2	6,548	6,538	6,538	6,508	6,498	6,508	6,498
16,5	6,538	6,538	6,528	6,498	6,498	6,498	6,498
16,8	6,538	6,538	6,528	6,498	6,498	6,498	6,498
17,1	6,538	6,528	6,518	6,498	6,498	6,498	6,498
17,4	6,528	6,528	6,518	6,498	6,498	6,498	6,498
17,7	6,528	6,518	6,508	6,498	6,498	6,498	6,498
18	6,528	6,518	6,508	6,498	6,498	6,498	6,498
18,3	6,518	6,518	6,508	6,498	6,498	6,498	6,498
18,6	6,528	6,518	6,508	6,498	6,498	6,498	6,498
18,9	6,518	6,518	6,498	6,498	6,498	6,498	6,498
19,2	6,518	6,518	6,508	6,498	6,498	6,498	6,498
19,5	6,518	6,508	6,498	6,498	6,498	6,498	6,498
19,8	6,528	6,518	6,508	6,508	6,498	6,498	6,498
20,1	6,528	6,518	6,508	6,508	6,508	6,498	6,498
20,4	6,538	6,528	6,518	6,518	6,508	6,508	6,498
20,7	6,538	6,528	6,518	6,518	6,508	6,508	6,498
21	6,548	6,538	6,528	6,518	6,518	6,518	6,508
21,3	6,548	6,538	6,528	6,528	6,518	6,518	6,508
21,6	6,548	6,548	6,538	6,528	6,528	6,518	6,518
21,9	6,558	6,548	6,538	6,538	6,528	6,528	6,518
22,2	6,558	6,548	6,538	6,538	6,528	6,528	6,518
22,5	6,558	6,548	6,548	6,538	6,538	6,528	6,528
22,8	6,558	6,558	6,548	6,538	6,528	6,528	6,528
23,1	6,568	6,558	6,548	6,548	6,538	6,528	6,528
23,4	6,568	6,558	6,548	6,548	6,538	6,538	6,528
23,7	6,558	6,558	6,548	6,548	6,538	6,538	6,528

24	6,558	6,548	6,548	6,548	6,538	6,538	6,528
24,3	6,558	6,548	6,548	6,548	6,538	6,528	6,528
24,6	6,558	6,548	6,548	6,538	6,538	6,528	6,518
24,9	6,548	6,548	6,548	6,538	6,538	6,528	6,518
25,2	6,558	6,548	6,548	6,538	6,538	6,528	6,518
25,5	6,548	6,538	6,548	6,538	6,528	6,528	6,518
25,8	6,548	6,538	6,548	6,538	6,538	6,528	6,528
26,1	6,548	6,538	6,548	6,538	6,528	6,528	6,518
26,4	6,538	6,528	6,538	6,538	6,528	6,528	6,518
26,7	6,538	6,528	6,538	6,528	6,528	6,518	6,518
27	6,528	6,518	6,528	6,528	6,518	6,518	6,508
27,3	6,518	6,508	6,528	6,518	6,518	6,508	6,508
27,6	6,508	6,508	6,518	6,518	6,508	6,508	6,498
27,9	6,498	6,498	6,518	6,508	6,508	6,498	6,498
28,2	6,498	6,498	6,508	6,508	6,498	6,498	6,498
28,5	6,460	6,460	6,498	6,498	6,498	6,498	6,498
28,8	6,460	6,460	6,508	6,498	6,470	6,470	6,498
29,1	6,460	6,460	6,498	6,498	6,470	6,470	6,470
29,4	6,460	6,460	6,498	6,498	6,470	6,470	6,470
29,7	6,460	6,460	6,498	6,498	6,470	6,470	6,470
30	6,440	6,440	6,498	6,470	6,460	6,460	6,470
30,3	6,440	6,440	6,460	6,470	6,460	6,460	6,460
30,6	6,420	6,420	6,440	6,460	6,450	6,450	6,460
30,9	6,420	6,420	6,440	6,460	6,450	6,450	6,450
31,2	6,430	6,430	6,450	6,450	6,450	6,450	6,450
31,5	6,430	6,430	6,450	6,450	6,450	6,450	6,450
31,8	6,430	6,430	6,450	6,450	6,440	6,440	6,450
32,1	6,440	6,440	6,450	6,440	6,440	6,440	6,440
32,4	6,440	6,440	6,450	6,440	6,440	6,440	6,440
32,7	6,440	6,440	6,440	6,440	6,440	6,440	6,440
33	6,430	6,430	6,440	6,440	6,440	6,440	6,440
33,3	6,430	6,430	6,440	6,440	6,430	6,430	6,440
33,6	6,430	6,430	6,430	6,430	6,410	6,410	6,430
33,9	6,430	6,430	6,430	6,420	6,410	6,410	6,410
34,2	6,430	6,430	6,420	6,420	6,400	6,400	6,410
34,5	6,430	6,430	6,400	6,400	6,390	6,390	6,400
34,8	6,430	6,430	6,400	6,400	6,390	6,390	6,390
35,1	6,430	6,430	6,400	6,400	6,390	6,390	6,390
35,4	6,430	6,430	6,400	6,400	6,390	6,390	6,390

Table B.2 Time of flight values in µs at different elevations in mm over time (between 34 and 262 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #7 - Threshold = 30%

Elevation (mm)	34 min	58 min	91 min	138 min	196 min	262 min
2,1	10,988	10,898	10,998	10,928	10,820	10,890
2,4	10,988	10,908	10,900	10,918	10,898	10,858
2,7	11,018	10,938	10,940	10,900	10,918	10,838
3	11,008	10,918	10,998	10,928	10,888	10,780
3,3	10,980	10,990	10,978	10,930	10,890	10,790
3,6	10,970	10,918	10,938	10,970	10,850	10,798
3,9	10,958	10,890	10,840	10,780	10,780	10,820
4,2	10,978	10,910	10,900	10,830	10,810	10,768
4,5	11,028	10,900	10,948	10,960	10,900	10,790
4,8	11,008	10,918	10,868	10,958	10,830	10,730
5,1	10,880	10,890	10,898	10,860	10,910	10,840
5,4	11,050	10,830	10,868	10,950	10,840	10,820
5,7	10,980	10,840	10,900	10,820	10,850	10,790
6	11,018	10,880	10,870	10,788	10,890	10,840
6,3	11,040	10,908	10,918	10,880	10,850	10,780
6,6	10,988	10,968	10,968	10,928	10,800	10,788
6,9	10,958	10,930	10,900	10,930	10,930	10,820
7,2	10,988	10,988	11,018	10,928	10,790	10,898
7,5	10,958	10,988	11,020	10,960	10,750	10,788
7,8	11,078	10,938	11,018	10,958	10,958	10,878
8,1	10,978	10,928	11,018	10,988	10,820	10,840
8,4	10,988	10,928	10,978	10,898	10,928	10,868
8,7	10,928	8,668	10,968	10,938	10,938	10,868
9	10,900	8,528	10,908	10,878	10,918	10,848
9,3	10,900	8,458	10,860	10,830	10,930	10,760
9,6	10,918	8,438	8,608	10,840	10,908	10,840
9,9	10,890	8,620	8,500	10,840	10,850	10,890
10,2	7,660	7,798	8,480	10,760	10,780	10,900
10,5	7,508	8,050	8,218	10,960	10,770	10,860
10,8	7,468	7,598	7,858	8,568	8,660	10,840
11,1	7,358	7,600	7,680	7,828	8,601	8,130
11,4	7,060	7,238	7,338	7,598	8,170	8,600
11,7	7,038	7,328	7,470	7,528	8,460	7,558
12	6,988	7,110	7,280	7,288	7,428	7,858
12,3	6,908	7,068	7,250	7,458	7,308	7,780
12,6	6,858	6,708	7,060	7,258	7,488	7,628
12,9	6,698	6,928	7,018	7,253	7,380	7,628

13,2	6,808	6,828	6,948	7,060	7,238	7,520
13,5	6,788	6,838	6,950	7,010	7,370	7,490
13,8	6,718	6,750	6,798	6,918	6,980	7,378
14,1	6,728	6,758	6,828	6,908	7,038	7,368
14,4	6,638	6,698	6,768	6,848	6,938	7,058
14,7	6,648	6,708	6,788	6,868	6,978	7,088
15	6,598	6,658	6,708	6,788	6,868	6,948
15,3	6,608	6,658	6,708	6,798	6,868	6,948
15,6	6,568	6,608	6,648	6,728	6,798	6,868
15,9	6,568	6,608	6,658	6,718	6,788	6,858
16,2	6,538	6,578	6,608	6,658	6,728	6,788
16,5	6,518	6,578	6,608	6,668	6,728	6,778
16,8	6,508	6,548	6,588	6,618	6,668	6,738
17,1	6,498	6,538	6,588	6,638	6,668	6,728
17,4	6,498	6,518	6,558	6,598	6,638	6,668
17,7	6,498	6,508	6,558	6,608	6,638	6,658
18	6,498	6,508	6,538	6,578	6,618	6,638
18,3	6,498	6,508	6,528	6,578	6,618	6,638
18,6	6,498	6,498	6,528	6,558	6,598	6,618
18,9	6,498	6,498	6,518	6,558	6,598	6,618
19,2	6,498	6,498	6,508	6,538	6,578	6,598
19,5	6,498	6,498	6,508	6,538	6,578	6,588
19,8	6,498	6,498	6,508	6,528	6,568	6,588
20,1	6,498	6,498	6,508	6,528	6,558	6,578
20,4	6,498	6,498	6,508	6,528	6,548	6,578
20,7	6,498	6,498	6,518	6,528	6,548	6,578
21	6,508	6,508	6,518	6,528	6,548	6,568
21,3	6,508	6,508	6,518	6,528	6,538	6,558
21,6	6,508	6,508	6,518	6,528	6,538	6,548
21,9	6,518	6,508	6,518	6,518	6,528	6,538
22,2	6,518	6,518	6,518	6,528	6,528	6,538
22,5	6,518	6,518	6,518	6,528	6,528	6,538
22,8	6,518	6,518	6,518	6,528	6,528	6,538
23,1	6,518	6,518	6,518	6,528	6,528	6,528
23,4	6,528	6,518	6,528	6,528	6,528	6,528
23,7	6,528	6,518	6,518	6,528	6,528	6,518
24	6,528	6,518	6,518	6,528	6,528	6,518
24,3	6,518	6,518	6,518	6,518	6,518	6,508
24,6	6,518	6,518	6,518	6,518	6,518	6,508
24,9	6,518	6,518	6,508	6,508	6,508	6,508
25,2	6,518	6,518	6,518	6,518	6,508	6,508

25,5	6,518	6,518	6,508	6,508	6,508	6,508
25,8	6,518	6,518	6,518	6,518	6,508	6,508
26,1	6,518	6,518	6,518	6,508	6,508	6,508
26,4	6,518	6,508	6,508	6,508	6,508	6,508
26,7	6,508	6,508	6,508	6,508	6,508	6,498
27	6,508	6,498	6,498	6,498	6,498	6,498
27,3	6,498	6,498	6,498	6,498	6,498	6,470
27,6	6,498	6,470	6,470	6,470	6,470	6,460
27,9	6,460	6,460	6,460	6,460	6,460	6,460
28,2	6,460	6,460	6,460	6,460	6,460	6,450
28,5	6,460	6,460	6,460	6,450	6,450	6,450
28,8	6,450	6,450	6,450	6,450	6,450	6,450
29,1	6,450	6,450	6,450	6,450	6,450	6,450
29,4	6,450	6,450	6,450	6,450	6,450	6,450
29,7	6,450	6,450	6,450	6,450	6,450	6,440
30	6,450	6,450	6,450	6,440	6,440	6,440
30,3	6,440	6,440	6,440	6,440	6,440	6,440
30,6	6,440	6,440	6,440	6,440	6,440	6,440
30,9	6,440	6,440	6,440	6,440	6,440	6,440
31,2	6,440	6,440	6,440	6,440	6,440	6,440
31,5	6,440	6,440	6,440	6,440	6,440	6,440
31,8	6,440	6,440	6,440	6,440	6,440	6,430
32,1	6,430	6,430	6,430	6,430	6,430	6,430
32,4	6,430	6,430	6,430	6,430	6,430	6,410
32,7	6,430	6,430	6,430	6,410	6,410	6,410
33	6,410	6,410	6,410	6,410	6,410	6,400
33,3	6,410	6,400	6,400	6,400	6,400	6,400
33,6	6,400	6,400	6,400	6,400	6,400	6,390
33,9	6,390	6,390	6,390	6,390	6,390	6,390
34,2	6,390	6,390	6,390	6,380	6,380	6,380
34,5	6,380	6,380	6,380	6,380	6,380	6,370
34,8	6,380	6,380	6,380	6,380	6,380	6,370
35,1	6,380	6,380	6,380	6,370	6,370	6,370
35,4	6,380	6,380	6,380	6,370	6,370	6,370

Table B.3 Time of flight values in μs for the baselines used in the experiment 'Injection at the bottom - Without coating' - Experiment #7 - Threshold = 30%

Elevation (mm)	Lower baseline	Upper baseline t=0	Upper baseline t > 0
2,1	6,664	12,008	11,167
2,4	6,670	12,018	11,177

2,7	6,664	12,008	11,167
3	6,664	12,008	11,167
3,3	6,664	12,008	11,167
3,6	6,664	12,008	11,167
3,9	6,670	12,018	11,177
4,2	6,670	12,018	11,177
4,5	6,664	12,008	11,167
4,8	6,670	12,018	11,177
5,1	6,670	12,018	11,177
5,4	6,670	12,018	11,177
5,7	6,670	12,018	11,177
6	6,676	12,028	11,186
6,3	6,670	12,018	11,177
6,6	6,676	12,028	11,186
6,9	6,681	12,038	11,195
7,2	6,676	12,028	11,186
7,5	6,676	12,028	11,186
7,8	6,681	12,038	11,195
8,1	6,681	12,038	11,195
8,4	6,692	12,058	11,214
8,7	6,692	12,058	11,214
9	6,698	12,068	11,223
9,3	6,698	12,068	11,223
9,6	6,703	12,078	11,233
9,9	6,703	12,078	11,233
10,2	6,650*	12,037	11,194
10,5	6,650*	12,037	11,194
10,8	6,650*	12,037	11,194
11,1	6,650*	12,037	11,194
11,4	6,650*	12,037	11,194
11,7	6,650*	12,037	11,194
12	6,650*	12,037	11,194
12,3	6,650*	12,037	11,194
12,6	6,650*	12,037	11,194
12,9	6,650*	12,037	11,194
13,2	6,628	11,997	11,157
13,5	6,628	11,997	11,157
13,8	6,608	11,960	11,123
14,1	6,608	11,960	11,123
14,4	6,588	11,924	11,090
14,7	6,578	11,906	11,073

15	6,568	11,888	11,056
15,3	6,568	11,888	11,056
15,6	6,558	11,870	11,039
15,9	6,548	11,852	11,022
16,2	6,548	11,852	11,022
16,5	6,538	11,834	11,005
16,8	6,538	11,834	11,005
17,1	6,538	11,834	11,005
17,4	6,528	11,816	10,989
17,7	6,528	11,816	10,989
18	6,528	11,816	10,989
18,3	6,518	11,798	10,972
18,6	6,528	11,816	10,989
18,9	6,518	11,798	10,972
19,2	6,518	11,798	10,972
19,5	6,518	11,798	10,972
19,8	6,528	11,816	10,989
20,1	6,528	11,816	10,989
20,4	6,538	11,834	11,005
20,7	6,538	11,834	11,005
21	6,548	11,852	11,022
21,3	6,548	11,852	11,022
21,6	6,548	11,852	11,022
21,9	6,558	11,870	11,039
22,2	6,558	11,870	11,039
22,5	6,558	11,870	11,039
22,8	6,558	11,870	11,039
23,1	6,568	11,888	11,056
23,4	6,568	11,888	11,056
23,7	6,558	11,870	11,039
24	6,558	11,870	11,039
24,3	6,558	11,870	11,039
24,6	6,558	11,870	11,039
24,9	6,548	11,852	11,022
25,2	6,558	11,870	11,039
25,5	6,548	11,852	11,022
25,8	6,548	11,852	11,022
26,1	6,548	11,852	11,022
26,4	6,538	11,834	11,005
26,7	6,538	11,834	11,005
27	6,528	11,816	10,989

27,3	6,518	11,798	10,972
27,6	6,508	11,779	10,955
27,9	6,498	11,761	10,938
28,2	6,498	11,761	10,938
28,5	6,460	11,693	10,874
28,8	6,460	11,693	10,874
29,1	6,460	11,693	10,874
29,4	6,460	11,693	10,874
29,7	6,460	11,693	10,874
30	6,440	11,656	10,840
30,3	6,440	11,656	10,840
30,6	6,420	11,620	10,807
30,9	6,420	11,620	10,807
31,2	6,430	11,638	10,824
31,5	6,430	11,638	10,824
31,8	6,430	11,638	10,824
32,1	6,440	11,656	10,840
32,4	6,440	11,656	10,840
32,7	6,440	11,656	10,840
33	6,430	11,638	10,824
33,3	6,430	11,638	10,824
33,6	6,430	11,638	10,824
33,9	6,430	11,638	10,824
34,2	6,430	11,638	10,824
34,5	6,430	11,638	10,824
34,8	6,430	11,638	10,824
35,1	6,430	11,638	10,824
35,4	6,430	11,638	10,824

Table B.4 Normalized time of flight values at different elevations and times for the experiment 'Injection at the bottom - Without coating' - Experiment #7 - Threshold = 30%

Elevation (mm)	2 min	3 min	6 min	10 min	19 min	34 min	58 min	91 min	138 min	196 min	262 min
2,1	0,985	0,971	0,969	0,982	0,962	0,960	0,940	0,962	0,947	0,923	0,938
2,4	0,985	0,974	0,960	0,965	0,960	0,958	0,940	0,939	0,943	0,938	0,929
2,7	0,963	0,981	0,949	0,961	0,969	0,967	0,949	0,949	0,941	0,945	0,927
3	0,985	0,943	0,960	0,971	0,956	0,965	0,945	0,962	0,947	0,938	0,914
3,3	0,980	0,976	0,965	0,972	0,949	0,958	0,961	0,958	0,947	0,938	0,916
3,6	0,993	0,956	0,972	0,962	0,960	0,956	0,945	0,949	0,956	0,930	0,918

3,9	0,965	0,970	0,961	0,970	0,963	0,951	0,936	0,925	0,912	0,912	0,921
4,2	0,980	0,985	0,961	0,965	0,956	0,956	0,941	0,939	0,923	0,919	0,909
4,5	0,958	0,976	0,951	0,967	0,945	0,969	0,941	0,951	0,954	0,941	0,916
4,8	0,961	0,971	0,978	0,969	0,979	0,963	0,943	0,931	0,951	0,923	0,901
5,1	0,932	0,970	0,967	0,976	0,969	0,934	0,936	0,938	0,930	0,941	0,925
5,4	0,936	0,963	0,963	0,983	0,959	0,972	0,923	0,931	0,950	0,925	0,921
5,7	0,939	0,967	0,961	0,956	0,959	0,956	0,925	0,939	0,921	0,927	0,914
6	0,954	0,956	0,948	0,972	0,952	0,963	0,932	0,930	0,912	0,934	0,923
6,3	0,965	0,961	0,965	0,958	0,963	0,970	0,940	0,943	0,934	0,927	0,912
6,6	0,952	0,972	0,945	0,961	0,952	0,956	0,952	0,952	0,943	0,914	0,912
6,9	0,935	0,945	0,965	0,954	0,950	0,947	0,941	0,935	0,941	0,941	0,917
7,2	0,930	0,972	0,952	0,954	0,969	0,956	0,956	0,963	0,943	0,912	0,936
7,5	0,928	0,941	0,947	0,954	0,956	0,949	0,956	0,963	0,950	0,903	0,912
7,8	0,943	0,950	0,943	0,961	0,959	0,974	0,943	0,961	0,947	0,947	0,930
8,1	0,270	0,959	0,963	0,950	0,947	0,952	0,941	0,961	0,954	0,917	0,921
8,4	0,203	0,253	0,939	0,948	0,950	0,950	0,937	0,948	0,930	0,937	0,923
8,7	0,227	0,256	0,952	0,946	0,948	0,937	0,437	0,946	0,939	0,939	0,923
9	0,164	0,172	0,261	0,298	0,334	0,929	0,404	0,930	0,924	0,933	0,917
9,3	0,161	0,208	0,246	0,276	0,332	0,929	0,389	0,920	0,913	0,935	0,898
9,6	0,056	0,111	0,182	0,217	0,249	0,931	0,383	0,421	0,913	0,928	0,913
9,9	0,052	0,105	0,152	0,215	0,237	0,924	0,423	0,397	0,913	0,916	0,924
10,2	0,052	0,072	0,112	0,147	0,200	0,222	0,253	0,403	0,905	0,909	0,935
10,5	0,044	0,070	0,112	0,154	0,180	0,189	0,308	0,345	0,949	0,907	0,927
10,8	0,035	0,055	0,079	0,094	0,112	0,180	0,209	0,266	0,422	0,442	0,922
11,1	0,033	0,052	0,074	0,070	0,121	0,156	0,209	0,227	0,259	0,429	0,326
11,4	0,019	0,033	0,048	0,053	0,088	0,090	0,129	0,151	0,209	0,335	0,429
11,7	0,022	0,037	0,052	0,057	0,068	0,085	0,149	0,180	0,193	0,398	0,200
12	0,008	0,024	0,033	0,044	0,052	0,074	0,101	0,139	0,140	0,171	0,266
12,3	0,008	0,022	0,037	0,039	0,050	0,057	0,092	0,132	0,178	0,145	0,249
12,6	0,000	0,008	0,022	0,028	0,033	0,046	0,013	0,090	0,134	0,184	0,215
12,9	0,000	0,011	0,022	0,030	0,037	0,011	0,061	0,081	0,133	0,161	0,215
13,2	-0,002	0,002	0,013	0,018	0,026	0,040	0,044	0,071	0,095	0,135	0,197
13,5	-0,002	0,002	0,011	0,018	0,022	0,035	0,046	0,071	0,084	0,164	0,190
13,8	-0,002	-0,002	0,004	0,009	0,011	0,024	0,031	0,042	0,069	0,082	0,171
14,1	-0,002	-0,004	0,004	0,007	0,013	0,027	0,033	0,049	0,066	0,095	0,168
14,4	-0,002	-0,007	-0,002	0,000	0,004	0,011	0,024	0,040	0,058	0,078	0,104
14,7	-0,002	-0,007	0,000	0,004	0,007	0,016	0,029	0,047	0,065	0,089	0,113
15	-0,002	-0,009	-0,007	-0,004	0,000	0,007	0,020	0,031	0,049	0,067	0,085
15,3	-0,002	-0,009	-0,007	-0,007	-0,002	0,009	0,020	0,031	0,051	0,067	0,085
15,6	-0,002	-0,009	-0,009	-0,009	-0,007	0,002	0,011	0,020	0,038	0,054	0,069
15,9	-0,002	-0,007	-0,009	-0,007	-0,007	0,004	0,013	0,025	0,038	0,054	0,069

16,2	-0,002	-0,009	-0,011	-0,009	-0,011	-0,002	0,007	0,013	0,025	0,040	0,054
16,5	-0,002	-0,009	-0,009	-0,009	-0,009	-0,004	0,009	0,016	0,029	0,043	0,054
16,8	-0,002	-0,009	-0,009	-0,009	-0,009	-0,007	0,002	0,011	0,018	0,029	0,045
17,1	-0,004	-0,009	-0,009	-0,009	-0,009	-0,009	0,000	0,011	0,022	0,029	0,043
17,4	-0,002	-0,007	-0,007	-0,007	-0,007	-0,007	-0,002	0,007	0,016	0,025	0,031
17,7	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,004	0,007	0,018	0,025	0,029
18	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,004	0,002	0,011	0,020	0,025
18,3	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,002	0,002	0,013	0,022	0,027
18,6	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,007	0,000	0,007	0,016	0,020
18,9	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	0,000	0,009	0,018	0,022
19,2	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	-0,002	0,004	0,013	0,018
19,5	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	-0,002	0,004	0,013	0,016
19,8	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,004	0,000	0,009	0,013
20,1	-0,004	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,004	0,000	0,007	0,011
20,4	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,002	0,002	0,009
20,7	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,004	-0,002	0,002	0,009
21	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,004	0,000	0,004
21,3	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,004	-0,002	0,002
21,6	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,004	-0,002	0,000
21,9	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,011	-0,009	-0,009	-0,007	-0,004
22,2	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,007	-0,007	-0,004
22,5	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,007	-0,004
22,8	-0,002	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,007	-0,004
23,1	-0,004	-0,004	-0,007	-0,009	-0,009	-0,011	-0,011	-0,011	-0,009	-0,009	-0,009
23,4	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,011	-0,009	-0,009	-0,009	-0,009
23,7	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,007	-0,009
24	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,007	-0,009
24,3	-0,002	-0,002	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
24,6	-0,002	-0,004	-0,004	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
24,9	0,000	-0,002	-0,002	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009
25,2	-0,002	-0,004	-0,004	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011	-0,011
25,5	0,000	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009
25,8	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009
26,1	0,000	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009
26,4	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007
26,7	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,009
27	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007
27,3	0,002	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,011
27,6	0,002	0,002	0,000	0,000	-0,002	-0,002	-0,009	-0,009	-0,009	-0,009	-0,011
27,9	0,005	0,002	0,002	0,000	0,000	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
28,2	0,002	0,002	0,000	0,000	0,000	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011

28,5	0,009	0,009	0,009	0,009	0,009	0,000	0,000	0,000	-0,002	-0,002	-0,002
28,8	0,011	0,009	0,002	0,002	0,009	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
29,1	0,009	0,009	0,002	0,002	0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
29,4	0,009	0,009	0,002	0,002	0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
29,7	0,009	0,009	0,002	0,002	0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005
30	0,013	0,007	0,005	0,005	0,007	0,002	0,002	0,002	0,000	0,000	0,000
30,3	0,005	0,007	0,005	0,005	0,005	0,000	0,000	0,000	0,000	0,000	0,000
30,6	0,005	0,009	0,007	0,007	0,009	0,005	0,005	0,005	0,005	0,005	0,005
30,9	0,005	0,009	0,007	0,007	0,007	0,005	0,005	0,005	0,005	0,005	0,005
31,2	0,005	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,002	0,002
31,5	0,005	0,005	0,005	0,005	0,005	0,002	0,002	0,002	0,002	0,002	0,002
31,8	0,005	0,005	0,002	0,002	0,005	0,002	0,002	0,002	0,002	0,002	0,000
32,1	0,002	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
32,4	0,002	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,007
32,7	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,007	-0,007	-0,007
33	0,002	0,002	0,002	0,002	0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,007
33,3	0,002	0,002	0,000	0,000	0,002	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007
33,6	0,000	0,000	-0,005	-0,005	0,000	-0,007	-0,007	-0,007	-0,007	-0,007	-0,009
33,9	0,000	-0,002	-0,005	-0,005	-0,005	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
34,2	-0,002	-0,002	-0,007	-0,007	-0,005	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011
34,5	-0,007	-0,007	-0,009	-0,009	-0,007	-0,011	-0,011	-0,011	-0,011	-0,011	-0,014
34,8	-0,007	-0,007	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011	-0,011	-0,011	-0,014
35,1	-0,007	-0,007	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011	-0,014	-0,014	-0,014
35,4	-0,007	-0,007	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011	-0,014	-0,014	-0,014

Results derived from the normalized time of flights, comprising interface displacement and range of exponent n from the joint variable model x/t^n for the experiment 'Injection at the bottom - Without coating' - Experiment #7 are respectively presented and compared for the two threshold values in Tables B.5 and B.6. They were very similar to identical whether the value of the threshold was 45 or 30%, demonstrating the very small influence the threshold choice had on the overall results.

To end this section, in Table B.7 are compiled the threshold values used for each experiment involving porous medium.

Table B.5 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - Without coating' - Experiment #7 - Threshold = 30%

Time (min)	Lower interface elevation (mm)	Interface displacement (mm)
0	10,05	0
2	12	1,95

3	12,6	2,55
6	13,5	3,45
10	13,8	3,75
19	14,4	4,35
34	15	4,95
58	16,2	6,15
91	16,8	6,75
138	18,8	8,75
196	19,8	9,75
262	20,1	10,05

Table B.6 Comparison of the main information derived from the experiment 'Injection at the bottom - Without coating' - Experiment #7 with both threshold values

Threshold value (%)	Exponent n range	Time range (min)	Displacement after 60 min within an accuracy of ±0.5 (mm)	Displacement after 140 min within an accuracy of ±0.5 (mm)	Displacement after 200 min within an accuracy of ±0.5 (mm)
45	0.26 - 0.31	0 - 262	6.15	8.55	9.75
30	0.27 - 0.33	0 - 262	6.15	8.75	9.75

Table B.7 Values of the thresholds used for each set of experiment

Injection type	# Experiment	Coating	Threshold value (%)
At the top	No	3	17
At the top	No	4	24
At the top	No	5	45
At the bottom	No	6	17
At the bottom	No	7	45
At the bottom	No	8	45
From the side	No	9	30
From the side	No	10	35
At the top	Yes	11	35
At the top	Yes	12	35
At the bottom	Yes	13	45
At the bottom	Yes	14	35
From the side	Yes	15	35

Appendix C: Tables of data

C1 Calibration curves

Calibration curves are mention in section 3.5.1.1 page 14. Data for the three types of rock are presented in Table C.1.

Table C.1 Compilation of the elevation reached by ocatcosane (wax) over time when each type of rock was placed in 1 g of wax - Data used for calibration curves

Time (min)	Elevation in Berea (mm)	Elevation in Desert Pink (mm)	Elevation in Indiana Limestone (mm)
0	0	0	0
5	11	10	5
15	19	18	8
30	25	24	10
45	29	29	12
60	33	32	13
75	37	35	14
90	39	37	15
105	40	38	15
120	41	40	16
135	42	41	17
150	43	42	18
165	43	42	20
180	44	43,5	20
195	44	44	21
210	45	45	22
225	46	46	23
240	46	46	24

C2 Raw data

The raw data obtained by acoustic measurements for each experiment are presented in this section.

Table C.2 Evolution of the values of time of flight (µs) with time (min) for elevations between 11.7 and 19.8 mm - 'Tracking of the interface wax/solvent with time without medium' - Experiment #2

Elevation (mm)	0 min	6 min	43 min	899 min	2360 min	2840 min	3653 min	5161 min
11,7	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0
12,3	0	0	0	0	0	0	0	0

12,6	0	0	0	0	0	0	0	0
12,9	0	0	0	0	0	0	0	0
13,2	0	0	0	0	0	0	0	0
13,5	0	0	0	0	0	0	0	0
13,8	0	0	0	0	13,985	13,99	13,98	13,98
14,1	0	0	0	0	13,985	13,99	13,98	13,98
14,4	0	0	0	13,99	13,98	13,97	13,97	13,97
14,7	0	0	0	13,99	13,98	13,97	13,97	13,97
15	0	0	0	13,98	13,98	13,97	13,96	13,96
15,3	0	0	0	13,98	13,97	13,97	13,96	13,96
15,6	0	14,1	13,985	13,97	13,97	13,97	13,96	13,96
15,9	0	14,1	13,985	13,97	13,97	13,97	13,96	13,96
16,2	14	13,99	13,98	13,97	13,97	13,96	13,96	13,96
16,5	13,99	13,99	13,98	13,97	13,96	13,96	13,96	13,96
16,8	13,985	13,98	13,97	13,97	13,96	13,96	13,96	13,96
17,1	13,98	13,98	13,97	13,97	13,96	13,96	13,96	13,96
17,4	13,98	13,98	13,97	13,96	13,96	13,96	13,96	13,96
17,7	13,98	13,98	13,97	13,96	13,96	13,96	13,96	13,96
18	13,98	13,98	13,97	13,96	13,96	13,96	13,96	13,96
18,3	13,98	13,98	13,97	13,97	13,96	13,96	13,96	13,96
18,6	13,97	13,98	13,97	13,97	13,96	13,96	13,96	13,96
18,9	13,97	13,98	13,97	13,97	13,97	13,96	13,96	13,96
19,2	13,97	13,98	13,97	13,97	13,97	13,96	13,96	13,96
19,5	13,97	13,98	13,97	13,97	13,97	13,96	13,96	13,96
19,8	13,97	13,98	13,97	13,97	13,97	13,96	13,96	13,96

Table C.3 Time of flight values at different elevations over time (between 0 and 14 min) for the experiment 'Injection at the top - Without coating' - Experiment #3

Elevation (mm)	0 min	0 min bis	1 min	3 min	4 min	6 min	11 min	14 min
2,1	6,548	6,548	6,538	6,538	6,538	6,538	6,538	6,538
2,4	6,558	6,548	6,548	6,548	6,548	6,548	6,538	6,538
2,7	6,558	6,558	6,548	6,548	6,548	6,548	6,548	6,548
3	6,568	6,558	6,558	6,558	6,558	6,558	6,548	6,548
3,3	6,568	6,558	6,558	6,558	6,558	6,558	6,548	6,548
3,6	6,568	6,568	6,558	6,558	6,558	6,558	6,558	6,558
3,9	6,578	6,568	6,568	6,568	6,568	6,568	6,558	6,558
4,2	6,578	6,568	6,568	6,568	6,568	6,568	6,568	6,558
4,5	6,578	6,568	6,568	6,568	6,568	6,568	6,568	6,568
4,8	6,578	6,578	6,568	6,568	6,568	6,568	6,568	6,568
5,1	6,578	6,578	6,568	6,568	6,568	6,568	6,568	6,568

5,4	6,588	6,578	6,578	6,578	6,568	6,578	6,568	6,568
5,7	6,588	6,578	6,568	6,568	6,568	6,568	6,568	6,568
6	6,588	6,578	6,578	6,578	6,568	6,578	6,568	6,568
6,3	6,588	6,578	6,578	6,568	6,568	6,568	6,568	6,568
6,6	6,588	6,578	6,578	6,568	6,568	6,568	6,568	6,568
6,9	6,588	6,578	6,568	6,568	6,568	6,568	6,568	6,558
7,2	6,588	6,578	6,568	6,568	6,568	6,568	6,568	6,558
7,5	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
7,8	6,588	6,578	6,568	6,568	6,568	6,568	6,558	6,558
8,1	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
8,4	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
8,7	6,578	6,568	6,568	6,558	6,558	6,558	6,558	6,548
9	6,578	6,578	6,568	6,568	6,568	6,558	6,558	6,558
9,3	6,578	6,568	6,568	6,558	6,558	6,558	6,558	6,548
9,6	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
9,9	6,578	6,578	6,568	6,568	6,568	6,558	6,558	6,558
10,2	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
10,5	6,578	6,578	6,568	6,568	6,568	6,568	6,558	6,558
10,8	6,588	6,578	6,568	6,568	6,568	6,568	6,558	6,558
11,1	6,588	6,578	6,568	6,568	6,568	6,568	6,558	6,558
11,4	6,588	6,578	6,578	6,568	6,568	6,568	6,558	6,558
11,7	6,588	6,578	6,578	6,568	6,568	6,568	6,568	6,558
12	6,588	6,588	6,578	6,578	6,578	6,568	6,568	6,568
12,3	6,588	6,588	6,578	6,578	6,578	6,578	6,568	6,568
12,6	6,598	6,588	6,578	6,578	6,578	6,578	6,568	6,568
12,9	6,598	6,588	6,578	6,578	6,578	6,578	6,568	6,568
13,2	6,598	6,588	6,588	6,578	6,578	6,578	6,578	6,568
13,5	6,598	6,598	6,588	6,588	6,578	6,578	6,578	6,568
13,8	6,598	6,598	6,588	6,588	6,588	6,588	6,578	6,578
14,1	6,608	6,598	6,588	6,588	6,588	6,588	6,578	6,578
14,4	6,608	6,598	6,598	6,588	6,588	6,588	6,578	6,578
14,7	6,608	6,608	6,598	6,598	6,598	6,588	6,588	6,578
15	6,618	6,608	6,598	6,598	6,598	6,598	6,588	6,588
15,3	6,618	6,608	6,598	6,598	6,598	6,598	6,588	6,588
15,6	6,618	6,618	6,608	6,608	6,598	6,598	6,598	6,588
15,9	6,628	6,618	6,608	6,608	6,608	6,608	6,598	6,598
16,2	6,628	6,618	6,608	6,608	6,608	6,608	6,598	6,598
16,5	6,628	6,628	6,618	6,608	6,608	6,608	6,608	6,598
16,8	6,628	6,628	6,618	6,618	6,618	6,608	6,608	6,608
17,1	6,638	6,628	6,618	6,618	6,618	6,618	6,608	6,608
17,4	6,638	6,628	6,618	6,618	6,618	6,618	6,608	6,608

17,7	6,638	6,638	6,628	6,618	6,618	6,618	6,618	6,608
18	6,638	6,638	6,628	6,618	6,618	6,618	6,618	6,608
18,3	6,638	6,638	6,628	6,618	6,628	6,618	6,618	6,608
18,6	6,648	6,638	6,628	6,628	6,628	6,628	6,618	6,618
18,9	6,648	6,638	6,628	6,628	6,628	6,628	6,618	6,618
19,2	6,648	6,648	6,638	6,628	6,638	6,628	6,618	6,608
19,5	6,648	6,648	6,638	6,628	6,638	6,628	6,618	6,608
19,8	6,658	6,658	6,638	6,638	6,638	6,628	6,618	6,608
20,1	6,668	6,658	6,648	6,638	6,648	6,628	6,618	6,608
20,4	6,678	6,668	6,648	6,648	6,648	6,628	6,618	6,598
20,7	6,678	6,678	6,658	6,658	6,658	6,638	6,618	6,598
21	6,698	6,688	6,668	6,658	6,668	6,628	6,608	6,598
21,3	6,708	6,698	6,678	6,678	6,678	6,638	6,618	6,598
21,6	6,718	6,718	6,688	6,678	6,678	6,628	6,608	6,588
21,9	6,728	6,728	6,698	6,698	6,698	6,648	6,638	6,618
22,2	6,738	6,738	6,708	6,698	6,698	6,648	6,628	6,618
22,5	6,758	6,748	6,718	6,718	6,718	6,678	6,678	6,668
22,8	6,758	6,758	6,728	6,718	6,708	6,678	6,678	6,658
23,1	6,768	6,768	6,738	6,738	6,728	6,718	6,748	6,728
23,4	6,768	6,768	6,738	6,738	6,728	6,718	6,748	6,728
23,7	6,778	6,778	6,758	6,758	6,748	6,768	6,838	6,818
24	6,778	6,778	6,748	6,748	6,738	6,758	6,828	6,808
24,3	6,788	6,788	6,768	6,778	6,778	6,818	6,910	6,908
24,6	6,788	6,778	6,758	6,768	6,768	6,798	6,898	6,898
24,9	6,788	6,788	6,768	6,788	6,808	6,858	6,988	6,998
25,2	6,788	6,788	6,768	6,788	6,798	6,858	6,958	6,968
25,5	6,798	6,788	6,778	6,798	6,848	6,918	7,068	7,078
25,8	6,798	6,788	6,778	6,798	6,838	6,908	7,048	7,068
26,1	6,798	6,788	6,788	6,818	6,888	6,988	7,148	7,188
26,4	6,798	6,788	6,788	6,818	6,888	6,978	7,158	7,188
26,7	6,808	6,798	6,808	6,848	6,938	7,058	7,258	7,308
27	6,798	6,798	6,798	6,848	6,928	7,048	7,258	7,328
27,3	6,818	6,818	6,828	6,878	6,988	7,128	7,368	7,448
27,6	6,818	6,808	6,828	6,878	6,978	7,118	7,358	7,458
27,9	6,898	6,898	6,868	6,928	7,068	7,228	7,528	7,578
28,2	6,958	6,958	6,858	6,938	7,018	7,228	7,518	7,568
28,5	11,488	11,458	6,958	7,008	7,138	7,328	7,608	7,678
28,8	11,478	11,458	6,928	7,018	7,138	7,378	7,638	7,718
29,1	11,468	11,448	7,400	7,118	7,368	7,448	7,808	7,858
29,4	11,468	11,448	10,338	7,228	7,478	7,618	7,798	7,838
29,7	11,458	11,438	10,258	7,545	7,725	10,148	10,148	10,198

30	11,468	11,438	10,288	7,625	10,188	10,118	10,148	10,208
30,3	11,448	11,428	10,258	10,118	10,158	10,118	10,228	10,248
30,6	11,458	11,428	10,278	10,198	10,198	10,198	10,258	10,218
30,9	11,438	11,418	10,238	10,238	10,218	10,228	10,188	10,248
31,2	11,448	11,428	10,258	10,178	10,149	10,218	10,258	10,198
31,5	11,438	11,418	10,238	10,178	10,308	10,188	10,218	10,258
31,8	11,448	11,428	10,308	10,328	10,318	10,268	10,188	10,178
32,1	11,448	11,418	10,268	10,368	10,318	10,288	10,148	10,238
32,4	11,458	11,428	10,318	10,288	10,278	10,238	10,208	10,198
32,7	11,448	11,428	10,288	10,308	10,208	10,238	10,218	10,258
33	11,468	11,448	10,328	10,338	10,188	10,158	10,308	10,218
33,3	11,468	11,448	10,318	10,228	10,300	10,218	10,298	10,178
33,6	11,488	11,458	10,308	10,328	10,378	10,258	10,248	10,318
33,9	11,488	11,468	10,258	10,278	10,308	10,300	10,178	10,198
34,2	11,518	11,498	10,300	10,438	10,348	10,398	10,318	10,288
34,5	11,538	11,508	10,320	10,348	10,318	10,318	10,398	10,018
34,8	11,558	11,538	10,368	10,398	10,398	10,338	10,288	10,408
35,1	11,588	11,558	10,278	10,200	10,345	10,348	10,375	10,200
35,4	11,618	11,588	10,410	10,300	10,356	10,350	10,378	10,400

Table C.4 Time of flight values at different elevations over time (between 24 and 143 min) for the experiment 'Injection at the top - Without coating' - Experiment #3

Elevation (mm)	24 min	35 min	43 min	59 min	78 min	103 min	122 min	143 min
2,1	6,528	6,528	6,528	6,528	6,528	6,528	6,538	6,538
2,4	6,538	6,538	6,538	6,538	6,538	6,538	6,548	6,548
2,7	6,538	6,538	6,538	6,538	6,538	6,548	6,548	6,548
3	6,548	6,548	6,548	6,548	6,548	6,548	6,558	6,558
3,3	6,548	6,548	6,548	6,548	6,548	6,558	6,558	6,558
3,6	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,568
3,9	6,558	6,558	6,558	6,558	6,558	6,568	6,568	6,568
4,2	6,568	6,568	6,558	6,568	6,558	6,568	6,568	6,568
4,5	6,568	6,558	6,558	6,568	6,568	6,568	6,578	6,578
4,8	6,568	6,568	6,558	6,568	6,568	6,568	6,578	6,578
5,1	6,568	6,568	6,568	6,568	6,568	6,568	6,578	6,578
5,4	6,568	6,568	6,568	6,568	6,568	6,578	6,578	6,578
5,7	6,568	6,568	6,558	6,568	6,568	6,568	6,578	6,578
6	6,568	6,568	6,558	6,568	6,568	6,578	6,578	6,578
6,3	6,568	6,558	6,558	6,568	6,568	6,568	6,578	6,578
6,6	6,568	6,558	6,558	6,568	6,568	6,568	6,578	6,578
6,9	6,558	6,558	6,558	6,558	6,558	6,568	6,568	6,568

7,2	6,558	6,558	6,558	6,558	6,558	6,568	6,568	6,568
7,5	6,558	6,558	6,558	6,558	6,558	6,568	6,568	6,568
7,8	6,558	6,558	6,558	6,558	6,558	6,558	6,568	6,568
8,1	6,558	6,548	6,548	6,548	6,548	6,558	6,568	6,568
8,4	6,558	6,548	6,548	6,548	6,548	6,558	6,558	6,568
8,7	6,548	6,548	6,548	6,548	6,548	6,558	6,558	6,568
9	6,548	6,548	6,548	6,548	6,548	6,558	6,558	6,568
9,3	6,548	6,548	6,548	6,548	6,548	6,558	6,558	6,568
9,6	6,548	6,548	6,548	6,548	6,548	6,558	6,568	6,568
9,9	6,548	6,548	6,548	6,548	6,548	6,558	6,568	6,568
10,2	6,558	6,558	6,548	6,558	6,558	6,558	6,568	6,578
10,5	6,558	6,548	6,548	6,548	6,558	6,558	6,568	6,578
10,8	6,558	6,558	6,558	6,558	6,558	6,568	6,568	6,578
11,1	6,558	6,558	6,558	6,558	6,558	6,568	6,578	6,578
11,4	6,558	6,558	6,558	6,558	6,558	6,568	6,578	6,588
11,7	6,558	6,558	6,558	6,558	6,568	6,568	6,578	6,588
12	6,558	6,558	6,558	6,568	6,568	6,578	6,588	6,598
12,3	6,568	6,558	6,558	6,568	6,568	6,578	6,588	6,598
12,6	6,568	6,568	6,568	6,568	6,568	6,578	6,588	6,598
12,9	6,568	6,568	6,568	6,568	6,578	6,578	6,588	6,608
13,2	6,568	6,568	6,568	6,568	6,578	6,588	6,598	6,608
13,5	6,568	6,568	6,568	6,578	6,578	6,588	6,598	6,608
13,8	6,578	6,578	6,578	6,578	6,578	6,588	6,598	6,618
14,1	6,578	6,578	6,568	6,578	6,578	6,588	6,598	6,618
14,4	6,578	6,578	6,578	6,578	6,588	6,598	6,608	6,618
14,7	6,578	6,578	6,578	6,588	6,588	6,598	6,608	6,618
15	6,588	6,588	6,588	6,588	6,588	6,598	6,608	6,618
15,3	6,588	6,588	6,588	6,588	6,598	6,598	6,608	6,628
15,6	6,588	6,588	6,588	6,598	6,598	6,598	6,608	6,628
15,9	6,598	6,598	6,598	6,598	6,598	6,608	6,618	6,628
16,2	6,598	6,598	6,598	6,598	6,598	6,608	6,618	6,628
16,5	6,598	6,598	6,598	6,598	6,608	6,608	6,618	6,638
16,8	6,598	6,598	6,598	6,598	6,598	6,608	6,618	6,628
17,1	6,608	6,608	6,598	6,608	6,598	6,608	6,628	6,648
17,4	6,608	6,608	6,598	6,598	6,598	6,608	6,618	6,638
17,7	6,608	6,608	6,598	6,598	6,608	6,618	6,628	6,648
18	6,608	6,608	6,598	6,598	6,598	6,608	6,618	6,648
18,3	6,608	6,608	6,598	6,598	6,598	6,618	6,638	6,668
18,6	6,608	6,598	6,598	6,598	6,588	6,608	6,628	6,658
18,9	6,608	6,598	6,598	6,598	6,598	6,618	6,648	6,688
19,2	6,598	6,598	6,588	6,588	6,588	6,608	6,638	6,678

19,5	6,598	6,598	6,598	6,598	6,608	6,638	6,668	6,708
19,8	6,598	6,588	6,588	6,588	6,588	6,628	6,658	6,708
20,1	6,598	6,598	6,598	6,608	6,618	6,658	6,698	6,748
20,4	6,588	6,588	6,588	6,598	6,608	6,648	6,688	6,738
20,7	6,588	6,598	6,598	6,618	6,648	6,688	6,738	6,788
21	6,588	6,588	6,598	6,608	6,638	6,678	6,728	6,778
21,3	6,598	6,608	6,618	6,648	6,678	6,728	6,778	6,838
21,6	6,588	6,598	6,608	6,638	6,668	6,718	6,768	6,818
21,9	6,628	6,638	6,658	6,688	6,728	6,778	6,838	6,898
22,2	6,628	6,628	6,648	6,678	6,708	6,768	6,828	6,878
22,5	6,678	6,698	6,708	6,748	6,798	6,858	6,908	6,968
22,8	6,668	6,678	6,698	6,728	6,788	6,858	6,928	6,988
23,1	6,738	6,758	6,778	6,818	6,878	6,968	7,038	7,108
23,4	6,728	6,748	6,768	6,808	6,888	6,978	7,038	7,108
23,7	6,818	6,848	6,868	6,928	7,018	7,108	7,198	7,258
24	6,818	6,848	6,878	6,928	7,008	7,118	7,198	7,268
24,3	6,938	6,968	6,988	7,078	7,160	7,310	7,360	7,410
24,6	6,928	6,958	6,998	7,068	7,160	7,290	7,425	7,418
24,9	7,038	7,078	7,148	7,248	7,300	7,460	7,550	7,580
25,2	7,018	7,068	7,118	7,238	7,300	7,460	7,518	7,528
25,5	7,158	7,248	7,298	7,398	7,490	7,590	7,648	7,648
25,8	7,128	7,228	7,258	7,388	7,488	7,538	7,588	7,618
26,1	7,288	7,378	7,418	7,498	7,590	7,718	7,768	7,818
26,4	7,298	7,338	7,408	7,508	7,588	7,718	7,738	7,818
26,7	7,418	7,508	7,538	7,625	7,758	7,838	7,918	7,958
27	7,448	7,508	7,528	7,648	7,780	7,858	7,918	7,958
27,3	7,578	7,658	7,738	7,828	7,938	8,008	8,058	8,148
27,6	7,598	7,688	7,698	7,838	7,908	7,988	8,048	8,088
27,9	7,708	7,768	7,858	7,948	8,038	8,148	8,168	8,308
28,2	7,708	7,818	7,878	7,988	8,058	8,068	8,228	8,288
28,5	7,848	7,948	8,058	8,138	8,238	8,288	8,648	8,778
28,8	7,868	7,978	8,028	8,118	8,208	8,678	8,728	10,098
29,1	8,028	8,148	8,198	8,448	8,748	10,118	10,108	10,148
29,4	8,048	8,118	10,188	10,128	8,778	10,138	10,108	10,088
29,7	10,228	10,178	10,188	10,198	10,148	10,068	10,058	10,108
30	10,258	10,168	10,158	10,078	10,108	10,088	10,068	10,108
30,3	10,218	10,188	10,168	10,118	10,118	10,118	10,098	10,128
30,6	10,218	10,208	10,198	10,108	10,048	10,088	10,118	10,098
30,9	10,158	10,148	10,088	10,148	10,108	10,138	10,038	10,088
31,2	10,108	10,198	10,118	10,158	10,128	10,098	10,108	10,128
31,5	10,108	10,138	10,168	10,118	10,048	10,098	10,078	10,108

31,8	10,208	10,138	10,138	10,168	10,118	10,118	10,088	10,128
32,1	10,198	10,198	10,148	10,108	10,088	10,148	10,040	10,138
32,4	10,178	10,218	10,168	9,948	10,118	10,128	10,128	10,118
32,7	10,018	10,068	10,068	10,088	10,098	10,088	10,128	10,158
33	10,198	10,118	10,188	10,148	10,178	10,058	10,178	10,148
33,3	10,158	10,218	10,168	10,000	10,048	10,000	10,100	10,100
33,6	10,148	10,188	10,148	10,158	10,118	10,128	10,100	10,100
33,9	10,100	10,218	10,248	10,188	10,148	10,050	10,100	10,180
34,2	10,248	10,188	10,248	10,288	10,168	10,100	10,138	10,158
34,5	10,255	10,200	10,248	10,245	10,100	10,108	10,150	10,198
34,8	10,328	10,100	10,248	10,200	10,228	10,278	10,248	10,108
35,1	10,350	10,150	10,400	10,275	10,148	10,168	10,100	10,200
35,4	10,420	10,300	10,400	10,320	10,148	10,088	10,100	10,328

Table C.5 Time of flight values at different elevations over time for the experiment 'Injection at the top - Without coating' - Experiment #4

Elevation (mm)	0 min	0 min bis	1 min	3 min	5 min	9 min	19 min	29 min	45 min	60 min
2,1	6,758	6,728	6,718	6,718	6,708	6,688	6,688	6,688	6,688	6,678
2,4	6,768	6,728	6,718	6,718	6,718	6,688	6,688	6,688	6,688	6,678
2,7	6,778	6,738	6,728	6,728	6,728	6,698	6,698	6,698	6,698	6,688
3	6,788	6,738	6,738	6,738	6,728	6,708	6,708	6,708	6,698	6,698
3,3	6,798	6,758	6,758	6,748	6,748	6,728	6,718	6,718	6,718	6,708
3,6	6,808	6,778	6,768	6,768	6,758	6,738	6,738	6,728	6,728	6,728
3,9	6,818	6,778	6,778	6,778	6,768	6,748	6,748	6,748	6,748	6,748
4,2	6,828	6,788	6,788	6,778	6,778	6,758	6,758	6,758	6,758	6,758
4,5	6,828	6,788	6,788	6,788	6,778	6,768	6,758	6,758	6,768	6,768
4,8	6,828	6,798	6,798	6,788	6,788	6,768	6,768	6,768	6,768	6,768
5,1	6,828	6,798	6,798	6,798	6,788	6,768	6,768	6,768	6,768	6,768
5,4	6,838	6,798	6,798	6,798	6,788	6,768	6,768	6,768	6,768	6,768
5,7	6,838	6,808	6,798	6,788	6,788	6,768	6,768	6,768	6,768	6,768
6	6,838	6,808	6,798	6,798	6,788	6,768	6,768	6,768	6,768	6,768
6,3	6,838	6,798	6,798	6,798	6,788	6,768	6,768	6,768	6,768	6,768
6,6	6,838	6,808	6,798	6,798	6,788	6,778	6,768	6,768	6,768	6,768
6,9	6,828	6,798	6,788	6,788	6,788	6,768	6,758	6,758	6,768	6,768
7,2	6,828	6,798	6,788	6,788	6,788	6,768	6,768	6,768	6,768	6,768
7,5	6,828	6,798	6,788	6,788	6,788	6,768	6,758	6,758	6,768	6,768
7,8	6,828	6,798	6,788	6,788	6,788	6,768	6,768	6,768	6,768	6,768
8,1	6,828	6,798	6,788	6,788	6,788	6,768	6,768	6,758	6,768	6,768
8,4	6,838	6,808	6,798	6,798	6,788	6,778	6,768	6,768	6,768	6,768

8,7	6,838	6,808	6,788	6,788	6,788	6,778	6,768	6,768	6,768	6,768
9	6,838	6,808	6,798	6,798	6,788	6,778	6,768	6,768	6,778	6,778
9,3	6,838	6,808	6,798	6,798	6,788	6,778	6,768	6,768	6,778	6,778
9,6	6,848	6,818	6,808	6,808	6,798	6,788	6,778	6,778	6,778	6,788
9,9	6,848	6,818	6,808	6,808	6,798	6,788	6,778	6,778	6,778	6,788
10,2	6,848	6,818	6,808	6,808	6,798	6,788	6,778	6,778	6,788	6,788
10,5	6,858	6,818	6,808	6,808	6,808	6,798	6,788	6,788	6,788	6,798
10,8	6,858	6,828	6,818	6,818	6,808	6,798	6,788	6,788	6,788	6,798
11,1	6,858	6,828	6,818	6,818	6,808	6,798	6,788	6,788	6,798	6,808
11,4	6,868	6,828	6,828	6,818	6,818	6,798	6,798	6,798	6,798	6,808
11,7	6,868	6,838	6,828	6,828	6,818	6,808	6,798	6,798	6,808	6,818
12	6,868	6,838	6,828	6,828	6,828	6,818	6,808	6,798	6,808	6,818
12,3	6,868	6,848	6,838	6,838	6,828	6,818	6,808	6,808	6,818	6,828
12,6	6,878	6,848	6,838	6,838	6,828	6,818	6,808	6,808	6,818	6,828
12,9	6,878	6,858	6,848	6,848	6,838	6,828	6,818	6,818	6,828	6,828
13,2	6,888	6,858	6,848	6,848	6,838	6,828	6,818	6,818	6,828	6,828
13,5	6,888	6,868	6,848	6,848	6,848	6,828	6,818	6,828	6,838	6,828
13,8	6,898	6,868	6,858	6,858	6,848	6,838	6,828	6,828	6,838	6,828
14,1	6,898	6,868	6,858	6,858	6,848	6,838	6,838	6,838	6,848	6,838
14,4	6,908	6,878	6,868	6,868	6,858	6,848	6,838	6,838	6,848	6,828
14,7	6,908	6,888	6,878	6,878	6,868	6,858	6,848	6,858	6,858	6,848
15	6,918	6,888	6,878	6,878	6,878	6,868	6,858	6,858	6,858	6,838
15,3	6,928	6,898	6,888	6,888	6,878	6,878	6,868	6,868	6,878	6,858
15,6	6,928	6,908	6,898	6,898	6,888	6,878	6,868	6,868	6,878	6,848
15,9	6,938	6,918	6,898	6,898	6,898	6,888	6,878	6,878	6,888	6,868
16,2	6,938	6,918	6,908	6,908	6,898	6,888	6,878	6,878	6,878	6,858
16,5	6,948	6,928	6,918	6,918	6,908	6,908	6,898	6,898	6,908	6,898
16,8	6,958	6,928	6,918	6,918	6,908	6,908	6,898	6,888	6,898	6,888
17,1	6,968	6,938	6,928	6,938	6,928	6,918	6,908	6,908	6,928	6,928
17,4	6,968	6,938	6,928	6,938	6,918	6,918	6,898	6,898	6,908	6,918
17,7	6,978	6,948	6,938	6,948	6,938	6,928	6,908	6,918	6,938	6,968
18	6,988	6,958	6,948	6,968	6,938	6,918	6,898	6,898	6,928	6,938
18,3	7,008	6,978	6,978	6,998	6,968	6,938	6,908	6,908	6,948	7,008
18,6	7,028	6,998	6,998	7,028	6,978	6,928	6,888	6,898	6,928	7,008
18,9	7,048	7,028	7,018	7,058	7,008	6,988	6,918	6,918	6,978	7,118
19,2	7,068	7,048	7,038	7,088	7,018	6,968	6,898	6,908	6,988	7,108
19,5	7,078	7,068	7,048	7,108	7,058	7,068	6,988	7,008	7,120	7,668
19,8	7,088	7,068	7,058	7,128	7,058	7,038	6,988	7,008	7,080	7,668
20,1	7,098	7,078	7,068	7,138	7,088	7,108	7,088	7,108	7,190	7,738
20,4	7,108	7,078	7,078	7,148	7,088	7,088	7,058	7,098	7,251	7,778
20,7	7,108	7,088	7,078	7,158	7,108	7,128	7,128	7,188	7,328	7,868

21	7,108	7,088	7,078	7,168	7,098	7,118	7,118	7,188	7,388	7,878
21,3	7,118	7,098	7,088	7,178	7,118	7,178	7,198	7,288	7,418	7,958
21,6	7,118	7,098	7,088	7,178	7,098	7,138	7,168	7,258	7,658	7,928
21,9	7,128	7,108	7,088	7,188	7,128	7,208	7,258	7,328	7,768	8,078
22,2	7,138	7,118	7,098	7,198	7,108	7,178	7,238	7,408	8,288	8,178
22,5	7,148	7,128	7,108	7,218	7,138	7,268	7,358	7,768	8,348	8,318
22,8	7,148	7,128	7,108	7,218	7,168	7,448	7,408	7,790	8,448	8,438
23,1	7,168	7,148	7,128	7,258	7,488	7,948	8,208	8,388	8,528	8,568
23,4	7,168	7,158	7,128	7,268	7,598	7,988	8,228	8,418	8,548	8,618
23,7	7,188	7,168	7,148	7,398	7,678	8,008	8,258	8,458	8,608	8,708
24	7,188	7,168	7,148	7,418	7,698	8,018	8,278	8,458	8,618	8,708
24,3	7,208	7,178	7,178	7,468	7,718	8,058	8,328	8,498	8,648	8,768
24,6	7,198	7,178	7,178	7,478	7,718	8,058	8,318	8,508	8,668	8,778
24,9	7,208	7,188	7,198	7,458	7,718	8,098	8,388	8,558	8,718	8,818
25,2	7,208	7,188	7,198	7,428	7,698	8,098	8,368	8,548	8,718	8,838
25,5	7,198	7,178	7,198	7,428	7,708	8,148	8,438	8,598	8,788	8,908
25,8	7,198	7,178	7,188	7,398	7,698	8,138	8,398	8,598	8,778	8,918
26,1	7,198	7,188	7,188	7,438	7,768	8,188	8,498	8,688	8,878	9,008
26,4	7,198	7,178	7,188	7,408	7,718	8,178	8,468	8,658	8,878	9,018
26,7	7,218	7,188	7,208	7,478	7,728	8,068	8,588	8,788	9,008	9,108
27	7,208	7,198	7,208	7,478	7,748	8,048	8,578	8,788	8,968	9,088
27,3	7,238	7,208	7,268	7,528	7,838	8,158	8,708	8,858	9,108	9,400
27,6	7,228	7,208	7,258	7,548	7,818	8,148	8,718	8,908	9,100	9,248
27,9	7,278	7,248	7,298	7,628	7,908	8,158	8,808	9,000	9,310	9,578
28,2	7,348	7,308	7,318	7,618	7,858	8,248	8,810	9,088	10,175	9,628
28,5	11,738	11,708	7,338	7,688	7,925	8,628	9,048	9,290	10,390	10,440
28,8	11,728	11,698	7,428	7,768	7,978	8,548	10,520	10,348	10,398	10,508
29,1	11,728	11,698	9,788	7,818	8,098	10,578	10,508	10,348	10,448	10,478
29,4	11,718	11,688	10,360	8,000	8,108	10,618	10,428	10,368	10,428	10,448
29,7	11,708	11,678	10,452	8,078	8,638	10,608	10,458	10,458	10,428	10,428
30	11,688	11,668	10,548	10,558	10,598	10,588	10,388	10,488	10,448	10,388
30,3	11,678	11,658	10,558	10,548	10,648	10,578	10,418	10,508	10,428	10,448
30,6	11,668	11,648	10,578	10,588	10,538	10,518	10,488	10,488	10,448	10,448
30,9	11,658	11,638	10,518	10,578	10,478	10,458	10,468	10,488	10,468	10,448
31,2	11,648	11,648	10,588	10,588	10,538	10,498	10,438	10,448	10,438	10,388
31,5	11,638	11,638	10,598	10,598	10,468	10,508	10,508	10,508	10,348	10,368
31,8	11,638	11,648	10,568	10,568	10,548	10,508	10,488	10,478	10,438	10,378
32,1	11,618	11,638	10,588	10,588	10,478	10,488	10,498	10,448	10,398	10,338
32,4	11,628	11,638	10,648	10,578	10,548	10,528	10,528	10,468	10,398	10,408
32,7	11,618	11,628	10,588	10,528	10,518	10,508	10,448	10,378	10,378	10,398
33	11,618	11,648	10,638	10,548	10,568	10,528	10,508	10,408	10,388	10,388

33,3	11,618	11,648	10,568	10,568	10,548	10,478	10,388	10,448	10,368	10,328
33,6	11,618	11,658	10,608	10,588	10,548	10,528	10,468	10,418	10,408	10,388
33,9	11,608	11,658	10,588	10,528	10,558	10,488	10,388	10,398	10,398	10,268
34,2	11,618	11,668	10,628	10,588	10,568	10,518	10,438	10,448	10,390	10,338
34,5	11,608	11,668	10,578	10,558	10,508	10,428	10,368	10,438	10,428	10,358
34,8	11,608	11,678	10,628	10,608	10,578	10,528	10,498	10,468	10,428	10,418
35,1	11,608	11,678	10,608	10,568	10,568	10,568	10,438	10,488	10,408	10,308
35,4	11,618	11,688	10,638	10,628	10,588	10,548	10,558	10,488	10,438	10,458

Table C.6 Time of flight values at different elevations over time (between 0 and 14 min) for the experiment 'Injection at the top - Without coating' - Experiment #5

Elevation (mm)	0 min	0 min bis	1 min	3 min	7 min	9 min	14 min
2,1	6,858	6,858	6,858	6,858	6,848	6,848	6,838
2,4	6,868	6,868	6,858	6,858	6,848	6,848	6,848
2,7	6,868	6,868	6,858	6,858	6,858	6,848	6,848
3	6,868	6,868	6,868	6,858	6,858	6,858	6,848
3,3	6,868	6,868	6,868	6,858	6,858	6,858	6,848
3,6	6,878	6,878	6,868	6,868	6,858	6,858	6,858
3,9	6,878	6,878	6,868	6,868	6,858	6,868	6,858
4,2	6,878	6,878	6,878	6,868	6,868	6,868	6,858
4,5	6,888	6,878	6,878	6,878	6,868	6,868	6,858
4,8	6,888	6,888	6,888	6,878	6,878	6,878	6,868
5,1	6,888	6,888	6,888	6,888	6,878	6,878	6,868
5,4	6,898	6,898	6,888	6,888	6,878	6,878	6,878
5,7	6,898	6,898	6,888	6,888	6,878	6,878	6,878
6	6,898	6,898	6,898	6,888	6,888	6,888	6,878
6,3	6,898	6,898	6,898	6,888	6,888	6,888	6,878
6,6	6,898	6,898	6,898	6,898	6,888	6,888	6,878
6,9	6,898	6,898	6,898	6,898	6,888	6,888	6,878
7,2	6,908	6,898	6,898	6,898	6,888	6,888	6,878
7,5	6,908	6,898	6,898	6,898	6,888	6,888	6,878
7,8	6,908	6,908	6,898	6,898	6,888	6,888	6,888
8,1	6,908	6,908	6,898	6,898	6,888	6,888	6,878
8,4	6,908	6,908	6,908	6,908	6,898	6,898	6,888
8,7	6,908	6,908	6,908	6,898	6,898	6,898	6,888
9	6,918	6,918	6,908	6,908	6,898	6,908	6,888
9,3	6,918	6,918	6,908	6,908	6,898	6,908	6,888
9,6	6,918	6,918	6,918	6,918	6,908	6,908	6,898
9,9	6,928	6,918	6,918	6,918	6,908	6,908	6,898
10,2	6,928	6,928	6,918	6,918	6,908	6,918	6,898

10,5	6,928	6,928	6,918	6,918	6,908	6,918	6,908
10,8	6,928	6,928	6,928	6,918	6,918	6,918	6,908
11,1	6,928	6,928	6,928	6,918	6,918	6,918	6,908
11,4	6,928	6,928	6,928	6,918	6,918	6,918	6,908
11,7	6,928	6,928	6,928	6,918	6,918	6,918	6,908
12	6,928	6,928	6,918	6,918	6,908	6,918	6,908
12,3	6,928	6,928	6,918	6,918	6,908	6,918	6,898
12,6	6,918	6,918	6,908	6,908	6,898	6,908	6,898
12,9	6,908	6,908	6,908	6,898	6,898	6,898	6,888
13,2	6,898	6,898	6,898	6,888	6,888	6,888	6,878
13,5	6,898	6,888	6,888	6,888	6,878	6,878	6,868
13,8	6,878	6,878	6,878	6,868	6,868	6,868	6,858
14,1	6,878	6,878	6,868	6,868	6,858	6,858	6,848
14,4	6,858	6,858	6,858	6,848	6,848	6,848	6,838
14,7	6,858	6,858	6,848	6,848	6,838	6,838	6,838
15	6,848	6,848	6,838	6,838	6,828	6,828	6,828
15,3	6,838	6,838	6,838	6,828	6,828	6,828	6,818
15,6	6,828	6,828	6,828	6,818	6,818	6,818	6,808
15,9	6,828	6,828	6,818	6,818	6,808	6,808	6,808
16,2	6,818	6,818	6,818	6,808	6,808	6,808	6,798
16,5	6,818	6,818	6,808	6,808	6,798	6,798	6,798
16,8	6,808	6,808	6,798	6,798	6,788	6,798	6,788
17,1	6,798	6,798	6,798	6,788	6,788	6,788	6,788
17,4	6,798	6,798	6,798	6,788	6,788	6,788	6,778
17,7	6,788	6,788	6,788	6,778	6,778	6,778	6,778
18	6,798	6,788	6,788	6,788	6,778	6,788	6,778
18,3	6,788	6,788	6,778	6,778	6,778	6,778	6,778
18,6	6,788	6,788	6,778	6,778	6,778	6,778	6,778
18,9	6,788	6,788	6,778	6,778	6,768	6,778	6,768
19,2	6,788	6,788	6,778	6,778	6,778	6,788	6,778
19,5	6,788	6,788	6,778	6,778	6,778	6,788	6,768
19,8	6,788	6,788	6,788	6,778	6,778	6,788	6,768
20,1	6,788	6,788	6,788	6,778	6,778	6,788	6,768
20,4	6,798	6,798	6,798	6,788	6,788	6,798	6,758
20,7	6,798	6,808	6,798	6,798	6,788	6,798	6,768
21	6,818	6,818	6,808	6,808	6,798	6,798	6,748
21,3	6,828	6,828	6,818	6,818	6,808	6,808	6,768
21,6	6,838	6,838	6,828	6,828	6,808	6,798	6,758
21,9	6,848	6,858	6,848	6,848	6,838	6,808	6,768
22,2	6,858	6,858	6,848	6,848	6,838	6,798	6,768
22,5	6,878	6,878	6,868	6,868	6,878	6,828	6,788

22,8	6,868	6,868	6,868	6,868	6,858	6,818	6,778
23,1	6,888	6,888	6,878	6,888	6,908	6,858	6,818
23,4	6,878	6,878	6,868	6,878	6,898	6,848	6,808
23,7	6,898	6,888	6,888	6,888	6,948	6,888	6,848
24	6,888	6,888	6,878	6,888	6,948	6,878	6,838
24,3	6,898	6,898	6,888	6,898	6,998	6,938	6,908
24,6	6,898	6,898	6,888	6,898	6,998	6,938	6,898
24,9	6,908	6,908	6,898	6,908	7,018	6,998	6,968
25,2	6,908	6,908	6,898	6,908	7,028	6,998	6,968
25,5	6,918	6,918	6,908	6,918	7,058	7,068	7,118
25,8	6,908	6,908	6,898	6,908	7,038	7,068	7,058
26,1	6,898	6,908	6,898	6,898	7,058	7,168	7,338
26,4	6,858	6,858	6,848	6,858	6,988	7,018	7,368
26,7	6,888	6,898	6,888	6,888	7,018	7,128	7,518
27	6,888	6,888	6,878	6,888	6,988	7,048	7,288
27,3	6,938	6,948	6,938	6,928	7,078	7,198	7,658
27,6	6,948	6,938	6,938	6,918	7,068	7,158	7,718
27,9	7,428	11,908	7,088	7,058	7,488	7,658	7,898
28,2	11,908	11,878	7,038	7,038	7,488	7,628	11,078
28,5	11,868	11,888	7,498	7,498	7,738	11,048	11,128
28,8	11,878	11,888	7,468	7,508	7,738	11,108	11,118
29,1	11,878	11,888	12,218	11,128	10,938	10,938	10,948
29,4	11,888	11,878	11,288	11,038	10,878	11,038	10,968
29,7	11,878	11,868	11,408	11,058	11,078	11,068	10,968
30	11,888	11,878	11,328	11,048	11,008	11,078	10,988
30,3	11,878	11,878	11,558	11,028	11,028	10,938	10,978
30,6	11,878	11,888	11,358	11,008	10,968	11,008	10,998
30,9	11,878	11,878	12,338	10,948	10,968	11,018	11,038
31,2	11,878	11,878	12,368	11,018	11,018	11,028	11,098
31,5	11,858	11,858	11,088	10,978	11,088	11,128	10,988
31,8	11,868	11,868	11,138	10,978	11,008	11,118	11,068
32,1	11,868	11,868	11,138	11,078	11,088	11,088	11,028
32,4	11,868	11,868	11,168	11,048	11,108	11,098	10,988
32,7	11,868	11,858	11,248	11,388	11,078	11,218	11,138
33	11,878	11,878	11,238	11,118	11,078	11,088	11,068
33,3	11,868	11,868	13,068	11,148	11,148	11,278	11,058
33,6	11,888	11,888	11,068	11,108	11,078	11,088	11,078
33,9	11,868	11,888	11,148	11,188	11,128	11,198	11,308
34,2	11,888	11,888	11,038	11,178	11,038	11,068	11,128
34,5	11,878	11,888	11,158	11,158	11,098	11,298	11,058
34,8	11,868	11,908	11,228	11,238	11,108	11,338	10,978

35,1	11,888	11,908	11,038	11,278	11,208	11,248	11,258
35,4	11,898	11,908	11,198	11,208	11,228	11,108	11,118

Table C.7 Time of flight values at different elevations over time (between 23 and 206 min) for the experiment 'Injection at the top - Without coating' - Experiment #5

Elevation (mm)	23 min	37 min	50 min	76 min	113 min	147 min	206 min
2,1	6,838	6,828	6,838	6,828	6,818	6,818	6,818
2,4	6,838	6,838	6,838	6,828	6,818	6,818	6,828
2,7	6,838	6,838	6,838	6,828	6,818	6,818	6,828
3	6,848	6,838	6,848	6,838	6,828	6,828	6,828
3,3	6,848	6,838	6,848	6,838	6,828	6,828	6,828
3,6	6,848	6,848	6,848	6,838	6,828	6,838	6,838
3,9	6,848	6,848	6,848	6,838	6,828	6,838	6,838
4,2	6,858	6,858	6,858	6,848	6,838	6,838	6,848
4,5	6,858	6,858	6,858	6,848	6,838	6,838	6,848
4,8	6,868	6,858	6,858	6,848	6,848	6,848	6,858
5,1	6,868	6,868	6,868	6,858	6,848	6,848	6,858
5,4	6,868	6,868	6,868	6,858	6,848	6,858	6,858
5,7	6,868	6,868	6,868	6,858	6,858	6,858	6,858
6	6,878	6,868	6,878	6,858	6,858	6,858	6,868
6,3	6,878	6,868	6,878	6,858	6,858	6,858	6,868
6,6	6,878	6,868	6,878	6,868	6,858	6,858	6,868
6,9	6,878	6,868	6,878	6,868	6,858	6,858	6,868
7,2	6,878	6,868	6,878	6,868	6,858	6,858	6,868
7,5	6,878	6,878	6,878	6,868	6,858	6,858	6,868
7,8	6,878	6,878	6,878	6,868	6,858	6,868	6,868
8,1	6,878	6,878	6,878	6,868	6,858	6,868	6,868
8,4	6,888	6,878	6,878	6,868	6,868	6,868	6,878
8,7	6,888	6,878	6,878	6,868	6,868	6,868	6,878
9	6,888	6,888	6,888	6,878	6,878	6,878	6,888
9,3	6,888	6,888	6,888	6,878	6,878	6,878	6,888
9,6	6,898	6,888	6,898	6,878	6,878	6,888	6,898
9,9	6,898	6,888	6,898	6,878	6,888	6,888	6,898
10,2	6,898	6,898	6,898	6,888	6,888	6,898	6,898
10,5	6,898	6,898	6,898	6,888	6,888	6,898	6,908
10,8	6,908	6,898	6,908	6,888	6,888	6,898	6,908
11,1	6,908	6,898	6,908	6,888	6,898	6,898	6,908
11,4	6,908	6,898	6,908	6,898	6,898	6,908	6,908
11,7	6,908	6,908	6,908	6,898	6,898	6,908	6,918
12	6,908	6,898	6,908	6,898	6,898	6,898	6,908

12,3	6,898	6,898	6,908	6,888	6,888	6,898	6,908
12,6	6,898	6,888	6,898	6,888	6,888	6,888	6,898
12,9	6,888	6,888	6,888	6,878	6,878	6,878	6,888
13,2	6,878	6,878	6,878	6,868	6,868	6,868	6,878
13,5	6,868	6,868	6,878	6,868	6,858	6,858	6,868
13,8	6,858	6,858	6,858	6,848	6,848	6,848	6,858
14,1	6,848	6,848	6,848	6,848	6,838	6,838	6,848
14,4	6,838	6,838	6,838	6,838	6,828	6,828	6,838
14,7	6,828	6,828	6,838	6,828	6,818	6,818	6,828
15	6,828	6,818	6,828	6,818	6,808	6,808	6,818
15,3	6,818	6,818	6,818	6,808	6,798	6,798	6,808
15,6	6,808	6,808	6,808	6,798	6,788	6,798	6,808
15,9	6,808	6,798	6,808	6,798	6,788	6,798	6,798
16,2	6,798	6,798	6,798	6,788	6,788	6,788	6,798
16,5	6,798	6,788	6,788	6,788	6,778	6,788	6,798
16,8	6,788	6,788	6,788	6,778	6,778	6,778	6,798
17,1	6,788	6,778	6,778	6,778	6,768	6,778	6,788
17,4	6,788	6,778	6,778	6,778	6,768	6,778	6,788
17,7	6,778	6,768	6,778	6,768	6,768	6,768	6,778
18	6,778	6,768	6,778	6,768	6,768	6,768	6,778
18,3	6,778	6,768	6,768	6,758	6,758	6,768	6,778
18,6	6,778	6,768	6,768	6,758	6,748	6,758	6,768
18,9	6,768	6,758	6,768	6,758	6,748	6,748	6,758
19,2	6,768	6,758	6,758	6,748	6,738	6,738	6,748
19,5	6,768	6,758	6,758	6,738	6,728	6,738	6,758
19,8	6,768	6,748	6,748	6,728	6,708	6,718	6,748
20,1	6,768	6,748	6,748	6,738	6,728	6,738	6,768
20,4	6,758	6,738	6,738	6,718	6,718	6,728	6,758
20,7	6,768	6,748	6,748	6,748	6,748	6,748	6,788
21	6,748	6,728	6,738	6,738	6,728	6,738	6,768
21,3	6,768	6,758	6,768	6,768	6,768	6,768	6,818
21,6	6,758	6,748	6,758	6,758	6,748	6,758	6,798
21,9	6,778	6,778	6,798	6,798	6,798	6,808	6,858
22,2	6,778	6,768	6,788	6,788	6,788	6,788	6,838
22,5	6,808	6,808	6,828	6,838	6,848	6,858	6,908
22,8	6,798	6,798	6,818	6,828	6,828	6,838	6,888
23,1	6,838	6,838	6,868	6,888	6,908	6,928	6,988
23,4	6,828	6,828	6,858	6,878	6,898	6,918	6,988
23,7	6,868	6,878	6,908	6,948	6,998	7,058	7,098
24	6,848	6,848	6,898	6,948	6,998	7,028	7,148
24,3	6,918	6,948	6,968	7,068	7,278	7,378	7,438

24,6	6,888	6,878	6,948	7,018	7,268	7,368	7,458
24,9	7,008	7,038	7,078	7,178	7,428	7,528	7,628
25,2	6,958	6,968	7,028	7,348	7,438	7,518	7,588
25,5	7,098	7,178	7,388	7,478	7,608	7,698	7,798
25,8	7,038	7,098	7,188	7,508	7,618	7,688	7,758
26,1	7,418	7,498	7,548	7,678	7,768	7,888	8,098
26,4	7,138	7,538	7,558	7,648	7,768	7,888	10,878
26,7	7,618	7,678	7,798	7,868	8,048	11,778	11,018
27	7,408	7,698	7,778	7,888	11,158	10,928	11,008
27,3	7,768	7,888	11,738	11,798	10,998	10,988	10,978
27,6	7,808	11,088	11,098	10,988	10,998	10,958	10,898
27,9	11,768	11,808	11,108	11,848	10,948	10,968	10,908
28,2	11,108	10,988	10,998	10,958	10,908	10,918	10,948
28,5	11,128	10,948	10,998	10,988	10,968	10,948	10,978
28,8	10,998	10,928	10,918	10,948	10,948	10,958	10,948
29,1	10,988	10,958	10,948	10,998	10,948	10,948	10,948
29,4	10,938	10,968	11,008	10,998	11,048	10,988	10,938
29,7	10,998	11,038	11,078	11,028	10,958	10,968	10,928
30	10,948	10,998	11,048	10,978	10,968	10,968	10,968
30,3	11,018	11,108	11,068	11,128	11,058	11,018	10,928
30,6	11,018	11,028	11,028	10,998	11,018	10,948	10,908
30,9	10,998	11,178	11,058	11,008	10,988	10,918	10,908
31,2	11,068	11,018	11,008	10,998	11,008	10,958	10,958
31,5	11,068	11,038	11,038	10,948	10,938	10,938	10,948
31,8	11,058	10,968	11,038	11,008	10,978	11,088	10,828
32,1	11,028	10,978	10,968	11,028	11,048	10,948	10,968
32,4	11,028	11,058	11,028	10,978	10,988	10,968	10,918
32,7	11,018	10,988	10,998	10,928	11,128	10,988	11,078
33	11,038	11,028	10,978	10,968	11,078	11,008	10,998
33,3	11,058	11,108	10,998	11,058	10,908	11,068	10,968
33,6	11,048	11,118	11,058	11,018	10,968	10,948	10,928
33,9	11,028	11,278	10,988	11,058	11,138	11,148	11,028
34,2	11,048	11,038	11,098	11,048	11,038	11,058	10,978
34,5	11,348	11,088	11,088	11,098	11,048	11,068	11,108
34,8	11,078	11,068	11,078	11,048	11,028	11,088	11,048
35,1	11,078	11,258	11,138	11,128	11,078	11,078	11,008
35,4	11,078	11,198	11,268	11,028	11,138	11,218	11,098

Table C.8 Time of flight values at different elevations over time (between 0 and 35 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #6

Elevation (mm)	0 min	0 min bis	1 min	3 min	5 min	9 min	15 min	23 min	35 min
2,1	10,988	10,988	9,840	9,778	9,808	9,778	9,728	9,738	9,698
2,4	10,958	10,958	9,838	9,778	9,778	9,738	9,708	9,658	9,668
2,7	10,948	10,948	9,810	9,768	9,798	9,718	9,698	9,668	9,648
3	10,918	10,918	9,780	9,760	9,728	9,708	9,658	9,628	9,608
3,3	10,908	10,898	9,778	9,758	9,728	9,668	9,638	9,618	9,598
3,6	10,888	10,878	9,728	9,738	9,718	9,658	9,598	9,618	9,598
3,9	10,868	10,858	9,698	9,708	9,698	9,640	9,628	9,608	9,588
4,2	10,858	10,858	9,678	9,698	9,658	9,618	9,598	9,580	9,558
4,5	10,838	10,838	9,648	9,678	9,668	9,598	9,588	9,558	9,558
4,8	10,838	10,838	7,278	7,598	9,618	9,618	9,588	9,540	9,518
5,1	10,818	10,818	7,278	7,498	9,608	9,618	9,568	9,540	9,488
5,4	10,828	10,818	6,858	7,198	7,418	9,578	9,568	9,518	9,508
5,7	10,808	10,808	6,778	7,198	7,388	7,538	9,558	9,488	9,468
6	10,828	10,818	6,728	6,978	7,068	7,288	7,378	9,538	9,498
6,3	10,818	10,808	6,718	6,938	7,038	7,208	7,338	9,518	9,488
6,6	10,818	10,808	6,678	6,898	6,958	7,078	7,218	7,458	9,488
6,9	10,818	10,808	6,678	6,888	6,958	7,048	7,188	7,308	7,508
7,2	6,578	6,578	6,578	6,778	6,808	6,868	6,898	7,098	7,448
7,5	6,548	6,538	6,588	6,768	6,808	6,848	6,948	7,028	7,178
7,8	6,480	6,470	6,548	6,688	6,688	6,758	6,818	6,888	6,998
8,1	6,460	6,460	6,548	6,688	6,718	6,708	6,778	6,868	6,978
8,4	6,460	6,470	6,528	6,638	6,658	6,698	6,718	6,778	6,838
8,7	6,460	6,470	6,528	6,638	6,658	6,688	6,728	6,758	6,828
9	6,470	6,480	6,528	6,588	6,608	6,638	6,658	6,708	6,748
9,3	6,470	6,480	6,528	6,598	6,608	6,638	6,668	6,698	6,748
9,6	6,470	6,480	6,518	6,558	6,568	6,588	6,608	6,628	6,668
9,9	6,480	6,498	6,528	6,558	6,568	6,588	6,608	6,638	6,678
10,2	6,498	6,498	6,518	6,528	6,528	6,538	6,558	6,578	6,618
10,5	6,498	6,498	6,528	6,528	6,538	6,548	6,558	6,578	6,628
10,8	6,498	6,498	6,518	6,508	6,498	6,508	6,518	6,538	6,578
11,1	6,498	6,498	6,518	6,518	6,518	6,518	6,528	6,538	6,588
11,4	6,498	6,498	6,518	6,498	6,498	6,498	6,498	6,508	6,538
11,7	6,498	6,498	6,518	6,498	6,498	6,508	6,498	6,508	6,538
12	6,498	6,498	6,518	6,498	6,498	6,498	6,498	6,498	6,508
12,3	6,498	6,498	6,508	6,498	6,498	6,498	6,498	6,498	6,508
12,6	6,498	6,498	6,508	6,498	6,498	6,498	6,498	6,498	6,498
12,9	6,498	6,498	6,508	6,498	6,498	6,498	6,498	6,498	6,498
13,2	6,508	6,508	6,508	6,498	6,498	6,498	6,498	6,498	6,498

13,5	6,498	6,498	6,508	6,498	6,498	6,498	6,498	6,498	6,498
13,8	6,508	6,508	6,508	6,508	6,508	6,508	6,498	6,498	6,498
14,1	6,498	6,498	6,498	6,508	6,508	6,508	6,498	6,498	6,498
14,4	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,498	6,498
14,7	6,508	6,508	6,498	6,508	6,508	6,508	6,508	6,498	6,508
15	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,508
15,3	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,508	6,508
15,6	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,508	6,508
15,9	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,508	6,508
16,2	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,508	6,508
16,5	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,508	6,508
16,8	6,508	6,508	6,508	6,518	6,518	6,518	6,508	6,508	6,518
17,1	6,508	6,508	6,508	6,518	6,518	6,518	6,508	6,508	6,518
17,4	6,518	6,518	6,508	6,518	6,518	6,518	6,508	6,508	6,518
17,7	6,518	6,518	6,508	6,518	6,518	6,518	6,508	6,508	6,518
18	6,518	6,518	6,518	6,518	6,518	6,518	6,518	6,518	6,528
18,3	6,518	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,528
18,6	6,518	6,518	6,508	6,508	6,508	6,508	6,508	6,518	6,528
18,9	6,528	6,528	6,528	6,518	6,508	6,508	6,518	6,518	6,538
19,2	6,538	6,538	6,538	6,528	6,518	6,518	6,528	6,528	6,548
19,5	6,548	6,548	6,538	6,528	6,518	6,518	6,528	6,528	6,548
19,8	6,548	6,548	6,548	6,538	6,528	6,528	6,538	6,538	6,548
20,1	6,558	6,548	6,548	6,538	6,528	6,528	6,538	6,538	6,558
20,4	6,558	6,558	6,548	6,548	6,538	6,538	6,538	6,548	6,558
20,7	6,558	6,558	6,558	6,548	6,548	6,548	6,548	6,548	6,558
21	6,558	6,558	6,558	6,548	6,558	6,558	6,558	6,558	6,568
21,3	6,568	6,568	6,568	6,558	6,558	6,558	6,558	6,558	6,568
21,6	6,568	6,568	6,568	6,568	6,568	6,568	6,568	6,568	6,578
21,9	6,578	6,578	6,578	6,578	6,578	6,578	6,578	6,568	6,578
22,2	6,588	6,588	6,578	6,578	6,578	6,578	6,578	6,578	6,588
22,5	6,598	6,598	6,598	6,588	6,588	6,588	6,578	6,578	6,588
22,8	6,608	6,608	6,598	6,598	6,588	6,588	6,588	6,588	6,588
23,1	6,618	6,618	6,608	6,608	6,608	6,598	6,598	6,588	6,598
23,4	6,618	6,618	6,618	6,608	6,608	6,598	6,598	6,598	6,598
23,7	6,628	6,628	6,628	6,618	6,618	6,608	6,608	6,598	6,608
24	6,638	6,628	6,628	6,628	6,618	6,618	6,608	6,608	6,608
24,3	6,638	6,638	6,638	6,628	6,628	6,628	6,618	6,608	6,618
24,6	6,648	6,648	6,638	6,638	6,628	6,628	6,618	6,618	6,618
24,9	6,658	6,648	6,648	6,638	6,638	6,628	6,628	6,618	6,628
25,2	6,658	6,658	6,658	6,648	6,638	6,638	6,628	6,628	6,628
25,5	6,668	6,658	6,658	6,648	6,648	6,638	6,638	6,628	6,638

25,8	6,668	6,668	6,668	6,658	6,658	6,648	6,638	6,638	6,638
26,1	6,678	6,678	6,668	6,668	6,658	6,658	6,648	6,648	6,648
26,4	6,688	6,678	6,678	6,678	6,668	6,658	6,658	6,648	6,658
26,7	6,698	6,688	6,688	6,678	6,678	6,668	6,668	6,668	6,668
27	6,698	6,698	6,698	6,688	6,678	6,678	6,678	6,678	6,678
27,3	6,708	6,708	6,708	6,698	6,698	6,688	6,688	6,688	6,688
27,6	6,718	6,708	6,708	6,698	6,698	6,698	6,698	6,698	6,698
27,9	6,728	6,718	6,718	6,718	6,718	6,718	6,708	6,708	6,708
28,2	6,728	6,728	6,728	6,728	6,728	6,718	6,718	6,718	6,718
28,5	6,738	6,738	6,738	6,738	6,738	6,728	6,728	6,728	6,728
28,8	6,748	6,748	6,748	6,748	6,738	6,738	6,738	6,738	6,728
29,1	6,748	6,748	6,748	6,748	6,748	6,738	6,738	6,738	6,738
29,4	6,758	6,758	6,758	6,758	6,748	6,748	6,748	6,738	6,738
29,7	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748	6,748
30	6,768	6,768	6,768	6,768	6,758	6,758	6,758	6,748	6,748
30,3	6,778	6,778	6,778	6,768	6,768	6,768	6,758	6,758	6,758
30,6	6,778	6,778	6,778	6,778	6,778	6,768	6,768	6,758	6,758
30,9	6,788	6,788	6,788	6,788	6,778	6,778	6,778	6,768	6,768
31,2	6,798	6,798	6,798	6,788	6,788	6,788	6,778	6,778	6,778
31,5	6,808	6,808	6,808	6,798	6,798	6,788	6,788	6,778	6,778
31,8	6,808	6,808	6,808	6,808	6,808	6,798	6,798	6,788	6,788
32,1	6,818	6,818	6,818	6,808	6,808	6,808	6,798	6,798	6,798
32,4	6,818	6,818	6,818	6,818	6,808	6,808	6,798	6,798	6,798
32,7	6,828	6,828	6,818	6,818	6,818	6,808	6,808	6,808	6,798
33	6,828	6,828	6,828	6,818	6,818	6,818	6,808	6,808	6,808
33,3	6,838	6,828	6,828	6,828	6,828	6,818	6,818	6,808	6,808
33,6	6,828	6,828	6,828	6,818	6,818	6,808	6,808	6,808	6,798
33,9	6,838	6,828	6,828	6,828	6,818	6,818	6,818	6,808	6,808
34,2	6,818	6,818	6,818	6,818	6,808	6,808	6,798	6,798	6,788
34,5	6,818	6,818	6,818	6,808	6,808	6,808	6,798	6,798	6,788
34,8	6,808	6,808	6,808	6,798	6,798	6,788	6,788	6,788	6,778
35,1	6,808	6,808	6,808	6,798	6,798	6,788	6,788	6,788	6,778
35,4	6,818	6,818	6,818	6,808	6,808	6,798	6,798	6,798	6,788

Table C.9 Time of flight values at different elevations over time (between 44 and 220 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #6

Elevation (mm)	44 min	48 min	72 min	92 min	116 min	139 min	163 min	220 min
2,1	9,668	9,688	9,698	9,688	9,658	9,648	9,638	9,598
2,4	9,608	9,648	9,628	9,628	9,638	9,598	9,608	9,588
2,7	9,648	9,598	9,628	9,648	9,608	9,618	9,588	9,558

3	9,618	9,608	9,608	9,588	9,568	9,598	9,588	9,538
3,3	9,588	9,598	9,548	9,558	9,548	9,578	9,548	9,538
3,6	9,578	9,568	9,538	9,518	9,508	9,488	9,518	9,498
3,9	9,578	9,558	9,528	9,488	9,488	9,488	9,498	9,478
4,2	9,538	9,528	9,518	9,518	9,478	9,458	9,468	9,468
4,5	9,548	9,518	9,498	9,488	9,458	9,438	9,438	9,448
4,8	9,518	9,468	9,478	9,468	9,468	9,448	9,418	9,408
5,1	9,508	9,498	9,418	9,458	9,448	9,428	9,398	9,378
5,4	9,498	9,478	9,438	9,428	9,408	9,418	9,428	9,378
5,7	9,488	9,468	9,448	9,368	9,378	9,418	9,388	9,348
6	9,458	9,428	9,458	9,428	9,368	9,378	9,398	9,348
6,3	9,450	9,400	7,880	7,950	8,538	9,318	9,338	9,308
6,6	9,448	9,368	7,778	7,875	7,948	8,538	9,358	9,308
6,9	7,498	7,498	7,718	7,798	7,878	7,928	7,958	9,188
7,2	7,518	7,338	7,670	7,725	7,778	7,748	7,868	9,298
7,5	7,338	7,338	7,388	7,588	7,478	7,818	7,778	7,928
7,8	7,098	7,158	7,350	7,388	7,388	7,518	7,498	7,638
8,1	7,018	7,098	7,238	7,338	7,348	7,338	7,438	7,625
8,4	6,908	6,938	7,088	7,188	7,278	7,328	7,368	7,488
8,7	6,888	6,908	7,038	7,118	7,178	7,288	7,388	7,488
9	6,798	6,808	6,948	7,008	7,098	7,158	7,258	7,368
9,3	6,788	6,808	6,908	6,998	7,068	7,158	7,278	7,408
9,6	6,708	6,728	6,818	6,868	6,948	6,998	7,108	7,328
9,9	6,708	6,728	6,818	6,868	6,948	7,008	7,088	7,518
10,2	6,638	6,658	6,728	6,768	6,828	6,878	6,928	7,250
10,5	6,658	6,668	6,718	6,778	6,828	6,878	6,978	7,200
10,8	6,598	6,608	6,658	6,698	6,758	6,798	6,838	7,078
11,1	6,608	6,628	6,678	6,698	6,748	6,778	6,838	7,058
11,4	6,558	6,578	6,618	6,648	6,698	6,738	6,768	6,948
11,7	6,568	6,588	6,628	6,658	6,698	6,748	6,778	6,948
12	6,528	6,538	6,588	6,608	6,648	6,698	6,728	6,838
12,3	6,538	6,548	6,598	6,628	6,658	6,698	6,738	6,848
12,6	6,508	6,518	6,568	6,588	6,618	6,658	6,698	6,768
12,9	6,508	6,528	6,578	6,598	6,618	6,658	6,698	6,778
13,2	6,498	6,498	6,548	6,568	6,588	6,618	6,658	6,728
13,5	6,498	6,508	6,548	6,568	6,588	6,628	6,668	6,738
13,8	6,498	6,498	6,528	6,548	6,568	6,588	6,628	6,708
14,1	6,498	6,498	6,528	6,548	6,568	6,598	6,638	6,718
14,4	6,498	6,498	6,518	6,528	6,558	6,578	6,618	6,698
14,7	6,508	6,508	6,518	6,528	6,558	6,578	6,618	6,708
15	6,508	6,508	6,518	6,528	6,548	6,578	6,598	6,688

15,3	6,508	6,508	6,508	6,528	6,548	6,568	6,598	6,698
15,6	6,508	6,508	6,508	6,528	6,548	6,568	6,598	6,678
15,9	6,508	6,508	6,508	6,518	6,548	6,568	6,598	6,678
16,2	6,518	6,518	6,518	6,528	6,548	6,568	6,588	6,658
16,5	6,518	6,518	6,508	6,518	6,538	6,568	6,578	6,658
16,8	6,518	6,518	6,518	6,518	6,548	6,558	6,578	6,628
17,1	6,518	6,518	6,518	6,518	6,538	6,558	6,568	6,628
17,4	6,518	6,528	6,528	6,528	6,548	6,558	6,568	6,618
17,7	6,518	6,528	6,528	6,518	6,548	6,558	6,568	6,608
18	6,528	6,528	6,538	6,528	6,548	6,558	6,568	6,598
18,3	6,528	6,528	6,538	6,528	6,548	6,558	6,568	6,588
18,6	6,538	6,538	6,548	6,548	6,558	6,568	6,568	6,588
18,9	6,548	6,548	6,558	6,548	6,558	6,568	6,578	6,588
19,2	6,558	6,558	6,568	6,568	6,578	6,578	6,588	6,598
19,5	6,558	6,558	6,568	6,568	6,578	6,578	6,588	6,608
19,8	6,568	6,568	6,578	6,578	6,588	6,588	6,598	6,608
20,1	6,568	6,568	6,578	6,588	6,588	6,598	6,598	6,618
20,4	6,568	6,578	6,588	6,598	6,598	6,598	6,608	6,628
20,7	6,568	6,578	6,588	6,598	6,598	6,608	6,608	6,628
21	6,578	6,578	6,598	6,598	6,608	6,608	6,618	6,628
21,3	6,578	6,588	6,598	6,608	6,608	6,618	6,618	6,638
21,6	6,588	6,588	6,608	6,608	6,618	6,618	6,628	6,638
21,9	6,588	6,588	6,608	6,608	6,618	6,628	6,628	6,638
22,2	6,588	6,598	6,608	6,618	6,618	6,628	6,628	6,638
22,5	6,598	6,598	6,608	6,618	6,628	6,628	6,628	6,638
22,8	6,598	6,598	6,618	6,618	6,628	6,628	6,638	6,638
23,1	6,608	6,608	6,618	6,628	6,628	6,638	6,638	6,648
23,4	6,608	6,608	6,628	6,628	6,628	6,638	6,638	6,648
23,7	6,618	6,618	6,628	6,628	6,638	6,638	6,648	6,648
24	6,618	6,618	6,628	6,638	6,638	6,648	6,648	6,648
24,3	6,618	6,628	6,638	6,638	6,638	6,648	6,648	6,648
24,6	6,628	6,628	6,638	6,648	6,648	6,648	6,658	6,658
24,9	6,628	6,638	6,648	6,648	6,648	6,658	6,658	6,658
25,2	6,638	6,638	6,648	6,658	6,658	6,658	6,658	6,658
25,5	6,638	6,638	6,658	6,658	6,658	6,658	6,658	6,658
25,8	6,648	6,648	6,658	6,658	6,658	6,668	6,658	6,658
26,1	6,648	6,658	6,668	6,668	6,668	6,668	6,668	6,668
26,4	6,658	6,658	6,678	6,678	6,678	6,678	6,678	6,668
26,7	6,668	6,678	6,688	6,688	6,688	6,688	6,688	6,678
27	6,678	6,678	6,688	6,688	6,688	6,688	6,688	6,688
27,3	6,688	6,688	6,698	6,698	6,698	6,698	6,698	6,698

27,6	6,698	6,698	6,708	6,708	6,708	6,708	6,708	6,708
27,9	6,708	6,708	6,718	6,718	6,718	6,718	6,718	6,708
28,2	6,718	6,718	6,718	6,728	6,728	6,728	6,728	6,728
28,5	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728
28,8	6,728	6,728	6,738	6,738	6,738	6,738	6,738	6,738
29,1	6,738	6,738	6,738	6,738	6,738	6,738	6,738	6,738
29,4	6,738	6,738	6,748	6,738	6,738	6,748	6,748	6,748
29,7	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
30	6,748	6,748	6,748	6,748	6,748	6,748	6,758	6,748
30,3	6,758	6,758	6,758	6,758	6,758	6,758	6,758	6,758
30,6	6,758	6,758	6,768	6,758	6,758	6,758	6,758	6,758
30,9	6,768	6,768	6,768	6,768	6,768	6,768	6,768	6,768
31,2	6,778	6,778	6,778	6,778	6,778	6,778	6,778	6,778
31,5	6,778	6,778	6,778	6,778	6,778	6,778	6,778	6,778
31,8	6,788	6,788	6,788	6,788	6,788	6,788	6,788	6,788
32,1	6,798	6,788	6,798	6,798	6,798	6,788	6,788	6,798
32,4	6,798	6,798	6,798	6,798	6,798	6,798	6,798	6,798
32,7	6,798	6,798	6,798	6,798	6,798	6,798	6,798	6,798
33	6,808	6,798	6,808	6,808	6,798	6,798	6,798	6,798
33,3	6,808	6,808	6,808	6,808	6,808	6,808	6,798	6,798
33,6	6,798	6,798	6,798	6,798	6,798	6,798	6,788	6,788
33,9	6,808	6,808	6,808	6,798	6,798	6,798	6,798	6,788
34,2	6,788	6,788	6,788	6,788	6,778	6,778	6,778	6,778
34,5	6,788	6,788	6,788	6,788	6,778	6,778	6,778	6,778
34,8	6,778	6,778	6,778	6,778	6,778	6,778	6,778	6,778
35,1	6,778	6,778	6,778	6,778	6,778	6,778	6,778	6,778
35,4	6,788	6,788	6,788	6,788	6,788	6,778	6,788	6,778

Table C.10 Time of flight values at different elevations over time (between 0 and 19 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #7

Elevation	0 min	0 min bis	2 min	3 min	6 min	10 min	19 min
2,1	12,078	12,068	11,198	11,158	11,128	11,218	11,098
2,4	12,088	12,078	11,208	11,148	11,128	11,168	11,148
2,7	12,078	12,068	11,188	11,188	11,128	11,128	11,138
3	12,078	12,078	11,188	11,148	11,138	11,158	11,138
3,3	12,078	12,078	11,208	11,168	11,198	11,158	11,128
3,6	12,078	12,078	11,238	11,128	11,148	11,118	11,168
3,9	12,078	12,078	11,128	11,138	11,128	11,138	11,148
4,2	12,078	12,078	11,208	11,198	11,138	11,128	11,088
4,5	12,078	12,078	11,098	11,158	11,128	11,118	11,018

4,8	12,078	12,088	11,108	11,148	11,198	11,198	11,208
5,1	12,088	12,078	11,000	11,158	11,138	11,178	11,168
5,4	12,088	12,078	10,990	11,148	11,148	11,178	11,118
5,7	12,088	12,078	11,048	11,148	11,138	11,168	11,138
6	12,088	12,088	11,098	11,128	11,088	11,158	11,068
6,3	12,098	12,078	11,178	11,108	11,118	11,098	11,248
6,6	12,098	12,088	11,078	11,198	11,108	11,088	11,158
6,9	12,098	12,088	10,998	11,138	11,128	11,108	11,188
7,2	12,098	12,088	10,970	11,168	11,108	11,088	11,128
7,5	12,098	12,098	10,948	11,038	11,098	11,098	11,098
7,8	12,108	12,108	11,038	11,058	11,058	11,168	11,098
8,1	12,108	12,108	11,118	11,128	11,128	11,058	11,158
8,4	12,118	12,118	7,708	11,138	11,068	11,108	11,098
8,7	12,118	12,118	11,208	9,948	11,098	11,098	11,078
9	12,118	12,118	7,508	7,768	7,958	11,098	10,998
9,3	12,128	12,128	7,508	7,708	7,928	8,078	11,138
9,6	12,138	12,128	7,038	7,358	7,698	7,818	11,018
9,9	12,128	12,128	6,998	7,268	7,478	7,778	7,918
10,2	7,138	7,188	6,938	7,058	7,288	7,638	7,758
10,5	7,018	7,038	6,898	7,028	7,248	7,468	7,718
10,8	6,898	6,898	6,848	6,958	7,078	7,148	7,318
11,1	6,868	6,868	6,828	6,938	7,048	7,108	7,288
11,4	6,798	6,798	6,778	6,848	6,938	6,988	7,118
11,7	6,778	6,788	6,778	6,858	6,938	6,968	7,048
12	6,738	6,738	6,718	6,788	6,848	6,898	6,948
12,3	6,728	6,728	6,718	6,778	6,848	6,888	6,948
12,6	6,698	6,688	6,678	6,718	6,788	6,818	6,848
12,9	6,688	6,688	6,678	6,728	6,778	6,818	6,858
13,2	6,658	6,648	6,648	6,668	6,718	6,748	6,778
13,5	6,648	6,648	6,638	6,668	6,708	6,738	6,768
13,8	6,628	6,628	6,618	6,628	6,658	6,678	6,698
14,1	6,628	6,618	6,618	6,618	6,648	6,668	6,698
14,4	6,608	6,608	6,598	6,578	6,608	6,618	6,638
14,7	6,598	6,598	6,598	6,568	6,598	6,618	6,638
15	6,588	6,588	6,578	6,558	6,568	6,568	6,588
15,3	6,588	6,578	6,578	6,548	6,558	6,568	6,588
15,6	6,578	6,568	6,568	6,538	6,538	6,548	6,558
15,9	6,568	6,568	6,558	6,538	6,538	6,538	6,538
16,2	6,568	6,558	6,558	6,528	6,518	6,518	6,528
16,5	6,568	6,558	6,548	6,518	6,518	6,508	6,518
16,8	6,558	6,558	6,548	6,518	6,508	6,508	6,508

17,1	6,558	6,548	6,538	6,518	6,508	6,508	6,508
17,4	6,548	6,548	6,538	6,518	6,508	6,498	6,498
17,7	6,548	6,538	6,528	6,508	6,508	6,498	6,498
18	6,548	6,538	6,528	6,518	6,508	6,498	6,498
18,3	6,538	6,538	6,528	6,518	6,508	6,498	6,498
18,6	6,548	6,538	6,528	6,518	6,508	6,508	6,498
18,9	6,538	6,538	6,518	6,508	6,508	6,498	6,498
19,2	6,538	6,538	6,528	6,518	6,508	6,508	6,498
19,5	6,538	6,528	6,518	6,518	6,508	6,508	6,498
19,8	6,548	6,538	6,528	6,528	6,518	6,518	6,518
20,1	6,548	6,538	6,528	6,528	6,528	6,518	6,518
20,4	6,558	6,548	6,538	6,538	6,528	6,528	6,518
20,7	6,558	6,548	6,538	6,538	6,528	6,528	6,518
21	6,568	6,558	6,548	6,538	6,538	6,538	6,528
21,3	6,568	6,558	6,548	6,548	6,538	6,538	6,528
21,6	6,568	6,568	6,558	6,548	6,548	6,538	6,538
21,9	6,578	6,568	6,558	6,558	6,548	6,548	6,538
22,2	6,578	6,568	6,558	6,558	6,548	6,548	6,538
22,5	6,578	6,568	6,568	6,558	6,558	6,548	6,548
22,8	6,578	6,578	6,568	6,558	6,548	6,548	6,548
23,1	6,588	6,578	6,568	6,568	6,558	6,548	6,548
23,4	6,588	6,578	6,568	6,568	6,558	6,558	6,548
23,7	6,578	6,578	6,568	6,568	6,558	6,558	6,548
24	6,578	6,568	6,568	6,568	6,558	6,558	6,548
24,3	6,578	6,568	6,568	6,568	6,558	6,548	6,548
24,6	6,578	6,568	6,568	6,558	6,558	6,548	6,548
24,9	6,578	6,568	6,568	6,558	6,558	6,548	6,538
25,2	6,578	6,568	6,568	6,558	6,558	6,548	6,548
25,5	6,568	6,558	6,568	6,558	6,548	6,548	6,538
25,8	6,568	6,558	6,568	6,558	6,558	6,548	6,548
26,1	6,568	6,558	6,568	6,558	6,548	6,548	6,538
26,4	6,558	6,548	6,558	6,558	6,548	6,548	6,538
26,7	6,558	6,548	6,558	6,558	6,548	6,538	6,538
27	6,548	6,538	6,548	6,548	6,538	6,538	6,528
27,3	6,538	6,528	6,548	6,538	6,538	6,528	6,528
27,6	6,528	6,518	6,538	6,538	6,528	6,528	6,518
27,9	6,518	6,508	6,538	6,528	6,528	6,518	6,508
28,2	6,518	6,508	6,528	6,528	6,518	6,518	6,508
28,5	6,508	6,498	6,518	6,518	6,518	6,508	6,508
28,8	6,508	6,498	6,528	6,518	6,518	6,508	6,498
29,1	6,498	6,498	6,518	6,518	6,508	6,508	6,498

29,4	6,498	6,498	6,518	6,518	6,508	6,508	6,498
29,7	6,498	6,498	6,518	6,518	6,508	6,508	6,498
30	6,470	6,470	6,518	6,518	6,508	6,498	6,498
30,3	6,450	6,450	6,508	6,508	6,498	6,498	6,470
30,6	6,440	6,440	6,460	6,498	6,498	6,470	6,460
30,9	6,440	6,440	6,460	6,498	6,498	6,470	6,460
31,2	6,440	6,440	6,470	6,498	6,470	6,470	6,460
31,5	6,440	6,440	6,470	6,498	6,470	6,460	6,460
31,8	6,440	6,440	6,470	6,498	6,460	6,460	6,450
32,1	6,450	6,450	6,470	6,470	6,460	6,460	6,450
32,4	6,450	6,450	6,470	6,470	6,460	6,450	6,450
32,7	6,450	6,450	6,460	6,460	6,450	6,450	6,440
33	6,440	6,440	6,460	6,460	6,450	6,440	6,440
33,3	6,440	6,440	6,450	6,450	6,440	6,440	6,440
33,6	6,440	6,440	6,450	6,450	6,440	6,440	6,440
33,9	6,440	6,440	6,440	6,440	6,430	6,430	6,430
34,2	6,440	6,440	6,440	6,440	6,430	6,430	6,410
34,5	6,440	6,440	6,430	6,430	6,410	6,410	6,410
34,8	6,440	6,440	6,430	6,430	6,410	6,410	6,400
35,1	6,440	6,440	6,430	6,430	6,410	6,410	6,400
35,4	6,440	6,440	6,430	6,430	6,410	6,410	6,400

Table C.11 Time of flight values at different elevations over time (between 34 and 262 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #7

Elevation (mm)	34 min	58 min	91 min	138 min	196 min	262 min
2,1	11,098	11,018	11,158	11,028	10,948	11,088
2,4	11,088	11,058	10,998	11,028	10,998	10,968
2,7	11,098	11,108	11,038	11,018	11,038	10,948
3	11,108	11,068	11,118	11,048	11,008	10,908
3,3	11,158	11,118	11,118	11,028	11,038	10,938
3,6	11,068	11,038	11,068	11,108	11,008	10,938
3,9	11,108	11,018	11,008	10,998	10,908	10,948
4,2	11,108	11,008	11,008	11,118	10,948	10,888
4,5	11,188	11,048	11,098	11,088	11,028	10,908
4,8	11,118	11,028	11,028	11,068	10,988	10,948
5,1	11,068	11,018	11,018	11,038	11,058	10,938
5,4	11,178	11,098	11,058	11,068	10,968	10,978
5,7	11,138	10,968	11,128	10,958	10,938	10,978
6	11,128	11,008	11,058	10,958	11,008	10,958
6,3	11,168	11,068	11,038	10,988	10,988	10,908

6,6	11,138	11,088	11,078	11,078	10,958	10,948
6,9	11,098	11,018	11,048	11,048	11,108	10,908
7,2	11,108	11,078	11,108	11,048	10,998	11,008
7,5	11,058	11,088	11,148	11,078	11,078	10,968
7,8	11,148	11,018	11,118	11,078	11,058	11,008
8,1	11,168	11,058	11,108	11,138	10,988	10,958
8,4	11,058	11,038	11,058	11,018	11,058	11,058
8,7	11,048	11,048	11,068	11,028	11,028	10,958
9	11,108	11,088	11,018	10,998	11,028	10,968
9,3	10,978	11,148	11,008	10,978	11,048	10,958
9,6	11,088	10,988	11,058	11,078	11,078	11,008
9,9	11,028	11,038	10,968	11,008	10,948	11,028
10,2	7,868	10,898	10,878	10,988	10,908	11,038
10,5	7,868	8,198	10,998	11,068	10,908	10,968
10,8	7,698	7,808	10,998	10,978	11,018	10,960
11,1	7,638	7,808	10,948	10,908	10,928	10,958
11,4	7,238	7,458	7,768	10,948	8,548	8,788
11,7	7,188	7,408	7,928	7,788	8,628	8,768
12	7,048	7,218	7,378	9,878	8,458	8,658
12,3	7,038	7,148	7,368	9,788	7,818	8,558
12,6	6,928	7,038	7,148	9,638	8,338	7,798
12,9	6,928	7,018	7,108	7,368	7,678	7,758
13,2	6,848	6,908	7,018	7,138	7,508	7,608
13,5	6,838	6,908	7,008	7,108	7,588	7,578
13,8	6,758	6,838	6,868	6,988	7,118	7,468
14,1	6,768	6,808	6,888	6,978	7,108	7,458
14,4	6,678	6,748	6,808	6,888	7,008	7,168
14,7	6,678	6,748	6,828	6,908	7,028	7,188
15	6,628	6,698	6,748	6,828	6,918	6,998
15,3	6,628	6,688	6,738	6,828	6,908	6,998
15,6	6,598	6,638	6,688	6,758	6,828	6,908
15,9	6,588	6,638	6,688	6,748	6,828	6,898
16,2	6,558	6,598	6,638	6,698	6,768	6,828
16,5	6,538	6,598	6,638	6,698	6,768	6,818
16,8	6,528	6,568	6,608	6,648	6,698	6,768
17,1	6,518	6,568	6,608	6,658	6,698	6,758
17,4	6,518	6,538	6,588	6,628	6,668	6,698
17,7	6,508	6,538	6,588	6,628	6,668	6,688
18	6,508	6,528	6,558	6,608	6,638	6,658
18,3	6,498	6,528	6,558	6,598	6,638	6,658
18,6	6,508	6,518	6,548	6,588	6,618	6,648

18,9	6,498	6,518	6,538	6,578	6,618	6,638
19,2	6,498	6,508	6,528	6,568	6,608	6,618
19,5	6,498	6,508	6,528	6,558	6,608	6,618
19,8	6,518	6,518	6,528	6,558	6,588	6,608
20,1	6,518	6,518	6,528	6,548	6,578	6,598
20,4	6,518	6,518	6,538	6,548	6,578	6,598
20,7	6,518	6,518	6,538	6,548	6,578	6,598
21	6,528	6,528	6,538	6,548	6,568	6,588
21,3	6,528	6,528	6,538	6,548	6,558	6,588
21,6	6,528	6,528	6,538	6,548	6,558	6,568
21,9	6,538	6,528	6,538	6,548	6,558	6,558
22,2	6,538	6,538	6,538	6,548	6,548	6,558
22,5	6,538	6,538	6,538	6,548	6,548	6,558
22,8	6,538	6,538	6,538	6,548	6,558	6,558
23,1	6,538	6,538	6,538	6,548	6,548	6,548
23,4	6,548	6,538	6,548	6,548	6,548	6,548
23,7	6,548	6,538	6,538	6,548	6,548	6,538
24	6,548	6,538	6,538	6,548	6,548	6,538
24,3	6,538	6,538	6,538	6,538	6,538	6,528
24,6	6,538	6,538	6,538	6,538	6,538	6,528
24,9	6,538	6,538	6,538	6,528	6,528	6,528
25,2	6,538	6,538	6,538	6,538	6,528	6,528
25,5	6,538	6,538	6,528	6,528	6,528	6,528
25,8	6,538	6,538	6,538	6,538	6,538	6,528
26,1	6,538	6,538	6,538	6,528	6,528	6,528
26,4	6,538	6,528	6,528	6,528	6,528	6,528
26,7	6,528	6,528	6,528	6,528	6,528	6,528
27	6,528	6,518	6,518	6,518	6,518	6,518
27,3	6,518	6,518	6,518	6,518	6,518	6,508
27,6	6,518	6,508	6,508	6,508	6,508	6,508
27,9	6,508	6,508	6,508	6,508	6,508	6,498
28,2	6,508	6,498	6,498	6,498	6,498	6,498
28,5	6,498	6,498	6,498	6,498	6,498	6,470
28,8	6,498	6,498	6,498	6,498	6,498	6,470
29,1	6,498	6,498	6,498	6,470	6,470	6,470
29,4	6,498	6,498	6,498	6,470	6,470	6,470
29,7	6,498	6,498	6,498	6,470	6,470	6,460
30	6,470	6,470	6,470	6,460	6,460	6,460
30,3	6,460	6,460	6,460	6,460	6,460	6,460
30,6	6,460	6,460	6,460	6,450	6,450	6,450
30,9	6,460	6,460	6,460	6,460	6,460	6,450

31,2	6,460	6,460	6,460	6,450	6,450	6,450
31,5	6,450	6,450	6,450	6,450	6,450	6,450
31,8	6,450	6,450	6,450	6,450	6,450	6,440
32,1	6,450	6,450	6,450	6,440	6,440	6,440
32,4	6,440	6,440	6,440	6,440	6,440	6,440
32,7	6,440	6,440	6,440	6,440	6,440	6,440
33	6,440	6,440	6,440	6,440	6,440	6,440
33,3	6,440	6,440	6,440	6,430	6,430	6,430
33,6	6,430	6,430	6,430	6,430	6,430	6,420
33,9	6,410	6,410	6,410	6,410	6,410	6,420
34,2	6,410	6,410	6,410	6,400	6,400	6,400
34,5	6,400	6,400	6,400	6,400	6,400	6,390
34,8	6,400	6,400	6,400	6,400	6,400	6,390
35,1	6,400	6,400	6,390	6,390	6,390	6,390
35,4	6,400	6,400	6,400	6,390	6,390	6,390

Table C.12 Time of flight values at different elevations over time (between 0 and 9 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #8

Elevation (mm)	0 min	0 min bis	1 min	2 min	3 min	5 min	9 min
2,1	12,758	12,738	11,890	11,928	11,778	11,858	11,928
2,4	12,758	12,758	11,800	11,918	11,738	12,018	11,648
2,7	12,778	12,758	11,870	11,878	11,698	11,828	11,768
3	12,768	12,758	11,868	11,918	11,738	11,838	11,700
3,3	12,758	12,758	11,848	11,800	11,828	11,958	11,755
3,6	12,768	12,758	11,738	11,788	11,668	11,738	11,598
3,9	12,768	12,768	11,778	11,888	11,708	11,788	11,558
4,2	12,768	12,758	11,728	11,888	11,798	11,928	11,728
4,5	12,758	12,758	11,618	11,628	11,728	11,648	11,638
4,8	12,758	12,738	11,698	11,588	11,708	11,878	11,538
5,1	12,748	12,728	11,460	11,510	11,568	11,838	11,678
5,4	12,728	12,708	11,540	11,438	11,498	12,028	11,470
5,7	12,728	12,708	11,220	11,400	11,410	11,628	11,488
6	12,698	12,678	11,310	11,220	8,400	11,458	8,505
6,3	12,698	12,658	11,250	11,190	8,360	8,300	8,380
6,6	12,658	12,638	7,780	7,870	8,120	8,100	8,380
6,9	12,628	12,608	7,860	7,950	7,970	8,240	8,455
7,2	12,618	12,588	7,690	7,808	7,898	7,968	8,049
7,5	12,608	12,588	7,678	7,808	7,838	7,988	8,148
7,8	12,568	12,568	7,608	7,638	7,738	7,788	7,838
8,1	7,358	7,348	7,548	7,678	7,728	7,768	7,838

8,4	7,018	7,028	7,168	7,268	7,578	7,588	7,688
8,7	6,978	6,988	7,108	7,248	7,308	7,338	7,648
9	6,888	6,888	7,028	7,118	7,188	7,238	7,348
9,3	6,878	6,868	7,008	7,078	7,168	7,228	7,258
9,6	6,818	6,808	6,938	7,008	7,068	7,098	7,168
9,9	6,808	6,798	6,918	6,988	7,048	7,078	7,148
10,2	6,768	6,758	6,848	6,938	6,978	7,018	7,038
10,5	6,758	6,758	6,838	6,908	6,978	7,018	7,048
10,8	6,718	6,718	6,758	6,848	6,908	6,938	6,978
11,1	6,718	6,728	6,768	6,828	6,898	6,928	6,968
11,4	6,698	6,698	6,728	6,778	6,838	6,868	6,918
11,7	6,698	6,698	6,728	6,768	6,828	6,858	6,918
12	6,688	6,688	6,708	6,738	6,778	6,828	6,848
12,3	6,688	6,688	6,708	6,738	6,788	6,818	6,858
12,6	6,678	6,678	6,698	6,728	6,748	6,778	6,798
12,9	6,678	6,678	6,698	6,728	6,758	6,778	6,798
13,2	6,668	6,668	6,688	6,718	6,738	6,758	6,768
13,5	6,668	6,668	6,678	6,718	6,738	6,758	6,758
13,8	6,668	6,668	6,678	6,698	6,728	6,738	6,738
14,1	6,668	6,658	6,668	6,698	6,728	6,748	6,738
14,4	6,668	6,658	6,668	6,698	6,718	6,728	6,728
14,7	6,658	6,658	6,668	6,688	6,708	6,728	6,718
15	6,668	6,658	6,668	6,688	6,708	6,718	6,718
15,3	6,658	6,658	6,658	6,678	6,708	6,718	6,718
15,6	6,668	6,668	6,668	6,678	6,708	6,718	6,718
15,9	6,668	6,658	6,668	6,678	6,698	6,718	6,708
16,2	6,668	6,668	6,668	6,688	6,708	6,718	6,708
16,5	6,668	6,668	6,668	6,678	6,698	6,708	6,708
16,8	6,678	6,678	6,678	6,688	6,708	6,708	6,708
17,1	6,678	6,678	6,678	6,688	6,698	6,708	6,708
17,4	6,688	6,688	6,688	6,688	6,708	6,718	6,708
17,7	6,698	6,698	6,688	6,688	6,708	6,708	6,708
18	6,708	6,708	6,698	6,698	6,708	6,718	6,718
18,3	6,708	6,708	6,708	6,708	6,708	6,718	6,718
18,6	6,718	6,718	6,708	6,708	6,718	6,728	6,728
18,9	6,728	6,728	6,718	6,718	6,728	6,728	6,728
19,2	6,738	6,738	6,728	6,728	6,728	6,728	6,728
19,5	6,748	6,748	6,738	6,728	6,738	6,738	6,738
19,8	6,758	6,758	6,738	6,738	6,738	6,738	6,738
20,1	6,768	6,768	6,748	6,748	6,748	6,748	6,748
20,4	6,778	6,768	6,748	6,748	6,758	6,748	6,748

20,7	6,778	6,778	6,758	6,758	6,758	6,758	6,748
21	6,788	6,788	6,758	6,758	6,758	6,758	6,758
21,3	6,788	6,788	6,768	6,768	6,768	6,768	6,758
21,6	6,798	6,798	6,768	6,768	6,768	6,768	6,768
21,9	6,798	6,798	6,768	6,768	6,768	6,768	6,768
22,2	6,798	6,798	6,768	6,768	6,778	6,778	6,768
22,5	6,808	6,798	6,778	6,768	6,778	6,778	6,768
22,8	6,808	6,808	6,778	6,778	6,778	6,778	6,768
23,1	6,808	6,808	6,778	6,778	6,778	6,778	6,768
23,4	6,808	6,808	6,778	6,778	6,778	6,778	6,768
23,7	6,808	6,808	6,778	6,778	6,778	6,778	6,768
24	6,808	6,808	6,788	6,778	6,788	6,778	6,778
24,3	6,808	6,798	6,778	6,778	6,778	6,778	6,768
24,6	6,808	6,798	6,778	6,778	6,788	6,778	6,778
24,9	6,808	6,798	6,778	6,778	6,778	6,778	6,768
25,2	6,808	6,798	6,788	6,778	6,788	6,778	6,778
25,5	6,798	6,798	6,788	6,778	6,788	6,778	6,768
25,8	6,798	6,798	6,778	6,778	6,788	6,778	6,768
26,1	6,798	6,798	6,778	6,778	6,778	6,778	6,768
26,4	6,798	6,798	6,778	6,778	6,778	6,778	6,768
26,7	6,788	6,788	6,778	6,778	6,778	6,778	6,768
27	6,788	6,788	6,768	6,768	6,768	6,768	6,758
27,3	6,778	6,778	6,768	6,768	6,768	6,768	6,758
27,6	6,778	6,778	6,768	6,768	6,768	6,768	6,758
27,9	6,778	6,778	6,768	6,758	6,768	6,758	6,758
28,2	6,778	6,778	6,768	6,768	6,768	6,768	6,758
28,5	6,778	6,778	6,768	6,758	6,758	6,758	6,748
28,8	6,778	6,778	6,758	6,758	6,758	6,758	6,748
29,1	6,778	6,768	6,758	6,758	6,758	6,758	6,748
29,4	6,778	6,768	6,758	6,758	6,758	6,758	6,748
29,7	6,768	6,768	6,748	6,748	6,748	6,748	6,738
30	6,768	6,758	6,748	6,748	6,748	6,748	6,738
30,3	6,758	6,758	6,748	6,748	6,748	6,748	6,738
30,6	6,758	6,758	6,748	6,748	6,748	6,748	6,738
30,9	6,758	6,758	6,748	6,748	6,748	6,748	6,738
31,2	6,758	6,758	6,748	6,748	6,748	6,748	6,738
31,5	6,758	6,748	6,748	6,748	6,748	6,738	6,738
31,8	6,758	6,748	6,748	6,748	6,748	6,748	6,738
32,1	6,748	6,748	6,738	6,738	6,738	6,738	6,728
32,4	6,748	6,738	6,738	6,738	6,738	6,738	6,728
32,7	6,738	6,738	6,738	6,738	6,738	6,728	6,718

33	6,738	6,738	6,738	6,728	6,738	6,728	6,718
33,3	6,738	6,738	6,738	6,728	6,728	6,728	6,718
33,6	6,738	6,738	6,738	6,728	6,738	6,728	6,718
33,9	6,738	6,728	6,728	6,728	6,728	6,728	6,718
34,2	6,728	6,728	6,728	6,728	6,728	6,718	6,708
34,5	6,728	6,718	6,718	6,718	6,718	6,718	6,708
34,8	6,718	6,718	6,718	6,718	6,718	6,708	6,708
35,1	6,718	6,708	6,708	6,708	6,708	6,708	6,698
35,4	6,708	6,708	6,708	6,708	6,708	6,708	6,698

Table C.13 Time of flight values at different elevations over time (between 17 and 264 min) for the experiment 'Injection at the bottom - Without coating' - Experiment #8

Elevation (mm)	17 min	28 min	43 min	78 min	143 min	214 min	264 min
2,1	11,858	11,508	11,358	11,498	11,408	11,418	11,288
2,4	11,848	11,838	11,520	11,698	11,568	11,460	11,288
2,7	11,928	11,758	11,358	11,360	11,308	11,438	11,328
3	11,800	11,758	11,560	11,548	11,418	11,448	11,450
3,3	11,848	11,798	11,580	11,598	11,298	11,378	11,428
3,6	11,558	11,548	11,500	11,548	11,448	11,270	11,175
3,9	11,618	11,508	11,618	11,578	11,468	11,349	11,240
4,2	11,500	11,408	11,518	11,478	11,778	11,278	11,100
4,5	11,558	13,848	11,760	11,458	11,418	11,208	11,210
4,8	11,548	11,528	11,350	11,530	11,408	11,268	11,278
5,1	11,320	13,768	11,368	11,468	11,398	11,298	11,100
5,4	11,350	11,438	11,348	11,478	11,458	11,248	11,118
5,7	11,140	11,308	11,388	11,418	11,278	11,240	11,200
6	8,500	11,278	11,220	11,348	11,218	11,220	11,208
6,3	8,488	11,348	11,100	11,388	11,278	11,188	11,175
6,6	8,400	8,458	8,776	9,748	8,660	11,088	11,000
6,9	8,570	8,360	8,886	8,468	8,400	11,000	11,060
7,2	8,218	8,549	8,718	7,458	8,518	10,940	10,890
7,5	8,178	8,570	8,730	8,828	8,468	10,950	10,940
7,8	7,998	8,468	8,608	8,658	11,058	11,190	11,000
8,1	7,988	8,428	8,148	8,600	8,280	11,158	10,960
8,4	7,798	7,898	7,958	8,478	8,638	11,158	10,948
8,7	7,798	7,878	7,948	8,508	8,128	11,108	11,088
9	7,378	7,688	7,708	7,848	8,018	11,038	11,148
9,3	7,388	7,498	7,698	7,828	8,018	9,098	10,968
9,6	7,248	7,288	7,398	7,748	7,818	8,078	9,000
9,9	7,238	7,288	7,368	7,498	7,848	7,908	7,988

10,2	7,148	7,218	7,288	7,328	7,688	7,778	7,778
10,5	7,138	7,198	7,258	7,318	7,498	7,738	7,758
10,8	7,038	7,098	7,178	7,258	7,378	7,568	7,628
11,1	7,038	7,088	7,158	7,218	7,348	7,478	7,598
11,4	6,968	7,028	7,068	7,148	7,258	7,318	7,398
11,7	6,978	7,038	7,068	7,118	7,248	7,318	7,358
12	6,928	6,988	6,988	7,048	7,178	7,238	7,258
12,3	6,928	6,988	6,998	7,038	7,188	7,198	7,218
12,6	6,888	6,928	6,938	6,968	7,108	7,128	7,138
12,9	6,898	6,938	6,938	6,958	7,098	7,128	7,118
13,2	6,848	6,888	6,908	6,908	7,028	7,038	7,048
13,5	6,848	6,888	6,908	6,888	7,008	7,038	7,028
13,8	6,808	6,858	6,878	6,848	6,948	7,008	6,988
14,1	6,798	6,858	6,868	6,858	6,918	7,018	6,988
14,4	6,768	6,828	6,838	6,828	6,858	6,978	6,958
14,7	6,748	6,818	6,838	6,828	6,848	6,978	6,928
15	6,718	6,788	6,808	6,818	6,828	6,918	6,898
15,3	6,708	6,778	6,808	6,808	6,838	6,918	6,888
15,6	6,698	6,758	6,788	6,798	6,808	6,888	6,878
15,9	6,698	6,738	6,778	6,788	6,798	6,888	6,868
16,2	6,698	6,718	6,758	6,778	6,788	6,858	6,848
16,5	6,698	6,708	6,748	6,768	6,788	6,848	6,848
16,8	6,698	6,708	6,738	6,768	6,768	6,818	6,828
17,1	6,698	6,708	6,728	6,758	6,768	6,808	6,828
17,4	6,708	6,708	6,718	6,758	6,758	6,798	6,818
17,7	6,708	6,708	6,698	6,748	6,758	6,778	6,818
18	6,718	6,718	6,688	6,738	6,748	6,768	6,798
18,3	6,718	6,718	6,678	6,738	6,748	6,748	6,798
18,6	6,718	6,718	6,688	6,738	6,738	6,748	6,788
18,9	6,728	6,718	6,688	6,738	6,738	6,758	6,778
19,2	6,728	6,728	6,698	6,728	6,738	6,758	6,768
19,5	6,728	6,728	6,698	6,718	6,738	6,758	6,758
19,8	6,738	6,728	6,698	6,718	6,738	6,758	6,758
20,1	6,738	6,738	6,708	6,718	6,738	6,758	6,738
20,4	6,738	6,738	6,708	6,718	6,738	6,758	6,738
20,7	6,748	6,738	6,718	6,718	6,738	6,758	6,728
21	6,748	6,748	6,718	6,718	6,748	6,758	6,728
21,3	6,748	6,748	6,718	6,718	6,748	6,758	6,728
21,6	6,758	6,758	6,728	6,728	6,748	6,758	6,728
21,9	6,758	6,758	6,728	6,728	6,748	6,748	6,728
22,2	6,758	6,758	6,728	6,738	6,748	6,748	6,738

22,5	6,758	6,758	6,738	6,738	6,748	6,748	6,738
22,8	6,768	6,768	6,738	6,738	6,748	6,748	6,738
23,1	6,768	6,758	6,738	6,738	6,738	6,758	6,738
23,4	6,768	6,768	6,738	6,738	6,748	6,748	6,728
23,7	6,768	6,768	6,738	6,738	6,748	6,748	6,728
24	6,768	6,768	6,748	6,748	6,748	6,748	6,718
24,3	6,768	6,768	6,748	6,748	6,748	6,738	6,718
24,6	6,768	6,768	6,748	6,748	6,748	6,738	6,718
24,9	6,768	6,768	6,748	6,748	6,748	6,738	6,718
25,2	6,768	6,768	6,748	6,748	6,748	6,738	6,728
25,5	6,768	6,768	6,748	6,748	6,748	6,738	6,728
25,8	6,768	6,768	6,748	6,748	6,748	6,738	6,728
26,1	6,768	6,768	6,748	6,748	6,738	6,728	6,728
26,4	6,758	6,758	6,748	6,738	6,738	6,728	6,728
26,7	6,758	6,758	6,738	6,738	6,738	6,728	6,718
27	6,758	6,758	6,738	6,738	6,738	6,718	6,718
27,3	6,748	6,748	6,738	6,738	6,728	6,718	6,718
27,6	6,748	6,748	6,738	6,738	6,738	6,708	6,708
27,9	6,748	6,748	6,738	6,738	6,728	6,708	6,708
28,2	6,748	6,748	6,738	6,738	6,728	6,698	6,698
28,5	6,748	6,748	6,728	6,728	6,728	6,688	6,698
28,8	6,748	6,748	6,728	6,728	6,718	6,698	6,698
29,1	6,748	6,748	6,718	6,718	6,718	6,688	6,698
29,4	6,738	6,738	6,718	6,718	6,718	6,698	6,698
29,7	6,738	6,738	6,718	6,718	6,718	6,688	6,688
30	6,738	6,738	6,718	6,718	6,718	6,698	6,688
30,3	6,728	6,728	6,708	6,718	6,708	6,698	6,688
30,6	6,728	6,728	6,718	6,718	6,718	6,698	6,698
30,9	6,728	6,728	6,718	6,718	6,718	6,698	6,698
31,2	6,728	6,728	6,718	6,718	6,718	6,698	6,698
31,5	6,728	6,728	6,718	6,718	6,708	6,688	6,688
31,8	6,728	6,728	6,718	6,718	6,708	6,688	6,688
32,1	6,718	6,718	6,708	6,708	6,708	6,688	6,688
32,4	6,718	6,718	6,708	6,708	6,708	6,688	6,688
32,7	6,718	6,718	6,708	6,708	6,708	6,698	6,688
33	6,718	6,718	6,708	6,708	6,708	6,688	6,688
33,3	6,708	6,708	6,708	6,708	6,708	6,688	6,688
33,6	6,718	6,708	6,708	6,708	6,708	6,688	6,678
33,9	6,708	6,708	6,698	6,708	6,698	6,678	6,668
34,2	6,708	6,708	6,698	6,698	6,698	6,668	6,668
34,5	6,698	6,698	6,698	6,698	6,698	6,658	6,658

34,8	6,698	6,698	6,688	6,688	6,688	6,658	6,658
35,1	6,688	6,688	6,688	6,688	6,688	6,658	6,648
35,4	6,688	6,688	6,678	6,678	6,678	6,658	6,648

Table C.14 Time of flight values at different elevations over time for the experiment 'Injection from the side - Without coating' - Experiment #9

Elevation (mm)	0 min	0 min bis	1 min	2 min	7 min	25 min	56 min	99 min	164 min	215 min	252 min
2,1	6,568	6,568	6,548	6,548	6,538	6,548	6,528	6,538	6,538	6,528	6,538
2,4	6,578	6,578	6,558	6,558	6,548	6,548	6,538	6,548	6,548	6,538	6,548
2,7	6,588	6,578	6,568	6,558	6,558	6,558	6,548	6,548	6,548	6,548	6,548
3	6,588	6,588	6,568	6,568	6,558	6,558	6,558	6,558	6,558	6,548	6,558
3,3	6,598	6,588	6,578	6,568	6,568	6,568	6,558	6,568	6,558	6,558	6,558
3,6	6,598	6,598	6,578	6,578	6,568	6,568	6,558	6,568	6,568	6,558	6,568
3,9	6,608	6,598	6,588	6,578	6,578	6,578	6,568	6,578	6,568	6,568	6,578
4,2	6,608	6,608	6,588	6,588	6,578	6,578	6,568	6,578	6,578	6,578	6,578
4,5	6,618	6,608	6,598	6,588	6,578	6,588	6,578	6,578	6,578	6,578	6,578
4,8	6,618	6,618	6,598	6,588	6,588	6,588	6,578	6,588	6,588	6,588	6,588
5,1	6,628	6,628	6,608	6,598	6,598	6,598	6,588	6,598	6,588	6,588	6,598
5,4	6,638	6,628	6,608	6,608	6,598	6,608	6,598	6,598	6,598	6,598	6,598
5,7	6,638	6,638	6,618	6,618	6,608	6,608	6,598	6,608	6,598	6,598	6,608
6	6,648	6,648	6,628	6,628	6,618	6,618	6,608	6,618	6,608	6,608	6,608
6,3	6,658	6,658	6,638	6,638	6,628	6,628	6,618	6,618	6,618	6,608	6,618
6,6	6,668	6,658	6,648	6,638	6,638	6,638	6,628	6,628	6,628	6,618	6,618
6,9	6,668	6,668	6,648	6,648	6,638	6,638	6,628	6,638	6,628	6,628	6,628
7,2	6,668	6,668	6,658	6,648	6,648	6,648	6,638	6,648	6,638	6,638	6,638
7,5	6,678	6,678	6,658	6,658	6,648	6,648	6,638	6,648	6,638	6,638	6,638
7,8	6,678	6,678	6,658	6,658	6,658	6,658	6,648	6,658	6,648	6,648	6,648
8,1	6,678	6,678	6,658	6,658	6,648	6,658	6,648	6,658	6,648	6,648	6,648
8,4	6,678	6,678	6,668	6,668	6,658	6,658	6,658	6,658	6,658	6,658	6,658
8,7	6,678	6,678	6,668	6,668	6,658	6,658	6,658	6,658	6,658	6,658	6,658
9	6,688	6,688	6,678	6,678	6,668	6,668	6,658	6,668	6,668	6,668	6,668
9,3	6,688	6,688	6,678	6,678	6,668	6,668	6,668	6,668	6,668	6,668	6,678
9,6	6,698	6,698	6,688	6,678	6,678	6,678	6,668	6,678	6,678	6,678	6,678
9,9	6,698	6,698	6,688	6,678	6,678	6,678	6,678	6,678	6,678	6,678	6,688
10,2	6,708	6,708	6,688	6,688	6,688	6,688	6,678	6,688	6,678	6,688	6,688
10,5	6,708	6,708	6,688	6,688	6,688	6,688	6,678	6,688	6,688	6,688	6,698
10,8	6,708	6,708	6,698	6,698	6,688	6,688	6,688	6,688	6,688	6,698	6,698
11,1	6,718	6,708	6,698	6,698	6,698	6,698	6,688	6,698	6,688	6,698	6,698
11,4	6,718	6,718	6,708	6,698	6,698	6,698	6,688	6,698	6,698	6,698	6,708

11,7	6,718	6,718	6,708	6,708	6,698	6,698	6,698	6,708	6,698	6,708	6,708
12	6,718	6,718	6,708	6,708	6,698	6,698	6,698	6,708	6,698	6,708	6,718
12,3	6,728	6,718	6,708	6,708	6,698	6,708	6,698	6,708	6,698	6,708	6,718
12,6	6,728	6,728	6,708	6,708	6,708	6,708	6,698	6,708	6,708	6,708	6,718
12,9	6,728	6,728	6,708	6,708	6,708	6,708	6,698	6,708	6,708	6,708	6,718
13,2	6,728	6,728	6,708	6,708	6,698	6,708	6,698	6,708	6,708	6,718	6,718
13,5	6,728	6,718	6,708	6,708	6,698	6,708	6,698	6,708	6,708	6,718	6,718
13,8	6,718	6,718	6,708	6,708	6,698	6,698	6,698	6,708	6,708	6,718	6,718
14,1	6,718	6,718	6,698	6,698	6,698	6,698	6,698	6,708	6,708	6,708	6,718
14,4	6,718	6,718	6,698	6,698	6,698	6,698	6,698	6,708	6,708	6,708	6,718
14,7	6,708	6,708	6,698	6,698	6,688	6,698	6,688	6,698	6,698	6,708	6,718
15	6,708	6,708	6,688	6,688	6,688	6,688	6,688	6,698	6,698	6,708	6,708
15,3	6,698	6,698	6,688	6,688	6,678	6,688	6,688	6,698	6,698	6,708	6,708
15,6	6,698	6,698	6,688	6,688	6,678	6,688	6,688	6,698	6,698	6,708	6,708
15,9	6,688	6,688	6,678	6,678	6,678	6,678	6,678	6,698	6,698	6,698	6,708
16,2	6,688	6,688	6,678	6,678	6,678	6,678	6,678	6,698	6,698	6,698	6,708
16,5	6,678	6,678	6,668	6,668	6,668	6,668	6,678	6,688	6,688	6,698	6,698
16,8	6,678	6,678	6,668	6,668	6,668	6,668	6,678	6,688	6,688	6,688	6,698
17,1	6,678	6,668	6,668	6,668	6,658	6,658	6,668	6,678	6,688	6,688	6,688
17,4	6,668	6,668	6,668	6,668	6,658	6,658	6,658	6,678	6,678	6,678	6,688
17,7	6,668	6,668	6,658	6,658	6,648	6,648	6,658	6,668	6,678	6,678	6,678
18	6,668	6,668	6,658	6,658	6,648	6,648	6,648	6,658	6,658	6,668	6,668
18,3	6,658	6,658	6,658	6,658	6,648	6,638	6,638	6,658	6,658	6,668	6,678
18,6	6,668	6,668	6,658	6,658	6,638	6,628	6,638	6,648	6,648	6,658	6,658
18,9	6,668	6,668	6,658	6,658	6,638	6,628	6,628	6,648	6,658	6,668	6,678
19,2	6,668	6,668	6,658	6,658	6,628	6,618	6,618	6,638	6,648	6,658	6,668
19,5	6,668	6,668	6,658	6,648	6,628	6,618	6,618	6,638	6,658	6,678	6,688
19,8	6,678	6,678	6,668	6,648	6,628	6,608	6,618	6,638	6,648	6,668	6,668
20,1	6,678	6,678	6,668	6,648	6,628	6,628	6,628	6,658	6,678	6,698	6,718
20,4	6,688	6,688	6,668	6,638	6,618	6,608	6,618	6,648	6,658	6,678	6,678
20,7	6,698	6,698	6,678	6,638	6,638	6,638	6,648	6,678	6,708	6,738	6,748
21	6,698	6,698	6,668	6,628	6,628	6,628	6,638	6,668	6,668	6,708	6,718
21,3	6,718	6,718	6,678	6,638	6,648	6,668	6,688	6,738	6,758	6,798	6,798
21,6	6,718	6,718	6,668	6,628	6,638	6,658	6,678	6,718	6,728	6,768	6,788
21,9	6,728	6,728	6,688	6,638	6,668	6,708	6,738	6,788	6,798	6,848	6,868
22,2	6,728	6,728	6,688	6,628	6,658	6,698	6,728	6,748	6,808	6,838	6,878
22,5	6,738	6,738	6,708	6,648	6,678	6,738	6,778	6,828	6,888	6,918	6,958
22,8	6,738	6,738	6,708	6,638	6,648	6,698	6,758	6,818	6,878	6,928	6,948
23,1	6,748	6,748	6,728	6,678	6,708	6,778	6,838	6,928	6,988	7,028	7,068
23,4	6,748	6,748	6,728	6,658	6,698	6,768	6,838	6,918	6,978	7,038	7,058
23,7	6,758	6,758	6,748	6,708	6,758	6,858	6,958	7,038	7,128	7,198	7,238

24	6,758	6,758	6,748	6,698	6,768	6,848	6,938	7,018	7,048	7,148	7,218
24,3	6,768	6,768	6,778	6,758	6,838	6,968	7,138	7,198	7,278	7,378	7,340
24,6	6,748	6,748	6,768	6,758	6,848	6,958	7,118	7,198	7,318	7,488	7,518
24,9	6,718	6,718	6,808	6,838	6,938	7,108	7,478	7,578	7,508	7,688	7,728
25,2	6,708	6,708	6,788	6,838	6,958	7,148	7,358	7,588	7,628	7,818	7,908
25,5	6,768	6,768	6,858	6,938	7,108	7,488	7,588	7,798	7,958	8,018	8,018
25,8	6,788	6,778	6,858	6,928	7,158	7,508	7,598	7,838	7,958	10,548	10,538
26,1	6,898	6,908	6,968	7,158	7,478	7,678	7,868	10,748	7,938	10,618	10,618
26,4	6,988	6,968	6,928	7,118	7,368	7,718	7,888	10,838	10,618	10,668	10,628
26,7	11,768	11,758	7,378	7,588	7,728	10,668	10,748	10,828	10,668	10,708	10,668
27	11,778	11,778	7,308	7,478	7,818	10,768	10,778	10,828	10,708	10,728	10,698
27,3	11,778	11,778	7,638	7,758	10,738	10,738	10,698	10,858	10,768	10,798	10,718
27,6	11,798	11,788	7,678	10,838	10,818	10,828	10,808	10,838	10,788	10,748	10,768
27,9	11,798	11,808	10,888	10,818	10,788	10,768	10,798	10,908	10,808	10,848	10,788
28,2	11,818	11,818	10,908	10,828	10,858	10,818	10,808	10,918	10,808	10,808	10,818
28,5	11,828	11,818	10,918	10,858	10,878	10,808	10,848	10,948	10,798	10,848	10,868
28,8	11,828	11,828	10,948	10,878	10,878	10,878	10,848	10,918	10,848	10,908	10,818
29,1	11,828	11,828	10,958	10,878	10,888	10,938	10,878	10,938	10,898	10,848	10,808
29,4	11,838	11,838	10,938	10,908	10,878	10,948	10,898	10,918	10,878	10,848	10,828
29,7	11,848	11,838	10,988	10,918	10,958	11,008	10,838	10,898	10,898	10,868	10,848
30	11,838	11,838	10,978	10,948	10,918	10,948	10,958	10,948	10,898	10,898	10,888
30,3	11,848	11,848	11,028	11,008	10,998	11,008	10,888	10,918	10,908	10,968	10,858
30,6	11,848	11,858	10,988	10,998	10,978	10,958	10,918	10,948	10,918	10,928	10,838
30,9	11,858	11,858	11,028	11,028	11,018	10,998	10,948	10,918	10,888	10,878	10,918
31,2	11,858	11,858	11,038	11,008	10,998	10,978	10,908	10,958	10,898	10,908	10,898
31,5	11,858	11,858	10,998	11,028	11,028	10,958	10,918	10,968	10,898	10,928	10,878
31,8	11,868	11,858	11,008	11,008	10,998	10,998	10,978	10,988	10,938	10,958	10,958
32,1	11,858	11,858	11,078	11,058	11,008	11,008	10,978	10,958	10,908	10,958	10,918
32,4	11,868	11,858	11,058	10,988	11,048	10,998	10,958	10,998	10,938	10,938	10,918
32,7	11,868	11,868	11,068	11,028	10,988	10,998	10,968	10,990	10,948	10,908	10,928
33	11,868	11,858	11,058	11,018	10,980	11,008	10,958	11,018	10,938	10,868	10,928
33,3	11,868	11,858	11,128	11,028	10,988	11,100	10,978	11,025	10,958	10,878	10,948
33,6	11,858	11,868	11,048	10,998	10,948	11,028	10,938	11,038	10,918	10,898	10,978
33,9	11,868	11,868	10,978	11,120	10,980	10,988	11,150	11,008	10,930	10,958	10,998
34,2	11,858	11,868	11,088	10,940	10,948	10,998	11,008	10,970	10,978	10,880	10,948
34,5	11,858	11,858	11,060	10,880	11,018	11,028	10,940	11,068	10,978	10,980	10,948
34,8	11,858	11,858	11,000	10,828	10,990	11,138	10,978	11,008	10,988	10,980	10,948
35,1	11,868	11,848	11,050	11,120	11,018	11,038	10,910	11,018	10,908	10,930	11,030
35,4	11,868	11,848	11,088	11,040	11,068	11,048	10,928	11,038	11,008	10,968	10,948

Table C.15 Time of flight values at different elevations over time (between 0 and 26 min) for the experiment 'Injection from the side - Without coating' - Experiment #10

Elevation (mm)	0 min	0 min bis	1 min	2 min	6 min	15 min	26 min
2,1	6,618	6,618	6,598	6,598	6,588	6,588	6,588
2,4	6,628	6,628	6,608	6,598	6,598	6,598	6,588
2,7	6,628	6,628	6,608	6,608	6,598	6,598	6,598
3	6,638	6,638	6,618	6,608	6,608	6,598	6,598
3,3	6,638	6,638	6,618	6,618	6,608	6,608	6,608
3,6	6,648	6,648	6,628	6,618	6,608	6,608	6,608
3,9	6,648	6,648	6,628	6,628	6,618	6,618	6,608
4,2	6,658	6,648	6,628	6,628	6,618	6,618	6,618
4,5	6,658	6,648	6,628	6,628	6,618	6,618	6,618
4,8	6,658	6,648	6,638	6,628	6,618	6,618	6,618
5,1	6,658	6,648	6,638	6,628	6,618	6,618	6,618
5,4	6,658	6,658	6,638	6,628	6,618	6,618	6,618
5,7	6,658	6,658	6,638	6,628	6,618	6,618	6,618
6	6,658	6,658	6,638	6,638	6,628	6,628	6,618
6,3	6,658	6,658	6,638	6,638	6,628	6,618	6,618
6,6	6,668	6,658	6,648	6,638	6,628	6,628	6,628
6,9	6,668	6,658	6,648	6,638	6,628	6,628	6,628
7,2	6,668	6,668	6,648	6,648	6,638	6,628	6,628
7,5	6,668	6,668	6,648	6,648	6,638	6,638	6,628
7,8	6,678	6,668	6,658	6,648	6,638	6,638	6,638
8,1	6,678	6,678	6,658	6,648	6,648	6,638	6,638
8,4	6,678	6,678	6,658	6,658	6,648	6,648	6,638
8,7	6,688	6,678	6,668	6,658	6,648	6,648	6,648
9	6,688	6,688	6,668	6,668	6,658	6,658	6,648
9,3	6,688	6,688	6,668	6,668	6,658	6,658	6,658
9,6	6,698	6,698	6,678	6,678	6,668	6,668	6,658
9,9	6,698	6,698	6,678	6,678	6,668	6,668	6,668
10,2	6,708	6,708	6,688	6,688	6,678	6,668	6,668
10,5	6,708	6,708	6,688	6,688	6,678	6,678	6,678
10,8	6,718	6,718	6,698	6,688	6,688	6,678	6,678
11,1	6,718	6,718	6,698	6,698	6,688	6,688	6,678
11,4	6,728	6,718	6,708	6,698	6,688	6,688	6,688
11,7	6,728	6,728	6,708	6,708	6,698	6,688	6,688
12	6,728	6,728	6,708	6,708	6,698	6,698	6,698
12,3	6,728	6,728	6,718	6,708	6,698	6,698	6,698
12,6	6,738	6,738	6,718	6,708	6,698	6,698	6,698
12,9	6,738	6,738	6,718	6,708	6,708	6,698	6,698
13,2	6,738	6,738	6,718	6,718	6,708	6,708	6,698

13,5	6,738	6,738	6,718	6,718	6,708	6,708	6,698
13,8	6,738	6,738	6,718	6,718	6,708	6,708	6,708
14,1	6,738	6,738	6,718	6,718	6,708	6,708	6,708
14,4	6,738	6,738	6,718	6,718	6,708	6,708	6,708
14,7	6,738	6,738	6,718	6,718	6,708	6,708	6,708
15	6,738	6,738	6,718	6,718	6,708	6,708	6,708
15,3	6,738	6,738	6,718	6,708	6,708	6,708	6,698
15,6	6,738	6,738	6,718	6,708	6,708	6,698	6,698
15,9	6,738	6,738	6,718	6,708	6,708	6,698	6,698
16,2	6,738	6,738	6,718	6,708	6,698	6,698	6,698
16,5	6,738	6,728	6,708	6,708	6,698	6,698	6,698
16,8	6,728	6,728	6,708	6,708	6,698	6,698	6,698
17,1	6,728	6,728	6,708	6,698	6,698	6,688	6,688
17,4	6,728	6,718	6,708	6,698	6,698	6,688	6,688
17,7	6,718	6,718	6,698	6,698	6,688	6,678	6,678
18	6,718	6,708	6,698	6,688	6,688	6,678	6,678
18,3	6,708	6,708	6,688	6,688	6,678	6,678	6,678
18,6	6,708	6,708	6,688	6,688	6,678	6,678	6,678
18,9	6,698	6,698	6,688	6,678	6,678	6,668	6,668
19,2	6,698	6,698	6,688	6,678	6,678	6,678	6,668
19,5	6,698	6,698	6,678	6,678	6,678	6,668	6,668
19,8	6,698	6,698	6,678	6,678	6,678	6,668	6,668
20,1	6,698	6,688	6,678	6,678	6,678	6,668	6,668
20,4	6,698	6,698	6,688	6,688	6,678	6,668	6,668
20,7	6,698	6,688	6,678	6,678	6,678	6,668	6,668
21	6,698	6,698	6,688	6,688	6,678	6,668	6,668
21,3	6,698	6,698	6,688	6,688	6,678	6,668	6,658
21,6	6,708	6,708	6,698	6,688	6,678	6,668	6,658
21,9	6,708	6,708	6,698	6,688	6,678	6,668	6,658
22,2	6,718	6,718	6,708	6,688	6,678	6,658	6,648
22,5	6,718	6,718	6,718	6,688	6,678	6,668	6,658
22,8	6,728	6,728	6,718	6,688	6,668	6,658	6,648
23,1	6,738	6,738	6,728	6,688	6,668	6,668	6,658
23,4	6,748	6,738	6,728	6,678	6,658	6,658	6,658
23,7	6,758	6,748	6,748	6,688	6,668	6,678	6,678
24	6,758	6,758	6,748	6,688	6,668	6,668	6,668
24,3	6,768	6,768	6,768	6,698	6,678	6,698	6,708
24,6	6,758	6,758	6,758	6,688	6,678	6,688	6,698
24,9	6,768	6,768	6,788	6,708	6,698	6,728	6,738
25,2	6,768	6,768	6,778	6,698	6,688	6,708	6,708
25,5	6,778	6,768	6,808	6,728	6,708	6,738	6,758

25,8	6,768	6,768	6,808	6,728	6,688	6,708	6,728
26,1	6,778	6,778	6,838	6,758	6,738	6,758	6,798
26,4	6,778	6,778	6,838	6,758	6,708	6,768	6,808
26,7	6,788	6,788	6,878	6,808	6,818	6,858	6,888
27	6,788	6,788	6,868	6,798	6,778	6,848	6,888
27,3	6,788	6,788	6,918	6,878	6,898	6,978	7,018
27,6	6,778	6,768	6,908	6,858	6,878	6,938	6,998
27,9	6,768	6,768	6,938	6,948	7,008	7,078	7,388
28,2	6,778	6,778	6,898	6,928	6,958	7,128	7,148
28,5	6,968	6,968	6,928	7,018	7,078	7,278	7,558
28,8	11,858	11,848	6,898	6,998	7,118	7,298	7,578
29,1	11,858	11,848	7,018	6,978	7,538	7,588	7,688
29,4	11,848	11,838	7,018	7,068	7,538	7,658	7,728
29,7	11,838	11,838	7,388	7,558	10,328	10,300	10,228
30	11,838	11,838	7,498	7,578	10,340	10,308	10,368
30,3	11,838	11,818	7,688	10,368	10,328	10,280	10,398
30,6	11,838	11,828	10,488	10,308	10,358	10,308	10,388
30,9	11,828	11,818	10,438	10,388	10,388	10,378	10,418
31,2	11,828	11,818	10,458	10,418	10,358	10,328	10,408
31,5	11,818	11,808	10,448	10,388	10,438	10,338	10,378
31,8	11,828	11,818	10,438	10,478	10,418	10,368	10,378
32,1	11,818	11,808	10,538	10,488	10,458	10,298	10,328
32,4	11,818	11,808	10,488	10,528	10,420	10,360	10,358
32,7	11,808	11,798	10,448	10,448	10,478	10,338	10,428
33	11,818	11,808	10,558	10,488	10,508	10,338	10,358
33,3	11,818	11,808	10,548	10,478	10,428	10,398	10,300
33,6	11,828	11,818	10,618	10,488	10,458	10,398	10,360
33,9	11,828	11,818	10,608	10,628	10,418	10,408	10,518
34,2	11,838	11,828	10,488	10,440	10,448	10,408	10,438
34,5	11,838	11,828	10,540	10,598	10,548	10,540	10,458
34,8	11,848	11,848	10,650	10,420	10,588	10,498	10,458
35,1	11,858	11,848	10,768	10,688	10,630	10,418	10,368
35,4	11,868	11,858	10,630	10,680	10,588	10,438	10,418

Table C.16 Time of flight values at different elevations over time (between 45 and 304 min) for the experiment 'Injection from the side - Without coating' - Experiment #10

Elevation (mm)	45 min	73 min	113 min	164 min	216 min	257 min	304 min
2,1	6,588	6,588	6,588	6,588	6,588	6,588	6,588
2,4	6,588	6,588	6,588	6,588	6,588	6,598	6,598
2,7	6,598	6,598	6,598	6,598	6,598	6,598	6,598

3	6,598	6,598	6,598	6,598	6,598	6,598	6,608
3,3	6,608	6,608	6,608	6,608	6,608	6,608	6,608
3,6	6,608	6,608	6,608	6,608	6,608	6,608	6,608
3,9	6,608	6,608	6,608	6,618	6,618	6,618	6,618
4,2	6,608	6,618	6,608	6,618	6,618	6,618	6,618
4,5	6,618	6,618	6,618	6,618	6,618	6,618	6,618
4,8	6,618	6,618	6,618	6,618	6,618	6,618	6,618
5,1	6,618	6,618	6,618	6,618	6,618	6,618	6,618
5,4	6,618	6,618	6,618	6,618	6,618	6,618	6,618
5,7	6,618	6,618	6,608	6,608	6,618	6,618	6,618
6	6,618	6,618	6,618	6,618	6,618	6,618	6,618
6,3	6,618	6,618	6,618	6,618	6,618	6,618	6,618
6,6	6,628	6,618	6,618	6,618	6,618	6,618	6,618
6,9	6,628	6,618	6,618	6,618	6,618	6,618	6,618
7,2	6,628	6,628	6,628	6,628	6,628	6,628	6,628
7,5	6,628	6,628	6,628	6,628	6,628	6,628	6,628
7,8	6,638	6,628	6,628	6,628	6,628	6,628	6,628
8,1	6,638	6,638	6,628	6,628	6,628	6,628	6,638
8,4	6,638	6,638	6,638	6,638	6,638	6,638	6,638
8,7	6,648	6,638	6,638	6,638	6,638	6,638	6,648
9	6,648	6,648	6,648	6,648	6,648	6,648	6,648
9,3	6,658	6,648	6,648	6,648	6,658	6,648	6,658
9,6	6,658	6,658	6,658	6,658	6,658	6,658	6,668
9,9	6,668	6,658	6,658	6,668	6,668	6,668	6,668
10,2	6,668	6,668	6,668	6,668	6,668	6,668	6,678
10,5	6,668	6,668	6,668	6,678	6,678	6,678	6,678
10,8	6,678	6,678	6,678	6,678	6,678	6,678	6,678
11,1	6,678	6,678	6,678	6,678	6,678	6,678	6,688
11,4	6,688	6,688	6,678	6,688	6,688	6,688	6,688
11,7	6,688	6,688	6,688	6,688	6,688	6,688	6,688
12	6,688	6,688	6,688	6,688	6,688	6,688	6,698
12,3	6,698	6,698	6,688	6,698	6,688	6,688	6,698
12,6	6,698	6,698	6,688	6,698	6,698	6,698	6,698
12,9	6,698	6,698	6,698	6,698	6,698	6,698	6,698
13,2	6,698	6,698	6,698	6,698	6,698	6,698	6,708
13,5	6,698	6,698	6,698	6,698	6,698	6,698	6,708
13,8	6,708	6,708	6,698	6,708	6,708	6,708	6,708
14,1	6,698	6,698	6,698	6,708	6,708	6,708	6,708
14,4	6,708	6,708	6,698	6,708	6,708	6,708	6,708
14,7	6,698	6,708	6,698	6,708	6,708	6,708	6,708
15	6,698	6,698	6,698	6,708	6,708	6,708	6,708

15,3	6,698	6,698	6,698	6,708	6,708	6,708	6,708
15,6	6,698	6,698	6,698	6,708	6,708	6,708	6,708
15,9	6,698	6,698	6,698	6,698	6,708	6,708	6,708
16,2	6,698	6,698	6,688	6,698	6,698	6,708	6,708
16,5	6,698	6,698	6,688	6,698	6,698	6,698	6,708
16,8	6,698	6,698	6,688	6,698	6,698	6,698	6,708
17,1	6,688	6,688	6,678	6,698	6,698	6,698	6,708
17,4	6,688	6,688	6,678	6,688	6,698	6,698	6,708
17,7	6,688	6,688	6,678	6,688	6,688	6,698	6,698
18	6,688	6,678	6,668	6,688	6,688	6,698	6,698
18,3	6,678	6,678	6,668	6,678	6,688	6,688	6,698
18,6	6,678	6,678	6,668	6,688	6,688	6,688	6,698
18,9	6,678	6,678	6,668	6,678	6,678	6,688	6,698
19,2	6,678	6,678	6,668	6,678	6,678	6,678	6,688
19,5	6,668	6,678	6,658	6,678	6,678	6,688	6,698
19,8	6,678	6,678	6,658	6,678	6,668	6,678	6,688
20,1	6,668	6,668	6,658	6,678	6,678	6,688	6,708
20,4	6,668	6,668	6,648	6,668	6,668	6,678	6,698
20,7	6,668	6,668	6,648	6,688	6,678	6,698	6,728
21	6,668	6,658	6,648	6,678	6,668	6,688	6,708
21,3	6,668	6,668	6,658	6,688	6,688	6,718	6,748
21,6	6,658	6,658	6,648	6,678	6,678	6,708	6,728
21,9	6,658	6,668	6,658	6,698	6,718	6,738	6,768
22,2	6,648	6,648	6,648	6,688	6,698	6,728	6,758
22,5	6,658	6,668	6,678	6,718	6,748	6,778	6,808
22,8	6,648	6,658	6,658	6,708	6,728	6,768	6,798
23,1	6,668	6,678	6,698	6,748	6,788	6,818	6,868
23,4	6,658	6,668	6,688	6,738	6,778	6,808	6,858
23,7	6,688	6,698	6,738	6,798	6,838	6,878	6,928
24	6,688	6,688	6,728	6,788	6,828	6,868	6,918
24,3	6,728	6,738	6,788	6,858	6,908	6,948	6,998
24,6	6,708	6,718	6,758	6,848	6,908	6,938	6,948
24,9	6,758	6,788	6,848	6,938	7,008	7,008	7,058
25,2	6,708	6,758	6,818	6,898	6,978	7,008	7,048
25,5	6,778	6,838	6,938	7,038	7,138	7,148	7,218
25,8	6,768	6,838	6,898	7,028	7,128	7,088	7,198
26,1	6,848	6,958	7,058	7,198	7,368	7,328	7,378
26,4	6,848	6,928	7,038	7,178	7,318	7,288	7,348
26,7	6,978	7,118	7,208	7,498	7,568	7,508	7,488
27	6,938	7,088	7,198	7,348	7,648	7,498	7,538
27,3	7,188	7,468	7,588	7,738	7,578	7,898	7,698

27,6	7,168	7,328	7,468	7,578	7,628	8,038	7,788
27,9	7,358	7,658	7,748	7,718	8,008	7,928	7,978
28,2	7,518	7,688	7,488	7,638	8,068	7,848	8,200
28,5	7,638	7,738	7,788	7,928	7,968	8,040	8,438
28,8	7,628	10,310	7,988	7,910	7,998	8,058	8,078
29,1	7,858	10,130	10,180	7,968	8,488	8,168	8,558
29,4	10,288	10,318	10,270	10,210	8,438	10,168	8,568
29,7	10,158	10,280	10,238	10,230	10,268	10,258	10,248
30	10,298	10,328	10,270	10,268	10,298	10,298	10,328
30,3	10,338	10,198	10,368	10,238	10,310	10,238	10,398
30,6	10,358	10,178	10,260	10,228	10,218	10,160	10,290
30,9	10,348	10,398	10,348	10,218	10,248	10,260	10,138
31,2	10,308	10,378	10,228	10,078	10,148	10,288	10,248
31,5	10,328	10,308	10,308	10,238	10,278	10,128	10,200
31,8	10,328	10,318	10,288	10,278	10,208	10,170	10,258
32,1	10,328	10,338	10,328	10,208	10,180	10,228	10,258
32,4	10,338	10,358	10,308	10,268	10,300	10,328	10,170
32,7	10,258	10,308	10,300	10,238	10,228	10,198	10,328
33	10,318	10,328	10,308	10,288	10,388	10,268	10,248
33,3	10,278	10,298	10,300	10,218	10,528	10,348	10,228
33,6	10,298	10,438	10,408	10,228	10,258	10,218	10,388
33,9	10,348	10,478	10,408	10,348	10,618	10,468	10,408
34,2	10,408	10,450	10,348	10,448	10,348	10,470	10,250
34,5	10,378	10,680	10,558	10,410	10,300	10,428	10,458
34,8	10,378	10,448	10,360	10,300	10,490	10,328	10,498
35,1	10,408	10,560	10,438	10,508	10,498	10,558	10,590
35,4	10,538	10,508	10,450	10,450	10,538	10,600	10,480

Table C.17 Time of flight values at different elevations over time (between 0 and 8 min) for the experiment 'Injection at the top - With coating' - Experiment #11

Elevation (mm)	0 min	0 min bis	1 min	2 min	3 min	5 min	8 min
2,1	6,738	6,738	6,718	6,728	6,728	6,718	6,718
2,4	6,748	6,738	6,728	6,728	6,728	6,728	6,728
2,7	6,748	6,748	6,728	6,728	6,738	6,728	6,728
3	6,748	6,748	6,738	6,738	6,738	6,738	6,738
3,3	6,758	6,748	6,738	6,738	6,738	6,738	6,738
3,6	6,758	6,758	6,748	6,748	6,748	6,748	6,738
3,9	6,758	6,758	6,748	6,748	6,748	6,748	6,748
4,2	6,758	6,758	6,748	6,748	6,748	6,748	6,748
4,5	6,758	6,758	6,748	6,748	6,748	6,748	6,748

4,8	6,768	6,758	6,758	6,758	6,758	6,748	6,748
5,1	6,768	6,758	6,758	6,758	6,758	6,748	6,748
5,4	6,768	6,768	6,758	6,758	6,758	6,758	6,748
5,7	6,768	6,768	6,758	6,758	6,758	6,758	6,748
6	6,768	6,768	6,758	6,758	6,758	6,758	6,758
6,3	6,768	6,768	6,758	6,758	6,758	6,758	6,758
6,6	6,768	6,768	6,758	6,758	6,758	6,758	6,758
6,9	6,768	6,768	6,758	6,758	6,758	6,758	6,758
7,2	6,768	6,768	6,758	6,758	6,758	6,758	6,758
7,5	6,768	6,768	6,758	6,758	6,758	6,758	6,758
7,8	6,778	6,768	6,758	6,758	6,758	6,758	6,758
8,1	6,768	6,768	6,758	6,758	6,758	6,758	6,758
8,4	6,768	6,768	6,758	6,758	6,758	6,758	6,758
8,7	6,768	6,768	6,758	6,758	6,758	6,758	6,758
9	6,768	6,768	6,758	6,758	6,758	6,758	6,758
9,3	6,768	6,768	6,758	6,758	6,758	6,758	6,758
9,6	6,768	6,768	6,758	6,758	6,758	6,758	6,758
9,9	6,768	6,768	6,758	6,758	6,758	6,758	6,758
10,2	6,768	6,768	6,758	6,758	6,758	6,758	6,758
10,5	6,768	6,768	6,758	6,758	6,758	6,758	6,748
10,8	6,768	6,768	6,758	6,758	6,758	6,748	6,748
11,1	6,768	6,758	6,758	6,748	6,748	6,748	6,748
11,4	6,758	6,758	6,748	6,748	6,748	6,748	6,748
11,7	6,758	6,758	6,748	6,748	6,748	6,748	6,748
12	6,758	6,758	6,748	6,748	6,748	6,748	6,738
12,3	6,758	6,758	6,748	6,748	6,748	6,738	6,738
12,6	6,758	6,748	6,738	6,738	6,738	6,738	6,738
12,9	6,748	6,748	6,738	6,738	6,738	6,738	6,738
13,2	6,748	6,748	6,738	6,738	6,738	6,738	6,738
13,5	6,748	6,738	6,738	6,728	6,728	6,728	6,728
13,8	6,748	6,738	6,728	6,728	6,728	6,728	6,728
14,1	6,738	6,738	6,728	6,728	6,728	6,728	6,728
14,4	6,738	6,738	6,728	6,728	6,728	6,728	6,718
14,7	6,738	6,728	6,728	6,728	6,728	6,718	6,718
15	6,728	6,728	6,718	6,718	6,718	6,718	6,718
15,3	6,728	6,728	6,718	6,718	6,718	6,718	6,718
15,6	6,728	6,728	6,718	6,718	6,718	6,718	6,718
15,9	6,728	6,718	6,718	6,718	6,718	6,708	6,708
16,2	6,728	6,718	6,708	6,708	6,708	6,708	6,708
16,5	6,718	6,718	6,708	6,708	6,708	6,708	6,708
16,8	6,718	6,718	6,708	6,708	6,708	6,708	6,708

17,1	6,718	6,708	6,708	6,708	6,708	6,698	6,698
17,4	6,718	6,708	6,708	6,698	6,698	6,698	6,698
17,7	6,708	6,708	6,698	6,698	6,698	6,698	6,698
18	6,708	6,708	6,698	6,698	6,698	6,698	6,698
18,3	6,708	6,708	6,698	6,698	6,698	6,698	6,688
18,6	6,708	6,708	6,698	6,698	6,698	6,698	6,698
18,9	6,708	6,708	6,698	6,698	6,698	6,698	6,688
19,2	6,708	6,708	6,698	6,698	6,698	6,698	6,698
19,5	6,708	6,708	6,698	6,698	6,698	6,698	6,698
19,8	6,708	6,708	6,698	6,698	6,698	6,698	6,698
20,1	6,708	6,708	6,698	6,698	6,698	6,698	6,698
20,4	6,718	6,718	6,708	6,708	6,708	6,708	6,708
20,7	6,728	6,718	6,718	6,718	6,718	6,718	6,718
21	6,738	6,728	6,728	6,728	6,718	6,718	6,718
21,3	6,738	6,738	6,728	6,728	6,728	6,728	6,728
21,6	6,758	6,748	6,738	6,748	6,738	6,748	6,738
21,9	6,758	6,758	6,748	6,748	6,748	6,758	6,748
22,2	6,778	6,768	6,758	6,768	6,768	6,768	6,748
22,5	6,778	6,778	6,768	6,768	6,768	6,778	6,758
22,8	6,788	6,788	6,778	6,788	6,788	6,778	6,748
23,1	6,798	6,798	6,788	6,788	6,798	6,788	6,768
23,4	6,808	6,808	6,798	6,798	6,798	6,788	6,758
23,7	6,818	6,818	6,808	6,808	6,808	6,798	6,768
24	6,828	6,818	6,808	6,818	6,808	6,798	6,758
24,3	6,828	6,828	6,828	6,828	6,828	6,808	6,778
24,6	6,828	6,828	6,828	6,828	6,828	6,798	6,778
24,9	6,838	6,838	6,828	6,838	6,838	6,808	6,798
25,2	6,838	6,838	6,828	6,838	6,828	6,808	6,798
25,5	6,848	6,848	6,838	6,848	6,848	6,818	6,828
25,8	6,848	6,838	6,838	6,848	6,838	6,808	6,818
26,1	6,848	6,848	6,838	6,848	6,848	6,828	6,858
26,4	6,848	6,838	6,838	6,848	6,848	6,828	6,848
26,7	6,848	6,838	6,838	6,848	6,858	6,848	6,898
27	6,848	6,838	6,838	6,848	6,858	6,848	6,878
27,3	6,848	6,848	6,838	6,858	6,868	6,878	6,968
27,6	6,848	6,848	6,838	6,858	6,868	6,878	6,948
27,9	6,848	6,858	6,848	6,858	6,888	6,918	7,058
28,2	6,848	6,848	6,848	6,858	6,888	6,908	7,018
28,5	6,858	6,858	6,858	6,868	6,898	6,948	7,138
28,8	6,848	6,848	6,838	6,858	6,888	6,928	7,078
29,1	6,858	6,858	6,838	6,858	6,908	6,998	7,248

29,4	6,898	6,888	6,838	6,848	6,868	6,968	7,288
29,7	11,558	11,528	6,978	6,908	6,938	7,268	7,458
30	11,568	11,528	7,018	6,948	6,928	7,328	7,518
30,3	11,558	11,528	11,108	7,238	7,298	7,478	7,598
30,6	11,578	11,538	11,108	7,198	7,358	7,498	7,708
30,9	11,578	11,548	11,208	7,488	7,598	7,698	10,328
31,2	11,588	11,558	10,598	7,508	7,548	7,668	8,858
31,5	11,598	11,568	11,218	10,258	8,568	8,658	10,300
31,8	11,598	11,568	10,588	10,318	10,328	8,728	10,268
32,1	11,628	11,598	10,478	10,358	10,328	10,428	10,280
32,4	11,628	11,598	10,438	10,308	10,368	10,358	10,260
32,7	11,648	11,618	10,378	10,388	10,368	10,330	10,475
33	11,658	11,628	10,368	10,398	10,378	10,388	10,430
33,3	11,668	11,638	10,388	10,358	10,338	10,298	10,408
33,6	11,668	11,648	10,448	10,328	10,348	10,220	10,288
33,9	11,678	11,658	10,368	10,338	10,428	10,178	10,368
34,2	11,678	11,658	10,368	10,400	10,308	10,360	10,318
34,5	11,668	11,648	10,458	10,380	10,500	10,418	10,360
34,8	11,688	11,658	10,290	10,338	10,468	10,200	10,321
35,1	11,668	11,648	10,358	10,408	10,378	10,158	10,338
35,4	11,678	11,658	10,338	10,348	10,278	10,346	10,321

Table C.18 Time of flight values at different elevations over time (between 15 and 245 min) for the experiment 'Injection at the top - With coating' - Experiment #11

Elevation (mm)	15 min	20 min	30 min	45 min	68 min	118 min	175 min	245 min
2,1	6,728	6,718	6,718	6,728	6,728	6,728	6,728	6,738
2,4	6,728	6,728	6,728	6,728	6,728	6,728	6,738	6,738
2,7	6,738	6,728	6,728	6,738	6,738	6,738	6,738	6,738
3	6,738	6,738	6,738	6,738	6,738	6,738	6,738	6,748
3,3	6,748	6,738	6,738	6,738	6,738	6,738	6,748	6,748
3,6	6,748	6,738	6,738	6,748	6,748	6,748	6,748	6,748
3,9	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
4,2	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
4,5	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
4,8	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
5,1	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
5,4	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
5,7	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
6	6,758	6,758	6,758	6,748	6,758	6,748	6,748	6,748
6,3	6,758	6,758	6,758	6,758	6,748	6,748	6,748	6,748

6,6	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748
6,9	6,758	6,758	6,748	6,758	6,748	6,748	6,748	6,748
7,2	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,758
7,5	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748
7,8	6,758	6,758	6,758	6,758	6,758	6,748	6,758	6,748
8,1	6,758	6,758	6,748	6,758	6,758	6,748	6,748	6,748
8,4	6,758	6,758	6,758	6,758	6,758	6,758	6,748	6,748
8,7	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748
9	6,758	6,758	6,758	6,758	6,758	6,758	6,748	6,758
9,3	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748
9,6	6,758	6,758	6,758	6,758	6,758	6,748	6,758	6,748
9,9	6,758	6,758	6,748	6,758	6,758	6,748	6,748	6,748
10,2	6,758	6,758	6,758	6,758	6,758	6,748	6,748	6,748
10,5	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
10,8	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,748
11,1	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
11,4	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,748
11,7	6,748	6,748	6,748	6,738	6,748	6,738	6,738	6,738
12	6,748	6,738	6,738	6,738	6,738	6,738	6,738	6,738
12,3	6,738	6,738	6,738	6,738	6,738	6,738	6,738	6,738
12,6	6,738	6,738	6,738	6,738	6,738	6,738	6,738	6,738
12,9	6,738	6,738	6,728	6,738	6,728	6,728	6,728	6,738
13,2	6,738	6,728	6,728	6,728	6,728	6,728	6,728	6,728
13,5	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728
13,8	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728
14,1	6,728	6,728	6,718	6,718	6,728	6,718	6,718	6,728
14,4	6,728	6,728	6,718	6,718	6,718	6,718	6,718	6,718
14,7	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718
15	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718
15,3	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718
15,6	6,718	6,708	6,708	6,708	6,718	6,708	6,718	6,718
15,9	6,708	6,708	6,708	6,708	6,708	6,708	6,708	6,708
16,2	6,708	6,708	6,708	6,708	6,708	6,708	6,708	6,708
16,5	6,708	6,708	6,708	6,708	6,708	6,708	6,708	6,708
16,8	6,708	6,708	6,708	6,708	6,708	6,708	6,708	6,708
17,1	6,698	6,698	6,698	6,698	6,708	6,698	6,698	6,708
17,4	6,698	6,698	6,698	6,698	6,698	6,698	6,708	6,708
17,7	6,698	6,698	6,698	6,698	6,698	6,698	6,698	6,698
18	6,698	6,698	6,698	6,698	6,698	6,698	6,698	6,698
18,3	6,698	6,698	6,698	6,698	6,698	6,698	6,688	6,698
18,6	6,698	6,698	6,698	6,698	6,698	6,698	6,688	6,688

18,9	6,698	6,698	6,698	6,698	6,688	6,688	6,688	6,688
19,2	6,708	6,698	6,698	6,698	6,688	6,688	6,678	6,678
19,5	6,698	6,698	6,698	6,698	6,688	6,688	6,678	6,678
19,8	6,708	6,698	6,698	6,688	6,678	6,678	6,668	6,678
20,1	6,708	6,698	6,698	6,688	6,678	6,678	6,668	6,688
20,4	6,718	6,708	6,698	6,688	6,668	6,668	6,668	6,688
20,7	6,718	6,708	6,698	6,678	6,668	6,668	6,678	6,708
21	6,718	6,698	6,688	6,678	6,658	6,658	6,678	6,698
21,3	6,728	6,708	6,688	6,678	6,658	6,668	6,698	6,738
21,6	6,718	6,698	6,678	6,668	6,658	6,668	6,688	6,728
21,9	6,728	6,708	6,688	6,678	6,668	6,678	6,718	6,778
22,2	6,728	6,698	6,678	6,678	6,668	6,678	6,708	6,728
22,5	6,728	6,698	6,688	6,678	6,678	6,698	6,748	6,768
22,8	6,718	6,698	6,688	6,678	6,668	6,698	6,708	6,758
23,1	6,728	6,708	6,698	6,698	6,698	6,718	6,748	6,828
23,4	6,728	6,708	6,698	6,698	6,688	6,698	6,748	6,828
23,7	6,738	6,718	6,718	6,718	6,718	6,748	6,808	6,918
24	6,738	6,718	6,708	6,708	6,698	6,738	6,818	6,928
24,3	6,758	6,728	6,728	6,738	6,748	6,798	6,898	7,068
24,6	6,758	6,728	6,708	6,718	6,748	6,798	6,948	7,108
24,9	6,788	6,758	6,738	6,768	6,828	6,898	7,058	7,348
25,2	6,788	6,738	6,738	6,758	6,818	6,908	7,278	7,478
25,5	6,838	6,808	6,788	6,858	6,988	7,138	7,458	7,570
25,8	6,838	6,778	6,788	6,858	6,968	7,108	7,498	7,658
26,1	6,928	6,898	6,918	7,008	7,248	7,338	7,668	8,398
26,4	6,918	6,878	6,858	6,978	7,378	7,518	7,718	8,448
26,7	7,068	7,028	7,108	7,278	7,398	7,738	8,418	8,518
27	7,048	6,998	7,028	7,238	7,508	7,678	8,468	8,468
27,3	7,218	7,248	7,458	7,348	7,468	7,928	8,118	8,388
27,6	7,248	7,168	7,218	7,438	7,788	7,658	7,748	7,858
27,9	7,378	7,368	7,388	7,458	7,938	8,128	7,918	8,058
28,2	7,278	7,508	7,498	7,748	7,740	7,808	7,928	8,058
28,5	7,498	7,588	7,588	7,808	7,888	7,948	8,058	8,558
28,8	7,508	7,438	7,538	7,668	7,878	7,988	8,060	8,558
29,1	7,628	7,788	8,028	7,908	8,068	8,138	8,588	8,568
29,4	7,608	7,788	10,338	10,428	8,330	8,168	8,228	8,728
29,7	7,758	10,338	7,928	8,058	8,538	8,668	8,868	8,958
30	7,858	10,378	10,398	8,108	8,208	8,668	10,188	9,008
30,3	10,458	10,538	8,468	8,558	8,818	10,180	10,018	10,088
30,6	8,888	10,250	10,280	8,608	10,208	10,168	10,038	10,078
30,9	8,338	10,290	10,140	10,128	10,208	10,058	9,988	10,208

31,2	10,288	10,180	10,268	10,148	9,988	10,088	10,128	10,198
31,5	8,538	10,268	10,158	10,208	10,168	10,158	10,208	10,118
31,8	10,318	10,298	10,238	10,188	10,198	10,218	10,238	10,258
32,1	10,275	10,368	10,208	10,178	10,228	10,238	10,158	10,238
32,4	10,288	10,278	10,318	10,158	10,218	10,248	10,298	10,228
32,7	10,378	10,248	10,308	10,275	10,310	10,288	10,178	10,170
33	10,200	10,248	10,278	10,328	10,278	10,378	10,128	10,180
33,3	10,290	10,238	10,310	10,238	10,228	10,208	10,218	10,308
33,6	10,340	10,318	10,368	10,238	10,240	10,338	10,248	10,288
33,9	10,408	10,298	10,428	10,275	10,338	10,278	10,298	10,248
34,2	10,380	10,328	10,278	10,335	10,288	10,348	10,298	10,210
34,5	10,400	10,338	10,180	10,418	10,200	10,348	10,268	10,298
34,8	10,350	10,328	10,328	10,300	10,280	10,368	10,298	10,249
35,1	10,268	10,318	10,338	10,390	10,378	10,400	10,128	10,410
35,4	10,438	10,380	10,448	10,378	10,328	10,280	10,255	10,148

Table C.19 Time of flight values at different elevations over time for the experiment 'Injection at the top - With coating' - Experiment #12

Elevation (mm)	0 min	0 min bis	1 min	2 min	6 min	15 min	30 min	52 min	91 min	142 min	199 min	244 min
2,1	6,818	6,808	6,808	6,808	6,798	6,778	6,778	6,778	6,788	6,788	6,778	6,778
2,4	6,828	6,818	6,818	6,818	6,808	6,788	6,788	6,788	6,798	6,788	6,788	6,788
2,7	6,828	6,818	6,818	6,818	6,808	6,788	6,788	6,788	6,798	6,788	6,788	6,788
3	6,848	6,828	6,828	6,828	6,818	6,798	6,798	6,798	6,808	6,798	6,788	6,798
3,3	6,848	6,838	6,828	6,828	6,818	6,808	6,798	6,798	6,808	6,798	6,798	6,798
3,6	6,858	6,848	6,838	6,838	6,828	6,818	6,808	6,808	6,818	6,808	6,808	6,808
3,9	6,858	6,858	6,848	6,848	6,838	6,818	6,818	6,818	6,828	6,818	6,818	6,818
4,2	6,878	6,868	6,858	6,858	6,848	6,828	6,828	6,828	6,838	6,828	6,828	6,828
4,5	6,878	6,868	6,868	6,858	6,858	6,838	6,838	6,838	6,838	6,838	6,828	6,828
4,8	6,888	6,878	6,868	6,868	6,868	6,848	6,848	6,848	6,858	6,848	6,838	6,838
5,1	6,898	6,888	6,878	6,878	6,868	6,858	6,848	6,858	6,858	6,858	6,848	6,848
5,4	6,908	6,898	6,888	6,888	6,878	6,868	6,868	6,868	6,868	6,868	6,858	6,858
5,7	6,908	6,898	6,898	6,888	6,888	6,868	6,868	6,868	6,878	6,868	6,868	6,868
6	6,918	6,908	6,908	6,898	6,898	6,878	6,878	6,878	6,888	6,878	6,878	6,868
6,3	6,918	6,918	6,908	6,908	6,898	6,888	6,878	6,888	6,888	6,878	6,878	6,878
6,6	6,928	6,928	6,918	6,908	6,908	6,898	6,888	6,888	6,898	6,888	6,888	6,888
6,9	6,938	6,928	6,918	6,918	6,908	6,898	6,898	6,898	6,898	6,888	6,888	6,888
7,2	6,938	6,938	6,928	6,928	6,918	6,908	6,898	6,898	6,908	6,898	6,898	6,898
7,5	6,938	6,938	6,928	6,928	6,918	6,908	6,908	6,908	6,908	6,898	6,898	6,898
7,8	6,948	6,948	6,938	6,928	6,928	6,918	6,908	6,908	6,918	6,908	6,908	6,908

8,1	6,948	6,948	6,938	6,928	6,928	6,918	6,908	6,918	6,918	6,908	6,908	6,908
8,4	6,958	6,948	6,938	6,938	6,938	6,928	6,918	6,918	6,928	6,918	6,908	6,918
8,7	6,958	6,948	6,938	6,938	6,938	6,928	6,918	6,918	6,918	6,918	6,908	6,918
9	6,968	6,958	6,948	6,948	6,938	6,928	6,928	6,928	6,928	6,928	6,918	6,928
9,3	6,968	6,958	6,948	6,948	6,938	6,928	6,928	6,928	6,938	6,928	6,918	6,928
9,6	6,968	6,968	6,958	6,948	6,948	6,938	6,938	6,938	6,938	6,938	6,928	6,928
9,9	6,978	6,968	6,958	6,958	6,948	6,938	6,938	6,938	6,938	6,938	6,928	6,938
10,2	6,978	6,968	6,968	6,958	6,958	6,948	6,938	6,938	6,948	6,938	6,938	6,938
10,5	6,978	6,978	6,968	6,958	6,958	6,948	6,948	6,948	6,948	6,938	6,938	6,938
10,8	6,988	6,978	6,968	6,968	6,958	6,948	6,948	6,948	6,948	6,948	6,938	6,948
11,1	6,988	6,978	6,968	6,968	6,958	6,948	6,948	6,948	6,958	6,948	6,948	6,948
11,4	6,988	6,988	6,978	6,968	6,968	6,958	6,958	6,958	6,958	6,958	6,948	6,948
11,7	6,988	6,988	6,978	6,968	6,968	6,958	6,958	6,958	6,958	6,958	6,948	6,958
12	6,988	6,988	6,978	6,978	6,968	6,958	6,958	6,958	6,958	6,958	6,948	6,958
12,3	6,998	6,988	6,978	6,978	6,968	6,958	6,958	6,958	6,958	6,958	6,948	6,958
12,6	6,998	6,988	6,978	6,978	6,968	6,958	6,958	6,958	6,968	6,958	6,958	6,958
12,9	6,998	6,988	6,978	6,978	6,968	6,958	6,958	6,958	6,968	6,958	6,958	6,958
13,2	6,998	6,988	6,978	6,978	6,978	6,968	6,958	6,968	6,968	6,968	6,958	6,968
13,5	6,998	6,988	6,978	6,978	6,978	6,968	6,958	6,968	6,968	6,968	6,958	6,968
13,8	6,998	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,968	6,968	6,958	6,968
14,1	6,998	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,968	6,968	6,958	6,968
14,4	7,008	6,998	6,988	6,988	6,978	6,968	6,968	6,968	6,978	6,968	6,968	6,968
14,7	6,998	6,998	6,988	6,988	6,978	6,968	6,968	6,968	6,978	6,968	6,968	6,968
15	7,008	6,998	6,988	6,988	6,978	6,968	6,968	6,968	6,978	6,978	6,968	6,978
15,3	6,998	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,978	6,978	6,968	6,978
15,6	6,998	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,978	6,978	6,978	6,978
15,9	6,998	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,978	6,978	6,978	6,978
16,2	6,998	6,988	6,978	6,978	6,978	6,968	6,968	6,968	6,978	6,978	6,978	6,988
16,5	6,998	6,988	6,978	6,978	6,968	6,968	6,968	6,968	6,978	6,978	6,978	6,978
16,8	6,988	6,988	6,978	6,968	6,968	6,958	6,958	6,968	6,978	6,978	6,978	6,988
17,1	6,988	6,978	6,968	6,968	6,968	6,958	6,958	6,968	6,978	6,978	6,978	6,988
17,4	6,978	6,978	6,968	6,958	6,958	6,958	6,958	6,958	6,978	6,978	6,978	6,988
17,7	6,978	6,968	6,958	6,958	6,948	6,948	6,948	6,958	6,968	6,978	6,978	6,988
18	6,968	6,968	6,948	6,948	6,948	6,948	6,948	6,958	6,968	6,978	6,978	6,978
18,3	6,958	6,958	6,948	6,938	6,938	6,938	6,938	6,948	6,968	6,968	6,978	6,988
18,6	6,958	6,948	6,938	6,938	6,938	6,938	6,938	6,948	6,968	6,968	6,968	6,978
18,9	6,948	6,938	6,928	6,928	6,928	6,928	6,928	6,948	6,958	6,968	6,978	6,978
19,2	6,948	6,938	6,928	6,928	6,928	6,928	6,928	6,938	6,958	6,958	6,968	6,978
19,5	6,938	6,928	6,918	6,918	6,918	6,928	6,918	6,938	6,958	6,968	6,968	6,988
19,8	6,938	6,928	6,928	6,918	6,928	6,928	6,918	6,928	6,948	6,958	6,958	6,978
20,1	6,928	6,928	6,918	6,918	6,918	6,918	6,918	6,928	6,948	6,968	6,978	6,988

20,4	6,938	6,928	6,918	6,918	6,918	6,918	6,908	6,918	6,938	6,958	6,968	6,978
20,7	6,938	6,928	6,918	6,918	6,918	6,918	6,908	6,918	6,948	6,968	6,988	7,008
21	6,938	6,938	6,928	6,918	6,928	6,918	6,898	6,908	6,938	6,958	6,978	6,998
21,3	6,938	6,938	6,928	6,928	6,928	6,918	6,898	6,928	6,958	6,988	7,008	7,038
21,6	6,948	6,948	6,928	6,928	6,928	6,908	6,888	6,908	6,948	6,978	6,998	7,018
21,9	6,948	6,948	6,938	6,938	6,928	6,908	6,908	6,938	6,988	7,018	7,048	7,068
22,2	6,958	6,948	6,938	6,938	6,928	6,908	6,898	6,928	6,968	7,008	7,038	7,058
22,5	6,958	6,958	6,948	6,948	6,928	6,918	6,928	6,968	7,008	7,048	7,088	7,118
22,8	6,968	6,958	6,948	6,948	6,918	6,908	6,918	6,958	7,008	7,038	7,078	7,108
23,1	6,968	6,968	6,958	6,958	6,928	6,928	6,958	6,998	7,058	7,098	7,138	7,188
23,4	6,968	6,958	6,948	6,948	6,928	6,928	6,948	6,988	7,058	7,088	7,138	7,158
23,7	6,978	6,968	6,958	6,958	6,938	6,948	6,998	7,048	7,118	7,168	7,238	7,278
24	6,968	6,968	6,958	6,958	6,938	6,948	6,988	7,038	7,128	7,158	7,178	7,198
24,3	6,978	6,968	6,958	6,958	6,958	6,988	7,038	7,108	7,198	7,278	7,308	7,328
24,6	6,978	6,968	6,958	6,958	6,958	6,978	7,038	7,098	7,188	7,208	7,238	7,268
24,9	6,978	6,978	6,968	6,968	6,988	7,018	7,098	7,198	7,328	7,358	7,418	7,438
25,2	6,978	6,978	6,968	6,968	6,988	6,988	7,028	7,108	7,238	7,268	7,348	7,418
25,5	6,988	6,978	6,968	6,968	7,018	7,048	7,158	7,308	7,398	7,488	7,538	7,538
25,8	6,988	6,978	6,968	6,968	7,028	6,998	7,098	7,218	7,348	7,428	7,488	7,598
26,1	6,978	6,988	6,968	6,968	7,038	7,128	7,228	7,448	7,528	7,598	7,658	7,718
26,4	6,978	6,968	6,948	6,958	7,048	7,078	7,218	7,408	7,558	7,608	7,688	7,708
26,7	6,968	6,958	6,948	6,938	7,068	7,208	7,458	7,548	7,678	7,788	7,858	7,908
27	6,928	6,918	6,908	6,908	7,088	7,228	7,478	7,778	7,688	7,818	7,868	7,958
27,3	7,018	7,008	6,978	6,988	7,168	7,578	7,658	7,888	7,858	7,968	8,298	8,118
27,6	7,048	7,068	6,938	6,978	7,108	7,588	7,848	7,938	8,148	8,288	8,018	8,068
27,9	11,788	11,798	7,008	7,088	7,448	7,828	10,708	7,888	8,058	8,138	8,468	8,598
28,2	11,798	11,788	7,038	7,118	7,438	7,848	10,688	10,678	8,348	8,428	8,548	8,508
28,5	11,808	11,798	7,408	7,348	7,658	10,718	10,738	8,098	8,348	8,648	8,748	8,848
28,8	11,808	11,808	7,458	7,418	7,668	10,848	10,758	10,748	8,638	10,678	8,688	10,708
29,1	11,818	11,798	11,328	10,938	10,798	10,738	10,808	10,788	10,778	10,690	10,758	10,708
29,4	11,828	11,818	11,178	10,938	10,858	10,828	10,798	10,758	10,768	10,748	10,758	10,728
29,7	11,838	11,808	11,278	10,888	10,868	10,808	10,798	10,818	10,878	10,768	10,698	10,828
30	11,828	11,828	11,228	10,918	10,868	10,838	10,748	10,788	10,828	10,798	10,768	10,768
30,3	11,838	11,818	11,098	10,868	10,888	10,878	10,898	10,868	10,778	10,858	10,798	10,818

30,6	11,838	11,818	11,038	10,858	10,848	10,898	10,828	10,798	10,878	10,828	10,798	10,868
30,9	11,848	11,828	10,968	10,900	10,938	10,860	10,848	10,858	10,928	10,868	10,818	10,808
31,2	11,858	11,848	11,078	10,900	10,918	10,948	10,878	10,888	10,998	10,848	10,758	10,838
31,5	11,848	11,848	10,950	10,918	10,878	10,918	10,938	10,888	10,888	10,868	10,798	10,820
31,8	11,848	11,848	10,950	10,920	10,958	10,878	10,888	10,888	10,918	10,958	10,858	10,858
32,1	11,848	11,828	11,080	10,940	10,990	10,938	10,948	10,758	10,948	10,908	10,788	10,868
32,4	11,858	11,858	11,058	10,958	10,900	11,048	10,968	10,908	10,958	10,988	10,960	10,958
32,7	11,868	11,868	11,008	10,938	10,998	10,968	10,958	11,018	11,010	10,890	10,758	10,788
33	11,888	11,868	11,118	11,078	11,028	10,948	10,948	10,898	10,948	10,808	10,918	10,838
33,3	11,878	11,878	11,240	11,058	11,058	11,068	11,058	11,138	11,038	10,768	10,968	10,948
33,6	11,898	11,848	11,088	11,048	11,000	11,048	11,018	11,058	10,878	10,980	10,900	10,918
33,9	11,838	11,838	11,018	11,000	10,988	10,958	11,048	11,038	11,018	10,970	10,948	10,928
34,2	11,878	11,878	11,038	10,998	11,028	11,088	11,070	11,008	10,978	10,978	10,970	11,048
34,5	11,858	11,858	11,208	11,090	11,208	11,068	11,038	11,028	10,980	11,058	10,970	11,058
34,8	11,868	11,860	11,000	11,148	11,160	11,030	10,980	11,060	10,978	11,080	10,818	11,058
35,1	11,898	11,888	11,050	11,180	11,140	11,078	11,190	11,198	11,090	11,018	11,048	10,910
35,4	11,818	11,888	11,198	11,138	11,130	11,050	10,938	11,048	11,060	11,080	11,068	11,008

Table C.20 Time of flight values at different elevations over time (between 0 and 25 min) for the experiment 'Injection at the bottom - With coating' - Experiment #13

Elevation (mm)	0 min	0 min bis	1 min	3 min	4 min	10 min	16 min	25 min
2,1	12,898	12,898	10,978	11,148	11,048	11,178	11,068	11,178
2,4	12,898	12,898	11,078	10,998	11,008	11,098	11,080	10,970
2,7	12,898	12,898	11,008	11,038	11,068	11,138	11,000	11,100
3	12,898	12,898	11,038	11,028	11,018	11,118	11,068	11,100
3,3	12,888	12,888	11,028	10,998	11,028	11,028	11,048	10,998
3,6	12,888	12,888	10,978	10,998	10,998	11,018	11,048	10,998

3,9	12,878	12,878	10,968	11,048	11,018	11,028	11,058	11,100
4,2	12,878	12,878	11,008	11,018	11,038	11,078	11,028	11,068
4,5	12,868	12,868	10,958	10,958	11,108	11,088	10,978	11,058
4,8	12,868	12,868	11,038	10,978	11,088	11,088	10,978	10,920
5,1	12,848	12,848	11,028	11,038	11,088	11,108	11,018	11,008
5,4	12,848	12,848	10,928	10,958	11,008	10,988	10,978	10,958
5,7	12,838	12,838	10,928	10,928	10,948	11,028	11,078	10,890
6	12,828	12,828	11,038	10,948	11,018	10,958	10,968	10,958
6,3	12,818	12,818	10,968	10,878	10,978	11,038	10,998	11,028
6,6	12,818	12,818	10,888	10,958	10,998	11,108	10,968	10,978
6,9	12,798	12,798	10,850	10,898	10,998	11,058	11,038	10,900
7,2	12,798	12,798	10,775	10,820	10,988	11,028	10,938	10,778
7,5	12,778	12,778	10,775	10,820	10,858	10,988	10,978	10,850
7,8	12,778	12,778	10,700	10,750	10,948	10,878	10,858	10,878
8,1	12,748	12,748	10,778	10,778	10,749	10,850	10,978	10,840
8,4	12,758	12,758	10,728	10,750	10,828	10,778	10,918	10,868
8,7	12,718	12,718	10,738	10,750	10,858	10,828	10,870	10,828
9	12,718	12,718	7,618	10,750	10,778	10,788	10,768	10,838
9,3	12,178	12,188	7,538	10,738	7,758	10,738	10,788	10,818
9,6	12,068	12,068	7,438	7,448	7,488	10,858	10,748	10,778
9,9	12,028	12,028	7,408	7,468	7,548	8,708	10,748	10,760
10,2	12,018	12,018	7,268	7,188	7,338	7,768	7,888	8,748
10,5	12,018	12,018	7,038	7,128	7,238	7,678	7,898	8,068
10,8	12,018	12,008	6,918	6,958	7,018	7,588	7,748	8,568
11,1	12,008	12,008	6,888	6,968	6,978	7,558	7,708	7,818
11,4	12,008	12,008	6,838	6,838	6,888	7,178	7,518	7,638
11,7	11,988	11,988	6,838	6,848	6,868	7,188	7,338	7,588
12	7,078	7,078	6,738	6,768	6,808	7,028	7,098	7,458
12,3	7,008	7,008	6,748	6,768	6,798	7,028	7,078	7,188
12,6	6,868	6,868	6,678	6,708	6,708	6,918	6,998	7,048
12,9	6,818	6,818	6,688	6,708	6,738	6,938	6,988	7,018
13,2	6,738	6,738	6,658	6,678	6,678	6,858	6,868	6,928
13,5	6,718	6,708	6,658	6,658	6,688	6,858	6,868	6,938
13,8	6,668	6,678	6,638	6,638	6,648	6,788	6,788	6,838
14,1	6,658	6,658	6,638	6,638	6,648	6,788	6,798	6,818
14,4	6,628	6,628	6,618	6,618	6,628	6,738	6,728	6,748
14,7	6,618	6,618	6,618	6,608	6,628	6,738	6,718	6,758
15	6,608	6,608	6,598	6,598	6,608	6,688	6,658	6,678
15,3	6,598	6,598	6,588	6,588	6,608	6,688	6,658	6,678
15,6	6,588	6,588	6,578	6,578	6,588	6,648	6,618	6,618
15,9	6,588	6,578	6,578	6,578	6,588	6,648	6,608	6,618

16,2	6,578	6,568	6,558	6,568	6,568	6,618	6,578	6,578
16,5	6,568	6,568	6,558	6,558	6,568	6,608	6,588	6,588
16,8	6,568	6,568	6,548	6,548	6,558	6,588	6,548	6,558
17,1	6,568	6,568	6,538	6,538	6,548	6,578	6,548	6,548
17,4	6,568	6,558	6,538	6,538	6,538	6,558	6,518	6,528
17,7	6,558	6,558	6,528	6,528	6,538	6,548	6,508	6,538
18	6,558	6,558	6,528	6,528	6,528	6,538	6,498	6,518
18,3	6,558	6,558	6,528	6,528	6,528	6,538	6,508	6,518
18,6	6,558	6,558	6,518	6,518	6,518	6,528	6,498	6,508
18,9	6,558	6,558	6,518	6,518	6,518	6,528	6,508	6,498
19,2	6,558	6,548	6,518	6,518	6,518	6,518	6,498	6,508
19,5	6,548	6,548	6,518	6,518	6,518	6,518	6,508	6,508
19,8	6,548	6,548	6,518	6,508	6,518	6,518	6,508	6,508
20,1	6,548	6,548	6,508	6,508	6,508	6,518	6,508	6,508
20,4	6,548	6,548	6,508	6,508	6,508	6,508	6,508	6,508
20,7	6,538	6,538	6,508	6,508	6,508	6,508	6,508	6,498
21	6,538	6,538	6,498	6,498	6,498	6,508	6,498	6,498
21,3	6,538	6,538	6,498	6,498	6,498	6,498	6,498	6,498
21,6	6,538	6,538	6,498	6,498	6,498	6,498	6,498	6,498
21,9	6,538	6,538	6,498	6,498	6,498	6,498	6,498	6,498
22,2	6,538	6,538	6,498	6,498	6,498	6,498	6,498	6,498
22,5	6,538	6,538	6,498	6,498	6,498	6,498	6,498	6,498
22,8	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
23,1	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
23,4	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
23,7	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
24	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
24,3	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
24,6	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
24,9	6,548	6,548	6,498	6,498	6,498	6,498	6,498	6,498
25,2	6,548	6,548	6,508	6,508	6,508	6,508	6,498	6,498
25,5	6,548	6,538	6,508	6,508	6,508	6,498	6,498	6,498
25,8	6,548	6,548	6,518	6,508	6,518	6,508	6,508	6,508
26,1	6,548	6,538	6,518	6,518	6,518	6,518	6,518	6,508
26,4	6,548	6,548	6,518	6,518	6,518	6,518	6,518	6,518
26,7	6,538	6,538	6,528	6,518	6,528	6,518	6,518	6,518
27	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
27,3	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
27,6	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
27,9	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
28,2	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518

28,5	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
28,8	6,538	6,538	6,518	6,518	6,518	6,518	6,518	6,518
29,1	6,538	6,538	6,508	6,508	6,508	6,508	6,508	6,508
29,4	6,538	6,538	6,518	6,518	6,518	6,508	6,508	6,508
29,7	6,528	6,528	6,508	6,508	6,508	6,508	6,508	6,508
30	6,528	6,528	6,508	6,508	6,508	6,508	6,508	6,508
30,3	6,528	6,528	6,508	6,508	6,508	6,508	6,508	6,508
30,6	6,528	6,528	6,508	6,508	6,508	6,508	6,508	6,508
30,9	6,528	6,528	6,518	6,518	6,518	6,518	6,518	6,518
31,2	6,518	6,528	6,518	6,518	6,518	6,518	6,518	6,518
31,5	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
31,8	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
32,1	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
32,4	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
32,7	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
33	6,538	6,548	6,538	6,538	6,538	6,538	6,538	6,538
33,3	6,528	6,538	6,528	6,528	6,528	6,528	6,528	6,528
33,6	6,538	6,538	6,528	6,528	6,528	6,528	6,528	6,528
33,9	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
34,2	6,538	6,538	6,528	6,528	6,528	6,528	6,528	6,528
34,5	6,548	6,548	6,538	6,538	6,538	6,538	6,538	6,528
34,8	6,558	6,558	6,538	6,538	6,538	6,538	6,538	6,538
35,1	6,568	6,568	6,548	6,548	6,548	6,548	6,548	6,548
35,4	6,568	6,568	6,558	6,548	6,558	6,558	6,548	6,548

Table C.21Time of flight values at different elevations over time (between 41 and 286 min) for the experiment 'Injection at the bottom - With coating' - Experiment #13

Elevation (mm)	41 min	60 min	83 min	126 min	163 min	200 min	232 min	286 min
2,1	11,078	11,090	11,008	10,868	11,100	11,088	11,078	11,075
2,4	11,088	11,108	11,018	10,948	11,028	11,018	11,028	11,068
2,7	11,088	11,158	11,088	10,988	11,088	11,000	10,970	11,098
3	11,048	11,068	11,038	10,988	10,980	11,058	10,918	11,048
3,3	10,998	11,048	10,968	11,038	11,018	11,108	10,950	11,068
3,6	10,948	11,058	10,938	10,988	11,148	10,978	10,920	11,028
3,9	11,158	11,028	10,988	11,098	11,048	11,000	10,900	11,048
4,2	11,088	11,038	11,048	11,058	11,168	10,988	10,998	11,038
4,5	11,028	11,058	10,948	11,038	11,058	10,948	10,958	11,128
4,8	11,078	11,088	11,138	10,938	10,900	11,000	11,038	11,098
5,1	10,888	11,068	11,048	11,048	10,910	11,000	11,118	11,000
5,4	10,998	11,058	11,088	10,948	10,968	11,118	11,068	10,948

5,7	10,938	11,018	11,098	11,088	10,968	10,908	10,998	10,938
6	11,058	10,958	10,998	11,038	11,058	10,938	11,038	10,968
6,3	11,058	10,988	10,918	10,978	11,098	10,978	10,938	11,018
6,6	11,038	11,038	11,018	10,968	10,938	11,000	11,118	11,038
6,9	10,968	11,208	10,958	10,948	10,978	10,908	10,988	11,038
7,2	10,958	11,028	10,938	10,928	10,918	10,968	11,168	10,978
7,5	10,958	11,038	10,928	10,928	10,950	10,868	10,928	10,888
7,8	10,908	10,918	10,898	10,848	10,958	10,848	11,078	10,978
8,1	10,858	10,918	10,908	10,908	10,938	10,908	10,958	11,008
8,4	10,948	10,978	10,818	10,888	10,848	10,908	10,918	10,838
8,7	10,958	10,868	10,908	10,838	10,728	10,838	10,838	11,058
9	10,810	10,840	10,798	10,818	10,868	10,768	10,868	10,948
9,3	10,790	10,850	10,960	8,858	10,978	10,838	10,768	10,768
9,6	10,758	10,748	10,860	8,598	10,898	9,008	10,808	10,738
9,9	10,798	10,848	10,908	10,848	8,848	8,928	9,058	10,788
10,2	10,788	10,808	10,775	8,468	8,618	8,658	8,818	9,868
10,5	10,968	10,768	10,948	8,478	8,598	8,678	8,650	8,988
10,8	10,698	10,758	10,738	8,108	8,368	8,548	8,598	8,748
11,1	7,988	10,748	10,838	8,298	8,198	8,208	8,558	8,708
11,4	7,738	8,288	10,648	7,938	8,008	8,048	8,148	8,218
11,7	7,558	7,868	7,928	7,808	8,048	7,978	8,138	8,218
12	7,498	7,638	7,778	8,608	8,798	7,878	7,968	8,118
12,3	7,538	7,638	7,748	7,998	10,648	7,898	7,978	8,078
12,6	7,068	7,338	7,648	7,568	8,218	7,738	7,848	7,928
12,9	7,128	7,248	7,398	7,538	7,638	7,778	7,808	7,918
13,2	7,018	7,058	7,138	7,358	7,428	7,548	7,768	7,758
13,5	7,008	7,058	7,128	7,338	7,468	7,508	7,688	7,748
13,8	6,848	6,988	7,028	7,158	7,298	7,398	7,538	7,658
14,1	6,868	6,958	7,018	7,138	7,208	7,368	7,468	7,598
14,4	6,768	6,868	6,938	7,058	7,128	7,218	7,318	7,438
14,7	6,798	6,848	6,918	7,028	7,118	7,198	7,298	7,438
15	6,708	6,758	6,848	6,888	7,028	7,098	7,188	7,288
15,3	6,718	6,758	6,778	6,898	6,998	7,048	7,178	7,278
15,6	6,618	6,688	6,728	6,818	6,878	6,998	7,098	7,118
15,9	6,658	6,688	6,728	6,798	6,878	6,968	7,058	7,158
16,2	6,588	6,628	6,658	6,738	6,798	6,858	6,968	7,038
16,5	6,598	6,618	6,648	6,718	6,788	6,858	6,968	7,048
16,8	6,568	6,598	6,598	6,648	6,708	6,768	6,848	6,928
17,1	6,568	6,588	6,598	6,648	6,718	6,778	6,868	6,948
17,4	6,548	6,558	6,558	6,598	6,658	6,728	6,778	6,868
17,7	6,538	6,558	6,578	6,608	6,668	6,718	6,808	6,858

18	6,528	6,548	6,558	6,588	6,598	6,628	6,728	6,798
18,3	6,518	6,538	6,548	6,588	6,618	6,628	6,718	6,798
18,6	6,508	6,518	6,538	6,568	6,588	6,608	6,638	6,728
18,9	6,508	6,518	6,528	6,568	6,588	6,618	6,648	6,718
19,2	6,508	6,508	6,518	6,548	6,568	6,578	6,608	6,638
19,5	6,508	6,508	6,518	6,538	6,568	6,588	6,598	6,648
19,8	6,508	6,508	6,508	6,518	6,538	6,558	6,578	6,628
20,1	6,498	6,508	6,508	6,508	6,528	6,548	6,578	6,628
20,4	6,498	6,508	6,498	6,498	6,528	6,538	6,558	6,588
20,7	6,498	6,498	6,498	6,498	6,518	6,528	6,558	6,598
21	6,498	6,498	6,498	6,498	6,508	6,528	6,548	6,568
21,3	6,498	6,498	6,498	6,498	6,498	6,518	6,538	6,568
21,6	6,498	6,498	6,498	6,498	6,498	6,508	6,528	6,548
21,9	6,498	6,498	6,498	6,498	6,498	6,498	6,508	6,528
22,2	6,498	6,498	6,498	6,498	6,498	6,498	6,508	6,528
22,5	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,518
22,8	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,508
23,1	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,508
23,4	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
23,7	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
24	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
24,3	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
24,6	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
24,9	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
25,2	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,508
25,5	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,508
25,8	6,498	6,508	6,508	6,508	6,508	6,508	6,508	6,518
26,1	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,518
26,4	6,508	6,508	6,508	6,508	6,518	6,518	6,508	6,518
26,7	6,508	6,508	6,508	6,518	6,518	6,518	6,518	6,518
27	6,508	6,508	6,508	6,518	6,518	6,518	6,508	6,518
27,3	6,518	6,508	6,518	6,518	6,518	6,518	6,508	6,518
27,6	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,518
27,9	6,508	6,508	6,508	6,518	6,518	6,508	6,508	6,518
28,2	6,508	6,508	6,508	6,518	6,518	6,518	6,508	6,518
28,5	6,508	6,508	6,508	6,508	6,518	6,518	6,508	6,518
28,8	6,508	6,508	6,508	6,508	6,518	6,518	6,508	6,518
29,1	6,498	6,508	6,508	6,508	6,508	6,508	6,508	6,508
29,4	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,518
29,7	6,508	6,508	6,508	6,508	6,518	6,508	6,508	6,518
30	6,508	6,508	6,508	6,508	6,508	6,508	6,508	6,518

30,3	6,498	6,508	6,508	6,508	6,508	6,508	6,508	6,508
30,6	6,498	6,498	6,508	6,508	6,508	6,508	6,508	6,508
30,9	6,508	6,508	6,508	6,518	6,518	6,518	6,508	6,518
31,2	6,518	6,518	6,518	6,518	6,518	6,518	6,518	6,518
31,5	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
31,8	6,528	6,528	6,528	6,528	6,538	6,528	6,528	6,538
32,1	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
32,4	6,528	6,538	6,538	6,538	6,538	6,538	6,528	6,538
32,7	6,528	6,538	6,538	6,538	6,538	6,538	6,528	6,538
33	6,528	6,528	6,528	6,528	6,538	6,528	6,528	6,538
33,3	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
33,6	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
33,9	6,518	6,518	6,518	6,528	6,528	6,518	6,518	6,518
34,2	6,518	6,518	6,518	6,518	6,528	6,518	6,518	6,528
34,5	6,528	6,528	6,528	6,528	6,528	6,528	6,528	6,528
34,8	6,538	6,538	6,538	6,538	6,538	6,538	6,538	6,538
35,1	6,548	6,548	6,548	6,548	6,548	6,538	6,538	6,548
35,4	6,548	6,548	6,548	6,548	6,548	6,548	6,548	6,548

Table C.22 Time of flight values at different elevations over time (between 0 and 30 min) for the experiment 'Injection at the bottom - With coating' - Experiment #14

Elevation (mm)	0 min	0 min bis	1 min	3 min	7 min	16 min	30 min
2,1	12,148	12,158	11,088	11,158	10,950	11,018	11,100
2,4	12,138	12,158	11,108	10,990	10,988	10,990	10,948
2,7	12,148	12,148	11,040	10,948	11,028	11,008	10,998
3	12,128	12,138	11,008	10,948	10,988	10,888	10,940
3,3	12,118	12,138	11,088	11,048	10,978	10,820	10,978
3,6	12,108	12,118	10,938	10,968	10,938	10,970	10,928
3,9	12,108	12,098	10,908	10,970	10,978	10,930	11,058
4,2	12,088	12,098	10,838	10,878	10,938	10,890	10,958
4,5	12,088	12,078	10,968	10,900	10,858	10,918	10,960
4,8	12,068	12,078	10,930	10,900	10,790	10,880	10,900
5,1	12,058	12,048	10,930	10,820	10,840	10,960	10,800
5,4	12,048	12,038	7,378	7,848	10,840	10,780	10,838
5,7	12,028	12,028	7,468	7,648	10,840	10,700	10,820
6	12,018	12,018	7,218	7,498	7,790	10,730	10,760
6,3	12,038	12,048	7,188	7,478	7,918	10,690	10,790
6,6	12,018	12,038	6,988	7,418	7,618	7,790	10,720
6,9	12,058	12,058	6,918	7,358	7,628	7,780	10,600
7,2	6,948	6,968	6,848	7,228	7,468	7,618	7,768

7,5	6,928	6,948	6,848	7,068	7,488	7,628	7,768
7,8	6,778	6,778	6,828	6,938	7,268	7,478	7,648
8,1	6,788	6,768	6,858	6,978	7,218	7,478	7,688
8,4	6,828	6,838	6,878	6,878	6,968	7,138	7,488
8,7	6,848	6,848	6,888	6,878	6,978	7,268	7,468
9	6,848	6,848	6,878	6,848	6,838	7,018	7,278
9,3	6,848	6,848	6,878	6,848	6,858	6,968	7,158
9,6	6,838	6,838	6,868	6,818	6,788	6,868	7,038
9,9	6,838	6,838	6,858	6,818	6,818	6,878	7,008
10,2	6,828	6,828	6,848	6,788	6,778	6,798	6,888
10,5	6,838	6,838	6,848	6,798	6,788	6,828	6,888
10,8	6,828	6,828	6,838	6,778	6,768	6,768	6,818
11,1	6,828	6,828	6,838	6,778	6,778	6,788	6,828
11,4	6,818	6,818	6,828	6,778	6,758	6,748	6,778
11,7	6,828	6,828	6,828	6,778	6,768	6,758	6,788
12	6,818	6,818	6,818	6,778	6,748	6,748	6,758
12,3	6,808	6,808	6,808	6,788	6,758	6,748	6,768
12,6	6,808	6,808	6,808	6,788	6,758	6,738	6,748
12,9	6,798	6,798	6,798	6,788	6,768	6,748	6,758
13,2	6,798	6,798	6,798	6,788	6,768	6,748	6,748
13,5	6,788	6,788	6,788	6,788	6,768	6,758	6,758
13,8	6,788	6,788	6,788	6,788	6,778	6,758	6,758
14,1	6,788	6,788	6,788	6,788	6,778	6,768	6,768
14,4	6,788	6,788	6,788	6,788	6,778	6,768	6,768
14,7	6,778	6,778	6,778	6,788	6,778	6,778	6,778
15	6,778	6,778	6,788	6,788	6,788	6,778	6,778
15,3	6,778	6,778	6,778	6,788	6,778	6,778	6,778
15,6	6,788	6,778	6,778	6,788	6,788	6,788	6,788
15,9	6,778	6,778	6,778	6,788	6,788	6,788	6,788
16,2	6,788	6,788	6,788	6,788	6,788	6,788	6,788
16,5	6,788	6,788	6,778	6,788	6,788	6,788	6,788
16,8	6,788	6,788	6,788	6,788	6,788	6,788	6,788
17,1	6,788	6,788	6,788	6,788	6,788	6,788	6,788
17,4	6,788	6,788	6,788	6,788	6,788	6,788	6,798
17,7	6,788	6,788	6,788	6,788	6,788	6,788	6,798
18	6,798	6,788	6,798	6,788	6,798	6,798	6,798
18,3	6,798	6,798	6,798	6,798	6,798	6,798	6,798
18,6	6,798	6,798	6,798	6,798	6,798	6,798	6,798
18,9	6,798	6,798	6,798	6,798	6,798	6,798	6,798
19,2	6,798	6,798	6,798	6,798	6,798	6,798	6,798
19,5	6,808	6,808	6,798	6,798	6,798	6,798	6,798

19,8	6,808	6,808	6,808	6,798	6,798	6,798	6,798
20,1	6,808	6,808	6,808	6,808	6,798	6,798	6,798
20,4	6,808	6,808	6,808	6,808	6,798	6,798	6,798
20,7	6,808	6,808	6,808	6,798	6,798	6,798	6,798
21	6,808	6,808	6,808	6,808	6,798	6,798	6,798
21,3	6,808	6,798	6,808	6,798	6,798	6,798	6,798
21,6	6,808	6,808	6,808	6,798	6,798	6,798	6,798
21,9	6,798	6,798	6,798	6,798	6,798	6,798	6,798
22,2	6,798	6,798	6,798	6,798	6,798	6,798	6,798
22,5	6,798	6,798	6,798	6,798	6,788	6,788	6,788
22,8	6,798	6,798	6,798	6,788	6,788	6,788	6,788
23,1	6,788	6,788	6,788	6,788	6,788	6,788	6,788
23,4	6,788	6,788	6,788	6,788	6,788	6,788	6,788
23,7	6,788	6,788	6,788	6,788	6,788	6,788	6,778
24	6,788	6,788	6,788	6,788	6,788	6,788	6,778
24,3	6,788	6,788	6,788	6,778	6,778	6,778	6,778
24,6	6,788	6,788	6,788	6,788	6,778	6,778	6,778
24,9	6,778	6,778	6,778	6,778	6,778	6,778	6,768
25,2	6,778	6,778	6,778	6,778	6,778	6,768	6,768
25,5	6,778	6,778	6,778	6,768	6,768	6,768	6,768
25,8	6,768	6,778	6,768	6,768	6,768	6,768	6,768
26,1	6,768	6,768	6,768	6,768	6,758	6,768	6,758
26,4	6,768	6,768	6,768	6,768	6,758	6,758	6,758
26,7	6,758	6,758	6,758	6,758	6,758	6,758	6,758
27	6,758	6,758	6,758	6,758	6,758	6,758	6,758
27,3	6,758	6,758	6,758	6,758	6,748	6,748	6,748
27,6	6,758	6,758	6,758	6,758	6,748	6,748	6,748
27,9	6,748	6,748	6,748	6,748	6,748	6,748	6,738
28,2	6,748	6,748	6,748	6,748	6,748	6,748	6,748
28,5	6,748	6,748	6,738	6,738	6,738	6,738	6,738
28,8	6,748	6,748	6,748	6,748	6,738	6,738	6,738
29,1	6,738	6,738	6,738	6,738	6,738	6,738	6,738
29,4	6,738	6,738	6,738	6,738	6,738	6,738	6,738
29,7	6,738	6,738	6,738	6,738	6,738	6,738	6,728
30	6,738	6,738	6,738	6,738	6,738	6,738	6,738
30,3	6,738	6,738	6,728	6,728	6,728	6,728	6,728
30,6	6,738	6,728	6,728	6,728	6,728	6,728	6,728
30,9	6,728	6,728	6,728	6,728	6,728	6,728	6,728
31,2	6,718	6,718	6,718	6,718	6,718	6,718	6,718
31,5	6,718	6,718	6,718	6,718	6,718	6,718	6,718
31,8	6,718	6,718	6,718	6,708	6,708	6,708	6,708

32,1	6,708	6,708	6,708	6,708	6,708	6,708	6,708
32,4	6,708	6,708	6,708	6,708	6,708	6,708	6,708
32,7	6,708	6,708	6,708	6,708	6,698	6,698	6,698
33	6,708	6,708	6,708	6,708	6,708	6,708	6,708
33,3	6,708	6,708	6,708	6,708	6,708	6,708	6,708
33,6	6,718	6,718	6,718	6,718	6,708	6,708	6,708
33,9	6,718	6,718	6,708	6,708	6,708	6,708	6,708
34,2	6,728	6,728	6,718	6,718	6,718	6,718	6,718
34,5	6,728	6,728	6,728	6,728	6,728	6,718	6,718
34,8	6,738	6,738	6,738	6,728	6,728	6,728	6,728
35,1	6,738	6,738	6,738	6,738	6,738	6,738	6,738
35,4	6,738	6,738	6,738	6,738	6,738	6,738	6,738

Table C.23 Time of flight values at different elevations over time (between 52 and 290 min) for the experiment 'Injection at the bottom - With coating' - Experiment #14

Elevation (mm)	52 min	91 min	152 min	195 min	247 min	290 min
2,1	10,938	11,038	11,008	10,858	10,820	10,968
2,4	10,988	10,968	10,958	10,878	10,848	10,858
2,7	10,928	10,898	10,938	10,828	10,878	10,828
3	10,958	10,948	10,878	10,908	10,878	10,898
3,3	10,938	10,950	10,958	10,868	10,848	10,918
3,6	10,820	10,938	10,888	10,878	10,838	10,858
3,9	10,988	10,998	10,838	10,848	10,838	10,938
4,2	10,878	10,920	10,898	10,838	10,848	10,878
4,5	10,878	10,828	10,848	10,878	10,798	10,790
4,8	10,880	10,858	10,838	10,808	10,828	10,770
5,1	10,848	10,848	10,818	10,858	10,768	10,690
5,4	10,780	10,760	10,888	10,770	10,770	10,858
5,7	10,828	8,830	10,828	10,798	10,750	10,740
6	8,368	8,490	10,720	10,758	10,758	10,720
6,3	8,398	8,510	10,720	10,798	9,030	10,688
6,6	10,690	8,430	8,570	8,758	8,840	8,918
6,9	8,310	8,350	8,658	8,788	8,820	8,918
7,2	7,960	8,220	8,408	8,498	8,580	8,738
7,5	7,870	8,188	8,408	8,488	8,618	8,688
7,8	7,768	8,030	8,210	8,338	8,418	8,488
8,1	7,828	7,958	8,218	8,338	8,428	8,548
8,4	7,628	7,748	8,008	8,160	8,180	8,408
8,7	7,638	7,848	8,008	8,158	8,228	8,368
9	7,478	7,648	7,858	7,950	8,060	8,228

9,3	7,458	7,508	7,838	7,898	8,058	8,218
9,6	7,118	7,478	7,658	7,528	7,898	8,278
9,9	7,308	7,458	7,468	7,528	7,938	8,318
10,2	6,988	7,138	7,468	7,418	7,728	7,848
10,5	6,968	7,128	7,488	7,418	7,738	7,838
10,8	6,888	7,018	7,128	7,198	7,528	7,638
11,1	6,898	7,018	7,128	7,208	7,468	7,658
11,4	6,838	6,918	7,028	7,098	7,178	7,258
11,7	6,838	6,918	7,048	7,118	7,158	7,258
12	6,788	6,858	6,948	7,008	7,058	7,108
12,3	6,808	6,878	6,968	7,008	7,048	7,108
12,6	6,768	6,818	6,888	6,938	6,958	7,018
12,9	6,778	6,828	6,908	6,938	6,978	7,018
13,2	6,768	6,798	6,848	6,868	6,888	6,928
13,5	6,778	6,808	6,868	6,878	6,908	6,948
13,8	6,758	6,788	6,828	6,838	6,848	6,868
14,1	6,768	6,798	6,838	6,848	6,858	6,888
14,4	6,768	6,778	6,808	6,818	6,818	6,828
14,7	6,778	6,788	6,818	6,828	6,828	6,838
15	6,778	6,778	6,798	6,798	6,798	6,808
15,3	6,778	6,788	6,808	6,818	6,818	6,828
15,6	6,778	6,778	6,788	6,798	6,788	6,798
15,9	6,788	6,788	6,798	6,808	6,808	6,818
16,2	6,788	6,788	6,798	6,798	6,798	6,798
16,5	6,788	6,788	6,808	6,808	6,808	6,808
16,8	6,788	6,798	6,798	6,808	6,798	6,798
17,1	6,788	6,798	6,808	6,808	6,808	6,808
17,4	6,798	6,798	6,808	6,808	6,808	6,808
17,7	6,798	6,798	6,808	6,818	6,808	6,808
18	6,798	6,808	6,808	6,818	6,808	6,808
18,3	6,798	6,808	6,808	6,818	6,808	6,808
18,6	6,808	6,808	6,818	6,818	6,808	6,808
18,9	6,798	6,808	6,808	6,818	6,808	6,808
19,2	6,808	6,808	6,808	6,808	6,808	6,808
19,5	6,808	6,808	6,808	6,808	6,798	6,798
19,8	6,808	6,808	6,808	6,808	6,798	6,798
20,1	6,808	6,808	6,808	6,808	6,798	6,798
20,4	6,808	6,808	6,808	6,808	6,798	6,798
20,7	6,798	6,808	6,808	6,798	6,798	6,788
21	6,798	6,808	6,798	6,798	6,788	6,788
21,3	6,798	6,798	6,798	6,798	6,788	6,788

21,6	6,798	6,798	6,798	6,798	6,788	6,788
21,9	6,798	6,798	6,798	6,788	6,788	6,778
22,2	6,788	6,798	6,788	6,788	6,788	6,778
22,5	6,788	6,788	6,788	6,788	6,778	6,778
22,8	6,788	6,788	6,788	6,788	6,778	6,778
23,1	6,788	6,788	6,788	6,778	6,778	6,778
23,4	6,788	6,788	6,788	6,778	6,778	6,778
23,7	6,778	6,778	6,778	6,778	6,778	6,768
24	6,778	6,778	6,778	6,778	6,778	6,778
24,3	6,778	6,778	6,778	6,778	6,768	6,768
24,6	6,778	6,778	6,778	6,778	6,768	6,768
24,9	6,768	6,768	6,768	6,768	6,768	6,768
25,2	6,768	6,768	6,768	6,768	6,768	6,768
25,5	6,768	6,768	6,768	6,758	6,758	6,758
25,8	6,768	6,768	6,758	6,768	6,758	6,758
26,1	6,758	6,758	6,758	6,758	6,758	6,758
26,4	6,758	6,758	6,758	6,758	6,758	6,758
26,7	6,758	6,748	6,758	6,758	6,748	6,748
27	6,748	6,748	6,748	6,748	6,748	6,748
27,3	6,748	6,748	6,748	6,748	6,748	6,748
27,6	6,748	6,748	6,748	6,748	6,748	6,748
27,9	6,738	6,738	6,738	6,738	6,738	6,738
28,2	6,738	6,738	6,738	6,738	6,738	6,738
28,5	6,738	6,738	6,738	6,738	6,738	6,738
28,8	6,738	6,738	6,738	6,738	6,738	6,738
29,1	6,738	6,738	6,738	6,738	6,738	6,738
29,4	6,738	6,738	6,738	6,738	6,738	6,738
29,7	6,728	6,728	6,738	6,728	6,738	6,738
30	6,738	6,728	6,738	6,738	6,738	6,738
30,3	6,728	6,728	6,728	6,728	6,728	6,728
30,6	6,728	6,728	6,728	6,728	6,728	6,728
30,9	6,728	6,728	6,728	6,728	6,728	6,728
31,2	6,718	6,718	6,728	6,728	6,718	6,718
31,5	6,708	6,718	6,718	6,718	6,718	6,718
31,8	6,708	6,708	6,718	6,718	6,718	6,718
32,1	6,708	6,708	6,708	6,708	6,708	6,708
32,4	6,708	6,708	6,708	6,708	6,708	6,708
32,7	6,698	6,708	6,708	6,708	6,708	6,708
33	6,708	6,708	6,708	6,708	6,708	6,708
33,3	6,698	6,708	6,708	6,708	6,708	6,708
33,6	6,708	6,708	6,708	6,718	6,718	6,718

33,9	6,708	6,708	6,718	6,718	6,718	6,718
34,2	6,718	6,718	6,728	6,728	6,728	6,728
34,5	6,718	6,728	6,728	6,728	6,728	6,728
34,8	6,728	6,728	6,738	6,738	6,738	6,738
35,1	6,738	6,738	6,738	6,738	6,738	6,738
35,4	6,738	6,738	6,738	6,748	6,738	6,738

Table C.24 Time of flight values at different elevations over time (between 0 and 8 min) for the experiment 'Injection from the side - With coating' - Experiment #15

Elevation (mm)	0 min	0 min bis	1 min	2 min	3 min	4 min	8 min
2,1	6,678	6,668	6,668	6,658	6,658	6,658	6,658
2,4	6,688	6,678	6,668	6,668	6,668	6,668	6,658
2,7	6,688	6,688	6,678	6,678	6,678	6,678	6,668
3	6,698	6,688	6,678	6,678	6,678	6,678	6,678
3,3	6,698	6,698	6,688	6,688	6,688	6,688	6,678
3,6	6,708	6,698	6,698	6,688	6,688	6,688	6,688
3,9	6,708	6,708	6,698	6,698	6,698	6,698	6,688
4,2	6,718	6,708	6,708	6,698	6,698	6,698	6,698
4,5	6,718	6,708	6,708	6,708	6,708	6,698	6,698
4,8	6,728	6,718	6,708	6,708	6,708	6,708	6,708
5,1	6,728	6,718	6,718	6,708	6,708	6,708	6,708
5,4	6,728	6,728	6,718	6,718	6,718	6,718	6,708
5,7	6,738	6,728	6,718	6,718	6,718	6,718	6,708
6	6,738	6,728	6,728	6,728	6,718	6,718	6,718
6,3	6,738	6,738	6,728	6,728	6,728	6,718	6,718
6,6	6,748	6,738	6,728	6,728	6,728	6,728	6,718
6,9	6,748	6,738	6,728	6,728	6,728	6,728	6,728
7,2	6,758	6,748	6,738	6,738	6,738	6,738	6,728
7,5	6,758	6,748	6,738	6,738	6,738	6,738	6,738
7,8	6,758	6,758	6,748	6,748	6,748	6,748	6,738
8,1	6,768	6,758	6,748	6,748	6,748	6,748	6,738
8,4	6,768	6,758	6,758	6,748	6,748	6,748	6,748
8,7	6,768	6,768	6,758	6,758	6,748	6,748	6,748
9	6,768	6,768	6,758	6,758	6,758	6,758	6,748
9,3	6,778	6,768	6,758	6,758	6,758	6,758	6,748
9,6	6,778	6,768	6,768	6,758	6,758	6,758	6,758
9,9	6,778	6,778	6,768	6,768	6,768	6,758	6,758
10,2	6,788	6,778	6,768	6,768	6,768	6,768	6,758
10,5	6,788	6,778	6,768	6,768	6,768	6,768	6,758
10,8	6,788	6,778	6,778	6,778	6,768	6,768	6,768

11,1	6,788	6,778	6,778	6,768	6,768	6,768	6,768
11,4	6,788	6,788	6,778	6,778	6,778	6,768	6,768
11,7	6,788	6,788	6,778	6,778	6,768	6,768	6,768
12	6,788	6,788	6,778	6,778	6,778	6,778	6,768
12,3	6,788	6,788	6,778	6,778	6,778	6,778	6,768
12,6	6,798	6,788	6,778	6,778	6,778	6,778	6,768
12,9	6,798	6,788	6,778	6,778	6,778	6,778	6,768
13,2	6,798	6,788	6,778	6,778	6,778	6,778	6,778
13,5	6,798	6,788	6,788	6,778	6,778	6,778	6,778
13,8	6,798	6,798	6,788	6,778	6,778	6,778	6,778
14,1	6,798	6,788	6,788	6,778	6,778	6,778	6,778
14,4	6,798	6,788	6,788	6,778	6,778	6,778	6,778
14,7	6,798	6,788	6,778	6,778	6,778	6,778	6,768
15	6,798	6,788	6,778	6,778	6,778	6,778	6,768
15,3	6,788	6,778	6,778	6,768	6,768	6,768	6,768
15,6	6,788	6,778	6,778	6,768	6,768	6,768	6,768
15,9	6,778	6,778	6,768	6,768	6,768	6,768	6,758
16,2	6,778	6,778	6,768	6,768	6,768	6,768	6,758
16,5	6,778	6,768	6,768	6,768	6,758	6,758	6,758
16,8	6,778	6,778	6,768	6,768	6,758	6,758	6,758
17,1	6,778	6,768	6,758	6,758	6,758	6,758	6,758
17,4	6,778	6,768	6,758	6,758	6,758	6,758	6,758
17,7	6,768	6,768	6,758	6,758	6,758	6,758	6,758
18	6,778	6,768	6,758	6,758	6,758	6,758	6,758
18,3	6,768	6,768	6,758	6,758	6,758	6,758	6,758
18,6	6,768	6,768	6,758	6,758	6,758	6,758	6,758
18,9	6,768	6,768	6,758	6,758	6,758	6,758	6,758
19,2	6,778	6,768	6,758	6,758	6,768	6,768	6,758
19,5	6,778	6,768	6,758	6,758	6,768	6,768	6,768
19,8	6,778	6,768	6,768	6,768	6,768	6,768	6,768
20,1	6,778	6,768	6,768	6,768	6,768	6,768	6,768
20,4	6,788	6,778	6,768	6,768	6,778	6,768	6,758
20,7	6,788	6,778	6,778	6,778	6,778	6,768	6,768
21	6,798	6,788	6,778	6,778	6,778	6,758	6,758
21,3	6,808	6,798	6,798	6,788	6,788	6,758	6,758
21,6	6,818	6,808	6,808	6,798	6,788	6,748	6,748
21,9	6,838	6,838	6,828	6,818	6,788	6,758	6,748
22,2	6,848	6,848	6,838	6,828	6,778	6,748	6,738
22,5	6,878	6,868	6,858	6,858	6,798	6,748	6,738
22,8	6,878	6,868	6,858	6,858	6,788	6,738	6,738
23,1	6,898	6,888	6,878	6,888	6,808	6,748	6,748

23,4	6,888	6,878	6,878	6,868	6,798	6,748	6,738
23,7	6,908	6,898	6,888	6,898	6,818	6,768	6,748
24	6,898	6,888	6,888	6,898	6,818	6,768	6,728
24,3	6,918	6,908	6,898	6,918	6,858	6,818	6,768
24,6	6,918	6,908	6,898	6,928	6,858	6,808	6,738
24,9	6,928	6,928	6,918	6,948	6,898	6,868	6,808
25,2	6,928	6,918	6,908	6,948	6,898	6,858	6,788
25,5	6,938	6,938	6,918	6,978	6,968	6,928	6,898
25,8	6,928	6,918	6,908	6,968	6,968	6,918	6,858
26,1	6,928	6,908	6,908	6,978	7,038	6,998	7,018
26,4	6,848	6,838	6,828	6,878	6,978	6,978	6,948
26,7	6,878	6,868	6,848	6,898	6,988	7,068	7,098
27	6,868	6,868	6,848	6,888	6,958	6,988	7,048
27,3	6,988	6,998	6,898	6,958	7,048	7,168	7,458
27,6	7,028	7,048	6,908	6,968	7,038	7,438	7,518
27,9	11,858	11,848	6,958	7,000	7,468	7,578	7,698
28,2	11,838	11,818	7,058	7,078	7,448	7,548	7,798
28,5	11,828	11,818	7,428	7,498	10,888	10,848	10,848
28,8	11,818	11,788	7,468	7,588	10,868	10,898	10,858
29,1	11,798	11,788	11,138	10,868	10,778	10,838	10,828
29,4	11,798	11,748	10,998	10,868	10,848	10,878	10,778
29,7	11,768	11,738	11,048	10,878	10,878	10,818	10,838
30	11,768	11,738	10,888	10,898	10,868	10,798	10,798
30,3	11,758	11,728	10,928	10,928	10,818	10,768	10,858
30,6	11,768	11,718	10,798	10,848	10,848	10,808	10,828
30,9	11,738	11,708	10,728	10,828	10,848	10,858	10,838
31,2	11,738	11,708	10,810	10,858	10,838	10,858	10,798
31,5	11,728	11,688	10,800	10,778	10,848	10,868	10,808
31,8	11,718	11,668	10,778	10,768	10,808	10,838	10,778
32,1	11,708	11,668	10,778	10,758	10,760	10,808	10,828
32,4	11,708	11,668	10,798	10,650	10,788	10,738	10,798
32,7	11,688	11,638	10,828	10,840	10,798	10,768	10,838
33	11,698	11,648	10,778	10,818	10,745	10,818	10,788
33,3	11,688	11,658	10,758	10,758	10,778	10,768	10,678
33,6	11,688	11,658	10,778	10,818	10,820	10,790	10,788
33,9	11,678	11,648	10,848	10,850	10,780	10,798	10,778
34,2	11,698	11,658	10,758	10,788	10,800	10,818	10,798
34,5	11,698	11,658	10,828	10,790	10,848	10,798	10,848
34,8	11,718	11,668	10,845	10,808	10,848	10,848	10,788
35,1	11,718	11,658	10,848	10,798	10,818	10,828	10,788
35,4	11,718	11,688	10,848	10,808	10,828	10,800	10,848

Table C.25 Time of flight values at different elevations over time (between 19 and 403 min) for the experiment 'Injection from the side - With coating' - Experiment #15

Elevation (mm)	19 min	35 min	79 min	140 min	207 min	274 min	325 min	403 min
2,1	6,648	6,648	6,638	6,638	6,648	6,638	6,638	6,648
2,4	6,658	6,658	6,648	6,648	6,648	6,648	6,648	6,658
2,7	6,668	6,668	6,658	6,658	6,658	6,658	6,658	6,658
3	6,668	6,668	6,658	6,658	6,658	6,658	6,658	6,668
3,3	6,678	6,678	6,668	6,668	6,668	6,668	6,668	6,678
3,6	6,678	6,678	6,678	6,668	6,678	6,668	6,668	6,678
3,9	6,688	6,688	6,678	6,678	6,678	6,678	6,678	6,688
4,2	6,688	6,688	6,678	6,678	6,678	6,678	6,678	6,688
4,5	6,698	6,688	6,688	6,688	6,688	6,688	6,678	6,688
4,8	6,698	6,698	6,688	6,688	6,688	6,688	6,688	6,698
5,1	6,698	6,698	6,688	6,688	6,688	6,688	6,688	6,698
5,4	6,708	6,708	6,698	6,698	6,698	6,698	6,698	6,708
5,7	6,708	6,708	6,698	6,698	6,698	6,698	6,698	6,708
6	6,708	6,708	6,708	6,698	6,708	6,698	6,698	6,708
6,3	6,718	6,718	6,708	6,708	6,708	6,708	6,708	6,708
6,6	6,718	6,718	6,708	6,708	6,708	6,708	6,708	6,718
6,9	6,718	6,718	6,708	6,708	6,708	6,708	6,708	6,718
7,2	6,728	6,728	6,718	6,718	6,718	6,718	6,718	6,728
7,5	6,728	6,728	6,718	6,718	6,718	6,718	6,718	6,728
7,8	6,738	6,728	6,728	6,728	6,728	6,728	6,728	6,728
8,1	6,738	6,738	6,728	6,728	6,728	6,728	6,728	6,738
8,4	6,738	6,738	6,728	6,728	6,728	6,728	6,728	6,738
8,7	6,738	6,738	6,738	6,728	6,738	6,738	6,738	6,738
9	6,748	6,748	6,738	6,738	6,738	6,738	6,738	6,748
9,3	6,748	6,748	6,738	6,738	6,738	6,738	6,738	6,748
9,6	6,748	6,748	6,748	6,738	6,748	6,748	6,738	6,748
9,9	6,748	6,748	6,738	6,738	6,748	6,748	6,738	6,748
10,2	6,758	6,758	6,748	6,748	6,748	6,748	6,748	6,758
10,5	6,758	6,758	6,748	6,748	6,748	6,748	6,748	6,758
10,8	6,758	6,758	6,748	6,748	6,748	6,748	6,748	6,758
11,1	6,758	6,758	6,748	6,748	6,748	6,748	6,748	6,758
11,4	6,768	6,758	6,758	6,748	6,758	6,758	6,758	6,768
11,7	6,758	6,758	6,758	6,748	6,758	6,758	6,758	6,768
12	6,768	6,768	6,758	6,758	6,758	6,758	6,758	6,768
12,3	6,768	6,758	6,758	6,758	6,758	6,758	6,758	6,768
12,6	6,768	6,768	6,758	6,758	6,758	6,758	6,758	6,768

12,9	6,768	6,768	6,758	6,758	6,758	6,758	6,758	6,768
13,2	6,768	6,768	6,758	6,758	6,768	6,768	6,768	6,768
13,5	6,768	6,768	6,758	6,758	6,768	6,768	6,768	6,778
13,8	6,768	6,768	6,768	6,758	6,768	6,768	6,768	6,778
14,1	6,768	6,768	6,768	6,758	6,768	6,768	6,768	6,778
14,4	6,768	6,768	6,768	6,768	6,768	6,768	6,768	6,778
14,7	6,768	6,768	6,758	6,758	6,768	6,768	6,768	6,778
15	6,768	6,768	6,758	6,758	6,758	6,768	6,768	6,778
15,3	6,758	6,758	6,758	6,758	6,758	6,758	6,758	6,768
15,6	6,758	6,758	6,758	6,758	6,758	6,758	6,758	6,768
15,9	6,758	6,758	6,748	6,748	6,758	6,758	6,758	6,768
16,2	6,758	6,758	6,748	6,748	6,758	6,758	6,758	6,768
16,5	6,758	6,748	6,748	6,748	6,748	6,748	6,748	6,768
16,8	6,758	6,758	6,748	6,748	6,748	6,748	6,748	6,758
17,1	6,748	6,748	6,748	6,748	6,748	6,748	6,748	6,758
17,4	6,758	6,748	6,748	6,748	6,748	6,748	6,738	6,748
17,7	6,748	6,748	6,738	6,738	6,738	6,738	6,738	6,748
18	6,758	6,748	6,748	6,748	6,738	6,728	6,728	6,738
18,3	6,748	6,748	6,738	6,738	6,728	6,738	6,738	6,748
18,6	6,758	6,748	6,738	6,738	6,728	6,718	6,718	6,738
18,9	6,758	6,748	6,738	6,738	6,728	6,728	6,738	6,768
19,2	6,758	6,748	6,738	6,728	6,708	6,718	6,718	6,748
19,5	6,758	6,748	6,738	6,738	6,728	6,738	6,748	6,788
19,8	6,758	6,738	6,728	6,718	6,718	6,728	6,738	6,778
20,1	6,758	6,748	6,728	6,728	6,738	6,758	6,778	6,828
20,4	6,748	6,738	6,718	6,728	6,728	6,748	6,768	6,808
20,7	6,748	6,738	6,728	6,738	6,758	6,788	6,818	6,878
21	6,738	6,728	6,728	6,738	6,748	6,778	6,798	6,858
21,3	6,738	6,728	6,738	6,758	6,788	6,818	6,848	6,928
21,6	6,738	6,728	6,738	6,758	6,758	6,748	6,778	6,848
21,9	6,738	6,738	6,748	6,788	6,798	6,808	6,848	6,928
22,2	6,738	6,738	6,748	6,768	6,758	6,808	6,838	6,918
22,5	6,738	6,748	6,768	6,798	6,818	6,878	6,918	7,008
22,8	6,728	6,738	6,728	6,748	6,818	6,868	6,918	7,018
23,1	6,738	6,748	6,758	6,818	6,898	6,978	7,028	7,138
23,4	6,718	6,708	6,748	6,808	6,898	6,958	7,018	7,118
23,7	6,728	6,748	6,828	6,898	7,008	7,088	7,168	7,288
24	6,708	6,748	6,818	6,888	6,968	7,048	7,108	7,248
24,3	6,768	6,818	6,908	7,018	7,108	7,278	7,288	7,418
24,6	6,758	6,818	6,888	6,968	7,048	7,178	7,268	7,378
24,9	6,838	6,888	7,018	7,148	7,228	7,438	7,378	7,508

25,2	6,828	6,888	6,978	7,048	7,288	7,378	7,468	7,558
25,5	6,948	7,028	7,188	7,438	7,488	7,558	7,528	7,648
25,8	6,898	6,988	7,088	7,278	7,648	7,468	7,558	7,638
26,1	7,128	7,398	7,488	7,458	7,388	7,968	7,928	7,868
26,4	7,138	7,418	7,528	7,688	7,628	10,538	7,758	7,810
26,7	7,478	7,488	7,738	7,798	7,888	7,958	7,898	8,058
27	7,508	7,658	7,708	10,728	10,548	10,628	8,228	10,638
27,3	7,478	7,678	10,728	10,658	10,628	10,658	8,378	10,648
27,6	7,678	10,738	10,768	10,628	10,668	10,668	8,458	10,628
27,9	10,848	10,808	10,738	10,668	10,748	10,658	10,618	10,608
28,2	10,798	10,778	10,668	10,668	10,688	10,638	10,658	10,628
28,5	10,748	10,718	10,678	10,698	10,668	10,678	10,658	10,638
28,8	10,758	10,728	10,718	10,678	10,708	10,658	10,678	10,648
29,1	10,758	10,838	10,708	10,718	10,678	10,688	10,698	10,668
29,4	10,778	10,748	10,748	10,668	10,698	10,698	10,668	10,658
29,7	10,818	10,748	10,748	10,708	10,708	10,718	10,688	10,678
30	10,808	10,788	10,748	10,748	10,688	10,698	10,688	10,648
30,3	10,788	10,838	10,758	10,728	10,708	10,648	10,718	10,648
30,6	10,788	10,788	10,738	10,738	10,678	10,658	10,628	10,658
30,9	10,828	10,808	10,728	10,738	10,718	10,668	10,648	10,618
31,2	10,778	10,748	10,718	10,698	10,658	10,698	10,688	10,618
31,5	10,768	10,748	10,668	10,718	10,698	10,648	10,598	10,598
31,8	10,728	10,728	10,698	10,678	10,648	10,628	10,688	10,608
32,1	10,718	10,748	10,688	10,648	10,668	10,618	10,618	10,578
32,4	10,808	10,738	10,728	10,728	10,648	10,678	10,628	10,618
32,7	10,688	10,728	10,728	10,678	10,648	10,668	10,658	10,638
33	10,658	10,708	10,688	10,688	10,658	10,688	10,598	10,628
33,3	10,749	10,608	10,698	10,688	10,758	10,668	10,638	10,638
33,6	10,788	10,728	10,758	10,748	10,628	10,708	10,668	10,628
33,9	10,790	10,750	10,718	10,718	10,728	10,678	10,738	10,628
34,2	10,778	10,575	10,768	10,708	10,738	10,698	10,658	10,678
34,5	10,780	10,828	10,708	10,698	10,698	10,688	10,560	10,658
34,8	10,858	10,808	10,798	10,758	10,748	10,658	10,698	10,668
35,1	10,748	10,798	10,788	10,748	10,748	10,698	10,718	10,658
35,4	10,808	10,798	10,728	10,778	10,778	10,748	10,688	10,668

C3 Baselines data

At first are presented in Table C.26 the corrective factors used to generate the baselines for each experiment before normalization.

The baselines for the experiment 'Injection at the bottom - Without coating' - Experiment #6 are collected in Table C.27 as an example.

Some values have been in the lower baselines have been modified for the trend of the baseline and the normalization to be consistent. These values are marked with an asterisk *.

Table C.26 Compilation of the corrective factors for the baselines for each experiment

Injection type	Coating	# Experiment	Lower baseline	Upper baseline (t=0)	Upper baseline (t>0)	Lower baseline (t>20min)
At the top	No	3	0,592	1,68	0,9	/
At the top	No	4	0,62	1,61	0,915	/
At the top	No	5	0,58	1,72	0,945	/
At the bottom	No	6	0,6	1,665	0,897	/
At the bottom	No	7	0,55	1,82	0,93	/
At the bottom	No	8	0,55	1,823	0,937	/
From the side	No	9	0,575	1,74	0,934	/
From the side	No	10	0,573	1,75	0,9	/
At the top	Yes	11	0.592	1.718	0.9	0.585
At the top	Yes	12	0,592	1,69	0,947	/
At the bottom	Yes	13	0,526	1,897	0,8606	/
At the bottom	Yes	14	0,568	1,74	0,918	/
From the side	Yes	15	0,59	1,7	0,928	/

Table C.27 Time of flight values in μs for the baselines used in the experiment 'Injection at the bottom - Without coating' - Experiment #6

Elevation (mm)	Lower baseline	Upper baseline t=0	Upper baseline data
2,1	6,548	11,001	9,901
2,4	6,558	11,017	9,916
2,7	6,558	11,017	9,916
3	6,568	11,034	9,931
3,3	6,568	11,034	9,931
3,6	6,568	11,034	9,931
3,9	6,578	11,051	9,946
4,2	6,578	11,051	9,946
4,5	6,578	11,051	9,946
4,8	6,578	11,051	9,946
5,1	6,578	11,051	9,946
5,4	6,588	11,068	9,961

5,7	6,588	11,068	9,961
6	6,588	11,068	9,961
6,3	6,588	11,068	9,961
6,6	6,588	11,068	9,961
6,9	6,588	11,068	9,961
7,2	6,588	11,068	9,961
7,5	6,578	11,051	9,946
7,8	6,588	11,068	9,961
8,1	6,578	11,051	9,946
8,4	6,578	11,051	9,946
8,7	6,578	11,051	9,946
9	6,578	11,051	9,946
9,3	6,578	11,051	9,946
9,6	6,578	11,051	9,946
9,9	6,578	11,051	9,946
10,2	6,578	11,051	9,946
10,5	6,578	11,051	9,946
10,8	6,588	11,068	9,961
11,1	6,588	11,068	9,961
11,4	6,588	11,068	9,961
11,7	6,588	11,068	9,961
12	6,588	11,068	9,961
12,3	6,588	11,068	9,961
12,6	6,598	11,085	9,976
12,9	6,598	11,085	9,976
13,2	6,598	11,085	9,976
13,5	6,598	11,085	9,976
13,8	6,598	11,085	9,976
14,1	6,608	11,101	9,991
14,4	6,608	11,101	9,991
14,7	6,608	11,101	9,991
15	6,618	11,118	10,006
15,3	6,618	11,118	10,006
15,6	6,618	11,118	10,006
15,9	6,628	11,135	10,022
16,2	6,628	11,135	10,022
16,5	6,628	11,135	10,022
16,8	6,628	11,135	10,022
17,1	6,638	11,152	10,037
17,4	6,638	11,152	10,037
17,7	6,638	11,152	10,037

18	6,638	11,152	10,037
18,3	6,638	11,152	10,037
18,6	6,648	11,169	10,052
18,9	6,648	11,169	10,052
19,2	6,648	11,169	10,052
19,5	6,648	11,169	10,052
19,8	6,658	11,185	10,067
20,1	6,668	11,202	10,082
20,4	6,678	11,219	10,097
20,7	6,678	11,219	10,097
21	6,698	11,253	10,127
21,3	6,708	11,269	10,142
21,6	6,718	11,286	10,158
21,9	6,728	11,303	10,173
22,2	6,738	11,320	10,188
22,5	6,758	11,353	10,218
22,8	6,758	11,353	10,218
23,1	6,768	11,370	10,233
23,4	6,768	11,370	10,233
23,7	6,778	11,387	10,248
24	6,778	11,387	10,248
24,3	6,788	11,404	10,263
24,6	6,788	11,404	10,263
24,9	6,788	11,404	10,263
25,2	6,788	11,404	10,263
25,5	6,798	11,421	10,279
25,8	6,798	11,421	10,279
26,1	6,798	11,421	10,279
26,4	6,798	11,421	10,279
26,7	6,808	11,437	10,294
27	6,798	11,421	10,279
27,3	6,818	11,454	10,309
27,6	6,818	11,454	10,309
27,9	6,818*	11,454	10,309
28,2	6,818*	11,454	10,309
28,5	6,801	11,488	10,339
28,8	6,795	11,478	10,330
29,1	6,789	11,468	10,321
29,4	6,789	11,468	10,321
29,7	6,783	11,458	10,312
30	6,789	11,468	10,321

30,3	6,777	11,448	10,303
30,6	6,783	11,458	10,312
30,9	6,771	11,438	10,294
31,2	6,777	11,448	10,303
31,5	6,771	11,438	10,294
31,8	6,777	11,448	10,303
32,1	6,777	11,448	10,303
32,4	6,783	11,458	10,312
32,7	6,777	11,448	10,303
33	6,789	11,468	10,321
33,3	6,789	11,468	10,321
33,6	6,801	11,488	10,339
33,9	6,801	11,488	10,339
34,2	6,819	11,518	10,366
34,5	6,830	11,538	10,384
34,8	6,842	11,558	10,402
35,1	6,860	11,588	10,429
35,4	6,878	11,618	10,456

C4 Normalized data

The normalized data presented in the section are collected in Tables C.28 to C.42.

Table C.28 Normalized values of time of flight at different elevations over time (between 0 and 14 min) for the experiment 'Injection at the top - Without coating' - Experiment #3

Elevation (mm)	1 min	3 min	4 min	6 min	11 min	14 min
2,1	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
2,4	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
2,7	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
3	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
3,3	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
3,6	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
3,9	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
4,2	-0,003	-0,003	-0,003	-0,003	-0,003	-0,006
4,5	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
4,8	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
5,1	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
5,4	-0,003	-0,003	-0,006	-0,003	-0,006	-0,006
5,7	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
6	-0,003	-0,003	-0,006	-0,003	-0,006	-0,006
6,3	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006

6,6	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006
6,9	-0,006	-0,006	-0,006	-0,006	-0,006	-0,009
7,2	-0,006	-0,006	-0,006	-0,006	-0,006	-0,009
7,5	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
7,8	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
8,1	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
8,4	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
8,7	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
9	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006
9,3	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
9,6	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
9,9	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006
10,2	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
10,5	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
10,8	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
11,1	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
11,4	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009
11,7	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
12	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006
12,3	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
12,6	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
12,9	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
13,2	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
13,5	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009
13,8	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006
14,1	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
14,4	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009
14,7	-0,003	-0,003	-0,003	-0,006	-0,006	-0,009
15	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
15,3	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
15,6	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009
15,9	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
16,2	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
16,5	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
16,8	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006
17,1	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
17,4	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
17,7	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
18	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009
18,3	-0,003	-0,006	-0,003	-0,006	-0,006	-0,009
18,6	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009

18,9	-0,006	-0,006	-0,006	-0,006	-0,009	-0,009
19,2	-0,003	-0,006	-0,003	-0,006	-0,009	-0,012
19,5	-0,003	-0,006	-0,003	-0,006	-0,009	-0,012
19,8	-0,006	-0,006	-0,006	-0,009	-0,012	-0,015
20,1	-0,006	-0,009	-0,006	-0,012	-0,015	-0,018
20,4	-0,009	-0,009	-0,009	-0,015	-0,018	-0,023
20,7	-0,006	-0,006	-0,006	-0,012	-0,018	-0,023
21	-0,009	-0,012	-0,009	-0,020	-0,026	-0,029
21,3	-0,009	-0,009	-0,009	-0,020	-0,026	-0,032
21,6	-0,009	-0,012	-0,012	-0,026	-0,032	-0,038
21,9	-0,009	-0,009	-0,009	-0,023	-0,026	-0,032
22,2	-0,009	-0,012	-0,012	-0,026	-0,032	-0,035
22,5	-0,012	-0,012	-0,012	-0,023	-0,023	-0,026
22,8	-0,009	-0,012	-0,014	-0,023	-0,023	-0,029
23,1	-0,009	-0,009	-0,012	-0,014	-0,006	-0,012
23,4	-0,009	-0,009	-0,012	-0,014	-0,006	-0,012
23,7	-0,006	-0,006	-0,009	-0,003	0,017	0,012
24	-0,009	-0,009	-0,012	-0,006	0,014	0,009
24,3	-0,006	-0,003	-0,003	0,009	0,035	0,035
24,6	-0,009	-0,006	-0,006	0,003	0,032	0,032
24,9	-0,006	0,000	0,006	0,020	0,058	0,060
25,2	-0,006	0,000	0,003	0,020	0,049	0,052
25,5	-0,006	0,000	0,014	0,034	0,078	0,080
25,8	-0,006	0,000	0,011	0,032	0,072	0,078
26,1	-0,003	0,006	0,026	0,055	0,101	0,112
26,4	-0,003	0,006	0,026	0,052	0,103	0,112
26,7	0,000	0,011	0,037	0,072	0,129	0,143
27	0,000	0,014	0,037	0,072	0,132	0,152
27,3	0,003	0,017	0,049	0,089	0,158	0,180
27,6	0,003	0,017	0,046	0,086	0,155	0,183
27,9	0,014	0,032	0,072	0,117	0,203	0,218
28,2	0,011	0,034	0,057	0,117	0,201	0,215
28,5	0,044	0,059	0,095	0,149	0,228	0,248
28,8	0,038	0,063	0,097	0,165	0,238	0,261
29,1	0,173	0,093	0,164	0,187	0,288	0,303
29,4	1,005	0,124	0,195	0,235	0,286	0,297
29,7	0,985	0,216	0,267	0,953	0,953	0,968
30	0,991	0,237	0,962	0,942	0,951	0,968
30,3	0,987	0,947	0,959	0,947	0,979	0,984
30,6	0,990	0,968	0,968	0,968	0,985	0,973
30,9	0,984	0,984	0,978	0,981	0,970	0,987

31,2	0,987	0,964	0,956	0,976	0,987	0,970
31,5	0,984	0,967	1,004	0,970	0,978	0,990
31,8	1,001	1,007	1,004	0,990	0,967	0,964
32,1	0,990	1,018	1,004	0,996	0,956	0,982
32,4	1,002	0,993	0,990	0,979	0,970	0,968
32,7	0,996	1,001	0,973	0,982	0,976	0,987
33	1,002	1,005	0,962	0,954	0,996	0,971
33,3	0,999	0,974	0,994	0,971	0,993	0,959
33,6	0,991	0,997	1,011	0,977	0,974	0,994
33,9	0,977	0,983	0,991	0,989	0,954	0,960
34,2	0,981	1,020	0,995	1,009	0,986	0,978
34,5	0,982	0,990	0,981	0,981	1,004	0,897
34,8	0,990	0,999	0,999	0,982	0,968	1,002
35,1	0,958	0,936	0,976	0,977	0,985	0,936
35,4	0,987	0,956	0,972	0,970	0,978	0,984

Table C.29 Normalized values of time of flight at different elevations over time (between 24 and 143 min) for the experiment 'Injection at the top - Without coating' - Experiment #3

Elevation (mm)	24 min	35 min	43 min	59 min	78 min	103 min	122 min	143 min
2,1	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003
2,4	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003
2,7	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003
3	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003
3,3	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003
3,6	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,000
3,9	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003
4,2	-0,003	-0,003	-0,006	-0,003	-0,006	-0,003	-0,003	-0,003
4,5	-0,003	-0,006	-0,006	-0,003	-0,003	-0,003	0,000	0,000
4,8	-0,003	-0,003	-0,006	-0,003	-0,003	-0,003	0,000	0,000
5,1	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000
5,4	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003
5,7	-0,006	-0,006	-0,009	-0,006	-0,006	-0,006	-0,003	-0,003
6	-0,006	-0,006	-0,009	-0,006	-0,006	-0,003	-0,003	-0,003
6,3	-0,006	-0,009	-0,009	-0,006	-0,006	-0,006	-0,003	-0,003
6,6	-0,006	-0,009	-0,009	-0,006	-0,006	-0,006	-0,003	-0,003
6,9	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,006
7,2	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,006
7,5	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003
7,8	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006
8,1	-0,006	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003

8,4	-0,006	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003
8,7	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003
9	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003
9,3	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003
9,6	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003
9,9	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003
10,2	-0,006	-0,006	-0,009	-0,006	-0,006	-0,006	-0,003	0,000
10,5	-0,006	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000
10,8	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003
11,1	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003
11,4	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
11,7	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000
12	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,003
12,3	-0,006	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,003
12,6	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
12,9	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,003
13,2	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000	0,003
13,5	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,003
13,8	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	0,000	0,006
14,1	-0,009	-0,009	-0,012	-0,009	-0,009	-0,006	-0,003	0,003
14,4	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000	0,003
14,7	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,003
15	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
15,3	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,003
15,6	-0,009	-0,009	-0,009	-0,006	-0,006	-0,006	-0,003	0,003
15,9	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
16,2	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
16,5	-0,009	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,003
16,8	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	0,000
17,1	-0,009	-0,009	-0,012	-0,009	-0,012	-0,009	-0,003	0,003
17,4	-0,009	-0,009	-0,012	-0,012	-0,012	-0,009	-0,006	0,000
17,7	-0,009	-0,009	-0,012	-0,012	-0,009	-0,006	-0,003	0,003
18	-0,009	-0,009	-0,012	-0,012	-0,012	-0,009	-0,006	0,003
18,3	-0,009	-0,009	-0,012	-0,012	-0,012	-0,006	0,000	0,009
18,6	-0,012	-0,015	-0,015	-0,015	-0,018	-0,012	-0,006	0,003
18,9	-0,012	-0,015	-0,015	-0,015	-0,015	-0,009	0,000	0,012
19,2	-0,015	-0,015	-0,018	-0,018	-0,018	-0,012	-0,003	0,009
19,5	-0,015	-0,015	-0,015	-0,015	-0,012	-0,003	0,006	0,018
19,8	-0,018	-0,021	-0,021	-0,021	-0,021	-0,009	0,000	0,015
20,1	-0,021	-0,021	-0,021	-0,018	-0,015	-0,003	0,009	0,023
20,4	-0,026	-0,026	-0,026	-0,023	-0,020	-0,009	0,003	0,018

20,7	-0,026	-0,023	-0,023	-0,018	-0,009	0,003	0,018	0,032
21	-0,032	-0,032	-0,029	-0,026	-0,017	-0,006	0,009	0,023
21,3	-0,032	-0,029	-0,026	-0,017	-0,009	0,006	0,020	0,038
21,6	-0,038	-0,035	-0,032	-0,023	-0,015	0,000	0,015	0,029
21,9	-0,029	-0,026	-0,020	-0,012	0,000	0,015	0,032	0,049
22,2	-0,032	-0,032	-0,026	-0,017	-0,009	0,009	0,026	0,041
22,5	-0,023	-0,017	-0,014	-0,003	0,012	0,029	0,043	0,061
22,8	-0,026	-0,023	-0,017	-0,009	0,009	0,029	0,049	0,066
23,1	-0,009	-0,003	0,003	0,014	0,032	0,058	0,078	0,098
23,4	-0,012	-0,006	0,000	0,012	0,035	0,061	0,078	0,098
23,7	0,012	0,020	0,026	0,043	0,069	0,095	0,121	0,138
24	0,012	0,020	0,029	0,043	0,066	0,098	0,121	0,141
24,3	0,043	0,052	0,058	0,083	0,107	0,150	0,165	0,179
24,6	0,040	0,049	0,060	0,081	0,107	0,144	0,183	0,181
24,9	0,072	0,083	0,104	0,132	0,147	0,193	0,219	0,228
25,2	0,066	0,081	0,095	0,129	0,147	0,193	0,210	0,213
25,5	0,103	0,129	0,144	0,172	0,199	0,228	0,244	0,244
25,8	0,095	0,124	0,132	0,170	0,198	0,213	0,227	0,236
26,1	0,141	0,167	0,178	0,201	0,228	0,264	0,279	0,293
26,4	0,144	0,155	0,175	0,204	0,227	0,264	0,270	0,293
26,7	0,175	0,201	0,209	0,234	0,273	0,295	0,318	0,330
27	0,187	0,204	0,210	0,244	0,282	0,305	0,322	0,333
27,3	0,218	0,241	0,264	0,289	0,321	0,341	0,355	0,381
27,6	0,223	0,249	0,252	0,292	0,312	0,335	0,352	0,364
27,9	0,255	0,272	0,298	0,324	0,349	0,381	0,387	0,427
28,2	0,255	0,286	0,304	0,335	0,355	0,358	0,404	0,421
28,5	0,296	0,324	0,355	0,378	0,406	0,420	0,522	0,559
28,8	0,304	0,335	0,349	0,374	0,400	0,533	0,547	0,934
29,1	0,351	0,385	0,399	0,470	0,555	0,942	0,940	0,951
29,4	0,356	0,376	0,962	0,945	0,563	0,948	0,940	0,934
29,7	0,976	0,962	0,965	0,968	0,953	0,931	0,928	0,942
30	0,982	0,957	0,954	0,931	0,940	0,934	0,928	0,940
30,3	0,976	0,967	0,962	0,947	0,947	0,947	0,942	0,950
30,6	0,973	0,970	0,968	0,942	0,925	0,936	0,945	0,939
30,9	0,961	0,959	0,941	0,959	0,947	0,956	0,927	0,941
31,2	0,945	0,970	0,947	0,959	0,950	0,942	0,945	0,950
31,5	0,947	0,956	0,964	0,950	0,930	0,944	0,939	0,947
31,8	0,973	0,953	0,953	0,962	0,947	0,947	0,939	0,950
32,1	0,970	0,970	0,956	0,945	0,939	0,956	0,925	0,953
32,4	0,962	0,973	0,959	0,897	0,945	0,948	0,948	0,945
32,7	0,919	0,933	0,933	0,939	0,942	0,939	0,950	0,959

33	0,965	0,942	0,962	0,951	0,959	0,925	0,959	0,951
33,3	0,954	0,971	0,957	0,909	0,923	0,909	0,937	0,937
33,6	0,946	0,957	0,946	0,949	0,937	0,940	0,932	0,932
33,9	0,932	0,966	0,974	0,957	0,946	0,918	0,932	0,955
34,2	0,967	0,950	0,967	0,978	0,944	0,925	0,936	0,941
34,5	0,964	0,948	0,962	0,961	0,920	0,922	0,934	0,948
34,8	0,979	0,915	0,957	0,943	0,951	0,965	0,957	0,917
35,1	0,978	0,922	0,992	0,957	0,921	0,927	0,908	0,936
35,4	0,990	0,956	0,984	0,962	0,914	0,897	0,900	0,964

Table C.30 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the top - Without coating' - Experiment #4

Elevation (mm)	1 min	3 min	5 min	9 min	19 min	29 min	45 min	60 min
2,1	-0,013	-0,013	-0,016	-0,022	-0,022	-0,022	-0,022	-0,025
2,4	-0,016	-0,016	-0,016	-0,025	-0,025	-0,025	-0,025	-0,028
2,7	-0,016	-0,016	-0,016	-0,025	-0,025	-0,025	-0,025	-0,028
3	-0,016	-0,016	-0,019	-0,025	-0,025	-0,025	-0,028	-0,028
3,3	-0,012	-0,016	-0,016	-0,022	-0,025	-0,025	-0,025	-0,028
3,6	-0,012	-0,012	-0,016	-0,022	-0,022	-0,025	-0,025	-0,025
3,9	-0,012	-0,012	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
4,2	-0,012	-0,015	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
4,5	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,019	-0,019
4,8	-0,009	-0,012	-0,012	-0,019	-0,019	-0,019	-0,019	-0,019
5,1	-0,009	-0,009	-0,012	-0,019	-0,019	-0,019	-0,019	-0,019
5,4	-0,012	-0,012	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
5,7	-0,012	-0,015	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
6	-0,012	-0,012	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
6,3	-0,012	-0,012	-0,015	-0,022	-0,022	-0,022	-0,022	-0,022
6,6	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,022	-0,022
6,9	-0,012	-0,012	-0,012	-0,019	-0,022	-0,022	-0,019	-0,019
7,2	-0,012	-0,012	-0,012	-0,019	-0,019	-0,019	-0,019	-0,019
7,5	-0,012	-0,012	-0,012	-0,019	-0,022	-0,022	-0,019	-0,019
7,8	-0,012	-0,012	-0,012	-0,019	-0,019	-0,019	-0,019	-0,019
8,1	-0,012	-0,012	-0,012	-0,019	-0,019	-0,022	-0,019	-0,019
8,4	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,022	-0,022
8,7	-0,015	-0,015	-0,015	-0,019	-0,022	-0,022	-0,022	-0,022
9	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,019	-0,019
9,3	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,019	-0,019
9,6	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,022	-0,019
9,9	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,022	-0,019

10,2	-0,012	-0,012	-0,015	-0,019	-0,022	-0,022	-0,019	-0,019
10,5	-0,015	-0,015	-0,015	-0,018	-0,022	-0,022	-0,022	-0,018
10,8	-0,012	-0,012	-0,015	-0,018	-0,022	-0,022	-0,022	-0,018
11,1	-0,012	-0,012	-0,015	-0,018	-0,022	-0,022	-0,018	-0,015
11,4	-0,012	-0,015	-0,015	-0,022	-0,022	-0,022	-0,022	-0,018
11,7	-0,012	-0,012	-0,015	-0,018	-0,022	-0,022	-0,018	-0,015
12	-0,012	-0,012	-0,012	-0,015	-0,018	-0,022	-0,018	-0,015
12,3	-0,009	-0,009	-0,012	-0,015	-0,018	-0,018	-0,015	-0,012
12,6	-0,012	-0,012	-0,015	-0,018	-0,022	-0,022	-0,018	-0,015
12,9	-0,009	-0,009	-0,012	-0,015	-0,018	-0,018	-0,015	-0,015
13,2	-0,012	-0,012	-0,015	-0,018	-0,021	-0,021	-0,018	-0,018
13,5	-0,012	-0,012	-0,012	-0,018	-0,021	-0,018	-0,015	-0,018
13,8	-0,012	-0,012	-0,015	-0,018	-0,021	-0,021	-0,018	-0,021
14,1	-0,012	-0,012	-0,015	-0,018	-0,018	-0,018	-0,015	-0,018
14,4	-0,012	-0,012	-0,015	-0,018	-0,021	-0,021	-0,018	-0,024
14,7	-0,009	-0,009	-0,012	-0,015	-0,018	-0,015	-0,015	-0,018
15	-0,012	-0,012	-0,012	-0,015	-0,018	-0,018	-0,018	-0,024
15,3	-0,012	-0,012	-0,015	-0,015	-0,018	-0,018	-0,015	-0,021
15,6	-0,009	-0,009	-0,012	-0,015	-0,018	-0,018	-0,015	-0,024
15,9	-0,012	-0,012	-0,012	-0,015	-0,018	-0,018	-0,015	-0,021
16,2	-0,009	-0,009	-0,012	-0,015	-0,018	-0,018	-0,018	-0,024
16,5	-0,009	-0,009	-0,012	-0,012	-0,015	-0,015	-0,012	-0,015
16,8	-0,012	-0,012	-0,015	-0,015	-0,018	-0,021	-0,018	-0,021
17,1	-0,012	-0,009	-0,012	-0,015	-0,018	-0,018	-0,012	-0,012
17,4	-0,012	-0,009	-0,015	-0,015	-0,021	-0,021	-0,018	-0,015
17,7	-0,012	-0,009	-0,012	-0,015	-0,021	-0,018	-0,012	-0,003
18	-0,012	-0,006	-0,015	-0,021	-0,027	-0,027	-0,018	-0,015
18,3	-0,009	-0,003	-0,012	-0,021	-0,030	-0,030	-0,018	0,000
18,6	-0,009	0,000	-0,015	-0,030	-0,042	-0,039	-0,030	-0,006
18,9	-0,009	0,003	-0,012	-0,018	-0,039	-0,039	-0,021	0,021
19,2	-0,009	0,006	-0,015	-0,030	-0,051	-0,048	-0,024	0,012
19,5	-0,009	0,009	-0,006	-0,003	-0,027	-0,021	0,013	0,176
19,8	-0,009	0,012	-0,009	-0,015	-0,030	-0,024	-0,002	0,173
20,1	-0,009	0,012	-0,003	0,003	-0,003	0,003	0,027	0,191
20,4	-0,009	0,012	-0,006	-0,006	-0,015	-0,003	0,043	0,199
20,7	-0,009	0,015	0,000	0,006	0,006	0,024	0,065	0,226
21	-0,009	0,018	-0,003	0,003	0,003	0,024	0,083	0,229
21,3	-0,009	0,018	0,000	0,018	0,024	0,050	0,089	0,249
21,6	-0,009	0,018	-0,006	0,006	0,015	0,042	0,160	0,241
21,9	-0,012	0,018	0,000	0,024	0,039	0,059	0,190	0,282
22,2	-0,012	0,018	-0,009	0,012	0,030	0,080	0,341	0,308

22,5	-0,012	0,021	-0,003	0,035	0,062	0,183	0,355	0,346
22,8	-0,012	0,021	0,006	0,089	0,077	0,190	0,384	0,381
23,1	-0,012	0,027	0,094	0,230	0,307	0,360	0,401	0,413
23,4	-0,012	0,029	0,127	0,242	0,313	0,369	0,407	0,428
23,7	-0,012	0,062	0,144	0,241	0,315	0,373	0,418	0,447
24	-0,012	0,068	0,150	0,244	0,320	0,373	0,420	0,447
24,3	-0,009	0,076	0,150	0,249	0,328	0,378	0,422	0,457
24,6	-0,006	0,082	0,153	0,253	0,329	0,385	0,432	0,464
24,9	-0,003	0,073	0,150	0,261	0,346	0,396	0,443	0,472
25,2	-0,003	0,065	0,144	0,261	0,340	0,393	0,443	0,478
25,5	0,000	0,068	0,150	0,279	0,364	0,411	0,467	0,502
25,8	-0,003	0,059	0,147	0,276	0,352	0,411	0,464	0,505
26,1	-0,003	0,070	0,167	0,291	0,382	0,437	0,493	0,531
26,4	-0,003	0,062	0,153	0,288	0,373	0,429	0,493	0,534
26,7	-0,003	0,076	0,149	0,249	0,401	0,460	0,524	0,553
27	0,000	0,079	0,158	0,246	0,402	0,463	0,516	0,551
27,3	0,009	0,085	0,175	0,269	0,429	0,473	0,546	0,631
27,6	0,009	0,094	0,173	0,269	0,436	0,491	0,547	0,591
27,9	0,014	0,110	0,192	0,265	0,454	0,510	0,601	0,679
28,2	0,020	0,107	0,177	0,291	0,455	0,536	0,853	0,693
28,5	0,017	0,119	0,187	0,390	0,511	0,581	0,899	0,913
28,8	0,045	0,144	0,204	0,369	0,939	0,889	0,904	0,936
29,1	0,727	0,158	0,239	0,956	0,936	0,889	0,918	0,927
29,4	0,895	0,213	0,244	0,970	0,915	0,898	0,915	0,921
29,7	0,924	0,237	0,399	0,970	0,926	0,926	0,918	0,918
30	0,958	0,960	0,972	0,969	0,911	0,940	0,929	0,911
30,3	0,963	0,960	0,989	0,969	0,922	0,949	0,925	0,931
30,6	0,971	0,974	0,960	0,954	0,945	0,945	0,934	0,934
30,9	0,957	0,974	0,945	0,939	0,942	0,948	0,942	0,936
31,2	0,980	0,980	0,965	0,953	0,936	0,939	0,936	0,921
31,5	0,985	0,985	0,947	0,959	0,959	0,959	0,912	0,918
31,8	0,976	0,976	0,971	0,959	0,953	0,950	0,939	0,921
32,1	0,988	0,988	0,956	0,958	0,961	0,947	0,932	0,915
32,4	1,002	0,982	0,973	0,967	0,967	0,950	0,930	0,932
32,7	0,988	0,970	0,967	0,964	0,947	0,926	0,926	0,932
33	1,002	0,976	0,982	0,970	0,964	0,935	0,929	0,929
33,3	0,982	0,982	0,976	0,956	0,929	0,947	0,923	0,912
33,6	0,993	0,988	0,976	0,970	0,953	0,938	0,935	0,929
33,9	0,990	0,973	0,982	0,961	0,932	0,935	0,935	0,897
34,2	0,999	0,988	0,982	0,967	0,944	0,947	0,930	0,915
34,5	0,987	0,982	0,967	0,944	0,926	0,946	0,944	0,923

34,8	1,002	0,996	0,987	0,973	0,964	0,955	0,944	0,941
35,1	0,996	0,984	0,984	0,984	0,946	0,961	0,938	0,909
35,4	1,002	0,999	0,988	0,976	0,979	0,958	0,944	0,950

Table C.31 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the top - Without coating' - Experiment #5

Elevation (mm)	1 min	3 min	7 min	9 min	14 min	23 min	37 min	50 min	76 min	113 min	147 min	206 min
2,1	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,009
2,4	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,012	-0,009
2,7	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,012	-0,009
3	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,009
3,3	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,009
3,6	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,009	-0,009
3,9	-0,002	-0,002	-0,005	-0,002	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,009	-0,009
4,2	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,009	-0,007
4,5	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,009	-0,007
4,8	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007
5,1	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,009	-0,007
5,4	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,009	-0,009
5,7	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009
6	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,009	-0,009	-0,007
6,3	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,009	-0,009	-0,007
6,6	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
6,9	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
7,2	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
7,5	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,009	-0,007
7,8	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,012	-0,009	-0,009
8,1	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,009	-0,012	-0,009	-0,009
8,4	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007
8,7	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007
9	-0,002	-0,002	-0,005	-0,002	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007
9,3	-0,002	-0,002	-0,005	-0,002	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007
9,6	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,009	-0,007	-0,005
9,9	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,007	-0,007	-0,005
10,2	-0,002	-0,002	-0,005	-0,002	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,007	-0,007
10,5	-0,002	-0,002	-0,005	-0,002	-0,005	-0,007	-0,007	-0,007	-0,009	-0,009	-0,007	-0,005
10,8	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,009	-0,007	-0,005
11,1	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,009	-0,007	-0,007	-0,005
11,4	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,007	-0,005	-0,005

11,7	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,005	-0,002
12	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,007	-0,007	-0,005
12,3	-0,002	-0,002	-0,005	-0,002	-0,007	-0,007	-0,007	-0,005	-0,009	-0,009	-0,007	-0,005
12,6	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,007	-0,007	-0,005
12,9	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005
13,2	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005
13,5	0,000	0,000	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,005	-0,007	-0,007	-0,005
13,8	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005
14,1	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,007
14,4	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,005
14,7	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
15	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
15,3	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,009	-0,007
15,6	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,009	-0,007	-0,005
15,9	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,007	-0,007
16,2	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005
16,5	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,009	-0,007	-0,005
16,8	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,002
17,1	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,007	-0,005	-0,002
17,4	0,000	-0,002	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,005	-0,007	-0,005	-0,002
17,7	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,005	-0,002
18	0,000	0,000	-0,002	0,000	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,005	-0,002
18,3	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,007	-0,005	-0,002
18,6	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005	-0,007	-0,009	-0,007	-0,005
18,9	-0,002	-0,002	-0,005	-0,002	-0,005	-0,005	-0,007	-0,005	-0,007	-0,009	-0,009	-0,007
19,2	-0,002	-0,002	-0,002	0,000	-0,002	-0,005	-0,007	-0,007	-0,009	-0,012	-0,012	-0,009
19,5	-0,002	-0,002	-0,002	0,000	-0,005	-0,005	-0,007	-0,007	-0,012	-0,014	-0,012	-0,007
19,8	0,000	-0,002	-0,002	0,000	-0,005	-0,005	-0,009	-0,009	-0,014	-0,019	-0,016	-0,009
20,1	0,000	-0,002	-0,002	0,000	-0,005	-0,005	-0,009	-0,009	-0,012	-0,014	-0,012	-0,005
20,4	0,000	-0,002	-0,002	0,000	-0,009	-0,009	-0,014	-0,014	-0,019	-0,019	-0,016	-0,009
20,7	-0,002	-0,002	-0,005	-0,002	-0,009	-0,009	-0,014	-0,014	-0,014	-0,014	-0,014	-0,005
21	-0,002	-0,002	-0,005	-0,005	-0,016	-0,016	-0,021	-0,019	-0,019	-0,021	-0,019	-0,012
21,3	-0,002	-0,002	-0,005	-0,005	-0,014	-0,014	-0,016	-0,014	-0,014	-0,014	-0,014	-0,002
21,6	-0,002	-0,002	-0,007	-0,009	-0,019	-0,019	-0,021	-0,019	-0,019	-0,021	-0,019	-0,009
21,9	-0,002	-0,002	-0,005	-0,012	-0,021	-0,019	-0,019	-0,014	-0,014	-0,014	-0,012	0,000
22,2	-0,002	-0,002	-0,005	-0,014	-0,021	-0,019	-0,021	-0,016	-0,016	-0,016	-0,016	-0,005
22,5	-0,002	-0,002	0,000	-0,012	-0,021	-0,016	-0,016	-0,012	-0,009	-0,007	-0,005	0,007
22,8	0,000	0,000	-0,002	-0,012	-0,021	-0,016	-0,016	-0,012	-0,009	-0,009	-0,007	0,005
23,1	-0,002	0,000	0,005	-0,007	-0,016	-0,012	-0,012	-0,005	0,000	0,005	0,009	0,023
23,4	-0,002	0,000	0,005	-0,007	-0,016	-0,012	-0,012	-0,005	0,000	0,005	0,009	0,026
23,7	0,000	0,000	0,014	0,000	-0,009	-0,005	-0,002	0,005	0,014	0,026	0,039	0,049

24	-0,002	0,000	0,014	-0,002	-0,012	-0,009	-0,009	0,002	0,014	0,026	0,032	0,060
24,3	-0,002	0,000	0,023	0,009	0,002	0,005	0,012	0,016	0,039	0,088	0,111	0,125
24,6	-0,002	0,000	0,023	0,009	0,000	-0,002	-0,005	0,012	0,028	0,086	0,109	0,130
24,9	-0,002	0,000	0,025	0,021	0,014	0,023	0,030	0,039	0,062	0,120	0,144	0,167
25,2	-0,002	0,000	0,028	0,021	0,014	0,012	0,014	0,028	0,102	0,123	0,141	0,157
25,5	-0,002	0,000	0,032	0,035	0,046	0,042	0,060	0,109	0,129	0,159	0,180	0,203
25,8	-0,002	0,000	0,030	0,037	0,035	0,030	0,044	0,065	0,139	0,164	0,181	0,197
26,1	-0,002	-0,002	0,035	0,060	0,100	0,118	0,137	0,148	0,178	0,199	0,227	0,275
26,4	-0,002	0,000	0,030	0,037	0,119	0,065	0,159	0,163	0,184	0,212	0,240	0,937
26,7	-0,002	-0,002	0,028	0,053	0,144	0,167	0,181	0,209	0,225	0,267	1,131	0,955
27	-0,002	0,000	0,023	0,037	0,093	0,121	0,188	0,207	0,232	0,991	0,938	0,956
27,3	-0,002	-0,005	0,030	0,058	0,163	0,189	0,216	1,102	1,116	0,932	0,930	0,927
27,6	0,000	-0,005	0,030	0,051	0,180	0,201	0,956	0,959	0,933	0,936	0,926	0,913
27,9	0,042	0,035	0,134	0,173	0,228	1,118	1,128	0,967	1,137	0,930	0,934	0,921
28,2	0,034	0,034	0,138	0,170	0,966	0,973	0,945	0,948	0,938	0,927	0,929	0,936
28,5	0,139	0,139	0,194	0,957	0,976	0,976	0,934	0,946	0,943	0,939	0,934	0,941
28,8	0,132	0,141	0,194	0,971	0,973	0,946	0,929	0,927	0,934	0,934	0,936	0,934
29,1	1,227	0,976	0,932	0,932	0,934	0,943	0,936	0,934	0,946	0,934	0,934	0,934
29,4	1,015	0,957	0,920	0,957	0,941	0,934	0,941	0,950	0,948	0,959	0,945	0,934
29,7	1,044	0,964	0,968	0,966	0,943	0,950	0,959	0,968	0,957	0,941	0,943	0,934
30	1,024	0,959	0,950	0,966	0,945	0,936	0,948	0,959	0,943	0,941	0,941	0,941
30,3	1,077	0,955	0,955	0,934	0,943	0,952	0,973	0,964	0,978	0,962	0,952	0,932
30,6	1,029	0,948	0,939	0,948	0,946	0,950	0,952	0,952	0,946	0,950	0,934	0,925
30,9	1,257	0,936	0,941	0,952	0,957	0,948	0,989	0,962	0,950	0,945	0,929	0,927
31,2	1,264	0,952	0,952	0,955	0,971	0,964	0,952	0,950	0,948	0,950	0,938	0,938
31,5	0,973	0,947	0,973	0,982	0,950	0,968	0,961	0,961	0,940	0,938	0,938	0,940
31,8	0,982	0,945	0,952	0,978	0,966	0,964	0,943	0,959	0,952	0,945	0,971	0,911
32,1	0,982	0,968	0,971	0,971	0,957	0,957	0,945	0,943	0,957	0,961	0,938	0,943
32,4	0,989	0,961	0,975	0,973	0,948	0,957	0,964	0,957	0,945	0,948	0,943	0,931
32,7	1,010	1,042	0,970	1,003	0,984	0,957	0,950	0,952	0,936	0,982	0,950	0,970
33	1,003	0,975	0,966	0,968	0,964	0,957	0,955	0,943	0,941	0,966	0,950	0,948
33,3	1,428	0,984	0,984	1,014	0,964	0,964	0,975	0,950	0,964	0,929	0,966	0,943
33,6	0,962	0,971	0,964	0,966	0,964	0,957	0,973	0,959	0,950	0,939	0,934	0,929
33,9	0,980	0,989	0,976	0,992	1,017	0,952	1,010	0,943	0,959	0,978	0,980	0,952
34,2	0,955	0,987	0,955	0,962	0,976	0,957	0,955	0,969	0,957	0,955	0,959	0,941
34,5	0,982	0,982	0,969	1,015	0,959	1,026	0,966	0,966	0,969	0,957	0,962	0,971
34,8	0,994	0,997	0,967	1,020	0,937	0,960	0,957	0,960	0,953	0,948	0,962	0,953
35,1	0,951	1,006	0,990	0,999	1,001	0,960	1,001	0,974	0,971	0,960	0,960	0,944
35,4	0,987	0,990	0,994	0,967	0,969	0,960	0,987	1,003	0,948	0,974	0,992	0,964

Table C.32 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the bottom - Without coating' - Experiment #6

Elevation (mm)	1 min	3 min	5 min	9 min	15 min	23 min	35 min	44 min	48 min	72 min	92 min	116 min	139 min	163 min	220 min
2,1	0,995	0,976	0,985	0,976	0,961	0,964	0,952	0,942	0,948	0,952	0,948	0,939	0,936	0,933	0,921
2,4	1,003	0,984	0,984	0,972	0,963	0,947	0,950	0,932	0,944	0,938	0,938	0,941	0,929	0,932	0,926
2,7	0,997	0,984	0,993	0,969	0,962	0,953	0,947	0,947	0,932	0,941	0,947	0,935	0,938	0,929	0,919
3	0,996	0,990	0,980	0,974	0,958	0,949	0,943	0,946	0,943	0,943	0,937	0,930	0,940	0,937	0,921
3,3	0,998	0,992	0,983	0,964	0,955	0,949	0,942	0,939	0,942	0,927	0,930	0,927	0,936	0,927	0,924
3,6	0,988	0,991	0,985	0,966	0,948	0,954	0,948	0,942	0,939	0,929	0,923	0,920	0,914	0,923	0,917
3,9	0,984	0,987	0,984	0,966	0,963	0,956	0,950	0,947	0,941	0,932	0,919	0,919	0,919	0,922	0,916
4,2	0,981	0,987	0,975	0,962	0,956	0,951	0,944	0,937	0,934	0,931	0,931	0,919	0,913	0,916	0,916
4,5	0,977	0,986	0,983	0,962	0,958	0,949	0,949	0,946	0,937	0,931	0,927	0,918	0,912	0,912	0,915
4,8	0,241	0,340	0,968	0,968	0,958	0,944	0,937	0,937	0,921	0,924	0,921	0,921	0,915	0,906	0,903
5,1	0,245	0,313	0,970	0,973	0,958	0,949	0,933	0,939	0,936	0,911	0,924	0,920	0,914	0,905	0,899
5,4	0,112	0,218	0,286	0,958	0,955	0,939	0,936	0,933	0,927	0,915	0,911	0,905	0,908	0,911	0,896
5,7	0,091	0,222	0,281	0,328	0,957	0,936	0,929	0,936	0,929	0,923	0,898	0,901	0,914	0,904	0,892
6	0,072	0,150	0,178	0,246	0,274	0,946	0,933	0,921	0,911	0,921	0,911	0,893	0,896	0,902	0,887
6,3	0,071	0,139	0,170	0,223	0,264	0,942	0,933	0,921	0,905	0,432	0,454	0,637	0,880	0,886	0,877
6,6	0,058	0,127	0,145	0,183	0,226	0,301	0,933	0,920	0,896	0,401	0,431	0,454	0,637	0,892	0,877
6,9	0,058	0,124	0,145	0,173	0,217	0,254	0,317	0,313	0,313	0,382	0,407	0,432	0,447	0,457	0,839
7,2	0,027	0,090	0,099	0,118	0,127	0,190	0,299	0,321	0,265	0,368	0,386	0,402	0,393	0,430	0,877
7,5	0,031	0,087	0,099	0,112	0,143	0,168	0,215	0,265	0,265	0,280	0,343	0,308	0,415	0,402	0,449
7,8	0,021	0,065	0,065	0,087	0,106	0,128	0,162	0,193	0,212	0,272	0,284	0,284	0,325	0,318	0,362
8,1	0,028	0,072	0,081	0,078	0,100	0,128	0,162	0,175	0,200	0,244	0,275	0,279	0,275	0,307	0,365
8,4	0,021	0,056	0,062	0,075	0,081	0,100	0,119	0,141	0,150	0,197	0,228	0,257	0,272	0,285	0,322
8,7	0,021	0,056	0,062	0,072	0,084	0,093	0,115	0,134	0,141	0,181	0,206	0,225	0,260	0,291	0,322
9	0,018	0,037	0,043	0,053	0,059	0,075	0,087	0,103	0,106	0,150	0,168	0,197	0,215	0,247	0,281
9,3	0,018	0,040	0,043	0,053	0,062	0,071	0,087	0,100	0,106	0,137	0,165	0,187	0,215	0,253	0,294
9,6	0,015	0,028	0,031	0,037	0,043	0,049	0,062	0,075	0,081	0,109	0,125	0,150	0,165	0,200	0,269
9,9	0,015	0,024	0,028	0,034	0,040	0,049	0,062	0,071	0,078	0,106	0,121	0,146	0,165	0,190	0,325
10,2	0,006	0,009	0,009	0,012	0,019	0,025	0,037	0,044	0,050	0,072	0,084	0,103	0,118	0,134	0,235
10,5	0,009	0,009	0,012	0,016	0,019	0,025	0,041	0,050	0,053	0,069	0,087	0,103	0,118	0,150	0,219
10,8	0,006	0,003	0,000	0,003	0,006	0,012	0,025	0,031	0,034	0,050	0,062	0,081	0,094	0,106	0,181
11,1	0,006	0,006	0,006	0,006	0,009	0,012	0,028	0,034	0,041	0,056	0,062	0,078	0,087	0,106	0,175
11,4	0,006	0,000	0,000	0,000	0,000	0,003	0,012	0,019	0,025	0,037	0,047	0,062	0,075	0,084	0,140
11,7	0,006	0,000	0,000	0,003	0,000	0,003	0,012	0,022	0,028	0,041	0,050	0,062	0,078	0,087	0,140
12	0,006	0,000	0,000	0,000	0,000	0,000	0,003	0,009	0,012	0,028	0,034	0,047	0,062	0,072	0,106
12,3	0,003	0,000	0,000	0,000	0,000	0,000	0,003	0,012	0,016	0,031	0,041	0,050	0,062	0,075	0,109
12,6	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,006	0,022	0,028	0,037	0,050	0,062	0,084
12,9	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,009	0,025	0,031	0,037	0,050	0,062	0,087

13,2	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,012	0,019	0,025	0,034	0,047	0,068
13,5	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,016	0,022	0,028	0,041	0,053	0,075
13,8	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	0,006	0,012	0,019	0,025	0,037	0,062
14,1	0,000	0,003	0,003	0,003	0,000	0,000	0,000	0,000	0,000	0,009	0,016	0,022	0,031	0,044	0,069
14,4	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	0,003	0,006	0,016	0,022	0,034	0,059
14,7	-0,003	0,000	0,000	0,000	0,000	-0,003	0,000	0,000	0,000	0,003	0,006	0,016	0,022	0,034	0,062
15	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,006	0,012	0,022	0,028	0,056
15,3	0,000	0,000	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,006	0,012	0,019	0,028	0,059
15,6	0,000	0,000	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,006	0,012	0,019	0,028	0,053
15,9	0,000	0,000	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,012	0,019	0,028	0,053
16,2	0,000	0,000	0,003	0,000	0,000	0,000	0,000	0,003	0,003	0,003	0,006	0,012	0,019	0,025	0,047
16,5	0,000	0,000	0,003	0,000	0,000	0,000	0,000	0,003	0,003	0,000	0,003	0,009	0,019	0,022	0,047
16,8	0,000	0,003	0,003	0,003	0,000	0,000	0,003	0,003	0,003	0,003	0,003	0,012	0,016	0,022	0,037
17,1	0,000	0,003	0,003	0,003	0,000	0,000	0,003	0,003	0,003	0,003	0,003	0,009	0,016	0,019	0,037
17,4	-0,003	0,000	0,000	0,000	-0,003	-0,003	0,000	0,000	0,003	0,003	0,003	0,009	0,012	0,016	0,031
17,7	-0,003	0,000	0,000	0,000	-0,003	-0,003	0,000	0,000	0,003	0,003	0,000	0,009	0,012	0,016	0,028
18	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,003	0,003	0,006	0,003	0,009	0,012	0,016	0,025
18,3	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,003	0,003	0,006	0,003	0,009	0,012	0,016	0,022
18,6	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,003	0,006	0,006	0,009	0,009	0,012	0,016	0,016	0,022
18,9	0,000	-0,003	-0,006	-0,006	-0,003	-0,003	0,003	0,006	0,006	0,009	0,006	0,009	0,012	0,016	0,019
19,2	0,000	-0,003	-0,006	-0,006	-0,003	-0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,012	0,015	0,019
19,5	-0,003	-0,006	-0,009	-0,009	-0,006	-0,006	0,000	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,019
19,8	0,000	-0,003	-0,006	-0,006	-0,003	-0,003	0,000	0,006	0,006	0,009	0,009	0,012	0,012	0,015	0,019
20,1	-0,003	-0,006	-0,009	-0,009	-0,006	-0,006	0,000	0,003	0,003	0,006	0,009	0,009	0,012	0,012	0,019
20,4	-0,003	-0,003	-0,006	-0,006	-0,006	-0,003	0,000	0,003	0,006	0,009	0,012	0,012	0,012	0,015	0,022
20,7	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,003	0,006	0,009	0,012	0,012	0,015	0,015	0,022
21	0,000	-0,003	0,000	0,000	0,000	0,000	0,003	0,006	0,006	0,012	0,012	0,015	0,015	0,019	0,022
21,3	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,003	0,006	0,009	0,012	0,012	0,015	0,015	0,022

21,6	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,006	0,006	0,012	0,012	0,015	0,015	0,019	0,022
21,9	0,000	0,000	0,000	0,000	0,000	-0,003	0,000	0,003	0,003	0,009	0,009	0,012	0,015	0,015	0,018
22,2	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,003	0,006	0,009	0,009	0,012	0,012	0,015
22,5	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,003	0,000	0,000	0,003	0,006	0,009	0,009	0,009	0,012
22,8	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	0,003	0,003	0,006	0,006	0,009	0,009
23,1	-0,003	-0,003	-0,003	-0,006	-0,006	-0,009	-0,006	-0,003	-0,003	0,000	0,003	0,003	0,006	0,006	0,009
23,4	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	0,003	0,003	0,003	0,006	0,006	0,009
23,7	0,000	-0,003	-0,003	-0,006	-0,006	-0,009	-0,006	-0,003	-0,003	0,000	0,000	0,003	0,003	0,006	0,006
24	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,000	0,003	0,003	0,003
24,3	0,000	-0,003	-0,003	-0,003	-0,006	-0,009	-0,006	-0,006	-0,003	0,000	0,000	0,000	0,003	0,003	0,003
24,6	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,000	0,000	0,003	0,003
24,9	-0,003	-0,006	-0,006	-0,009	-0,009	-0,012	-0,009	-0,009	-0,006	-0,003	-0,003	-0,003	0,000	0,000	0,000
25,2	0,000	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	0,000	0,000	0,000	0,000	0,000
25,5	-0,003	-0,006	-0,006	-0,009	-0,009	-0,012	-0,009	-0,009	-0,009	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
25,8	0,000	-0,003	-0,003	-0,006	-0,009	-0,009	-0,009	-0,006	-0,006	-0,003	-0,003	-0,003	0,000	-0,003	-0,003
26,1	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
26,4	-0,003	-0,003	-0,006	-0,009	-0,009	-0,012	-0,009	-0,009	-0,009	-0,003	-0,003	-0,003	-0,003	-0,003	-0,006
26,7	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,006
27	0,000	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
27,3	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
27,6	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
27,9	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,006
28,2	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000
28,5	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003

28,8	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
29,1	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
29,4	0,000	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,003	-0,006	-0,006	-0,003	-0,003	-0,003
29,7	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
30	0,000	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,003	-0,006
30,3	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
30,6	0,000	0,000	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006
30,9	0,000	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
31,2	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
31,5	0,000	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
31,8	0,000	0,000	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
32,1	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009	-0,006	-0,006	-0,006	-0,009	-0,009	-0,006
32,4	0,000	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006	-0,006
32,7	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
33	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,006	-0,006	-0,009	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009
33,3	-0,003	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,012
33,6	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,012
33,9	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,012	-0,012	-0,012	-0,015
34,2	0,000	0,000	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,012	-0,012	-0,012
34,5	0,000	-0,003	-0,003	-0,003	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,012	-0,012	-0,012
34,8	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
35,1	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009
35,4	0,000	-0,003	-0,003	-0,006	-0,006	-0,006	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,012	-0,009	-0,012

Table C.33 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the bottom - Without coating' - Experiment #7

Elevation (mm)	2 min	3 min	6 min	10 min	19 min	34 min	58 min	91 min	138 min	196 min	262 min
2,1	0,992	0,984	0,977	0,997	0,971	0,971	0,953	0,984	0,955	0,938	0,969
2,4	0,993	0,980	0,975	0,984	0,980	0,967	0,960	0,947	0,953	0,947	0,940
2,7	0,990	0,990	0,977	0,977	0,979	0,971	0,973	0,958	0,953	0,958	0,938
3	0,990	0,982	0,979	0,984	0,979	0,973	0,964	0,975	0,960	0,951	0,929
3,3	0,995	0,986	0,992	0,984	0,977	0,984	0,975	0,975	0,955	0,958	0,936
3,6	1,001	0,977	0,982	0,975	0,986	0,964	0,958	0,964	0,973	0,951	0,936
3,9	0,977	0,979	0,977	0,979	0,982	0,973	0,953	0,951	0,949	0,929	0,938
4,2	0,995	0,992	0,979	0,977	0,969	0,973	0,951	0,951	0,975	0,938	0,925
4,5	0,971	0,984	0,977	0,975	0,953	0,990	0,960	0,971	0,969	0,955	0,929
4,8	0,973	0,982	0,992	0,992	0,995	0,975	0,955	0,955	0,964	0,947	0,938
5,1	0,947	0,982	0,977	0,986	0,984	0,962	0,951	0,951	0,956	0,960	0,934
5,4	0,945	0,980	0,980	0,986	0,973	0,986	0,969	0,960	0,962	0,940	0,943
5,7	0,958	0,980	0,977	0,984	0,977	0,977	0,940	0,975	0,938	0,934	0,943
6	0,969	0,975	0,967	0,982	0,962	0,975	0,949	0,960	0,938	0,949	0,938
6,3	0,984	0,969	0,971	0,967	0,999	0,982	0,960	0,954	0,943	0,943	0,925
6,6	0,962	0,988	0,969	0,965	0,980	0,975	0,965	0,962	0,962	0,936	0,934
6,9	0,945	0,975	0,973	0,969	0,986	0,967	0,949	0,956	0,956	0,969	0,925
7,2	0,939	0,982	0,969	0,965	0,973	0,969	0,962	0,969	0,956	0,945	0,947
7,5	0,934	0,954	0,967	0,967	0,967	0,958	0,965	0,978	0,962	0,962	0,938
7,8	0,952	0,956	0,956	0,980	0,965	0,976	0,947	0,969	0,960	0,956	0,945
8,1	0,969	0,971	0,971	0,956	0,978	0,980	0,956	0,967	0,973	0,941	0,934
8,4	0,227	0,971	0,956	0,965	0,963	0,954	0,950	0,954	0,945	0,954	0,954
8,7	0,987	0,713	0,963	0,963	0,958	0,952	0,952	0,956	0,948	0,948	0,932
9	0,183	0,240	0,281	0,963	0,941	0,965	0,961	0,945	0,941	0,948	0,934
9,3	0,182	0,225	0,273	0,305	0,969	0,935	0,972	0,941	0,935	0,950	0,930
9,6	0,079	0,148	0,222	0,248	0,941	0,957	0,935	0,950	0,954	0,954	0,939
9,9	0,071	0,130	0,175	0,240	0,271	0,946	0,948	0,933	0,941	0,928	0,946
10,2	0,063	0,089	0,139	0,215	0,241	0,265	0,923	0,919	0,943	0,925	0,953
10,5	0,054	0,083	0,130	0,178	0,232	0,265	0,337	0,945	0,960	0,925	0,938
10,8	0,043	0,067	0,093	0,109	0,146	0,228	0,252	0,945	0,940	0,949	0,936
11,1	0,039	0,063	0,087	0,100	0,139	0,215	0,252	0,934	0,925	0,930	0,936
11,4	0,028	0,043	0,063	0,074	0,102	0,128	0,176	0,243	0,934	0,413	0,465
11,7	0,028	0,046	0,063	0,069	0,087	0,117	0,165	0,278	0,248	0,430	0,460
12	0,015	0,030	0,043	0,054	0,065	0,087	0,124	0,159	0,702	0,393	0,437
12,3	0,015	0,028	0,043	0,052	0,065	0,085	0,109	0,156	0,682	0,254	0,415
12,6	0,007	0,015	0,030	0,037	0,043	0,061	0,085	0,109	0,649	0,367	0,250
12,9	0,007	0,017	0,028	0,037	0,046	0,061	0,080	0,100	0,156	0,224	0,241

13,2	0,000	0,004	0,015	0,022	0,028	0,043	0,056	0,080	0,106	0,187	0,208
13,5	-0,002	0,004	0,013	0,020	0,026	0,041	0,056	0,078	0,100	0,204	0,202
13,8	-0,002	0,000	0,007	0,011	0,015	0,028	0,046	0,052	0,078	0,107	0,183
14,1	-0,002	-0,002	0,004	0,009	0,015	0,030	0,039	0,057	0,076	0,105	0,181
14,4	-0,002	-0,007	0,000	0,002	0,007	0,015	0,031	0,044	0,061	0,087	0,122
14,7	0,000	-0,007	0,000	0,004	0,009	0,018	0,033	0,050	0,068	0,094	0,129
15	-0,002	-0,007	-0,004	-0,004	0,000	0,009	0,024	0,035	0,053	0,072	0,090
15,3	-0,002	-0,009	-0,007	-0,004	0,000	0,009	0,022	0,033	0,053	0,070	0,090
15,6	-0,002	-0,009	-0,009	-0,007	-0,004	0,004	0,013	0,024	0,040	0,055	0,072
15,9	-0,002	-0,007	-0,007	-0,007	-0,007	0,004	0,015	0,026	0,040	0,057	0,073
16,2	-0,002	-0,009	-0,011	-0,011	-0,009	-0,002	0,007	0,015	0,029	0,044	0,057
16,5	-0,004	-0,011	-0,011	-0,013	-0,011	-0,007	0,007	0,015	0,029	0,044	0,055
16,8	-0,002	-0,009	-0,011	-0,011	-0,011	-0,007	0,002	0,011	0,020	0,031	0,046
17,1	-0,004	-0,009	-0,011	-0,011	-0,011	-0,009	0,002	0,011	0,022	0,031	0,044
17,4	-0,002	-0,007	-0,009	-0,011	-0,011	-0,007	-0,002	0,009	0,018	0,026	0,033
17,7	-0,004	-0,009	-0,009	-0,011	-0,011	-0,009	-0,002	0,009	0,018	0,026	0,031
18	-0,004	-0,007	-0,009	-0,011	-0,011	-0,009	-0,004	0,002	0,013	0,020	0,024
18,3	-0,002	-0,004	-0,007	-0,009	-0,009	-0,009	-0,002	0,004	0,013	0,022	0,027
18,6	-0,004	-0,007	-0,009	-0,009	-0,011	-0,009	-0,007	0,000	0,009	0,015	0,022
18,9	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,004	0,000	0,009	0,018	0,022
19,2	-0,002	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,002	0,007	0,015	0,018
19,5	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,002	0,004	0,015	0,018
19,8	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,004	0,002	0,009	0,013
20,1	-0,004	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,004	0,000	0,007	0,011
20,4	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,004	-0,002	0,004	0,009
20,7	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,004	-0,002	0,004	0,009
21	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,004	0,000	0,004
21,3	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,004	-0,002	0,004
21,6	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,004	-0,002	0,000
21,9	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,011	-0,009	-0,007	-0,004	-0,004
22,2	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,007	-0,007	-0,004
22,5	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,007	-0,004
22,8	-0,002	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,007	-0,004	-0,004
23,1	-0,004	-0,004	-0,007	-0,009	-0,009	-0,011	-0,011	-0,011	-0,009	-0,009	-0,009
23,4	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,011	-0,009	-0,009	-0,009	-0,009
23,7	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,007	-0,009
24	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,007	-0,007	-0,009
24,3	-0,002	-0,002	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
24,6	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
24,9	-0,002	-0,004	-0,004	-0,007	-0,009	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011
25,2	-0,002	-0,004	-0,004	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,011	-0,011

25,5	0,000	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009
25,8	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,009
26,1	0,000	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009
26,4	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007
26,7	0,000	0,000	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007	-0,007
27	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,007	-0,007	-0,007	-0,007	-0,007
27,3	0,002	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,007
27,6	0,002	0,002	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004
27,9	0,004	0,002	0,002	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,004
28,2	0,002	0,002	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004
28,5	0,002	0,002	0,002	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,008
28,8	0,004	0,002	0,002	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,008
29,1	0,004	0,004	0,002	0,002	0,000	0,000	0,000	0,000	-0,006	-0,006	-0,006
29,4	0,004	0,004	0,002	0,002	0,000	0,000	0,000	0,000	-0,006	-0,006	-0,006
29,7	0,004	0,004	0,002	0,002	0,000	0,000	0,000	0,000	-0,006	-0,006	-0,008
30	0,011	0,011	0,008	0,006	0,006	0,000	0,000	0,000	-0,002	-0,002	-0,002
30,3	0,013	0,013	0,011	0,011	0,004	0,002	0,002	0,002	0,002	0,002	0,002
30,6	0,004	0,013	0,013	0,007	0,004	0,004	0,004	0,004	0,002	0,002	0,002
30,9	0,004	0,013	0,013	0,007	0,004	0,004	0,004	0,004	0,004	0,004	0,002
31,2	0,007	0,013	0,007	0,007	0,004	0,004	0,004	0,004	0,002	0,002	0,002
31,5	0,007	0,013	0,007	0,004	0,004	0,002	0,002	0,002	0,002	0,002	0,002
31,8	0,007	0,013	0,004	0,004	0,002	0,002	0,002	0,002	0,002	0,002	0,000
32,1	0,004	0,004	0,002	0,002	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002
32,4	0,004	0,004	0,002	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
32,7	0,002	0,002	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
33	0,004	0,004	0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
33,3	0,002	0,002	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002
33,6	0,002	0,002	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,004
33,9	0,000	0,000	-0,002	-0,002	-0,002	-0,007	-0,007	-0,007	-0,007	-0,007	-0,004
34,2	0,000	0,000	-0,002	-0,002	-0,007	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009
34,5	-0,002	-0,002	-0,007	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
34,8	-0,002	-0,002	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,009	-0,009	-0,011
35,1	-0,002	-0,002	-0,007	-0,007	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011	-0,011
35,4	-0,002	-0,002	-0,007	-0,007	-0,009	-0,009	-0,009	-0,009	-0,011	-0,011	-0,011

Table C.34 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the bottom - Without coating' - Experiment #8

Elevation (mm)	1 min	2 min	3 min	5 min	9 min	17 min	28 min	43 min	78 min	143 min	214 min	264 min
2,1	0,991	0,998	0,968	0,984	0,998	0,984	0,913	0,883	0,911	0,893	0,895	0,869

2,4	0,969	0,993	0,956	1,013	0,938	0,978	0,976	0,912	0,948	0,922	0,900	0,865
2,7	0,983	0,985	0,948	0,974	0,962	0,995	0,960	0,879	0,880	0,869	0,895	0,873
3	0,983	0,993	0,956	0,976	0,949	0,969	0,960	0,920	0,918	0,891	0,897	0,898
3,3	0,978	0,969	0,974	1,001	0,960	0,978	0,968	0,924	0,928	0,867	0,883	0,893
3,6	0,956	0,966	0,942	0,956	0,928	0,920	0,918	0,908	0,918	0,897	0,861	0,842
3,9	0,962	0,985	0,948	0,964	0,918	0,930	0,908	0,930	0,922	0,900	0,876	0,854
4,2	0,954	0,987	0,968	0,995	0,954	0,908	0,889	0,912	0,904	0,964	0,863	0,827
4,5	0,932	0,934	0,954	0,938	0,936	0,920	1,384	0,961	0,899	0,891	0,849	0,849
4,8	0,952	0,930	0,954	0,988	0,919	0,921	0,917	0,881	0,918	0,893	0,865	0,867
5,1	0,905	0,916	0,927	0,982	0,950	0,877	1,374	0,887	0,907	0,893	0,872	0,832
5,4	0,925	0,905	0,917	1,025	0,911	0,887	0,905	0,886	0,913	0,909	0,866	0,839
5,7	0,860	0,897	0,899	0,943	0,915	0,844	0,878	0,894	0,900	0,872	0,864	0,856
6	0,884	0,866	0,291	0,914	0,312	0,311	0,877	0,866	0,892	0,865	0,866	0,863
6,3	0,875	0,863	0,285	0,273	0,289	0,312	0,895	0,845	0,904	0,881	0,863	0,860
6,6	0,170	0,188	0,239	0,235	0,292	0,296	0,308	0,373	0,572	0,349	0,846	0,828
6,9	0,190	0,208	0,212	0,268	0,312	0,335	0,292	0,400	0,314	0,300	0,833	0,846
7,2	0,157	0,182	0,200	0,214	0,231	0,266	0,334	0,368	0,110	0,327	0,825	0,814
7,5	0,155	0,182	0,188	0,219	0,251	0,258	0,338	0,371	0,391	0,317	0,827	0,825
7,8	0,143	0,149	0,170	0,180	0,190	0,223	0,320	0,349	0,359	0,852	0,879	0,840
8,1	0,135	0,162	0,172	0,180	0,195	0,226	0,316	0,258	0,351	0,285	0,875	0,835
8,4	0,057	0,078	0,141	0,144	0,164	0,187	0,207	0,219	0,326	0,359	0,875	0,832
8,7	0,045	0,074	0,086	0,092	0,156	0,187	0,203	0,217	0,332	0,254	0,865	0,861
9	0,029	0,047	0,062	0,072	0,094	0,100	0,164	0,168	0,197	0,232	0,851	0,873
9,3	0,029	0,043	0,062	0,074	0,080	0,107	0,130	0,171	0,197	0,236	0,459	0,843
9,6	0,027	0,041	0,054	0,060	0,075	0,091	0,100	0,122	0,195	0,209	0,263	0,455
9,9	0,025	0,039	0,052	0,058	0,073	0,091	0,102	0,118	0,145	0,218	0,231	0,247
10,2	0,019	0,038	0,046	0,054	0,059	0,081	0,096	0,111	0,119	0,194	0,213	0,213
10,5	0,017	0,031	0,046	0,054	0,061	0,079	0,092	0,104	0,117	0,155	0,205	0,209
10,8	0,008	0,027	0,040	0,046	0,055	0,067	0,080	0,097	0,114	0,139	0,179	0,191
11,1	0,008	0,021	0,036	0,042	0,050	0,065	0,076	0,090	0,103	0,130	0,157	0,183
11,4	0,006	0,017	0,030	0,036	0,046	0,057	0,070	0,078	0,095	0,118	0,131	0,148
11,7	0,006	0,015	0,027	0,034	0,046	0,059	0,072	0,078	0,089	0,116	0,131	0,139
12	0,004	0,011	0,019	0,030	0,034	0,051	0,063	0,063	0,076	0,103	0,116	0,120
12,3	0,004	0,011	0,021	0,027	0,036	0,051	0,063	0,065	0,074	0,106	0,108	0,112
12,6	0,004	0,011	0,015	0,021	0,025	0,044	0,053	0,055	0,061	0,091	0,095	0,097
12,9	0,004	0,011	0,017	0,021	0,025	0,047	0,055	0,055	0,059	0,089	0,095	0,093
13,2	0,004	0,011	0,015	0,019	0,021	0,038	0,047	0,051	0,051	0,076	0,078	0,080
13,5	0,002	0,011	0,015	0,019	0,019	0,038	0,047	0,051	0,047	0,072	0,078	0,076
13,8	0,002	0,006	0,013	0,015	0,015	0,030	0,040	0,044	0,038	0,059	0,072	0,068
14,1	0,002	0,008	0,015	0,019	0,017	0,030	0,042	0,045	0,042	0,055	0,076	0,070
14,4	0,002	0,008	0,013	0,015	0,015	0,023	0,036	0,038	0,036	0,042	0,068	0,064

14,7	0,002	0,006	0,011	0,015	0,013	0,019	0,034	0,038	0,036	0,040	0,068	0,057
15	0,002	0,006	0,011	0,013	0,013	0,013	0,028	0,032	0,034	0,036	0,055	0,051
15,3	0,000	0,004	0,011	0,013	0,013	0,011	0,025	0,032	0,032	0,038	0,055	0,049
15,6	0,000	0,002	0,008	0,011	0,011	0,006	0,019	0,025	0,028	0,030	0,047	0,044
15,9	0,002	0,004	0,008	0,013	0,011	0,008	0,017	0,025	0,028	0,030	0,049	0,045
16,2	0,000	0,004	0,008	0,011	0,008	0,006	0,011	0,019	0,023	0,025	0,040	0,038
16,5	0,000	0,002	0,006	0,008	0,008	0,006	0,008	0,017	0,021	0,025	0,038	0,038
16,8	0,000	0,002	0,006	0,006	0,006	0,004	0,006	0,013	0,019	0,019	0,030	0,032
17,1	0,000	0,002	0,004	0,006	0,006	0,004	0,006	0,011	0,017	0,019	0,027	0,032
17,4	0,000	0,000	0,004	0,006	0,004	0,004	0,004	0,006	0,015	0,015	0,023	0,027
17,7	-0,002	-0,002	0,002	0,002	0,002	0,002	0,002	0,000	0,011	0,013	0,017	0,025
18	-0,002	-0,002	0,000	0,002	0,002	0,002	0,002	-0,004	0,006	0,008	0,013	0,019
18,3	0,000	0,000	0,000	0,002	0,002	0,002	0,002	-0,006	0,006	0,008	0,008	0,019
18,6	-0,002	-0,002	0,000	0,002	0,002	0,000	0,000	-0,006	0,004	0,004	0,006	0,015
18,9	-0,002	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,008	0,002	0,002	0,006	0,010
19,2	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,008	-0,002	0,000	0,004	0,006
19,5	-0,002	-0,004	-0,002	-0,002	-0,002	-0,004	-0,004	-0,010	-0,006	-0,002	0,002	0,002
19,8	-0,004	-0,004	-0,004	-0,004	-0,004	-0,004	-0,006	-0,013	-0,008	-0,004	0,000	0,000
20,1	-0,004	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,013	-0,010	-0,006	-0,002	-0,006
20,4	-0,004	-0,004	-0,002	-0,004	-0,004	-0,006	-0,006	-0,013	-0,010	-0,006	-0,002	-0,006
20,7	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,008	-0,013	-0,013	-0,008	-0,004	-0,010
21	-0,006	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,015	-0,015	-0,008	-0,006	-0,012
21,3	-0,004	-0,004	-0,004	-0,004	-0,006	-0,008	-0,008	-0,015	-0,015	-0,008	-0,006	-0,012
21,6	-0,006	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,015	-0,015	-0,010	-0,008	-0,015
21,9	-0,006	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,015	-0,015	-0,010	-0,010	-0,015
22,2	-0,006	-0,006	-0,004	-0,004	-0,006	-0,008	-0,008	-0,015	-0,012	-0,010	-0,010	-0,012
22,5	-0,004	-0,006	-0,004	-0,004	-0,006	-0,008	-0,008	-0,012	-0,012	-0,010	-0,010	-0,012
22,8	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,008	-0,015	-0,015	-0,012	-0,012	-0,015

23,1	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,010	-0,015	-0,015	-0,015	-0,010	-0,015
23,4	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,008	-0,015	-0,015	-0,012	-0,012	-0,017
23,7	-0,006	-0,006	-0,006	-0,006	-0,008	-0,008	-0,008	-0,015	-0,015	-0,012	-0,012	-0,017
24	-0,004	-0,006	-0,004	-0,006	-0,006	-0,008	-0,008	-0,012	-0,012	-0,012	-0,012	-0,019
24,3	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,017
24,6	-0,004	-0,004	-0,002	-0,004	-0,004	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,017
24,9	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,017
25,2	-0,002	-0,004	-0,002	-0,004	-0,004	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,015
25,5	-0,002	-0,004	-0,002	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,015
25,8	-0,004	-0,004	-0,002	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,015
26,1	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,012	-0,015	-0,015
26,4	-0,004	-0,004	-0,004	-0,004	-0,006	-0,008	-0,008	-0,010	-0,012	-0,012	-0,015	-0,015
26,7	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,010	-0,010	-0,010	-0,012	-0,015
27	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,015	-0,015
27,3	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,010	-0,013	-0,013
27,6	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,008	-0,015	-0,015
27,9	-0,002	-0,004	-0,002	-0,004	-0,004	-0,006	-0,006	-0,008	-0,008	-0,010	-0,015	-0,015
28,2	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,010	-0,017	-0,017
28,5	-0,002	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,019	-0,017
28,8	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,013	-0,017	-0,017
29,1	-0,002	-0,002	-0,002	-0,002	-0,004	-0,004	-0,004	-0,010	-0,010	-0,010	-0,017	-0,015
29,4	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,010	-0,010	-0,010	-0,015	-0,015
29,7	-0,004	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010	-0,010	-0,017	-0,017
30	-	-	-	-	-	-	-	-	-	-	-	-

	0,002	0,002	0,002	0,002	0,004	0,004	0,004	0,008	0,008	0,008	0,013	0,015
30,3	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,010	-0,008	-0,010	-0,013	-0,015
30,6	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,008	-0,013	-0,013
30,9	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,008	-0,013	-0,013
31,2	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,008	-0,013	-0,013
31,5	0,000	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,006	-0,006	-0,008	-0,013	-0,013
31,8	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,006	-0,006	-0,008	-0,013	-0,013
32,1	-0,002	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,008	-0,008	-0,008	-0,013	-0,013
32,4	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010
32,7	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,008	-0,010
33	0,000	-0,002	0,000	-0,002	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,010	-0,010
33,3	0,000	-0,002	-0,002	-0,002	-0,004	-0,006	-0,006	-0,006	-0,006	-0,006	-0,010	-0,010
33,6	0,000	-0,002	0,000	-0,002	-0,004	-0,004	-0,006	-0,006	-0,006	-0,006	-0,010	-0,013
33,9	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,006	-0,004	-0,006	-0,010	-0,013
34,2	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,004	-0,006	-0,006	-0,006	-0,013	-0,013
34,5	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,013	-0,013
34,8	0,000	0,000	0,000	-0,002	-0,002	-0,004	-0,004	-0,006	-0,006	-0,006	-0,013	-0,013
35,1	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,004	-0,004	-0,004	-0,011	-0,013
35,4	0,000	0,000	0,000	0,000	-0,002	-0,004	-0,004	-0,006	-0,006	-0,006	-0,011	-0,013

Table C.35 Normalized values of time of flight at different elevations over time for the experiment 'Injection from the side - Without coating' - Experiment #9

Elevation (mm)	1 min	2 min	7 min	25 min	56 min	99 min	164 min	215 min	252 min
2,1	-0,005	-0,005	-0,007	-0,005	-0,010	-0,007	-0,007	-0,010	-0,007
2,4	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,007	-0,010	-0,007
2,7	-0,005	-0,007	-0,007	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010

3	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,007
3,3	-0,005	-0,007	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010
3,6	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,007	-0,010	-0,007
3,9	-0,005	-0,007	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,007
4,2	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,007	-0,007	-0,007
4,5	-0,005	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010
4,8	-0,005	-0,007	-0,007	-0,007	-0,010	-0,007	-0,007	-0,007	-0,007
5,1	-0,005	-0,007	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,007
5,4	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010
5,7	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,007
6	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010
6,3	-0,005	-0,005	-0,007	-0,007	-0,010	-0,010	-0,010	-0,012	-0,010
6,6	-0,005	-0,007	-0,007	-0,007	-0,010	-0,010	-0,010	-0,012	-0,012
6,9	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010
7,2	-0,002	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,007	-0,007
7,5	-0,005	-0,005	-0,007	-0,007	-0,010	-0,007	-0,010	-0,010	-0,010
7,8	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,007	-0,007
8,1	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,007	-0,007	-0,007
8,4	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005
8,7	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005
9	-0,002	-0,002	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,005
9,3	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002
9,6	-0,002	-0,005	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,005
9,9	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002
10,2	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,005
10,5	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,002
10,8	-0,002	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	-0,002
11,1	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,005
11,4	-0,002	-0,005	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,002
11,7	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,005	-0,002	-0,002
12	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,005	-0,002	0,000
12,3	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,007	-0,005	-0,002
12,6	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,002
12,9	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	-0,005	-0,005	-0,002
13,2	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,005	-0,002	-0,002
13,5	-0,005	-0,005	-0,007	-0,005	-0,007	-0,005	-0,005	-0,002	-0,002
13,8	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,002	0,000	0,000
14,1	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	-0,002	-0,002	0,000
14,4	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	-0,002	-0,002	0,000
14,7	-0,002	-0,002	-0,005	-0,002	-0,005	-0,002	-0,002	0,000	0,002
15	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	-0,002	0,000	0,000

15,3	-0,002	-0,002	-0,005	-0,002	-0,002	0,000	0,000	0,002	0,002
15,6	-0,002	-0,002	-0,005	-0,002	-0,002	0,000	0,000	0,002	0,002
15,9	-0,002	-0,002	-0,002	-0,002	-0,002	0,002	0,002	0,002	0,005
16,2	-0,002	-0,002	-0,002	-0,002	-0,002	0,002	0,002	0,002	0,005
16,5	-0,002	-0,002	-0,002	-0,002	0,000	0,002	0,002	0,005	0,005
16,8	-0,002	-0,002	-0,002	-0,002	0,000	0,002	0,002	0,002	0,005
17,1	-0,002	-0,002	-0,005	-0,005	-0,002	0,000	0,002	0,002	0,002
17,4	0,000	0,000	-0,002	-0,002	-0,002	0,002	0,002	0,002	0,005
17,7	-0,002	-0,002	-0,005	-0,005	-0,002	0,000	0,002	0,002	0,002
18	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,002	0,000	0,000
18,3	0,000	0,000	-0,002	-0,005	-0,005	0,000	0,000	0,002	0,005
18,6	-0,002	-0,002	-0,007	-0,010	-0,007	-0,005	-0,005	-0,002	-0,002
18,9	-0,002	-0,002	-0,007	-0,010	-0,010	-0,005	-0,002	0,000	0,002
19,2	-0,002	-0,002	-0,010	-0,012	-0,012	-0,007	-0,005	-0,002	0,000
19,5	-0,002	-0,005	-0,010	-0,012	-0,012	-0,007	-0,002	0,002	0,005
19,8	-0,002	-0,007	-0,012	-0,017	-0,014	-0,010	-0,007	-0,002	-0,002
20,1	-0,002	-0,007	-0,012	-0,012	-0,012	-0,005	0,000	0,005	0,010
20,4	-0,005	-0,012	-0,017	-0,019	-0,017	-0,010	-0,007	-0,002	-0,002
20,7	-0,005	-0,014	-0,014	-0,014	-0,012	-0,005	0,002	0,010	0,012
21	-0,007	-0,017	-0,017	-0,017	-0,014	-0,007	-0,007	0,002	0,005
21,3	-0,010	-0,019	-0,017	-0,012	-0,007	0,005	0,010	0,019	0,019
21,6	-0,012	-0,021	-0,019	-0,014	-0,010	0,000	0,002	0,012	0,017
21,9	-0,010	-0,021	-0,014	-0,005	0,002	0,014	0,017	0,029	0,033
22,2	-0,010	-0,024	-0,017	-0,007	0,000	0,005	0,019	0,026	0,036
22,5	-0,007	-0,021	-0,014	0,000	0,009	0,021	0,036	0,043	0,052
22,8	-0,007	-0,024	-0,021	-0,009	0,005	0,019	0,033	0,045	0,050
23,1	-0,005	-0,017	-0,009	0,007	0,021	0,043	0,057	0,066	0,076
23,4	-0,005	-0,021	-0,012	0,005	0,021	0,040	0,055	0,069	0,073
23,7	-0,002	-0,012	0,000	0,024	0,047	0,066	0,088	0,104	0,114
24	-0,002	-0,014	0,002	0,021	0,043	0,062	0,069	0,092	0,109
24,3	0,002	-0,002	0,017	0,047	0,087	0,102	0,121	0,144	0,135
24,6	0,005	0,002	0,024	0,050	0,088	0,107	0,135	0,175	0,183
24,9	0,021	0,029	0,052	0,093	0,181	0,205	0,188	0,231	0,240
25,2	0,019	0,031	0,060	0,105	0,155	0,210	0,219	0,265	0,286
25,5	0,021	0,040	0,080	0,170	0,194	0,243	0,281	0,295	0,295
25,8	0,022	0,038	0,092	0,175	0,196	0,253	0,282	0,894	0,891
26,1	0,048	0,092	0,168	0,215	0,260	0,941	0,277	0,910	0,910
26,4	0,038	0,083	0,142	0,225	0,265	0,962	0,910	0,922	0,913
26,7	0,145	0,194	0,228	0,923	0,942	0,961	0,923	0,933	0,923
27	0,127	0,167	0,247	0,945	0,947	0,959	0,931	0,936	0,928
27,3	0,205	0,233	0,938	0,938	0,928	0,966	0,945	0,952	0,933

27,6	0,211	0,957	0,952	0,955	0,950	0,957	0,945	0,936	0,941
27,9	0,969	0,952	0,945	0,941	0,948	0,974	0,950	0,960	0,945
28,2	0,969	0,950	0,958	0,948	0,946	0,972	0,946	0,946	0,948
28,5	0,970	0,955	0,960	0,944	0,953	0,977	0,941	0,953	0,958
28,8	0,977	0,960	0,960	0,960	0,953	0,970	0,953	0,967	0,946
29,1	0,979	0,960	0,962	0,974	0,960	0,974	0,965	0,953	0,944
29,4	0,972	0,965	0,958	0,974	0,963	0,967	0,958	0,951	0,946
29,7	0,982	0,965	0,975	0,986	0,946	0,960	0,960	0,953	0,949
30	0,981	0,974	0,967	0,974	0,977	0,974	0,963	0,963	0,960
30,3	0,991	0,986	0,984	0,986	0,958	0,965	0,963	0,977	0,951
30,6	0,982	0,984	0,979	0,975	0,965	0,972	0,965	0,968	0,946
30,9	0,989	0,989	0,987	0,982	0,970	0,963	0,956	0,954	0,963
31,2	0,991	0,984	0,982	0,977	0,961	0,972	0,958	0,961	0,958
31,5	0,982	0,989	0,989	0,972	0,963	0,975	0,958	0,965	0,954
31,8	0,982	0,982	0,980	0,980	0,975	0,977	0,966	0,970	0,970
32,1	1,001	0,996	0,984	0,984	0,977	0,972	0,961	0,972	0,963
32,4	0,994	0,977	0,991	0,980	0,970	0,980	0,966	0,966	0,961
32,7	0,996	0,987	0,977	0,980	0,973	0,978	0,968	0,959	0,963
33	0,994	0,984	0,975	0,982	0,970	0,984	0,966	0,949	0,963
33,3	1,010	0,987	0,977	1,004	0,975	0,986	0,970	0,951	0,968
33,6	0,994	0,982	0,970	0,989	0,968	0,991	0,963	0,958	0,977
33,9	0,975	1,008	0,975	0,977	1,015	0,982	0,964	0,970	0,980
34,2	1,003	0,968	0,970	0,982	0,984	0,975	0,977	0,954	0,970
34,5	0,996	0,954	0,987	0,989	0,968	0,998	0,977	0,978	0,970
34,8	0,982	0,942	0,980	1,015	0,977	0,984	0,979	0,978	0,970
35,1	0,992	1,008	0,984	0,989	0,959	0,984	0,959	0,964	0,987
35,4	1,001	0,990	0,996	0,991	0,963	0,989	0,982	0,973	0,968

Table C.36 Normalized values of time of flight at different elevations over time for the experiment 'Injection from the side - Without coating' - Experiment #10

Elevation (mm)	1 min	2 min	6 min	15 min	26 min	45 min	73 min	113 min	164 min	216 min	257 min	304 min
2,1	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
2,4	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008	-0,008
2,7	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
3	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
3,3	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
3,6	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
3,9	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
4,2	-0,008	-0,008	-0,010	-0,010	-0,010	-0,013	-0,010	-0,013	-0,010	-0,010	-0,010	-0,010

4,5	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
4,8	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
5,1	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
5,4	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
5,7	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,010	-0,010	-0,010
6	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
6,3	-0,005	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
6,6	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,013	-0,013	-0,013	-0,013
6,9	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,013	-0,013	-0,013	-0,013
7,2	-0,005	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
7,5	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
7,8	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,013	-0,013	-0,013	-0,013
8,1	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,013	-0,013	-0,010
8,4	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
8,7	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,013	-0,013	-0,013	-0,013	-0,010
9	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
9,3	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,008	-0,010	-0,008
9,6	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
9,9	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
10,2	-0,005	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
10,5	-0,005	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
10,8	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
11,1	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
11,4	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,013	-0,010	-0,010	-0,010	-0,010
11,7	-0,005	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
12	-0,005	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
12,3	-0,003	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008	-0,010	-0,010	-0,008
12,6	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,013	-0,010	-0,010	-0,010	-0,010
12,9	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010
13,2	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
13,5	-0,005	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
13,8	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,008
14,1	-0,005	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
14,4	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,008
14,7	-0,005	-0,005	-0,008	-0,008	-0,008	-0,010	-0,008	-0,010	-0,008	-0,008	-0,008	-0,008
15	-0,005	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
15,3	-0,005	-0,008	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
15,6	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
15,9	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008	-0,008	-0,008
16,2	-0,005	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,013	-0,010	-0,010	-0,008	-0,008
16,5	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,013	-0,010	-0,010	-0,010	-0,008

16,8	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,005
17,1	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,008	-0,008	-0,008	-0,005
17,4	-0,005	-0,008	-0,008	-0,010	-0,010	-0,010	-0,010	-0,013	-0,010	-0,008	-0,008	-0,005
17,7	-0,005	-0,005	-0,008	-0,010	-0,010	-0,008	-0,008	-0,010	-0,008	-0,008	-0,005	-0,005
18	-0,005	-0,008	-0,008	-0,010	-0,010	-0,008	-0,010	-0,013	-0,008	-0,008	-0,005	-0,005
18,3	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008	-0,005	-0,005	-0,003
18,6	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,005	-0,005	-0,005	-0,003
18,9	-0,003	-0,005	-0,005	-0,008	-0,008	-0,005	-0,005	-0,008	-0,005	-0,005	-0,003	0,000
19,2	-0,003	-0,005	-0,005	-0,005	-0,008	-0,005	-0,005	-0,008	-0,005	-0,005	-0,005	-0,003
19,5	-0,005	-0,005	-0,005	-0,008	-0,008	-0,008	-0,005	-0,010	-0,005	-0,005	-0,003	0,000
19,8	-0,005	-0,005	-0,005	-0,008	-0,008	-0,005	-0,005	-0,010	-0,005	-0,008	-0,005	-0,003
20,1	-0,005	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,010	-0,005	-0,005	-0,003	0,003
20,4	-0,003	-0,003	-0,005	-0,008	-0,008	-0,008	-0,008	-0,013	-0,008	-0,008	-0,005	0,000
20,7	-0,005	-0,005	-0,005	-0,008	-0,008	-0,008	-0,008	-0,013	-0,003	-0,005	0,000	0,008
21	-0,003	-0,003	-0,005	-0,008	-0,008	-0,008	-0,010	-0,013	-0,005	-0,008	-0,003	0,003
21,3	-0,003	-0,003	-0,005	-0,008	-0,010	-0,008	-0,008	-0,010	-0,003	-0,003	0,005	0,013
21,6	-0,003	-0,005	-0,008	-0,010	-0,013	-0,013	-0,013	-0,016	-0,008	-0,008	0,000	0,005
21,9	-0,003	-0,005	-0,008	-0,010	-0,013	-0,013	-0,010	-0,013	-0,003	0,003	0,008	0,016
22,2	-0,003	-0,008	-0,010	-0,016	-0,018	-0,018	-0,018	-0,018	-0,008	-0,005	0,003	0,010
22,5	0,000	-0,008	-0,010	-0,013	-0,016	-0,016	-0,013	-0,010	0,000	0,008	0,016	0,023
22,8	-0,003	-0,010	-0,016	-0,018	-0,021	-0,021	-0,018	-0,018	-0,005	0,000	0,010	0,018
23,1	-0,003	-0,013	-0,018	-0,018	-0,021	-0,018	-0,015	-0,010	0,003	0,013	0,021	0,034
23,4	-0,005	-0,018	-0,023	-0,023	-0,023	-0,023	-0,021	-0,015	-0,003	0,008	0,015	0,028
23,7	-0,003	-0,018	-0,023	-0,021	-0,021	-0,018	-0,015	-0,005	0,010	0,021	0,031	0,044
24	-0,003	-0,018	-0,023	-0,023	-0,023	-0,018	-0,018	-0,008	0,008	0,018	0,028	0,041
24,3	0,000	-0,018	-0,023	-0,018	-0,015	-0,010	-0,008	0,005	0,023	0,036	0,046	0,059
24,6	0,000	-0,018	-0,021	-0,018	-0,015	-0,013	-0,010	0,000	0,023	0,039	0,046	0,049
24,9	0,005	-0,015	-0,018	-0,010	-0,008	-0,003	0,005	0,021	0,044	0,062	0,062	0,075
25,2	0,003	-0,018	-0,021	-0,015	-0,015	-0,015	-0,003	0,013	0,033	0,054	0,062	0,072
25,5	0,008	-0,013	-0,018	-0,010	-0,005	0,000	0,015	0,041	0,067	0,092	0,095	0,113
25,8	0,010	-0,010	-0,021	-0,015	-0,010	0,000	0,018	0,033	0,067	0,093	0,082	0,110
26,1	0,015	-0,005	-0,010	-0,005	0,005	0,018	0,046	0,072	0,108	0,151	0,141	0,154
26,4	0,015	-0,005	-0,018	-0,003	0,008	0,018	0,038	0,067	0,103	0,139	0,131	0,146
26,7	0,023	0,005	0,008	0,018	0,026	0,049	0,085	0,108	0,182	0,200	0,184	0,179
27	0,020	0,003	-0,003	0,015	0,026	0,038	0,077	0,105	0,143	0,220	0,182	0,192
27,3	0,033	0,023	0,028	0,049	0,059	0,102	0,174	0,205	0,243	0,202	0,284	0,233
27,6	0,033	0,021	0,026	0,041	0,056	0,100	0,141	0,177	0,205	0,218	0,323	0,259
27,9	0,044	0,046	0,062	0,080	0,159	0,152	0,229	0,252	0,244	0,319	0,298	0,311
28,2	0,031	0,038	0,046	0,090	0,095	0,190	0,233	0,182	0,221	0,331	0,275	0,365
28,5	0,038	0,062	0,077	0,128	0,200	0,221	0,246	0,259	0,295	0,305	0,324	0,426
28,8	0,027	0,052	0,083	0,130	0,202	0,215	0,907	0,308	0,288	0,310	0,326	0,331

29,1	0,058	0,047	0,192	0,205	0,230	0,274	0,860	0,873	0,303	0,437	0,354	0,455
29,4	0,059	0,072	0,193	0,224	0,242	0,903	0,911	0,899	0,883	0,426	0,872	0,459
29,7	0,156	0,200	0,916	0,908	0,890	0,872	0,903	0,892	0,890	0,900	0,898	0,895
30	0,185	0,205	0,919	0,911	0,926	0,908	0,916	0,901	0,900	0,908	0,908	0,916
30,3	0,234	0,926	0,916	0,903	0,934	0,918	0,882	0,926	0,892	0,911	0,892	0,934
30,6	0,957	0,911	0,923	0,911	0,931	0,923	0,877	0,898	0,890	0,887	0,872	0,906
30,9	0,946	0,934	0,934	0,931	0,941	0,923	0,936	0,923	0,890	0,897	0,900	0,869
31,2	0,952	0,941	0,926	0,918	0,939	0,913	0,931	0,892	0,853	0,871	0,908	0,897
31,5	0,951	0,936	0,949	0,923	0,933	0,920	0,915	0,915	0,897	0,907	0,868	0,887
31,8	0,946	0,957	0,941	0,928	0,931	0,918	0,915	0,908	0,905	0,887	0,877	0,900
32,1	0,975	0,962	0,954	0,912	0,920	0,920	0,923	0,920	0,889	0,882	0,894	0,902
32,4	0,962	0,972	0,944	0,929	0,928	0,923	0,928	0,915	0,905	0,913	0,920	0,879
32,7	0,954	0,954	0,961	0,925	0,948	0,904	0,917	0,915	0,899	0,897	0,889	0,923
33	0,980	0,962	0,967	0,923	0,928	0,918	0,920	0,915	0,910	0,936	0,905	0,900
33,3	0,977	0,959	0,946	0,938	0,913	0,907	0,912	0,913	0,892	0,972	0,925	0,894
33,6	0,993	0,959	0,952	0,936	0,926	0,910	0,946	0,939	0,892	0,900	0,890	0,934
33,9	0,990	0,996	0,941	0,939	0,967	0,923	0,957	0,939	0,923	0,993	0,954	0,939
34,2	0,957	0,945	0,947	0,936	0,944	0,936	0,947	0,921	0,947	0,921	0,952	0,896
34,5	0,970	0,985	0,973	0,970	0,949	0,929	1,007	0,975	0,937	0,908	0,942	0,949
34,8	0,997	0,937	0,981	0,957	0,947	0,926	0,944	0,922	0,906	0,955	0,913	0,957
35,1	1,025	1,004	0,989	0,934	0,922	0,932	0,971	0,940	0,958	0,955	0,971	0,979
35,4	0,987	1,000	0,976	0,937	0,932	0,963	0,955	0,940	0,940	0,963	0,979	0,948

Table C.37 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the top - With coating' - Experiment #11

Elevation (mm)	1 min	2 min	3 min	5 min	8 min	15 min	20 min	30 min	45 min	68 min	118 min	175 min	245 min
2,1	-0,005	-0,003	-0,003	-0,005	-0,005	0,003	0,000	0,000	0,003	0,003	0,003	0,003	0,005
2,4	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,003
2,7	-0,005	-0,005	-0,003	-0,005	-0,005	0,003	0,000	0,000	0,003	0,003	0,003	0,003	0,003
3	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,003
3,3	-0,005	-0,005	-0,005	-0,005	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,003	0,003
3,6	-0,003	-0,003	-0,003	-0,003	-0,005	0,003	0,000	0,000	0,003	0,003	0,003	0,003	0,003
3,9	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
4,2	-	-	-	-	-	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

	0,003	0,003	0,003	0,003	0,003								
4,5	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
4,8	-0,003	-0,003	-0,003	-0,005	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
5,1	-0,003	-0,003	-0,003	-0,005	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
5,4	-0,003	-0,003	-0,003	-0,003	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
5,7	-0,003	-0,003	-0,003	-0,003	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
6	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	-0,003	0,000	-0,003	-0,003	-0,003
6,3	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003
6,6	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003
6,9	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	-0,003	0,000	-0,003	-0,003	-0,003	-0,003
7,2	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	0,000
7,5	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003
7,8	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	-0,003	0,000	-0,003
8,1	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	-0,003	0,000	0,000	-0,003	-0,003	-0,003
8,4	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003
8,7	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003
9	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	-0,003	0,000
9,3	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003
9,6	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	0,000	-0,003
9,9	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	-0,003	0,000	0,000	-0,003	-0,003	-0,003
10,2	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003
10,5	-0,003	-0,003	-0,003	-0,003	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
10,8	-0,003	-0,003	-0,003	-0,005	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
11,1	-0,003	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

11,4	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
11,7	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	-0,003	0,000	-0,003	-0,003	-0,003
12	-0,003	-0,003	-0,003	-0,003	-0,005	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
12,3	-0,003	-0,003	-0,003	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
12,6	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
12,9	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	-0,003	0,000	-0,003	-0,003	-0,003	0,000
13,2	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000
13,5	-0,003	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
13,8	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
14,1	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	-0,003	-0,003	0,000	-0,003	-0,003	0,000
14,4	-0,003	-0,003	-0,003	-0,003	-0,005	0,000	0,000	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
14,7	-0,003	-0,003	-0,003	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
15	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
15,3	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
15,6	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	0,000	0,000	0,003	0,000	0,003	0,003
15,9	-0,003	-0,003	-0,003	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
16,2	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
16,5	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
16,8	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
17,1	-0,003	-0,003	-0,003	-0,005	-0,005	0,000	0,000	0,000	0,000	0,003	0,000	0,000	0,003
17,4	-0,003	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,003	0,003
17,7	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
18	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
18,3	-	-	-	-	-	0,000	0,000	0,000	0,000	0,000	0,000	-	0,000

	0,003	0,003	0,003	0,003	0,005							0,003	
18,6	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	0,000	0,000	-0,003	-0,003
18,9	-0,003	-0,003	-0,003	-0,003	-0,005	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,003	-0,003
19,2	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	0,000	0,000	-0,003	-0,003	-0,005	-0,005
19,5	-0,003	-0,003	-0,003	-0,003	-0,003	0,000	0,000	0,000	0,000	-0,003	-0,003	-0,005	-0,005
19,8	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	0,000	-0,003	-0,005	-0,005	-0,008	-0,005
20,1	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	0,000	-0,003	-0,005	-0,005	-0,008	-0,003
20,4	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	-0,003	-0,005	-0,011	-0,011	-0,011	-0,005
20,7	-0,003	-0,003	-0,003	-0,003	-0,003	0,003	0,000	-0,003	-0,008	-0,011	-0,011	-0,008	0,000
21	-0,003	-0,003	-0,006	-0,006	-0,006	0,005	0,000	-0,003	-0,005	-0,011	-0,011	-0,005	0,000
21,3	-0,003	-0,003	-0,003	-0,003	-0,003	0,005	0,000	-0,005	-0,008	-0,014	-0,011	-0,003	0,008
21,6	-0,006	-0,003	-0,006	-0,003	-0,006	0,005	0,000	-0,005	-0,008	-0,011	-0,008	-0,003	0,008
21,9	-0,003	-0,003	-0,003	0,000	-0,003	0,005	0,000	-0,005	-0,008	-0,011	-0,008	0,003	0,019
22,2	-0,006	-0,003	-0,003	-0,003	-0,008	0,008	0,000	-0,005	-0,005	-0,008	-0,005	0,003	0,008
22,5	-0,003	-0,003	-0,003	0,000	-0,006	0,008	0,000	-0,003	-0,005	-0,005	0,000	0,014	0,019
22,8	-0,003	0,000	0,000	-0,003	-0,011	0,005	0,000	-0,003	-0,005	-0,008	0,000	0,003	0,016
23,1	-0,003	-0,003	0,000	-0,003	-0,008	0,005	0,000	-0,003	-0,003	-0,003	0,003	0,011	0,033
23,4	-0,003	-0,003	-0,003	-0,006	-0,014	0,005	0,000	-0,003	-0,003	-0,005	-0,003	0,011	0,033
23,7	-0,003	-0,003	-0,003	-0,006	-0,014	0,005	0,000	0,000	0,000	0,000	0,008	0,025	0,055
24	-0,006	-0,003	-0,006	-0,008	-0,020	0,005	0,000	-0,003	-0,003	-0,005	0,005	0,027	0,057
24,3	0,000	0,000	0,000	-0,006	-0,014	0,008	0,000	0,000	0,003	0,005	0,019	0,046	0,093
24,6	0,000	0,000	0,000	-0,008	-0,014	0,008	0,000	-0,005	-0,003	0,005	0,019	0,060	0,103
24,9	-0,003	0,000	0,000	-0,008	-0,011	0,014	0,006	0,001	0,009	0,025	0,044	0,088	0,167
25,2	-0,003	0,000	-0,003	-0,008	-0,011	0,014	0,001	0,001	0,006	0,022	0,047	0,148	0,202

25,5	-0,003	0,000	0,000	-0,008	-0,006	0,028	0,020	0,014	0,033	0,069	0,109	0,196	0,227
25,8	-0,003	0,000	-0,003	-0,011	-0,008	0,028	0,011	0,014	0,033	0,063	0,101	0,207	0,251
26,1	-0,003	0,000	0,000	-0,006	0,003	0,052	0,044	0,049	0,074	0,139	0,163	0,253	0,452
26,4	-0,003	0,000	0,000	-0,006	0,000	0,049	0,038	0,033	0,066	0,174	0,212	0,267	0,465
26,7	-0,003	0,000	0,003	0,000	0,014	0,090	0,079	0,101	0,147	0,180	0,272	0,457	0,484
27	-0,003	0,000	0,003	0,000	0,008	0,084	0,071	0,079	0,136	0,209	0,255	0,470	0,470
27,3	-0,003	0,003	0,006	0,008	0,034	0,130	0,139	0,196	0,166	0,198	0,323	0,375	0,448
27,6	-0,003	0,003	0,006	0,008	0,028	0,138	0,117	0,130	0,190	0,285	0,250	0,274	0,304
27,9	0,000	0,003	0,011	0,020	0,059	0,174	0,171	0,176	0,195	0,326	0,377	0,320	0,358
28,2	0,000	0,003	0,011	0,017	0,048	0,146	0,209	0,206	0,274	0,272	0,290	0,323	0,358
28,5	0,000	0,003	0,011	0,025	0,079	0,206	0,230	0,230	0,290	0,312	0,328	0,358	0,494
28,8	-0,003	0,003	0,011	0,022	0,064	0,209	0,190	0,217	0,252	0,309	0,339	0,358	0,494
29,1	-0,006	0,000	0,014	0,039	0,109	0,241	0,284	0,350	0,317	0,360	0,380	0,502	0,496
29,4	-0,006	-0,003	0,003	0,031	0,121	0,235	0,284	0,977	1,001	0,432	0,388	0,404	0,540
29,7	0,038	0,018	0,027	0,120	0,173	0,274	0,982	0,320	0,356	0,488	0,524	0,579	0,603
30	0,048	0,028	0,022	0,135	0,188	0,299	0,991	0,996	0,368	0,395	0,522	0,939	0,615
30,3	1,198	0,111	0,128	0,179	0,212	1,015	1,037	0,469	0,493	0,565	0,939	0,894	0,914
30,6	1,193	0,096	0,141	0,181	0,239	0,580	0,953	0,962	0,503	0,942	0,931	0,895	0,906
30,9	1,221	0,178	0,209	0,237	0,974	0,429	0,964	0,923	0,920	0,942	0,901	0,881	0,942
31,2	1,047	0,182	0,193	0,226	0,560	0,961	0,932	0,956	0,923	0,879	0,907	0,917	0,937
31,5	1,218	0,950	0,476	0,502	0,961	0,480	0,953	0,923	0,937	0,926	0,923	0,937	0,912
31,8	1,042	0,966	0,969	0,521	0,952	0,967	0,962	0,945	0,932	0,934	0,940	0,945	0,951
32,1	1,004	0,970	0,962	0,990	0,948	0,948	0,973	0,930	0,922	0,935	0,938	0,916	0,938
32,4	0,992	0,956	0,973	0,970	0,943	0,952	0,949	0,960	0,916	0,933	0,941	0,954	0,935
32,7	0,971	0,973	0,968	0,957	0,998	0,971	0,936	0,952	0,943	0,953	0,947	0,917	0,915
33	0,965	0,974	0,968	0,971	0,983	0,920	0,934	0,942	0,955	0,942	0,969	0,901	0,915
33,3	0,969	0,960	0,955	0,943	0,974	0,943	0,928	0,948	0,928	0,926	0,920	0,923	0,947
33,6	0,985	0,952	0,957	0,922	0,941	0,956	0,950	0,964	0,928	0,929	0,956	0,931	0,942
33,9	0,960	0,952	0,977	0,908	0,960	0,972	0,942	0,978	0,936	0,953	0,937	0,942	0,929
34,2	0,960	0,969	0,944	0,958	0,947	0,965	0,950	0,937	0,952	0,940	0,956	0,942	0,918
34,5	0,988	0,966	1,000	0,977	0,961	0,972	0,956	0,913	0,977	0,918	0,958	0,937	0,945
34,8	0,936	0,950	0,986	0,911	0,945	0,954	0,948	0,948	0,940	0,935	0,959	0,940	0,927
35,1	0,960	0,974	0,966	0,905	0,955	0,937	0,950	0,956	0,970	0,966	0,972	0,898	0,975

35,4	0,952	0,955	0,935	0,954	0,947	0,980	0,965	0,983	0,964	0,950	0,937	0,931	0,902

Table C.38 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the top - With coating' - Experiment #12

Elevation (mm)	1 min	2 min	6 min	15 min	30 min	52 min	91 min	142 min	199 min	244 min
2,1	-0,002	-0,002	-0,005	-0,010	-0,010	-0,010	-0,007	-0,007	-0,010	-0,010
2,4	-0,002	-0,002	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
2,7	-0,002	-0,002	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
3	-0,005	-0,005	-0,007	-0,012	-0,012	-0,012	-0,010	-0,012	-0,015	-0,012
3,3	-0,005	-0,005	-0,007	-0,010	-0,012	-0,012	-0,010	-0,012	-0,012	-0,012
3,6	-0,005	-0,005	-0,007	-0,010	-0,012	-0,012	-0,010	-0,012	-0,012	-0,012
3,9	-0,002	-0,002	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
4,2	-0,005	-0,005	-0,007	-0,012	-0,012	-0,012	-0,010	-0,012	-0,012	-0,012
4,5	-0,002	-0,005	-0,005	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,012
4,8	-0,005	-0,005	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,012	-0,012
5,1	-0,005	-0,005	-0,007	-0,010	-0,012	-0,010	-0,010	-0,010	-0,012	-0,012
5,4	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,012
5,7	-0,002	-0,005	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
6	-0,002	-0,005	-0,005	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,012
6,3	-0,002	-0,002	-0,005	-0,007	-0,010	-0,007	-0,007	-0,010	-0,010	-0,010
6,6	-0,002	-0,005	-0,005	-0,007	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
6,9	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,012	-0,012	-0,012
7,2	-0,002	-0,002	-0,005	-0,007	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
7,5	-0,002	-0,002	-0,005	-0,007	-0,007	-0,007	-0,007	-0,010	-0,010	-0,010
7,8	-0,002	-0,005	-0,005	-0,007	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
8,1	-0,002	-0,005	-0,005	-0,007	-0,010	-0,007	-0,007	-0,010	-0,010	-0,010
8,4	-0,005	-0,005	-0,005	-0,007	-0,010	-0,010	-0,007	-0,010	-0,012	-0,010
8,7	-0,005	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,012	-0,010
9	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,010
9,3	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,010	-0,012	-0,010
9,6	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,010
9,9	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,010
10,2	-0,002	-0,005	-0,005	-0,007	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
10,5	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,010	-0,010	-0,010
10,8	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,010
11,1	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
11,4	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,010
11,7	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,007
12	-0,002	-0,002	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,007

12,3	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,010	-0,010	-0,012	-0,010
12,6	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
12,9	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
13,2	-0,005	-0,005	-0,005	-0,007	-0,010	-0,007	-0,007	-0,007	-0,010	-0,007
13,5	-0,005	-0,005	-0,005	-0,007	-0,010	-0,007	-0,007	-0,007	-0,010	-0,007
13,8	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,007
14,1	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,007	-0,010	-0,007
14,4	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,010	-0,010	-0,010
14,7	-0,002	-0,002	-0,005	-0,007	-0,007	-0,007	-0,005	-0,007	-0,007	-0,007
15	-0,005	-0,005	-0,007	-0,010	-0,010	-0,010	-0,007	-0,007	-0,010	-0,007
15,3	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005	-0,005	-0,007	-0,005
15,6	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005	-0,005	-0,005	-0,005
15,9	-0,002	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005	-0,005	-0,005	-0,005
16,2	-0,005	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005	-0,005	-0,005	-0,002
16,5	-0,005	-0,005	-0,007	-0,007	-0,007	-0,007	-0,005	-0,005	-0,005	-0,005
16,8	-0,002	-0,005	-0,005	-0,007	-0,007	-0,005	-0,002	-0,002	-0,002	0,000
17,1	-0,005	-0,005	-0,005	-0,007	-0,007	-0,005	-0,002	-0,002	-0,002	0,000
17,4	-0,002	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,000	0,000	0,002
17,7	-0,005	-0,005	-0,007	-0,007	-0,007	-0,005	-0,002	0,000	0,000	0,002
18	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	0,000	0,002	0,002	0,002
18,3	-0,002	-0,005	-0,005	-0,005	-0,005	-0,002	0,002	0,002	0,005	0,007
18,6	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	0,002	0,002	0,002	0,005
18,9	-0,005	-0,005	-0,005	-0,005	-0,005	0,000	0,002	0,005	0,007	0,007
19,2	-0,005	-0,005	-0,005	-0,005	-0,005	-0,002	0,002	0,002	0,005	0,007
19,5	-0,005	-0,005	-0,005	-0,002	-0,005	0,000	0,005	0,007	0,007	0,012
19,8	-0,002	-0,005	-0,002	-0,002	-0,005	-0,002	0,002	0,005	0,005	0,010
20,1	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,005	0,010	0,012	0,014
20,4	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	0,000	0,005	0,007	0,010
20,7	-0,005	-0,005	-0,005	-0,005	-0,007	-0,005	0,002	0,007	0,012	0,017
21	-0,002	-0,005	-0,002	-0,005	-0,010	-0,007	0,000	0,005	0,010	0,014
21,3	-0,002	-0,002	-0,002	-0,005	-0,010	-0,002	0,005	0,012	0,017	0,024
21,6	-0,005	-0,005	-0,005	-0,010	-0,014	-0,010	0,000	0,007	0,012	0,017
21,9	-0,002	-0,002	-0,005	-0,010	-0,010	-0,002	0,010	0,017	0,024	0,029
22,2	-0,005	-0,005	-0,007	-0,012	-0,014	-0,007	0,002	0,012	0,019	0,024
22,5	-0,002	-0,002	-0,007	-0,010	-0,007	0,002	0,012	0,022	0,031	0,038
22,8	-0,005	-0,005	-0,012	-0,014	-0,012	-0,002	0,010	0,017	0,026	0,033
23,1	-0,002	-0,002	-0,010	-0,010	-0,002	0,007	0,022	0,031	0,041	0,053
23,4	-0,005	-0,005	-0,010	-0,010	-0,005	0,005	0,022	0,029	0,041	0,045
23,7	-0,005	-0,005	-0,010	-0,007	0,005	0,017	0,033	0,045	0,062	0,072
24	-0,002	-0,002	-0,007	-0,005	0,005	0,017	0,038	0,045	0,050	0,055
24,3	-0,005	-0,005	-0,005	0,002	0,014	0,031	0,053	0,072	0,079	0,084

24,6	-0,005	-0,005	-0,005	0,000	0,014	0,029	0,050	0,055	0,062	0,069
24,9	-0,002	-0,002	0,002	0,010	0,029	0,053	0,084	0,091	0,105	0,110
25,2	-0,002	-0,002	0,002	0,002	0,012	0,031	0,062	0,069	0,088	0,105
25,5	-0,005	-0,005	0,007	0,014	0,041	0,076	0,098	0,119	0,131	0,131
25,8	-0,005	-0,005	0,010	0,002	0,026	0,055	0,086	0,105	0,119	0,145
26,1	-0,002	-0,002	0,014	0,036	0,060	0,112	0,131	0,148	0,162	0,177
26,4	-0,007	-0,005	0,017	0,024	0,057	0,103	0,138	0,150	0,169	0,174
26,7	-0,005	-0,007	0,024	0,057	0,117	0,139	0,170	0,196	0,213	0,225
27	-0,005	-0,005	0,038	0,072	0,132	0,204	0,183	0,214	0,226	0,248
27,3	0,000	0,002	0,045	0,143	0,162	0,217	0,210	0,236	0,315	0,272
27,6	-0,010	0,000	0,031	0,146	0,208	0,229	0,279	0,313	0,248	0,260
27,9	0,007	0,026	0,112	0,203	0,891	0,217	0,258	0,277	0,356	0,387
28,2	0,013	0,032	0,108	0,206	0,884	0,882	0,326	0,345	0,373	0,364
28,5	0,100	0,085	0,159	0,889	0,894	0,264	0,324	0,395	0,419	0,443
28,8	0,112	0,102	0,162	0,920	0,899	0,896	0,393	0,880	0,405	0,887
29,1	1,033	0,940	0,906	0,892	0,909	0,904	0,901	0,880	0,897	0,885
29,4	0,994	0,937	0,918	0,911	0,904	0,894	0,897	0,892	0,894	0,887
29,7	1,016	0,923	0,918	0,904	0,902	0,907	0,921	0,895	0,878	0,909
30	1,006	0,933	0,921	0,914	0,892	0,902	0,911	0,904	0,897	0,897
30,3	0,973	0,918	0,923	0,921	0,926	0,918	0,897	0,916	0,902	0,907
30,6	0,959	0,916	0,914	0,926	0,909	0,902	0,921	0,909	0,902	0,918
30,9	0,940	0,924	0,933	0,914	0,912	0,914	0,931	0,916	0,904	0,902
31,2	0,964	0,922	0,926	0,933	0,916	0,919	0,945	0,909	0,888	0,907
31,5	0,936	0,928	0,919	0,928	0,933	0,921	0,921	0,916	0,900	0,905
31,8	0,936	0,929	0,938	0,919	0,921	0,921	0,928	0,938	0,914	0,914
32,1	0,967	0,933	0,945	0,933	0,935	0,890	0,935	0,926	0,897	0,916
32,4	0,959	0,935	0,922	0,957	0,938	0,924	0,935	0,943	0,936	0,935
32,7	0,945	0,929	0,943	0,936	0,933	0,948	0,946	0,917	0,886	0,893
33	0,967	0,957	0,946	0,927	0,927	0,915	0,927	0,893	0,919	0,900
33,3	0,998	0,955	0,955	0,957	0,955	0,974	0,950	0,886	0,933	0,929
33,6	0,958	0,948	0,937	0,948	0,941	0,950	0,908	0,932	0,913	0,917
33,9	0,954	0,950	0,947	0,940	0,961	0,959	0,954	0,943	0,938	0,933
34,2	0,950	0,941	0,948	0,962	0,958	0,943	0,936	0,936	0,934	0,952
34,5	0,995	0,967	0,995	0,962	0,955	0,952	0,941	0,959	0,938	0,959
34,8	0,943	0,978	0,981	0,950	0,939	0,958	0,938	0,962	0,900	0,957
35,1	0,949	0,979	0,970	0,955	0,982	0,984	0,958	0,941	0,948	0,915
35,4	1,002	0,987	0,985	0,966	0,940	0,966	0,969	0,973	0,971	0,956

Table C.39 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the bottom - With coating' - Experiment #13

Elevation (mm)	1 min	3 min	4 min	10 min	16 min	25 min	41 min	60 min	83 min	126 min	163 min	200 min	232 min	286 min
2,1	0,972	1,011	0,988	1,018	0,993	1,018	0,995	0,998	0,979	0,946	1,000	0,997	0,995	0,994
2,4	0,995	0,976	0,979	1,000	0,995	0,970	0,997	1,002	0,981	0,965	0,983	0,981	0,983	0,993
2,7	0,979	0,986	0,993	1,009	0,977	1,000	0,997	1,013	0,997	0,974	0,997	0,977	0,970	1,000
3	0,986	0,983	0,981	1,004	0,993	1,000	0,988	0,993	0,986	0,974	0,972	0,990	0,958	0,988
3,3	0,985	0,978	0,985	0,985	0,990	0,978	0,978	0,990	0,971	0,988	0,983	1,004	0,967	0,995
3,6	0,974	0,978	0,978	0,983	0,990	0,978	0,967	0,992	0,964	0,976	1,013	0,974	0,960	0,985
3,9	0,973	0,992	0,985	0,987	0,994	1,004	1,017	0,987	0,978	1,004	0,992	0,981	0,958	0,992
4,2	0,983	0,985	0,990	0,999	0,987	0,997	1,001	0,990	0,992	0,994	1,020	0,978	0,980	0,990
4,5	0,973	0,973	1,008	1,003	0,978	0,996	0,989	0,996	0,971	0,992	0,996	0,971	0,973	1,012
4,8	0,992	0,978	1,003	1,003	0,978	0,964	1,001	1,003	1,015	0,968	0,960	0,983	0,992	1,006
5,1	0,993	0,996	1,007	1,012	0,991	0,989	0,961	1,003	0,998	0,998	0,966	0,987	1,014	0,987
5,4	0,970	0,977	0,989	0,984	0,982	0,977	0,986	1,000	1,007	0,975	0,979	1,014	1,003	0,975
5,7	0,972	0,972	0,977	0,995	1,007	0,963	0,974	0,993	1,012	1,009	0,981	0,967	0,988	0,974
6	1,000	0,979	0,995	0,981	0,983	0,981	1,004	0,981	0,990	1,000	1,004	0,976	1,000	0,983
6,3	0,985	0,964	0,988	1,002	0,992	0,999	1,006	0,990	0,974	0,988	1,016	0,988	0,978	0,997
6,6	0,967	0,983	0,992	1,018	0,985	0,988	1,002	1,002	0,997	0,985	0,978	0,993	1,020	1,002
6,9	0,962	0,973	0,996	1,010	1,006	0,973	0,989	1,045	0,987	0,985	0,992	0,975	0,994	1,006
7,2	0,944	0,955	0,994	1,003	0,982	0,945	0,987	1,003	0,982	0,980	0,978	0,989	1,036	0,992
7,5	0,948	0,959	0,968	0,998	0,996	0,966	0,991	1,010	0,984	0,984	0,989	0,970	0,984	0,975
7,8	0,931	0,942	0,989	0,972	0,968	0,972	0,979	0,982	0,977	0,965	0,991	0,965	1,019	0,996
8,1	0,955	0,955	0,948	0,972	1,002	0,969	0,974	0,988	0,985	0,985	0,992	0,985	0,997	1,009
8,4	0,941	0,946	0,965	0,953	0,986	0,974	0,993	1,000	0,962	0,979	0,969	0,983	0,986	0,967
8,7	0,951	0,954	0,980	0,972	0,982	0,972	1,003	0,982	0,991	0,975	0,949	0,975	0,975	1,027
9	0,218	0,954	0,961	0,963	0,958	0,975	0,968	0,975	0,965	0,970	0,982	0,958	0,982	1,001
9,3	0,204	0,961	0,256	0,961	0,973	0,980	0,973	0,988	1,014	0,516	1,018	0,985	0,968	0,968
9,6	0,180	0,182	0,192	0,990	0,963	0,971	0,966	0,963	0,990	0,455	0,999	0,552	0,978	0,961
9,9	0,173	0,187	0,206	0,481	0,963	0,966	0,975	0,987	1,001	0,987	0,514	0,533	0,563	0,973
10,2	0,140	0,121	0,156	0,258	0,286	0,490	0,973	0,978	0,970	0,424	0,459	0,469	0,507	0,755
10,5	0,085	0,107	0,133	0,237	0,289	0,329	1,016	0,968	1,011	0,426	0,455	0,473	0,467	0,547
10,8	0,057	0,066	0,080	0,215	0,253	0,447	0,952	0,966	0,961	0,339	0,400	0,443	0,455	0,490
11,1	0,050	0,069	0,071	0,208	0,244	0,270	0,310	0,963	0,985	0,384	0,360	0,362	0,445	0,481
11,4	0,043	0,043	0,055	0,123	0,204	0,233	0,256	0,387	0,947	0,304	0,321	0,330	0,354	0,370
11,7	0,043	0,045	0,050	0,126	0,161	0,221	0,214	0,287	0,302	0,273	0,330	0,313	0,351	0,370
12	0,019	0,026	0,036	0,088	0,104	0,190	0,199	0,233	0,266	0,463	0,508	0,290	0,311	0,347
12,3	0,021	0,026	0,033	0,088	0,100	0,126	0,209	0,233	0,259	0,318	0,947	0,294	0,313	0,337
12,6	0,005	0,012	0,012	0,062	0,081	0,093	0,097	0,161	0,235	0,216	0,370	0,256	0,283	0,302
12,9	0,007	0,012	0,019	0,066	0,078	0,085	0,112	0,140	0,176	0,209	0,233	0,266	0,273	0,299

13,2	0,000	0,005	0,005	0,047	0,050	0,064	0,085	0,095	0,114	0,166	0,183	0,211	0,264	0,261
13,5	0,000	0,000	0,007	0,047	0,050	0,066	0,083	0,095	0,112	0,161	0,192	0,202	0,245	0,259
13,8	0,000	0,000	0,002	0,036	0,036	0,048	0,050	0,083	0,093	0,124	0,157	0,181	0,214	0,243
14,1	0,000	0,000	0,002	0,036	0,038	0,043	0,055	0,076	0,090	0,119	0,136	0,174	0,198	0,229
14,4	0,000	0,000	0,002	0,029	0,026	0,031	0,036	0,060	0,076	0,105	0,122	0,143	0,167	0,196
14,7	0,000	-0,002	0,002	0,029	0,024	0,033	0,043	0,055	0,072	0,098	0,119	0,139	0,162	0,196
15	0,000	0,000	0,002	0,022	0,014	0,019	0,026	0,038	0,060	0,069	0,103	0,120	0,141	0,165
15,3	0,000	0,000	0,005	0,024	0,017	0,022	0,031	0,041	0,046	0,074	0,098	0,110	0,142	0,166
15,6	0,000	0,000	0,002	0,017	0,010	0,010	0,010	0,026	0,036	0,058	0,072	0,101	0,125	0,130
15,9	0,000	0,000	0,002	0,017	0,007	0,010	0,019	0,026	0,036	0,053	0,072	0,094	0,115	0,139
16,2	0,000	0,002	0,002	0,014	0,005	0,005	0,007	0,017	0,024	0,043	0,058	0,072	0,099	0,116
16,5	0,000	0,000	0,002	0,012	0,007	0,007	0,010	0,014	0,022	0,039	0,055	0,072	0,099	0,118
16,8	0,000	0,000	0,002	0,010	0,000	0,002	0,005	0,012	0,012	0,024	0,039	0,053	0,072	0,092
17,1	0,000	0,000	0,002	0,010	0,002	0,002	0,007	0,012	0,015	0,027	0,044	0,058	0,080	0,099
17,4	0,000	0,000	0,000	0,005	-0,005	-0,002	0,002	0,005	0,005	0,015	0,029	0,046	0,058	0,080
17,7	0,000	0,000	0,002	0,005	-0,005	0,002	0,002	0,007	0,012	0,019	0,034	0,046	0,068	0,080
18	0,000	0,000	0,000	0,002	-0,007	-0,002	0,000	0,005	0,007	0,015	0,017	0,024	0,048	0,065
18,3	0,000	0,000	0,000	0,002	-0,005	-0,002	-0,002	0,002	0,005	0,015	0,022	0,024	0,046	0,065
18,6	0,000	0,000	0,000	0,002	-0,005	-0,002	-0,002	0,000	0,005	0,012	0,017	0,022	0,029	0,051
18,9	0,000	0,000	0,000	0,002	-0,002	-0,005	-0,002	0,000	0,002	0,012	0,017	0,024	0,032	0,049
19,2	0,000	0,000	0,000	0,000	-0,005	-0,002	-0,002	-0,002	0,000	0,007	0,012	0,015	0,022	0,029
19,5	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,005	0,012	0,017	0,019	0,032
19,8	0,000	-0,002	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,005	0,010	0,015	0,027
20,1	0,000	0,000	0,000	0,002	0,000	0,000	-0,002	0,000	0,000	0,000	0,005	0,010	0,017	0,029
20,4	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	-0,002	-0,002	0,005	0,007	0,012	0,019
20,7	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	0,002	0,005	0,012	0,022
21	0,000	0,000	0,000	0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,007	0,012	0,017
21,3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,005	0,010	0,017
21,6	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,007	0,012
21,9	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,007
22,2	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,007

22,5	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,005
22,8	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002
23,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002
23,4	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
23,7	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24,3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24,6	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
24,9	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
25,2	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000
25,5	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000
25,8	0,000	-0,002	0,000	-0,002	-0,002	-0,002	-0,005	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000
26,1	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000
26,4	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,000	-0,002	0,000
26,7	0,000	-0,002	0,000	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005	-0,002	-0,002	-0,002	-0,002	-0,002
27	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	-0,002	0,000
27,3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	-0,002	0,000
27,6	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	0,000
27,9	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	-0,002	-0,002	0,000
28,2	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	-0,002	0,000
28,5	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,000	-0,002	0,000
28,8	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,000	-0,002	0,000
29,1	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,000
29,4	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	0,000
29,7	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,000	0,000	0,002
30	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002
30,3	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,000
30,6	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	0,000	0,000	0,000	0,000	0,000	0,000

30,9	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	-0,002	0,000
31,2	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
31,5	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
31,8	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	0,000
32,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
32,4	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000	-0,002	0,000
32,7	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000	-0,002	0,000
33	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	0,000
33,3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
33,6	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
33,9	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	-0,002	-0,002	-0,002
34,2	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	0,000
34,5	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
34,8	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
35,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	0,000
35,4	0,000	-0,002	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002

Table C.40 Normalized values of time of flight at different elevations over time for the experiment 'Injection at the bottom - With coating' - Experiment #14

Elevation (mm)	1 min	3 min	7 min	16 min	30 min	52 min	91 min	152 min	195 min	247 min	290 min
2,1	0,985	1,001	0,953	0,969	0,988	0,950	0,973	0,966	0,931	0,922	0,957
2,4	0,992	0,964	0,964	0,964	0,954	0,964	0,959	0,957	0,938	0,931	0,933
2,7	0,974	0,952	0,971	0,966	0,964	0,947	0,940	0,950	0,924	0,936	0,924
3	0,970	0,956	0,966	0,942	0,954	0,959	0,956	0,940	0,947	0,940	0,945
3,3	0,991	0,982	0,966	0,928	0,966	0,956	0,959	0,961	0,940	0,935	0,951
3,6	0,958	0,965	0,958	0,966	0,956	0,930	0,958	0,946	0,944	0,935	0,939
3,9	0,951	0,966	0,968	0,956	0,987	0,970	0,972	0,935	0,937	0,935	0,958
4,2	0,939	0,948	0,962	0,951	0,967	0,948	0,958	0,953	0,939	0,941	0,948
4,5	0,970	0,953	0,944	0,958	0,968	0,948	0,936	0,941	0,948	0,929	0,927
4,8	0,965	0,958	0,932	0,953	0,958	0,953	0,948	0,943	0,936	0,941	0,927
5,1	0,967	0,941	0,946	0,974	0,936	0,948	0,948	0,940	0,950	0,929	0,910
5,4	0,127	0,238	0,948	0,934	0,947	0,934	0,929	0,959	0,931	0,931	0,952

5,7	0,151	0,194	0,952	0,919	0,947	0,949	0,475	0,949	0,942	0,931	0,928
6	0,093	0,160	0,229	0,928	0,935	0,367	0,396	0,926	0,935	0,935	0,926
6,3	0,083	0,152	0,256	0,914	0,938	0,370	0,397	0,921	0,940	0,520	0,914
6,6	0,038	0,141	0,188	0,229	0,926	0,919	0,381	0,415	0,459	0,479	0,497
6,9	0,016	0,121	0,185	0,221	0,889	0,346	0,356	0,429	0,459	0,467	0,490
7,2	0,004	0,098	0,156	0,193	0,230	0,277	0,341	0,387	0,409	0,429	0,468
7,5	0,004	0,058	0,161	0,196	0,230	0,255	0,333	0,387	0,406	0,438	0,455
7,8	0,012	0,040	0,121	0,173	0,215	0,245	0,309	0,354	0,385	0,405	0,422
8,1	0,017	0,047	0,106	0,170	0,222	0,256	0,289	0,353	0,382	0,404	0,434
8,4	0,012	0,012	0,034	0,076	0,162	0,196	0,226	0,289	0,327	0,331	0,387
8,7	0,010	0,007	0,032	0,103	0,152	0,193	0,244	0,284	0,320	0,337	0,372
9	0,007	0,000	-0,002	0,042	0,105	0,154	0,196	0,247	0,269	0,296	0,337
9,3	0,007	0,000	0,002	0,029	0,076	0,149	0,161	0,242	0,257	0,296	0,335
9,6	0,007	-0,005	-0,012	0,007	0,049	0,069	0,157	0,201	0,169	0,260	0,353
9,9	0,005	-0,005	-0,005	0,010	0,042	0,115	0,152	0,154	0,169	0,269	0,362
10,2	0,005	-0,010	-0,012	-0,007	0,015	0,039	0,076	0,157	0,145	0,221	0,250
10,5	0,002	-0,010	-0,012	-0,002	0,012	0,032	0,071	0,159	0,142	0,220	0,245
10,8	0,002	-0,012	-0,015	-0,015	-0,002	0,015	0,047	0,074	0,091	0,172	0,199
11,1	0,002	-0,012	-0,012	-0,010	0,000	0,017	0,047	0,074	0,093	0,157	0,204
11,4	0,002	-0,010	-0,015	-0,017	-0,010	0,005	0,025	0,052	0,069	0,088	0,108
11,7	0,000	-0,012	-0,015	-0,017	-0,010	0,002	0,022	0,054	0,071	0,081	0,105
12	0,000	-0,010	-0,017	-0,017	-0,015	-0,007	0,010	0,032	0,047	0,059	0,071
12,3	0,000	-0,005	-0,012	-0,015	-0,010	0,000	0,017	0,039	0,049	0,059	0,074
12,6	0,000	-0,005	-0,012	-0,017	-0,015	-0,010	0,002	0,020	0,032	0,037	0,052
12,9	0,000	-0,002	-0,007	-0,012	-0,010	-0,005	0,007	0,027	0,034	0,044	0,054
13,2	0,000	-0,002	-0,007	-0,012	-0,012	-0,007	0,000	0,012	0,017	0,022	0,032
13,5	0,000	0,000	-0,005	-0,007	-0,007	-0,002	0,005	0,020	0,022	0,030	0,039
13,8	0,000	0,000	-0,002	-0,007	-0,007	-0,007	0,000	0,010	0,012	0,015	0,020
14,1	0,000	0,000	-0,002	-0,005	-0,005	-0,005	0,002	0,012	0,015	0,017	0,025
14,4	0,000	0,000	-0,002	-0,005	-0,005	-0,005	-0,002	0,005	0,007	0,007	0,010
14,7	0,000	0,002	0,000	0,000	0,000	0,000	0,002	0,010	0,012	0,012	0,015
15	0,002	0,002	0,002	0,000	0,000	0,000	0,000	0,005	0,005	0,005	0,007
15,3	0,000	0,002	0,000	0,000	0,000	0,000	0,002	0,007	0,010	0,010	0,012
15,6	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,002	0,000	0,002	0,000	0,002
15,9	0,000	0,002	0,002	0,002	0,002	0,002	0,002	0,005	0,007	0,007	0,010
16,2	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,002	0,002
16,5	-0,002	0,000	0,000	0,000	0,000	0,000	0,000	0,005	0,005	0,005	0,005
16,8	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,005	0,002	0,002
17,1	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,005	0,005	0,005	0,005
17,4	0,000	0,000	0,000	0,000	0,002	0,002	0,002	0,005	0,005	0,005	0,005
17,7	0,000	0,000	0,000	0,000	0,002	0,002	0,002	0,005	0,007	0,005	0,005

18	0,000	-0,002	0,000	0,000	0,000	0,000	0,002	0,002	0,005	0,002	0,002
18,3	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,005	0,002	0,002
18,6	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,005	0,005	0,002	0,002
18,9	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,005	0,002	0,002
19,2	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,002	0,002	0,002	0,002
19,5	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,002
19,8	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,002
20,1	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,002
20,4	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	-0,002	-0,002
20,7	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	-0,002	-0,002	-0,005
21	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	-0,002	-0,002	-0,005	-0,005
21,3	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
21,6	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
21,9	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,005
22,2	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	-0,002	-0,002	-0,002	-0,005
22,5	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
22,8	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
23,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002
23,4	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002
23,7	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005
24	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
24,3	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
24,6	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005
24,9	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
25,2	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
25,5	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,005	-0,005	-0,005
25,8	0,000	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	-0,002	-0,002
26,1	0,000	0,000	-0,002	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
26,4	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
26,7	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	-0,002	-0,002
27	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
27,3	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
27,6	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
27,9	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
28,2	0,000	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
28,5	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
28,8	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
29,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
29,4	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
29,7	0,000	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	-0,002	0,000	0,000
30	0,000	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000

30,3	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
30,6	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002
30,9	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
31,2	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,002	0,000	0,000
31,5	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000
31,8	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000
32,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
32,4	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
32,7	0,000	0,000	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	0,000
33	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
33,3	0,000	0,000	0,000	0,000	0,000	-0,002	0,000	0,000	0,000	0,000	0,000
33,6	0,000	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000
33,9	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000
34,2	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000
34,5	0,000	0,000	0,000	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000	0,000
34,8	0,000	-0,002	-0,002	-0,002	-0,002	-0,002	-0,002	0,000	0,000	0,000	0,000
35,1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
35,4	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,002	0,000	0,000

Table C.41 Normalized values of time of flight at different elevations over time (between 1 and 19 min) for the experiment 'Injection from the side - With coating' - Experiment #15

Elevation (mm)	1 min	2 min	3 min	4 min	8 min	19 min
2,1	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
2,4	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
2,7	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
3	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
3,3	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
3,6	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
3,9	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
4,2	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
4,5	-0,003	-0,003	-0,003	-0,005	-0,005	-0,005
4,8	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
5,1	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
5,4	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
5,7	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
6	-0,003	-0,003	-0,005	-0,005	-0,005	-0,008
6,3	-0,003	-0,003	-0,003	-0,005	-0,005	-0,005
6,6	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
6,9	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
7,2	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008

7,5	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
7,8	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
8,1	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
8,4	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
8,7	-0,003	-0,003	-0,005	-0,005	-0,005	-0,008
9	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
9,3	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
9,6	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
9,9	-0,003	-0,003	-0,003	-0,005	-0,005	-0,008
10,2	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
10,5	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
10,8	-0,003	-0,003	-0,005	-0,005	-0,005	-0,008
11,1	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
11,4	-0,003	-0,003	-0,003	-0,005	-0,005	-0,005
11,7	-0,003	-0,003	-0,005	-0,005	-0,005	-0,008
12	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
12,3	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
12,6	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
12,9	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
13,2	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
13,5	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
13,8	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
14,1	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
14,4	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
14,7	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
15	-0,005	-0,005	-0,005	-0,005	-0,008	-0,008
15,3	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
15,6	-0,003	-0,005	-0,005	-0,005	-0,005	-0,008
15,9	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
16,2	-0,003	-0,003	-0,003	-0,003	-0,005	-0,005
16,5	-0,003	-0,003	-0,005	-0,005	-0,005	-0,005
16,8	-0,003	-0,003	-0,005	-0,005	-0,005	-0,005
17,1	-0,005	-0,005	-0,005	-0,005	-0,005	-0,008
17,4	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005
17,7	-0,003	-0,003	-0,003	-0,003	-0,003	-0,005
18	-0,005	-0,005	-0,005	-0,005	-0,005	-0,005
18,3	-0,003	-0,003	-0,003	-0,003	-0,003	-0,005
18,6	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
18,9	-0,003	-0,003	-0,003	-0,003	-0,003	-0,003
19,2	-0,005	-0,005	-0,003	-0,003	-0,005	-0,005
19,5	-0,005	-0,005	-0,003	-0,003	-0,003	-0,005

19,8	-0,003	-0,003	-0,003	-0,003	-0,003	-0,005
20,1	-0,003	-0,003	-0,003	-0,003	-0,003	-0,005
20,4	-0,005	-0,005	-0,003	-0,005	-0,008	-0,010
20,7	-0,003	-0,003	-0,003	-0,005	-0,005	-0,010
21	-0,005	-0,005	-0,005	-0,010	-0,010	-0,015
21,3	-0,003	-0,005	-0,005	-0,013	-0,013	-0,018
21,6	-0,003	-0,005	-0,008	-0,018	-0,018	-0,020
21,9	-0,003	-0,005	-0,013	-0,020	-0,023	-0,025
22,2	-0,003	-0,005	-0,018	-0,025	-0,028	-0,028
22,5	-0,005	-0,005	-0,020	-0,033	-0,035	-0,035
22,8	-0,005	-0,005	-0,023	-0,035	-0,035	-0,038
23,1	-0,005	-0,003	-0,023	-0,038	-0,038	-0,040
23,4	-0,003	-0,005	-0,023	-0,035	-0,038	-0,043
23,7	-0,005	-0,003	-0,023	-0,035	-0,040	-0,045
24	-0,003	0,000	-0,020	-0,033	-0,043	-0,048
24,3	-0,005	0,000	-0,015	-0,025	-0,038	-0,038
24,6	-0,005	0,003	-0,015	-0,028	-0,045	-0,040
24,9	-0,002	0,005	-0,007	-0,015	-0,030	-0,022
25,2	-0,005	0,005	-0,007	-0,017	-0,035	-0,025
25,5	-0,005	0,010	0,007	-0,002	-0,010	0,002
25,8	-0,005	0,010	0,010	-0,002	-0,017	-0,007
26,1	-0,005	0,012	0,027	0,017	0,022	0,050
26,4	-0,005	0,008	0,033	0,033	0,025	0,073
26,7	-0,008	0,005	0,028	0,048	0,055	0,151
27	-0,005	0,005	0,023	0,030	0,045	0,161
27,3	-0,008	0,007	0,029	0,059	0,132	0,137
27,6	-0,005	0,009	0,027	0,127	0,147	0,187
27,9	-0,010	0,001	0,118	0,145	0,175	0,961
28,2	0,018	0,023	0,116	0,141	0,203	0,953
28,5	0,112	0,130	0,978	0,968	0,968	0,943
28,8	0,124	0,154	0,975	0,983	0,973	0,948
29,1	1,048	0,980	0,957	0,972	0,970	0,952
29,4	1,012	0,980	0,975	0,982	0,957	0,957
29,7	1,032	0,989	0,989	0,974	0,979	0,974
30	0,992	0,994	0,987	0,969	0,969	0,972
30,3	1,004	1,004	0,976	0,964	0,987	0,969
30,6	0,969	0,982	0,982	0,972	0,977	0,967
30,9	0,958	0,984	0,989	0,991	0,986	0,984
31,2	0,979	0,991	0,986	0,991	0,976	0,971
31,5	0,979	0,973	0,991	0,996	0,981	0,971
31,8	0,976	0,973	0,983	0,991	0,976	0,963

32,1	0,978	0,973	0,973	0,986	0,991	0,963
32,4	0,983	0,946	0,981	0,968	0,983	0,986
32,7	0,995	0,998	0,988	0,980	0,998	0,960
33	0,980	0,990	0,972	0,990	0,983	0,950
33,3	0,978	0,978	0,983	0,980	0,957	0,975
33,6	0,983	0,993	0,993	0,986	0,985	0,985
33,9	1,003	1,003	0,986	0,990	0,985	0,988
34,2	0,975	0,983	0,986	0,990	0,985	0,980
34,5	0,993	0,983	0,998	0,985	0,998	0,981
34,8	0,993	0,983	0,993	0,993	0,978	0,996
35,1	0,993	0,981	0,986	0,988	0,978	0,968
35,4	0,993	0,983	0,988	0,981	0,993	0,983

Table C.42 Normalized values of time of flight at different elevations over time (between 35 and 403 min) for the experiment 'Injection from the side - With coating' - Experiment #15

Elevation (mm)	35 min	79 min	140 min	207 min	274 min	325 min	403 min
2,1	-0,008	-0,010	-0,010	-0,008	-0,010	-0,010	-0,008
2,4	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
2,7	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
3	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
3,3	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
3,6	-0,008	-0,008	-0,010	-0,008	-0,010	-0,010	-0,008
3,9	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
4,2	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
4,5	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008
4,8	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
5,1	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
5,4	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
5,7	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
6	-0,008	-0,008	-0,010	-0,008	-0,010	-0,010	-0,008
6,3	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
6,6	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
6,9	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
7,2	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
7,5	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
7,8	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008
8,1	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
8,4	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
8,7	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,008
9	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005

9,3	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
9,6	-0,008	-0,008	-0,010	-0,008	-0,008	-0,010	-0,008
9,9	-0,008	-0,010	-0,010	-0,008	-0,008	-0,010	-0,008
10,2	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
10,5	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
10,8	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
11,1	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
11,4	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,005
11,7	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,005
12	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
12,3	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
12,6	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
12,9	-0,008	-0,010	-0,010	-0,010	-0,010	-0,010	-0,008
13,2	-0,008	-0,010	-0,010	-0,008	-0,008	-0,008	-0,008
13,5	-0,008	-0,010	-0,010	-0,008	-0,008	-0,008	-0,005
13,8	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,005
14,1	-0,008	-0,008	-0,010	-0,008	-0,008	-0,008	-0,005
14,4	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
14,7	-0,008	-0,010	-0,010	-0,008	-0,008	-0,008	-0,005
15	-0,008	-0,010	-0,010	-0,010	-0,008	-0,008	-0,005
15,3	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
15,6	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
15,9	-0,005	-0,008	-0,008	-0,005	-0,005	-0,005	-0,003
16,2	-0,005	-0,008	-0,008	-0,005	-0,005	-0,005	-0,003
16,5	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,003
16,8	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
17,1	-0,008	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
17,4	-0,008	-0,008	-0,008	-0,008	-0,008	-0,010	-0,008
17,7	-0,005	-0,008	-0,008	-0,008	-0,008	-0,008	-0,005
18	-0,008	-0,008	-0,008	-0,010	-0,013	-0,013	-0,010
18,3	-0,005	-0,008	-0,008	-0,010	-0,008	-0,008	-0,005
18,6	-0,005	-0,008	-0,008	-0,010	-0,013	-0,013	-0,008
18,9	-0,005	-0,008	-0,008	-0,010	-0,010	-0,008	0,000
19,2	-0,008	-0,010	-0,013	-0,018	-0,015	-0,015	-0,008
19,5	-0,008	-0,010	-0,010	-0,013	-0,010	-0,008	0,003
19,8	-0,010	-0,013	-0,015	-0,015	-0,013	-0,010	0,000
20,1	-0,008	-0,013	-0,013	-0,010	-0,005	0,000	0,013
20,4	-0,013	-0,018	-0,015	-0,015	-0,010	-0,005	0,005
20,7	-0,013	-0,015	-0,013	-0,008	0,000	0,008	0,023
21	-0,018	-0,018	-0,015	-0,013	-0,005	0,000	0,015
21,3	-0,020	-0,018	-0,013	-0,005	0,003	0,010	0,031

21,6	-0,023	-0,020	-0,015	-0,015	-0,018	-0,010	0,008
21,9	-0,025	-0,023	-0,013	-0,010	-0,008	0,003	0,023
22,2	-0,028	-0,025	-0,020	-0,023	-0,010	-0,003	0,018
22,5	-0,033	-0,028	-0,020	-0,015	0,000	0,010	0,033
22,8	-0,035	-0,038	-0,033	-0,015	-0,003	0,010	0,035
23,1	-0,038	-0,035	-0,020	0,000	0,020	0,033	0,060
23,4	-0,045	-0,035	-0,020	0,003	0,018	0,033	0,058
23,7	-0,040	-0,020	-0,003	0,025	0,045	0,065	0,095
24	-0,038	-0,020	-0,003	0,018	0,038	0,053	0,088
24,3	-0,025	-0,003	0,025	0,048	0,090	0,093	0,125
24,6	-0,025	-0,008	0,013	0,033	0,065	0,088	0,115
24,9	-0,010	0,022	0,055	0,075	0,127	0,112	0,145
25,2	-0,010	0,012	0,030	0,090	0,112	0,135	0,157
25,5	0,022	0,062	0,125	0,137	0,155	0,147	0,177
25,8	0,015	0,040	0,087	0,180	0,135	0,157	0,177
26,1	0,117	0,140	0,132	0,115	0,260	0,250	0,235
26,4	0,144	0,172	0,212	0,197	0,933	0,230	0,243
26,7	0,154	0,216	0,232	0,254	0,272	0,257	0,297
27	0,199	0,212	0,973	0,928	0,948	0,343	0,950
27,3	0,187	0,949	0,931	0,924	0,931	0,362	0,929
27,6	0,951	0,959	0,924	0,934	0,934	0,382	0,924
27,9	0,951	0,934	0,916	0,936	0,914	0,904	0,901
28,2	0,948	0,921	0,921	0,926	0,913	0,918	0,911
28,5	0,935	0,925	0,930	0,923	0,925	0,920	0,915
28,8	0,940	0,938	0,928	0,935	0,923	0,928	0,920
29,1	0,972	0,940	0,942	0,932	0,935	0,937	0,930
29,4	0,950	0,950	0,930	0,937	0,937	0,930	0,927
29,7	0,957	0,957	0,947	0,947	0,949	0,941	0,939
30	0,967	0,957	0,957	0,941	0,944	0,941	0,931
30,3	0,982	0,961	0,954	0,949	0,934	0,951	0,934
30,6	0,967	0,954	0,954	0,939	0,934	0,926	0,934
30,9	0,979	0,958	0,961	0,956	0,943	0,938	0,931
31,2	0,963	0,956	0,951	0,941	0,951	0,948	0,931
31,5	0,966	0,946	0,958	0,953	0,941	0,928	0,928
31,8	0,963	0,955	0,950	0,943	0,938	0,953	0,933
32,1	0,970	0,955	0,945	0,950	0,938	0,938	0,927
32,4	0,968	0,965	0,965	0,945	0,953	0,940	0,938
32,7	0,970	0,970	0,957	0,950	0,955	0,952	0,947
33	0,963	0,958	0,958	0,950	0,958	0,935	0,942
33,3	0,940	0,962	0,960	0,978	0,955	0,947	0,947
33,6	0,970	0,978	0,975	0,945	0,965	0,955	0,945

33,9	0,978	0,970	0,970	0,972	0,960	0,975	0,947
34,2	0,929	0,978	0,963	0,970	0,960	0,950	0,955
34,5	0,993	0,963	0,960	0,960	0,958	0,925	0,950
34,8	0,983	0,981	0,971	0,968	0,945	0,955	0,948
35,1	0,981	0,978	0,968	0,968	0,955	0,961	0,945
35,4	0,981	0,963	0,976	0,976	0,968	0,953	0,948

C5 Time of flight versus x/t_i^n data

Table C.43 displays the abscissa axis values used for the graph presented in section 4.2.2.4. The column x was obtained by subtracting the elevation of the initial interface 10.05 mm to each elevation from 2.1 to 35.4 mm.

Table C.43 x/t_i^n values for each time at different corrected elevation for the experiment 'Injection at the bottom - Without coating'- Experiment #7, with $n = 0.26$ and $t_1 = 2$, $t_2 = 3$, $t_3 = 6$, $t_4 = 10$, $t_5 = 19$, $t_6 = 34$, $t_7 = 58$, $t_8 = 91$, $t_9 = 138$, $t_{10} = 196$, $t_{11} = 262$ minutes

x	x/t_1^n	x/t_2^n	x/t_3^n	x/t_4^n	x/t_5^n	x/t_6^n	x/t_7^n	x/t_8^n	x/t_9^n	x/t_{10}^n	x/t_{11}^n
-7,95	-6,639	-5,975	-4,989	-4,369	-3,697	-3,178	-2,766	-2,460	-2,208	-2,015	-1,869
-7,65	-6,388	-5,749	-4,801	-4,204	-3,558	-3,058	-2,662	-2,368	-2,125	-1,939	-1,798
-7,35	-6,138	-5,524	-4,613	-4,039	-3,418	-2,938	-2,557	-2,275	-2,041	-1,863	-1,728
-7,05	-5,887	-5,298	-4,425	-3,874	-3,279	-2,818	-2,453	-2,182	-1,958	-1,787	-1,657
-6,75	-5,637	-5,073	-4,236	-3,709	-3,139	-2,698	-2,349	-2,089	-1,875	-1,711	-1,587
-6,45	-5,386	-4,847	-4,048	-3,545	-3,000	-2,579	-2,244	-1,996	-1,791	-1,635	-1,516
-6,15	-5,136	-4,622	-3,860	-3,380	-2,860	-2,459	-2,140	-1,903	-1,708	-1,559	-1,446
-5,85	-4,885	-4,396	-3,671	-3,215	-2,721	-2,339	-2,035	-1,811	-1,625	-1,483	-1,375
-5,55	-4,635	-4,171	-3,483	-3,050	-2,581	-2,219	-1,931	-1,718	-1,541	-1,407	-1,305
-5,25	-4,384	-3,946	-3,295	-2,885	-2,442	-2,099	-1,827	-1,625	-1,458	-1,331	-1,234
-4,95	-4,134	-3,720	-3,107	-2,720	-2,302	-1,979	-1,722	-1,532	-1,375	-1,255	-1,164
-4,65	-3,883	-3,495	-2,918	-2,555	-2,163	-1,859	-1,618	-1,439	-1,291	-1,179	-1,093
-4,35	-3,633	-3,269	-2,730	-2,391	-2,023	-1,739	-1,514	-1,346	-1,208	-1,103	-1,023
-4,05	-3,382	-3,044	-2,542	-2,226	-1,884	-1,619	-1,409	-1,253	-1,125	-1,027	-0,952
-3,75	-3,132	-2,818	-2,353	-2,061	-1,744	-1,499	-1,305	-1,161	-1,042	-0,951	-0,882
-3,45	-2,881	-2,593	-2,165	-1,896	-1,605	-1,379	-1,200	-1,068	-0,958	-0,875	-0,811
-3,15	-2,631	-2,367	-1,977	-1,731	-1,465	-1,259	-1,096	-0,975	-0,875	-0,799	-0,741
-2,85	-2,380	-2,142	-1,789	-1,566	-1,325	-1,139	-0,992	-0,882	-0,792	-0,723	-0,670
-2,55	-2,129	-1,916	-1,600	-1,401	-1,186	-1,019	-0,887	-0,789	-0,708	-0,646	-0,599
-2,25	-1,879	-1,691	-1,412	-1,236	-1,046	-0,899	-0,783	-0,696	-0,625	-0,570	-0,529
-1,95	-1,628	-1,465	-1,224	-1,072	-0,907	-0,780	-0,678	-0,604	-0,542	-0,494	-0,458
-1,65	-1,378	-1,240	-1,036	-0,907	-0,767	-0,660	-0,574	-0,511	-0,458	-0,418	-0,388
-1,35	-1,127	-1,015	-0,847	-0,742	-0,628	-0,540	-0,470	-0,418	-0,375	-0,342	-0,317
-1,05	-0,877	-0,789	-0,659	-0,577	-0,488	-0,420	-0,365	-0,325	-0,292	-0,266	-0,247

-0,75	-0,626	-0,564	-0,471	-0,412	-0,349	-0,300	-0,261	-0,232	-0,208	-0,190	-0,176
-0,45	-0,376	-0,338	-0,282	-0,247	-0,209	-0,180	-0,157	-0,139	-0,125	-0,114	-0,106
-0,15	-0,125	-0,113	-0,094	-0,082	-0,070	-0,060	-0,052	-0,046	-0,042	-0,038	-0,035
0,15	0,125	0,113	0,094	0,082	0,070	0,060	0,052	0,046	0,042	0,038	0,035
0,45	0,376	0,338	0,282	0,247	0,209	0,180	0,157	0,139	0,125	0,114	0,106
0,75	0,626	0,564	0,471	0,412	0,349	0,300	0,261	0,232	0,208	0,190	0,176
1,05	0,877	0,789	0,659	0,577	0,488	0,420	0,365	0,325	0,292	0,266	0,247
1,35	1,127	1,015	0,847	0,742	0,628	0,540	0,470	0,418	0,375	0,342	0,317
1,65	1,378	1,240	1,036	0,907	0,767	0,660	0,574	0,511	0,458	0,418	0,388
1,95	1,628	1,465	1,224	1,072	0,907	0,780	0,678	0,604	0,542	0,494	0,458
2,25	1,879	1,691	1,412	1,236	1,046	0,899	0,783	0,696	0,625	0,570	0,529
2,55	2,129	1,916	1,600	1,401	1,186	1,019	0,887	0,789	0,708	0,646	0,599
2,85	2,380	2,142	1,789	1,566	1,325	1,139	0,992	0,882	0,792	0,723	0,670
3,15	2,631	2,367	1,977	1,731	1,465	1,259	1,096	0,975	0,875	0,799	0,741
3,45	2,881	2,593	2,165	1,896	1,605	1,379	1,200	1,068	0,958	0,875	0,811
3,75	3,132	2,818	2,353	2,061	1,744	1,499	1,305	1,161	1,042	0,951	0,882
4,05	3,382	3,044	2,542	2,226	1,884	1,619	1,409	1,253	1,125	1,027	0,952
4,35	3,633	3,269	2,730	2,391	2,023	1,739	1,514	1,346	1,208	1,103	1,023
4,65	3,883	3,495	2,918	2,555	2,163	1,859	1,618	1,439	1,291	1,179	1,093
4,95	4,134	3,720	3,107	2,720	2,302	1,979	1,722	1,532	1,375	1,255	1,164
5,25	4,384	3,946	3,295	2,885	2,442	2,099	1,827	1,625	1,458	1,331	1,234
5,55	4,635	4,171	3,483	3,050	2,581	2,219	1,931	1,718	1,541	1,407	1,305
5,85	4,885	4,396	3,671	3,215	2,721	2,339	2,035	1,811	1,625	1,483	1,375
6,15	5,136	4,622	3,860	3,380	2,860	2,459	2,140	1,903	1,708	1,559	1,446
6,45	5,386	4,847	4,048	3,545	3,000	2,579	2,244	1,996	1,791	1,635	1,516
6,75	5,637	5,073	4,236	3,709	3,139	2,698	2,349	2,089	1,875	1,711	1,587
7,05	5,887	5,298	4,425	3,874	3,279	2,818	2,453	2,182	1,958	1,787	1,657
7,35	6,138	5,524	4,613	4,039	3,418	2,938	2,557	2,275	2,041	1,863	1,728
7,65	6,388	5,749	4,801	4,204	3,558	3,058	2,662	2,368	2,125	1,939	1,798
7,95	6,639	5,975	4,989	4,369	3,697	3,178	2,766	2,460	2,208	2,015	1,869
8,25	6,889	6,200	5,178	4,534	3,837	3,298	2,871	2,553	2,291	2,092	1,940
8,55	7,140	6,426	5,366	4,699	3,976	3,418	2,975	2,646	2,375	2,168	2,010
8,85	7,391	6,651	5,554	4,863	4,116	3,538	3,079	2,739	2,458	2,244	2,081
9,15	7,641	6,877	5,743	5,028	4,255	3,658	3,184	2,832	2,541	2,320	2,151
9,45	7,892	7,102	5,931	5,193	4,395	3,778	3,288	2,925	2,625	2,396	2,222
9,75	8,142	7,327	6,119	5,358	4,534	3,898	3,392	3,018	2,708	2,472	2,292
10,05	8,393	7,553	6,307	5,523	4,674	4,018	3,497	3,110	2,791	2,548	2,363
10,35	8,643	7,778	6,496	5,688	4,814	4,138	3,601	3,203	2,875	2,624	2,433
10,65	8,894	8,004	6,684	5,853	4,953	4,258	3,706	3,296	2,958	2,700	2,504
10,95	9,144	8,229	6,872	6,017	5,093	4,378	3,810	3,389	3,041	2,776	2,574
11,25	9,395	8,455	7,060	6,182	5,232	4,497	3,914	3,482	3,125	2,852	2,645

11,55	9,645	8,680	7,249	6,347	5,372	4,617	4,019	3,575	3,208	2,928	2,715
11,85	9,896	8,906	7,437	6,512	5,511	4,737	4,123	3,667	3,291	3,004	2,786
12,15	10,146	9,131	7,625	6,677	5,651	4,857	4,228	3,760	3,374	3,080	2,856
12,45	10,397	9,357	7,814	6,842	5,790	4,977	4,332	3,853	3,458	3,156	2,927
12,75	10,647	9,582	8,002	7,007	5,930	5,097	4,436	3,946	3,541	3,232	2,997
13,05	10,898	9,808	8,190	7,172	6,069	5,217	4,541	4,039	3,624	3,308	3,068
13,35	11,148	10,033	8,378	7,336	6,209	5,337	4,645	4,132	3,708	3,385	3,139
13,65	11,399	10,258	8,567	7,501	6,348	5,457	4,749	4,225	3,791	3,461	3,209
13,95	11,649	10,484	8,755	7,666	6,488	5,577	4,854	4,317	3,874	3,537	3,280
14,25	11,900	10,709	8,943	7,831	6,627	5,697	4,958	4,410	3,958	3,613	3,350
14,55	12,151	10,935	9,132	7,996	6,767	5,817	5,063	4,503	4,041	3,689	3,421
14,85	12,401	11,160	9,320	8,161	6,906	5,937	5,167	4,596	4,124	3,765	3,491
15,15	12,652	11,386	9,508	8,326	7,046	6,057	5,271	4,689	4,208	3,841	3,562
15,45	12,902	11,611	9,696	8,490	7,185	6,177	5,376	4,782	4,291	3,917	3,632
15,75	13,153	11,837	9,885	8,655	7,325	6,296	5,480	4,874	4,374	3,993	3,703
16,05	13,403	12,062	10,073	8,820	7,464	6,416	5,584	4,967	4,458	4,069	3,773
16,35	13,654	12,288	10,261	8,985	7,604	6,536	5,689	5,060	4,541	4,145	3,844
16,65	13,904	12,513	10,449	9,150	7,744	6,656	5,793	5,153	4,624	4,221	3,914
16,95	14,155	12,738	10,638	9,315	7,883	6,776	5,898	5,246	4,708	4,297	3,985
17,25	14,405	12,964	10,826	9,480	8,023	6,896	6,002	5,339	4,791	4,373	4,055
17,55	14,656	13,189	11,014	9,644	8,162	7,016	6,106	5,432	4,874	4,449	4,126
17,85	14,906	13,415	11,203	9,809	8,302	7,136	6,211	5,524	4,958	4,525	4,196
18,15	15,157	13,640	11,391	9,974	8,441	7,256	6,315	5,617	5,041	4,601	4,267
18,45	15,407	13,866	11,579	10,139	8,581	7,376	6,420	5,710	5,124	4,677	4,337
18,75	15,658	14,091	11,767	10,304	8,720	7,496	6,524	5,803	5,208	4,754	4,408
19,05	15,908	14,317	11,956	10,469	8,860	7,616	6,628	5,896	5,291	4,830	4,479
19,35	16,159	14,542	12,144	10,634	8,999	7,736	6,733	5,989	5,374	4,906	4,549
19,65	16,409	14,768	12,332	10,798	9,139	7,856	6,837	6,082	5,458	4,982	4,620
19,95	16,660	14,993	12,521	10,963	9,278	7,976	6,941	6,174	5,541	5,058	4,690
20,25	16,911	15,219	12,709	11,128	9,418	8,095	7,046	6,267	5,624	5,134	4,761
20,55	17,161	15,444	12,897	11,293	9,557	8,215	7,150	6,360	5,707	5,210	4,831
20,85	17,412	15,669	13,085	11,458	9,697	8,335	7,255	6,453	5,791	5,286	4,902
21,15	17,662	15,895	13,274	11,623	9,836	8,455	7,359	6,546	5,874	5,362	4,972
21,45	17,913	16,120	13,462	11,788	9,976	8,575	7,463	6,639	5,957	5,438	5,043
21,75	18,163	16,346	13,650	11,953	10,115	8,695	7,568	6,731	6,041	5,514	5,113
22,05	18,414	16,571	13,839	12,117	10,255	8,815	7,672	6,824	6,124	5,590	5,184
22,35	18,664	16,797	14,027	12,282	10,394	8,935	7,777	6,917	6,207	5,666	5,254
22,65	18,915	17,022	14,215	12,447	10,534	9,055	7,881	7,010	6,291	5,742	5,325
22,95	19,165	17,248	14,403	12,612	10,673	9,175	7,985	7,103	6,374	5,818	5,395
23,25	19,416	17,473	14,592	12,777	10,813	9,295	8,090	7,196	6,457	5,894	5,466
23,55	19,666	17,699	14,780	12,942	10,953	9,415	8,194	7,289	6,541	5,970	5,536

23,85	19,917	17,924	14,968	13,107	11,092	9,535	8,298	7,381	6,624	6,046	5,607
24,15	20,167	18,150	15,156	13,271	11,232	9,655	8,403	7,474	6,707	6,123	5,678
24,45	20,418	18,375	15,345	13,436	11,371	9,774	8,507	7,567	6,791	6,199	5,748
24,75	20,668	18,600	15,533	13,601	11,511	9,894	8,612	7,660	6,874	6,275	5,819
25,05	20,919	18,826	15,721	13,766	11,650	10,014	8,716	7,753	6,957	6,351	5,889
25,35	21,169	19,051	15,910	13,931	11,790	10,134	8,820	7,846	7,041	6,427	5,960

C6 Interface data

C6.1 No medium case

In this section, Tables C.44 to C.47 comprise not only the data relative to the displacement of the interface, but also the displacement obtained with the extreme fitted values of n. Under the column x_i/t_i^n is shown the average value for this column, which was then used to determine the values from the model of diffusion.

Table C.44 Evolution with time of the displacement of the interface derived from the data and from the model x/t^n with n = 0.07 for the experiment 'Displacement of the interface wax/solvent - Without medium' - Experiment #1

Time (min)	Lower interface elevation (mm)	Displacement of the interface x_i (mm)	x_i/t_i^n	Displacement derived from the model (mm)
0	14,25	0	/	0
3	13,65	0,6	0,555588	1,370214
14	13,65	0,6	0,498795	1,526227
67	12,45	1,8	1,341057	1,703003
124	12,45	1,8	1,284497	1,777991
217	11,85	2,4	1,646869	1,849023
270	11,85	2,4	1,621869	1,877524
1166	11,85	2,4	1,464004	2,079979
1402	11,85	2,4	1,445236	2,10699
2504	11,55	2,7	1,561203	2,194292

Average	1,268791

Table C.45 Evolution with time of the displacement of the interface derived from the data and from the model x/t^n with n = 0.23 for the experiment 'Displacement of the interface wax/solvent - Without medium' - Experiment #1

Time (min)	Lower interface (mm)	Displacement of the interface x_i (mm)	x_i/t_i^n	Displacement derived from the model (mm)
0	14,25	0	/	0
3	13,65	0,6	0,466029	0,687034
14	13,65	0,6	0,326996	0,979151
67	12,45	1,8	0,684345	1,40358
124	12,45	1,8	0,593999	1,617063
217	11,85	2,4	0,696347	1,839187
270	11,85	2,4	0,662213	1,933988
1166	11,85	2,4	0,47301	2,707576
1402	11,85	2,4	0,453377	2,824829
2504	11,55	2,7	0,446352	3,227944

Average	0,53363

Table C.46 Evolution with time of the displacement of the interface derived from the data and from the model x/t^n with n = 0.07 for the experiment 'Displacement of the interface wax/solvent - Without medium' - Experiment #2

Time (min)	Lower interface (mm)	Displacement of the interface x_i (mm)	x_i/t_i^n	Displacement derived from the model (mm)
0	16,05	0	/	0
6	15,45	0,6	0,529274	1,222436
43	15,45	0,6	0,461114	1,403132
899	14,25	1,8	1,118174	1,735877
2360	13,65	2,4	1,393501	1,857204
2840	13,65	2,4	1,375558	1,88143
3653	13,65	2,4	1,35153	1,914878
5161	13,65	2,4	1,319228	1,961765

Average	1,07834

Table C.47 Evolution with time of the displacement of the interface derived from the data and from the model x/t^n with $n = 0.28$ for the experiment 'Displacement of the interface wax/solvent - Without medium' - Experiment #2

Time (min)	Lower interface (mm)	Displacement of the interface x_i (mm)	x_i/t_i^n	Displacement derived from the model (mm)
0	16,05	0	/	0
6	15,45	0,6	0,363303	0,432433
43	15,45	0,6	0,209305	0,750599
899	14,25	1,8	0,268052	1,758286
2360	13,65	2,4	0,27277	2,303839
2840	13,65	2,4	0,258989	2,42642
3653	13,65	2,4	0,241362	2,603627
5161	13,65	2,4	0,219102	2,868153

Average	0,261841

C6.2 Displacement of the interface within Berea rocks

Tables C.48 to C.60 display the position of the lower interface along with its displacement over time for each experiment involving a porous medium within an uncertainty of ± 0.5 mm.

Table C.48 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the top - Without coating' - Experiment #3

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	28,35	0
1	27,6	0,75
3	26,7	1,65
4	25,2	3,15
6	24,6	3,75
11	23,4	4,95
14	24	4,35
24	24	4,35
35	23,4	4,95
43	23,4	4,95
59	22,8	5,55
78	22,8	5,55
103	21,6	6,75
122	20,4	7,95
143	19,2	9,15

Table C.49 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the top - Without coating' - Experiment #4

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	28,35	0
1	27,6	0,75
3	20,4	7,95
5	22,8	5,55
9	21	7,35
19	21	7,35
29	20,4	7,95
45	19,2	9,15
60	18,9	9,45

Table C.50 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the top - Without coating' - Experiment #5

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	27,75	0
1	27,6	0,15
3	27,6	0,15
7	23,4	4,35
9	24,6	3,15
14	24,6	3,15
23	24,6	3,15
37	24,6	3,15
50	24	3,75
76	23,4	4,35
113	23,4	4,35
147	23,4	4,35
206	22,8	4,95

Table C.51 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - Without coating' - Experiment #6

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	7,05	0
1	10,2	3,15
3	10,2	3,15
5	10,8	3,75
9	10,8	3,75

15	10,8	3,75
23	11,4	4,35
35	12	4,95
44	12,6	5,55
48	12,6	5,55
72	13,8	6,75
92	14,4	7,35
116	16,5	9,45
139	19,5	12,45
163	22,5	15,45
220	22,8	15,75

Table C.52 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - Without coating' - Experiment #7

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	10,05	0
2	12,6	2,55
3	13,2	3,15
6	13,8	3,75
10	14,1	4,05
19	14,4	4,35
34	15	4,95
58	16,2	6,15
91	16,8	6,75
138	18,6	8,55
196	19,8	9,75
262	20,1	10,05

Table C.53 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - Without coating' - Experiment #8

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	7,95	0
1	10,8	2,85
2	12	4,05
3	14,7	6,75
5	16,2	8,25
9	15,6	7,65
17	15,3	7,35
28	16,2	8,25

43	17,1	9,15
78	17,7	9,75
143	18	10,05
214	18,3	10,35
264	18,9	10,95

Table C.54 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection from the side - Without coating' - Experiment #9

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	26,55	0
1	24,6	1,95
2	24,6	1,95
7	24	2,55
25	23,4	3,15
56	22,8	3,75
99	21,6	4,95
164	21,6	4,95
215	21	5,55
252	21	5,55

Table C.55 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection from the side - Without coating' - Experiment #10

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	28,65	0
1	25,8	2,85
2	27	1,65
6	27	1,65
15	26,4	2,25
26	26,4	2,25
45	25,8	2,85
73	25,2	3,45
113	24,6	4,05
164	24	4,65
216	22,8	5,85
257	22,2	6,45
304	21	7,65

Table C.56 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the top - With coating' - Experiment #11

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	29,55	0
1	29,4	0,15
2	29,4	0,15
3	28,8	0,75
5	27,6	1,95
8	26,4	3,15
15	24,6	4,95
20	25,2	4,35
30	25,2	4,35
45	25,2	4,35
68	24,6	4,95
118	24	5,55
175	22,2	7,35
245	21,6	7,95

Table C.57 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the top - With coating' - Experiment #12

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	27,75	0
1	27,9	0,15
2	27,6	0,15
6	25,8	1,95
15	25,2	2,55
30	24	3,75
52	23,4	4,35
91	22,2	5,55
142	21	6,75
199	19,8	7,95
244	19,2	8,55

Table C.58 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - With coating' - Experiment #13

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	9,15	0
1	12,6	3,45

3	12,6	3,45
4	13,2	4,05
10	16,8	7,65
16	15,6	6,45
25	15,6	6,45
41	16,2	7,05
60	17,4	8,25
83	18	8,85
126	19,2	10,05
163	19,8	10,65
200	19,8	10,65
232	21,3	12,15
286	21,9	12,75

Table C.59 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection at the bottom - With coating' - Experiment #14

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	7,05	0
1	8,7	1,65
3	8,7	1,65
7	9	1,95
16	9,6	2,55
30	10,8	3,75
52	11,4	4,35
91	12,6	5,55
152	14,4	7,35
195	15	7,95
247	15	7,95
290	15,6	8,55

Table C.60 Evolution with time of the displacement of the interface derived from the data for the experiment 'Injection from the side - With coating' - Experiment #15

Time (min)	Lower interface (mm)	Displacement of the interface (mm)
0	27,75	0
1	27,9	0,15
2	25,8	1,95
3	25,8	1,95

4	25,8	1,95
8	25,8	1,95
19	25,8	1,95
35	25,2	2,55
79	24,6	3,15
140	24	3,75
207	23,4	4,35
274	22,8	4,95
325	22,8	4,95