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Netherlands Institute of Applied Geoscience TNO
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**Determination of mixing depth of
North Sea sediments by means of
geochemical and sedimentological
analyses:**

Datareport

Part I



NITG 99-196-B



Determination of the origin of
North Sea sediments by means of
geochemical and sedimentological
analyses:

Datareport

Part I

Rijkswaterstaat

Geologisch-technisch Instituut
Bioscience (Den Haag)

C-2988 632

Part I

TNO-report
NITG 99-196-B

**Determination of mixing depth of North Sea
sediments by means of geochemical and
sedimentological analyses.**

Data report

Rijkswaterstaat
Rijksinstituut voor Kust en Zee/RIKZ
Bibliotheek (Den Haag)

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Grainsize curves of all samples

Introduction

The concentration of metals (Cd, Cu, Zn and Pb) and organic compounds (PCBs and PAHs) in seabed sediments in the Dutch coastal zone is high in comparison with the central North Sea. Laane et al. (1998) have shown that the concentrations of a great number of substances have decreased between 1981 and 1996, and that the area in the coastal zone where high concentrations are found, has diminished. This decrease in concentrations is lagging behind the reduction in input fluxes of these components into the coastal zone from rivers, dumping of dredged material, the atmosphere and import from the south (Laane et al., 1998). The above mentioned metals and organic compounds are associated with the mud fraction of the sediments. Laane et al. (1998) conclude that the three main reasons for the decline in metal and organic micro-contaminant concentrations in the surface sediments of the Dutch coastal zone are: (1) the decrease in input from various sources, (2) sedimentation and mixing of less-polluted suspended matter into the active sediment layer and (3) the washing out of older, more contaminated particles. The exchange of mud between the sea bed and the overlying water column can be the driving mechanism for transport of contaminants in the sea bed in sandy parts of the coastal zone where no net accretion takes place (Laane, projectplan). There is no permanent sedimentation of mud in the coastal zone. The sea bed sediments in this area contain an average mud content of 2 per cent (NB mud fraction < 63 μm).

Waves, tides and the migration of bedforms (e.g. sand waves or dunes) are continuously reworking the sea-bed sediments in the coastal zone. This is enhanced by the activity of burrowing organisms in and on the sea bed. The sum of these processes causes reworking, mixing or erosion of the sea-bed sediments, which results in replacement, dilution or removal of the contaminated mud deposits. Burial of the contaminated mud deposits is also possible in areas where net deposition occurs.

The depth of disturbance of the sea bed by the above mentioned mechanisms, is not known. The thickness of the zone of possible sediment disturbance (further referred to as 'mixing depth') is an important input figure for the modelling of the behaviour of contaminated mud. The latter is an important tool for producing scenarios on the effects of management decisions. The aim of this study is

to evaluate which physical or biological process(es) can explain the assumed 'mixing' of the sea-bed sediments, and to which depth this 'mixing' occurs.

Material and Methods

- sample locations

The area of interest is the Dutch “offshore” zone between the mouth of the Westerschelde and Den Helder (fig.) and between the low water line and 70 km offshore. In addition, the Oyster Grounds, north of the Wadden Sea, are subject of this study as well. Here, a continuous deposition of (very) fine-grained sand with a high mud content occurs. This might offer an independent reference situation against which the developments in the coastal zone can be compared. The morphology of the sea bed comprises (1) sand wave fields south of 53°North, (2) a more or less gently undulating sea bed north of this area and (3) the shoreface between the 20m depth contour and the low water line. All these environments are sampled for this study.

Locations were selected on the basis of the following criteria:

1. Distance from the coast. Samples were taken in the coastal zone, at locations 20 km from the shore and at locations 60-70 km from the shore.
2. Source of pollution. Samples were taken in the area under the influence of the rivers Scheldt and Rhine, under the influence of Channel waters and of water masses from the Central North Sea, possibly carrying a pollution load from the exploration and production platforms in that area.
3. Sedimentological environment. In the sand-wave field south of 53° N, samples were taken in the throughs between the sand waves, or on the lee sides of the waves, where a relatively continuous sedimentation by foresetting is expected.
4. Finally, samples were taken in the Oyster Grounds area, where continuous sedimentation of fine sand with a high mud content presumably occurs (Behre, 1984).

In total 12 sample locations were selected, both in- and offshore, between 51°30' N and 54°30' N, see Table 1 and fig. .-The sample locations cover the earlier mentioned sedimentary environments (inshore coastal zone, shallow shelf and deeper shelf). The cores were collected in October 1998. On each location, a vibrocore was collected. Box cores were planned as well for each location, in order to collect samples of the undisturbed uppermost surface of the sea bed. However, due to rough weather conditions, box cores could only be collected at 6 out of 12 locations; see Table 1.

nr.	UTM X	UTM Y	water depth	length of core	distance to coast	characteristics of the area	remark
98DW412	581.750	5.775.000	17.5 m	4.8 m	5 km	foreshore, north of outlet Rhine	
98BC413	581.750	5.775.000	17.5 m				boxcore
98DW408	503.500	5.707.000	28.1 m	3.15 m	35 km	south of outlet Scheldt, trough between sand banks	
98BC409	503.500	5.707.000	28.1 m				boxcore
98DW406	528.750	5.735.000	29.5 m	3.0 m	20 km	north of outlet Scheldt, trough between sand banks	
98BC407	528.750	5.735.000	29.5 m				boxcore
98DW410	483.250	5.752.500	40.2 m	5.3 m	62.5 km	north slope sand bank	
98BC411	483.250	5.752.500	40.2 m				boxcore
98DW414	525.500	5.778.625	33.2 m	4.3 m	45 km	seafloor west of foreshore, sand waves > 6m	'spare'
98DW415	515.500	5.805.750	39.0 m	4.8 m	75 km	trough, west of Brown bank	
98BC416	515.500	5.805.750	39.0 m				boxcore
98DW417	594.250	5.850.000	23.7 m	2.6 m	17 km	between sand banks	
98BC418	594.250	5.850.000	23.7 m				boxcore
98DW419	582.500	5.872.750	35.0 m	4.2 m	33 km	trough between sand banks	'spare'
98DW420	550.000	5.880.000	27.0 m	4.9 m	68 km	trough between sand banks	
98DW421	600.000	5.975.000	43.1 m	3.9 m	75 km	Oyster Grounds	
98DW422	600.000	6.013.750	48.6 m	3.8 m	120 km	Oyster Grounds	
98DW423	586.000	6.042.000	50.2 m	3.5 m	140 km	Oyster Grounds	

Table 1. Locations of cores and characteristics of the sample area.

- cores

The vibrocorer that was used has a barrel length of 6 m. Undisturbed cores with a maximum length of c. 5.5 m can be obtained. The longest core collected during this study has a length of 5.3 m. The vibrocores were cut in pieces with a maximum length of 1.0 m. The box cores were subsampled with PVC tubes with a diameter of 0.07m. All cores were split in the laboratory, after which lacquer peels were made in order to study sedimentary structures

Vibrocores and box cores were collected in order to study lithology and sedimentary structures. In this study, the geochemical characteristics of the sediments will be related to the sedimentological processes. Firstly, the collected cores were analysed sedimentologically. On the basis of lithology and sedimentary structures, the physical and biological processes acting on the sea bed in the different environments are reconstructed. Subsequently, the continuity of deposition was established by indicating units probably deposited during one event or by one kind of process. After that, a geochemical sampling scheme that would represent the chemical depth profile was designed. These samples were analysed on grain size distribution and chemical composition. The lead isotopes $Pb^{206}/^{207}$ are used to get an impression of anthropogenic sources to the sediment. As the geochemical composition is discussed in relation to the probable mineralogical characteristics of the sediment, analysis will be based on total destruction of the sediment. Grain size distribution is related to the geochemical characteristics of the sediment, such that the relation of the different constituents, including the heavy metals, with the mud and/or clay content can be established.

Chemical Analysis

- Justification of methods

In order to establish the depth and time of contamination in each core all samples were analysed on several parameters. The cores were sampled according to the results of the sedimentological and lithological description. Samples were taken at cm scale over the first event, at second events and not recent sediment (Tertiary or Pleistocene deposits) only a few samples were taken. Deeper samples were taken to determine background concentrations.

From each sample the chemical composition (major and trace elements) was analysed with XRF. Major element concentrations reflect changes in mineralogy and therefore can support facies changes as described by the sedimentological study. For this reason also grain size determinations were performed. In addition, a change from sandy sediment to more clay-rich sediment with associated increase in metals can easily be recognised. Also, it makes it possible to compare the independent cores with each other by their clay (Al_2O_3), carbonate (CaCO_3) and sand (SiO_2) content.

The analyses of metals in the deeper samples allows determination of the background relationship of metals with Al_2O_3 . This relationship is based upon the fact that clay minerals are the main host of trace elements like Pb, Cu and Zn in coastal and fluvial sediments disregarding sulfides (Huisman et al., 1996). Although in this study no other relationships between trace metals and Al_2O_3 are expected than as established before in Dutch subsurface by Huisman et al (1996) and North Sea sediments by Gieske et al. (1999) local differences and other provenance of the sediment could cause some variation. Furthermore, the abundance of clay minerals in the sediment determines the sorption capacity for polluting elements. The relationship of polluting elements like Pb and Zn are thus also related to the clay content of the sediment. By subtracting the calculated background concentration from the measured concentration of a polluting element the anthropogenic contribution from that element can be calculated. This can then be used to assess the pollution in the investigated area.

Other elements investigated are the Rare Earth Elements (REE). These elements form a homologue group of elements exhibiting similar chemical behaviour, gradually changing with atom number. Light REE (La- to Eu) are more abundant in the crust with respect to primitive mantle rocks than are the heavy REE (Gd-Yb). Yttrium is often considered a Rare Earth element and is placed between Tm and Yb. Anomalies can occur for Ce and Eu with respect to the other REE's. Ce occurs not only in the trivalent state but can oxidise to Ce(IV) under normal oxic conditions. The main Ce(IV) species found is CeO_2 . Ce is closely involved in the iron cycle and can preferentially be adsorbed to iron hydroxides. Eu can also be found in a divalent state, but only under conditions found in the mantle. Under these conditions Eu replaces Ca in feldspars, resulting in positive Eu anomalies when normalised with the composition of the primitive mantle (chondrite). Weathering of feldspars can therefore result in a positive Eu anomaly in associated (pore)water.

As a result from the different abundances from REE's in different rocks, REE's can be used as a proxy for sediment provenance. In addition, several anthropogenic sources like potash, oil and coal, and heavy drilling liquids have distinct REE patterns and concentrations which, in theory, could easily be distinguished from the natural background pattern. Therefore, we think that the use of REE's normalized abundance patterns can give insight in the different sources and quantities of pollution and natural sources in the North Sea.

Another tool applied in this investigation is the use of stable lead isotopes. These, in combination with concentration data for Pb and other pollutants, have been demonstrated to be an efficient method of differentiating natural from anthropogenic Pb and to suggest sources for anthropogenic Pb. In general, there is a difference between the Pb isotopic composition of natural Pb in sediments and the Pb isotopic composition of industrial Pb obtained from massive ore deposits. An abrupt change within the historic record in sediments from one set of natural stable Pb isotopic ratios to a different set usually coincides with appearance of increased Pb concentrations in upper parts. This allows identification of the transition from natural to industrial Pb inputs to systems (Shirahita et al., 1980). Recent Pb isotopic studies have shown that activities such as mining and melting of Pb and other metal ores (Öhlander et al., 1993; Graney et al., 1995; Gulson et al., 1995) and alkyl-leaded petrol combustion (Nriagu, 1979; Sturges and Barrie, 1987; Fachetti, 1989; Puchelt et al., 1993) have introduced large amounts of Pb into the environment. Pb sources for the North Sea are derived from suspended matter from the several surrounding rivers and atmospheric derived. Since the concentrations of Pb in suspended matter in river water (Van der Weijden and Middelburg, 1989) were very high in the past (up to 1500 ppm) and still show elevated concentrations (RIZA database) the main input of Pb is thought to be river sediment. Atmospheric input of Pb has diminished considerably the last 10 years, as it is no longer added as anti-knock agent to petrol.

-Analytical methods

- Grainsize determinations

Firstly samples were sieved over a 2 mm sieve. After that, grainsize determinations were performed with a Malvern χ mastersizer. This technique is based on the correlation of the diffraction angle of a

laser beam with grainsize. Approximately 5 grams of sample is put in an ultrasonic bath, which is connected with a measuring cell in front of the laser. The suspension is cycled through the measuring cell and the ultrasonic bath for 5 minutes. The light scattered by the particles and the unscattered remainder fall upon the range lens. This operates as a Fourier transform lens forming a far field diffraction pattern of the scattered light at its focal plane. At the focal plane a detector divided in 31 concentric annular sectors gather the scattered light over a range of scattering angles after which a grainsize distribution is calculated according to Fraunhofer-theory.

Due to the nature of the samples it was not necessary to pretreat the samples in order to remove carbonate and humic matter.

- XRF

For XRF-analyses, a 10-g subsample was ground and subsequently pressed with wax into pressed-powder tablets. The samples were ground using a Tungsten-carbide mill in an automated grinding- and pressing machine (Herzog HSM-HTP)

The tablets were analysed for major and trace elements by X-ray spectroscopy, using an ARL8410 spectrometer with a Rh tube, with full matrix correction for major elements (SiO₂, TiO₂, Al₂O₃, Fe₂O₃, MnO, MgO, CaO, Na₂O, K₂O, P₂O₅, S) and Compton scatter method for trace elements (As, Co, Cr, Cu, Ni, Pb, V, Zn, Ba, Ga, Nb, Rb, Sr, Y, Zr). The XRF was calibrated using approximately 100 certified geological reference samples. Three reference samples are added to each batch of 50 samples to determine precision (0.5-1 % relative standard deviation) and accuracy (1-5 % relative standard deviation).

- ICP-MS analyses

Subsamples of 0.100 g to 0.250 g were weighed into TFM vessels and 4 ml 16 M HNO₃, 2 ml 29 M HF and 2 ml 12 M HClO₄ was added. The samples were placed in a 'Milestone' closed microwave system and heated for 55 min. at a maximum temperature of 240°C and 110 bar. The vessels were cooled in a water bath. Solutions were inspected visually and evaporated until incipient dryness on a hotplate. This procedure was repeated until the samples were completely dissolved. For consistency however, each sample was processed through the microwave program (Walraven, 1996) two times. Final solutions were made up to 50 ml with 4.5 % HNO₃ and were stored in ultra-clean HDPE flasks. Before measurement the samples were diluted 5 times. As a result the final dilution was 1000X.

Samples were measured with a Fisons instruments Plasmaquad 2 enhanced interface (now VG). About 60 masses were selected and measured in peak jump mode during 4 runs of 1 minute. As, Cr, In, Sm, Eu and Pb were corrected for isobaric interference's or abundance variation. Calibration took place by external calibration lines derived by measuring a blank and three standards (low, medium and high) and a point to point calibration strategy was adopted. Drift was corrected for by using internal standards at 25 ppb (^{45}Sc and ^{115}In) which were added automatically. In addition, after every 6 samples a drift standard was measured to monitor changes in individual masses. A correction was made based on linear extrapolation between two drift standards.

- Lead isotopes

The purpose of this study was to investigate how deep anthropogenic components like Pb could be found in the sediment. Therefore a procedure was adapted from Graney et al. (1995) for extracting anthropogenic Pb. It is possible by using a dilute acid leach to extract anthropogenic Pb components from total Pb. The dilute acid leach will solubilise Pb sorbed to ironhydroxides, clay minerals and organic matter and leave behind residual Pb within the structure of silicate minerals. By adapting this method and comparing the results of the acid leach with total concentrations also an independent estimation of anthropogenic Pb could be made for the various types of sediments. The yield of the extraction was compared with the anthropogenic Pb content derived by subtracting the background value as determined from the Al_2O_3 -Pb relation. Not only anthropogenic Pb is leached by this procedure (Graney et al. 1995). They reported that the isotopic ratio's of the silicate minerals are significantly different from those found by acid leach. By measuring the leachates of uncontaminated pre-industrial sediment, the natural background component can be determined. However, it must be demonstrated that the samples from which the background is measured is homogeneous, i.e. has the same lithology as the contaminated sample. The mathematical formulation for calculation of the isotopic composition of anthropogenic is as follows (Shirahata et al., 1980):

$$\frac{{}^{206}\text{Pb}}{{}^{207}\text{Pb}}_{\text{anthropogenic}} = \frac{\left[\left(\frac{{}^{206}\text{Pb}}{{}^{207}\text{Pb}} \right)_{\text{TL}} \cdot (\text{ppm Pb}_{\text{TL}}) - \left(\frac{{}^{206}\text{Pb}}{{}^{207}\text{Pb}} \right)_{\text{BC}} \cdot (\text{ppm Pb}_{\text{BC}}) \right]}{(\text{ppm Pb}_{\text{TL}} - \text{ppm Pb}_{\text{BC}})} \text{ where TL=total leach}$$

and BC = background component.

Dissolution of the samples took place by placing 100-250 mg of sample in 50 ml polypropylene centrifuge tubes and about 25 ml of 1N HNO₃ was added. The acid used is dual sub-boiled in house using a Teflon still. The tubes were placed in an ultrasonic bath for 90 minutes whereby the temperature of the acid reached 45-50 °C. The tubes and contents were allowed to cool overnight and then centrifuged at 3500 rpm for 15 minutes the following day using an Heraeus Megafuge 1.0.

Lead isotopes used for this study are ²⁰⁴Pb, ²⁰⁶Pb, ²⁰⁷Pb and ²⁰⁸Pb. ²⁰⁴Pb is non-radiogenic and ²⁰⁶Pb, ²⁰⁷Pb and ²⁰⁸Pb are formed by the radioactive decay of ²³⁸U, ²³⁵U and ²³²Th respectively. The Pb isotopic ratio used in this study is ²⁰⁶Pb/as this ratio is most prone to changes in lead isotopic composition due to variation in anthropogenic sources.

Lead isotopes were measured with a VG Plasmaquad PQ 2+ ICP-MS. Prior to being introduced into the mass spectrometer, the solutions were diluted with 4.5% HNO₃ to a concentration of ± 50 ppb Pb, to diminish mass bias in relation to concentration differences. Data were taken in the peak-jumping mode with three data points acquired across each peak at masses m/z 201, 204, 206, 207, 208. The dwell time for masses 204, 206, 207 and 208 was 50, 20, 20, 20 ms/channel, respectively. This was done to obtain comparable precision for the four Pb isotopes. Ten runs were measured for each sample. For mass bias correction NBS 981 standard was run after each batch of 6 samples. All isotopic ratios used in this study were determined with a precision of 2σ <1%. Blanks of the reagents used were also measured with ICP-MS and appeared to contain negligible amounts of Pb (<20 ppt).

- Organic carbon, calcite and sulfur

Organic carbon and sulfur were measured with a Ströhlein CS-mat 5500. First total carbon was analysed by total combustion of 0.1 gram of sample at 1350 °C while detecting the evading CO₂ and SO₂ by means of an infra red-detector. The amount of CO₂ and SO₂ is calibrated against a pure calcite standard and pure Ag₂SO₄ (Merck®) respectively. Relative standard deviations are less than 5%.

Organic carbon is calculated by subtracting calcite carbon (Ccarb) from total carbon (Ctot). Calcite analyses were calculated from XRF measurements assuming all CaO measured with XRF was present as CaCO₃.

Results

-Sedimentological results

On the basis of the structures found on the lacquer profiles, which represent the relevant physical conditions during and biological activity after deposition, the cores can be arranged in four groups (see fig. 1). A sedimentological interpretation of each core can be found in appendix 1. All grainsize results can be found in the data appendix.

1. **Cross-bedded sands:** Four cores have been collected in southern part of the central Southern Bight (fig. 1; cores 410, 414, 415, 420) where extensive sand-wave fields occur. The sediment mainly consists of sand with shells and shell fragments. Smaller amounts of gravel, pebbles and fossil shell and shell fragments are found as well. The cross bedding is formed by foresetting during migration of the sand waves and the superposed megarippels. These deposits consist of medium- to coarse-grained sand (median grainsize 250-600 μm), with less than 3% mud (on average even less than 1%).
2. **Muddy sand:** In three cores, collected at more inshore positions near Walcheren, North-Holland and the island of Texel (fig. 1; cores 408, 417, 419), a layer of muddy sand with shell remains is found at the top. The mud seems to be well-mixed with the sand. This is probably caused by partial or complete bioturbation which will have obliterated the sedimentary structures. The muddy sands are overlying deposits that range greatly in age and composition. These are medium-grained sands (median grainsize about 250 μm), with a mud content that ranges from about 2% (core 417) to 5% and more (core 408). The mud usually is distributed evenly throughout the sediment.
3. **Coarse-grained sand with shells:** Two cores from the inshore zone contain coarse-grained sand with shells at their tops (fig. 1; cores 406, 412). The sand probably has been cross-bedded initially. However, these structures were (partially) removed by burrowing organisms. This group has a median grainsize of 460 to 620 μm and less than 1% mud.
4. **Oyster Grounds:** The upper meters of three cores collected at the Oyster Grounds (fig. ; cores 421, 422, 423) consist of dark-brown, muddy, very fine-grained sand with a characteristic mollusc fauna (e.g. *Turritella spec.*) These sediments were formed under low-energy conditions. **Oyster Grounds:** The upper meter of the sea bed in the Oyster Grounds consists of fine- to very fine-grained sands with a high mud content. The median grainsize decreases from south (core 421) to

north (core 423) from c. 150 μm to c. 100 μm , whereas the mud content increases from 20% and more to 25% and more.

Mud occurs either as mud pebbles, produced by the erosion of older clay layers, or more or less homogeneously mixed with the sand as a consequence of bioturbation and reworking.

- Signal of contaminants in the four areas

In general, all samples from the first events show anthropogenic influences. When Al_2O_3 is plotted against Pb, almost all samples fall above the Dutch subsurface background (figure 2).

For the four different areas that have been distinguished on the basis of the sedimentology of the cores (see above), different signals of contaminants are expected:

1. **Cross-bedded sand:** The seabed in the sand-wave area probably is too dynamic to record long-term changes in contamination. Moreover, this area is out of reach of the inshore coastal water that contains the main part of the contaminants. Therefore, a significant trend in contaminant concentrations might be absent.
2. **Muddy sand:** The cores that contain “muddy sand” at their tops were all collected inshore. Therefore, the decreasing contamination is likely to be registered in these sediments.
3. **Coarse-grained sand with shells:** This area is also situated inshore, and can possibly show the decrease in contamination.
4. **Oyster Grounds:** For this area a continuous sedimentation is assumed. Therefore, any change in contamination is likely to be recorded in the sediment sequence. This signal can be obscured by reworking or bioturbation.

From each group all cores are plotted from all elements (data appendix). The results of the chemical analyses can be summarized as follows:

1. **Cross-bedded sand:** These cores show a uniform rate of contamination in the upper part that can be described as one ‘event’ (NB the rate of contamination is not identical for all cores). The boundaries of such an event usually correspond with those distinguished on the basis of sedimentological characteristics. The depth of the first events were determined at approximately between 20 and 40 cm (Table xx follows). The sediments underlying these ‘event’ deposits show

not contaminated at all. One of the cores (415) shows hardly any contamination at all (figure xx). This can also be seen in the Pb against Al_2O_3 plot. Almost all samples from this group fall along the established background line and show almost no trend with depth (figure zzv). In addition, concentrations of Pb are never higher than 10 ppm Gieske and others (1999) found that if concentrations were lower than 10 ppm in bulk samples no significant contribution of anthropogenic lead could be confirmed.

2. **Muddy sand:** These cores show an 'event'-like distribution as described above. However, in two cores (408, 419), two 'events' with different metal concentrations (the highest on top!) are overlying sediments with background level concentrations. Remarkably, boxcore 418 is the only core where the concentration gradually decreases with depth in the upper event. The depth of the first events varies between 17 and 65 cm. In the muddy sands the cores nearest to the coast show the highest enrichments (cores 98bc409, 98dw408). These cores are almost 4 times contaminated with Pb, compared to the Pb background value with similar Al_2O_3 content (Figure (xxc)). The other cores, more offshore show less or no enrichment et all.
3. **Coarse-grained sand with shells:** The metal profiles of these cores also show intervals with a high concentration overlying sediments with background concentrations. Changes in sedimentological characteristics do not always correspond with changes in metal concentrations. When Pb is plotted against Al_2O_3 it can be clearly seen that the near coastal core 98bc413 shows the highest anthropogenic influence (figure zxxb). No relation with depth is found except for the first sample in this core which has the highest Pb value. Due to the low Al_2O_3 content of this sample, it is almost 20 times enriched compared with background. The other cores (406, 412 and 407) are all enriched in the first event and also contain more clay minerals than the uncontaminated deeper samples (figure xxd)
4. **Oyster Grounds:** The cores from the Oyster Grounds do not show 'event'-like phases in the metal concentrations. A gradual decrease in concentration with depth is found instead. Although a continuous sedimentation is assumed, there is no maximum followed by an upward decline in contamination found in the cores from this area. If a decline in contamination occurred, it has probably been obscured by bioturbation that will result in mixing of different mud generations. Besides, the fine-grained sediment that settles in the Oyster Grounds is probably derived from other sources than the rivers Rhine and Meuse and the dumping sites that influence the Dutch

coastal zone. Consequently, the observed decline in contamination is not likely to be found here. Sedimentation rates in the Oyster Grounds are small. Maximum sedimentation rates published in literature (are ranging from 0.5 (Zuo et al.,) to 1 cm per year (Behre)1. Recent estimates (Gieske et al., 1999) are a little lower: 0.4 cm/a as a maximum estimate excluding bioturbation. As can be seen from the Al_2O_3 against Pb diagram, clay contents are distinctly different between the cores but are remarkably constant in each core. The most southern core, dw421 has the lowest Al_2O_3 content whereas the most northern core (dw423) has the highest. This suggests that the sources of the sediment remained constant in time and has not changed significantly with increased pollution. In other words, pollution is added to the oyster grounds via the same mechanism bringing uncontaminated sediment to the oyster grounds. Core 421 shows the highest degree of pollution when compared to the background, almost 4 times in the upper samples. Core 423 shows a pollution factor compared to the background from a factor 2, core 422 having intermediate values. This is not only an effect of the increasing clay content, but also from the increase in heavy metal content.

In general it can be concluded that the observed decrease in metal and contaminant concentrations is not recorded in the sediments studied here. Instead, intervals with more or less constant concentrations, referred to as 'events', are found. This suggests frequent reworking of the sea bed followed by sedimentation which records the most recent situation.

-Sediment sources

From the patterns of the REE elements the cores can be divided into 4 groups. Group 1 are the oyster grounds which show very distinct and similar REE profiles when normalized with the average of all samples. As expected from their high clay content and thus low feldspar content with respect to the other samples, these profiles show a negative Eu anomaly and enhanced levels of heavy rare earth elements (Gd to Lu). The enhanced levels of HREE can be explained by the high Zr concentration indication that the mineral zircon is abundantly present. Zircon contains REE elements and is especially enriched in HREE. (Klaver and van Weering, 1993)

Group 2 consist of two cores from the same location 98BC407 and 98DW406. These cores are taken just to the north of the Westerschelde. The normalized profiles of these cores (figure xxn) shows

enrichment of the LREE (La to Eu), no Eu anomaly, and gradually decreasing contents of the HREE. This can be explained by the low heavy mineral (low zircon) content of the Scheldt, compared to normal North Sea sediments.

Group 3 contains all the cores having flat profiles with a negative Eu anomaly (cores 409 and 408 and 413 and 412). These samples contain more clay minerals than feldspars compared with the other samples. In addition these near coastal cores are the most polluted with heavy metals. No change however is observed with depth in these REE-profiles (figer xxn) suggesting that the source clay minerals has not changed in time.

Finally, group4 shows flat REE profiles with a positive Eu anomaly. This is explained by higher feldspar that clay content compared with the other samples. These cores are all consisting of coarse sand (crossed bedded and coarse sand with shells), contain almost no mud and are the less polluted (figure xx1).

Discussion

Sediment reworking mechanisms

- Hypotheses on sediment reworking

The observed decrease in concentrations of metals and organic compounds can be caused by the following mechanisms operating on the contaminated mud deposits:

- net removal of contaminated mud,
- mixing of contaminated mud with new, clean or less-contaminated mud,
- replacement of contaminated mud by new, clean or less-contaminated mud,
- net sedimentation of new, clean or less- contaminated mud, and
- burial of the contaminated mud deposits.

- Mixing and erosion

The following processes can be responsible for this:

1. Reworking of the sea bed by migrating bedforms, during which contaminated mud layers are eroded. Erosion of mud deposits can result in either resuspension of the mud (mostly non- to slightly-consolidated mud deposits) in which case it will be mixed with the suspended, less-contaminated mud in the water column, or breaking up into mud clasts (slightly- to well-consolidated mud deposits) that will be transported as bed load. During the latter event, most of the contaminated mud will remain part of the sea-bed sediments and the concentrations of contaminants will not decrease. Mud deposits formed during stillstand of the bedform migration (and that might be incorporated into the bedform later on) will predominantly consist of fresh mud, which results in a net decrease in overall contamination.
2. Net erosion followed by advection of the mud results in a net decrease in rate of contamination. This pertains mostly to resuspension.

3. Bioturbation by organisms living in and on the sea bed. This activity results in slight to complete mixing of the upper decimeters of the sea bed. Since a significant part of the organisms living in the sea bed uses the mud deposits (or better, the nutrients absorbed to the mud particles and flocs) as food, contaminants can accumulate in their body tissues. When these organisms are eaten by predators that do not live in or on the sea bed, a net removal of contaminating substances takes place (relevant percentage?).

- Sedimentation

Mud will settle from suspension if the local energy conditions are sufficiently calm. In addition, the length of the time interval of calm conditions determines the strength of the mud deposit: the strength increases with time, which will hamper erosion. In the inshore zone, suspended mud is supplied by the rivers Rhine and Meuse and by dumping of dredged material (Laane et al., 1998). Deposition will be controlled by the on-site energy conditions. Further offshore, mud concentrations are lower.

The processes that will cause reworking, erosion or mixing of the sediment do not occur evenly distributed over the North Sea bed. The occurrence of a specific mechanism depends on the sea-bed composition and the physical processes at a site. The North Sea can be subdivided in the following areas (fig.):

1. The **inshore coastal zone**; This zone mainly consists of the shoreface and is dominated by wave activity. Therefore, only relatively small amounts of mud will settle. In the deeper part of the shoreface, below the zone of predominant wave activity, tidal action, (up-slope directed) density currents and occasional storm activity will determine the depositional conditions. The deposition of mud in this zone is predominantly seasonal: during the quiet summer period mud deposits will form that will be removed by storms during the fall and winter. For this study, the inshore coastal zone has been subdivided in an area south of the outlet of the rivers Rhine and Meuse, where the influence of the suspended load of these rivers will be small, and an area north of the outlet that will be dominated by the input of fluvial suspension.
2. The **shallow shelf** (south of 53° N); In this area extensive sand wave fields are found. These sand waves oscillate or migrate only very slowly (few m per year), but smaller-scale megaripples or dunes are migrating over these sand waves with a greater velocity. These megaripples will cause a

significant amount of sediment transport. Both sand waves and megaripples predominantly consist of medium- to coarse-grained sand with large amounts of shell fragments and gravel/pebbles. Mud mainly occurs as clasts that were produced by the erosion of (consolidated) mud layers. The sorting of the deposits is considerably less in the troughs between the sand waves and megaripples. Here, conditions can be sufficiently calm to allow for mud deposition. During (severe) storms, waves can touch the seabed and stir up the sediment. With the waning of the storm, the entrained sediment will settle again, the heavy, coarse grains first, thus creating a graded deposit. Mud will remain in suspension until conditions are sufficiently quiet again and might be transported by currents to other areas.

3. The **deeper shelf** (north of the Wadden Islands, north of 53°30' N). In this area, water depths are 30m and more. The sea bed is hardly ever agitated by storm waves. Tidal currents will be weak. Fine-grained sediments will settle here. Physical processes will play only a minor role in sediment reworking; bioturbation will be dominant.

Events: mixing or segregation?

The following topics should be discussed:

What is recorded during an 'event'? During an 'event' the contamination rate of that moment is recorded in the deposit. This rate will represent an average over a longer period since deposits that were formed over a long interval will be disturbed by the event.

Seasonal effects: abundant mud deposition and bioturbation occurs during summer, followed by large-scale erosion and hardly any biological activity during fall and winter. This might explain the observed 'event'-like sedimentation.

In some cores that were collected 70 km offshore anthropogenic influences are recorded; this signal is lacking in other cores from this area. Is this caused by net erosion?

The degree of contamination with heavy metals shows a typical pattern: the highest rate of contamination is found in the southern inshore zone (cores 406, 408, 412; see fig.), close to the outlet of the rivers Rhine and Meuse and the dumping site "Loswal Noord". In the sandwave area (cores 410, 414, 415 and 420) and the northern part of the coastal zone (cores 417, 419) the contamination is much less. The same holds for the contamination rate of the cores from the Oyster Grounds. However, in these cores this trend is obscured by the relatively high mud content of the sediments. This illustrates

once more the well-known fact that the polluted freshwater from the rivers moves northward in a relatively small zone just offshore (the so-called "coastal river"; refs.). The relatively strongly contaminated mud that is suspended in this coastal water is probably transported into the Wadden Sea, since the rate of contamination of the sea-bed sediments north of the Wadden Islands does not bear the contamination characteristics of Rhine sediments (Gieske et al., 1999). The contamination in areas further offshore is much less and originates from different sources (o.a. atmosphere, different circulation patterns).

6. Conclusion

- Within one sedimentological event the rate of contamination of the sediment does not change, with the exception of the cores 418 ('muddy sand') and 421 to 423 (Oyster Grounds) that show a decline of contaminants with depth. Bioturbation is likely to obscure any trend in cores from the latter area.
- The time scale of the sedimentological events is very short when compared with that of the decrease in concentrations of metals and microcontaminants. This makes the recording of this decrease within these sediments very unlikely. Sediments deposited by different events spanning a large interval might show a (stepwise?) decline in contamination.
- The cores from the four areas that were distinguished in study show typical patterns of contaminant concentrations. The sediments in the cores from the 'muddy sand' and 'coarse-grained sand with shells' areas reflect high-energy events that record the chemical situation at the moment of occurrence of the event. The migration of sand waves and megaripples results in cross-bedded sands with a homogeneous contamination rate. The regular sedimentation and bioturbation in the Oyster Grounds results in typical profiles that show decreasing rates with depth.

8. References

not completed yet.

(Behre), 15

(Huisman et al., 1996), 6

(Laane et al., 1998), 1

(Laane, projectplan), 1

(Walraven, 1996), 9

(Zuo er al.,), 15

Fachetti, 1989, 7

Gieske and others (1999), 14

Gieske et al. (1999), 6

Gieske et al., 1999, 15

Graney et al. (1995), 9

Graney et al., 1995, 7

Gulson et al., 1995, 7

Klaver and van Weering, 1993, 15

Laane et al. (1998), 1

Laane et al., 1998, 18

Nriagu, 1979, 7

Öhlander et al., 1993, 7

Puchelt er al., 1993, 7

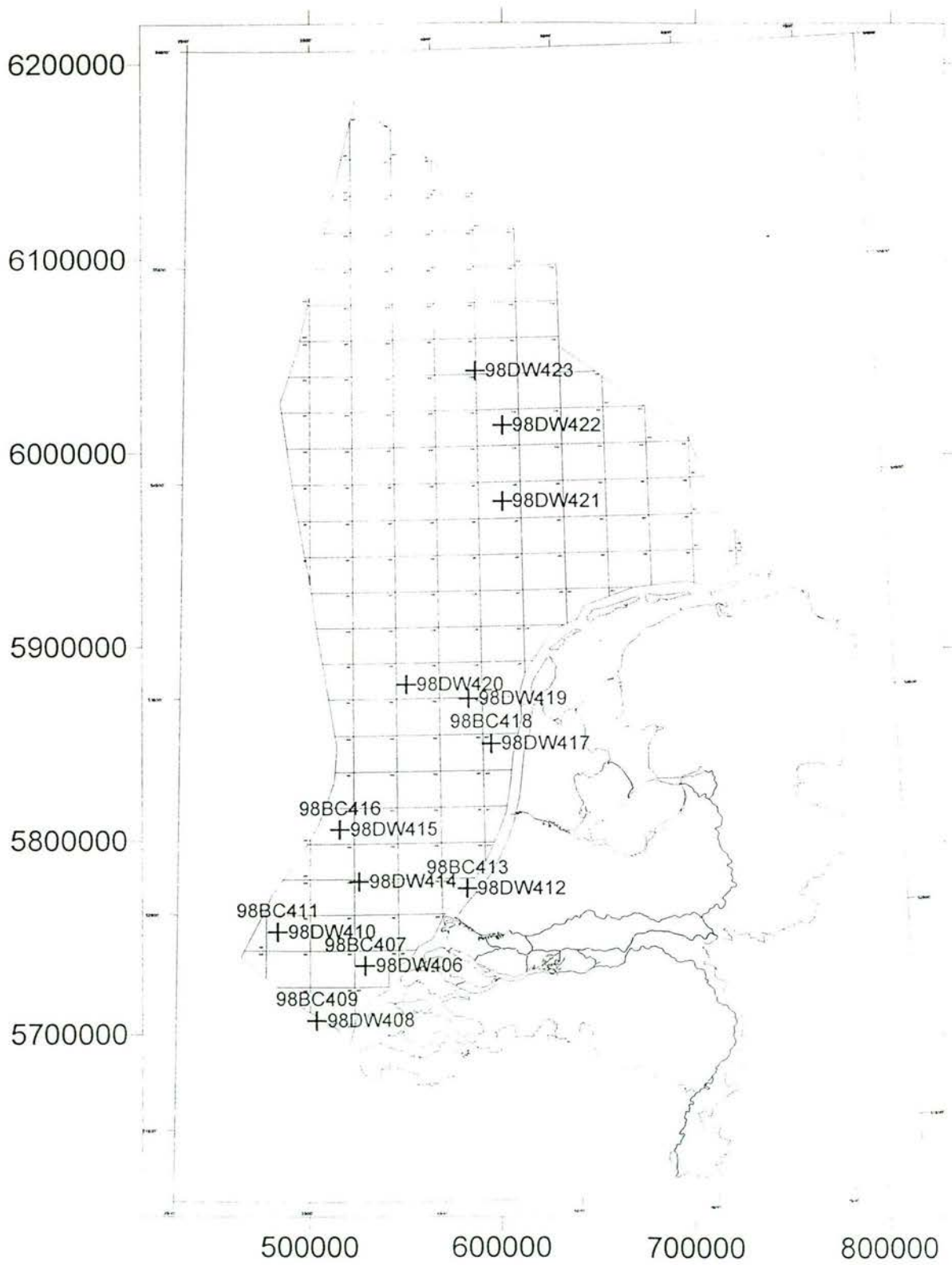
Shirahata et al., 1980, 10

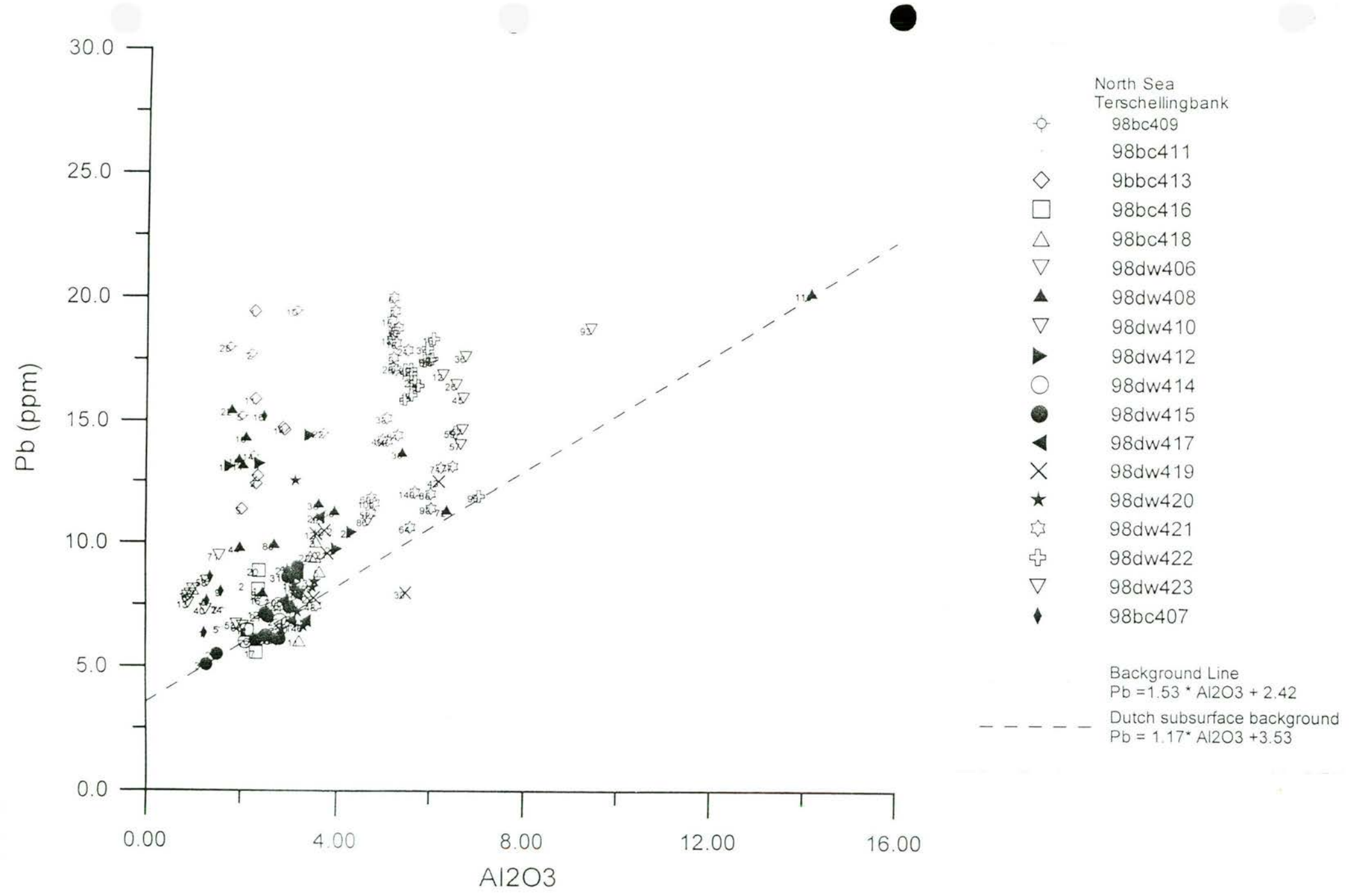
Shirahita et al., 1980, 7

Sturges and Barrie, 1987, 7

the so-called "coastal river"; refs., 20

Van der Weijden and Middelburg, 1989, 7





Appendix 1: Sedimentological description of the cores

These core descriptions are based on both the cores and lacquer peels. The description of sedimentary structures is sometimes uncertain as a consequence of the low quality of the lacquer peels. The descriptions were refined using photos. The macroscopic information was cross-checked against the chemical analyses and grainsize analyses.

The Holocene parts of the sequences are described in detail, the Pleistocene parts are described more generally.

The following issues are described:

- sedimentary structures
- grainsize and colour of the sediment
- organic components (e.g., shells, roots)

Besides, for every core the following subjects are indicated:

- geomorphological situation
- a stratigraphic interpretation (sometimes preliminary, marked by “?” preceding the formation name)
- a phasing in the sedimentation, based on changes in lithology, texture, structures, etc.

On the basis of the sedimentological descriptions, the cores have been arranged into four groups:

1. cross-bedded sand (in top of core 2% or less mud)
2. muddy sand (2-10% mud in top of core)
3. coarse-grained sand with shells (in top of core 2% or less mud)
4. Oyster Grounds (in top of core over 20% mud)

NB; All depths are in cm's below the top of the core.

Core 98DW406

("Coarse-grained sand with shells")

- Location: trough between SE-NW running sand banks; north of mouth of Westerschelde

- Core description

0-85 yellowish brown-grey, medium- to coarse-grained sand with shells, shell hash and clay pebbles (lower part); cross-bedded (?)

33-41, 52-58, 64-71: shell-rich layers, shells orientated on/in foresets

76-85: shell lag

85-110 brown-grey, clay-rich, medium-grained sand with shell hash; slightly lighter in colour than overlying layer;

85-100: clay in thin layers or clay pebbles

100-110: clay in thick layers

110-181 beige/brown-grey, cross-bedded sand; steep foresets with shells and – hash on them

181-300 beige-grey, cross-bedded sand

- Stratigraphy 0-85 Bligh Bank Fm.

85-181 ? reworked alluvial material; ? Buitenbanken Fm.

181-300 alluvial deposits; Kreftenheye Fm.

- Phases of sedimentation

0-64: yellowish cross-bedded sand with shells; last phase?; sequence seems composed of more than one event

64-85: slightly darker in colour, different shell fauna, clay pebbles; last-but-one phase

! Chemically the whole interval 0-85 is similar.

Core 98BC407

(“Coarse-grained sand with shells”)

Boxcore at same position as Core 98DW406

- Core description

0-28 beige-brown, cross-bedded, medium- to coarse-grained sand with shells (a.o. *Cerastoderma*)
and clay pebbles and layers;
22-28 finer-grained than overlying interval; clay layers

- Stratigraphy 0-28 Bligh Bank Fm.

- Phases of sedimentation

0-20 last phase

20-28 last-but-one phase

! Chemically the whole interval 0-28 is similar.

Core 98DW408

("Muddy sand")

- Location: trough between SE-NW running sand banks; south of mouth of Westerschelde
- Core description

0-17 greenish beige-brown, muddy (5-10%), medium-grained sand with shell hash and some shells (a.o. *Ensis*); NB the lower boundary can also be situated at 23 cm from the top, this fits well with the chemical information

17-99 grey-brown, medium-grained, muddy (>15% of mud) sand with shells and –fragments (a.o. *Cerastoderma*, *Spisula elliptica*)

17-27: interval shows cross-bedding

25-34, 46-69: clay-rich intervals,

77-99: idem, containing clasts of underlying clay deposit

99-251 green-grey stiff clay; top of deposit shows burrows

- Stratigraphy 0-99 Bligh Bank Fm.
99-251 ? Boom Clay (Rupel Fm., Oligocene)

- Phases of sedimentation

0-17 last phase

17-31 last-but-one phase

31-46 last-but-two phase

Chemically, only two intervals are found: 0-23 and 23-47; deeper than 47 there is no (chemical) indication for phasing anymore.

Core 98BC409

(“Muddy sand”)

Boxcore at same position as Core 408

- Core description

0-15 greenish beige-brown, muddy (5-10%), medium-grained sand with shells, -fragments and -
hash

15-31 beige-grey, coarse-grained, muddy (>10% mud) sand with shell hash and clay layers; cross-
bedded, two dip directions

- Stratigraphy 0-31 Bligh Bank Fm.

- Phases of sedimentation

0-15 last phase

15-31 last-but-one phase

Chemically, there is no indication for phases in sedimentation (one phase?).

Core 98DW410

("Cross-bedded sand")

- Location: north slope of sand wave
- Core description

0-200 yellow-brown, medium- to coarse-grained sand with predominantly reworked shells and – fragments (a.o. *Cyprina islandica*, de Noordkromp), gravel and pebbles (between 190 and 200 a large stone, barely fitting in the core; granite/pegmatite?);

0-175: cross-bedded, foresets dipping in the same direction

100-108: interval with predominantly gravel and reworked shells

200-321 yellow-grey, coarse-grained sand with shells and –fragments, a.o. *Spisula spec.*, *Macoma balthica*, *Mytilus edule*, *Cyprina islandica*, many of wich are reworked, and gravel

200-208, 291-307: intervals with predominantly gravel, some pebbles and reworked shells, cross-bedded with shells orientated convex-side-up on the foresets; all foresets dipping in the same direction

321-348 green-grey to grey-brown, coarse-grained, muddy sand with shell fragments, gravel and clay pebbles

348-391 grey-brown, slightly muddy sand with some shells and –fragments; cross-bedded

391-457 grey-brown, very muddy sand with shell hash; almost homogenized by strong bioturbation

457-488 beige-brown, medium-grained (?) sand; low-angle cross-lamination/-bedding; ripple bedding (?) in the lower part

in lower part muddy layers; gradual transition to underlying interval

488-528 brown clay with thin sand layers intercalated, sand layers thickening up; partly bioturbated

Stratigraphy	0-348:	Holocene; Bligh Bank Fm.
	348-391	? Pleistocene; Eem Fm
	391-528:	? Early Pleistocene; Smith's Knoll Fm.

- Phases of sedimentation

There are no indications for phasing in sedimentation in the first meter, neither sedimentological nor chemical.

Core 98BC411

(“Cross-bedded sand”)

Boxcore at same position as Core 98DW410

- Core description

0-39 yellow-beige, cross-bedded, coarse-grained sand with shell fragments;

- Stratigraphy 0-39 Bligh Bank Fm.

- Phases of sedimentation

There are no indications for phasing in sedimentation.

Core 98DW412

("Coarse-grained sand with shells")

- Location: shoreface; north of mouth of Rhine/Meuse

- Core description

0-21 beige-brown, coarse-grained sand; contains shells and gravel, especially in the lower part (shell lag?); possibly cross-bedded

21-28 beige-brown, fine-grained, clayey sand, (over 5% mud); (root-bearing ?)

28-482 beige-grey, cross-bedded, fine-grained sand; interval 28-60 root-bearing (?); cross-beds are all dipping in the same direction

414-428: interval containing abundant detritus and rounded wood particles and some clay pebbles

428-482: interval low-angle cross-bedded

- Stratigraphy 0-21 Bligh Bank Fm.

21-482 Pleistocene fluvial deposits; ? Kreftenheye Fm.

- Phases of sedimentation

0-21 last phase

0-4 different sediment composition; possibly last phase, with

4-21 last-but-one phase

The chemical analyses show that the interval 0-21 is one phase.

Core 98BC413

("Coarse-grained sand with shells")

Boxcore at same position as Core 98DW412

- Core description

0-7 beige-grey, medium-grained, cross-bedded sand with shell fragments

7-17 greenish beige-brown, clayey (5-10% mud), medium sand; finer grained than overlying deposit

- Stratigraphy 0-7 Bligh Bank Fm.

7-17 Pleistocene fluvial deposits; ? Kreftenheye Fm.; compare with core 412

- Phases of sedimentation

0-7 last phase

7-17 last-but-one phase

Core 98DW414

("Cross-bedded sand")

- Location: sea floor, sand waves over 6m high

- Core description

0-38 grey-brown, cross-bedded, medium-grained sand with shells and fragments (a.o. *Spisula*)

38-52 grey-brown sand with abundant shells: *Spisula*, *Donax*

52-140 beige-grey, medium-grained sand with reworked shells and some wood fragments (roots?)

140-200 beige-grey, cross-bedded sand with reworked shells and some wood fragments

200-300 brown beige-grey, low- and high-angle cross-bedded sand with reworked shells and rounded wood fragments

300-400 grey-beige, low- and high-angle cross-bedded sand with reworked shells and fragments (a.o. *Spisula*, *Cerastoderma*), and gravel

400-429 beige, cross-bedded sand with shells, -fragments and rounded wood fragments on the foresets

- Stratigraphy 0-52 Bligh Bank Fm.

52-429 Pleistocene fluvial deposits; Kreftenheye Fm.

- Phases of sedimentation

0-20 last phase

20-38 last-but-one phase

Core 98DW415

("Cross-bedded sand")

- Location: trough west of Brown Bank, sand wave area

- Core description

0-483 yellow-brown, medium-grained, (partly) cross-bedded sand with shells, a.o. *Donax*, *Spisula* (*elliptica*?)

0-42: coarser interval (active layer?)

cross-bedding visible in intervals 10-20, 55-60, 71-78, 165-174, 327-352, 412-432, 454-472;

in other intervals no sedimentary structures, caused by low-quality lacquer peel (?) or

bioturbation; cross-beds all dipping in similar direction; sequence seems to be part of one

sandwave ('top of sand wave' according to sampling information)

- Stratigraphy 0-472 Bligh Bank Fm.

- Phases of sedimentation

0-28 last phase (not very clear)

From the chemical analyses 0-40 seems one phase.

Core 98BC416

(“Cross-bedded sand”)

Boxcore at same position as Core 98DW415

- Core description

0-20 beige-brown, cross-bedded sand with shell hash

- Stratigraphy 0-20 Bligh Bank Fm.

- Phases of sedimentation

0-20 one phase

Core 98DW417

("Muddy sand")

- Location: trough between sand banks

- Core description

0-42 greenish beige-brown, fine-grained muddy sand (2-5% mud), with little shell hash and spines of sea urchin; in upper 10 cm's whole shells are found

42-102 brown-beige, cross-bedded, sand with shells (a.o. *Spisula*, *Donax*, *Ensis*) and –fragments;

42-66: fine- to medium-grained

66-102: coarse-grained, with finer grained interval from 71-74; shells orientated convex-side-up on foresets

102-264 beige-grey, low-angle cross-bedded sand with sparse shells and –hash (a.o. *Spisula*, *Ensis*); foresets are dipping in two directions

222: clay/mud layer several mm's thick

- Stratigraphy 0-102 Bligh Bank Fm.

102-264 ? Holocene; shelf or shoreface deposits

- Phases of sedimentation

0-42 Last phase

42-... earlier phase, lower boundary not clear (102?)

Chemically, 0-25 is one phase.

Core 98BC418

(“Muddy sand”)

Boxcore at same position as Core 98DW417

- Core description

0-9 beige, fine-grained sand, structureless

9-24 (dark) grey, fine-grained sand with shells and –fragments, brown mottling (caused by burrowing?); spines of sea urchin;

8-16: shells abundant

- Stratigraphy 0-24 Bligh Bank Fm.

- Phases of sedimentation

0-9 last phase

9-24 last-but-one phase

There are neither chemical nor grainsize indications for phases in this core.

Core 98DW419

("Muddy sand")

- Location: trough between sand banks

- Core description

0-42 beige-brown, muddy (2-10%), fine-grained sand with gravel, shell fragments and –hash; contains spines of sea urchin; cross-bedded; gravel especially in top of interval
0-10: more sandy than lower part

24-38: abundant shell hash

42-278 (brown) grey, very muddy, very fine-grained sand with shell fragments and –hash (a.o. *Turritella*); burrows filled with coarser-grained sand and/or shell hash; over 40% mud in top of interval

42-53: interval comprises either sand layers of overlying unit alternating with fragments of this unit, or (more or less) horizontal burrows filled with sand;

278-398 grey-beige sand; ripple lamination; thin clay drapes (?) on foresets; no shells!!

- Stratigraphy 0-42 Bligh Bank Fm.

42-278 open marine deposit, formed under quiet conditions; ? Holocene; ? Western Mudhole Member, Nieuw Zeeland Gronden Fm.

278-398 ? Pleistocene, fluvial deposits, similar to Kreftenheye Fm.; position of core lies outside the area of distribution of the Kreftenheye Fm.

- Phases of sedimentation

0-16 last phase

16-40 last-but-one phase (lower boundary possibly at 49)

Chemically, there are phase boundaries between 17-20 and 31-34.

Core 98DW420

("Cross-bedded sand")

- Location: trough between north-south running linear sand banks

- Core description

0-57 beige, (fine- to) medium-grained, cross-bedded sand with abundant shells and –fragments, a.o. *Donax*; shell material is nicely orientated on foresets; all foresets are dipping in the same direction

57-150 beige sand, (fine- to) medium-grained; some shell fragments (*Ensis?*); cross-bedded, foresets dipping in similar direction as overlying unit

150-252 light-grey, low-angle cross-bedded, fine-grained sand with shell fragments (a.o. *Cerastoderma*); sea urchin spines

252-363 brown-grey, clayey sand; root-bearing; no distinct sedimentary structures, lowest part of interval possibly slumped

326-337: cross-bedded

346-352, 357-363 clayey intervals

363-400 beige-grey, clayey (?) sand; irregular cross-bedding, alternation of sand and clay layers, the latter only a few mm's thick

400-484 beige-grey, parallel-laminated to low-angle cross-laminated sand, with some detritus, shell hash and in the lower part clay pebbles; cross-lamination dipping in two directions, formed by migrating ripples?; structures in upper 30 cm vague

- Stratigraphy 0-150 Bligh Bank Fm.

150-252 tidal channel deposit, ? Holocene

252-484 Eemian/Weichselian; Brown Bank Fm.

- Phases of sedimentation

0-16 last phase

16-62 last-but-one phase

62-150 possibly also one phase

The last phase (0-16) corresponds with the contamination profiles. However, there are no chemical indications for a last-but-one phase.

Core 98DW421

("Oyster Grounds")

- Core description

0-84 brown, fine-grained muddy sand (average mud content over 20% !) with shells, a.o. *Turritella*
43-61: shell-rich interval; shell doublet at 82 (species?)

84-95 grey-brown, fine-grained sand with few shells

95-145 dark grey, very muddy, fine-grained sand; bioturbated, messy appearance; mud-filled burrows; contains shells and - fragments of *Hydrobia* (?), *Cerastoderma*, *Macoma* (?)
95-105: interval contains some clay

145-162 beige-brown clay; contains burrows filled with sand

162-184 beige-brown clay, containing organic material

174-184: interval rich in organics

184-188 clay layer, grey in colour; contains some reworked organic fragments and shells (fresh water?)

188-207 dark grey to very dark grey, very organic clay, grading downwards into very clayey peat

207-211 grey-brown, clayey sand with some gravel

211-266 beige-grey, root-bearing sand,

245-266: cross-bedded, containing shell fragments and -hash

266-271 beige-grey, cross-bedded sand, with shell fragments and flint (human artefact ?); root-bearing

271-276 beige-brown sand with clay layers and shells; root-bearing

276-305 grey-brown-yellow sand with shell hash and organic material, root-bearing

305-386 grey-brown-yellow sand with shell hash and organic material

- Stratigraphy: 0-84: Western Mudhole member, Nieuw Zeeland Gronden Fm.
 - 84-145 tidal flat deposits
 - 145-188 lagoonal deposits; ? Elbow Fm
 - 188-207 Basal peat; ? Elbow Fm
 - 207-end: Pleistocene, Twente Fm. and possibly other formations

- Phases of sedimentation

Sedimentation phases are not found in the upper part of the core, as a consequence of bioturbation. The concentration of shells between 43 and 61 represents a regional phenomenon. This can be caused either by a regional erosion event or non-deposition.

Core 98DW422

("Oyster Grounds")

- Core description

0-76 brown, very muddy, (very) fine-grained sand (average mud content over 25%) with shells

76-95 brown, very muddy fine-grained sand with abundant shells

95-155 beige and brown, very fine-grained sand; thin detritus layers; lamination disturbed

155-200 parallel to low-angle cross-laminated, very fine-grained sand; dark brown in colour; lower part of interval clayey; thin detritus layers

200-367 beige, parallel to low-angle cross-laminated, fine to medium-grained sand; little variation in grainsizes

- Stratigraphy 0-95 Western Mudhole member, Nieuw Zeeland Gronden Fm.

95-200 ? Pleistocene, ? Twente Fm.

200-367 Pleistocene, Twente Fm.

- Phases of sedimentation

Sedimentation phases are not found in the upper part of the core, as a consequence of bioturbation. See core 98DW421.

Core 98DW423

("Oyster Grounds")

- Core description

0-82 dark brown, very muddy, very fine-grained sand (average mud content over 25%); a few fossil shells (*Turritella?*)

82-118 clayey silt and very fine-grained sand, shells and –fragments, o.a. *Turritella*

118-160 beige-brown silt to very fine-grained sand; parallel laminated (slightly disturbed; caused by coring?)

160-200 low-angle cross-laminated, brown-beige silt to very fine-grained sand; detritus layers; lamination (slightly) disturbed

200-300 cross-bedded, beige sand; some detritus layers (mm thick); well-sorted: little variation in grain sizes; foresets all dipping in same direction; upper 13 cm finer grained than rest of interval

300-321 cross-bedded, beige sand;

321-350 cross-bedded beige-brown sand; abundant detritus layers with wood remains (seeds?)

- Stratigraphy 0-118 Western Mudhole member, Nieuw Zeeland Gronden Fm.

118-350 Pleistocene, fluvial deposits; ? Twente Fm.

- Phases of sedimentation

Sedimentation phases are not found in the upper part of the core, as a consequence of bioturbation. See core 98DW421.





core	location	distance	group'	sed. event	geoch.events	dz(50)	< 63 mu	dz(90/10)	Pb206/207	Pb/Al2O3	Zn/al2o3	Al2O3	SiO2	stratigraphy	mixing depth
98dw406	north of Scheldt	20 km	coarse sand	0-64,64-85	0-85	537	1.3	3.2	1.179	28.3	51.2	1.14	85.3	Bligh Bank	0-85
			with shells	>85		345	13.0	4.4	1.205	9.0	26.4	4.70	65.5	Buitenbanken	
98bc407				0-20	0-28	464	0.9	3.1	1.175	21.8	42.0	1.61	83.7	Bligh Bank	0-28
				20-28		414	4.2	2.5						Bligh Bank	
98dw408	south of Scheldt	35 km	muddy sand	0-23	0-23	400	6.1	5.7	1.174	27.3	74.1	2.00	74.9	Bligh Bank	0-23
				23-31,31-46	23-46	413	15.7	5.8	1.192	13.3	38.0	3.39	65.6	Bligh Bank	23-46
				46-87	46-87	411	22.7	3.7	1.200	10.6	32.7	4.36	53.4	Bligh Bank	
				>113	>113	286	86.2	3.8	1.198	5.5	26.8	14.17	60.0	Rupel (tertiary)	
98bc409				0-15	0-15	353	6.9	4.0	1.186	26.5	68.6	2.44	73.3	Bligh Bank	0-15
				15-30		665	14.4	6.2	1.177	15.1	44.5	2.76	68.1	Bligh Bank	
98dw410	north slope sand bank	62.5 km	cross-bedded sands		0-60	452	1.5	2.6	1.191	13.4	19.8	1.93	83.6	Bligh Bank	0-60
					>80	634	1.2	3.8	1.203	12.4	17.1	2.07	90.4	Bligh Bank	
98bc411				0-25	0-25	544	0.1	2.2	1.178	17.3	19.0	1.58	93.5	Bligh Bank	
98dw412	north of Rhine	5 km	coarse sand	0-21	0-21	542	1.0	3.7	1.178	21.9	63.4	2.55	78.5	Bligh Bank	0-21
			with shells	21-30	21-30	200	5.7	3.2	1.205	9.4	17.1	4.18	79.3	Kreftenheye	
98bc413				0-7	0-10	438	2.6	3.5	1.174	23.0	59.4	2.39	91.1	Bligh Bank	
				7-15	10-15	373	6.1	5.7	1.182	23.0	54.5	2.62	87.2	Bligh Bank	
98dw414	sand waves	45 km	cross-bedded sands	0-20	0-20	417	0.8	2.7	1.183	11.6	16.5	2.25	92.6	Bligh Bank	0-20
				20-38	20-38	351	3.4	2.5	1.196	9.5	16.5	2.84	89.3	Bligh Bank	
				>52	>52	395	1.1	2.4						Kreftenheye	
98dw415	west of Brown Bank	75 km	cross-bedded sands	0-28	0-28	396	0.7	3.4	1.195	14.5	19.6	1.82	91.9	Bligh Bank	0-28
				28-42	28-42	422	0.7	3.6	1.198	14.7	21.6	1.65	89.2	Bligh Bank	28-42
				50-450	50-450	332	2.5	2.4	1.198	10.1	15.5	2.76	91.3	Bligh Bank	
98bc416				0-20	0-20	348	1.1	2.3	1.188	12.0	20.3	2.33	90.6	Bligh Bank	
98dw417	between sand banks	17 km	muddy sand	0-42	0-35	237	2.1	2.0	1.177	11.0	21.9	3.34	86.4	Bligh Bank	0-40
				42-102	42-102	254	1.7	2.5	1.201	9.1	14.0	3.12	85.5	Bligh Bank	
				105-260	105-206	339	1.1	3.1	1.206	9.0	13.5	3.03	86.7	early Holocene	
98bc418				0-9, 9-24	0-24	233	3.0	1.9	1.179	10.0	21.6	3.52	87.1	Bligh Bank	
98dw419	between sand banks	33 km	muddy sand	0-16	0-17	231	4.5	2.1	1.179	10.8	17.3	3.76	86.7	Bligh Bank	0-17
98dw419				16-40	17-44	206	13.7	3.5	1.207	8.2	15.4	4.48		early Holocene	
98dw420	between sand banks	68 km	cross-bedded sands	0-16	0-16	252	1.3	2.1	1.183	11.6	17.8	3.17	90.3	Bligh Bank	0-16
				16-62	16-62	257	2.0	2.3	1.202	9.8	15.8	3.25	87.2	Bligh Bank	
				62-150	62-159	251	1.6	2.3	1.203	9.2	14.4	3.24	88.3	Bligh Bank	
98dw421	Oyster Grounds	75 km		0-84	0-40	156	22.3	3.1	1.185	12.9	32.5	5.22	81.1	Western Mud Hole	0-40
					40-80	152	22.6	7.3	1.203	8.3	25.7	5.25	69.4	Western Mud Hole	
				84-145	80-145	142	26.7	2.8	1.208	8.1	22.0	5.66	76.5	Elbow	
98dw422	Oyster Grounds	120 km		0-95	0-50	128	26.8	3.0	1.188	11.4	27.0	5.76	83.0	Western Mud Hole	0-50
					50-95	140	31.8	10.0	1.212	7.6	21.7	6.81	75.8	Western Mud Hole	
98dw423	Oyster Grounds	140 km		0-118	0-30	98	26.9	2.0	1.196	10.1	21.0	6.43	81.7	Western Mud Hole	0-30
					30-118	101	35.7	3.6	1.219	8.7	19.6	7.26	77.3	Western Mud Hole	

hier onthoudt
de voorste pg

(chem 406) wel
in andere vers

core	min	max (cm)	description	group	sedim. event	dz(50)	< 63	dz(90/10)	geochem. event	stratigraphy	Pb206/207	Pb/AI2O3	Zn/AI2O3	Al2O3	SiO2	TiO2	Al2O3	Fe2O3	MgO	MnO	CaO	K2O	Na2O	P2O5	Total	As	
98dw415-2	10	12			1e-active lay	383	384	0.4	3.05	1e																	
98dw415-3	22	24			1e-active lay	448	450	0.7	3.64	1e	1.194	13.94	20.2	1.5	92.3	0.0	1.5	0.9	0.0	0.0	3.6	0.6	0.4	0.1	99.4	8.4	
98dw415-4	36	38			(2e) active la	496	501	0.8	4.42	2e	1.205	15.13	25.5	1.3	83.9	0.0	1.3	1.3	0.0	0.0	9.4	0.5	0.4	0.1	97.0	14.9	
98dw415-5	50	52				428	430	0.9	3.08	background																	
98dw415-6	64	66				375	377	1.4	2.89		1.198	10.06	15.0	2.3	92.1	0.0	2.3	0.8	0.0	0.0	2.5	0.9	0.7	0.0	99.5	4.5	
98dw415-7	84	86				335	336	0.8	2.04		1.192	9.51	15.6	2.5	91.0	0.0	2.5	0.9	0.1	0.0	2.9	1.0	0.7	0.0	99.3	4.8	
98dw415-8	107	109				337	340	2.3	2.44		1.199	8.37	14.3	2.8	91.2	0.0	2.8	0.9	0.1	0.0	2.5	1.1	0.8	0.0	99.4	4.4	
98dw415-9	128	130				319	322	2.1	2.47		1.195	10.87	15.4	2.5	92.3	0.0	2.5	0.9	0.0	0.0	2.3	1.0	0.7	0.0	99.7	4.5	
98dw415-1	143	145				341	344	2.3	2.42		1.195																
98dw415-1	162	164				306	312	5.1	2.41																		
98dw415-1	178	180				325	329	3.1	2.37																		
98dw415-1	212	214				312	314	1.5	2.41		1.200	10.50	16.4	2.6	91.5	0.0	2.6	1.0	0.1	0.0	2.7	1.0	0.7	0.0	99.5	5.7	
98dw415-1	272	274				325	327	1.5	2.42																		
98dw415-1	312	314				301	305	3.0	2.19		1.198	11.12	16.6	3.0	91.1	0.1	3.0	1.0	0.1	0.0	2.4	1.1	0.8	0.0	99.6	3.6	
98dw415-1	372	374				305	308	3.1	2.30																		
98dw415-1	409	411				303	308	3.6	2.24		1.202	9.46	15.7	3.0	91.3	0.1	3.0	1.0	0.1	0.0	2.3	1.1	0.8	0.0	99.6	4.5	
98dw415-1	448	450				294	298	4.3	2.12		1.200	10.90	15.2	3.2	90.3	0.1	3.2	1.0	0.1	0.0	2.5	1.1	0.9	0.0	99.4	3.9	
98bc418-1	0	2	yellow brown, medium sand, cross-bedded, shells	cross-bedded sand		338	340	1.3	2.37		BH	1.186	13.10	21.4	2.4	90.3	0.1	2.4	0.9	0.1	0.0	3.4	0.9	1.0	0.0	99.3	5.6
98bc418-2	3	5				345	346	0.9	2.41			1.187	11.53	23.2	2.2	89.0	0.1	2.2	1.1	0.1	0.0	4.7	0.8	1.0	0.1	99.0	7.4
98bc418-3	8	10				341	342	1.1	2.04																		
98bc418-4	13	15				364	366	1.0	2.23																		
98bc418-5	16	18				350	351	1.2	2.34		1.189	9.17	18.6	2.3	92.2	0.0	2.3	0.8	0.1	0.0	2.2	1.0	0.9	0.0	99.6	5.5	
98bc418-6	19	21				342	343	1.1	2.41		1.192	14.25	18.1	2.4	91.0	0.0	2.4	0.9	0.1	0.0	2.7	1.0	1.1	0.0	99.1	4.4	
98dw417-1	0	2	olive brown, fine sand, muddy, spines of sea urchin, few	muddy sand	1e	238	240	2.4	1.98		BH		10.62	19.0	3.2	87.8	0.1	3.2	0.9	0.1	0.0	3.4	1.1	1.0	0.0	97.4	3.0
98dw417-2	5	10			1e	236	238	2.1	1.94		1.180	10.55	21.0	3.2	87.3	0.1	3.2	0.9	0.2	0.0	3.6	1.1	1.0	0.0	97.4	2.8	
98dw417-3	11	13			1e	233	235	1.9	1.94		1.177																
98dw417-4	16	19			1e	227	228	2.2	1.92																		
98dw417-5	22	25	stains of iron oxides		1e	225	227	3.1	1.98		1.176	11.74	25.7	3.6	84.2	0.1	3.6	1.0	0.3	0.0	5.1	1.2	1.2	0.1	96.8	3.9	
98dw417-6	29	35			1e	252	253	1.3	2.22																		
98dw417-7	37	42	olive grey, medium to fine sand, cross-bedded		1e	260	263	2.3	2.79	background	1.198	8.66	15.0	3.1	84.0	0.1	3.1	0.8	0.2	0.0	6.3	1.1	1.0	0.0	96.5	3.4	
98dw417-8	58	61			2e	244	245	1.0	2.21		1.204	9.58	12.9	3.2	87.0	0.1	3.2	0.9	0.2	0.0	3.8	1.1	1.1	0.0	97.4	3.0	
98dw417-9	77	81	oriented shells on foresets, coarse grained		2e	701	703	0.4	3.67																		
98dw417-1	105	110	grey brown, medium sand, low angle cross-bedded, two dir.		2e	366	367	0.5	3.93	early Hol																	
98dw417-1	135	140			2e	293	295	1.0	3.70		1.211	8.90	14.0	2.7	88.7	0.0	2.7	0.7	0.1	0.0	3.8	1.0	0.7	0.0	97.7	3.1	
98dw417-1	204	208			2e	265	267	1.0	3.23		1.209	10.21	11.8	2.9	86.6	0.0	2.9	0.7	0.1	0.0	3.4	1.1	0.8	0.0	97.7	2.5	
98dw417-1	233	236			2e	233	235	1.8	2.44		1.208	7.88	13.7	3.4	85.5	0.1	3.4	0.9	0.2	0.0	4.7	1.2	1.1	0.0	97.1	2.3	
98bc418-1	0	2	grey brown, fine sand, structureless	muddy sand	1e	229	232	3.2	1.92	slow decline	BH	1.178	11.84	25.3	3.6	87.2	0.1	3.6	1.0	0.2	0.0	4.0	1.2	1.3	0.1	98.7	3.7
98bc418-2	2	4			1e	225	227	3.3	1.94		1.177	10.83	22.9	3.6	86.7	0.1	3.6	1.0	0.3	0.0	4.3	1.2	1.4	0.1	98.5	3.6	
98bc418-3	4	6			1e	225	227	2.8	1.91		1.179	9.36	21.0	3.7	86.4	0.1	3.7	1.0	0.3	0.0	4.4	1.2	1.4	0.1	98.6	3.4	
98bc418-4	6	7	dark grey, fine sand, spissula's, ox. and red. Spots		1e	231	232	1.7	1.92		1.182	10.25	20.4	3.6	86.7	0.1	3.6	1.0	0.3	0.0	4.2	1.2	1.4	0.1	98.5	3.3	
98bc418-5	9	13			2e	244	247	4.0	2.00		1.180	7.22	19.2	3.2	88.0	0.1	3.2	0.9	0.2	0.0	4.0	1.1	1.1	0.0	98.6	3.4	
98bc418-6	19	24	smell of sulfur		2e	234	236	2.8	1.92		1.180	10.53	20.8	3.5	87.4	0.1	3.5	1.0	0.2	0.0	4.0	1.2	1.4	0.0	98.9	3.0	
98dw419-1	0	3	yellow brown, fine sand, cross-bed., gravel, shell fragm, sp	muddy sand	1e	230	232	3.6	2.00		BH	1.177	10.36	15.7	3.9	87.1	0.1	3.9	1.1	0.2	0.0	2.9	1.2	1.0	0.1	97.6	4.2
98dw419-2	6	8			1e	229	232	5.2	1.92																		
98dw419-3	12	14			1e	228	231	3.8	2.33		1.177	11.20	18.2	3.6	85.8	0.1	3.6	1.1	0.2	0.0	5.5	1.3	1.1	0.1	98.6	4.9	
98dw419-4	15	17			1e	223	227	5.3	2.08		1.182	10.82	18.0	3.8	87.2	0.1	3.8	1.0	0.2	0.0	4.4	1.3	1.2	0.1	99.2	2.7	
98dw419-5	20	22			2e	221	226	6.3	2.42	background	?	1.198	9.69	14.8	3.8	86.3	0.1	3.8	1.0	0.3	0.0	4.5	1.3	1.3	0.1	98.7	4.2
98dw419-6	25	27	abundant shell hash		2e	223	228	5.7	2.77		1.199	8.50	15.1	3.5	80.1	0.1	3.5	1.1	0.3	0.0	8.8	1.2	1.2	0.1	96.6	5.0	
98dw419-7	29	31			2e	224	229	6.0	2.40		1.202	5.62	10.2	5.5	84.3	0.3	5.5	2.5	0.6	0.0	2.3	1.6	1.4	0.1	98.7	4.7	
98dw419-8	34	36			2e	230	241	9.1	6.61		1.214	9.38	19.0	3.3	71.0	0.1	3.3	1.9	0.4	0.0	14.0	1.1	1.1	0.1	93.2	12.0	
98dw419-9	42	44	brown grey, very muddy		2e	74	107	41.6	3.41		1.220	7.79	18.2	6.2	78.4	0.3	6.2	2.2	0.9	0.0	5.2	1.8	1.6	0.1	96.7	4.2	
98dw420-1	0	2	yellow brown, medium sand, cross-bedded, shells, spines	cross-bedded sand	1e	245	246	1.5	2.10		1.178	15.40	17.7	3.1	88.8	0.1	3.1	1.1	0.1	0.0	4.1	1.1	0.9	0.1	99.3	5.6	
98dw420-2	5	7	shells fragm on foresets, one dir.		1e	246	247	1.1	2.11		1.183	10.79	17.1	3.2	90.6	0.0	3.2	1.0	0.1	0.0	2.3	1.1	0.9	0.1	99.3	6.1	
98dw420-3	9	11			1e	256	257	1.5	2.17		1.185	10.24	18.5	3.1	90.5	0.1	3.1	1.1	0.1	0.0	2.7	1.1	0.9	0.1	99.6	6.7	
98dw420-4	14	16			1e	256	257	1.3	2.18		1.185	10.05	18.0	3.1	91.2	0.0	3.1	1.0	0.1	0.0	1.9	1.1	0.9	0.1	99.4	6.3	
98dw420-5	20	22			2e	260	261	1.3	2.34	near background	1.194	11.53	16.4	3.0	87.3	0.1	3.0	1.1	0.1	0.0	5.2	1.1	0.9	0.1	98.7	5.6	
98dw420-6	30	32			2e	248	250	2.9	2.31	background	1.203	9.18	14.4	3.6	87.9	0.1	3.6	1.2	0.2	0.0	3.8	1.3	1.1	0.1	99.0	6.0	
98dw420-7	38	40			2e	256	258	2.3	2.33		1.209	9.58	16.8	3.2	85.2	0.1	3.2	1.1	0.1	0.0	6.1	1.2	1.0	0.1	98.1	6.1	
98dw420-8	50	52			(2e)	255	256	1.6	2.32		1.204	8.71	15.4	3.2	88.3	0.1	3.2	1.0	0.1	0.0	3.9	1.1	1.0	0.1	98.8	6.5	
98dw420-9																											

core	min	max (cm)	description	group	sedim. even	d(50)	< 63	dz(90/10)	geochem. event	stratigraphy	Pb206/207	Pb/AI2O3	Zn/AI2O3	AI2O3	SiO2	TiO2	Al2O3	Fe2O3	MgO	MnO	CaO	K2O	Na2O	P2O5	Total	As
98dw420-1	157	159				198	200	2.2	2.21		1.207	9.03	12.7	3.5	87.8	0.1	3.5	0.8	0.2	0.0	3.8	1.2	1.2	0.1	98.7	3.7
98dw421-1	1	2	brown, fine grained muddy sand, Turritella	Oyster Grounds		138	154	21.4	2.46	WMH	1.179	14.38	34.9	5.2	82.3	0.2	5.2	2.3	0.6	0.0	3.0	1.5	1.5	0.1	96.8	6.2
98dw421-2	2	3				126	150	28.4	2.33		1.182	13.81	34.9	5.2	82.1	0.2	5.2	2.3	0.6	0.0	3.0	1.5	1.4	0.1	96.5	6.1
98dw421-3	3	5	reduction stains			134	150	21.8	2.33		1.180	13.80	33.8	5.2	81.7	0.2	5.2	2.3	0.6	0.0	3.2	1.5	1.4	0.1	96.3	5.6
98dw421-4	5	6				125	148	28.8	2.27		1.178	14.85	34.9	5.2	82.3	0.2	5.2	2.3	0.6	0.0	3.0	1.5	1.4	0.1	96.6	5.4
98dw421-5	6	8				137	155	23.2	2.32		1.177	12.56	35.0	5.3	82.0	0.2	5.3	2.3	0.6	0.0	3.0	1.5	1.4	0.1	96.4	7.1
98dw421-6	8	10				139	153	19.7	2.30		1.180	13.06	34.2	5.2	82.4	0.2	5.2	2.3	0.6	0.0	3.0	1.5	1.3	0.1	96.6	6.0
98dw421-7	10	12				137	156	24.4	2.34		1.183															
98dw421-8	12	14				132	149	23.5	2.28			13.73	34.7	5.2	82.1	0.2	5.2	2.3	0.6	0.0	3.3	1.5	1.3	0.1	96.5	5.9
98dw421-9	14	16				138	152	20.8	2.33		1.181	14.28	33.8	5.2	81.5	0.2	5.2	2.3	0.6	0.0	3.6	1.5	1.3	0.1	96.4	6.2
98dw421-1	17	19				134	152	23.1	2.27		1.181	13.34	33.4	5.3	81.9	0.2	5.3	2.3	0.6	0.0	3.3	1.5	1.4	0.1	96.5	5.9
98dw421-1	20	22				132	154	26.8	2.37		1.185	12.53	32.2	5.5	80.8	0.3	5.5	2.4	0.7	0.0	3.4	1.5	1.4	0.1	96.1	6.6
98dw421-1	22	24				142	158	20.4	2.47		1.187	13.67	30.8	5.3	81.1	0.2	5.3	2.3	0.6	0.0	3.7	1.5	1.4	0.1	96.2	6.6
98dw421-1	25	27				145	163	20.5	2.24		1.187	12.77	30.7	5.2	79.8	0.2	5.2	2.3	0.6	0.0	4.7	1.5	1.3	0.1	95.8	6.4
98dw421-1	30	32				140	157	21.6	2.40		1.191	10.49	29.9	5.3	79.8	0.3	5.3	2.3	0.6	0.0	4.5	1.5	1.3	0.1	95.8	6.9
98dw421-1	33	34				141	156	20.2	2.45		1.195	11.53	28.3	5.1	78.6	0.2	5.1	2.3	0.6	0.0	5.5	1.4	1.3	0.1	95.1	7.1
98dw421-1	37	39				155	171	17.6	9.94		1.194	10.79	29.4	5.1	79.5	0.2	5.1	2.3	0.6	0.0	4.9	1.5	1.4	0.1	95.6	5.4
98dw421-1	39	41				150	165	17.3	3.05		1.203	11.03	28.8	5.0	79.8	0.2	5.0	2.2	0.6	0.0	5.0	1.4	1.3	0.1	95.6	5.5
98dw421-1	46	49	many Turritellas	Oyster Grounds		146	161	16.9	7.61	(background?)	1.193	8.05	30.8	3.6	57.1	0.2	3.6	1.8	0.4	0.0	20.4	1.1	1.1	0.1	85.6	6.3
98dw421-1	50	53	many Turritellas		background	130	150	23.4	3.20		1.209	9.13	26.7	4.8	69.5	0.3	4.8	2.1	0.6	0.0	11.9	1.3	1.2	0.1	91.8	6.1
98dw421-2	58	61	many Turritellas			137	154	18.1	9.09		1.208	9.63	26.1	4.8	67.0	0.3	4.8	2.1	0.6	0.0	13.3	1.3	1.3	0.1	90.8	5.5
98dw421-2	62	65				131	147	20.5	2.79		1.199	7.34	24.8	5.6	74.8	0.3	5.6	2.4	0.7	0.0	7.0	1.5	1.3	0.1	93.8	7.6
98dw421-2	69	72				123	151	27.4	9.85		1.202	8.09	23.3	6.3	74.7	0.3	6.3	2.6	0.9	0.0	6.2	1.6	1.4	0.1	94.2	8.2
98dw421-2	75	78				118	148	29.0	11.27		1.209	7.81	22.6	6.5	73.1	0.4	6.5	2.7	1.0	0.0	6.8	1.7	1.4	0.1	93.6	9.3
98dw421-2	83	86	dark grey, fine grained muddy sand, few shells			129	151	22.9	7.41	ELW	1.204	7.70	23.6	6.0	75.1	0.3	6.0	2.9	0.9	0.0	5.8	1.6	1.4	0.1	94.1	14.3
98dw421-2	91	94				116	143	27.1	12.56		1.208	7.30	22.9	6.1	74.5	0.3	6.1	2.6	0.9	0.0	6.5	1.6	1.4	0.1	94.1	11.7
98dw421-2	99	101	bioturbated, burrows mud filled			128	144	18.5	2.98		1.205	9.32	20.1	4.8	78.9	0.3	4.8	2.1	0.6	0.0	5.8	1.4	1.4	0.1	95.4	9.8
98dw421-2	114	116				118	140	24.7	2.81																	
98dw421-2	138	142				97	141	40.4	2.48		1.217	8.19	21.3	5.7	77.6	0.3	5.7	2.4	0.8	0.0	4.7	1.5	1.6	0.1	94.8	9.3
98dw422-1	0	3	brown, fine grained muddy sand, Turritella	Oyster Grounds		106	126	24.1	2.92	WMH	1.185	11.05	25.7	5.8	83.1	0.3	5.8	2.5	0.7	0.0	2.3	1.7	1.5	0.1	98.0	8.2
98dw422-2	3	5				107	126	23.1	2.90		1.184	12.09	27.1	5.5	84.3	0.3	5.5	2.4	0.6	0.0	2.2	1.6	1.4	0.1	98.5	8.7
98dw422-3	5	7				107	128	24.0	3.01		1.183	11.26	27.5	5.5	84.1	0.3	5.5	2.5	0.6	0.0	2.2	1.6	1.4	0.1	98.3	9.3
98dw422-4	7	8				113	135	23.4	2.91		1.187	11.47	28.2	5.9	82.6	0.3	5.9	2.7	0.7	0.0	2.5	1.7	1.5	0.1	98.0	10.4
98dw422-5	8	9				104	130	28.4	2.90		1.183	11.28	27.3	6.0	82.4	0.3	6.0	2.6	0.7	0.0	2.5	1.7	1.5	0.1	97.9	8.8
98dw422-6	9	10				106	133	28.3	3.10		1.187	11.88	28.0	6.1	82.1	0.3	6.1	2.6	0.8	0.0	2.6	1.7	1.5	0.1	97.9	9.0
98dw422-7	10	12				97	117	28.5	2.62		1.188	11.07	27.0	5.8	83.1	0.3	5.8	2.5	0.7	0.0	2.4	1.7	1.5	0.1	98.0	9.0
98dw422-8	12	13				100	124	28.7	2.79		1.190	11.83	26.8	5.6	83.8	0.3	5.6	2.4	0.6	0.0	2.3	1.7	1.4	0.1	98.3	8.7
98dw422-9	13	14				103	130	28.2	3.26		1.191	11.10	27.3	5.6	83.1	0.3	5.6	2.4	0.7	0.0	2.3	1.6	1.4	0.1	97.6	9.2
98dw422-1	14	16				99	123	29.0	2.84		1.189	11.70	26.8	5.6	83.2	0.3	5.6	2.5	0.7	0.0	2.3	1.6	1.4	0.1	97.8	9.8
98dw422-1	25	27				107	129	25.9	2.94		1.191	11.32	27.2	5.7	82.9	0.3	5.7	2.4	0.7	0.0	2.4	1.7	1.4	0.1	97.6	6.2
98dw422-1	32	36				103	132	30.2	2.99		1.193	11.68	26.7	6.0	82.0	0.3	6.0	2.6	0.7	0.0	2.7	1.7	1.4	0.1	97.4	6.3
98dw422-1	45	49	many Turritellas			108	133	26.2	3.24		1.199	11.23	24.8	6.0	81.9	0.3	6.0	2.5	0.8	0.0	3.2	1.7	1.5	0.1	98.0	6.7
98dw422-1	58	60	many Turritellas		background	109	132	25.6	3.02		1.207	8.60	21.1	6.6	77.9	0.3	6.6	2.6	0.9	0.0	4.4	1.8	1.6	0.1	96.2	7.6
98dw422-1	88	91				90	148	38.0	17.00		1.217	6.53	22.2	7.1	73.6	0.4	7.1	3.0	1.1	0.0	7.1	1.9	1.5	0.1	95.7	11.6
98dw423-1	0	3	brown, very fine grained sand, muddy, few shell fragments			88	98	24.9	1.97	niet verontr.	WMH															
98dw423-2	11	13				86	99	28.7	1.97		1.195	10.40	20.9	6.3	82.1	0.3	6.3	2.1	0.7	0.0	2.2	1.9	1.7	0.1	97.5	5.2
98dw423-3	16	19				87	97	26.3	1.96																	
98dw423-4	24	28				85	97	27.8	1.92		1.196	9.72	21.1	6.6	81.2	0.3	6.6	2.2	0.8	0.0	2.3	2.0	1.7	0.1	97.2	5.3
98dw423-5	34	37				84	100	32.7	2.04	background	1.203	10.08	20.6	6.8	80.4	0.4	6.8	2.3	0.9	0.0	2.5	2.0	1.7	0.1	97.0	5.5
98dw423-6	43	47				84	98	29.9	1.98		1.208	9.18	19.1	6.7	80.6	0.4	6.7	2.3	0.9	0.0	2.6	2.0	1.7	0.1		

core	min	max	cm	Co	Cr	Cu	Ni	Pb	V	Zn	S	Ba	Ga	Nb	Rb	Sr	Th	U	Y	Zr	206/207	208/207	206/208	206/204	207/204	208/204	Hg counts/	206/207	208/207	206/208	206/204	207/204	208/204		
98dw406-1	0	2	208	13.8	8.2	7.2	8.1	8.0	14.0	0.0	96.4	0.0	2.5	14.0	263	7.8	1.1	10.0	37.9	1.177	2.440	0.482	31.20	26.512	64.69	4294	0.003	0.007	0.001	0.489	0.402	0.962			
98dw406-2	4	6	186	8.2	7.4	7.0	7.8	8.2	15.5	92.0	82.2	0.0	2.0	12.4	391	8.6	0.0	9.7	29.5	1.180	2.442	0.483	26.15	22.166	54.12	3199	0.002	0.004	0.001	0.308	0.269	0.688			
98dw406-3	12	14	225	9.2	7.5	6.3	7.5	6.6	10.8	0.0	88.5	0.0	1.6	12.2	194	4.4	0.0	11.1	29.8	1.179	2.445	0.482	42.10	35.714	87.33	4374	0.004	0.011	0.002	1.011	0.849	2.118			
98dw406-4	10	22	234	10.8	8.1	7.8	7.9	9.5	15.3	32.3	88.9	0.0	1.6	12.8	363	4.7	0.0	10.3	36.7	1.179	2.445	0.482	27.56	23.381	57.17	2944	0.003	0.006	0.002	0.283	0.199	0.545			
98dw406-5	39	41	283	12.6	8.9	6.6	7.3	7.8	12.5	0.0	109.5	0.0	2.7	17.6	198	6.5	0.0	9.6	38.7	1.177	2.443	0.481	52.72	44.810	109.5	5165	0.002	0.006	0.001	1.581	1.342	3.353			
98dw406-6	57	59	230	11.1	8.0	7.2	8.4	10.3	16.4	109.5	101.1	0.0	1.7	18.0	335	6.3	1.0	10.8	40.1	1.177	2.441	0.482	26.83	22.805	55.68	3006	0.003	0.005	0.001	0.131	0.109	0.230			
98dw406-7	70	72	222	14.0	8.7	8.8	9.5	14.3	18.4	325.8	95.8	0.0	3.2	18.4	420	6.6	3.1	10.8	59.7	1.185	2.454	0.483	24.44	20.628	50.61	2280	0.004	0.008	0.001	0.226	0.237	0.567			
98dw406-8	85	87	153	35.6	11.8	16.1	10.9	38.8	32.0	2560.2	141.8	3.6	5.5	47.4	468	9.5	0.8	16.3	104.3	1.205	2.470	0.488	22.22	18.436	45.54	1168	0.004	0.003	0.002	0.110	0.108	0.258			
98bc407-1	0	2	300	9.5	8.2	6.0	6.4	6.6	13.4	0.0	100.6	0.0	2.4	17.2	232	4.8	0.0	9.8	38.4	1.178	2.442	0.482	28.60	24.276	59.288	3827	0.004	0.005	0.001	0.162	0.183	0.442			
98bc407-2	4	6	237	11.8	8.5	7.1	7.7	6.9	13.2	15.2	103.9	0.0	2.9	17.5	216	8.5	0.9	10.4	50.5	1.177	2.443	0.482	27.37	23.261	56.824	3123	0.002	0.005	0.001	0.234	0.212	0.566			
98bc407-3	8	10	250	13.1	7.4	7.2	8.0	7.3	11.8	5.7	125.4	0.1	2.9	20.8	126	6.8	1.1	10.7	50.0	1.175	2.442	0.481	27.81	23.671	57.808	3052	0.002	0.005	0.001	0.307	0.265	0.619			
98bc407-4	11	13	187	15.9	8.4	8.4	8.6	10.9	15.4	237.7	96.4	0.0	2.3	16.8	423	9.2	0.0	11.0	60.2	1.175	2.445	0.481	22.82	19.615	47.461	1995	0.002	0.005	0.001	0.158	0.149	0.368			
98bc407-5	15	17	157	23.5	10.9	10.9	15.2	20.9	37.6	1133.2	104.0	0.4	3.2	26.1	562	6.5	0.0	13.3	60.6	1.172	2.446	0.479	19.36	16.523	40.419	691	0.001	0.007	0.001	0.043	0.043	0.122			
98bc407-6	22	24																																	
98dw408-1	0	7																																	
98dw408-2	7	15	206	20.2	8.6	9.4	13.1	39.7	40.0	612.5	111.6	0.0	2.6	24.1	432	6.5	0.0	13.5	85.4	1.175	2.447	0.480	19.10	16.254	39.77	430	0.002	0.008	0.002	0.053	0.063	0.212			
98dw408-3	15	17	182	26.5	8.2	9.1	14.3	39.0	38.5	599.4	107.0	0.0	3.5	24.2	403	8.8	3.0	14.0	86.5	1.172	2.450	0.478	20.01	17.075	41.83	641	0.004	0.010	0.002	0.091	0.061	0.214			
98dw408-4	17	20	190	20.6	8.8	9.8	13.4	28.9	30.6	289.3	116.0	0.0	2.7	24.2	305	5.6	1.8	12.5	84.3	1.175	2.447	0.480	19.70	16.771	41.04	581	0.004	0.006	0.002	0.112	0.116	0.247			
98dw408-5	20	23	150	18.3	7.9	10.6	15.4	45.9	43.5	576.5	89.0	0.1	2.9	20.3	579	7.4	0.0	13.3	66.9	1.176	2.452	0.480	18.83	16.005	39.25	204	0.003	0.009	0.002	0.105	0.071	0.196			
98dw408-6	23	26																																	
98dw408-7	28	31	145	22.3	7.8	11.3	8.0	39.1	25.2	1262.0	102.4	0.5	3.4	27.6	432	8.2	2.2	14.0	66.8	1.191	2.467	0.483	20.54	17.243	42.53	650	0.003	0.008	0.002	0.111	0.093	0.240			
98dw408-8	31	35	104	42.1	11.8	18.6	13.7	59.3	41.4	4296.6	125.9	5.2	6.3	54.5	487	10.2	1.4	18.3	85.7	1.194	2.469	0.484	20.27	16.983	41.92	426	0.004	0.013	0.003	0.130	0.104	0.252			
98dw408-9	36	39	156	33.8	9.7	14.4	11.6	53.5	31.7	2459.4	106.7	1.8	4.9	37.2	500	10.2	0.7	16.5	78.9	1.193	2.469	0.483	19.98	16.752	41.36	328	0.004	0.014	0.002	0.188	0.162	0.353			
98dw408-1	42	46	162	19.5	10.6	10.9	9.8	44.9	25.9	1164.0	83.0	0.0	2.8	21.5	641	7.6	0.0	14.2	55.5	1.189	2.451	0.485	19.17	16.120	39.503	200	0.003	0.004	0.001	0.098	0.090	0.210			
98dw408-1	52	57	102	36.3	9.3	16.2	11.3	71.1	34.3	1676.6	111.5	2.1	4.6	39.2	650	8.2	0.7	16.4	95.0	1.200	2.464	0.487	19.05	15.872	39.106	169	0.003	0.007	0.001	0.102	0.094	0.225			
98dw408-1	70	73	154	50.8	11.4	21.0	11.3	67.9	45.1	5935.9	145.2	5.8	7.6	63.2	427	8.2	1.2	18.2	128.1	1.200	2.463	0.487	19.36	16.142	39.762	355	0.002	0.004	0.001	0.078	0.068	0.160			
98dw408-1	82	87	125	36.5	13.0	15.4	9.9	55.0	26.3	1177.3	77.6	1.2	3.8	25.0	1171	11.5	1.1	14.8	57.9	1.199	2.464	0.487	18.85	15.720	38.736	63	0.004	0.009	0.001	0.049	0.085	0.118			
98dw408-1	113	116	109	48.0	19.5	37.1	20.2	133.5	98.0	7059.6	259.9	17.9	15.4	154.6	162	14.7	1.9	26.6	184.3	1.198	2.474	0.484	18.76	15.861	38.746	66	0.003	0.006	0.002	0.051	0.046	0.148			
98bc409-1	0	3	215	21.8	11.1	10.7	17.7	38.0	42.4	705.2	107.5	0.0	2.8	25.5	413	4.5	0.6	14.0	55.3	1.206	2.465	0.489	19.23	15.960	39.29	676	0.004	0.006	0.001	0.041	0.053	0.088			
98bc409-2	3	7	207	23.0	10.7	10.0	15.2	36.5	40.0	612.7	108.8	0.2	3.3	24.6	396	9.5	0.4	13.9	90.3	1.172	2.450	0.479	18.97	16.175	39.63	762	0.002	0.006	0.001	0.038	0.025	0.103			
98bc409-3	8	11	172	31.9	12.2	12.9	19.5	54.3	55.5	1442.2	110.7	1.4	4.5	33.7	448	7.4	0.0	15.3	84.5	1.189	2.457	0.484	18.77	15.791	38.81	373	0.002	0.006	0.001	0.062	0.050	0.145			
98bc409-4	12	15	212	21.3	11.6	9.9	13.6	28.7	34.1	793.3	114.4	0.2	2.8	27.7	342	6.1	0.0	12.2	73.6	1.177	2.451	0.480	19.11	16.239	39.81	949	0.003	0.006	0.001	0.072	0.057	0.113			
98bc409-5	20	24	160	33.7	13.1	14.9	14.5	52.2	42.9	2430.5	111.9	2.8	4.4	39.5	503	8.0	0.0	15.1	88.2	1.182	2.461	0.480	18.92	16.006	39.39	555	0.003	0.006	0.001	0.046	0.062	0.161			
98bc409-6	25	30	179	25.4	6.3	10.1	18.0	34.4	37.7	747.2	94.8	0.1	3.0	20.9	443	6.3	1.7	12.3	67.8	1.171	2.441	0.480	21.23	18.131	44.259	952	0.004	0.008	0.001	0.072	0.081	0.101			
98dw410-1	52	54	221	14.2	8.7	8.7	6.7	13.5	9.9	23.3	140.4	0.0	2.6	26.0	283	8.3	1.2	12.6	48.9	1.191	2.453	0.486	78.16	65.620	160.938	1404	0.006	0.012	0.002	5.644	4.799	11.704			
98dw410-2	84	86	252	13.4	10.8	7.9	6.6	10.2	9.1	0.0	143.2	0.0	2.8	27.4	146	7.2	0.0	10.2	52.0	1.203	2.454	0.490	54.74	45.514	111.683	811	0.007	0.014	0.004	2.044	1.667	3.557			
98bc411-1	0	2	295	8.5	8.6	5.8	7.4	7.2	7.7	0.0	138.0	0.3	2.3	24.4	62	6.6	0.0	9.0	33.9	1.182	2.447	0.483	59.80	50.596	123.8	6287	0.003	0.005	0.001	1.545	1.334	3.281			
98bc411-2	4	6	283	7.8	10.5	6.2	6.6	5.8	7.9	0.0	156.7	0.0	2.3	25.1	63	7.2	0.0	10.3	36.2	1.187	2.457	0.483	45.75	38.543	94.69	5089	0.002	0.004	0.001	0.961	0.832	2.051			
98bc411-3	8	10																		1.181	2.453	0.481	39.95	33.826	82.99	4821	0.003	0.006	0.001	0.548	0.451	1.177			
98bc411-4	12	14																		1.171	2.441	0.480	22.19	18.954	46.26	3744	0.002	0.003	0.001	0.083	0.072	0.168			
98bc411-5	18	20																		1.174	2.450	0.479	24.59	20.935	51.30	5359	0.003	0.005	0.001	0.156	0.086	0.261			
98bc411-6	23	25	296	10.3	8.0	6.8	7.3																												

core	min	max (cm)	Co	Cr	Cu	Ni	Pb	V	Zn	S	Ba	Ga	Nb	Rb	Sr	Th	U	Y	Zr	206/207	208/207	206/208	206/204	207/204	208/204	Hg counts!		206/207	208/207	206/208	206/204	207/204	208/204		
98dw415-2	10	12																																	
98dw415-3	22	24	294	12.6	8.3	6.4	5.5	13.3	8.0	0.0	112.1	0.0	2.8	18.1	119	7.0	1.8	10.2	35.0	1.194	2.468	0.484	-2784.02	-2322.634	#####	2593		0.005	0.008	0.002	7750.647	6483.864	16007.484		
98dw415-4	36	38	207	12.4	8.2	7.2	5.1	18.5	8.6	231.0	86.9	0.0	2.7	14.0	296	5.0	0.0	11.1	35.5	1.205	2.476	0.487	35.65	29.587	73.243	1394		0.004	0.011	0.002	0.455	0.401	0.999		
98dw415-5	50	52																																	
98dw415-6	64	66	263	16.8	8.6	7.9	6.1	11.6	9.1	28.4	143.7	0.0	2.7	28.1	85	4.3	2.4	11.6	60.4	1.198	2.473	0.485	64.95	54.200	134.061	1570		0.006	0.008	0.002	2.122	1.854	4.654		
98dw415-7	84	86	278	16.5	7.4	8.5	6.3	12.5	10.3	209.3	165.2	0.0	2.8	32.0	108	5.9	0.0	11.3	45.2	1.192	2.472	0.482	37.38	31.343	77.465	1161		0.006	0.011	0.003	0.519	0.350	1.046		
98dw415-8	107	109	290	11.4	7.2	7.1	6.1	13.1	10.4	135.9	166.3	0.2	3.0	35.5	90	7.0	1.8	9.7	39.4	1.199	2.476	0.484	65.09	54.293	134.416	1905		0.003	0.008	0.002	1.995	1.620	4.047		
98dw415-9	128	130	311	13.1	8.1	6.5	7.1	12.5	10.1	95.7	157.0	0.7	2.5	31.0	82	6.3	0.0	11.4	39.9	1.195	2.468	0.484	51.79	43.321	106.904	1690		0.005	0.011	0.003	1.370	1.202	2.879		
98dw415-1	143	145																		1.195	2.465	0.485	96.72	80.903	199.461	1854		0.004	0.011	0.002	9.176	7.631	18.955		
98dw415-1	162	164																																	
98dw415-1	178	180																																	
98dw415-1	212	214	301	14.8	9.1	7.6	7.0	13.4	11.0	0.0	153.8	0.5	4.0	31.1	104	9.9	0.0	11.7	57.6	1.200	2.475	0.485	71.34	59.452	147.140	1671		0.006	0.008	0.003	2.814	2.371	6.109		
98dw415-1	272	274																																	
98dw415-1	312	314	286	23.0	8.7	8.6	8.6	15.3	12.9	0.0	164.7	1.1	3.2	34.5	86	8.6	0.0	13.5	114.3	1.198	2.477	0.484	-867.20	-725.149	#####	2429		0.005	0.014	0.003	1107.081	929.606	2287.578		
98dw415-1	372	374																																	
98dw415-1	409	411	292	19.2	8.5	8.3	7.4	12.9	12.3	0.0	169.4	0.9	2.9	35.6	84	5.7	3.0	12.1	85.2	1.202	2.474	0.486	248.48	206.496	511.070	2167		0.008	0.013	0.004	88.650	72.919	182.062		
98dw415-1	448	450	300	16.8	8.6	10.0	9.0	13.4	12.6	0.0	177.4	0.8	3.5	38.0	96	9.4	1.4	12.2	70.7	1.200	2.473	0.485	99.01	82.528	204.102	1845		0.005	0.015	0.002	8.259	6.788	16.926		
98bc416-1	0	2	242	21.1	8.4	7.3	8.1	12.6	13.2	117.3	151.8	0.8	2.7	29.1	128	6.8	0.0	10.3	79.2	1.186	2.450	0.484	49.71	41.903	102.7	5132		0.004	0.007	0.002	0.714	0.615	1.580		
98bc416-2	3	5	247	26.4	7.2	7.7	6.5	13.8	13.0	116.2	129.0	0.0	3.7	25.1	152	8.9	0.0	14.3	169.1	1.187	2.459	0.483	140.74	118.59	291.6	5644		0.003	0.006	0.001	10.367	8.888	21.428		
98bc416-3	8	10																																	
98bc416-4	13	15																																	
98bc416-5	16	18	273	13.7	8.0	7.3	5.6	10.6	11.3	23.2	154.5	0.2	2.4	29.8	83	4.1	0.8	10.8	39.5	1.189	2.450	0.485	177.88	149.61	366.6	5636		0.004	0.013	0.002	29.312	24.453	60.506		
98bc416-6	19	21	266	14.0	8.3	7.1	8.9	12.4	11.3	118.7	152.3	0.0	2.6	29.9	106	6.7	3.6	10.0	44.7	1.192	2.459	0.485	-894.56	B.D.	B.D.	6467		0.003	0.006	0.001	2725.521	2291.390	5641.140		
98dw417-1	0	2	315	23.8	11.0	8.6	8.7	9.3	15.5	237.2	157.8	0.9	3.5	33.1	102	4.3	2.9	12.1	119.3																
98dw417-2	5	10	279	22.7	13.8	9.0	8.8	9.6	17.4	251.3	167.8	1.0	3.8	35.0	107	5.7	2.1	11.7	120.6	1.180	2.459	0.480	58.07	49.223	121.043	2225		0.006	0.014	0.003	2.165	1.748	4.162		
98dw417-3	11	13																		1.177	2.452	0.480	52.20	44.347	108.731	2131		0.006	0.010	0.004	0.974	0.882	2.164		
98dw417-4	16	19																																	
98dw417-5	22	25	241	27.3	9.8	11.0	11.1	12.5	24.2	755.3	179.7	1.5	3.7	39.6	145	8.2	3.3	12.9	80.9	1.176	2.443	0.481	28.61	24.336	59.449	2323		0.003	0.008	0.002	0.236	0.212	0.454		
98dw417-6	29	35																																	
98dw417-7	37	42	246	22.4	9.8	9.4	6.9	10.1	11.9	121.5	156.4	1.5	3.6	34.0	186	7.2	1.1	12.5	87.7	1.198	2.469	0.485	26.58	22.183	54.773	958		0.005	0.007	0.001	0.228	0.202	0.456		
98dw417-8	58	61	254	25.8	8.5	8.9	7.9	11.7	10.6	0.7	166.6	1.4	3.8	34.2	114	4.8	0.0	12.1	82.5	1.204	2.472	0.487	-198.52	-164.821	-407.566	2618		0.008	0.012	0.002	59.352	49.100	122.023		
98dw417-9	77	81																																	
98dw417-1	105	110																																	
98dw417-1	135	140	278	15.7	8.4	8.3	6.1	8.0	9.6	48.4	153.6	0.4	3.4	31.8	115	6.3	0.0	12.0	56.2	1.211	2.468	0.491	70.06	57.860	142.793	1734		0.007	0.012	0.002	3.320	2.847	6.753		
98dw417-1	204	208	269	14.8	7.8	8.3	7.7	7.1	8.8	77.9	172.1	0.0	3.0	34.8	99	7.2	0.0	10.9	41.7	1.209	2.469	0.490	56.82	47.005	116.049	1551		0.003	0.010	0.002	2.419	2.034	4.715		
98dw417-1	233	236	249	23.7	8.2	9.6	6.9	8.7	11.9	328.3	174.5	0.6	3.9	37.3	129	5.8	1.9	12.3	79.4	1.208	2.471	0.489	-16.54	-13.692	-33.836	5385		0.005	0.009	0.003	0.445	0.401	1.055		
98bc418-1	0	2	283	28.1	9.0	9.6	11.0	11.0	23.5	162.1	179.6	2.0	3.5	37.9	117	6.4	0.0	12.4	99.6	1.178	2.435	0.484	29.04	24.649	60.03	3231		0.005	0.009	0.002	0.319	0.261	0.701		
98bc418-2	2	4	257	24.2	9.1	10.3	10.0	12.0	21.2	241.3	179.3	0.9	4.0	39.5	125	7.2	0.0	11.4	66.2	1.177	2.443	0.482	33.27	28.254	69.03	3977		0.004	0.008	0.002	0.242	0.199	0.428		
98bc418-3	4	6	256	24.8	8.6	10.6	8.8	11.0	19.8	277.7	177.3	0.8	3.2	39.2	126	10.1	0.0	11.7	62.9	1.179	2.439	0.483	39.30	33.342	81.33	5161		0.004	0.006	0.002	0.873	0.709	1.709		
98bc418-4	6	7	242	24.4	7.9	9.9	9.4	10.5	18.7	303.3	171.6	1.1	2.7	37.9	121	6.0	0.0	12.7	63.8	1.182	2.445	0.483	37.72	31.921	78.05	4602		0.002	0.011	0.002	0.692	0.630	1.566		
98bc418-5	9	13	254	20.7	7.3	8.9	6.0	8.8	16.0	554.1	167.2	0.9	3.3	34.5	117	6.6	1.4	11.4	59.1	1.180	2.448	0.482	39.35	33.347	81.63	4834		0.004	0.007	0.001	0.861	0.649	1.730		
98bc418-6	19	24	268	34.6	8.6	9.1	9.5	12.5	18.7	624.6	176.0	1.0	3.8	36.3	116	6.3	0.0	15.7	289.7	1.180	2.452	0.481	45.39	38.453	94.29	5625		0.002	0.010	0.002	0.882	0.769	1.835		
98dw419-1	0	3	230	22.0	8.8	9.7	10.5	13.5	15.9	521.6	183.1	1.7	3.2	38.2	104	6.7	0.0	11.6	57.5	1.177	2.453	0.480	41.04	34.868	85.508	2773		0.005	0.012	0.003	0.909	0.780	1.657		
98dw419-2	6	8																																	
98dw419-3	12	14	219	23.7	8.9	10.3	10.4	16.4	16.9	117.6	184.0	0.9	3.2	39.5	173	5.2	0.0	11.3	80.5	1.177	2.450	0.480	25.95	22.057	54.045	2015		0.005	0.007	0.001	0.283	0.212	0.607		
98dw419-4	15	17	315	24.2	9.5	9.1	10.5	13.3	17.5	18.8	183.1	1.8	3.6	39.9</																					

core	min	max	cm/Co	Cr	Cu	Ni	Pb	V	Zn	S	Ba	Ga	Nb	Rb	Sr	Th	U	Y	Zr	206/207	208/207	206/208	206/204	207/204	208/204	Hg counts/l	206/207	208/207	206/208	206/204	207/204	208/204		
98dw420-1	157	159	267	20.7	8.2	8.5	8.2	11.5	11.5	632.1	175.6	1.0	3.5	36.1	125	8.2	1.1	13.7	142.2	1.207	2.471	0.489	-13.93	-11.537	-28.509	5445	0.008	0.015	0.003	0.327	0.253	0.618		
98dw421-1	1	2	215	42.7	11.3	14.1	19.5	37.2	47.3	414.2	237.6	3.6	6.6	47.3	105	8.3	0.0	16.6	305.8	1.179	2.458	0.480	20.58	17.455	42.905	1720	0.004	0.008	0.002	0.136	0.069	0.247		
98dw421-2	2	3	227	42.1	11.4	13.8	18.6	33.1	46.9	427.5	235.0	2.9	7.0	47.5	102	9.9	2.7	16.9	324.7	1.182	2.461	0.480	20.92	17.694	43.543	818	0.009	0.012	0.003	0.141	0.178	0.296		
98dw421-3	3	5	216	43.3	10.8	12.9	18.7	36.2	45.8	427.7	240.1	4.7	6.7	47.1	108	7.8	4.1	17.4	319.9	1.180	2.463	0.479	20.72	17.553	43.226	738	0.004	0.014	0.003	0.181	0.128	0.292		
98dw421-4	5	6	217	42.4	11.3	13.8	20.0	40.0	47.0	422.5	226.9	3.9	7.0	46.5	103	8.2	2.5	17.3	324.2	1.178	2.457	0.480	20.94	17.772	43.662	718	0.004	0.010	0.002	0.125	0.110	0.298		
98dw421-5	6	8	209	38.9	11.4	13.8	17.1	36.5	47.6	403.1	230.9	3.9	6.8	47.7	104	9.6	0.5	16.6	307.0	1.177	2.462	0.478	20.86	17.719	43.632	856	0.006	0.009	0.002	0.129	0.117	0.285		
98dw421-6	8	10	214	41.4	10.9	13.6	17.6	37.8	46.1	341.8	231.5	3.6	7.0	47.3	102	11.5	0.3	16.4	297.1	1.180	2.453	0.481	21.27	18.030	44.224	787	0.004	0.011	0.003	0.187	0.183	0.357		
98dw421-7	10	12																		1.183	2.463	0.480	21.40	18.084	44.543	767	0.004	0.015	0.002	0.154	0.145	0.276		
98dw421-8	12	14	206	39.7	10.1	13.8	18.3	36.6	46.3	358.4	230.8	3.4	6.2	47.3	111	8.0	2.5	16.9	321.0															
98dw421-9	14	16	203	39.6	10.6	14.5	19.1	38.2	45.2	410.2	224.7	3.2	6.8	46.7	119	9.5	2.1	16.1	336.6	1.181	2.466	0.479	21.51	18.209	44.904	762	0.005	0.012	0.002	0.150	0.143	0.294		
98dw421-10	16	19	198	42.5	10.0	13.3	18.2	34.8	45.5	344.4	228.5	3.5	6.3	47.9	110	7.1	2.8	16.9	314.1	1.181	2.464	0.479	21.37	18.089	44.572	745	0.003	0.011	0.001	0.143	0.135	0.272		
98dw421-11	17	19	193	44.2	10.0	14.2	17.9	35.3	46.0	444.1	236.0	3.9	6.9	48.8	112	8.0	0.1	19.5	316.2	1.185	2.468	0.480	20.93	17.666	43.595	656	0.003	0.011	0.002	0.126	0.106	0.279		
98dw421-12	22	24	200	43.4	9.9	14.4	18.8	35.1	42.4	526.9	226.7	3.9	6.7	47.8	122	8.4	1.2	16.8	302.6	1.187	2.468	0.481	21.42	18.046	44.533	612	0.006	0.008	0.003	0.114	0.086	0.265		
98dw421-13	25	27	209	40.2	10.1	14.1	17.2	32.9	41.3	532.9	221.6	4.0	6.7	46.6	153	9.3	0.0	15.9	308.9	1.187	2.465	0.482	21.21	17.866	44.043	736	0.004	0.011	0.002	0.161	0.119	0.293		
98dw421-14	30	32	205	39.6	10.9	14.1	14.4	36.2	41.2	503.4	221.7	4.1	6.3	47.4	139	9.2	0.0	17.1	308.1	1.191	2.471	0.482	21.21	17.809	44.005	712	0.005	0.009	0.002	0.153	0.143	0.346		
98dw421-15	33	34	194	37.9	10.9	14.2	15.1	37.2	37.2	572.7	212.5	3.7	6.3	45.7	173	7.2	1.7	16.8	293.8	1.195	2.477	0.482	22.46	18.804	46.571	738	0.002	0.012	0.002	0.218	0.172	0.428		
98dw421-16	37	39	190	39.9	10.0	13.7	14.2	36.5	38.8	417.4	214.6	3.8	6.7	46.7	154	9.3	0.0	16.1	264.1	1.194	2.476	0.482	22.03	18.445	45.666	738	0.005	0.011	0.002	0.185	0.178	0.483		
98dw421-17	39	41	192	36.7	9.5	13.3	14.2	35.6	37.2	350.8	219.7	3.7	6.4	46.0	157	11.7	1.5	15.4	276.0	1.203	2.472	0.487	23.74	19.740	48.795	464	0.004	0.011	0.002	0.239	0.213	0.491		
98dw421-18	46	49	135	27.6	9.8	14.2	7.5	22.4	28.6	858.7	137.6	1.8	5.1	30.7	649	11.5	0.7	14.1	202.5	1.193	2.470	0.483	22.97	19.261	47.571	763	0.004	0.007	0.002	0.175	0.129	0.365		
98dw421-19	50	53	141	40.8	10.3	15.1	11.2	34.3	32.8	858.5	185.9	3.1	6.2	41.4	349	9.4	0.9	17.3	252.1	1.209	2.479	0.488	23.68	19.596	48.571	299	0.007	0.009	0.003	0.368	0.324	0.905		
98dw421-20	58	61	144	35.5	10.2	14.3	11.9	34.7	32.2	800.3	188.8	3.2	6.9	41.7	381	11.6	0.4	16.2	253.4	1.208	2.476	0.488	22.57	18.678	46.249	211	0.005	0.016	0.003	0.153	0.125	0.538		
98dw421-21	62	65	150	41.7	9.9	16.1	10.6	38.3	35.9	750.9	221.7	3.6	7.9	48.8	202	10.3	1.1	17.9	280.8	1.199	2.478	0.484	21.99	18.338	45.442	246	0.008	0.018	0.003	0.295	0.255	0.405		
98dw421-22	69	72	159	44.2	10.4	17.9	13.1	47.2	37.7	817.7	235.4	5.3	8.0	53.5	177	12.5	0.1	20.7	304.4	1.202	2.489	0.483	22.17	18.443	45.895	232	0.007	0.014	0.003	0.311	0.252	0.581		
98dw421-23	75	78	148	48.5	11.1	17.4	13.1	47.9	38.0	1254.6	236.7	5.8	8.6	56.4	188	12.4	0.2	18.5	331.7	1.209	2.490	0.487	22.17	18.341	45.488	218	0.009	0.014	0.002	0.287	0.315	0.620		
98dw421-24	83	86	173	45.3	10.7	16.4	12.0	43.7	36.9	853.8	234.5	4.3	7.5	52.9	170	10.0	1.4	18.8	317.1	1.204	2.482	0.489	23.96	19.898	48.989	334	0.007	0.021	0.006	0.307	0.247	0.704		
98dw421-25	91	94	174	43.3	11.3	16.0	11.4	45.6	35.8	4573.3	234.0	4.8	7.6	53.4	185	12.4	6.0	21.2	343.2	1.208	2.491	0.485	26.86	22.238	55.391	362	0.005	0.016	0.003	0.835	0.816	1.643		
98dw421-26	99	101	207	42.4	9.7	13.3	11.6	32.8	25.1	4185.2	218.9	3.2	7.8	44.5	179	7.3	4.0	19.4	417.6	1.205	2.473	0.487	38.20	31.706	78.404	471	0.008	0.019	0.002	1.214	0.961	2.317		
98dw421-27	114	116																																
98dw421-28	138	142	185	44.9	11.8	16.3	12.1	33.2	31.4	5466.2	230.1	4.3	8.3	52.6	148	11.8	0.0	19.2	462.6	1.217	2.484	0.490	28.95	23.789	59.099	356	0.008	0.019	0.003	0.562	0.502	1.114		
98dw422-1	0	3	196	44.9	11.7	14.3	16.5	40.0	38.3	471.2	258.7	4.2	7.3	52.4	97	13.8	1.4	20.3	345.4	1.185	2.459	0.482	20.86	17.604	43.296	118	0.007	0.013	0.004	0.383	0.303	0.809		
98dw422-2	3	5	208	45.0	10.5	12.9	17.1	39.8	38.3	202.9	263.5	3.2	7.9	50.4	93	10.4	0.5	18.4	411.1	1.184	2.464	0.481	22.68	19.156	47.189	246	0.009	0.023	0.004	0.239	0.288	0.591		
98dw422-3	5	7	194	47.1	10.6	14.8	15.9	37.7	38.9	162.4	267.1	3.7	8.2	50.1	94	10.0	8.0	19.7	399.5	1.183	2.456	0.481	21.92	18.539	45.536	233	0.007	0.017	0.002	0.326	0.291	0.685		
98dw422-4	7	8	186	45.5	10.6	14.7	17.5	41.3	43.0	200.5	271.4	4.1	8.2	53.9	98	13.6	0.1	17.8	393.8	1.187	2.467	0.481	21.04	17.722	43.726	185	0.008	0.015	0.003	0.579	0.474	1.133		
98dw422-5	8	9	258	46.3	9.5	15.2	17.5	47.3	42.3	210.1	278.0	5.3	8.4	54.7	101	12.3	2.4	18.8	363.8	1.183	2.463	0.480	20.92	17.686	43.558	177	0.009	0.020	0.005	0.333	0.208	0.457		
98dw422-6	9	10	221	44.8	12.5	15.5	18.4	44.1	44.0	229.4	281.9	5.1	8.1	54.9	100	9.2	2.0	19.4	363.0	1.187	2.458	0.483	19.63	16.530	40.633	845	0.004	0.006	0.001	0.057	0.052	0.109		
98dw422-7	10	12	216	45.4	10.7	13.0	16.4	37.6	40.1	183.9	282.6	4.4	8.0	53.2	98	7.1	0.5	20.2	404.2	1.188	2.455	0.484	19.99	16.824	41.301	1136	0.003	0.006	0.001	0.095	0.073	0.250		
98dw422-8	12	13	226	46.9	11.0	13.7	17.1	38.6	38.8	145.4	272.2	3.9	8.4	52.1	95	10.1	2.6	18.9	421.1	1.190	2.457	0.484	20.03	16.829	41.358	1065	0.002	0.006	0.001	0.089	0.089	0.281		
98dw422-9	13	14	221	42.2	11.2	14.1	16.1	37.8	39.6	226.4	275.8	4.2	7.5	51.4	94	9.6	2.2	18.6	412.4	1.191	2.455	0.485	19.86	16.673	40.930	1010	0.002	0.006	0.001	0.070	0.052	0.153		
98dw422-10	14	16	222	43.3	11.4	13.1	16.9	39.8	38.8	179.4	275.5	3.7	7.7	51.3	96	8.3	0.0	20.7	456.6	1.189	2.456	0.484	20.26	17.039	41.843	1193	0.004	0.004	0.001	0.078	0.070	0.159		
98dw422-11	25	27	191	51.1	11.1	14.1	16.6	38.6	40.0	176.3	253.7	3.8	8.4	51.5	95	8.5																		

core	min	max (cm)	206/207	208/207	206/208	206/204	207/204	208/204	extraheerbaar P4	% Pb beschikbaar	C-tot	C-carbonaat	carbonaat	C-org	S-%	Residual	d(v.0.5)	>2000	2000-1680	1680-1410	1410-1190	1190-1000	1000-850	850-707	707-600	600-500
98dw406-1	0	2	0.3	0.3	0.3	1.6	1.5	1.5	3.0	36.5	1.58	1.62	13.52	0.01	0.04	0.95	563.97	0.00	1.72	2.10	2.79	4.42	6.70	11.72	14.36	18.52
98dw406-2	4	6	0.1	0.2	0.2	1.2	1.2	1.3	3.1	39.5	2.35	2.40	19.98	0.01	0.05	1.15	581.89	0.00	0.00	1.31	3.31	5.61	8.17	13.30	15.20	18.48
98dw406-3	12	14	0.3	0.4	0.4	2.4	2.4	2.4	2.4	31.6	1.16	1.23	10.28	0.01	0.04	1.15	593.00	0.00	0.00	0.88	2.51	5.18	8.28	14.58	17.40	20.98
98dw406-4	10	22	0.3	0.2	0.3	1.0	0.9	1.0	2.7	34.6	2.11	2.12	17.67	0.01	0.07	1.62	611.87	0.00	5.73	4.72	4.22	5.06	6.94	11.22	13.93	17.44
98dw406-5	39	41	0.2	0.3	0.2	3.0	3.0	3.1	2.6	35.8	1.13	1.19	9.90	0.01	0.07	0.88	458.50	0.00	1.73	0.89	0.43	0.84	2.85	6.27	10.61	16.89
98dw406-6	57	59	0.2	0.2	0.2	0.5	0.5	0.4	3.2	37.6	2.12	2.15	17.90	0.01	0.08	1.13	474.70	0.00	8.68	4.46	1.76	0.99	1.57	5.10	8.00	14.52
98dw406-7	70	72	0.3	0.3	0.3	0.9	1.2	1.1	3.5	36.7	2.78	2.74	22.82	0.04	0.15	0.81	454.03	0.00	0.00	0.00	0.00	0.36	2.66	6.26	11.20	18.22
98dw406-8	85	87	0.4	0.1	0.3	0.5	0.6	0.6	4.3	39.6	3.55	3.27	27.25	0.28	0.41	0.48	307.57	0.00	0.00	0.25	0.84	1.65	2.59	4.52	5.65	8.03
98bc407-1	0	2	0.30	0.20	0.28	0.57	0.75	0.75	3.3	52.3	1.44	1.38	11.47	0.06	0.13	0.50	499.02	0.00	0.40	0.78	1.42	2.75	4.72	9.07	12.36	18.30
98bc407-2	4	6	0.17	0.21	0.22	0.85	0.91	1.00	3.2	42.1	1.27	1.28	10.67	0.01	0.10	0.63	457.98	0.00	0.70	0.20	0.13	0.99	2.71	7.06	10.27	17.82
98bc407-3	8	10	0.14	0.21	0.28	1.10	1.12	1.07	3.2	39.9	0.72	0.74	6.21	0.01	0.22	0.46	406.78	0.00	0.11	0.01	0.00	0.08	1.14	4.15	7.55	14.20
98bc407-4	11	13	0.17	0.21	0.23	0.69	0.77	0.77	3.7	43.1	2.49	2.48	20.68	0.01	0.14	0.49	430.54	0.00	1.44	1.05	0.90	1.42	2.67	5.76	8.52	13.91
98bc407-5	15	17	0.10	0.28	0.27	0.22	0.26	0.30	9.1	60.0	3.78	3.36	28.00	0.42	0.28	0.92	512.35	0.00	5.80	4.56	3.87	3.80	4.54	7.39	9.16	12.93
98bc407-6	22	24														0.63	406.32	0.00	1.67	0.53	0.02	0.00	1.22	3.62	7.62	13.77
98dw408-1	0	7							-			n.a.	n.a.	n.a.		0.70	340.04	0.00	1.94	1.87	1.74	1.75	1.90	3.13	4.40	7.55
98dw408-2	7	15	0.2	0.3	0.4	0.3	0.4	0.5	7.4	56.1	3.21	2.72	22.69	0.49	0.16	0.81	370.95	0.00	1.89	2.58	3.11	3.54	3.63	4.80	5.36	7.80
98dw408-3	15	17	0.3	0.4	0.4	0.5	0.4	0.5	6.3	44.0	2.60	2.63	21.90	0.01	0.13	0.64	348.85	0.00	1.97	2.36	2.59	2.80	2.83	3.88	4.65	7.26
98dw408-4	17	20	0.4	0.2	0.4	0.6	0.7	0.6	6.7	50.1	2.07	2.06	17.14	0.01	0.12	0.70	353.68	0.00	4.40	3.96	3.33	2.85	2.38	3.05	3.80	6.38
98dw408-5	20	23	0.3	0.4	0.5	0.6	0.4	0.5	7.3	47.4	3.62	3.53	29.44	0.08	0.14	0.60	348.61	0.00	4.31	3.36	2.45	2.00	1.84	2.84	3.97	6.88
98dw408-6	23	26							-		4.23	n.a.	n.a.	n.a.	0.15	0.81	338.96	0.00	6.26	4.41	2.71	1.72	1.27	2.10	3.34	6.18
98dw408-7	28	31	0.3	0.3	0.3	0.5	0.5	0.6	4.6	57.5	2.91	2.80	23.36	0.11	0.18	1.04	398.42	0.00	4.30	3.55	2.84	2.60	2.69	4.26	5.64	9.04
98dw408-8	31	35	0.3	0.5	0.6	0.6	0.6	0.6	7.3	53.2	3.19	3.19	26.59	0.59	0.40	0.68	355.86	0.00	3.97	2.84	1.93	1.63	1.84	3.40	4.96	8.26
98dw408-9	36	39	0.3	0.6	0.5	0.9	1.0	0.9	6.1	52.4	3.52	3.18	26.47	0.34	0.27	0.96	437.34	0.00	5.16	4.59	3.89	3.59	3.50	5.03	6.19	9.46
98dw408-1	42	46	0.26	0.15	0.26	0.51	0.56	0.53	5.9	60.4	4.15	4.01	33.39	0.14	0.15	0.75	358.64	0.00	2.43	2.34	2.19	2.30	2.61	4.18	5.41	8.38
98dw408-1	52	57	0.29	0.27	0.28	0.54	0.59	0.57	4.8	42.8	4.20	3.86	32.16	0.34	0.18	0.77	387.19	0.00	4.05	2.79	1.72	1.42	1.86	3.92	6.00	10.00
98dw408-1	70	73	0.13	0.18	0.19	0.40	0.42	0.40	5.7	50.0	3.44	2.73	22.71	0.72	0.61	0.52	256.66	0.00	0.00	0.00	0.14	0.74	2.05	3.76	7.39	
98dw408-1	82	87	0.33	0.37	0.22	0.26	0.54	0.31	3.8	37.9	6.18	5.76	48.04	0.41	0.12	0.75	393.57	0.00	1.72	1.11	0.58	0.76	1.86	4.54	6.83	12.24
98dw408-1	113	116	0.23	0.25	0.33	0.27	0.30	0.38	10.2	50.5	1.01	0.59	4.91	0.42	1.12	0.34	10.15	0.00	0.00	0.00	0.00	0.07	0.15	0.27	0.38	0.77
98bc409-1	0	3	0.3	0.2	0.3	0.2	0.3	0.2	13.7	77.6	2.71	2.52	20.97	0.19	0.08	0.36	371.53	0.00	2.50	2.50	2.33	2.32	2.45	3.80	5.06	8.36
98bc409-2	3	7	0.2	0.3	0.2	0.2	0.2	0.3	6.2	40.7	2.53	2.50	20.83	0.03	0.07	0.35	330.90	0.00	1.30	1.21	1.06	1.05	1.33	2.60	4.22	7.41
98bc409-3	8	11	0.2	0.2	0.2	0.3	0.3	0.4	12.4	63.9	3.28	2.88	23.98	0.41	0.13	0.42	338.60	0.00	1.28	1.45	1.52	1.62	1.81	3.03	4.37	7.67
98bc409-4	12	15	0.3	0.2	0.3	0.4	0.4	0.3	6.6	48.6	2.35	2.26	18.86	0.09	0.08	0.23	314.09	0.00	2.88	2.47	1.91	1.46	1.16	1.75	2.88	5.33
98bc409-5	20	24	0.2	0.3	0.3	0.2	0.4	0.4	6.5	44.6	3.63	3.27	27.28	0.36	0.23	1.02	466.70	0.00	9.39	7.45	5.52	4.44	3.62	4.44	4.93	7.10
98bc409-6	25	30	0.31	0.33	0.30	0.34	0.45	0.23			2.69	n.a.	n.a.	n.a.	0.12	1.08	620.06	0.00	12.28	10.03	7.71	6.21	4.74	5.09	5.02	6.77
98dw410-1	52	54	0.51	0.48	0.33	7.22	7.31	7.27	1.9	28.8	1.83	1.97	16.40	0.01	0.12	0.99	448.76	0.00	0.00	0.00	0.20	1.12	3.29	6.78	10.74	16.50
98dw410-2	84	86	0.59	0.56	0.83	3.73	3.66	3.19	1.4	21.8	0.88	0.94	7.79	0.01	0.12	1.55	628.41	0.00	0.08	3.08	6.14	8.94	10.39	13.03	11.52	11.90
98bc411-1	0	2	0.3	0.2	0.3	2.6	2.6	2.6	1.3	18.3	0.32	0.31	2.62	0.01	0.12	1.19	516.27	0.00	0.00	0.00	0.03	1.22	3.82	10.37	15.07	23.85
98bc411-2	4	6	0.2	0.2	0.2	2.1	2.2	2.2	1.2	19.1	0.28	0.33	2.73	0.01	0.15	0.74	516.13	0.00	0.00	0.00	0.06	0.88	3.33	9.90	15.14	25.45
98bc411-3	8	10	0.2	0.2	0.2	1.4	1.3	1.4	1.3	-	0.33	n.a.	n.a.	n.a.	0.14	1.42	603.61	0.00	0.00	0.29	2.43	5.67	9.09	15.54	17.66	20.08
98bc411-4	12	14	0.1	0.1	0.1	0.4	0.4	0.4	8.0	-	0.32	n.a.	n.a.	n.a.	0.22	1.07	536.56	0.00	0.00	0.00	0.41	2.32	5.44	11.82	16.39	22.41
98bc411-5	18	20	0.3	0.2	0.2	0.6	0.4	0.5	5.2	-	0.24	n.a.	n.a.	n.a.	0.25	0.99	534.25	0.00	0.00	0.00	0.65	4.10	9.90	18.41	26.89	
98bc411-6	23	25	0.2	0.3	0.2	0.3	0.3	0.3	1.4	18.8	0.32	0.29	2.41	0.03	0.33	1.16	554.51	0.00	0.00	0.00	0.45	2.54	5.96	13.07	17.88	23.44
98dw412-1	0	3	0.17	0.28	0.36	0.99	1.06	1.04	6.4	48.2	0.97	0.92	7.70	0.05	0.20	0.40	470.32	0.00	1.39	1.38	1.70	2.85	4.58	8.30	10.42	14.27
98dw412-2	7	9	0.39	0.42	0.34	0.49	0.51	0.41	7.3	50.9	2.63	2.62	21.87	0.01	0.08	0.54	625.17	0.00	1.86	3.76	5.59	7.73	9.23	12.59	12.39	13.64
98dw412-3	15	17	0.27	0.30	0.44	0.55	0.34	0.47	6.3	48.1	1.86	1.87	15.56	0.01	0.05	0.83	522.47	0.00	0.00	0.77	2.57	4.83	7.00	11.10	12.33	15.02
98dw412-4	21	23	0.30	0.34	0.31	2.84	2.94	2.76	2.8	26.3	1.91	1.82	15.19	0.09	0.17	0.51	162.80	0.00	0.00	0.00	0.10	0.32	0.35	0.24	0.01	0.02
98dw412-5	28	30	0.22	0.47	0.42	1.58	1.56	1.54	2.5	25.3	1.40	1.36	11.30	0.04	0.15	0.39	223.53	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.94	2.71
98bc413-1	0	1	0.2	0.2	0.1	0.6	0.6	0.5	7.9	40.9	0.48	0.44	3.64	0.04	0.18	0.85	472.10	0.00	0.00	0.00	0.30	1.68	4.37	8.44	12.25	17.18
98bc413-2	1	2	0.2	0.3	0.2	0.4	0.4	0.5	5.2	41.0	0.38	0.38	3.14	0.00	0.17	0.71	404.73	0.00	0.00	0.00	0.13	1.57	4.16	8.34	14.49	
98bc413-3	3	4	0.2	0.2	0.2	0.4	0.3	0.4	5.1	41.5	0.42	0.40	3.37	0.02	0.16	0.79	438.39	0.00	0.00	0						

core	min	max	cm	206/207	208/207	206/208	206/204	207/204	208/204	extraheerbaar	Pb %	Pb beschikbaar	C-tot	C-carbonaat	carbonaat	C-org	S-%	Residual	d(v.0.5)	>2000	2000-1680	1680-1410	1410-1190	1190-1000	1000-850	850-707	707-600	600-500
98dw415-2	10	12									-	28.5	0.50	n.a.	n.a.	n.a.	0.03	0.70	383.12	0.00	0.66	0.76	0.95	1.44	2.30	4.49	6.42	10.61
98dw415-3	22	24	0.45	0.32	0.46	-278.40	-279.16	-279.54			1.5	26.5	0.73	0.77	6.40	0.01	0.03	0.45	447.61	0.00	0.39	1.32	2.31	3.59	4.89	7.74	9.03	12.32
98dw415-4	36	38	0.33	0.45	0.46	1.28	1.35	1.36			1.7	34.0	1.97	2.01	16.75	0.01	0.05	0.57	498.12	0.00	1.43	2.47	3.61	5.19	6.54	9.36	9.66	11.51
98dw415-5	50	52									-		0.74	n.a.	n.a.	n.a.	0.04	0.45	427.82	0.00	0.00	0.19	0.98	2.26	3.83	7.08	9.11	13.22
98dw415-6	64	66	0.49	0.33	0.34	3.27	3.42	3.47			1.3	21.6	0.51	0.54	4.47	0.01	0.05	0.38	374.85	0.00	0.00	0.07	0.27	0.90	2.01	4.49	6.66	10.93
98dw415-7	84	86	0.47	0.45	0.69	1.39	1.12	1.35			1.4	22.2	0.27	0.63	5.23	0.01	0.03	0.43	335.30	0.00	0.10	0.01	0.00	0.00	0.00	0.16	2.11	5.76
98dw415-8	107	109	0.25	0.33	0.43	3.07	2.98	3.01			1.7	27.1	0.71	0.53	4.41	0.18	0.05	0.50	337.03	0.00	1.58	0.83	0.07	0.00	0.00	1.02	2.79	7.45
98dw415-9	128	130	0.45	0.43	0.54	2.64	2.77	2.69			1.7	24.5	0.53	0.48	4.02	0.04	0.04	0.45	319.17	0.00	0.53	0.33	0.03	0.00	0.05	0.81	2.85	6.32
98dw415-1	143	145	0.30	0.45	0.46	9.49	9.43	9.50			1.6	-	0.45	n.a.	n.a.	n.a.	0.05	0.27	341.08	0.00	0.27	0.02	0.00	0.00	0.18	1.51	3.91	7.92
98dw415-1	162	164									-		0.47	n.a.	n.a.	n.a.	0.07	0.27	305.79	0.00	0.00	0.00	0.00	0.00	0.00	0.15	1.86	4.92
98dw415-1	178	180									-		0.42	n.a.	n.a.	n.a.	0.08	0.29	325.20	0.00	0.00	0.00	0.00	0.00	0.02	0.50	2.83	6.50
98dw415-1	212	214	0.51	0.33	0.54	3.95	3.99	4.15			1.6	22.4	0.57	0.58	4.83	0.01	0.02	0.36	312.38	0.00	0.39	0.14	0.00	0.00	0.00	0.36	2.12	5.86
98dw415-1	272	274									-		0.39	n.a.	n.a.	n.a.	0.05	0.39	324.73	0.00	0.23	0.01	0.00	0.00	0.00	0.47	2.74	6.48
98dw415-1	312	314	0.40	0.55	0.62	-127.66	-128.20	-127.61			1.6	18.9	0.50	0.52	4.31	0.01	0.03	0.42	301.45	0.00	0.45	0.51	0.07	0.00	0.00	0.00	1.01	3.57
98dw415-1	372	374									-		0.47	n.a.	n.a.	n.a.	0.07	0.39	304.56	0.00	0.32	0.17	0.02	0.00	0.00	0.14	1.65	4.63
98dw415-1	409	411	0.67	0.52	0.92	35.68	35.31	35.62			1.7	22.6	0.49	0.48	4.03	0.01	0.02	0.36	303.33	0.00	0.00	0.00	0.00	0.00	0.00	0.09	1.49	4.35
98dw415-1	448	450	0.44	0.62	0.45	8.34	8.22	8.29			1.7	18.5	0.54	0.54	4.51	0.01	0.02	0.33	293.77	0.00	0.30	0.26	0.03	0.00	0.00	0.00	0.64	2.88
98bc416-1	0	2	0.3	0.3	0.4	1.4	1.5	1.5			2.2	26.5	0.72	0.74	6.13	0.01	0.18	0.59	338.05	0.00	0.69	0.39	0.04	0.00	0.07	1.16	3.24	7.71
98bc416-2	3	5	0.3	0.2	0.3	7.4	7.5	7.3			1.7	26.6	0.97	1.01	8.41	0.01	0.16	0.58	344.57	0.00	0.41	0.23	0.02	0.00	0.41	1.92	3.94	8.35
98bc416-3	8	10									-		0.24	n.a.	n.a.	n.a.	0.14	0.63	340.87	0.00	0.10	0.01	0.00	0.00	0.00	0.29	2.49	6.42
98bc416-4	13	15									-		0.32	n.a.	n.a.	n.a.	0.13	0.69	364.31	0.00	0.00	0.00	0.00	0.00	0.16	1.62	4.44	9.50
98bc416-5	16	18	0.4	0.5	0.4	16.5	16.3	16.5			1.7	29.7	0.47	0.47	3.91	0.00	0.17	0.76	349.58	0.00	0.18	0.01	0.00	0.00	0.16	1.69	3.92	8.99
98bc416-6	19	21	0.3	0.3	0.3	B.D.	B.D.	B.D.			1.7	18.8	0.59	0.58	4.84	0.01	0.19	0.72	341.65	0.00	0.50	0.30	0.03	0.00	0.20	1.62	3.71	8.25
98dw417-1	0	2									-		0.78	0.73	6.06	0.06	0.06	0.34	238.40	0.00	0.00	0.11	0.40	0.82	0.28	0.00	0.00	0.07
98dw417-2	5	10	0.55	0.57	0.71	3.73	3.55	3.44			2.4	27.4	0.71	0.78	6.46	0.01	0.05	0.36	236.35	0.00	0.02	0.18	0.45	0.54	0.16	0.00	0.00	0.05
98dw417-3	11	13	0.53	0.42	0.73	1.87	1.99	1.99			2.4	-	0.76	n.a.	n.a.	n.a.	0.05	0.31	233.39	0.00	0.03	0.17	0.38	0.35	0.08	0.00	0.00	0.04
98dw417-4	16	19									-		0.88	n.a.	n.a.	n.a.	0.05	0.30	226.79	0.00	0.00	0.08	0.20	0.26	0.07	0.00	0.00	0.01
98dw417-5	22	25	0.28	0.32	0.38	0.83	0.87	0.76			3.80	34.3	1.17	1.09	9.06	0.08	0.16	0.49	224.79	0.00	0.00	0.12	0.32	0.48	0.14	0.00	0.00	0.01
98dw417-6	29	35									-		0.80	n.a.	n.a.	n.a.	0.10	0.31	251.73	0.00	0.12	0.48	1.07	1.21	0.35	0.00	0.05	1.04
98dw417-7	37	42	0.41	0.27	0.29	0.86	0.91	0.83			1.39	20.3	1.30	1.34	11.20	0.01	0.07	0.31	260.35	0.00	0.87	1.38	1.69	1.62	1.04	0.58	0.59	2.26
98dw417-8	58	61	0.68	0.49	0.51	-29.90	-29.79	-29.94			1.14	14.5	0.73	0.81	6.74	0.01	0.05	0.55	244.24	0.00	0.03	0.30	0.81	1.14	0.64	0.07	0.03	0.79
98dw417-9	77	81									-		0.47	n.a.	n.a.	n.a.	0.03	0.51	701.33	0.00	0.00	2.57	6.70	10.72	13.10	16.22	13.29	11.63
98dw417-1	105	110									-		0.39	n.a.	n.a.	n.a.	0.03	0.24	365.79	0.00	0.00	0.00	0.81	2.39	3.67	6.16	7.26	9.84
98dw417-1	135	140	0.54	0.48	0.46	4.74	4.92	4.73			1.09	17.8	0.78	0.82	6.80	0.01	0.05	0.22	293.19	0.00	0.00	0.30	0.73	1.29	2.01	3.55	4.57	6.78
98dw417-1	204	208	0.28	0.40	0.46	4.26	4.33	4.06			1.09	14.3	0.70	0.73	6.08	0.01	0.05	0.24	265.34	0.00	0.00	0.18	0.71	1.27	1.59	2.26	2.64	4.23
98dw417-1	233	236	0.38	0.36	0.52	-2.69	-2.93	-3.12			1.25	18.2	0.96	1.02	8.46	0.01	0.08	0.45	233.42	0.00	0.00	0.08	0.37	0.67	0.56	0.50	0.51	1.61
98bc418-1	0	2	0.4	0.4	0.4	1.1	1.1	1.2			3.3	30.2	0.86	0.87	7.21	0.01	0.03	0.33	229.32	0.00	0.00	0.08	0.29	0.57	0.20	0.00	0.00	0.01
98bc418-2	2	4	0.3	0.3	0.3	0.7	0.7	0.6			3.1	30.7	0.93	0.92	7.71	0.00	0.04	0.30	224.81	0.00	0.00	0.10	0.28	0.44	0.14	0.00	0.00	0.00
98bc418-3	4	6	0.3	0.3	0.4	2.2	2.1	2.1			2.5	28.5	0.94	0.94	7.87	0.01	0.05	0.31	225.31	0.00	0.00	0.10	0.29	0.51	0.17	0.00	0.00	0.00
98bc418-4	6	7	0.2	0.5	0.4	1.8	2.0	2.0			2.3	24.9	0.89	0.90	7.53	0.01	0.05	0.43	230.50	0.00	0.00	0.08	0.25	0.37	0.11	0.00	0.00	0.01
98bc418-5	9	13	0.3	0.3	0.3	2.2	1.9	2.1			2.4	39.6	0.87	0.85	7.09	0.02	0.07	0.51	243.50	0.00	0.02	0.17	0.42	0.40	0.09	0.00	0.00	0.57
98bc418-6	19	24	0.2	0.4	0.3	1.9	2.0	1.9			2.5	26.4	0.80	0.85	7.06	0.01	0.08	0.50	234.10	0.00	0.00	0.03	0.15	0.25	0.07	0.00	0.00	0.12
98dw419-1	0	3	0.39	0.48	0.56	2.21	2.24	1.94			3.40	32.3	0.62	0.62	5.13	0.00	0.08	0.39	229.76	0.00	0.07	0.33	0.73	0.89	0.27	0.00	0.00	0.02
98dw419-2	6	8									-		0.88	n.a.	n.a.	n.a.	0.06	0.41	228.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
98dw419-3	12	14	0.39	0.28	0.29	1.09	0.96	1.12			5.11	49.3	1.15	1.17	9.75	0.01	0.05	0.43	227.85	0.00	0.00	0.23	0.86	1.48	1.23	0.46	0.00	0.16
98dw419-4	15	17	0.32	0.46	0.43	1.94	1.73	1.86			3.39	32.2	0.92	0.94	7.84	0.01	0.04	0.41	223.04	0.00	0.04	0.30	0.73	0.99	0.33	0.00	0.00	0.01
98dw419-5	20	22	0.34	0.47	0.42	9.61	9.60	9.91			1.94	20.3	0.93	0.97	8.06	0.01	0.04	0.44	220.60	0.00	0.12	0.46	1.05	1.49	1.09	0.34	0.00	0.06
98dw419-6	25	27	0.42	0.59	0.54	7.98	7.95	7.95			1.85	23.8	1.87	1.90	15.80	0.01	0.05	0.37	222.88	0.00	0.24	0.75	1.49	2.16	1.93	0.82	0.00	0.07
98dw419-7	29	31	0.52	0.38	0.25	5.13	5.23	5.17			1.63	20.4	1.78	0.49	4.05	1.29	0.04	0.38	224.08	0.00	0.13	0.45	0.96	1.36	0.94	0.26	0.00	0.08
98dw419-8	34	36	0.39	0.23	0.39	2.11	2.29	2.25			1.8	23.																

core	min	max (cm)	206/207	208/207	208/208	206/204	207/204	208/204	extraheerbaar	Pb	% Pb beschikbaar	C-tot	C-carbonaat	carbonaat	C-org	S-%	Residual	d(v,0.5)	>2000	2000-1680	1680-1410	1410-1190	1190-1000	1000-850	850-707	707-600	600-500	
98dw420-1	157	159	0.63	0.62	0.67	-2.35	-2.19	-2.17	1.1	14.0	0.82	0.82	6.83	0.00	0.08	0.53	198.38	0.00	0.00	0.16	0.59	0.90	0.77	0.31	0.00	0.00	0.00	
98dw421-1	1	2	0.35	0.31	0.48	0.66	0.40	0.57	8.1	41.6	0.89	0.64	5.32	0.25	0.06	0.40	137.59	0.00	0.00	0.00	0.34	1.08	1.08	0.82	0.26	0.00	0.00	
98dw421-2	2	3	0.74	0.49	0.62	0.67	1.01	0.68	9.0	48.7	0.89	0.64	5.30	0.25	0.06	0.57	126.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw421-3	3	5	0.35	0.55	0.62	0.87	0.73	0.68	9.3	49.9	0.92	0.68	5.70	0.24	0.06	0.28	133.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw421-4	5	6	0.36	0.42	0.33	0.60	0.62	0.68	9.0	44.8	0.88	0.64	5.37	0.24	0.06	0.29	124.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw421-5	6	8	0.51	0.35	0.35	0.62	0.66	0.61	9.3	54.5	0.92	0.65	5.42	0.27	0.06	0.34	137.32	0.00	0.00	0.00	0.22	0.25	0.27	0.69	0.39	0.00	0.00	
98dw421-6	8	10	0.37	0.43	0.53	0.88	1.01	0.81	9.1	51.5	0.88	0.64	5.37	0.24	0.05	0.34	139.16	0.00	0.00	0.00	0.15	0.54	0.62	0.48	0.12	0.00	0.00	
98dw421-7	10	12	0.35	0.61	0.39	0.72	0.80	0.62	#DIV/0!	-	n.a.	n.a.	n.a.	n.a.	n.a.	0.34	136.67	0.00	0.00	0.00	0.08	0.12	0.23	0.57	0.34	0.00	0.00	
98dw421-8	12	14							9.0	49.3	0.48	0.70	5.87	0.01	0.03	0.38	131.73	0.00	0.00	0.00	0.07	0.34	0.57	0.42	0.14	0.00	0.00	
98dw421-9	14	16	0.43	0.50	0.40	0.70	0.78	0.65	9.1	47.6	1.00	0.77	6.44	0.22	0.06	0.34	137.56	0.00	0.00	0.00	0.18	0.68	0.80	0.69	0.22	0.00	0.00	
98dw421-1	17	19	0.29	0.46	0.26	0.67	0.75	0.61	8.8	48.2	0.94	0.70	5.85	0.24	0.05	0.40	134.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw421-1	20	22	0.29	0.46	0.43	0.60	0.60	0.64	9.1	51.0	1.00	0.73	6.09	0.27	0.06	0.36	132.06	0.00	0.00	0.00	0.12	0.40	0.54	0.59	0.22	0.00	0.00	
98dw421-1	22	24	0.48	0.34	0.59	0.53	0.48	0.60	7.9	42.1	1.00	0.80	6.65	0.21	0.08	0.45	142.13	0.00	0.00	0.00	0.15	0.59	0.83	0.90	0.35	0.00	0.00	
98dw421-1	25	27	0.37	0.44	0.32	0.76	0.67	0.67	8.01	46.6	1.22	1.01	8.39	0.21	0.07	0.49	145.22	0.00	0.00	1.37	2.36	2.06	1.45	1.10	0.37	0.00	0.00	
98dw421-1	30	32	0.44	0.38	0.46	0.72	0.80	0.79	9.13	63.3	1.18	0.96	8.00	0.22	0.07	0.37	140.32	0.00	0.00	0.00	0.09	0.38	0.76	0.82	0.32	0.00	0.00	
98dw421-1	33	34	0.14	0.48	0.49	0.97	0.92	0.92	7.72	51.0	1.37	1.19	9.88	0.18	0.07	0.40	140.95	0.00	0.00	0.00	0.11	0.58	0.95	1.14	0.49	0.00	0.00	
98dw421-1	37	39	0.39	0.46	0.40	0.84	0.96	1.06	8.97	63.2	1.24	1.05	8.78	0.19	0.05	0.87	154.60	0.00	0.00	0.00	4.53	5.88	1.61	1.04	0.21	0.00	0.00	
98dw421-1	39	41	0.37	0.46	0.31	1.01	1.08	1.01	4.41	31.0	1.21	1.07	8.93	0.14	0.05	0.40	150.46	0.00	0.00	0.00	0.98	2.26	1.96	1.68	0.69	0.06	0.00	
98dw421-1	46	49	0.35	0.30	0.41	0.76	0.67	0.77	4.71	63.0	4.61	4.36	36.35	0.25	0.07	0.52	146.34	0.00	0.00	0.57	2.42	2.72	1.86	1.52	0.69	0.17	0.00	
98dw421-1	50	53	0.55	0.38	0.54	1.56	1.65	1.86	2.98	26.6	2.67	2.54	21.21	0.13	0.07	0.51	130.24	0.00	0.00	0.00	1.03	2.11	1.66	1.49	0.76	0.24	0.00	
98dw421-2	58	61	0.45	0.63	0.69	0.68	0.67	1.16	2.98	25.1	2.96	2.85	23.75	0.11	0.08	0.49	137.10	0.00	0.00	0.01	1.97	3.56	2.71	2.48	1.39	0.65	0.00	
98dw421-2	62	65	0.69	0.74	0.68	1.34	1.39	0.89	3.82	35.9	1.67	1.50	12.50	0.17	0.09	0.39	131.46	0.00	0.00	0.00	0.81	1.71	1.37	1.20	0.51	0.05	0.00	
98dw421-2	69	72	0.59	0.55	0.71	1.40	1.37	1.27	4.41	33.7	1.57	1.34	11.15	0.23	0.10	0.45	123.06	0.00	0.00	0.01	2.37	3.49	1.89	1.57	0.69	0.20	0.00	
98dw421-2	75	78	0.77	0.55	0.49	1.29	1.72	1.36	4.35	33.1	1.73	1.46	12.17	0.27	0.15	0.43	117.74	0.00	0.00	0.29	2.92	3.76	1.78	1.51	0.71	0.27	0.00	
98dw421-2	83	86	0.61	0.86	1.13	1.28	1.24	1.44	4.79	39.9	1.49	1.25	10.39	0.25	0.60	0.37	129.06	0.00	0.00	0.00	0.95	2.27	2.12	1.99	1.04	0.34	0.00	
98dw421-2	91	94	0.45	0.65	0.61	3.11	2.77	2.97	3.68	32.2	1.69	1.38	11.52	0.31	0.55	0.47	115.92	0.00	0.00	1.41	3.64	3.18	1.80	1.44	0.73	0.28	0.00	
98dw421-2	99	101	0.69	0.77	0.40	3.18	3.03	2.95	3.26	28.0	1.46	1.25	10.40	0.21	0.51	0.36	128.33	0.00	0.00	0.00	0.27	0.98	1.18	1.17	0.63	0.18	0.00	
98dw421-2	114	116							-		n.a.	n.a.	n.a.	n.a.	n.a.	0.32	117.57	0.00	0.00	0.00	0.02	0.24	0.54	0.59	0.29	0.00	0.00	
98dw421-2	138	142	0.66	0.77	0.69	1.94	2.11	1.88	4.03	33.3	1.56	1.02	8.46	0.54	0.61	0.38	97.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw422-0	0	3	0.59	0.54	0.83	1.84	1.72	1.87	7.2	43.7	0.71	0.50	4.20	0.21	0.09	0.33	105.77	0.00	0.00	0.00	0.02	0.27	0.62	0.63	0.39	0.14	0.00	
98dw422-2	3	5	0.77	0.91	0.93	1.05	1.50	1.25	7.22	-	0.70	0.48	3.98	0.22	0.07	0.32	107.44	0.00	0.00	0.00	0.18	0.44	0.47	0.26	0.05	0.00	0.00	
98dw422-3	5	7	0.59	0.68	0.44	1.49	1.57	1.50	7.61	-	0.73	0.48	4.01	0.24	0.07	0.29	107.25	0.00	0.00	0.00	0.12	0.39	0.59	0.46	0.15	0.00	0.00	
98dw422-4	7	8	0.65	0.62	0.56	2.75	2.68	2.59	8.82	-	0.84	0.53	4.45	0.31	0.07	0.35	113.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
98dw422-5	8	9	0.78	0.81	1.09	1.59	1.17	1.05	8.87	-	0.84	0.55	4.55	0.29	0.08	0.21	104.17	0.00	0.00	0.00	0.05	0.14	0.36	0.32	0.13	0.00	0.00	
98dw422-6	9	10	0.30	0.25	0.24	0.29	0.31	0.27	10.5	57.5	0.86	0.56	4.63	0.30	0.07	0.27	106.13	0.00	0.00	0.00	0.02	0.20	0.52	0.67	0.46	0.18	0.00	
98dw422-7	10	12	0.23	0.25	0.29	0.48	0.43	0.61	9.4	56.9	0.78	0.52	4.31	0.26	0.06	0.28	96.61	0.00	0.00	0.00	0.04	0.25	0.52	0.54	0.30	0.06	0.00	
98dw422-8	12	13	0.17	0.26	0.28	0.44	0.53	0.68	8.9	52.2	0.73	0.49	4.08	0.24	0.06	0.28	100.10	0.00	0.00	0.00	0.00	0.13	0.33	0.34	0.17	0.01	0.00	
98dw422-9	13	14	0.18	0.26	0.28	0.35	0.31	0.37	9.0	55.8	0.75	0.49	4.07	0.26	0.07	0.30	103.40	0.00	0.00	0.00	0.48	1.19	1.07	0.90	0.38	0.05	0.00	
98dw422-1	14	16	0.35	0.16	0.30	0.39	0.41	0.38	8.8	51.8	0.75	0.50	4.17	0.25	0.06	0.30	99.45	0.00	0.00	0.00	0.17	0.47	0.46	0.25	0.05	0.00	0.00	
98dw422-1	25	27	0.32	0.22	0.27	0.58	0.45	0.41	8.9	53.2	0.74	0.52	4.32	0.22	0.06	0.28	106.63	0.00	0.00	0.00	0.02	0.23	0.52	0.53	0.30	0.07	0.00	
98dw422-1	32	36	0.32	0.33	0.23	0.38	0.46	0.48	9.4	52.2	0.87	0.57	4.76	0.29	0.06	0.26	102.67	0.00	0.00	0.00	0.01	0.10	0.29	0.45	0.28	0.03	0.00	
98dw422-1	45	49	0.30	0.18	0.27	0.26	0.39	0.37	7.9	45.1	0.84	0.68	5.70	0.16	0.06	0.30	108.09	0.00	0.00	0.00	0.08	0.61	0.89	0.89	0.52	0.24	0.00	
98dw422-1	58	60	0.17	0.26	0.27	0.46	0.50	0.48	6.3	43.4	0.89	0.95	7.92	0.01	0.07	0.27	108.77	0.00	0.00	0.00	0.07	0.34	0.63	0.56	0.23	0.00	0.00	
98dw422-1	88	91	0.14	0.14	0.14	0.38	0.37	0.39	5.6	47.0	1.80	1.52	12.68	0.28	0.09	0.52	90.15	0.00	0.00	3.66	5.87	3.58	1.58	1.17	0.52	0.17	0.00	
98dw423-1	0	3							#DIV/0!	-	n.a.	n.a.	n.a.	n.a.	n.a.	0.33	87.72	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.03	0.00
98dw423-2	11	13	0.23	0.15	0.16	0.51	0.56	0.48	7.3	43.4	0.74	0.47	3.90	0.27	0.06	0.32	85.99	0.00	0.00	0.00	0.16	0.15	0.00	0.00	0.00	0.02	0.00	
98dw423-3	16	19							#DIV/0!	-	0.69	n.a.	n.a.	n.a.	n.a.	0.31	86.57	0.00	0.00	0.00	0.00	0.18	0.18	0.00	0.00	0.00	0.02	0.00
98dw423-4	24	28	0.23	0.24	0.25	0.41	0.26	0.30																				

core	min	max	cm	500-420	420-354	354-300	300-250	250-210	210-177	177-150	150-125	125-105	105-88	88-75	75-63	63-50	50-35	35-25	25-16	16-8	8-4	4-2	2-0.1	< 2000	< 1680	< 1410
98dw406-1	0	2	16.10	11.07	6.11	3.03	0.57	0.00	0.00	0.00	0.00	0.01	0.12	0.11	0.08	0.02	0.00	0.00	0.00	0.00	0.05	0.36	0.03	100.0	98.3	96.2
98dw406-2	4	6	15.30	10.20	5.47	2.59	0.32	0.00	0.00	0.00	0.00	0.01	0.12	0.10	0.07	0.01	0.00	0.00	0.00	0.00	0.05	0.35	0.03	100.0	100.0	98.7
98dw406-3	12	14	15.42	9.03	4.34	1.49	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	99.3
98dw406-4	10	22	14.38	8.71	3.72	1.50	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.42	0.83	0.86	0.08	0.01	100.0	94.3	89.5
98dw406-5	39	41	19.24	17.16	11.72	6.74	3.25	0.71	0.00	0.00	0.00	0.00	0.01	0.20	0.24	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	98.3	97.4
98dw406-6	57	59	16.95	15.74	11.05	6.38	3.06	0.71	0.02	0.00	0.00	0.00	0.01	0.13	0.15	0.11	0.01	0.00	0.07	0.55	0.00	0.00	0.00	100.0	91.3	86.9
98dw406-7	70	72	20.28	16.57	10.31	5.62	2.62	0.37	0.00	0.00	0.02	0.23	0.35	0.34	0.28	0.13	0.15	0.46	1.66	1.91	0.00	0.00	100.0	100.0	100.0	
98dw406-8	85	87	8.97	9.52	9.37	9.98	8.81	6.81	4.67	3.11	1.50	0.61	0.17	0.12	0.38	1.07	0.97	0.60	3.80	6.19	0.00	0.00	100.0	100.0	99.8	
98bc407-1	0	2	18.79	14.70	8.50	5.14	1.88	0.33	0.00	0.00	0.01	0.09	0.14	0.11	0.06	0.00	0.00	0.08	0.17	0.22	0.00	0.00	100.0	99.6	98.8	
98bc407-2	4	6	20.31	17.70	10.99	6.85	2.79	0.55	0.00	0.00	0.00	0.02	0.16	0.14	0.09	0.01	0.00	0.06	0.45	0.00	0.00	0.00	100.0	99.3	99.1	
98bc407-3	8	10	18.97	19.95	15.31	9.62	5.21	2.11	0.47	0.00	0.00	0.01	0.16	0.20	0.16	0.05	0.00	0.06	0.20	0.21	0.07	0.01	100.0	99.9	99.9	
98bc407-4	11	13	16.83	16.93	13.26	8.79	4.84	1.97	0.43	0.00	0.00	0.01	0.13	0.20	0.19	0.07	0.00	0.08	0.30	0.29	0.00	0.00	100.0	98.6	97.5	
98bc407-5	15	17	13.70	12.46	9.19	6.33	3.13	1.15	0.15	0.00	0.00	0.01	0.16	0.21	0.21	0.12	0.06	0.21	0.52	0.47	0.04	0.00	100.0	94.2	89.6	
98bc407-6	22	24	17.90	18.34	13.90	9.57	4.40	2.15	0.33	0.00	0.00	0.02	0.33	0.44	0.44	0.33	0.23	0.49	1.30	1.27	0.11	0.01	100.0	98.3	97.8	
98dw408-1	0	7	10.20	12.41	12.85	12.95	9.58	6.32	3.65	1.94	0.54	0.00	0.01	0.13	0.41	0.68	0.48	0.50	1.43	1.50	0.13	0.01	100.0	98.1	96.2	
98dw408-2	7	15	9.49	10.88	10.89	10.77	7.89	5.17	2.93	1.50	0.37	0.00	0.00	0.16	0.45	0.82	0.73	0.92	2.16	2.17	0.00	0.00	100.0	98.1	95.5	
98dw408-3	15	17	9.38	11.27	11.75	11.99	8.90	5.78	3.18	1.50	0.28	0.00	0.00	0.08	0.42	0.91	0.83	0.97	2.18	2.25	0.00	0.00	100.0	98.0	95.7	
98dw408-4	17	20	8.77	11.02	11.94	12.61	9.54	6.16	3.32	1.50	0.23	0.00	0.00	0.00	0.28	0.63	0.46	0.48	1.42	1.38	0.11	0.01	100.0	95.6	91.6	
98dw408-5	20	23	9.44	11.77	12.63	13.10	9.90	5.81	3.37	1.22	0.13	0.00	0.00	0.00	0.24	0.57	0.41	0.47	1.60	1.56	0.12	0.01	100.0	95.7	92.3	
98dw408-6	23	26	8.60	10.55	10.92	10.84	7.73	4.75	2.39	0.88	0.02	0.00	0.00	0.19	0.62	1.35	1.57	2.27	4.77	4.57	0.00	0.00	100.0	93.7	89.3	
98dw408-7	28	31	11.30	12.29	10.74	8.68	5.08	2.58	0.88	0.07	0.00	0.01	0.20	0.41	0.61	0.82	0.86	1.49	4.42	4.61	0.00	0.00	100.0	95.7	92.1	
98dw408-8	31	35	10.38	11.13	9.69	7.98	4.80	2.52	0.96	0.16	0.00	0.05	0.31	0.55	0.90	1.71	2.27	3.54	7.27	6.95	0.00	0.00	100.0	96.0	93.2	
98dw408-9	36	39	11.36	11.79	9.78	7.61	4.37	2.19	0.71	0.03	0.00	0.01	0.20	0.38	0.56	0.79	0.75	0.87	3.03	4.16	0.00	0.00	100.0	94.8	90.2	
98dw408-1	42	46	10.11	10.87	9.84	8.73	5.87	3.61	1.88	0.84	0.22	0.15	0.28	0.49	0.79	1.28	1.33	1.94	5.70	6.24	0.00	0.00	100.0	97.6	95.2	
98dw408-1	52	57	12.21	12.45	10.20	7.92	4.55	2.26	0.75	0.06	0.01	0.17	0.42	0.61	0.85	1.25	1.23	1.51	5.13	6.65	0.00	0.00	100.0	95.9	93.2	
98dw408-1	70	73	10.07	10.76	8.90	7.04	4.32	2.50	1.30	0.74	0.59	0.91	1.13	1.58	2.61	5.15	5.71	6.12	7.94	8.57	0.00	0.00	100.0	100.0	100.0	
98dw408-1	82	87	14.80	14.75	11.50	7.66	4.10	1.46	0.26	0.00	0.00	0.02	0.28	0.44	0.58	0.83	0.94	1.10	4.78	7.05	0.00	0.00	100.0	98.3	97.2	
98dw408-1	113	116	1.23	1.67	1.84	1.98	1.62	1.24	0.85	0.60	0.35	0.25	0.22	0.31	0.73	2.86	5.72	10.56	30.72	35.62	0.00	0.01	100.0	100.0	100.0	
98bc409-1	0	3	11.15	13.49	13.47	12.64	7.78	4.76	2.11	0.65	0.00	0.00	0.00	0.10	0.32	0.47	0.34	0.48	1.41	1.39	0.11	0.01	100.0	97.5	95.0	
98bc409-2	3	7	10.65	13.40	14.24	14.11	10.00	5.84	3.55	1.65	0.37	0.00	0.00	0.25	0.56	0.71	0.46	0.60	1.69	1.62	0.13	0.01	100.0	98.7	97.5	
98bc409-3	8	11	10.59	13.06	13.31	12.72	7.94	4.87	2.11	0.62	0.00	0.00	0.00	0.24	0.62	1.04	1.10	1.71	3.73	3.58	0.00	0.00	100.0	98.7	97.3	
98bc409-4	12	15	8.14	11.80	14.65	16.50	12.14	6.40	3.58	1.35	0.15	0.00	0.00	0.00	0.37	0.78	0.61	0.70	1.58	1.49	0.12	0.01	100.0	97.1	94.7	
98bc409-5	20	24	8.18	8.38	7.16	5.85	3.52	1.84	0.69	0.11	0.00	0.01	0.20	0.43	0.85	1.93	2.38	2.74	4.27	4.59	0.00	0.00	100.0	90.6	83.2	
98bc409-6	25	30	7.59	7.52	6.06	4.59	2.53	1.17	0.25	0.00	0.00	0.01	0.18	0.30	0.45	0.88	1.28	2.01	3.77	3.57	0.00	0.00	100.0	87.7	77.7	
98dw410-1	52	54	18.41	16.69	11.97	7.36	3.75	1.14	0.14	0.00	0.00	0.01	0.19	0.23	0.20	0.06	0.01	0.14	0.50	0.52	0.05	0.00	100.0	100.0	100.0	
98dw410-2	84	86	10.06	8.37	6.25	4.61	2.55	1.28	0.49	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.50	0.62	0.06	0.01	100.0	99.9	96.8		
98bc411-1	0	2	21.66	14.05	6.45	3.19	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	100.0	
98bc411-2	4	6	22.31	13.56	6.32	2.80	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	100.0	
98bc411-3	8	10	14.70	8.70	4.20	1.57	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	99.7	
98bc411-4	12	14	19.27	12.40	6.29	2.98	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	100.0	
98bc411-5	18	20	21.00	11.43	4.97	1.54	0.16	0.00	0.00	0.00	0.00	0.02	0.14	0.11	0.08	0.02	0.00	0.02	0.11	0.46	0.00	0.00	100.0	100.0	100.0	
98bc411-6	23	25	18.01	10.82	5.37	2.28	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.0	100.0	100.0	
98dw412-1	0	3	14.45	12.77	9.61	7.15	4.12	2.24	1.12	0.69	0.57	0.60	0.47	0.36	0.24	0.04	0.00	0.09	0.38	0.20	0.00	0.00	100.0	98.6	97.2	
98dw412-2	7	9	11.27	8.36	5.43	3.50	1.66	0.66	0.23	0.22	0.33	0.38	0.29	0.22	0.13	0.00	0.01	0.11	0.27	0.13	0.00	0.00	100.0	98.1	94.4	
98dw412-3	15	17	13.53	10.76	7.31	5.26	2.87	1.63	0.96	0.81	0.69	0.60	0.40	0.29	0.18	0.04	0.00	0.00	0.43	0.56	0.06	0.01	100.0	100.0	99.2	
98dw412-4	21	23	0.52	2.05	4.57	8.21	11.97	14.28	14.39	14.00	9.77	6.72	3.52	1.89	0.76	0.42	0.89	0.81	1.57	2.64	0.00	0.00	100.0	100.0	100.0	
98dw412-5	28	30	5.13	8.01	10.47	13.75	13.79	12.45	9.93	8.02	5.03	3.04	1.49	0.80	0.48	0.56	0.50	0.34	0.94	1.51	0.00	0.00	100.0	100.0	100.0	
98bc413-1	0	1	17.25	14.30	9.80	6.05	3.17	1.16	0.33	0.15	0.42	0.62	0.53	0.42	0.30	0.09	0.05	0.21	0.44	0.43	0.04	0.00	100.0	100.0	100.0	
98bc413-2	1	2	17.51	16.81	12.77	8.69	5.03	2.53	1.36	0.94	0.97	1.18	0.85	0.63	0.46	0.19	0.05	0.25	0.52	0.53	0.05	0.00	100.0	100.0	100.0	
98bc413-3	3	4	16.55	15.18	11.58	8.02	4.59	2.12	0.92	0.41																

core	min	max (cm)	500-420	420-354	354-300	300-250	250-210	210-177	177-150	150-125	125-105	105-88	88-75	75-63	63-50	50-35	35-25	25-16	16-8	8-4	4-2	2-0.1	< 2000	< 1680	< 1410
98dw415-2	10	12	13.80	16.31	15.66	13.55	7.27	4.01	1.19	0.12	0.00	0.00	0.00	0.09	0.21	0.18	0.00	0.00	0.00	0.00	0.00	0.00	100.0	99.3	98.6
98dw415-3	22	24	13.44	13.59	11.71	9.45	5.46	2.77	1.01	0.12	0.00	0.00	0.00	0.11	0.18	0.11	0.00	0.02	0.21	0.22	0.00	0.00	100.0	99.6	98.3
98dw415-4	36	38	11.17	10.82	9.21	8.00	5.19	3.05	1.53	0.59	0.02	0.00	0.00	0.03	0.14	0.14	0.00	0.02	0.43	0.09	0.00	0.00	100.0	99.6	96.1
98dw415-5	50	52	14.99	15.41	13.02	10.02	5.47	2.62	0.75	0.00	0.00	0.00	0.03	0.15	0.20	0.11	0.00	0.02	0.25	0.28	0.00	0.00	100.0	100.0	99.8
98dw415-6	64	66	13.98	16.27	15.56	13.30	7.88	4.14	1.72	0.35	0.00	0.00	0.00	0.11	0.23	0.21	0.01	0.04	0.46	0.42	0.00	0.00	100.0	100.0	99.9
98dw415-7	84	86	12.64	21.26	24.35	19.68	8.17	3.92	0.94	0.07	0.00	0.00	0.00	0.07	0.18	0.55	0.04	0.00	0.00	0.00	0.00	0.00	100.0	99.9	99.9
98dw415-8	107	109	12.36	18.04	19.70	17.01	9.65	4.45	2.19	0.35	0.00	0.00	0.00	0.20	0.39	0.37	0.05	0.09	0.74	0.63	0.04	0.00	100.0	98.4	97.6
98dw415-9	128	130	11.12	16.22	18.94	18.50	11.87	6.02	3.31	0.90	0.00	0.00	0.00	0.07	0.31	0.38	0.09	0.06	0.70	0.55	0.03	0.00	100.0	99.5	99.1
98dw415-1	143	145	13.16	18.56	19.79	16.96	8.49	4.71	1.71	0.36	0.00	0.00	0.00	0.13	0.28	0.28	0.03	0.10	0.82	0.74	0.06	0.01	100.0	99.7	99.7
98dw415-1	162	164	10.11	16.01	19.20	18.56	11.72	6.31	3.85	1.73	0.13	0.00	0.00	0.39	0.72	0.67	0.31	0.44	1.50	1.33	0.10	0.01	100.0	100.0	100.0
98dw415-1	178	180	12.07	17.88	19.85	17.63	10.37	5.26	2.97	0.85	0.00	0.00	0.00	0.20	0.40	0.37	0.08	0.15	1.04	0.97	0.07	0.01	100.0	100.0	100.0
98dw415-1	212	214	10.25	16.11	19.67	20.10	11.99	7.11	3.21	1.15	0.00	0.00	0.00	0.03	0.28	0.29	0.04	0.00	0.42	0.48	0.00	0.00	100.0	99.6	99.5
98dw415-1	272	274	12.02	17.75	19.78	18.29	10.24	6.16	2.99	1.10	0.00	0.00	0.00	0.20	0.37	0.27	0.02	0.00	0.38	0.47	0.04	0.00	100.0	99.8	99.8
98dw415-1	312	314	8.55	15.34	21.14	22.16	13.67	6.25	3.31	0.91	0.00	0.00	0.00	0.04	0.37	0.50	0.13	0.06	1.25	0.69	0.00	0.00	100.0	99.5	99.0
98dw415-1	372	374	9.53	15.48	19.95	20.67	13.19	6.45	3.58	1.07	0.00	0.00	0.00	0.07	0.40	0.48	0.12	0.03	0.96	1.01	0.08	0.01	100.0	99.7	99.5
98dw415-1	409	411	9.36	15.66	20.47	21.04	13.18	6.29	3.42	0.97	0.00	0.00	0.00	0.06	0.38	0.48	0.11	0.03	1.17	1.34	0.11	0.01	100.0	100.0	100.0
98dw415-1	448	450	7.56	14.43	21.03	23.11	14.57	6.52	3.39	0.92	0.00	0.00	0.00	0.02	0.44	0.62	0.25	0.20	1.38	1.35	0.10	0.01	100.0	99.7	99.4
98bc416-1	0	2	12.51	18.45	20.55	18.13	9.05	4.85	1.52	0.23	0.00	0.00	0.00	0.11	0.24	0.21	0.01	0.02	0.46	0.38	0.00	0.00	100.0	99.3	98.9
98bc416-2	3	5	12.87	18.52	20.27	17.51	8.53	4.50	1.32	0.16	0.00	0.00	0.00	0.09	0.19	0.14	0.00	0.01	0.32	0.28	0.00	0.00	100.0	99.6	99.4
98bc416-3	8	10	13.32	21.82	24.17	18.59	7.38	3.47	0.68	0.00	0.00	0.00	0.00	0.13	0.21	0.14	0.00	0.02	0.33	0.35	0.08	0.01	100.0	99.9	99.9
98bc416-4	13	15	16.22	21.86	20.31	14.76	6.30	3.09	0.55	0.00	0.00	0.00	0.00	0.16	0.22	0.12	0.00	0.04	0.29	0.28	0.07	0.01	100.0	100.0	100.0
98bc416-5	16	18	14.10	19.39	19.92	16.76	8.16	4.20	1.08	0.09	0.00	0.00	0.00	0.13	0.24	0.19	0.00	0.02	0.41	0.36	0.00	0.00	100.0	99.8	99.8
98bc416-6	19	21	12.85	18.24	19.96	17.78	9.00	4.78	1.40	0.18	0.00	0.00	0.00	0.09	0.20	0.17	0.00	0.01	0.38	0.35	0.00	0.00	100.0	99.5	99.2
98dw417-1	0	2	1.97	5.59	10.68	22.81	26.74	18.32	6.52	2.87	0.44	0.00	0.00	0.00	0.80	0.53	0.48	0.08	0.96	0.31	0.00	0.00	100.0	100.0	99.9
98dw417-2	5	10	1.69	5.15	10.20	22.77	27.51	19.00	6.71	2.96	0.48	0.00	0.00	0.00	0.00	0.46	0.39	0.04	0.90	0.33	0.00	0.00	100.0	100.0	99.8
98dw417-3	11	13	1.55	4.92	9.84	22.02	27.40	19.77	7.44	3.46	0.65	0.00	0.00	0.00	0.00	0.43	0.35	0.04	0.78	0.32	0.00	0.00	100.0	100.0	99.8
98dw417-4	16	19	1.05	4.06	8.73	20.53	27.51	21.40	8.72	4.28	0.96	0.00	0.00	0.00	0.00	0.50	0.40	0.05	0.84	0.38	0.00	0.00	100.0	100.0	99.9
98dw417-5	22	25	1.07	4.06	8.51	19.56	26.37	21.06	9.08	4.73	1.36	0.05	0.01	0.00	0.00	0.82	0.54	0.09	0.77	0.82	0.04	0.00	100.0	100.0	99.9
98dw417-6	29	35	3.74	7.64	12.45	22.80	23.71	15.34	5.65	2.65	0.42	0.00	0.00	0.00	0.04	0.38	0.17	0.00	0.33	0.34	0.00	0.00	100.0	99.9	99.4
98dw417-7	37	42	4.55	8.06	12.16	20.16	20.75	13.67	5.30	2.57	0.45	0.00	0.00	0.00	0.06	0.45	0.22	0.01	0.66	0.84	0.05	0.01	100.0	99.1	97.8
98dw417-8	58	61	3.21	6.87	11.31	21.56	24.42	17.19	6.75	3.26	0.61	0.00	0.00	0.00	0.00	0.33	0.52	0.18	0.00	0.00	0.00	0.00	100.0	100.0	99.7
98dw417-9	77	81	7.78	5.29	3.70	3.14	2.32	1.56	0.88	0.49	0.19	0.04	0.00	0.00	0.00	0.10	0.10	0.19	0.00	0.00	0.00	0.00	100.0	100.0	97.4
98dw417-1	105	110	10.73	11.37	11.25	12.22	10.39	7.28	3.89	1.79	0.42	0.00	0.00	0.00	0.01	0.16	0.06	0.00	0.10	0.20	0.00	0.00	100.0	100.0	100.0
98dw417-1	135	140	8.18	9.81	11.09	14.47	14.75	11.55	5.73	3.23	0.94	0.05	0.00	0.00	0.00	0.29	0.15	0.01	0.20	0.33	0.00	0.00	100.0	100.0	99.7
98dw417-1	204	208	6.09	8.72	11.40	16.85	18.27	14.07	6.48	3.44	0.82	0.00	0.00	0.00	0.00	0.31	0.15	0.01	0.18	0.34	0.00	0.00	100.0	100.0	99.8
98dw417-1	233	236	3.48	6.67	10.30	17.15	21.50	18.33	10.32	4.40	1.65	0.06	0.01	0.00	0.00	0.35	0.28	0.03	0.41	0.71	0.05	0.00	100.0	100.0	99.9
98bc418-1	0	2	1.14	4.24	9.03	21.12	27.40	20.50	7.89	3.63	0.66	0.00	0.00	0.00	0.00	0.59	0.57	0.28	1.31	0.48	0.00	0.00	100.0	100.0	99.9
98bc418-2	2	4	0.88	3.71	8.24	19.85	27.19	21.08	9.70	3.82	1.30	0.00	0.02	0.00	0.00	0.69	0.59	0.27	1.23	0.49	0.00	0.00	100.0	100.0	99.9
98bc418-3	4	6	0.87	3.72	8.27	20.05	27.52	21.66	8.81	4.27	0.93	0.00	0.00	0.00	0.00	0.80	0.51	0.11	1.13	0.50	0.00	0.00	100.0	100.0	99.9
98bc418-4	6	7	1.16	4.36	9.29	21.66	27.82	20.58	7.96	3.82	0.81	0.00	0.00	0.00	0.00	0.48	0.30	0.03	0.37	0.50	0.06	0.01	100.0	100.0	99.9
98bc418-5	9	13	2.66	6.60	12.03	23.12	25.40	16.39	5.55	2.31	0.26	0.00	0.00	0.00	0.03	0.60	0.58	0.43	1.41	0.94	0.04	0.00	100.0	100.0	99.8
98bc418-6	19	24	1.52	5.05	10.37	22.19	27.51	19.45	7.01	3.05	0.46	0.00	0.00	0.00	0.00	0.48	0.48	0.13	1.01	0.66	0.02	0.00	100.0	100.0	100.0
98dw419-1	0	3	1.29	4.48	9.16	20.41	26.02	19.99	8.17	3.88	0.72	0.00	0.00	0.00	0.00	0.52	0.49	0.17	1.25	1.07	0.05	0.01	100.0	99.9	99.6
98dw419-2	6	8	1.20	4.44	9.72	21.11	26.42	19.66	7.87	3.70	0.66	0.00	0.00	0.00	0.00	0.92	0.86	0.53	1.46	1.31	0.08	0.01	100.0	100.0	100.0
98dw419-3	12	14	1.88	5.11	9.38	17.80	22.31	18.37	10.20	4.75	1.99	0.15	0.01	0.00	0.00	0.82	0.55	0.16	1.16	1.26	0.08	0.01	100.0	100.0	99.8
98dw419-4	15	17	1.13	4.07	8.34	18.35	24.42	19.82	10.14	4.29	1.64	0.06	0.01	0.00	0.00	0.79	0.62	0.27	1.70	1.80	0.12	0.01	100.0	100.0	99.7
98dw419-5	20	22	1.60	4.53	8.25	16.22	20.92	18.19	10.86	5.48	2.52	0.50	0.00	0.00	0.00	0.85	0.72	0.39	1.96	2.40	0.00	0.00	100.0	99.9	99.4
98dw419-6	25	27	1.65	4.46	8.04	15.60	19.79	17.14	10.41	5.73	3.02	0.99	0.00	0.00	0.00	1.18	0.66	0.20	1.51	2.17	0.00	0.00	100.0	99.8	99.0
98dw419-7	29	31	1.87	4.90	8.74	17.07	21.40	17.75	10.09	5.13	2.44	0.47	0.00	0.00	0.00	1.13	0.68	0.20	1.64	2.30	0.00	0.00	100.0	99.9	99.4
98dw419-8	34	36	2.12	4.57																					

core	min	max (cm)	500-420	420-354	354-300	300-250	250-210	210-177	177-150	150-125	125-105	105-88	88-75	75-63	63-50	50-35	35-25	25-16	16-8	8-4	4-2	2-0.1	< 2000	< 1690	< 1410	
98dw420-1	157	159	0.28	2.60	5.64	11.94	19.21	23.01	17.96	9.23	4.02	1.13	0.00	0.00	0.00	0.21	0.45	0.13	0.44	0.93	0.08	0.01	100.0	100.0	99.8	
98dw421-1	1	2	0.00	0.00	0.75	3.56	6.69	12.04	15.16	16.43	11.02	5.91	2.55	0.90	0.03	0.12	1.50	2.14	7.26	10.36	0.00	0.00	100.0	100.0	100.0	
98dw421-2	2	3	0.00	0.00	0.76	3.69	6.70	11.33	13.58	14.72	10.62	6.26	2.85	1.06	0.04	0.33	2.12	3.55	10.34	12.03	0.00	0.00	100.0	100.0	100.0	
98dw421-3	3	5	0.00	0.00	0.97	4.08	7.10	12.06	15.06	16.62	11.55	6.50	3.00	1.21	0.06	0.07	1.60	2.54	7.50	10.08	0.00	0.00	100.0	100.0	100.0	
98dw421-4	5	6	0.00	0.00	0.54	3.09	5.94	10.83	13.88	15.56	11.03	6.29	2.88	1.16	0.06	0.38	2.63	4.39	9.94	11.39	0.00	0.00	100.0	100.0	100.0	
98dw421-5	6	8	0.00	0.00	0.80	3.76	7.09	12.66	15.51	16.19	10.49	5.49	2.28	0.71	0.01	0.27	1.84	1.61	7.80	11.67	0.00	0.00	100.0	100.0	100.0	
98dw421-6	8	10	0.00	0.00	0.77	3.67	6.98	12.78	16.22	17.44	11.35	5.86	2.46	0.83	0.02	0.09	1.69	1.59	6.53	9.80	0.00	0.00	100.0	100.0	100.0	
98dw421-7	10	12	0.00	0.02	0.96	4.04	7.36	12.71	15.11	15.80	9.79	5.65	2.19	0.62	0.03	0.31	1.90	1.73	8.36	12.10	0.00	0.00	100.0	100.0	100.0	
98dw421-8	12	14	0.00	0.00	0.47	2.91	5.95	11.50	15.15	16.99	11.66	6.36	2.83	1.10	0.05	0.16	1.86	2.20	7.57	11.70	0.00	0.00	100.0	100.0	100.0	
98dw421-9	14	16	0.00	0.00	0.64	3.33	6.52	12.29	15.92	17.34	11.35	5.88	2.49	0.86	0.03	0.07	1.43	1.95	6.94	10.38	0.00	0.00	100.0	100.0	100.0	
98dw421-11	17	19	0.00	0.00	0.74	3.93	7.30	12.54	15.10	16.21	11.28	6.29	2.68	0.85	0.01	0.16	1.51	1.70	8.02	11.66	0.00	0.00	100.0	100.0	100.0	
98dw421-12	20	22	0.00	0.00	0.72	3.44	6.50	11.75	14.49	15.58	9.86	5.79	2.37	0.79	0.06	0.51	2.06	1.34	8.46	14.42	0.00	0.00	100.0	100.0	100.0	
98dw421-13	22	24	0.00	0.14	1.30	4.59	7.93	12.99	15.23	15.74	10.41	5.53	2.27	0.65	0.00	0.12	1.36	1.91	7.06	9.97	0.00	0.00	100.0	100.0	100.0	
98dw421-14	25	27	0.00	0.10	1.04	3.85	6.90	11.99	14.51	15.27	9.33	5.26	1.99	0.53	0.03	0.15	1.41	1.91	6.93	10.10	0.00	0.00	100.0	100.0	98.6	
98dw421-15	30	32	0.00	0.06	1.12	4.27	7.58	12.87	15.44	16.04	10.44	5.42	2.21	0.64	0.00	0.14	1.46	1.95	7.21	10.80	0.00	0.00	100.0	100.0	100.0	
98dw421-16	33	34	0.00	0.01	0.98	4.09	7.39	12.75	15.53	16.36	10.74	5.64	2.36	0.74	0.01	0.10	1.34	1.65	6.62	10.44	0.00	0.00	100.0	100.0	100.0	
98dw421-17	37	39	0.00	0.09	1.03	3.99	7.23	12.48	14.62	14.68	8.48	4.60	1.64	0.34	0.01	0.15	1.22	1.30	5.58	9.31	0.00	0.00	100.0	100.0	100.0	
98dw421-18	39	41	0.00	0.21	1.41	4.66	7.95	13.10	15.31	15.67	9.32	5.14	1.87	0.42	0.01	0.12	1.24	1.28	5.36	9.28	0.00	0.00	100.0	100.0	100.0	
98dw421-19	46	49	0.00	0.16	1.09	3.82	6.74	11.57	14.40	15.65	10.61	5.72	2.48	0.87	0.03	0.07	1.35	1.30	4.81	9.39	0.00	0.00	100.0	100.0	99.4	
98dw421-20	50	53	0.00	0.50	2.72	5.29	9.74	12.73	14.94	14.94	11.40	7.00	3.43	1.57	0.20	0.31	1.92	2.51	7.44	11.03	0.00	0.00	100.0	100.0	100.0	
98dw421-21	58	61	0.00	0.03	0.63	2.82	5.26	9.32	12.00	14.27	11.35	7.43	3.93	2.09	0.65	0.30	1.59	1.42	4.77	9.37	0.00	0.00	100.0	100.0	100.0	
98dw421-22	62	65	0.00	0.00	0.51	2.77	5.46	10.25	13.58	15.99	12.11	7.45	3.78	1.96	0.56	0.67	2.27	1.09	5.14	10.77	0.00	0.00	100.0	100.0	100.0	
98dw421-23	69	72	0.00	0.00	0.62	2.32	5.11	7.71	10.60	12.40	10.09	7.09	3.99	2.39	1.26	1.24	2.31	2.02	7.11	13.50	0.00	0.00	100.0	100.0	100.0	
98dw421-24	75	78	0.00	0.00	0.41	1.90	4.21	7.12	9.57	11.84	10.09	7.45	4.37	2.82	1.85	1.96	2.66	1.97	6.02	14.52	0.00	0.00	100.0	100.0	99.7	
98dw421-25	83	86	0.00	0.00	0.76	2.82	5.99	8.83	11.72	13.42	10.78	7.51	4.14	2.40	1.15	0.92	1.95	1.85	6.09	10.96	0.00	0.00	100.0	100.0	100.0	
98dw421-26	91	94	0.00	0.00	0.23	1.57	3.75	6.50	8.97	11.68	10.66	8.41	5.19	3.49	2.32	1.75	2.33	2.09	5.69	12.88	0.00	0.00	100.0	100.0	98.6	
98dw421-27	99	101	0.00	0.06	1.00	3.61	6.18	10.06	12.28	14.43	12.00	8.92	5.25	3.30	1.88	1.11	1.66	1.74	4.49	7.64	0.00	0.00	100.0	100.0	100.0	
98dw421-28	114	116	0.00	0.00	0.79	3.29	5.77	9.50	11.51	13.32	11.06	8.60	5.61	4.15	3.34	3.07	2.54	2.60	5.74	7.45	0.00	0.00	100.0	100.0	100.0	
98dw421-29	138	142	0.00	0.00	0.25	1.90	5.01	7.74	10.57	11.92	9.46	6.64	3.75	2.32	1.68	2.90	4.37	5.93	12.51	13.06	0.00	0.00	100.0	100.0	100.0	
98dw422-1	0	3	0.00	0.14	0.80	2.39	4.55	7.06	9.19	12.09	12.23	11.38	8.11	5.93	4.01	1.41	0.47	1.69	7.24	9.25	0.00	0.00	100.0	100.0	100.0	
98dw422-2	3	5	0.00	0.20	0.95	2.68	4.90	7.41	9.46	12.26	12.31	11.41	8.08	5.85	3.87	1.35	0.89	2.83	6.94	7.20	0.00	0.00	100.0	100.0	100.0	
98dw422-3	5	7	0.00	0.27	1.14	2.94	5.08	7.40	9.24	11.82	11.79	10.95	7.87	5.82	4.00	1.58	0.88	2.65	7.28	7.54	0.00	0.00	100.0	100.0	100.0	
98dw422-4	7	8	0.00	0.41	1.52	3.77	6.26	8.71	10.29	12.33	11.50	10.05	6.86	4.84	3.12	1.12	0.96	2.75	7.48	7.99	0.00	0.00	100.0	100.0	100.0	
98dw422-5	8	9	0.00	0.24	1.04	2.83	5.03	7.40	9.19	11.54	11.25	10.14	7.02	4.99	3.29	1.39	1.42	3.71	9.02	9.52	0.00	0.00	100.0	100.0	100.0	
98dw422-6	9	10	0.06	0.40	1.27	3.11	5.25	7.48	9.07	11.20	10.74	9.59	6.67	4.81	3.22	1.38	1.28	3.29	9.31	9.82	0.00	0.00	100.0	100.0	100.0	
98dw422-7	10	12	0.00	0.00	0.08	1.10	3.01	5.55	8.12	11.73	12.70	12.34	8.89	6.33	4.46	2.10	2.00	4.39	7.77	7.73	0.00	0.00	100.0	100.0	100.0	
98dw422-8	12	13	0.00	0.07	0.67	2.14	4.17	6.60	8.73	11.62	11.86	11.05	7.82	5.65	3.81	1.94	2.24	4.64	8.10	7.93	0.00	0.00	100.0	100.0	100.0	
98dw422-9	13	14	0.00	0.15	0.87	2.48	4.46	6.67	8.47	10.94	10.94	10.12	7.24	5.35	3.67	1.49	0.87	2.47	9.17	10.58	0.00	0.00	100.0	100.0	100.0	
98dw422-10	14	16	0.00	0.11	0.71	2.13	4.07	6.40	8.48	11.39	11.73	11.03	7.87	5.71	3.81	1.75	1.99	4.53	8.50	8.39	0.00	0.00	100.0	100.0	100.0	
98dw422-11	25	27	0.00	0.24	1.02	2.76	4.96	7.41	9.34	11.92	11.69	10.56	7.33	5.21	3.34	1.10	1.01	3.10	8.39	8.95	0.00	0.00	100.0	100.0	100.0	
98dw422-12	32	36	0.01	0.32	1.18	2.98	5.09	7.33	8.94	11.06	10.63	9.56	6.69	4.88	3.35	1.53	0.99	2.19	9.66	12.45	0.00	0.00	100.0	100.0	100.0	
98dw422-13	45	49	0.11	0.43	1.25	3.02	5.11	7.33	9.01	11.31	11.31	10.99	9.94	6.99	5.08	3.38	1.40	1.28	3.20	8.25	8.71	0.00	0.00	100.0	100.0	100.0
98dw422-14	58	60	0.00	0.27	1.20	3.15	5.42	7.79	9.50	11.76	11.31	10.13	7.03	5.03	3.29	1.26	1.13	3.04	8.07	8.79	0.00	0.00	100.0	100.0	100.0	
98dw422-15	88	91	0.00	0.10	0.59	1.60	2.75	3.96	4.94	6.46	6.87	7.13	5.88	5.12	4.57	3.77	2.87	4.45	10.07	12.32	0.00	0.00	100.0	100.0	96.3	
98dw423-1	0	3	0.24	0.01	0.00	0.00	0.01	1.49	3.48	9.31	15.16	19.67	15.23	10.17	5.83	1.74	0.41	4.11	6.39	6.46	0.00	0.00	100.0	100.0	100.0	
98dw423-2	11	13	0.13	0.00	0.00	0.00	0.01	1.47	3.42	9.17	14.66	18.50	14.12	9.49	5.48	1.90	1.22	5.13	7.33	7.63	0.00	0.00	100.0	100.0	100.0	
98dw423-3	16	19	0.15	0.00	0.00	0.00	0.00	1.32	3.23	8.93	14.79	19.43	15.24	10.28	5.88	1.67	0.30	3.83	7.17	7.40	0.00	0.00	100.0	100.0	100.0	
98dw423-4	24	28	0.00	0.00	0.00	0.00	0.07	1.01	3.12	8.78	14.69	19.29	15.07	10.18	5.91	2.04	0.90	4.87	6.97	7.10	0.00	0.00	100.0	100.0	100.0	
98dw423-5	34	37	0.20	0.01	0.00	0.00	0.22	1.89	3.80	9.00	13.58	16.74	12.84	8.82	5.13	1.66	1.30	5.34	9.44	9.85	0.00	0.00	100.0	1		

core	min	max	< 1190	< 1000	< 850	< 707	< 600	< 500	< 420	< 354	< 300	< 250	< 210	< 177	< 150	< 125	< 105	< 88	< 75	< 63	< 50	< 35	< 25	< 16	< 8	< 4	
98dw406-1	0	2	93.4	89.0	82.3	70.6	56.2	37.7	21.6	10.5	4.4	1.4	0.8	0.8	0.8	0.8	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	
98dw406-2	4	6	95.4	89.8	81.6	68.3	53.1	34.6	19.3	9.1	3.7	1.1	0.7	0.7	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
98dw406-3	12	14	96.8	91.6	83.3	68.8	51.4	30.4	15.0	5.9	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98dw406-4	10	22	85.3	80.3	73.3	62.1	48.2	30.7	16.4	7.7	3.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	1.8	0.9	0.1	
98dw406-5	39	41	97.0	96.1	93.3	87.0	76.4	59.5	40.2	23.1	11.4	4.6	1.4	0.7	0.7	0.7	0.7	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
98dw406-6	57	59	85.1	84.1	82.5	77.4	69.4	54.9	38.0	22.2	11.2	4.8	1.8	1.0	1.0	1.0	1.0	1.0	0.9	0.7	0.6	0.6	0.6	0.5	0.0	0.0	
98dw406-7	70	72	100.0	99.6	97.0	90.7	79.5	61.3	41.0	24.5	14.1	8.5	5.9	5.5	5.5	5.5	5.5	5.3	4.9	4.6	4.3	4.2	4.0	3.6	1.9	0.0	
98dw406-8	85	87	98.9	97.3	94.7	90.1	84.5	76.5	67.5	58.0	48.6	38.6	30.0	23.2	18.5	15.4	13.9	13.3	13.1	13.0	12.6	11.6	10.6	10.0	6.2	0.0	
98bc407-1	0	2	97.4	94.6	89.9	80.9	68.5	50.2	31.4	16.7	8.2	3.1	1.2	0.9	0.9	0.9	0.9	0.8	0.6	0.5	0.5	0.5	0.5	0.4	0.2	0.0	
98bc407-2	4	6	99.0	98.0	95.3	88.2	77.9	60.1	39.8	22.1	11.1	4.3	1.5	0.9	0.9	0.9	0.9	0.9	0.7	0.6	0.5	0.5	0.5	0.4	0.0	0.0	
98bc407-3	8	10	99.9	99.8	98.7	94.5	87.0	72.8	53.8	33.8	18.5	8.9	3.7	1.6	1.1	1.1	1.1	1.1	1.0	0.8	0.6	0.5	0.5	0.5	0.3	0.1	
98bc407-4	11	13	96.6	95.2	92.5	86.8	78.2	64.3	47.5	30.6	17.3	8.5	3.7	1.7	1.3	1.3	1.3	1.3	1.1	0.9	0.7	0.7	0.7	0.6	0.3	0.0	
98bc407-5	15	17	86.0	82.2	77.6	70.2	61.1	48.1	34.4	22.0	12.8	6.5	3.3	2.2	2.0	2.0	2.0	2.0	1.9	1.6	1.4	1.3	1.3	1.0	0.5	0.0	
98bc407-6	22	24	97.8	97.8	96.6	92.9	85.3	71.6	53.7	35.3	21.4	11.8	7.4	5.3	5.0	5.0	4.9	4.6	4.2	3.7	3.4	3.2	2.7	1.4	0.1	0.1	
98dw408-1	0	7	94.5	92.7	90.8	87.7	83.3	75.7	65.5	53.1	40.3	27.3	17.7	11.4	7.8	5.8	5.3	5.3	5.3	5.1	4.7	4.1	3.6	3.1	1.6	0.1	
98dw408-2	7	15	92.4	88.9	85.2	80.5	75.1	67.3	57.8	46.9	36.0	25.3	17.4	12.2	9.3	7.8	7.4	7.4	7.4	7.4	7.3	6.8	6.0	5.2	4.3	2.2	0.0
98dw408-3	15	17	93.1	90.3	87.5	83.6	78.9	71.7	62.3	51.0	39.3	27.3	18.4	12.6	9.4	7.9	7.6	7.6	7.6	7.6	7.1	6.2	5.4	4.4	2.3	0.0	
98dw408-4	17	20	88.3	85.5	83.1	80.0	76.2	69.8	61.1	50.1	38.1	25.5	16.0	9.8	6.5	5.0	4.8	4.8	4.8	4.8	4.5	3.9	3.4	2.9	1.5	0.1	
98dw408-5	20	23	89.9	87.9	86.0	83.2	79.2	72.4	62.9	51.1	38.5	25.4	15.5	9.7	6.3	5.1	5.0	5.0	5.0	4.8	4.2	3.8	3.3	1.7	0.1	0.1	
98dw408-6	23	26	86.6	84.9	83.6	81.5	78.2	72.0	63.4	52.9	41.9	31.1	23.4	18.6	16.2	15.4	15.3	15.3	15.1	14.5	13.2	11.6	9.3	4.6	0.0	0.0	
98dw408-7	28	31	89.3	86.7	84.0	79.8	74.1	65.1	53.8	41.5	30.7	22.0	17.0	14.4	13.5	13.4	13.4	13.4	13.2	12.8	12.2	11.4	10.5	9.0	4.6	0.0	
98dw408-8	31	35	91.3	89.6	87.8	84.4	79.4	71.2	60.8	49.7	40.0	32.0	27.2	24.7	23.7	23.6	23.6	23.5	23.2	22.6	21.7	20.0	17.8	14.2	7.0	0.0	
98dw408-9	36	39	86.4	82.8	79.3	74.2	68.0	58.6	47.2	35.4	25.7	18.1	13.7	11.5	10.8	10.8	10.8	10.7	10.5	10.2	9.6	8.8	8.1	7.2	4.2	0.0	
98dw408-1	42	46	93.0	90.7	88.1	83.9	78.5	70.2	60.0	49.2	39.3	30.6	24.7	21.1	19.3	18.4	18.2	18.0	17.8	17.3	16.5	15.2	13.9	11.9	6.2	0.0	
98dw408-1	52	57	91.4	90.0	88.2	84.2	78.2	68.2	56.0	43.6	33.4	25.5	20.9	18.6	17.9	17.8	17.8	17.7	17.2	16.6	15.8	14.5	13.3	11.8	6.7	0.0	
98dw408-1	70	73	100.0	99.9	99.1	97.1	93.3	85.9	75.9	65.1	56.2	49.2	44.8	42.3	41.0	40.3	39.7	38.8	37.7	36.1	33.5	28.3	22.6	16.5	8.6	0.0	
98dw408-1	82	87	96.6	95.8	94.2	89.6	82.8	70.6	55.7	41.0	29.5	21.8	17.7	16.3	16.0	16.0	16.0	16.0	15.7	15.3	14.7	13.9	12.9	11.8	7.1	0.0	
98dw408-1	113	116	100.0	99.9	99.8	99.5	99.1	98.4	97.1	95.5	93.6	91.7	90.0	88.8	87.9	87.3	87.0	86.7	86.5	86.2	85.5	82.6	76.9	66.3	35.6	0.0	
98bc409-1	0	3	92.7	90.3	87.9	84.1	79.0	70.7	59.5	46.0	32.6	19.9	12.2	7.4	5.3	4.6	4.6	4.6	4.6	4.5	4.2	3.7	3.4	2.9	1.5	0.1	
98bc409-2	3	7	96.4	95.4	94.1	91.5	87.2	79.8	69.2	55.8	41.5	27.4	17.4	11.6	8.0	6.4	6.0	6.0	6.0	5.8	5.2	4.5	4.1	3.4	1.8	0.1	
98bc409-3	8	11	95.7	94.1	92.3	89.3	84.9	77.2	66.7	53.6	40.3	27.6	19.6	14.8	12.7	12.0	12.0	12.0	12.0	11.8	11.2	10.1	9.0	7.3	3.6	0.0	
98bc409-4	12	15	92.7	91.3	90.1	88.4	85.7	80.4	72.2	60.4	45.8	29.3	17.1	10.7	7.2	5.8	5.7	5.7	5.7	5.7	5.3	4.5	3.9	3.2	1.6	0.1	
98bc409-5	20	24	77.6	73.2	69.6	65.1	60.2	53.1	44.9	36.6	29.4	23.5	20.0	18.2	17.5	17.4	17.4	17.4	17.2	16.7	15.9	14.0	11.6	8.9	4.6	0.0	
98bc409-6	25	30	70.0	63.8	59.0	53.9	48.9	42.2	34.6	27.0	21.0	16.4	13.9	12.7	12.5	12.5	12.5	12.4	12.3	12.0	11.5	10.6	9.4	7.3	3.6	0.0	
98dw410-1	52	54	99.8	98.7	95.4	88.6	77.9	61.4	43.0	26.3	14.3	6.9	3.2	2.1	1.9	1.9	1.9	1.9	1.7	1.5	1.3	1.2	1.2	1.1	0.6	0.1	
98dw410-2	84	86	90.7	81.7	71.4	58.3	46.8	34.9	24.9	16.5	10.2	5.6	3.1	1.8	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.7	0.1	
98bc411-1	0	2	100.0	98.7	94.9	84.6	69.5	45.6	24.0	9.9	3.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98bc411-2	4	6	99.9	99.1	95.7	85.8	70.7	45.2	22.9	9.4	3.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98bc411-3	8	10	97.3	91.6	82.5	67.0	49.3	29.2	14.5	5.8	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98bc411-4	12	14	99.6	97.3	91.8	80.0	63.6	41.2	22.0	9.5	3.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98bc411-5	18	20	100.0	99.3	95.3	85.3	66.9	40.0	19.0	7.6	2.6	1.1	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.5	0.0	0.0	0.0	
98bc411-6	23	25	99.6	97.0	91.1	78.0	60.1	36.7	18.6	7.8	2.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
98dw412-1	0	3	95.5	92.7	88.1	79.8	69.4	55.1	40.7	27.9	18.3	11.1	7.0	4.8	3.6	3.0	2.4	1.8	1.3	1.0	0.7	0.7	0.6	0.2	0.0	0.0	
98dw412-2	7	9	88.8	81.1	71.8	59.2	46.8	33.2	21.9	13.6	8.1	4.6	3.0	2.3	2.1	1.9	1.5	1.2	0.9	0.7	0.5	0.5	0.5	0.4	0.1	0.0	
98dw412-3	15	17	96.7	91.8	84.8	73.7	61.4	46.4	32.8	22.1	14.8	9.5	6.6	5.0	4.1	3.2	2.6	2.0	1.6	1.3	1.1	1.0	1.0	0.6	0.1	0.0	
98dw412-4	21	23	99.9	99.6	99.2	99.0	99.0	98.4	96.4	91.8	83.6	71.6	57.4	43.0	29.0	19.2	12.5	9.0	7.1	6.3	5.9	5.0	4.2	2.6	0.0	0.0	
98dw412-5	28	30	100.0	100.0	100.0	99.9	99.0	96.3	91.1	83.1	72.6	58.9	45.1	32.6	22.7	14.7	9.7	6.6	5.1	4.3	3.8	3.3	2.8	2.4	1.5	0.0	
98bc413-1	0	1	99.7	98.0	93.6	85.2	73.0	55.8	38.5	24.2	14.4	8.4	5.2	4.0	3.7	3.6	3.1	2.5	2.0	1.6	1.3	1.2	1.1	0.9	0.5	0.0	
98bc413-2	1	2	100.0	99.9	98.3	94.1	85.8	71.3	53.8	37.0	24.2	15.5	10.5	8.0	6.6	5.7	4.7	3.5	2.7	2.1	1.6	1.4	1.4	1.1	0.6	0.1	
98bc413-3	3	4	99.8	98.5	95.0	88.2	77.8	62.5	45.9	30.7	19.2	11.1	6.6	4.4	3.5	3.1	2.7	2.1	1.7	1.3	1.0	0.9	0.9	0.8	0.4	0.0	
98bc413-4	5	6	99.5	96.8	92.0	81.8	69.4	53.1	37.6	24.8	15.8	9.3	5.9	4.2	3.4	2.8	2.3	1.7	1.4	1.1	1.0	1.0	1.0	0.8	0.0		

core	min	max	< 1190	< 1000	< 850	< 707	< 600	< 500	< 420	< 354	< 300	< 250	< 210	< 177	< 150	< 125	< 105	< 86	< 75	< 63	< 50	< 35	< 25	< 16	< 8	< 4		
98dw415-2	10	12	97.6	96.2	93.9	89.4	83.0	72.4	58.6	42.3	26.6	13.1	5.8	1.8	0.6	0.5	0.5	0.5	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
98dw415-3	22	24	96.0	92.4	87.5	79.8	70.7	58.4	45.0	31.4	19.7	10.2	4.8	2.0	1.0	0.9	0.9	0.9	0.9	0.7	0.6	0.5	0.4	0.4	0.2	0.0	0.0	
98dw415-4	36	38	92.5	87.3	80.8	71.4	61.8	50.2	39.1	28.5	19.2	11.2	6.1	3.0	1.5	0.9	0.9	0.9	0.9	0.8	0.7	0.5	0.5	0.5	0.1	0.0	0.0	
98dw415-5	50	52	98.8	96.6	92.7	85.7	76.5	63.3	48.3	32.9	19.9	9.9	4.4	1.8	1.0	1.0	1.0	1.0	1.0	0.9	0.7	0.6	0.6	0.5	0.3	0.0	0.0	
98dw415-6	64	66	99.7	98.8	96.8	92.3	85.6	74.7	60.7	44.4	28.9	15.6	7.7	3.5	1.8	1.5	1.5	1.5	1.5	1.4	1.1	0.9	0.9	0.9	0.4	0.0	0.0	
98dw415-7	84	86	99.9	99.9	99.9	99.7	97.6	91.9	79.2	58.0	33.6	13.9	5.8	1.8	0.9	0.8	0.8	0.8	0.8	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	
98dw415-8	107	109	97.5	97.5	97.5	96.5	93.7	86.3	73.9	55.9	36.2	19.2	9.5	5.1	2.9	2.5	2.5	2.5	2.5	2.3	1.9	1.6	1.5	1.4	0.7	0.0	0.0	
98dw415-9	128	130	99.1	99.1	99.1	98.3	95.4	89.1	78.0	61.8	42.8	24.3	12.4	6.4	3.1	2.2	2.2	2.2	2.2	2.2	2.1	1.8	1.4	1.4	1.3	0.6	0.0	
98dw415-1	143	145	99.7	99.7	99.5	98.0	94.1	86.2	73.0	54.5	34.7	17.7	9.2	4.5	2.8	2.4	2.4	2.4	2.4	2.3	2.0	1.8	1.7	1.6	0.8	0.1	0.1	
98dw415-1	162	164	100.0	100	100	99.9	98.0	93.1	83.0	67.0	47.8	29.2	17.5	11.2	7.3	5.6	5.5	5.5	5.5	5.5	5.1	4.3	3.7	3.4	2.9	1.4	0.1	
98dw415-1	178	180	100.0	100.0	100.0	99.5	96.7	90.2	78.1	60.2	40.4	22.7	12.4	7.1	4.1	3.3	3.3	3.3	3.3	3.1	2.7	2.3	2.2	2.1	1.0	0.1	0.1	
98dw415-1	212	214	99.5	99.5	99.5	99.1	97.0	91.1	80.9	64.8	45.1	25.0	13.0	5.9	2.7	1.5	1.5	1.5	1.5	1.5	1.2	0.9	0.9	0.9	0.5	0.0	0.0	
98dw415-1	272	274	99.8	99.8	99.8	99.3	96.5	90.1	78.0	60.3	40.5	22.2	12.0	5.8	2.8	1.7	1.7	1.7	1.7	1.7	1.5	1.2	0.9	0.9	0.9	0.5	0.0	
98dw415-1	312	314	99.0	99.0	99.0	99.0	98.0	94.4	85.8	70.5	49.3	27.2	13.5	7.3	4.0	3.0	3.0	3.0	3.0	3.0	2.6	2.1	2.0	1.9	0.7	0.0	0.0	
98dw415-1	372	374	99.5	99.5	99.5	99.4	97.7	93.1	83.5	68.1	48.1	27.4	14.2	7.8	4.2	3.1	3.1	3.1	3.1	3.1	2.7	2.2	2.1	2.1	1.1	1.1	0.1	
98dw415-1	409	411	100.0	100.0	100.0	99.9	98.4	94.1	84.7	69.1	48.6	27.5	14.4	8.1	4.7	3.7	3.7	3.7	3.7	3.6	3.3	2.8	2.7	2.6	1.5	0.1	0.1	
98dw415-1	448	450	99.4	99.4	99.4	99.4	98.8	95.9	88.3	73.9	52.9	29.8	15.2	8.7	5.3	4.4	4.4	4.4	4.4	4.4	3.9	3.3	3.0	2.8	1.5	0.1	0.1	
98bc416-1	0	2	98.9	98.9	98.8	97.7	94.4	86.7	74.2	55.7	35.2	17.1	8.0	3.2	1.7	1.4	1.4	1.4	1.4	1.3	1.1	0.9	0.9	0.8	0.4	0.0	0.0	
98bc416-2	3	5	99.3	99.3	98.9	97.0	93.1	84.7	71.8	53.3	33.0	15.5	7.0	2.5	1.2	1.0	1.0	1.0	1.0	0.9	0.8	0.6	0.6	0.6	0.3	0.0	0.0	
98bc416-3	8	10	99.9	99.9	99.9	99.6	97.1	90.7	77.4	55.6	31.4	12.8	5.4	1.9	1.3	1.3	1.3	1.3	1.3	1.1	0.9	0.8	0.8	0.8	0.4	0.1	0.1	
98bc416-4	13	15	100.0	100.0	99.8	98.2	93.8	84.3	68.1	46.2	25.9	11.1	4.8	1.7	1.2	1.2	1.2	1.2	1.2	1.0	0.8	0.7	0.7	0.7	0.4	0.1	0.1	
98bc416-5	16	18	99.8	99.8	99.7	98.0	94.0	85.1	71.0	51.6	31.6	14.9	6.7	2.5	1.4	1.3	1.3	1.3	1.3	1.2	1.0	0.8	0.8	0.8	0.4	0.0	0.0	
98bc416-6	19	21	99.2	99.2	99.0	97.4	93.6	85.4	72.5	54.3	34.3	16.6	7.6	2.8	1.4	1.2	1.2	1.2	1.2	1.1	0.9	0.7	0.7	0.7	0.3	0.0	0.0	
98dw417-1	0	2	99.5	98.7	98.4	98.4	98.4	98.3	96.3	90.7	80.1	57.3	30.5	12.2	5.7	2.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.8	1.4	1.3	0.3	0.0
98dw417-2	5	10	99.4	98.8	98.7	98.7	98.7	98.6	96.9	91.8	81.6	58.8	31.3	12.3	5.6	2.6	2.1	2.1	2.1	2.1	2.1	2.1	1.7	1.3	1.2	0.3	0.0	
98dw417-3	11	13	99.4	99.1	99.0	99.0	99.0	99.0	97.4	92.5	82.6	60.6	33.2	13.5	6.0	2.6	1.9	1.9	1.9	1.9	1.9	1.9	1.5	1.1	1.1	0.3	0.0	
98dw417-4	16	19	99.7	99.5	99.4	99.4	99.4	99.4	98.3	94.3	85.6	65.0	37.5	16.1	7.4	3.1	2.2	2.2	2.2	2.2	2.2	2.2	1.7	1.3	1.2	0.4	0.0	
98dw417-5	22	25	99.6	99.1	98.9	98.9	98.9	98.9	97.9	93.8	85.3	65.7	39.4	18.3	9.2	4.5	3.1	3.1	3.1	3.1	3.1	2.3	1.7	1.6	0.9	0.0	0.0	
98dw417-6	29	35	98.3	97.1	96.8	96.8	96.7	95.7	91.9	84.3	71.8	49.0	25.3	10.0	4.3	1.7	1.3	1.3	1.3	1.3	1.2	0.8	0.7	0.7	0.3	0.0	0.0	
98dw417-7	37	42	96.1	94.4	93.4	92.8	92.2	90.0	85.4	77.4	65.2	45.0	24.3	10.6	5.3	2.7	2.3	2.3	2.3	2.3	2.3	2.2	1.8	1.6	1.6	0.9	0.1	
98dw417-8	58	61	98.9	97.7	97.1	97.0	97.0	96.2	93.0	86.1	74.8	53.3	28.8	11.6	4.9	1.6	1.0	1.0	1.0	1.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	
98dw417-9	77	81	90.7	80.0	66.9	50.7	37.4	25.8	18.0	12.7	9.0	5.9	3.5	2.0	1.1	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	
98dw417-1	105	110	99.2	96.8	93.1	87.0	79.7	69.9	59.2	47.8	36.5	24.3	13.9	6.6	2.7	1.0	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.0	0.0	
98dw417-1	135	140	99.0	97.7	95.7	92.1	87.6	80.8	72.6	62.8	51.7	37.2	22.5	10.9	5.2	2.0	1.0	1.0	1.0	1.0	1.0	0.7	0.5	0.5	0.3	0.0	0.0	
98dw417-1	204	208	99.1	97.8	96.2	94.0	91.4	87.1	81.0	72.3	60.9	44.1	25.8	11.7	5.2	1.8	1.0	1.0	1.0	1.0	1.0	0.7	0.5	0.5	0.3	0.0	0.0	
98dw417-1	233	236	99.6	98.9	98.3	97.8	97.3	95.7	92.2	85.5	75.2	58.1	36.6	18.3	8.0	3.6	1.9	1.8	1.8	1.8	1.8	1.5	1.2	1.2	0.8	0.1	0.1	
98bc418-1	0	2	99.6	99.1	98.9	98.9	98.9	98.9	97.7	93.5	84.4	63.3	35.9	15.4	7.5	3.9	3.2	3.2	3.2	3.2	3.2	2.6	2.1	1.8	0.5	0.0	0.0	
98bc418-2	2	4	99.6	99.2	99.1	99.1	99.1	98.2	94.5	86.2	66.4	39.2	18.1	8.4	4.6	3.3	3.3	3.3	3.3	3.3	3.3	2.6	2.0	1.7	0.5	0.0	0.0	
98bc418-3	4	6	99.6	99.1	98.9	98.9	98.9	98.9	98.1	94.4	86.1	66.0	38.5	16.9	8.0	3.8	2.8	2.8	2.8	2.8	2.8	2.2	1.7	1.6	0.5	0.0	0.0	
98bc418-4	6	7	99.7	99.3	99.2	99.2	99.2	98.0	93.7	84.4	62.7	34.9	14.3	6.4	2.5	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.0	0.9	0.6	0.1	0.1	
98bc418-5	9	13	99.4	99.0	98.9	98.9	98.9	98.3	95.7	89.1	77.1	53.9	28.5	12.2	6.6	4.3	4.0	4.0	4.0	4.0	4.0	3.4	2.8	2.4	1.0	0.0	0.0	
98bc418-6	19	24	98.8	98.6	99.5	99.5	99.5	99.4	97.9	92.8	82.5	60.3	32.8	13.3	6.3	3.2	2.8	2.8	2.8	2.8	2.8	2.3	1.8	1.7	0.7	0.0	0.0	
98dw419-1	0	3	99.9	98.0	97.7	97.7	97.7	96.4	91.9	82.8	62.3	36.3	16.3	8.2	4.3	2.6	2.6	2.6	2.6	2.6	2.6	3.0	2.6	2.4	1.1	0.1	0.1	
98dw419-2	6	8	100.0	100.0	100.0	100.0	100.0	100.0	98.8	94.3	84.6	63.5	37.1	17.4	9.5	5.8	5.2	5.2	5.2	5.2	5.2	5.2	4.2	3.4	2.9	1.4	0.1	
98dw419-3	12	14	98.9	97.4	96.2	95.7	95.7	95.6	93.7	88.6	79.2	61.6	39.3	20.9	10.7	6.0	4.0	3.8	3.8	3.8	3.8	3.2	2.7	2.5	1.3	0.1	0.1	
98dw419-4	15	17	98.9	97.9	97.6	97.6	97.6	96.5	92.4	84.0	65.7	41.3	21.5	11.3	7.0	5.4	5.3	5.3	5.3	5.3	5.3	4.5	3.9	3.6	1.9	0.1	0.1	
98dw419-5	20	22	98.4	96.9	95.8	95.4	95.4	95.4	93.8	89.3	81.0	64.8	43.9	25.7	14.8	9.3	6.8	6.3	6.3	6.3	6.3	5.5	4.8	4.4	2.4	0.0	0.0	
98dw419-6	25	27	97.5	95.4	93.4	92.6	92.6	92.5	90.9	86.4	78.4	62.8	43.0	25.9	15.5	9.7	6.7	5.7	5.7	5.7	5.7	4.5	3.9	3.7	2.2	0.0	0.0	
98dw419-7	29	31	98.5	97.1	96.2	95.9	95.9	95.8	93.9	89.0	80.3	63.2	41.8	24.1	14.0	8.9	6.4	6.0	6.0	6.0	6.0	4.8	4.1	3.9	2.3	0.0	0.0	
98dw419-8	34	36	93.2	90.9	89.2	88.1	87.6	86.8	8																			

core	min	max (cm)	< 1190	< 1000	< 850	< 707	< 600	< 500	< 420	< 354	< 300	< 250	< 210	< 177	< 150	< 125	< 105	< 88	< 75	< 63	< 50	< 35	< 25	< 16	< 8	< 4		
98dw420-1	157	159	99.2	98.3	97.6	97.3	97.3	97.3	97.0	94.4	88.7	76.8	57.6	34.6	16.6	7.4	3.4	2.2	2.2	2.2	2.2	2.0	1.6	1.5	1.0	0.1		
98dw421-1	1	2	99.7	98.6	97.5	96.7	96.4	96.4	96.4	96.4	95.7	92.1	85.4	73.4	58.2	41.8	30.8	24.9	22.3	21.4	21.4	21.3	19.8	17.6	10.4	0.0		
98dw421-2	2	3	100.0	100	100	100	100	100	100	100	99.2	95.5	88.8	77.5	63.9	49.2	38.6	32.3	29.5	28.4	28.4	28.0	25.9	22.4	12.0	0.0		
98dw421-3	3	5	100.0	100	100	100	100	100	100	100	99.0	95.0	87.9	75.8	60.7	44.1	32.6	26.1	23.1	21.8	21.8	21.7	20.1	17.6	10.1	0.0		
98dw421-4	5	6	100.0	100	100	100	100	100	100	100	99.5	96.4	90.4	79.6	65.7	50.2	39.1	32.8	30.0	28.8	28.7	28.3	25.7	21.3	11.4	0.0		
98dw421-5	6	8	99.8	99.5	99.3	98.6	98.2	98.2	98.2	98.2	97.4	93.6	86.5	73.9	58.4	42.2	31.7	26.2	23.9	23.2	23.2	22.9	21.1	19.5	11.7	0.0		
98dw421-6	8	10	99.9	99.3	98.7	98.2	98.1	98.1	98.1	98.1	97.3	93.7	86.7	73.9	57.7	40.2	28.9	23.0	20.6	19.7	19.7	19.6	17.9	16.3	9.8	0.0		
98dw421-7	10	12	99.9	99.8	99.6	99.0	98.7	98.7	98.7	98.6	97.7	93.7	86.3	73.6	58.5	42.7	32.9	27.2	25.1	24.4	24.4	24.1	22.2	20.5	12.1	0.0		
98dw421-8	12	14	99.9	99.6	99.0	98.6	98.5	98.5	98.5	98.5	98.0	95.1	89.1	77.6	62.5	45.5	33.8	27.5	24.6	23.5	23.5	23.3	21.5	19.3	11.7	0.0		
98dw421-9	14	16	99.8	99.1	98.3	97.7	97.4	97.4	97.4	97.4	96.8	93.5	86.9	74.7	58.7	41.4	30.0	24.2	21.7	20.8	20.8	20.7	19.3	17.3	10.4	0.0		
98dw421-11	17	19	100.0	100	100	100	100	100	100	100	99.3	95.3	88.0	75.5	60.4	44.2	32.9	26.6	23.9	23.1	23.1	22.9	21.4	19.7	11.7	0.0		
98dw421-10	20	22	99.9	99.5	98.9	98.4	98.1	98.1	98.1	98.1	97.4	94.0	87.5	75.7	61.2	45.7	35.8	30.0	27.6	26.8	26.8	26.3	24.2	22.9	14.4	0.0		
98dw421-11	22	24	99.9	99.3	98.4	97.5	97.2	97.2	97.2	97.0	95.8	91.2	83.2	70.2	55.0	39.3	28.9	23.3	21.1	20.4	20.4	20.3	18.9	17.0	10.0	0.0		
98dw421-1	25	27	96.3	94.2	92.8	91.7	91.3	91.3	91.3	91.2	90.2	86.3	79.4	67.4	52.9	37.6	28.3	23.1	21.1	20.5	20.5	20.4	18.9	17.0	10.1	0.0		
98dw421-1	30	32	99.9	99.5	98.8	98.0	97.6	97.6	97.6	97.6	96.5	92.2	84.6	71.7	56.3	40.3	29.8	24.4	22.2	21.6	21.6	21.4	20.0	18.0	10.8	0.0		
98dw421-1	33	34	99.9	99.3	98.4	97.2	96.7	96.7	96.7	96.7	95.8	91.7	84.3	71.5	56.0	39.6	28.9	23.2	20.9	20.2	20.1	20.0	18.7	17.1	10.4	0.0		
98dw421-1	37	39	95.5	89.6	88.0	86.9	86.7	86.7	86.7	86.6	85.6	81.6	74.4	61.9	47.3	32.6	24.1	19.5	17.9	17.6	17.6	17.4	16.2	14.9	9.3	0.0		
98dw421-1	39	41	99.0	98.8	94.8	93.1	92.4	92.4	92.4	92.2	90.7	86.1	78.1	65.0	49.7	34.0	24.7	19.6	17.7	17.3	17.3	17.2	15.9	14.6	9.3	0.0		
98dw421-1	46	49	97.0	94.3	92.4	90.9	90.2	90.1	90.1	89.9	88.8	85.0	78.2	66.7	52.3	36.6	26.0	20.3	17.8	16.9	16.9	16.8	15.5	14.2	9.4	0.0		
98dw421-1	50	53	99.0	96.9	95.2	93.7	93.0	92.7	92.7	92.7	92.2	89.5	84.2	74.5	61.7	46.8	35.4	28.4	25.0	23.4	23.2	22.9	21.0	18.5	11.0	0.0		
98dw421-2	58	61	98.0	94.5	91.8	89.3	87.9	87.2	87.2	86.6	83.8	78.5	69.2	57.2	42.9	31.5	24.1	20.2	18.1	17.4	17.2	15.6	14.1	9.4	0.0			
98dw421-2	62	65	99.2	97.5	96.1	94.9	94.4	94.3	94.3	93.8	91.1	85.6	75.4	61.8	45.8	33.7	26.2	22.5	20.5	19.9	19.3	17.0	15.9	10.8	0.0			
98dw421-2	69	72	97.6	94.1	92.2	90.7	90.0	89.8	89.8	89.8	89.2	86.8	81.7	74.0	63.4	51.0	40.9	33.8	29.8	27.4	26.2	24.9	22.6	20.6	13.5	0.0		
98dw421-2	75	78	96.8	93.0	91.3	89.7	89.0	88.8	88.8	88.8	88.3	86.4	82.2	75.1	65.5	53.7	43.6	36.2	31.8	29.0	27.1	25.2	22.5	20.5	14.5	0.0		
98dw421-2	83	86	99.1	96.8	94.7	92.7	91.6	91.3	91.3	91.3	90.5	87.7	81.7	72.9	61.2	47.7	37.0	29.5	25.3	22.9	21.8	20.9	18.9	17.1	11.0	0.0		
98dw421-2	91	94	94.9	91.8	90.0	88.5	87.8	87.5	87.5	87.3	85.7	82.0	75.5	66.5	54.8	44.2	35.7	30.6	27.1	24.7	23.0	20.7	18.6	12.9	0.0			
98dw421-2	99	101	99.7	98.8	97.6	96.4	95.8	95.6	95.6	95.5	94.5	90.9	84.8	74.7	62.4	48.0	36.0	27.1	21.8	18.5	16.6	15.5	13.9	12.1	7.6	0.0		
98dw421-2	114	116	100.0	99.7	99.2	98.6	98.3	98.3	98.3	98.3	97.5	94.2	88.5	79.0	67.5	54.1	43.1	34.5	28.9	24.7	21.4	18.3	15.8	13.2	7.5	0.0		
98dw421-2	138	142	100.0	100	100	100	100	100	100	100	99.7	97.9	92.8	85.1	74.5	62.6	53.1	46.5	42.8	40.4	38.8	35.9	31.5	25.6	13.1	0.0		
98dw422-1	0	3	100.0	99.7	99.1	98.5	98.1	97.9	97.9	97.8	97.0	94.6	90.1	83.0	73.8	61.7	49.5	38.1	30.0	24.1	20.1	18.7	18.2	16.5	9.3	0.0		
98dw422-2	3	5	100.0	99.8	99.4	98.9	98.6	98.6	98.6	98.4	97.4	94.7	89.8	82.4	73.0	60.7	48.4	37.0	28.9	23.1	19.2	17.9	17.0	14.1	7.2	0.0		
98dw422-3	5	7	99.9	99.5	98.9	98.4	98.3	98.3	98.3	98.0	96.9	93.9	88.8	81.4	72.2	60.4	48.6	37.6	29.8	24.0	19.9	18.4	17.5	14.8	7.5	0.0		
98dw422-4	7	8	100.0	100	100	100	100	100	100.0	99.6	98.1	94.3	88.0	79.3	69.0	56.7	45.2	35.1	28.3	23.4	20.3	19.2	18.2	15.5	8.0	0.0		
98dw422-5	8	9	100.0	99.8	99.4	99.1	99.0	99.0	98.8	97.7	94.9	89.9	82.5	73.3	61.7	50.5	40.4	33.3	28.4	25.1	23.7	22.3	18.5	9.5	0.0			
98dw422-6	9	10	100.0	99.8	99.3	98.6	98.1	97.9	97.9	97.5	96.2	93.1	87.9	80.4	71.3	60.1	49.4	39.8	33.1	28.3	25.1	23.7	22.4	19.1	9.8	0.0		
98dw422-7	10	12	100.0	99.7	99.2	98.7	98.4	98.3	98.3	98.3	98.2	97.1	94.1	88.6	80.4	68.7	56.0	43.7	34.8	28.5	24.0	21.9	19.9	15.5	7.7	0.0		
98dw422-8	12	13	100.0	99.9	99.5	99.2	99.0	99.0	99.0	98.3	96.1	92.0	85.4	76.6	65.0	53.2	42.1	34.3	28.7	24.8	22.9	20.7	16.0	7.9	0.0			
98dw422-9	13	14	99.5	98.3	97.3	96.4	96.0	95.9	95.9	95.8	94.9	92.4	88.0	81.3	72.8	61.9	50.9	40.8	33.6	28.2	24.6	23.1	22.2	19.7	10.6	0.0		
98dw422-1	14	16	100.0	99.8	99.4	98.9	98.7	98.6	98.6	98.5	97.8	95.7	91.6	85.2	76.7	65.3	53.6	42.5	34.7	29.0	25.2	23.4	21.4	16.9	8.4	0.0		
98dw422-1	25	27	100.0	99.8	99.2	98.7	98.4	98.3	98.3	98.1	97.1	94.3	89.4	81.9	72.6	60.7	49.0	38.4	31.1	25.9	22.6	21.5	20.4	17.3	9.0	0.0		
98dw422-1	32	36	100.0	99.9	99.6	99.1	98.9	98.8	98.8	98.5	97.3	94.4	89.3	81.9	73.0	61.9	51.3	41.8	35.1	30.2	26.8	25.3	24.3	22.1	12.5	0.0		
98dw422-1	45	49	99.9	99.3	98.4	97.5	97.0	96.8	96.7	96.2	95.0	92.0	86.9	79.5	70.5	59.2	48.2	38.3	31.3	26.2	22.8	21.4	20.2	17.0	8.7	0.0		
98dw422-1	58	60	99.9	99.6	99.0	98.4	98.2	98.2	97.9	96.7	93.6	88.1	80.3	70.8	59.1	47.8	37.6	30.6	25.6	22.3	21.0	19.9	16.9	8.8	0.0			
98dw422-1	88	91	90.5	86.9	85.3	84.1	83.6	83.4	83.4	83.3	82.8	81.2	78.4	74.5	69.5	63.1	56.2	49.0	43.2	38.0	33.5	29.7	26.8	22.4	12.3	0.0		
98dw423-1	0	3	100.0	99.9	99.7	99.7	99.7	99.7	99.7	99.5	99.5	99.5	99.5	99.5	99.5	98.0	94.5	85.2	70.0	50.3	35.1	24.9	19.1	17.4	17.0	12.9	6.5	0.0
98dw423-2	11	13	100.0	99.8	99.7	99.7	99.7	99.7	99.7	99.5	99.5	99.5	99.5	99.5	98.1	94.6	85.5	70.8	52.3	38.2	28.7	23.2	21.3	20.1	15.0	7.6	0.0	
98dw423-3	16	19	100.0	99.8	99.7	99.7	99.7	99.6	99.5	99.5	99.5	99.5	99.5	99.5	98.2	94.9	86.0	71.2	51.8	36.5	26.3	20.4	18.7	18.4	14.6	7.4	0.0	
98dw423-4	24	28	100.0	100	100	100	100	100	100	100	100	100	99.9	98.9	95.8	87.0	72.3	53.0	38.0	27.8	21.9	19.8	18.9	14.1	7.1	0.0		
98dw423-5	34	37	100.0	99.9	99.8	99.8	99.8	99.8	99.6	99.6	99.6	99.6	99.6	99.4	97.5	93.7	84.7	71.1	54.4	41.5	32.7	27.6	25.9	24.6	19.3	9.9	0.0	
98dw423																												

core	min	max (cm < 2	d(50)	dz(50)	d(10)	dz(10)	d(90)	dz(90)	d(60/10)	dz(60/10)	dz(90/10)	labnr	Li icp	Be icp	B icp	Mg icp	P icp	Ca icp	Sc icp	Ti icp	Cr icp	Mn icp	Fe icp	Co icp	Ni icp		
98dw406-1	0	2	0.0	564	565	350	353	1034	1036	1.8	1.8	2.93	9902057	9.8	0.5	10.4	444	224	47855	B.D.	443	16.1	160	3851	147	5.3	
98dw406-2	4	6	0.0	582	583	361	364	1006	1007	1.8	1.8	2.77	9902058	8.5	0.2	9.9	480	183	68271	B.D.	375	12.7	188	4167	124	5.6	
98dw406-3	12	14	0.0	593	593	386	386	962	962	1.7	1.7	2.49															
98dw406-4	10	22	0.0	612	620	376	392	1436	1450	1.8	1.8	3.69															
98dw406-5	39	41	0.0	459	459	291	293	761	761	1.7	1.7	2.60															
98dw406-6	57	59	0.0	475	477	292	297	1620	1623	1.8	1.8	5.47	9902062	9.0	0.2	8.4	667	172	62093	B.D.	431	16.4	102	4421	119	6.0	
98dw406-7	70	72	0.0	454	463	265	300	697	703	1.9	1.7	2.35	9902063	10.5	0.3	9.3	1126	190	82987	0.3	563	20.6	70.1	5351	109	6.9	
98dw406-8	85	87	0.0	308	345	16	169	703	736	22.8	2.4	4.35															
98bc407-1	0	2	0.0	499	500	312	315	852	853	1.8	1.7	2.70															
98bc407-2	4	6	0.0	458	459	294	297	733	734	1.7	1.7	2.47															
98bc407-3	8	10	0.0	407	408	256	260	634	635	1.7	1.7	2.44															
98bc407-4	11	13	0.0	431	433	259	264	773	775	1.8	1.8	2.93															
98bc407-5	15	17	0.0	512	518	280	291	1432	1443	2.1	2.0	4.96															
98bc407-6	22	24	0.0	406	414	235	262	656	662	1.9	1.7	2.53															
98dw408-1	0	7	0.0	340	352	168	195	803	832	2.3	2.0	4.27															
98dw408-2	7	15	0.0	371	392	158	205	1055	1093	2.8	2.2	5.33	9902066	9.3	0.5	7.4	2313	640	87196	1.0	809	26.6	237	15835	86.7	8.7	
98dw408-3	15	17	0.0	349	368	156	202	983	1029	2.6	2.1	5.10															
98dw408-4	17	20	0.0	437	472	59	258	1396	1455	8.7	2.1	5.63															
98dw408-5	20	23	0.0	354	366	178	202	1301	1332	2.3	2.1	6.60															
98dw408-6	23	26	0.0	349	361	179	205	1201	1247	2.2	2.0	6.08															
98dw408-7	28	31	0.0	339	381	18	211	1457	1554	21.7	2.1	7.35															
98dw408-8	31	35	0.0	398	436	21	247	1243	1343	21.8	2.0	5.45	9902072	25.9	1.1	6.5	5843	688	99404	2.9	1718	46.0	226	21211	58.2	16.8	
98dw408-9	36	39	0.0	356	423	10	238	1040	1306	41.0	2.0	5.49	9902073	18.2	0.8	8.0	4271	1056	98854	1.7	1249	36.4	196	18173	70.8	13.9	
98dw408-10	42	46	0.0	359	411	12	216	951	1076	36.3	2.2	4.98															
98dw408-11	52	57	0.0	387	433	11	246	998	1221	39.7	2.0	4.96															
98dw408-12	70	73	0.0	257	371	9	179	547	606	36.8	2.3	3.38	9902076	30.9	1.2	9.1	6923	427	79209	3.4	2066	56.9	333	24768	98.2	20.2	
98dw408-13	82	87	0.0	394	429	11	263	715	750	41.2	1.8	2.85															
98dw408-14	113	116	0.0	10	286	5	137	209	525	2.4	2.4	3.84															
98bc409-1	0	3	0.0	372	382	197	221	975	1008	2.1	2.0	4.57	9902027	10.8	0.5	36.7	2303	637	77647	10.7	714	27.6	238	14179	92.3	7.6	
98bc409-2	3	7	0.0	331	342	166	199	660	677	2.2	1.9	3.40															
98bc409-3	8	11	0.0	339	364	33	215	733	785	11.5	1.9	3.64															
98bc409-4	12	15	0.0	314	324	172	201	836	903	2.0	1.8	4.48															
98bc409-5	20	24	0.0	467	570	20	264	1659	1718	30.2	2.8	6.50	9902031	19.4	0.8	46.4	4287	524	106072	20.0	1168	40.6	187	18079	75.8	14.3	
98bc409-6	25	30	0.0	620	761	29	298	1739	1769	30.2	3.5	5.94	9903330	26.6	1.0	50.3	5826	473	85433	5.7	2977	78.0	231	18887	134	16.8	
98dw410-1	52	54	0.0	449	452	272	282	728	730	1.8	1.8	2.59															
98dw410-2	84	86	0.0	628	634	298	308	1172	1175	2.4	2.4	3.82															
98bc411-1	0	2	0.0	516	516	355	355	765	765	1.6	1.6	2.16	9902032	13.3	0.3	10.0	506	69.5	10224	3.1	358	18.0	37.2	2447	274	5.0	
98bc411-2	4	6	0.0	516	516	358	358	750	750	1.5	1.5	2.10	9902033	12.7	0.2	13.2	634	93.6	8033	3.9	313	20.9	41.5	2329	250	5.1	
98bc411-3	8	10	0.0	604	604	389	389	965	965	1.7	1.7	2.48	9902034	13.9	0.3	9.5	547	89.4	10063	0.1	294	17.6	40.7	2514	236	6.3	
98bc411-4	12	14	0.0	537	537	357	357	819	819	1.6	1.6	2.29	9902035	12.8	0.2	7.9	664	86.6	9534	0.1	343	18.9	42.5	2505	238	6.1	
98bc411-5	18	20	0.0	534	535	370	373	757	758	1.5	1.5	2.03	9902036	11.6	0.3	7.6	735	86.6	6631	0.1	317	17.3	39.6	2317	244	5.3	
98bc411-6	23	25	0.0	555	555	369	369	833	833	1.6	1.6	2.26	9902037	13.1	0.3	8.1	682	112	9055	0.1	333	18.5	41.9	2653	260	5.8	
98dw412-1	0	3	0.0	470	473	240	248	901	904	2.2	2.2	3.65	9902081	14.7	0.6	12.0	1975	284	28307	1.2	1426	35.4	135	8485	215	9.1	
98dw412-2	7	9	0.0	625	628	320	326	1229	1231	2.2	2.2	3.77															
98dw412-3	15	17	0.0	522	526	256	268	953	956	2.3	2.2	3.57															
98dw412-4	21	23	0.0	163	169	79	98	285	290	2.3	1.9	2.96	9902084	14.5	0.7	11.0	4587	195	55023	1.9	1499	36.4	257	8736	122	14.5	
98dw412-5	28	30	0.0	224	230	107	122	408	413	2.4	2.1	3.38															
98bc413-1	0	1	0.0	472	476	265	277	776	779	2.0	1.9	2.82	9902038	11.8	0.5	10.9	1474	258	12937	0.6	800	30.1	126	7347	229	7.8	
98bc413-2	1	2	0.0	405	409	204	223	644	647	2.2	2.0	2.90															
98bc413-3	3	4	0.0	438	441	242	250	735	738	2.0	2.0	2.95															
98bc413-4	5	6	0.0	483	486	256	265	814	816	2.1	2.0	3.08	9902041	13.8	0.8	12.2	1295	283	12005	0.4	669	28.2	124	8502	263	8.5	
98bc413-5	8	10	0.0	357	377	83	114	669	680	5.0	3.8	5.95															
98bc413-6	10	11	0.0	345	365	80	119	652	664	5.0	3.5	5.59															
98bc413-7	13	15	0.0	370	382	94	116	659	666	4.5	3.7	5.73															
98dw414-1	0	3	0.0	400	401	261	264	618	618	1.7	1.7	2.34	9902086	12.1	0.3	8.4	773	86.1	6793	0.2	634	22.6	43.2	3016	271	5.8	
98dw414-2	6	8	0.0	467	469	274	278	822	824	1.9	1.9	2.96	9902087	11.7	0.5	12.4	870	107	11390	0.4	658	23.3	52.5	3519	262	6.3	
98dw414-3	11	13	0.0	417	419	252	256	727	729	1.8	1.8	2.85															
98dw414-4	15	17	0.0	377	379	234	239	631	632	1.8	1.7	2.65															
98dw414-5	22	24	0.0	355	357	221	229	572	574	1.8	1.7	2.50															
98dw414-6	27	29	0.0	346	350	218	227	554	556	1.7	1.7	2.45	9902091	11.7	0.5	10.0	1293	95.7	13749	0.6	795	27.9	68.6	3802	163	6.6	
98dw414-7	32	34	0.0	335	345	190	224	540	548	1.9	1.7	2.44															
98dw414-8	56	58	0.0	393	395	251	25																				

core	min	max (cm	Cu icp	Zn icp	Ga icp	As icp	Se icp	Rb icp	Sr icp	Y icp	Zr icp	Nb icp	Mo icp	Ag icp	Cd icp	Sn icp	Sb icp	Cs icp	Ba icp	La icp	Ce icp	Pr icp	Nd icp	Sm icp	Eu icp	Gd icp		
98dw406-1	0	2	3.3	13.3	1.3	10.9	2.4	86.5	274	2.8	15.3	0.7	0.7	0.1	0.0	0.3	0.3	0.6	107	5.1	10.6	1.3	5.0	0.9	0.2	0.8		
98dw406-2	4	6	3.1	13.2	1.1	11.6	1.9	74.2	397	3.0	17.3	0.6	0.6	0.1	0.0	0.3	0.3	0.5	97.8	5.8	12.3	1.4	5.8	1.0	0.2	0.8		
98dw406-3	12	14																										
98dw406-4	10	22																										
98dw406-5	39	41																										
98dw406-6	57	59	3.5	15.0	1.4	10.3	1.8	101	342	3.3	19.5	0.8	0.7	0.1	0.0	0.4	0.3	0.6	123	5.6	11.5	1.4	5.4	1.0	0.2	0.9		
98dw406-7	70	72	4.2	16.0	1.8	8.4	1.2	102	416	3.8	23.0	1.2	0.5	0.1	0.1	0.5	0.3	0.9	116	6.5	13.1	1.6	6.4	1.2	0.2	1.0		
98dw406-8	85	87																										
98bc407-1	0	2																										
98bc407-2	4	6																										
98bc407-3	8	10																										
98bc407-4	11	13																										
98bc407-5	15	17																										
98bc407-6	22	24																										
98dw408-1	0	7																										
98dw408-2	7	15	3.9	40.1	2.2	34.2	1.0	122	501	5.4	30.3	1.8	0.8	0.1	0.1	0.5	0.6	0.9	115	6.7	14.2	1.8	6.9	1.3	0.3	1.2		
98dw408-3	15	17																										
98dw408-4	17	20																										
98dw408-5	20	23																										
98dw408-6	23	26																										
98dw408-7	28	31																										
98dw408-8	31	35	5.9	37.9	5.5	51.1	1.1	261	552	10.4	60.9	5.1	1.3	0.2	0.1	1.1	0.6	3.5	146	13.7	27.6	3.4	12.9	2.5	0.5	2.4		
98dw408-9	36	39	5.1	29.4	3.8	32.6	0.7	192	534	8.5	42.7	3.3	1.2	0.2	0.1	0.8	0.7	2.2	130	11.1	22.9	2.7	10.6	2.0	0.4	1.9		
98dw408-1	42	46																										
98dw408-1	52	57																										
98dw408-1	70	73	6.7	44.2	6.5	66.4	1.1	310	439	10.8	69.7	6.1	1.7	0.2	0.1	1.2	0.7	4.3	161	15.5	32.4	3.9	14.7	2.9	0.6	2.7		
98dw408-1	82	87																										
98dw408-1	113	116																										
98bc409-1	0	3	4.5	38.1	2.3	28.0	0.6	134	435	5.6	29.6	2.2	0.7	0.1	0.1	0.7	0.6	1.1	119	7.0	14.0	1.7	6.5	1.3	0.3	1.2		
98bc409-2	3	7																										
98bc409-3	8	11																										
98bc409-4	12	15																										
98bc409-5	20	24	5.8	41.9	4.2	32.8	1.4	204	556	7.7	50.9	4.1	1.0	0.2	0.1	0.9	0.7	2.5	137	10.4	21.3	2.6	10.1	1.9	0.4	1.8		
98bc409-6	25	30	7.5	40.7	5.9	38.0	0.5	268	422	11.8	99.3	8.0	1.0	0.3	0.1	1.2	0.6	3.7	154	16.5	33.3	4.0	15.1	2.8	0.6	2.7		
98dw410-1	52	54																										
98dw410-2	84	86																										
98bc411-1	0	2	3.8	7.2	1.6	10.0	B.D.	135	65.1	2.4	20.3	1.3	0.4	0.1	0.0	0.4	0.4	0.9	168	3.9	7.9	0.9	3.3	0.6	0.2	0.6		
98bc411-2	4	6	4.1	6.7	1.8	8.8	B.D.	131	57.6	2.7	23.7	1.4	0.5	0.1	0.0	0.4	0.4	0.8	157	3.9	8.0	0.9	3.4	0.6	0.2	0.6		
98bc411-3	8	10	7.2	13.3	1.8	9.6	B.D.	136	66.5	3.0	21.1	0.7	0.4	0.1	0.0	0.4	0.4	0.8	171	3.9	8.1	0.9	3.5	0.7	0.2	0.7		
98bc411-4	12	14	3.8	7.1	1.8	8.7	B.D.	134	64.0	2.5	22.6	1.3	0.4	0.1	0.0	0.5	0.4	0.8	168	4.2	8.4	1.0	3.6	0.7	0.2	0.6		
98bc411-5	18	20	3.4	6.6	1.8	5.7	B.D.	132	51.7	2.6	19.4	1.1	0.4	0.1	0.0	0.4	0.3	0.8	161	4.2	8.6	1.0	3.7	0.7	0.2	0.7		
98bc411-6	23	25	3.9	7.5	1.9	7.8	0.2	141	69.9	3.0	20.7	1.0	0.4	0.2	0.0	0.4	0.4	0.8	169	4.2	8.8	1.0	3.8	0.7	0.2	0.7		
98dw412-1	0	3	4.7	36.3	2.9	15.0	0.3	179	141	6.9	74.2	2.1	0.5	0.2	0.1	0.8	0.6	1.1	191	9.3	18.8	2.2	8.4	1.7	0.4	1.6		
98dw412-2	7	9																										
98dw412-3	15	17																										
98dw412-4	21	23	6.4	18.4	4.3	3.0	0.2	223	229	8.5	67.2	3.9	0.4	0.2	0.1	0.7	0.4	1.3	210	10.6	21.8	2.6	9.8	2.0	0.5	1.9		
98dw412-5	28	30																										
98bc413-1	0	1	4.5	35.5	2.4	14.8	0.1	146	76.6	5.1	47.9	1.6	0.5	0.2	0.1	0.8	0.4	0.9	160	8.0	15.9	1.9	6.9	1.3	0.3	1.2		
98bc413-2	1	2																										
98bc413-3	3	4																										
98bc413-4	5	6	4.2	33.8	2.2	20.9	B.D.	151	77.0	4.4	33.3	1.6	0.5	0.1	0.1	0.7	0.4	0.9	172	6.9	13.7	1.6	5.8	1.1	0.3	1.1		
98bc413-5	8	10																										
98bc413-6	10	11																										
98bc413-7	13	15																										
98dw414-1	0	3	3.6	7.8	2.3	10.6	0.1	161	53.1	2.9	19.1	1.3	0.4	0.1	0.0	0.4	0.3	0.8	178	3.9	8.0	0.9	3.4	0.7	0.2	0.7		
98dw414-2	6	8	4.3	9.1	2.4	10.2	0.1	161	75.9	3.2	20.8	1.5	0.4	0.1	0.0	0.4	0.4	0.8	174	4.4	9.2	1.1	4.1	0.8	0.2	0.7		
98dw414-3	11	13																										
98dw414-4	15	17																										
98dw414-5	22	24																										
98dw414-6	27	29	4.8	10.4	3.0	5.4	B.D.	186	86.1	4.3	31.0	1.5	0.3	0.1	0.0	0.5	0.4	1.0	198	6.7	13.3	1.5	5.7	1.0	0.3	1.0		
98dw414-7	32	34																										
98dw414-8	56	58	4.1	7.3	2.4	1.6	B.D.	140	73.7	3.3	23.2	1.4	0.3	0.1	0.0	0.4	0.4	0.8	159	4.9	9.8	1.1	4.3	0.8	0.2	0.8		
98dw415-1	0	3	3.4	9.1	2.4	6.9	B.D.	142	107	3.6	22.1	1.7	0.4	0.1	0.0	0.3	0.3	0.7	157	5.9	11.6	1.3	4.9	0.9	0.2	0.9		

core	min	max (cm)	Tb icp	Dy icp	Ho icp	Er icp	Tm icp	Yb icp	Lu icp	Hf icp	Ta icp	Pt icp	Au icp	Tl icp	Pb icp	Bi icp	Th icp	U icp	Groep
98dw406-1	0	2	0.1	0.5	0.1	0.3	0.0	0.2	0.0	0.4	0.3	0.0	0.1	0.1	7.4	0.0	1.0	0.5	3.0
98dw406-2	4	6	0.1	0.6	0.1	0.3	0.0	0.2	0.0	0.5	0.2	0.1	0.1	0.1	7.6	0.0	1.1	0.5	3.0
98dw406-3	12	14																	3.0
98dw406-4	10	22																	3.0
98dw406-5	39	41																	3.0
98dw406-6	57	59	0.1	0.6	0.1	0.4	0.0	0.3	0.1	0.6	0.3	0.0	0.1	0.1	8.3	0.0	1.2	0.5	3.0
98dw406-7	70	72	0.1	0.7	0.1	0.4	0.1	0.4	0.1	0.6	0.4	0.1	0.1	0.1	8.9	0.1	1.4	0.6	3.0
98dw406-8	85	87																	3.0
98bc407-1	0	2																	4.0
98bc407-2	4	6																	3.0
98bc407-3	8	10																	3.0
98bc407-4	11	13																	3.0
98bc407-5	15	17																	3.0
98bc407-6	22	24																	3.0
98dw408-1	0	7																	1.0
98dw408-2	7	15	0.2	1.0	0.2	0.6	0.1	0.5	0.1	0.8	0.7	0.0	0.1	0.2	15.2	0.1	1.8	0.7	1.0
98dw408-3	15	17																	1.0
98dw408-4	17	20																	1.0
98dw408-5	20	23																	1.0
98dw408-6	23	26																	1.0
98dw408-7	28	31																	1.0
98dw408-8	31	35	0.4	2.0	0.4	1.1	0.2	1.0	0.2	1.7	0.8	0.1	0.1	0.3	13.1	0.1	3.9	2.2	1.0
98dw408-9	36	39	0.3	1.6	0.3	0.9	0.1	0.9	0.1	1.2	0.7	0.0	0.1	0.2	11.5	0.1	2.8	2.3	1.0
98dw408-1	42	46																	1.0
98dw408-1	52	57																	1.0
98dw408-1	70	73	0.4	2.2	0.4	1.2	0.2	1.2	0.2	2.0	0.8	0.0	0.1	0.4	13.0	0.2	4.7	2.9	1.0
98dw408-1	82	87																	1.0
98dw408-1	113	116																	1.0
98bc409-1	0	3	0.2	1.1	0.2	0.6	0.1	0.6	0.1	0.8	1.2	0.0	0.0	0.2	15.1	0.1	1.8	0.7	1.0
98bc409-2	3	7																	1.0
98bc409-3	8	11																	1.0
98bc409-4	12	15																	1.0
98bc409-5	20	24	0.3	1.5	0.3	0.8	0.1	0.8	0.1	1.4	1.7	0.0	0.1	0.2	14.7	0.1	3.0	1.6	1.0
98bc409-6	25	30	0.4	2.2	0.4	1.2	0.2	1.2	0.2	2.6	1.6	0.0	0.1	0.3	12.9	0.1	5.1	2.2	1.0
98dw410-1	52	54																	2.0
98dw410-2	84	86																	2.0
98bc411-1	0	2	0.1	0.5	0.1	0.3	0.0	0.3	0.0	0.7	2.2	0.0	0.1	0.2	6.3	0.0	1.4	0.9	2.0
98bc411-2	4	6	0.1	0.6	0.1	0.3	0.0	0.3	0.0	0.8	2.5	0.0	0.1	0.2	5.7	0.0	1.4	0.5	2.0
98bc411-3	8	10	0.1	0.6	0.1	0.3	0.0	0.4	0.0	0.7	1.0	0.0	0.1	0.1	6.3	0.0	1.5	0.5	2.0
98bc411-4	12	14	0.1	0.5	0.1	0.3	0.0	0.3	0.0	0.7	1.5	0.0	0.1	0.2	5.8	0.0	1.4	0.5	2.0
98bc411-5	18	20	0.1	0.5	0.1	0.3	0.0	0.3	0.0	0.6	1.5	0.0	0.1	0.2	5.8	0.0	1.4	0.5	2.0
98bc411-6	23	25	0.1	0.6	0.1	0.3	0.0	0.3	0.0	0.6	1.8	0.0	0.1	0.2	6.2	0.0	1.5	0.5	2.0
98dw412-1	0	3	0.2	1.3	0.3	0.7	0.1	0.7	0.1	1.9	0.5	0.0	0.1	0.2	13.2	0.1	2.6	0.8	3.0
98dw412-2	7	9																	3.0
98dw412-3	15	17																	3.0
98dw412-4	21	23	0.3	1.5	0.3	0.9	0.1	0.8	0.1	1.8	1.3	0.0	0.1	0.3	8.8	0.1	3.0	1.0	3.0
98dw412-5	28	30																	3.0
98bc413-1	0	1	0.2	1.0	0.2	0.6	0.1	0.5	0.1	1.3	0.8	0.0	0.0	0.2	16.6	0.0	2.5	0.7	2.0
98bc413-2	1	2																	3.0
98bc413-3	3	4																	3.0
98bc413-4	5	6	0.2	0.9	0.2	0.5	0.1	0.4	0.1	1.0	1.5	0.0	0.1	0.2	12.2	0.1	2.1	0.6	3.0
98bc413-5	8	10																	3.0
98bc413-6	10	11																	3.0
98bc413-7	13	15																	3.0
98dw414-1	0	3	0.1	0.6	0.1	0.3	0.0	0.3	0.1	0.6	1.9	0.0	0.1	0.2	6.2	0.0	1.3	0.5	2.0
98dw414-2	6	8	0.1	0.6	0.1	0.3	0.0	0.3	0.1	0.6	2.0	0.0	0.1	0.2	6.5	0.0	1.4	0.5	2.0
98dw414-3	11	13																	2.0
98dw414-4	15	17																	2.0
98dw414-5	22	24																	2.0
98dw414-6	27	29	0.1	0.8	0.2	0.4	0.1	0.4	0.1	1.0	1.2	0.0	0.1	0.2	6.6	0.0	1.9	0.5	2.0
98dw414-7	32	34																	2.0
98dw414-8	56	58	0.1	0.6	0.1	0.3	0.0	0.3	0.1	0.7	1.5	0.0	0.1	0.2	5.7	0.0	1.5	0.5	2.0
98dw415-1	0	3	0.1	0.7	0.1	0.4	0.1	0.4	0.1	0.7	1.8	0.0	0.1	0.2	6.4	0.0	1.5	0.6	2.0





Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902057 98dw406-1

9902057 98dw406-1
onbehandeld

Datum meting : 06 Apr 1999 15:25 File: NRDZAPRL.SAM
Obscuration = 19.4 %

Sampler: MSX15
Focus = 1000 mm.

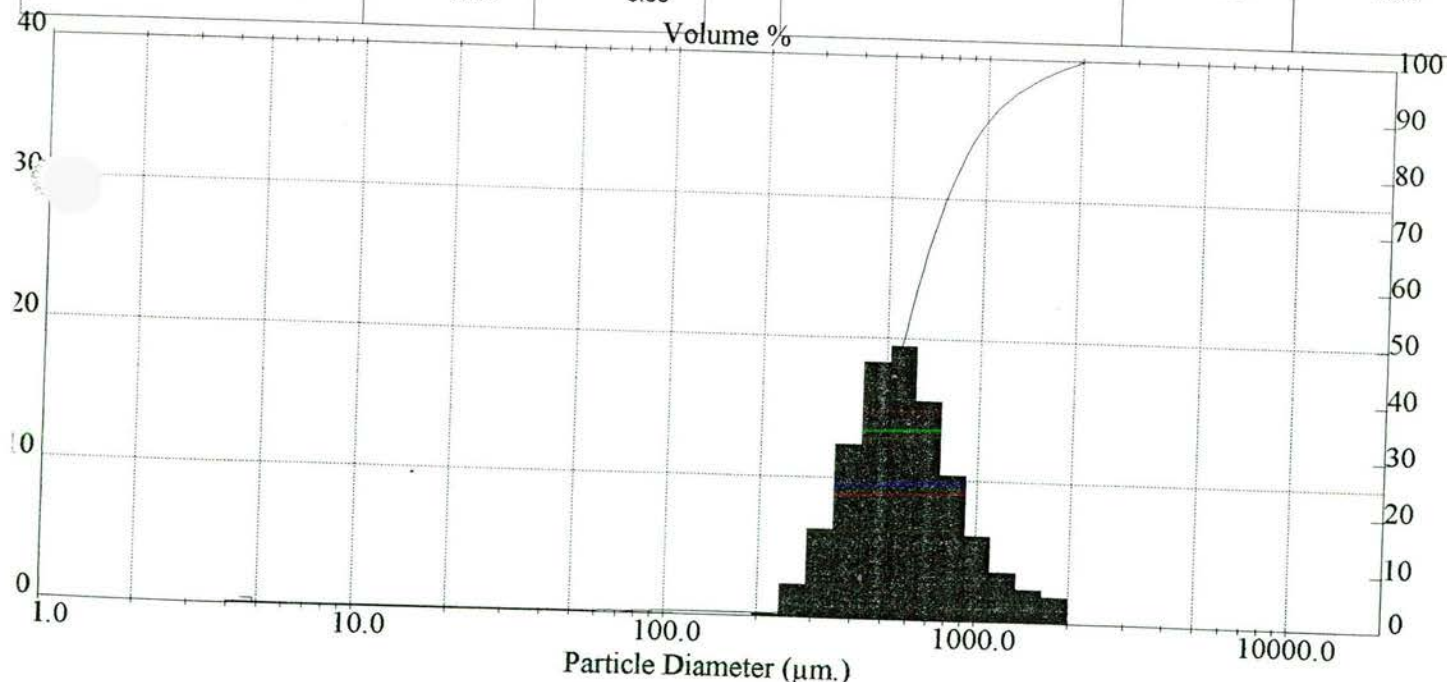
D50 gehele monster = 564 μ m
D50 zandfractie = 565 μ m
Dz 10 = 353 μ m

< 63.0 μ m : 0.5 %
Dz 90 = 1035.6 μ m

Dz 60/Dz 10 = 1.77

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.79	0.00
1680.0 - 2000.0	98.28	1.72	125.0 - 150.0	0.79	0.00
1410.0 - 1680.0	96.18	2.10	105.0 - 125.0	0.77	0.01
1190.0 - 1410.0	93.40	2.79	88.0 - 105.0	0.65	0.12
1000.0 - 1190.0	88.98	4.42	75.0 - 88.0	0.54	0.11
850.0 - 1000.0	82.27	6.70	63.0 - 75.0	0.46	0.08
707.0 - 850.0	70.55	11.72	50.0 - 63.0	0.45	0.02
600.0 - 707.0	56.20	14.36	35.0 - 50.0	0.44	0.00
500.0 - 600.0	37.67	18.52	25.0 - 35.0	0.44	0.00
420.0 - 500.0	21.57	16.10	16.0 - 25.0	0.44	0.00
354.0 - 420.0	10.50	11.07	8.0 - 16.0	0.44	0.00
300.0 - 354.0	4.39	6.11	4.0 - 8.0	0.39	0.05
250.0 - 300.0	1.36	3.03	2.0 - 4.0	0.03	0.36
210.0 - 250.0	0.79	0.57	0.1 - 2.0	0.00	0.03
177.0 - 210.0	0.79	0.00			



monster : 9902058 98dw406-2

9902058 98dw406-2
 onbehandeld

Datum meting : 06 Apr 1999 15:12 File: NRDZAPRL.SAM
 Obscuration = 18.0 %

Sampler: MSX15
 Focus = 1000 mm.

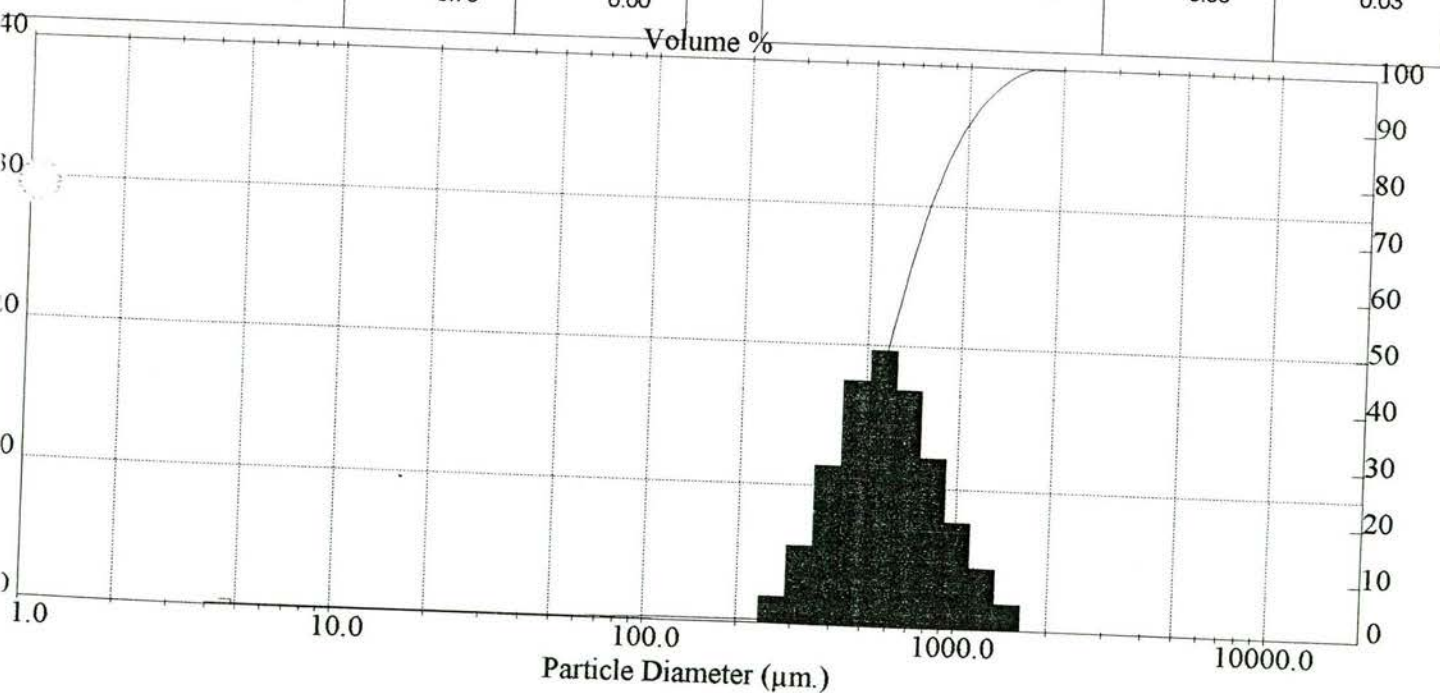
D50 gehele monster = 582 μm
 D50 zandfractie = 583 μm
 Dz 10 = 364 μm

< 63.0 μm : 0.4 %
 Dz 90 = 1006.9 μm

Dz 60/Dz 10 = 1.77

NITG - Afdeling GRANULOMETRIE

FRACIE μm	CUMULATIEF %	FRACIE %	FRACIE μm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	0.75	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.75	0.00
1410.0 - 1680.0	98.69	1.31	105.0 - 125.0	0.73	0.01
1190.0 - 1410.0	95.38	3.31	88.0 - 105.0	0.61	0.12
1000.0 - 1190.0	89.78	5.61	75.0 - 88.0	0.51	0.10
850.0 - 1000.0	81.60	8.17	63.0 - 75.0	0.44	0.07
707.0 - 850.0	68.30	13.30	50.0 - 63.0	0.44	0.01
600.0 - 707.0	53.10	15.20	35.0 - 50.0	0.44	0.00
500.0 - 600.0	34.62	18.48	25.0 - 35.0	0.44	0.00
420.0 - 500.0	19.32	15.30	16.0 - 25.0	0.44	0.00
354.0 - 420.0	9.12	10.20	8.0 - 16.0	0.44	0.00
300.0 - 354.0	3.65	5.47	4.0 - 8.0	0.39	0.05
250.0 - 300.0	1.06	2.59	2.0 - 4.0	0.03	0.35
210.0 - 250.0	0.75	0.32	0.1 - 2.0	0.00	0.03
177.0 - 210.0	0.75	0.00			



monster : 9902059 98dw406-3

9902059 98dw406-3
onbehandeld

Datum meting : 06 Apr 1999 15:06 File: NRDZAPRL.SAM
Obscuration = 15.7 %

Sampler: MSX15
Focus = 1000 mm.

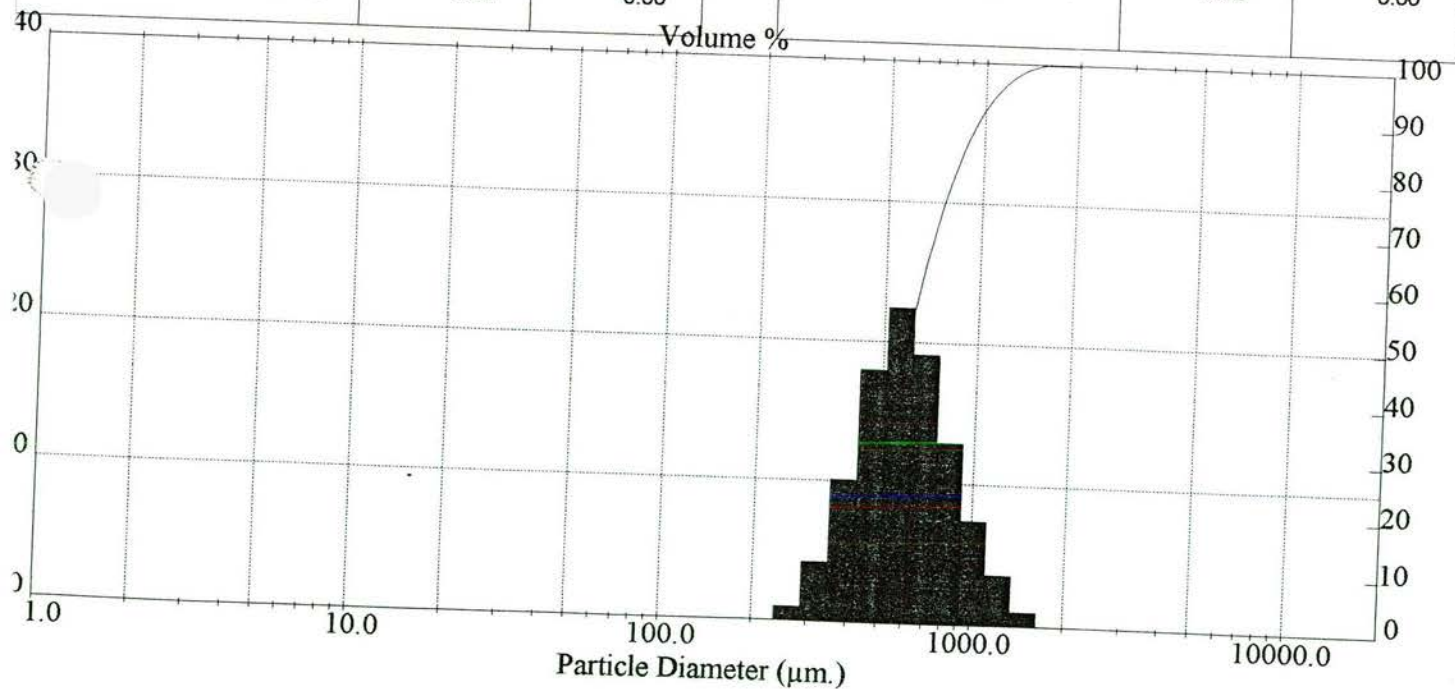
D50 gehele monster = 593 μm
D50 zandfractie = 593 μm
Dz 10 = 386 μm

< 63.0 μm : 0.0 %
Dz 90 = 962.0 μm

Dz 60/Dz 10 = 1.68

NITG - Afdeling GRANULOMETRIE

FRACIE μm	CUMULATIEF %	FRACIE %	FRACIE μm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	99.32	0.68	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	96.81	2.51	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	91.63	5.18	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	83.34	8.28	63.0 - 75.0	0.00	0.00
707.0 - 850.0	68.76	14.58	50.0 - 63.0	0.00	0.00
600.0 - 707.0	51.36	17.40	35.0 - 50.0	0.00	0.00
500.0 - 600.0	30.39	20.98	25.0 - 35.0	0.00	0.00
420.0 - 500.0	14.96	15.42	16.0 - 25.0	0.00	0.00
354.0 - 420.0	5.93	9.03	8.0 - 16.0	0.00	0.00
300.0 - 354.0	1.59	4.34	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.09	1.49	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.09	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



monster : 9902060 98dw406-4

9902060 98dw406-4
onbehandeld

Datum meting : 06 Apr 1999 15:00 File: NRDZAPRL.SAM
Obscuration = 4.2 %

Sampler: MSX15
Focus = 1000 mm.

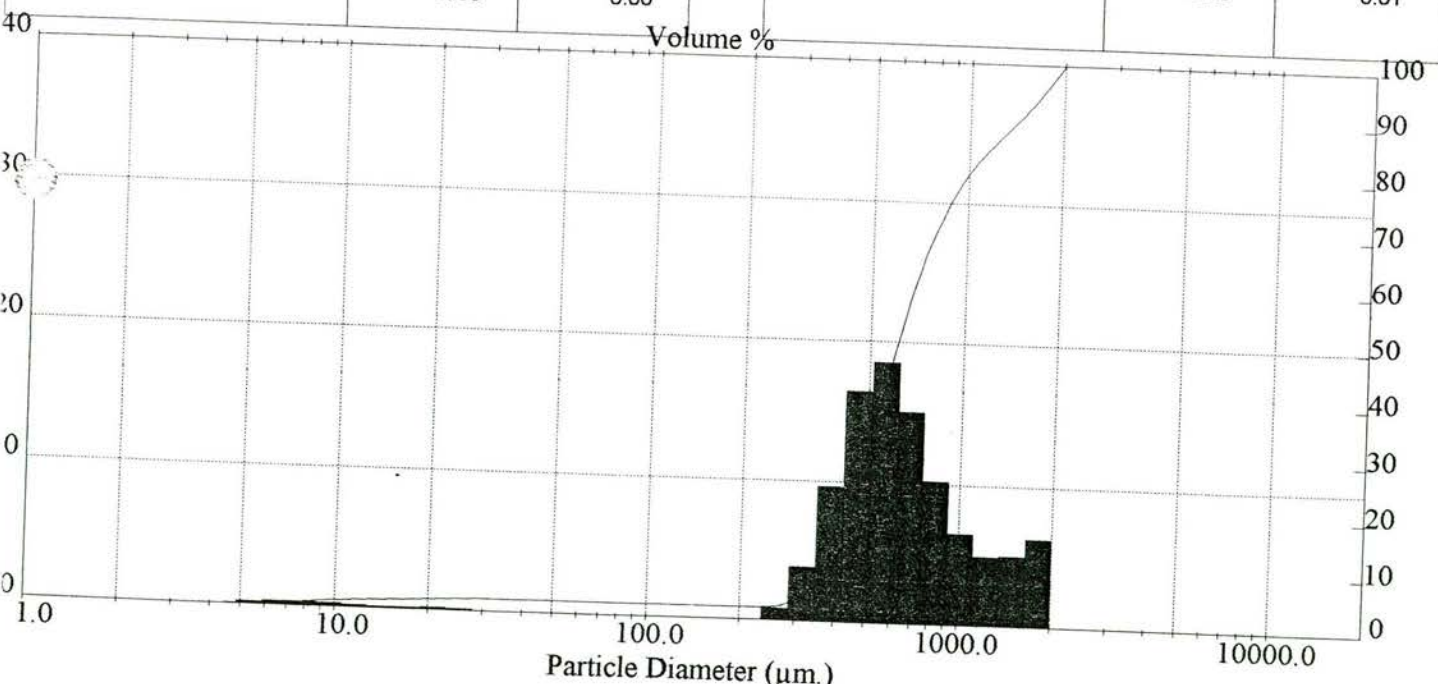
D50 gehele monster = 612 µm
D50 zandfractie = 620 µm
Dz 10 = 392 µm

< 63.0 µm : 2.4 %
Dz 90 = 1449.6 µm

Dz 60/Dz 10 = 1.77

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	2.38	0.00
1680.0 - 2000.0	94.27	5.73	125.0 - 150.0	2.38	0.00
1410.0 - 1680.0	89.55	4.72	105.0 - 125.0	2.38	0.00
1190.0 - 1410.0	85.32	4.22	88.0 - 105.0	2.38	0.00
1000.0 - 1190.0	80.27	5.06	75.0 - 88.0	2.38	0.00
850.0 - 1000.0	73.33	6.94	63.0 - 75.0	2.38	0.00
707.0 - 850.0	62.12	11.22	50.0 - 63.0	2.38	0.00
600.0 - 707.0	48.19	13.93	35.0 - 50.0	2.38	0.00
500.0 - 600.0	30.75	17.44	25.0 - 35.0	2.20	0.18
420.0 - 500.0	16.37	14.38	16.0 - 25.0	1.78	0.42
354.0 - 420.0	7.66	8.71	8.0 - 16.0	0.95	0.83
300.0 - 354.0	3.94	3.72	4.0 - 8.0	0.09	0.86
250.0 - 300.0	2.44	1.50	2.0 - 4.0	0.01	0.08
210.0 - 250.0	2.38	0.06	0.1 - 2.0	0.00	0.01
177.0 - 210.0	2.38	0.00			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902061 98dw406-5

9902061 98dw406-5
onbehandeld

Datum meting : 06 Apr 1999 14:56 File: NRDZAPRL.SAM
Obscuration = 20.5 %

Sampler: MSX15
Focus = 1000 mm.

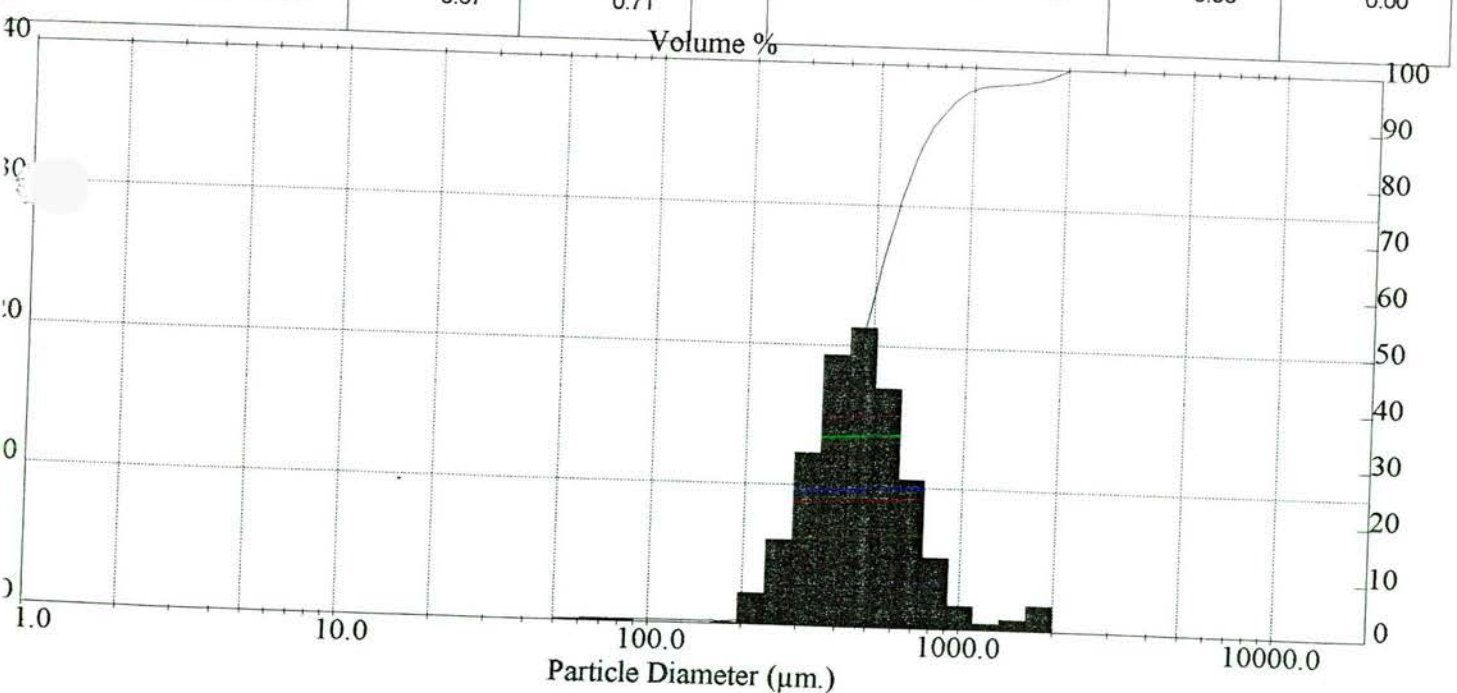
D50 gehele monster = 459 um
D50 zandfractie = 459 um
Dz 10 = 293 um

< 63.0 µm : 0.2 %
Dz 90 = 761.4 µm

Dz 60/Dz 10 = 1.72

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.68	0.00
1680.0 - 2000.0	98.27	1.73	125.0 - 150.0	0.68	0.00
1410.0 - 1680.0	97.38	0.89	105.0 - 125.0	0.68	0.00
1190.0 - 1410.0	96.95	0.43	88.0 - 105.0	0.66	0.01
1000.0 - 1190.0	96.11	0.84	75.0 - 88.0	0.46	0.20
850.0 - 1000.0	93.25	2.85	63.0 - 75.0	0.22	0.24
707.0 - 850.0	86.98	6.27	50.0 - 63.0	0.00	0.22
600.0 - 707.0	76.37	10.61	35.0 - 50.0	0.00	0.00
500.0 - 600.0	59.48	16.89	25.0 - 35.0	0.00	0.00
420.0 - 500.0	40.24	19.24	16.0 - 25.0	0.00	0.00
354.0 - 420.0	23.08	17.16	8.0 - 16.0	0.00	0.00
300.0 - 354.0	11.36	11.72	4.0 - 8.0	0.00	0.00
250.0 - 300.0	4.62	6.74	2.0 - 4.0	0.00	0.00
210.0 - 250.0	1.37	3.25	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.67	0.71			



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Serial No.

21 Apr 99 08:51

monster : 9902062 98dw406-6

9902062 98dw406-6
 onbehandeld

Datum meting : 06 Apr 1999 14:51 File: NRDZAPRL.SAM
 Obscuracion = 15.9 %

Sampler: MSX15
 Focus = 1000 mm.

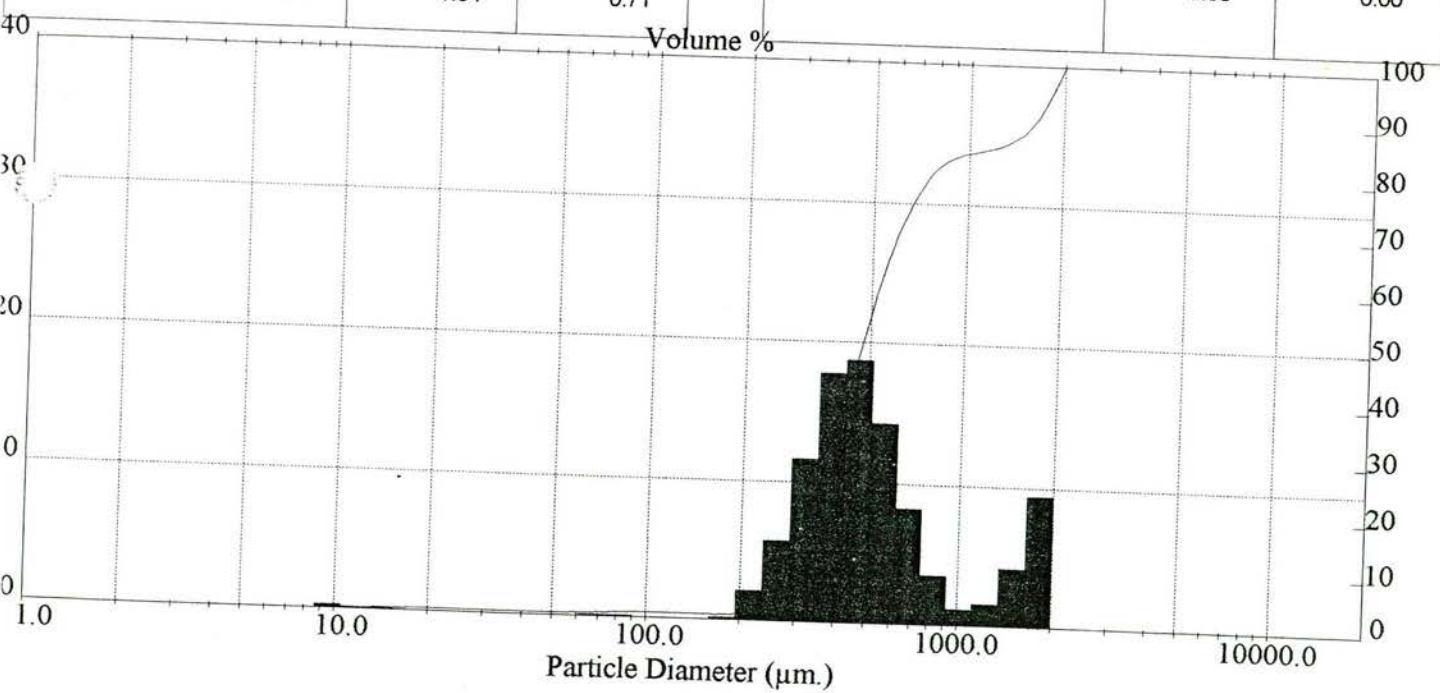
D50 gehele monster = 475 µm
 D50 zandfractie = 477 µm
 Dz 10 = 297 µm

< 63.0 µm : 0.7 %
 Dz 90 = 1623.5 µm

Dz 60/Dz 10 = 1.79

NITG - Afdeling GRANULOMETRIE

FRACIE µm	CUMULATIEF %	FRACIE %	FRACIE µm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	1.03	0.02
1680.0 - 2000.0	91.32	8.68	125.0 - 150.0	1.03	0.00
1410.0 - 1680.0	86.86	4.46	105.0 - 125.0	1.03	0.00
1190.0 - 1410.0	85.10	1.76	88.0 - 105.0	1.02	0.01
1000.0 - 1190.0	84.11	0.99	75.0 - 88.0	0.89	0.13
850.0 - 1000.0	82.54	1.57	63.0 - 75.0	0.75	0.15
707.0 - 850.0	77.44	5.10	50.0 - 63.0	0.63	0.11
600.0 - 707.0	69.44	8.00	35.0 - 50.0	0.62	0.01
500.0 - 600.0	54.92	14.52	25.0 - 35.0	0.62	0.00
420.0 - 500.0	37.98	16.95	16.0 - 25.0	0.55	0.07
354.0 - 420.0	22.24	15.74	8.0 - 16.0	0.00	0.55
300.0 - 354.0	11.19	11.05	4.0 - 8.0	0.00	0.00
250.0 - 300.0	4.81	6.38	2.0 - 4.0	0.00	0.00
210.0 - 250.0	1.75	3.06	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.04	0.71			



monster : 9902063 98dw406-7

9902063 98dw406-7
onbehandeld

Datum meting : 06 Apr 1999 14:46 File: NRDZAPRL.SAM
Obscuration = 22.4 %

Sampler: MSX15
Focus = 1000 mm.

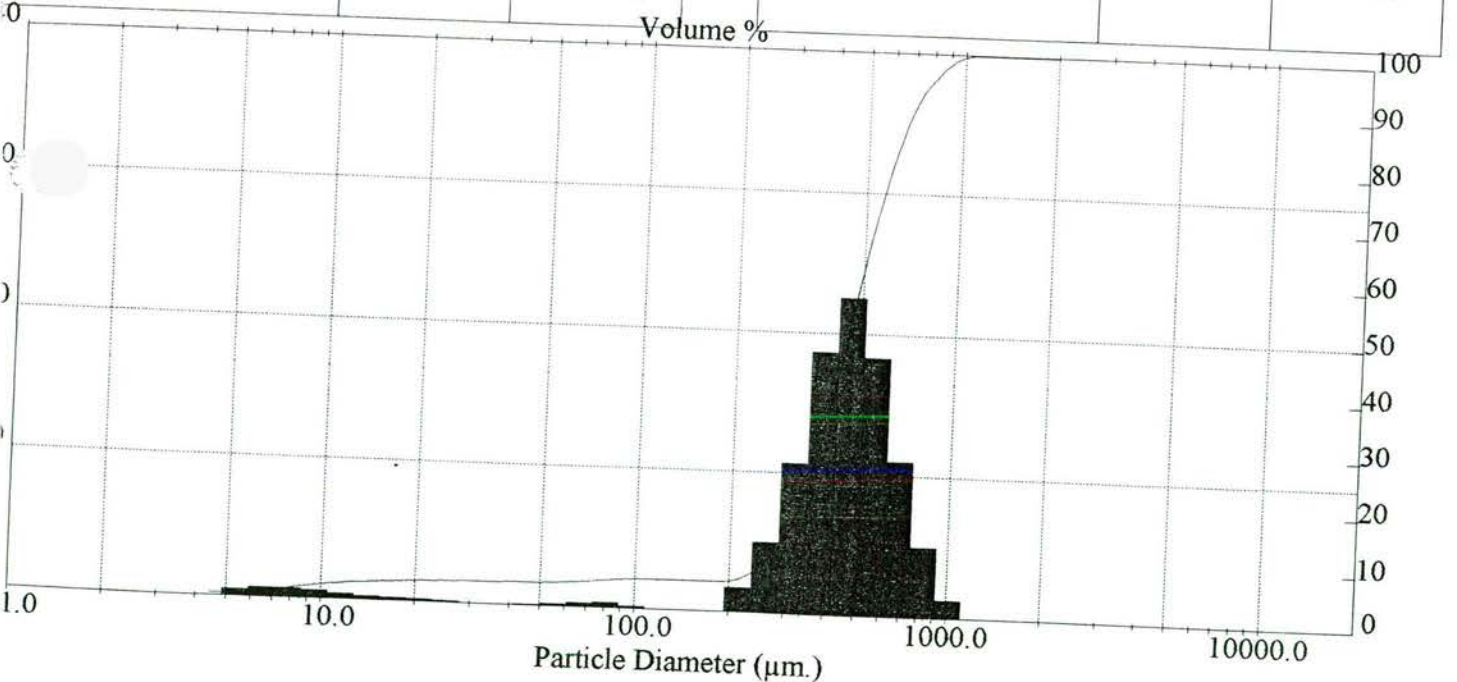
D50 gehele monster = 454 μ m
D50 zandfractie = 463 μ m
Dz 10 = 300 μ m

< 63.0 μ m : 4.6 %
Dz 90 = 703.4 μ m

Dz 60/Dz 10 = 1.68

NITG - Afdeling GRANULOMETRIE

FRACIE μ m	CUMULATIEF %	FRACIE %	FRACIE μ m	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	5.54	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	5.54	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	5.52	0.02
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	5.29	0.23
1000.0 - 1190.0	99.64	0.36	75.0 - 88.0	4.93	0.35
850.0 - 1000.0	96.98	2.66	63.0 - 75.0	4.59	0.34
707.0 - 850.0	90.72	6.26	50.0 - 63.0	4.32	0.28
600.0 - 707.0	79.52	11.20	35.0 - 50.0	4.19	0.13
500.0 - 600.0	61.30	18.22	25.0 - 35.0	4.03	0.15
420.0 - 500.0	41.02	20.28	16.0 - 25.0	3.57	0.46
354.0 - 420.0	24.46	16.57	8.0 - 16.0	1.91	1.66
300.0 - 354.0	14.15	10.31	4.0 - 8.0	0.00	1.91
250.0 - 300.0	8.53	5.62	2.0 - 4.0	0.00	0.00
210.0 - 250.0	5.91	2.62	0.1 - 2.0	0.00	0.00
177.0 - 210.0	5.54	0.37			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902064 98dw406-8

9902064 98dw406-8
onbehandeld

Datum meting : 07 Apr 1999 08:31 File: NRDZAPRL.SAM
Obscuration = 15.5 %

Sampler: MSX15
Focus = 1000 mm.

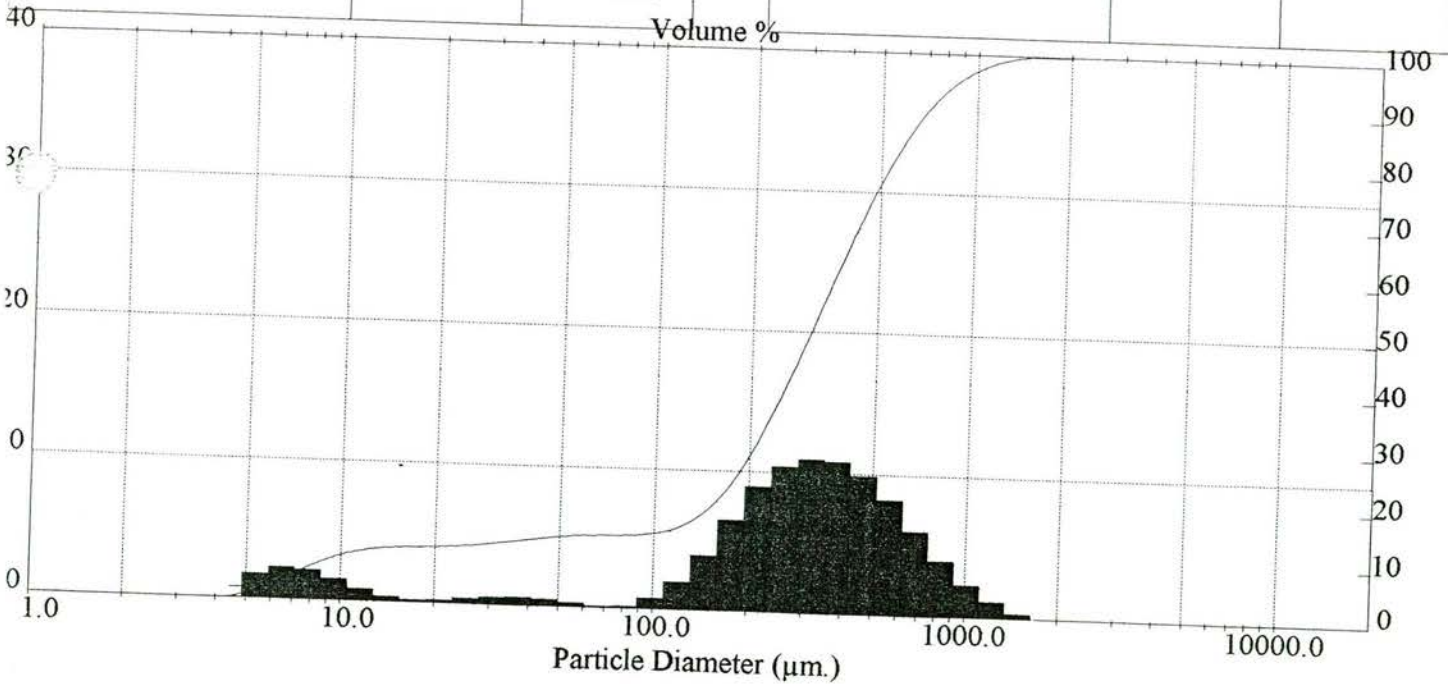
D50 gehele monster = 308 μ m
D50 zandfractie = 345 μ m
Dz 10 = 169 μ m

< 63.0 μ m : 13.0 %
Dz 90 = 736.2 μ m

Dz 60/Dz 10 = 2.38

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	18.52	4.67
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	15.42	3.11
1410.0 - 1680.0	99.75	0.25	105.0 - 125.0	13.92	1.50
1190.0 - 1410.0	98.92	0.84	88.0 - 105.0	13.31	0.61
1000.0 - 1190.0	97.26	1.65	75.0 - 88.0	13.14	0.17
850.0 - 1000.0	94.67	2.59	63.0 - 75.0	13.02	0.12
707.0 - 850.0	90.15	4.52	50.0 - 63.0	12.64	0.38
600.0 - 707.0	84.50	5.65	35.0 - 50.0	11.57	1.07
500.0 - 600.0	76.46	8.03	25.0 - 35.0	10.60	0.97
420.0 - 500.0	67.49	8.97	16.0 - 25.0	9.99	0.60
354.0 - 420.0	57.96	9.52	8.0 - 16.0	6.19	3.80
300.0 - 354.0	48.60	9.37	4.0 - 8.0	0.00	6.19
250.0 - 300.0	38.62	9.98	2.0 - 4.0	0.00	0.00
210.0 - 250.0	30.01	8.61	0.1 - 2.0	0.00	0.00
177.0 - 210.0	23.19	6.81			



monster : 9902199 98dw407-1

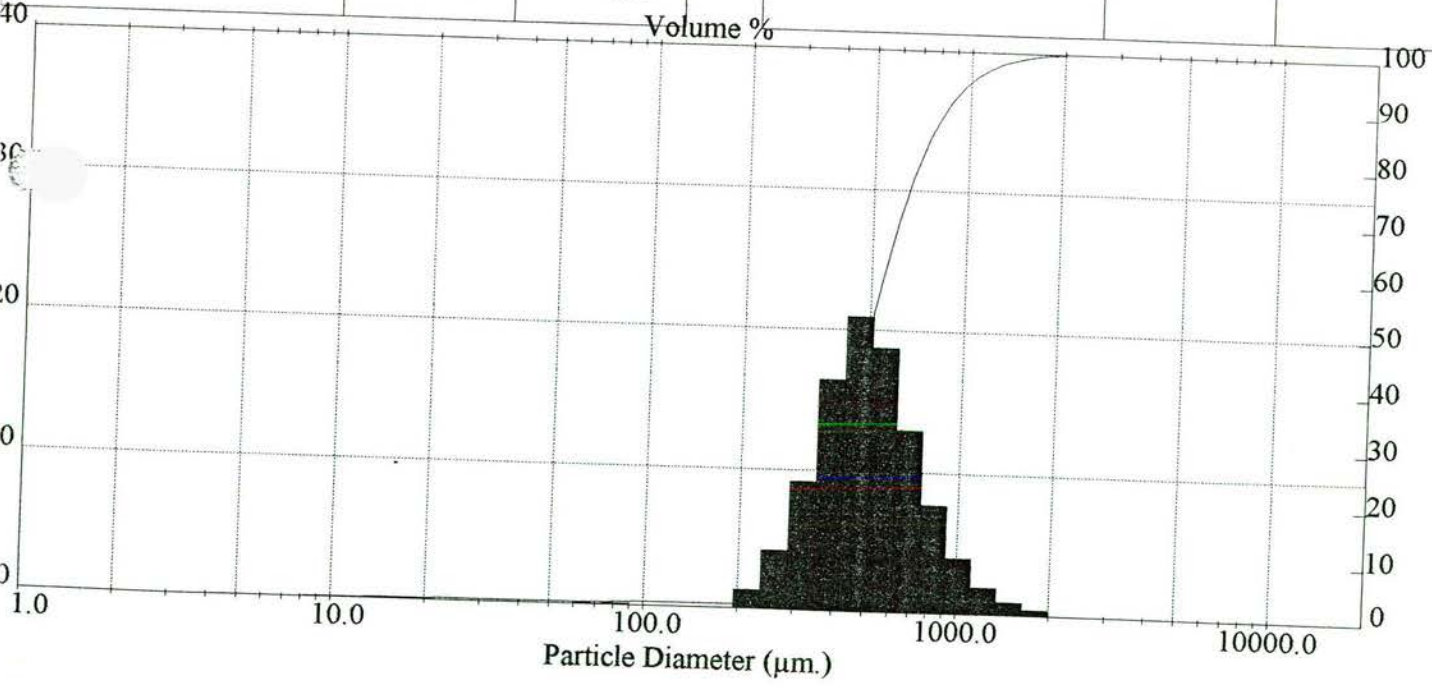
9902199 98dw407-1
 onbehandeld

Datum meting : 06 Apr 1999 15:43 File: NRDZAPRL.SAM Sampler: MSX15
 Obscuraton = 20.5 % Focus = 1000 mm.

D50 gehele monster = 499 μ m
D50 zandfractie = 500 μ m
 Dz 10 = 315 μ m < 63.0 μ m : 0.5 %
 Dz 90 = 852.8 μ m Dz 60/Dz 10 = 1.74

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.88	0.00
1680.0 - 2000.0	99.60	0.40	125.0 - 150.0	0.88	0.00
1410.0 - 1680.0	98.82	0.78	105.0 - 125.0	0.87	0.01
1190.0 - 1410.0	97.40	1.42	88.0 - 105.0	0.78	0.09
1000.0 - 1190.0	94.65	2.75	75.0 - 88.0	0.64	0.14
850.0 - 1000.0	89.93	4.72	63.0 - 75.0	0.53	0.11
707.0 - 850.0	80.86	9.07	50.0 - 63.0	0.47	0.06
600.0 - 707.0	68.51	12.36	35.0 - 50.0	0.47	0.00
500.0 - 600.0	50.21	18.29	25.0 - 35.0	0.47	0.00
420.0 - 500.0	31.42	18.79	16.0 - 25.0	0.39	0.08
354.0 - 420.0	16.73	14.70	8.0 - 16.0	0.22	0.17
300.0 - 354.0	8.23	8.50	4.0 - 8.0	0.00	0.22
250.0 - 300.0	3.08	5.14	2.0 - 4.0	0.00	0.00
210.0 - 250.0	1.20	1.88	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.88	0.33			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902200 98bc407-2

9902200 98bc407-2
onbehandeld

Datum meting : 07 Apr 1999 09:11
Obscuration = 17.7 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

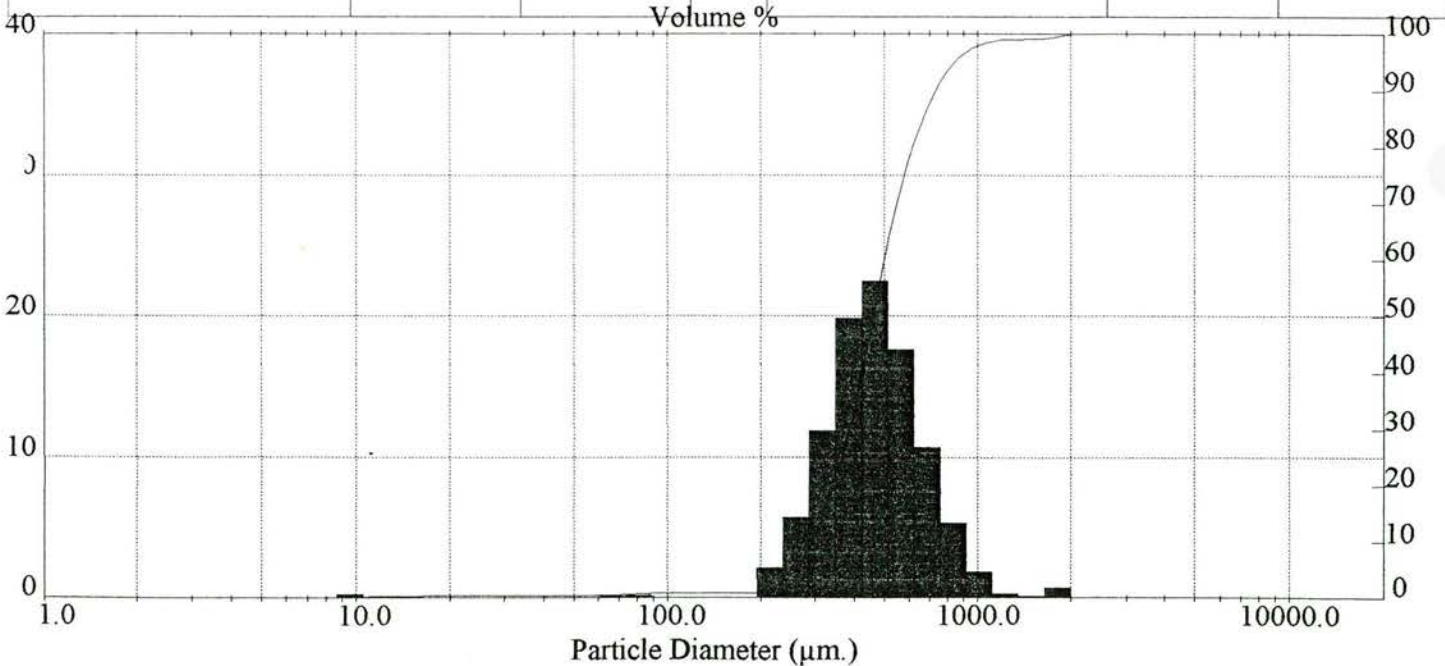
D50 gehele monster = 458 µm
D50 zandfractie = 459 µm
Dz 10 = 297 µm

< 63.0 µm : 0.6 %
Dz 90 = 733.7 µm

Dz 60/Dz 10 = 1.69

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.92	0.00
1680.0 - 2000.0	99.30	0.70	125.0 - 150.0	0.92	0.00
1410.0 - 1680.0	99.09	0.20	105.0 - 125.0	0.92	0.00
1190.0 - 1410.0	98.96	0.13	88.0 - 105.0	0.91	0.02
1000.0 - 1190.0	97.97	0.99	75.0 - 88.0	0.75	0.16
850.0 - 1000.0	95.26	2.71	63.0 - 75.0	0.60	0.14
707.0 - 850.0	88.20	7.06	50.0 - 63.0	0.51	0.09
600.0 - 707.0	77.93	10.27	35.0 - 50.0	0.50	0.01
500.0 - 600.0	60.11	17.82	25.0 - 35.0	0.50	0.00
420.0 - 500.0	39.80	20.31	16.0 - 25.0	0.45	0.06
354.0 - 420.0	22.11	17.70	8.0 - 16.0	0.00	0.45
300.0 - 354.0	11.12	10.99	4.0 - 8.0	0.00	0.00
250.0 - 300.0	4.26	6.85	2.0 - 4.0	0.00	0.00
210.0 - 250.0	1.47	2.79	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.92	0.55			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902201 98bc407-3

9902201 98bc407-3
onbehandeld

Datum meting : 07 Apr 1999 09:05
Obscuration = 17.3 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

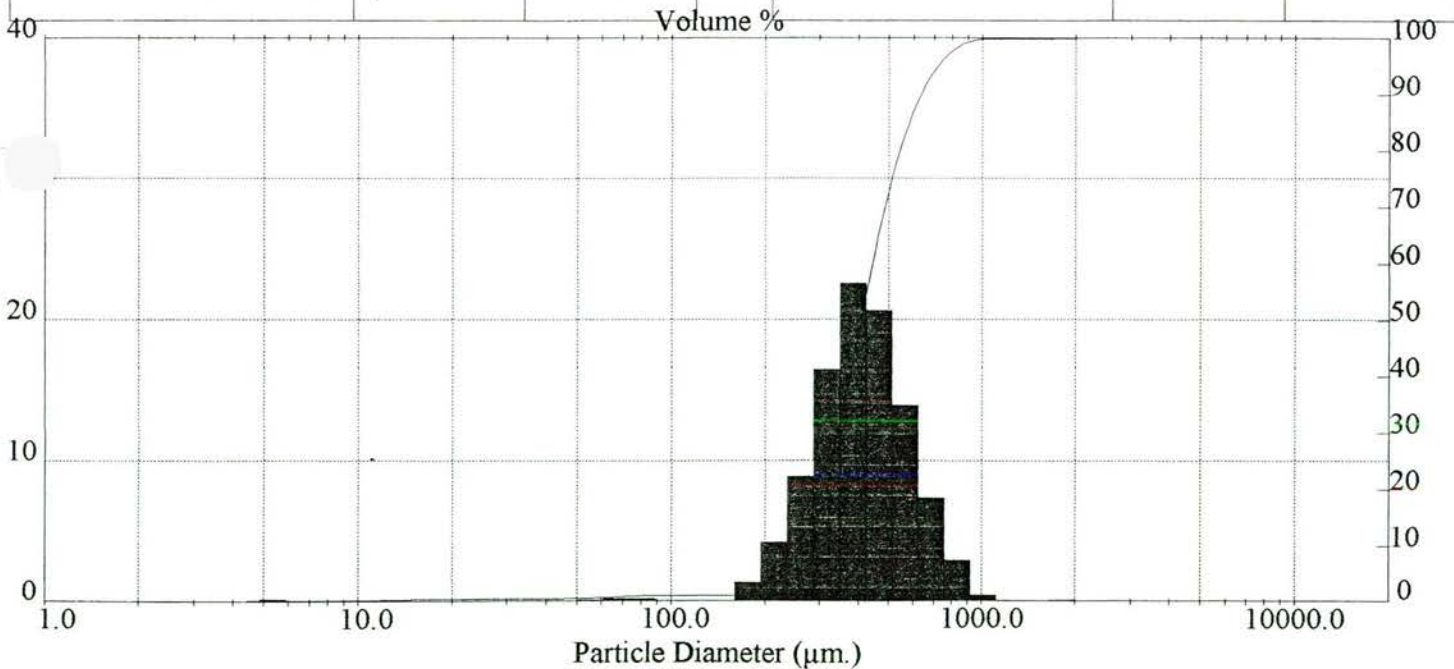
D50 gehele monster = 407 μm
D50 zandfractie = 408 μm
Dz 10 = 260 μm

< 63.0 μm : 0.8 %
Dz 90 = 635.2 μm

Dz 60/Dz 10 = 1.71

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.13	0.47
1680.0 - 2000.0	99.89	0.11	125.0 - 150.0	1.13	0.00
1410.0 - 1680.0	99.88	0.01	105.0 - 125.0	1.13	0.00
1190.0 - 1410.0	99.88	0.00	88.0 - 105.0	1.12	0.01
1000.0 - 1190.0	99.80	0.08	75.0 - 88.0	0.96	0.16
850.0 - 1000.0	98.66	1.14	63.0 - 75.0	0.76	0.20
707.0 - 850.0	94.51	4.15	50.0 - 63.0	0.60	0.16
600.0 - 707.0	86.96	7.55	35.0 - 50.0	0.55	0.05
500.0 - 600.0	72.76	14.20	25.0 - 35.0	0.55	0.00
420.0 - 500.0	53.79	18.97	16.0 - 25.0	0.49	0.06
354.0 - 420.0	33.84	19.95	8.0 - 16.0	0.29	0.20
300.0 - 354.0	18.53	15.31	4.0 - 8.0	0.07	0.21
250.0 - 300.0	8.92	9.62	2.0 - 4.0	0.01	0.07
210.0 - 250.0	3.71	5.21	0.1 - 2.0	0.00	0.01
177.0 - 210.0	1.59	2.11			



monster : 9902202 98bc407-4

9902202 98bc407-4
onbehandeld

Datum meting : 07 Apr 1999 09:00
Obscuration = 15.8 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

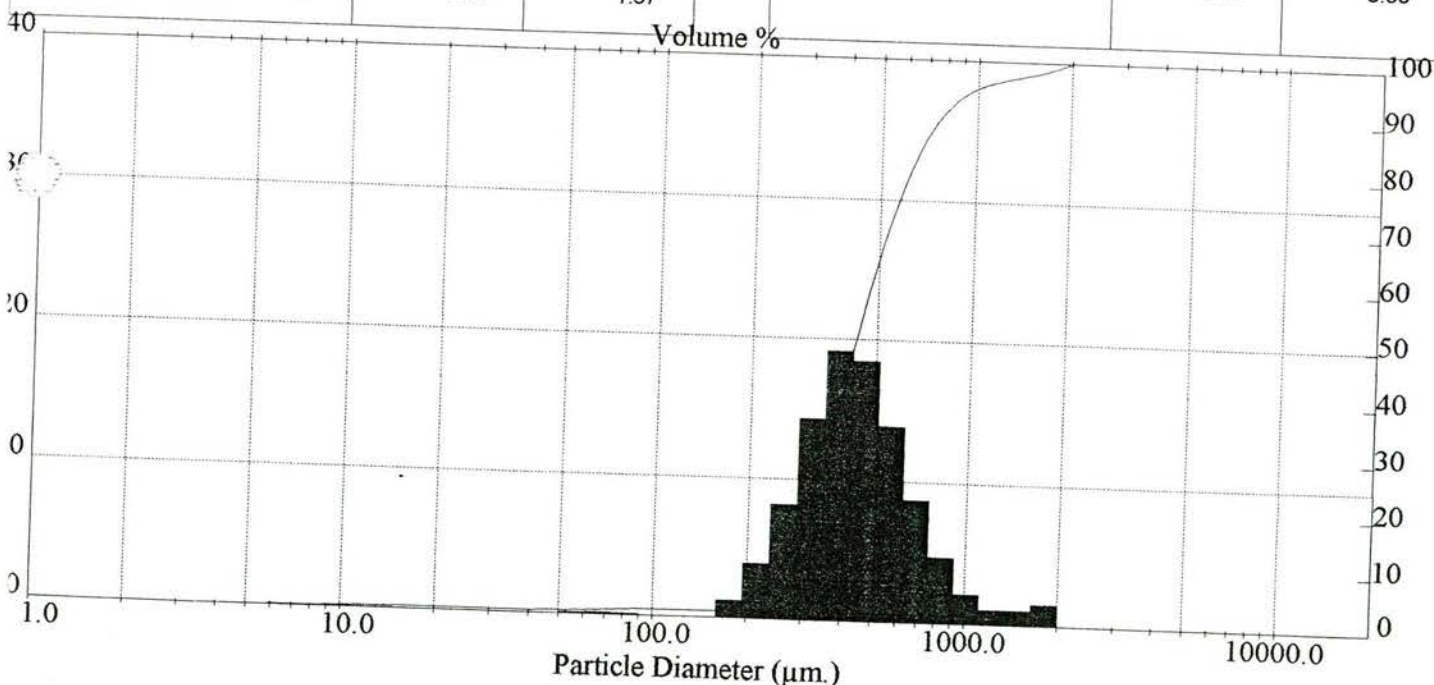
D50 gehele monster = 431 μm
D50 zandfractie = 433 μm
Dz 10 = 264 μm

< 63.0 μm : 0.9 %
Dz 90 = 775.4 μm

Dz 60/Dz 10 = 1.81

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.28	0.43
1680.0 - 2000.0	98.56	1.44	125.0 - 150.0	1.28	0.00
1410.0 - 1680.0	97.51	1.05	105.0 - 125.0	1.28	0.00
1190.0 - 1410.0	96.61	0.90	88.0 - 105.0	1.27	0.01
1000.0 - 1190.0	95.19	1.42	75.0 - 88.0	1.14	0.13
850.0 - 1000.0	92.52	2.67	63.0 - 75.0	0.94	0.20
707.0 - 850.0	86.76	5.76	50.0 - 63.0	0.75	0.19
600.0 - 707.0	78.24	8.52	35.0 - 50.0	0.68	0.07
500.0 - 600.0	64.33	13.91	25.0 - 35.0	0.68	0.00
420.0 - 500.0	47.49	16.83	16.0 - 25.0	0.60	0.08
354.0 - 420.0	30.56	16.93	8.0 - 16.0	0.29	0.30
300.0 - 354.0	17.30	13.26	4.0 - 8.0	0.00	0.29
250.0 - 300.0	8.52	8.79	2.0 - 4.0	0.00	0.00
210.0 - 250.0	3.67	4.84	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.71	1.97			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902203 98bc407-5

9902203 98bc407-5
onbehandeld

Datum meting : 07 Apr 1999 08:52 File: NRDZAPRL.SAM
Obscuration = 15.4 %

Sampler: MSX15
Focus = 1000 mm.

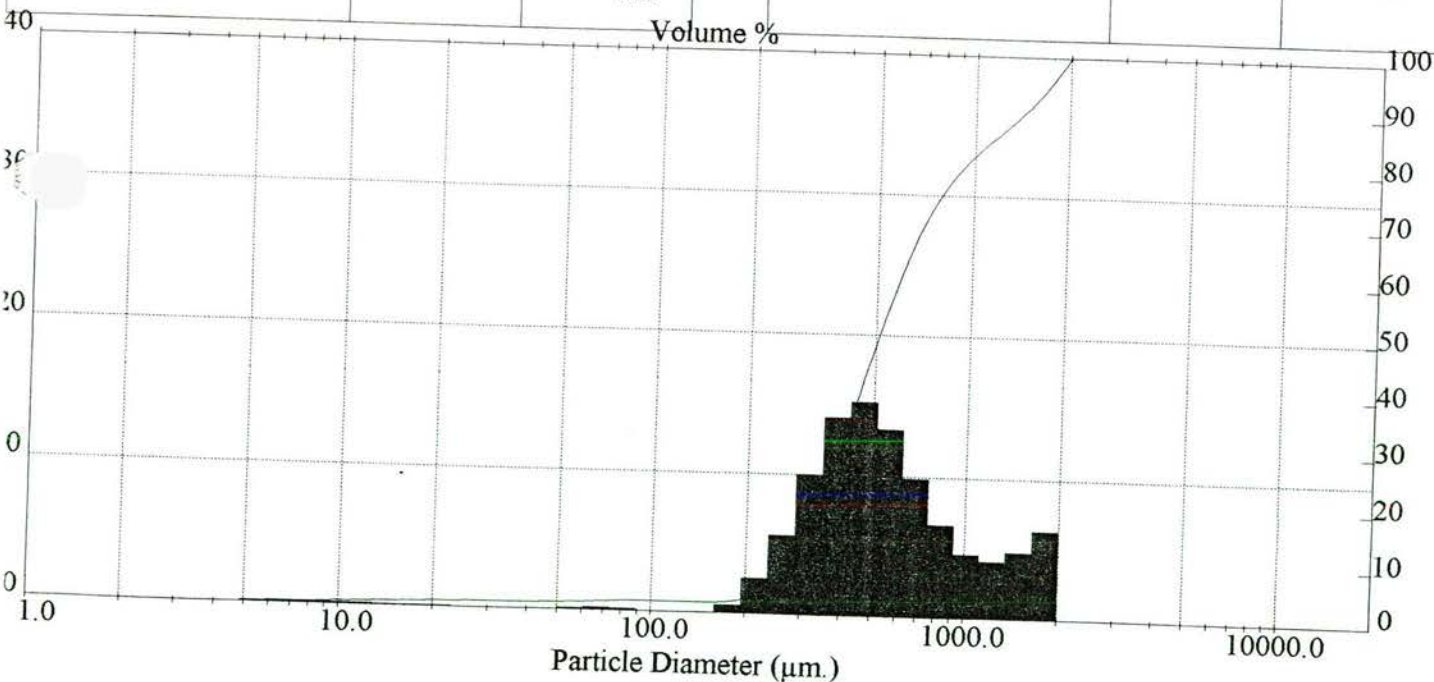
D50 gehele monster = 512 μm
D50 zandfractie = 518 μm
Dz 10 = 291 μm

< 63.0 μm : 1.6 %
Dz 90 = 1442.6 μm

Dz 60/Dz 10 = 2.05

NITG - Afdeling GRANULOMETRIE

FRACIE μm	CUMULATIEF %	FRACIE %	FRACIE μm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	2.03	0.15
1680.0 - 2000.0	94.20	5.80	125.0 - 150.0	2.03	0.00
1410.0 - 1680.0	89.64	4.56	105.0 - 125.0	2.03	0.00
1190.0 - 1410.0	85.97	3.67	88.0 - 105.0	2.02	0.01
1000.0 - 1190.0	82.17	3.80	75.0 - 88.0	1.86	0.16
850.0 - 1000.0	77.63	4.54	63.0 - 75.0	1.64	0.21
707.0 - 850.0	70.24	7.39	50.0 - 63.0	1.43	0.21
600.0 - 707.0	61.08	9.16	35.0 - 50.0	1.31	0.12
500.0 - 600.0	48.15	12.93	25.0 - 35.0	1.25	0.06
420.0 - 500.0	34.44	13.70	16.0 - 25.0	1.04	0.21
354.0 - 420.0	21.98	12.46	8.0 - 16.0	0.52	0.52
300.0 - 354.0	12.80	9.19	4.0 - 8.0	0.04	0.47
250.0 - 300.0	6.46	6.33	2.0 - 4.0	0.00	0.04
210.0 - 250.0	3.34	3.13	0.1 - 2.0	0.00	0.00
177.0 - 210.0	2.18	1.15			



monster : 9902204 98bc407-6

9902204 98bc407-6
onbehandeld

Datum meting : 07 Apr 1999 08:47
Obscuration = 15.6 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

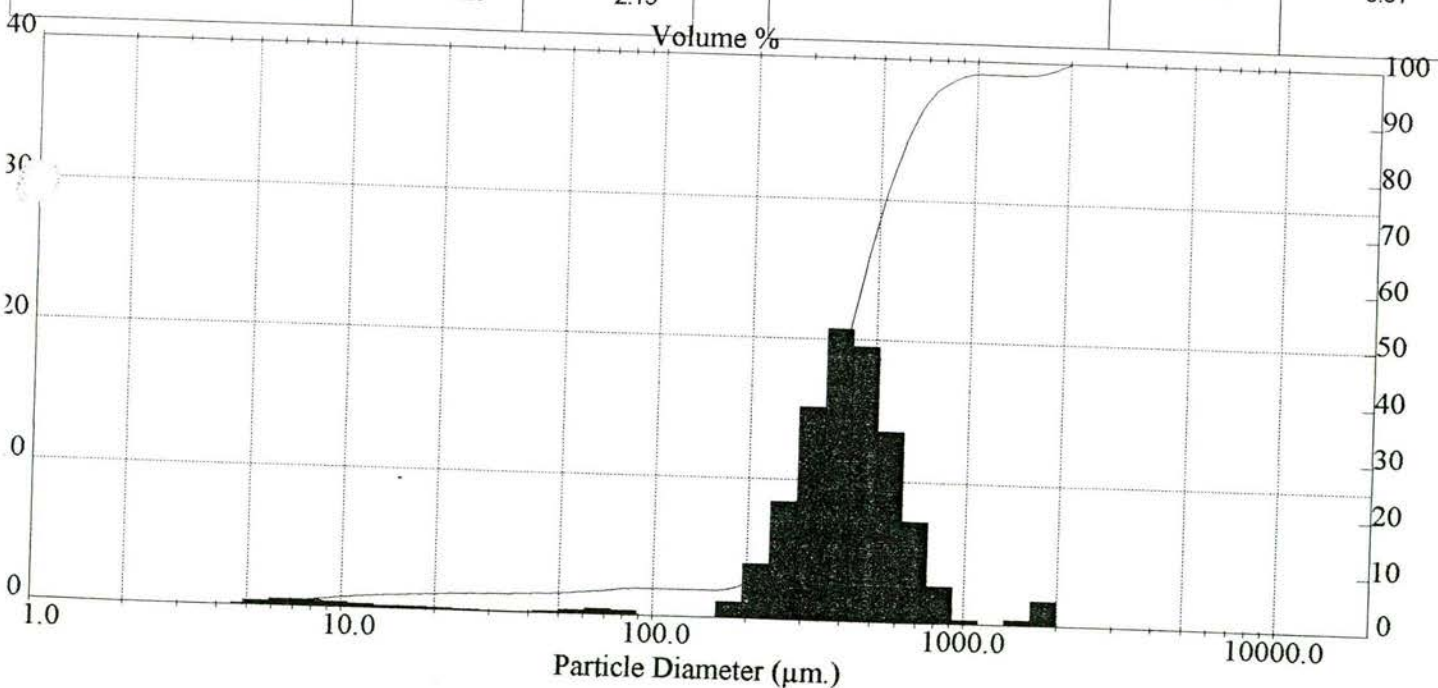
D50 gehele monster = 406 μ m
D50 zandfractie = 414 μ m
Dz 10 = 262 μ m

< 63.0 μ m : 4.2 %
Dz 90 = 661.8 μ m

Dz 60/Dz 10 = 1.73

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	4.96	0.33
1680.0 - 2000.0	98.33	1.67	125.0 - 150.0	4.96	0.00
1410.0 - 1680.0	97.80	0.53	105.0 - 125.0	4.96	0.00
1190.0 - 1410.0	97.78	0.02	88.0 - 105.0	4.94	0.02
1000.0 - 1190.0	97.78	0.00	75.0 - 88.0	4.61	0.33
850.0 - 1000.0	96.56	1.22	63.0 - 75.0	4.17	0.44
707.0 - 850.0	92.94	3.62	50.0 - 63.0	3.73	0.44
600.0 - 707.0	85.32	7.62	35.0 - 50.0	3.40	0.33
500.0 - 600.0	71.55	13.77	25.0 - 35.0	3.18	0.23
420.0 - 500.0	53.65	17.90	16.0 - 25.0	2.69	0.49
354.0 - 420.0	35.31	18.34	8.0 - 16.0	1.39	1.30
300.0 - 354.0	21.41	13.90	4.0 - 8.0	0.12	1.27
250.0 - 300.0	11.84	9.57	2.0 - 4.0	0.01	0.11
210.0 - 250.0	7.44	4.40	0.1 - 2.0	0.00	0.01
177.0 - 210.0	5.29	2.15			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902065 98dw408-1

9902065 98dw408-1
onbehandeld

Datum meting : 07 Apr 1999 14:13 File: NRDZAPRL.SAM
Obscuration = 27.2 %

Sampler: MSX15
Focus = 1000 mm.

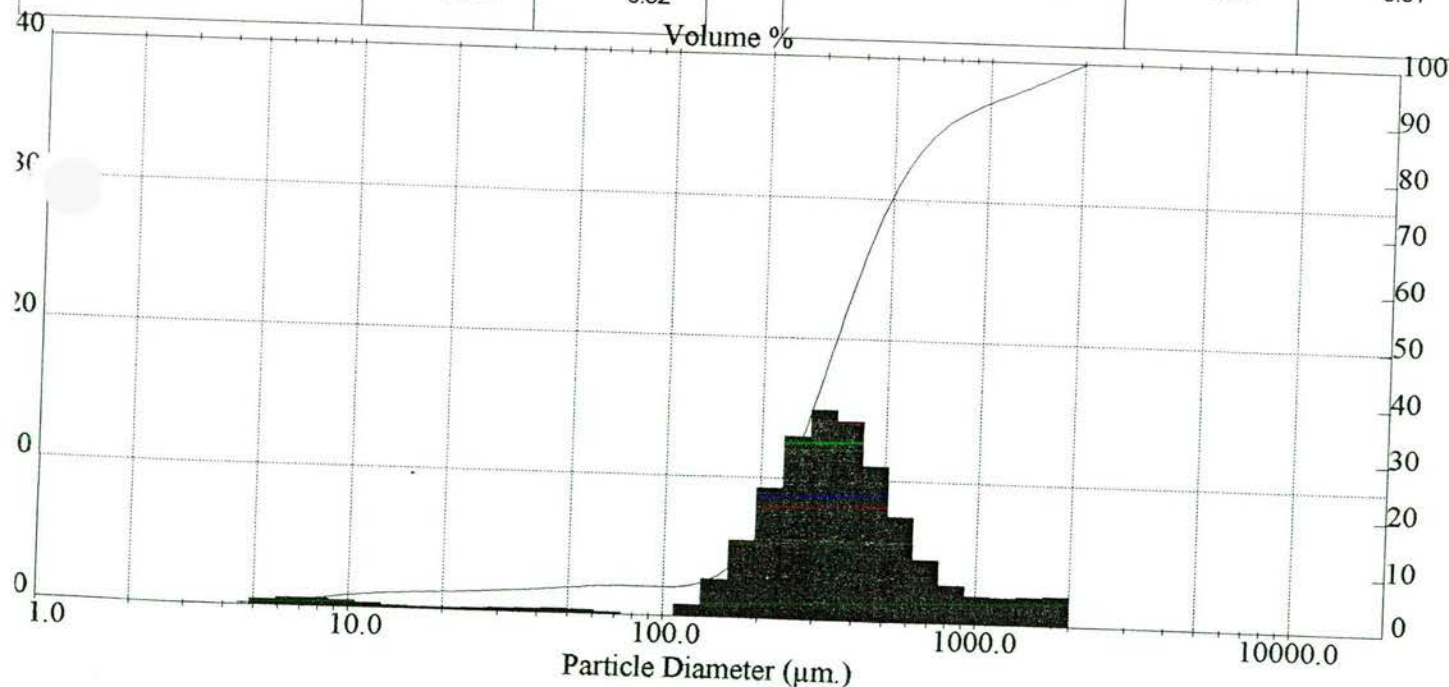
D50 gehele monster = 340 μm
D50 zandfractie = 352 μm
Dz 10 = 195 μm

< 63.0 μm : 5.1 %
Dz 90 = 832.0 μm

Dz 60/Dz 10 = 2.05

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	7.77	3.65
1680.0 - 2000.0	98.06	1.94	125.0 - 150.0	5.82	1.94
1410.0 - 1680.0	96.19	1.87	105.0 - 125.0	5.29	0.54
1190.0 - 1410.0	94.45	1.74	88.0 - 105.0	5.29	0.00
1000.0 - 1190.0	92.70	1.75	75.0 - 88.0	5.28	0.01
850.0 - 1000.0	90.81	1.90	63.0 - 75.0	5.15	0.13
707.0 - 850.0	87.68	3.13	50.0 - 63.0	4.74	0.41
600.0 - 707.0	83.28	4.40	35.0 - 50.0	4.05	0.68
500.0 - 600.0	75.73	7.55	25.0 - 35.0	3.57	0.48
420.0 - 500.0	65.53	10.20	16.0 - 25.0	3.07	0.50
354.0 - 420.0	53.12	12.41	8.0 - 16.0	1.64	1.43
300.0 - 354.0	40.26	12.85	4.0 - 8.0	0.14	1.50
250.0 - 300.0	27.31	12.95	2.0 - 4.0	0.01	0.13
210.0 - 250.0	17.74	9.58	0.1 - 2.0	0.00	0.01
177.0 - 210.0	11.41	6.32			



monster : 9902066 98dw408-2

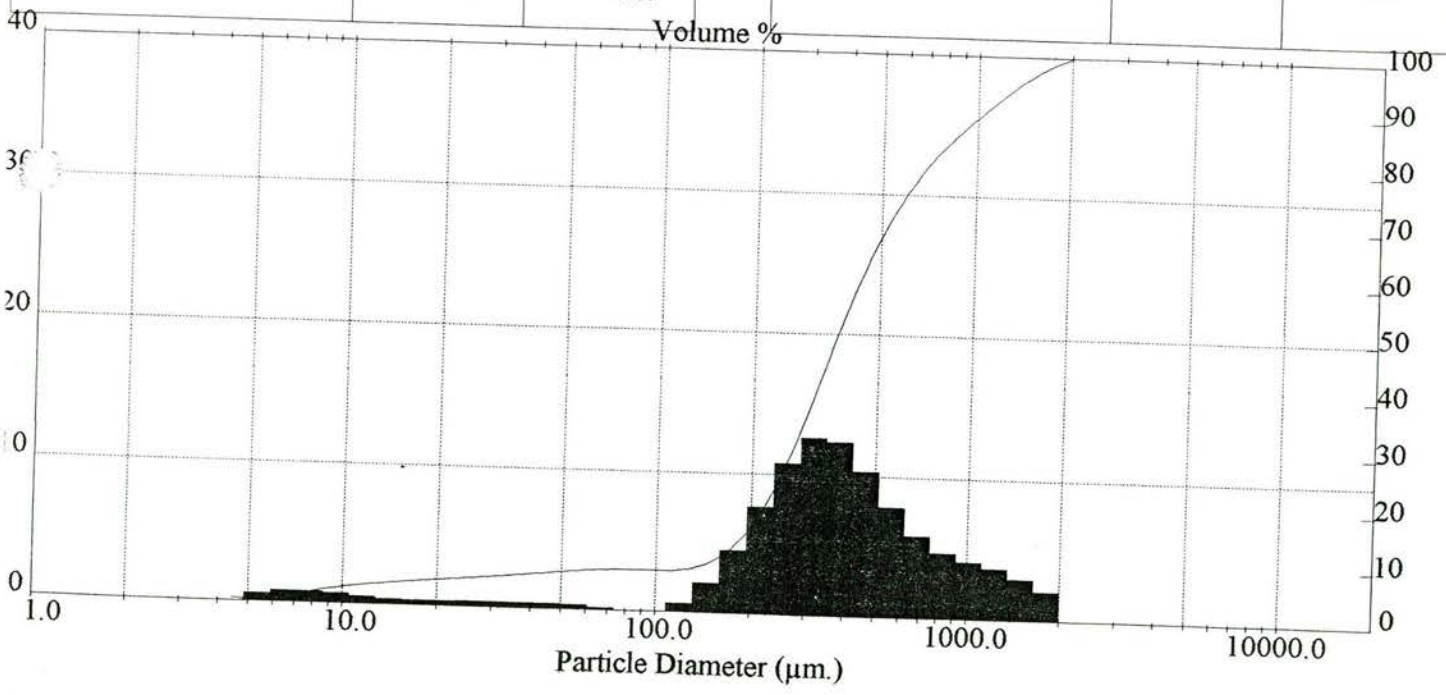
9902066 98dw408-2
 onbehandeld

Datum meting : 07 Apr 1999 14:08 File: NRDZAPRL.SAM Sampler: MSX15
 Obscuration = 19.0 % Focus = 1000 mm.

D50 gehele monster = 371 μ m
 D50 zandfractie = 392 μ m
 Dz 10 = 205 μ m < 63.0 μ m : 7.3 % Dz 90 = 1093.1 μ m Dz 60/Dz 10 = 2.24

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %		FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00		150.0 - 177.0	9.28	2.93
1680.0 - 2000.0	98.11	1.89		125.0 - 150.0	7.78	1.50
1410.0 - 1680.0	95.54	2.58		105.0 - 125.0	7.41	0.37
1190.0 - 1410.0	92.42	3.11		88.0 - 105.0	7.41	0.00
1000.0 - 1190.0	88.88	3.54		75.0 - 88.0	7.41	0.00
850.0 - 1000.0	85.25	3.63		63.0 - 75.0	7.25	0.16
707.0 - 850.0	80.45	4.80		50.0 - 63.0	6.80	0.45
600.0 - 707.0	75.09	5.36		35.0 - 50.0	5.98	0.82
500.0 - 600.0	67.29	7.80		25.0 - 35.0	5.24	0.73
420.0 - 500.0	57.80	9.49		16.0 - 25.0	4.33	0.92
354.0 - 420.0	46.93	10.88		8.0 - 16.0	2.17	2.16
300.0 - 354.0	36.04	10.89		4.0 - 8.0	0.00	2.17
250.0 - 300.0	25.27	10.77		2.0 - 4.0	0.00	0.00
210.0 - 250.0	17.38	7.89		0.1 - 2.0	0.00	0.00
177.0 - 210.0	12.21	5.17				



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902067 98dw408-3

9902067 98dw408-3
onbehandeld

Datum meting : 07 Apr 1999 14:01
Obscuration = 22.0 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

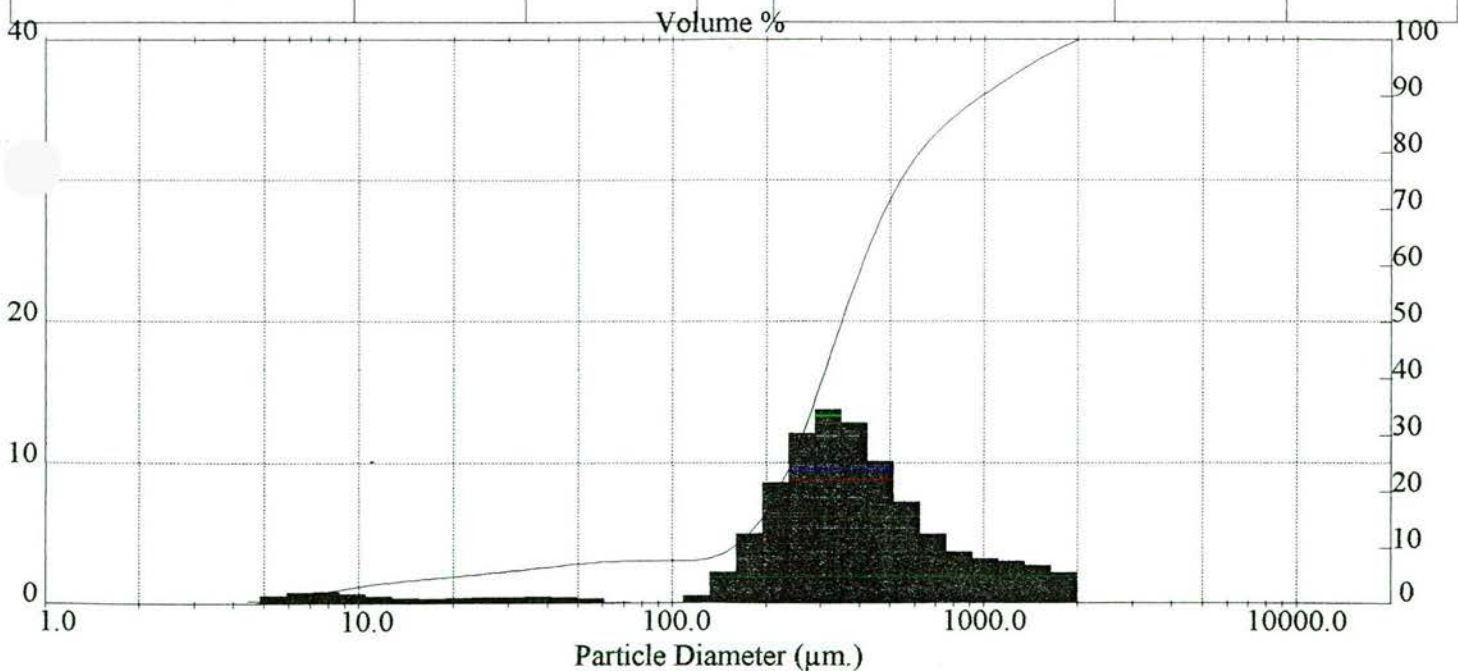
D50 gehele monster = 349 µm
D50 zandfractie = 368 µm
Dz 10 = 202 µm

< 63.0 µm : 7.6 %
Dz 90 = 1029.0 µm

Dz 60/Dz 10 = 2.11

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	9.42	3.18
1680.0 - 2000.0	98.03	1.97	125.0 - 150.0	7.92	1.50
1410.0 - 1680.0	95.68	2.36	105.0 - 125.0	7.64	0.28
1190.0 - 1410.0	93.08	2.59	88.0 - 105.0	7.64	0.00
1000.0 - 1190.0	90.29	2.80	75.0 - 88.0	7.64	0.00
850.0 - 1000.0	87.46	2.83	63.0 - 75.0	7.56	0.08
707.0 - 850.0	83.58	3.88	50.0 - 63.0	7.14	0.42
600.0 - 707.0	78.93	4.65	35.0 - 50.0	6.23	0.91
500.0 - 600.0	71.68	7.26	25.0 - 35.0	5.40	0.83
420.0 - 500.0	62.30	9.38	16.0 - 25.0	4.43	0.97
354.0 - 420.0	51.03	11.27	8.0 - 16.0	2.25	2.18
300.0 - 354.0	39.27	11.75	4.0 - 8.0	0.00	2.25
250.0 - 300.0	27.29	11.99	2.0 - 4.0	0.00	0.00
210.0 - 250.0	18.38	8.90	0.1 - 2.0	0.00	0.00
177.0 - 210.0	12.60	5.78			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902069 98dw408-5

9902069 98dw408-5
onbehandeld

Datum meting : 07 Apr 1999 13:51
Obscuration = 18.6 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

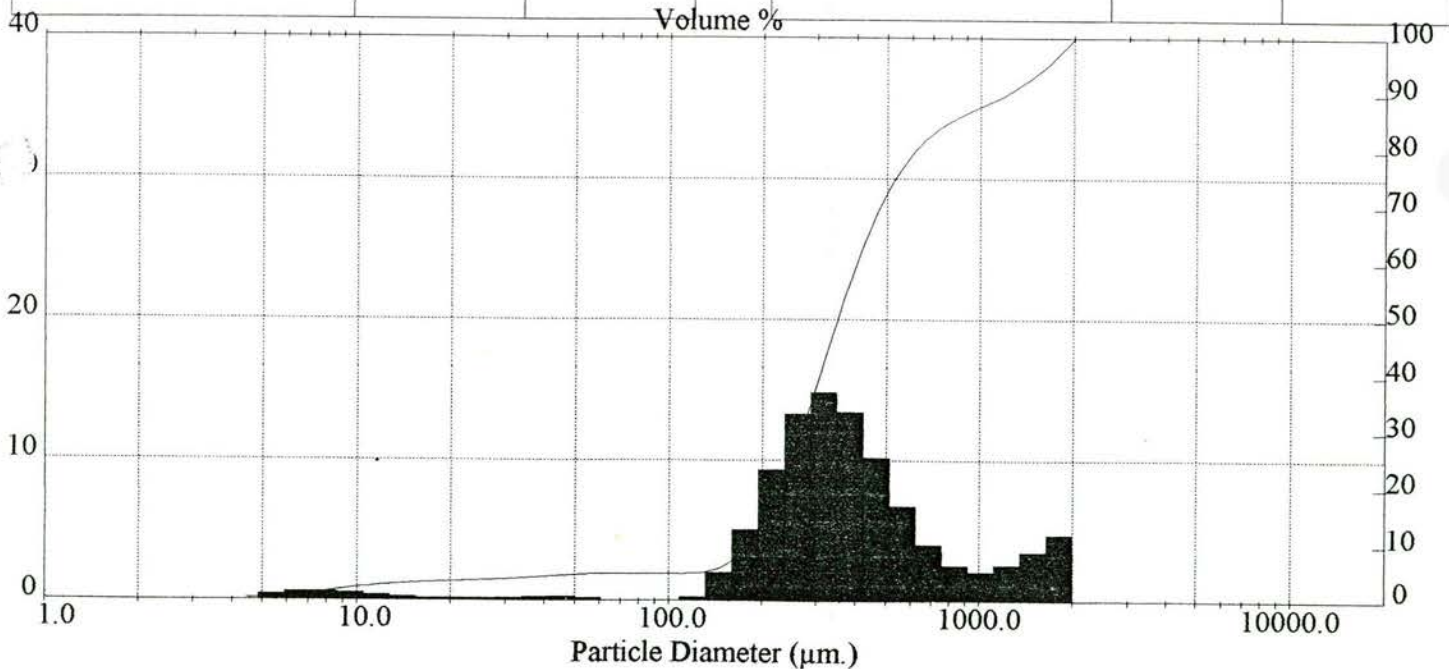
D50 gehele monster = 349 µm
D50 zandfractie = 361 µm
Dz 10 = 205 µm

< 63.0 µm : 5.0 %
Dz 90 = 1247.2 µm

Dz 60/Dz 10 = 2.02

NITG - Afdeling GRANULOMETRIE

FRACHTIE µm	CUMULATIEF %	FRACHTIE %	FRACHTIE µm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	6.33	3.37
1680.0 - 2000.0	95.69	4.31	125.0 - 150.0	5.11	1.22
1410.0 - 1680.0	92.33	3.36	105.0 - 125.0	4.99	0.13
1190.0 - 1410.0	89.88	2.45	88.0 - 105.0	4.99	0.00
1000.0 - 1190.0	87.89	2.00	75.0 - 88.0	4.99	0.00
850.0 - 1000.0	86.05	1.84	63.0 - 75.0	4.99	0.00
707.0 - 850.0	83.20	2.84	50.0 - 63.0	4.75	0.24
600.0 - 707.0	79.23	3.97	35.0 - 50.0	4.18	0.57
500.0 - 600.0	72.36	6.88	25.0 - 35.0	3.76	0.41
420.0 - 500.0	62.91	9.44	16.0 - 25.0	3.30	0.47
354.0 - 420.0	51.14	11.77	8.0 - 16.0	1.70	1.60
300.0 - 354.0	38.51	12.63	4.0 - 8.0	0.13	1.56
250.0 - 300.0	25.41	13.10	2.0 - 4.0	0.01	0.12
210.0 - 250.0	15.51	9.90	0.1 - 2.0	0.00	0.01
177.0 - 210.0	9.70	5.81			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902070 98dw408-6

9902070 98dw408-6
onbehandeld

Datum meting : 07 Apr 1999 15:08
Obscuration = 18.8 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

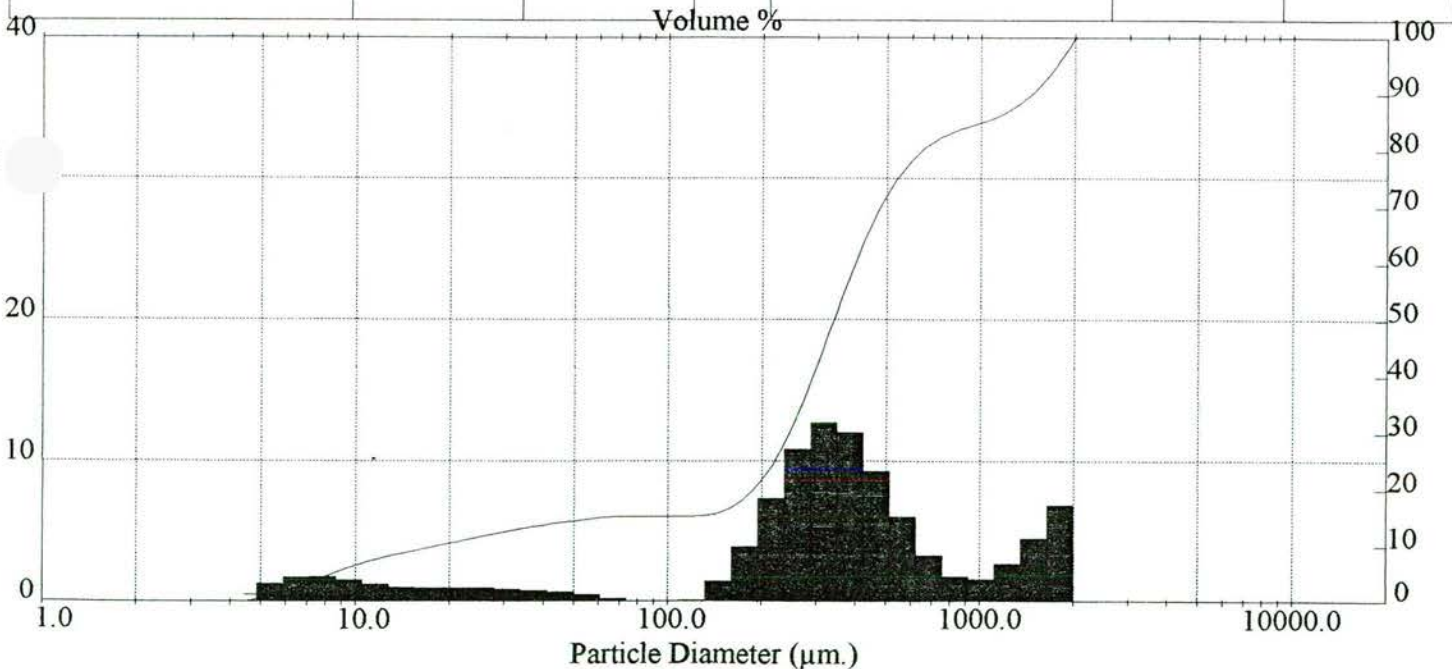
D50 gehele monster = 339 µm
D50 zandfractie = 381 µm
Dz 10 = 211 µm

< 63.0 µm : 15.1 %
Dz 90 = 1554.5 µm

Dz 60/Dz 10 = 2.08

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	16.23	2.39
1680.0 - 2000.0	93.74	6.26	125.0 - 150.0	15.35	0.88
1410.0 - 1680.0	89.33	4.41	105.0 - 125.0	15.34	0.02
1190.0 - 1410.0	86.62	2.71	88.0 - 105.0	15.34	0.00
1000.0 - 1190.0	84.90	1.72	75.0 - 88.0	15.34	0.00
850.0 - 1000.0	83.63	1.27	63.0 - 75.0	15.15	0.19
707.0 - 850.0	81.54	2.10	50.0 - 63.0	14.53	0.62
600.0 - 707.0	78.20	3.34	35.0 - 50.0	13.18	1.35
500.0 - 600.0	72.01	6.18	25.0 - 35.0	11.61	1.57
420.0 - 500.0	63.41	8.60	16.0 - 25.0	9.35	2.27
354.0 - 420.0	52.86	10.55	8.0 - 16.0	4.57	4.77
300.0 - 354.0	41.94	10.92	4.0 - 8.0	0.00	4.57
250.0 - 300.0	31.10	10.84	2.0 - 4.0	0.00	0.00
210.0 - 250.0	23.37	7.73	0.1 - 2.0	0.00	0.00
177.0 - 210.0	18.62	4.75			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902071 98dw408-7

9902071 98dw408-7
onbehandeld

Datum meting : 07 Apr 1999 15:03
Obscuration = 23.7 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

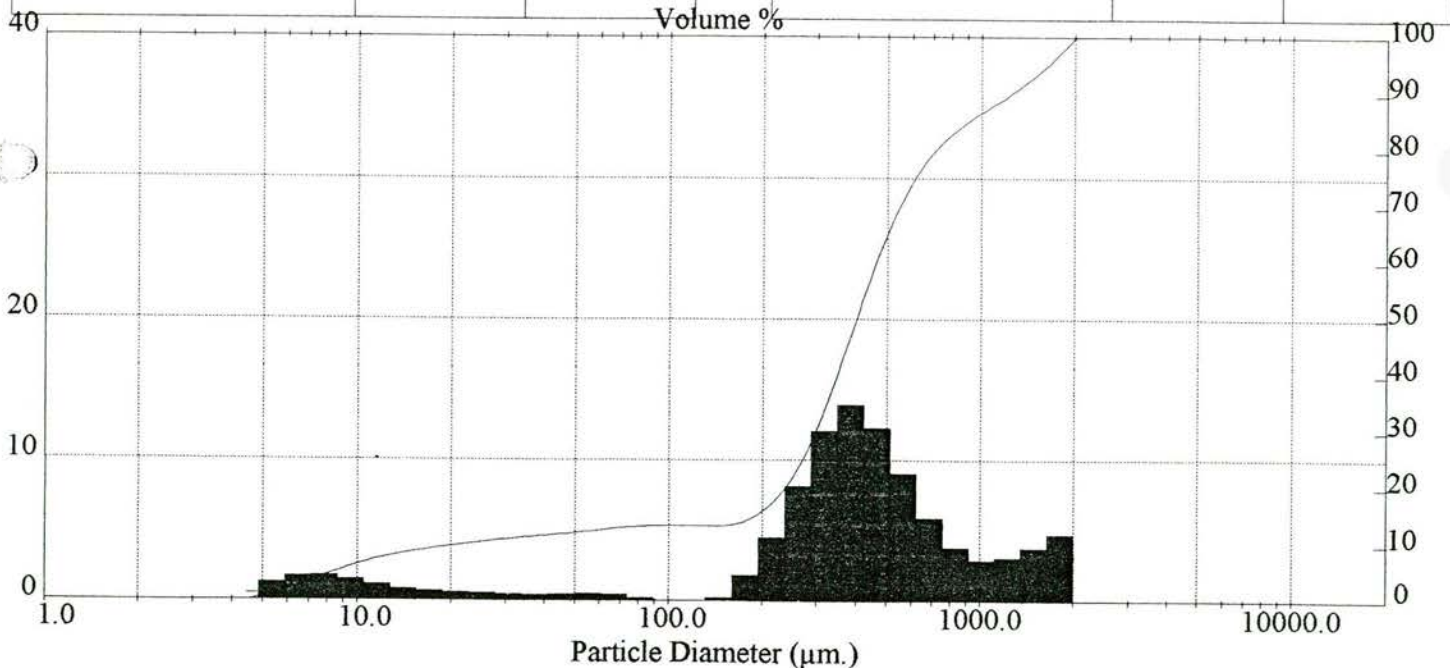
D50 gehele monster = 398 µm
D50 zandfractie = 436 µm
Dz 10 = 247 µm

< 63.0 µm : 12.8 %
Dz 90 = 1342.8 µm

Dz 60/Dz 10 = 2.03

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	13.51	0.88
1680.0 - 2000.0	95.70	4.30	125.0 - 150.0	13.44	0.07
1410.0 - 1680.0	92.15	3.55	105.0 - 125.0	13.44	0.00
1190.0 - 1410.0	89.30	2.84	88.0 - 105.0	13.43	0.01
1000.0 - 1190.0	86.71	2.60	75.0 - 88.0	13.23	0.20
850.0 - 1000.0	84.02	2.69	63.0 - 75.0	12.82	0.41
707.0 - 850.0	79.76	4.26	50.0 - 63.0	12.21	0.61
600.0 - 707.0	74.11	5.64	35.0 - 50.0	11.39	0.82
500.0 - 600.0	65.07	9.04	25.0 - 35.0	10.53	0.86
420.0 - 500.0	53.77	11.30	16.0 - 25.0	9.03	1.49
354.0 - 420.0	41.48	12.29	8.0 - 16.0	4.61	4.42
300.0 - 354.0	30.73	10.74	4.0 - 8.0	0.00	4.61
250.0 - 300.0	22.05	8.68	2.0 - 4.0	0.00	0.00
210.0 - 250.0	16.97	5.08	0.1 - 2.0	0.00	0.00
177.0 - 210.0	14.39	2.58			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902072 98dw408-8

9902072 98dw408-8
onbehandeld

Datum meting : 07 Apr 1999 14:36
Obscuration = 17.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

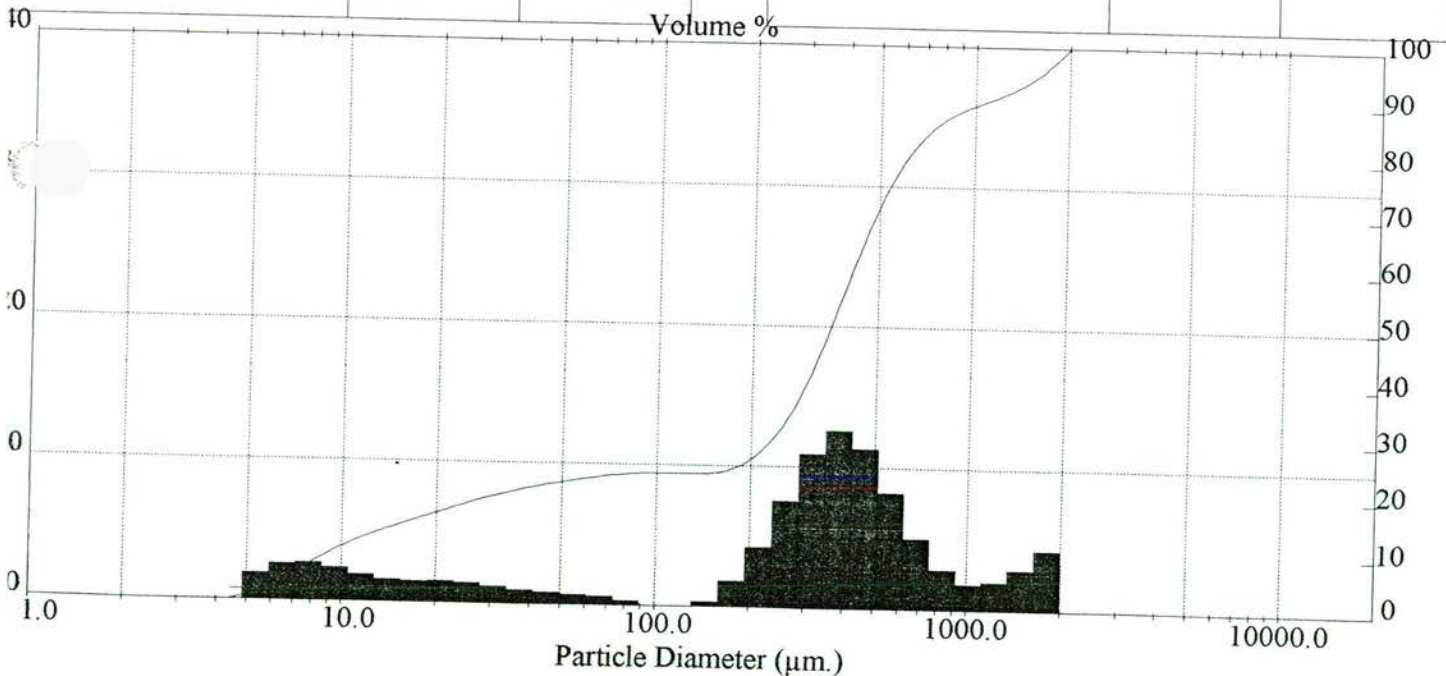
D50 gehele monster = 356 μm
D50 zandfractie = 423 μm
Dz 10 = 238 μm

< 63.0 μm : 22.6 %
Dz 90 = 1306.2 μm

Dz 60/Dz 10 = 2.02

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	23.71	0.96
1680.0 - 2000.0	96.03	3.97	125.0 - 150.0	23.55	0.16
1410.0 - 1680.0	93.20	2.84	105.0 - 125.0	23.55	0.00
1190.0 - 1410.0	91.27	1.93	88.0 - 105.0	23.50	0.05
1000.0 - 1190.0	89.63	1.63	75.0 - 88.0	23.19	0.31
850.0 - 1000.0	87.80	1.84	63.0 - 75.0	22.64	0.55
707.0 - 850.0	84.39	3.40	50.0 - 63.0	21.74	0.90
600.0 - 707.0	79.43	4.96	35.0 - 50.0	20.03	1.71
500.0 - 600.0	71.18	8.26	25.0 - 35.0	17.76	2.27
420.0 - 500.0	60.80	10.38	16.0 - 25.0	14.22	3.54
354.0 - 420.0	49.67	11.13	8.0 - 16.0	6.95	7.27
300.0 - 354.0	39.98	9.69	4.0 - 8.0	0.00	6.95
250.0 - 300.0	32.00	7.98	2.0 - 4.0	0.00	0.00
210.0 - 250.0	27.20	4.80	0.1 - 2.0	0.00	0.00
177.0 - 210.0	24.67	2.52			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902073 98dw408-9

9902073 98dw408-9
onbehandeld

Datum meting : 07 Apr 1999 14:29 File: NRDZAPRL.SAM
Obscuration = 25.8 %

Sampler: MSX15
Focus = 1000 mm.

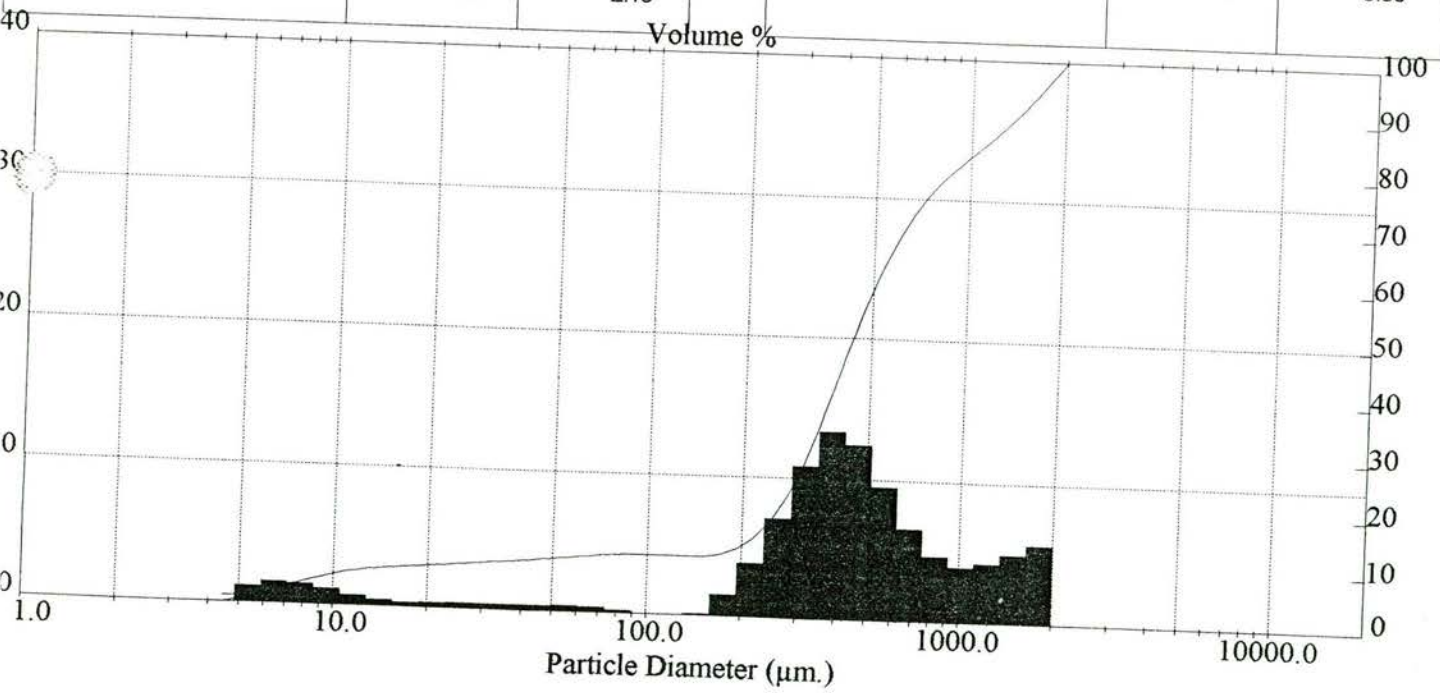
D50 gehele monster = 437 μm
D50 zandfractie = 472 μm
Dz 10 = 258 μm

< 63.0 μm : 10.2 %
Dz 90 = 1454.7 μm

Dz 60/Dz 10 = 2.14

NITG - Afdeling GRANULOMETRIE

FRACIE μm	CUMULATIEF %	FRACIE %	FRACIE μm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	10.78	0.71
1680.0 - 2000.0	94.84	5.16	125.0 - 150.0	10.76	0.03
1410.0 - 1680.0	90.25	4.59	105.0 - 125.0	10.76	0.00
1190.0 - 1410.0	86.36	3.89	88.0 - 105.0	10.74	0.01
1000.0 - 1190.0	82.76	3.59	75.0 - 88.0	10.54	0.20
850.0 - 1000.0	79.26	3.50	63.0 - 75.0	10.17	0.38
707.0 - 850.0	74.23	5.03	50.0 - 63.0	9.61	0.56
600.0 - 707.0	68.04	6.19	35.0 - 50.0	8.82	0.79
500.0 - 600.0	58.59	9.46	25.0 - 35.0	8.07	0.75
420.0 - 500.0	47.23	11.36	16.0 - 25.0	7.20	0.87
354.0 - 420.0	35.44	11.79	8.0 - 16.0	4.16	3.03
300.0 - 354.0	25.66	9.78	4.0 - 8.0	0.00	4.16
250.0 - 300.0	18.06	7.61	2.0 - 4.0	0.00	0.00
210.0 - 250.0	13.69	4.37	0.1 - 2.0	0.00	0.00
177.0 - 210.0	11.49	2.19			



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Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902074 98dw408-10

9902074 98dw408-10
onbehandeld

Datum meting : 07 Apr 1999 15:38
Obscuration = 29.4 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

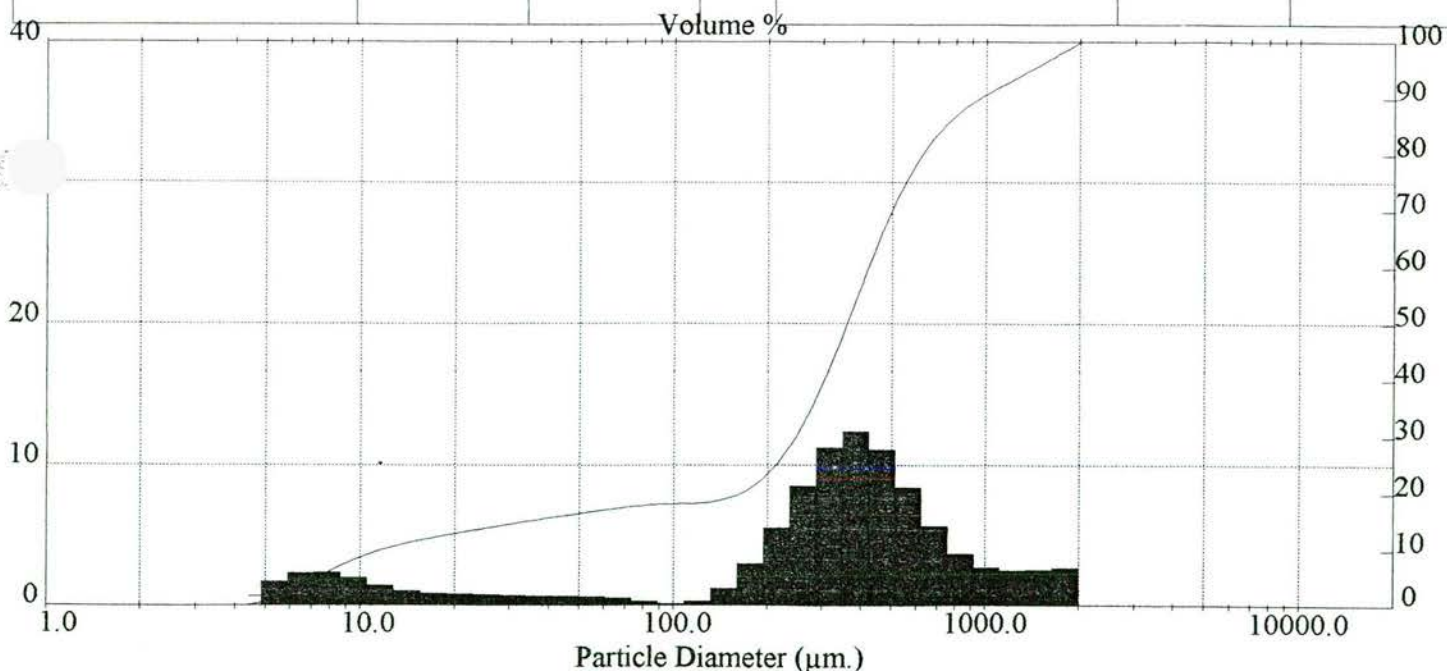
D50 gehele monster = 359 μ m
D50 zandfractie = 411 μ m
Dz 10 = 216 μ m

< 63.0 μ m : 17.3 %
Dz 90 = 1075.6 μ m

Dz 60/Dz 10 = 2.18

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	19.25	1.88
1680.0 - 2000.0	97.57	2.43	125.0 - 150.0	18.41	0.84
1410.0 - 1680.0	95.23	2.34	105.0 - 125.0	18.20	0.22
1190.0 - 1410.0	93.04	2.19	88.0 - 105.0	18.05	0.15
1000.0 - 1190.0	90.74	2.30	75.0 - 88.0	17.77	0.28
850.0 - 1000.0	88.13	2.61	63.0 - 75.0	17.28	0.49
707.0 - 850.0	83.95	4.18	50.0 - 63.0	16.49	0.79
600.0 - 707.0	78.54	5.41	35.0 - 50.0	15.21	1.28
500.0 - 600.0	70.16	8.38	25.0 - 35.0	13.88	1.33
420.0 - 500.0	60.05	10.11	16.0 - 25.0	11.94	1.94
354.0 - 420.0	49.18	10.87	8.0 - 16.0	6.24	5.70
300.0 - 354.0	39.34	9.84	4.0 - 8.0	0.00	6.24
250.0 - 300.0	30.61	8.73	2.0 - 4.0	0.00	0.00
210.0 - 250.0	24.74	5.87	0.1 - 2.0	0.00	0.00
177.0 - 210.0	21.13	3.61			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902075 98dw408-11

9902075 98dw408-11
onbehandeld

Datum meting : 07 Apr 1999 15:33 File: NRDZAPRL.SAM
Obscuration = 19.3 %

Sampler: MSX15
Focus = 1000 mm.

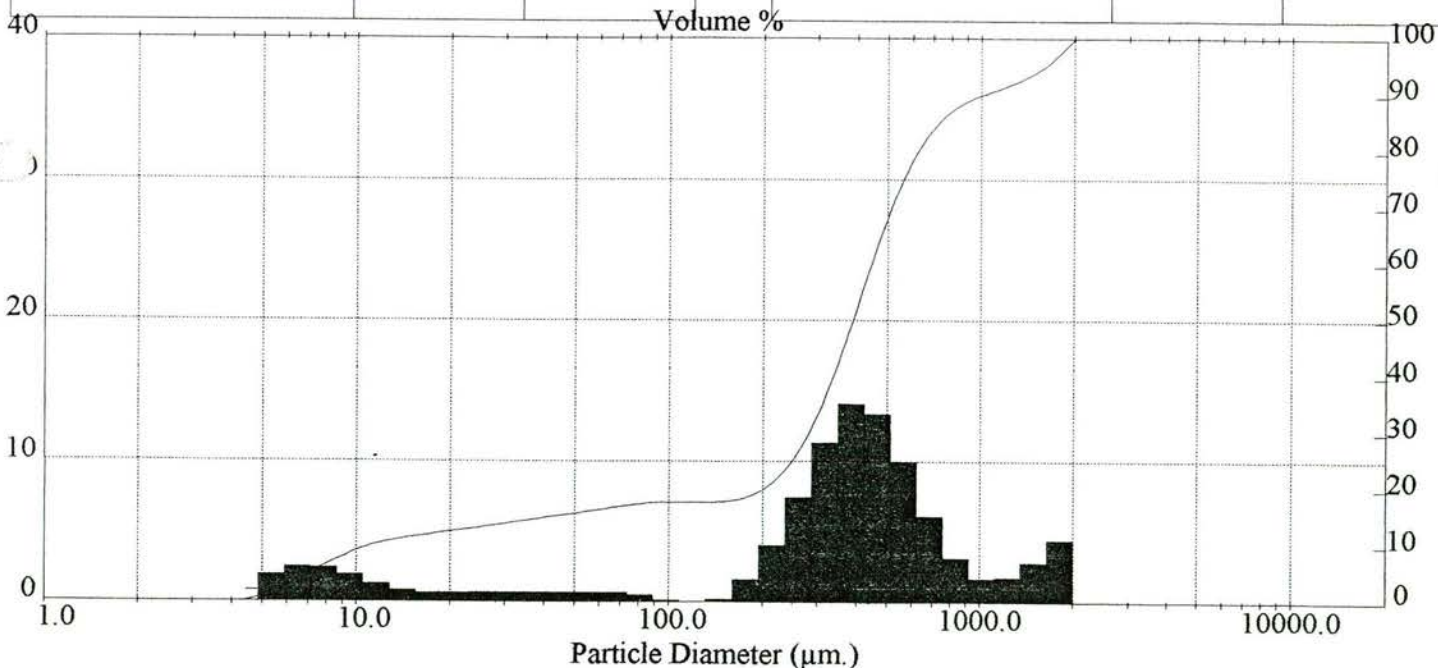
D50 gehele monster = 387 μm
D50 zandfractie = 433 μm
Dz 10 = 246 μm

< 63.0 μm : 16.6 %
Dz 90 = 1220.8 μm

Dz 60/Dz 10 = 1.98

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	17.89	0.75
1680.0 - 2000.0	95.95	4.05	125.0 - 150.0	17.83	0.06
1410.0 - 1680.0	93.16	2.79	105.0 - 125.0	17.82	0.01
1190.0 - 1410.0	91.44	1.72	88.0 - 105.0	17.65	0.17
1000.0 - 1190.0	90.02	1.42	75.0 - 88.0	17.23	0.42
850.0 - 1000.0	88.17	1.86	63.0 - 75.0	16.62	0.61
707.0 - 850.0	84.25	3.92	50.0 - 63.0	15.77	0.85
600.0 - 707.0	78.25	6.00	35.0 - 50.0	14.52	1.25
500.0 - 600.0	68.24	10.00	25.0 - 35.0	13.29	1.23
420.0 - 500.0	56.03	12.21	16.0 - 25.0	11.78	1.51
354.0 - 420.0	43.58	12.45	8.0 - 16.0	6.65	5.13
300.0 - 354.0	33.38	10.20	4.0 - 8.0	0.00	6.65
250.0 - 300.0	25.46	7.92	2.0 - 4.0	0.00	0.00
210.0 - 250.0	20.91	4.55	0.1 - 2.0	0.00	0.00
177.0 - 210.0	18.65	2.26			



monster : 9902076 98dw408-12

9902076 98dw408-12
onbehandeld

Datum meting : 07 Apr 1999 15:21 File: NRDZAPRL.SAM
Obscuration = 18.2 %

Sampler: MSX15
Focus = 1000 mm.

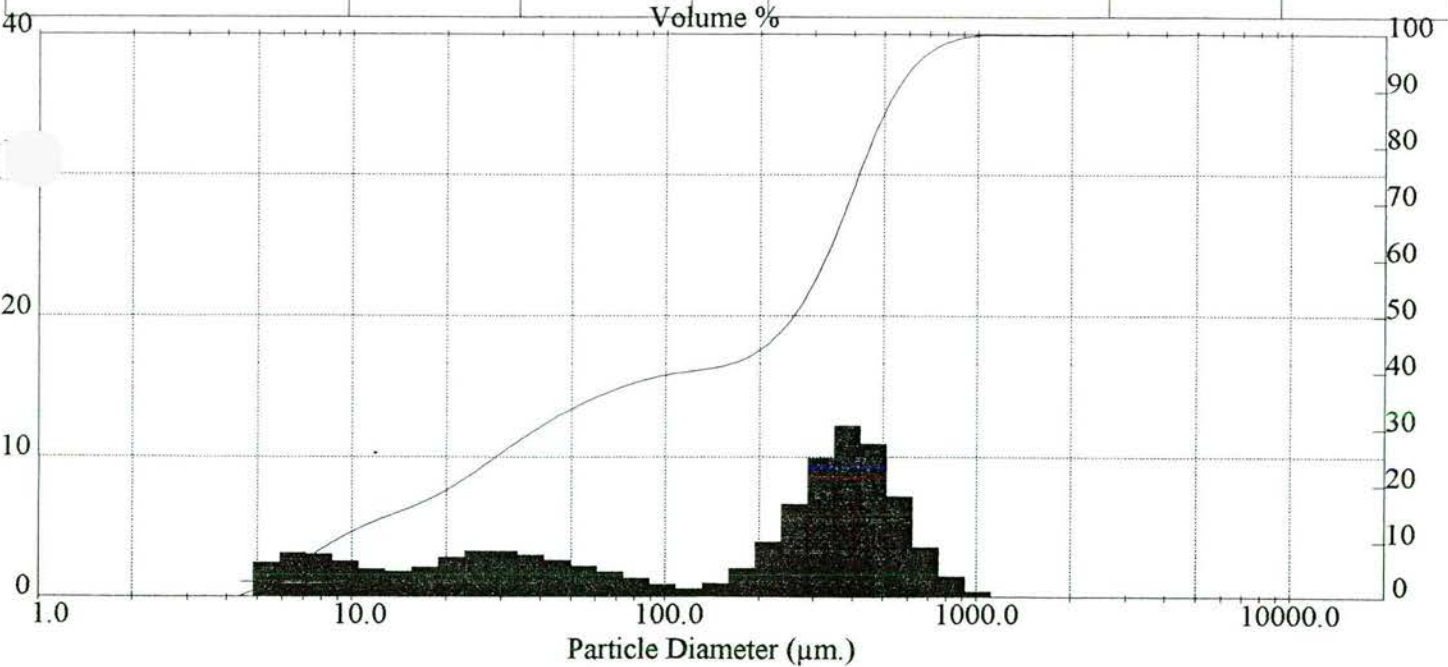
D50 gehele monster = 257 μ m
D50 zandfractie = 371 μ m
Dz 10 = 179 μ m

< 63.0 μ m : 36.1 %
Dz 90 = 606.2 μ m

Dz 60/Dz 10 = 2.29

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	41.04	1.30
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	40.30	0.74
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	39.71	0.59
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	38.80	0.91
1000.0 - 1190.0	99.86	0.14	75.0 - 88.0	37.68	1.13
850.0 - 1000.0	99.12	0.74	63.0 - 75.0	36.10	1.58
707.0 - 850.0	97.08	2.05	50.0 - 63.0	33.49	2.61
600.0 - 707.0	93.31	3.76	35.0 - 50.0	28.34	5.15
500.0 - 600.0	85.92	7.39	25.0 - 35.0	22.63	5.71
420.0 - 500.0	75.86	10.07	16.0 - 25.0	16.52	6.12
354.0 - 420.0	65.10	10.76	8.0 - 16.0	8.57	7.94
300.0 - 354.0	56.20	8.90	4.0 - 8.0	0.00	8.57
250.0 - 300.0	49.15	7.04	2.0 - 4.0	0.00	0.00
210.0 - 250.0	44.84	4.32	0.1 - 2.0	0.00	0.00
177.0 - 210.0	42.34	2.50			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902077 98dw408-13

9902077 98dw408-13
onbehandeld

Datum meting : 07 Apr 1999 15:17 File: NRDZAPRL.SAM
Obscuration = 20.4 %

Sampler: MSX15
Focus = 1000 mm.

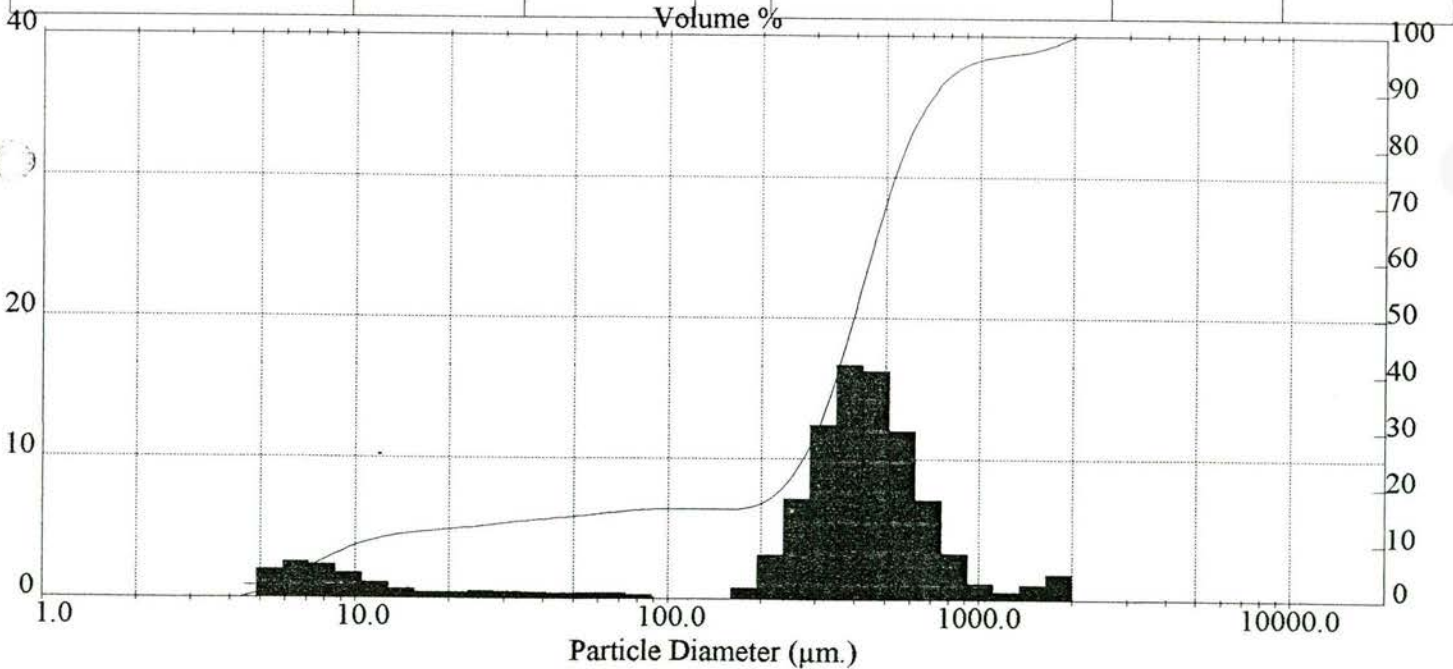
D50 gehele monster = 394 μ m
D50 zandfractie = 429 μ m
Dz 10 = 263 μ m

< 63.0 μ m : 15.3 %
Dz 90 = 750.5 μ m

Dz 60/Dz 10 = 1.80

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	16.02	0.26
1680.0 - 2000.0	98.28	1.72	125.0 - 150.0	16.02	0.00
1410.0 - 1680.0	97.17	1.11	105.0 - 125.0	16.02	0.00
1190.0 - 1410.0	96.58	0.58	88.0 - 105.0	16.01	0.02
1000.0 - 1190.0	95.82	0.76	75.0 - 88.0	15.72	0.28
850.0 - 1000.0	94.16	1.66	63.0 - 75.0	15.29	0.44
707.0 - 850.0	89.62	4.54	50.0 - 63.0	14.70	0.58
600.0 - 707.0	82.79	6.83	35.0 - 50.0	13.87	0.83
500.0 - 600.0	70.55	12.24	25.0 - 35.0	12.93	0.94
420.0 - 500.0	55.75	14.80	16.0 - 25.0	11.84	1.10
354.0 - 420.0	40.99	14.75	8.0 - 16.0	7.05	4.78
300.0 - 354.0	29.50	11.50	4.0 - 8.0	0.00	7.05
250.0 - 300.0	21.84	7.66	2.0 - 4.0	0.00	0.00
210.0 - 250.0	17.74	4.10	0.1 - 2.0	0.00	0.00
177.0 - 210.0	16.28	1.46			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902078 98dw408-14

9902178 98dw408-14
onbehandeld

Datum meting : 20 Apr 1999 08:33
Obscuration = 19.0 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

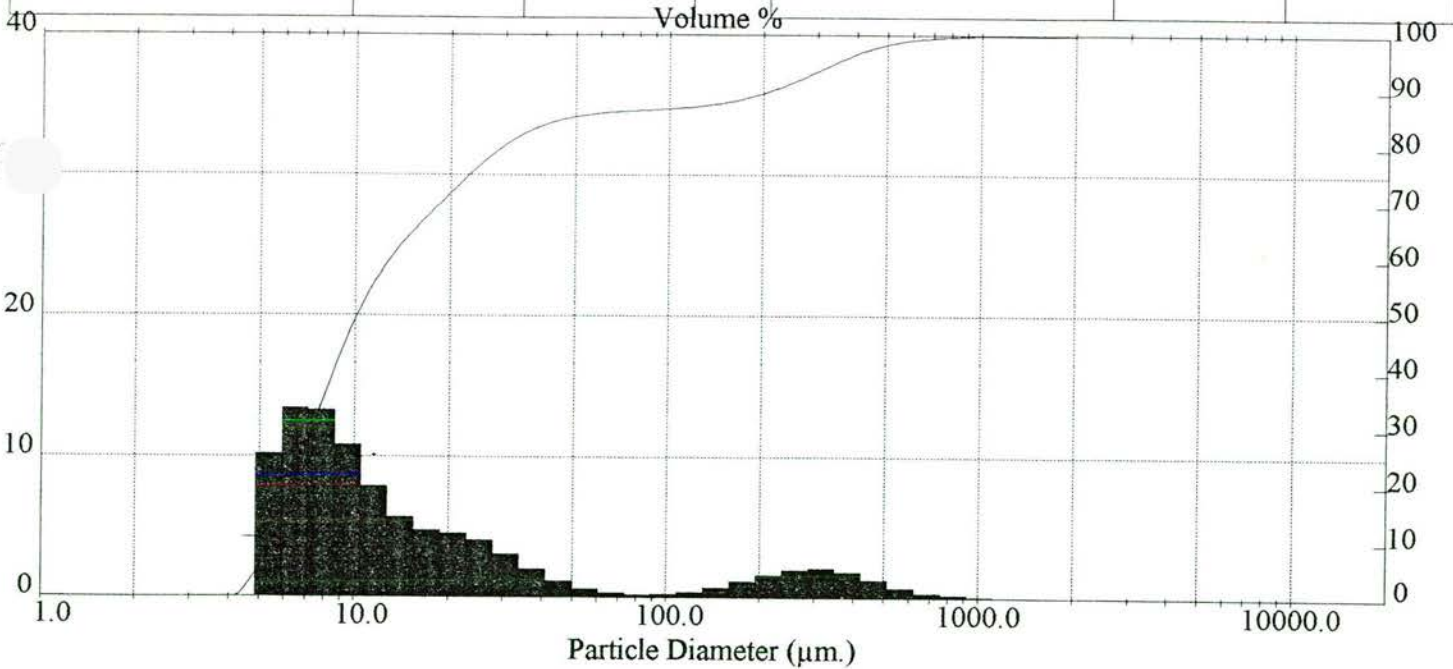
D50 gehele monster = 10 µm
D50 zandfractie = 286 µm
Dz 10 = 137 µm

< 63.0 µm : 86.2 %
Dz 90 = 525.2 µm

Dz 60/Dz 10 = 2.37

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	87.93	0.85
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	87.33	0.60
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	86.97	0.35
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	86.72	0.25
1000.0 - 1190.0	99.93	0.07	75.0 - 88.0	86.51	0.22
850.0 - 1000.0	99.79	0.15	63.0 - 75.0	86.20	0.31
707.0 - 850.0	99.52	0.27	50.0 - 63.0	85.47	0.73
600.0 - 707.0	99.14	0.38	35.0 - 50.0	82.62	2.86
500.0 - 600.0	98.37	0.77	25.0 - 35.0	76.89	5.72
420.0 - 500.0	97.14	1.23	16.0 - 25.0	66.33	10.56
354.0 - 420.0	95.47	1.67	8.0 - 16.0	35.62	30.72
300.0 - 354.0	93.62	1.84	4.0 - 8.0	0.00	35.62
250.0 - 300.0	91.65	1.98	2.0 - 4.0	0.01	0.00
210.0 - 250.0	90.02	1.62	0.1 - 2.0	0.00	0.01
177.0 - 210.0	88.78	1.24			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902027 98bc409-1

9902027 98bc409-1
onbehandeld

Datum meting : 20 Apr 1999 09:38
Obscuration = 22.8 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

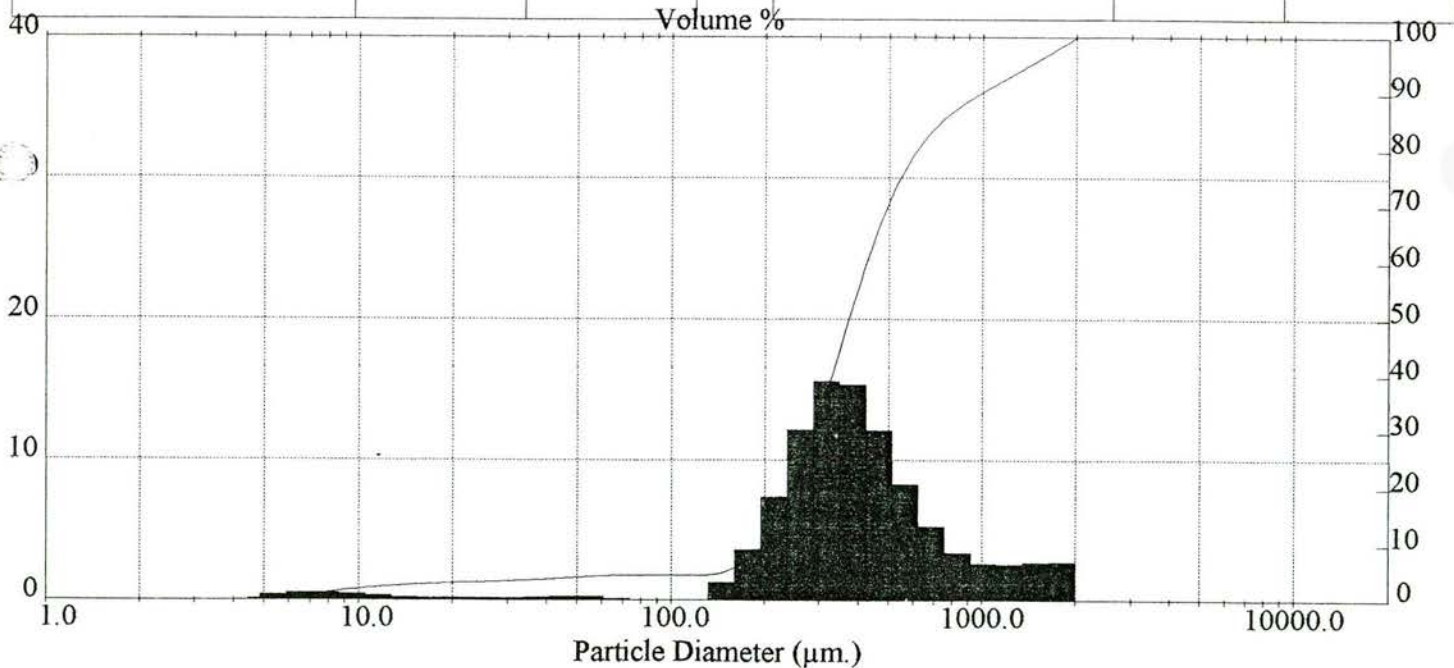
D50 gehele monster = 372 μ m
D50 zandfractie = 382 μ m
Dz 10 = 221 μ m

< 63.0 μ m : 4.5 %
Dz 90 = 1007.9 μ m

Dz 60/Dz 10 = 1.97

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	5.28	2.11
1680.0 - 2000.0	97.50	2.50	125.0 - 150.0	4.63	0.65
1410.0 - 1680.0	95.00	2.50	105.0 - 125.0	4.63	0.00
1190.0 - 1410.0	92.67	2.33	88.0 - 105.0	4.63	0.00
1000.0 - 1190.0	90.35	2.32	75.0 - 88.0	4.63	0.00
850.0 - 1000.0	87.90	2.45	63.0 - 75.0	4.54	0.10
707.0 - 850.0	84.10	3.80	50.0 - 63.0	4.22	0.32
600.0 - 707.0	79.04	5.06	35.0 - 50.0	3.74	0.47
500.0 - 600.0	70.68	8.36	25.0 - 35.0	3.41	0.34
420.0 - 500.0	59.52	11.15	16.0 - 25.0	2.93	0.48
354.0 - 420.0	46.04	13.49	8.0 - 16.0	1.51	1.41
300.0 - 354.0	32.57	13.47	4.0 - 8.0	0.12	1.39
250.0 - 300.0	19.93	12.64	2.0 - 4.0	0.01	0.11
210.0 - 250.0	12.15	7.78	0.1 - 2.0	0.00	0.01
177.0 - 210.0	7.39	4.76			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902028 98bc409-2

9902028 98bc409-2
onbehandeld

Datum meting : 20 Apr 1999 09:34 File: NRDZAPRL.SAM
Obscuration = 24.8 %

Sampler: MSX15
Focus = 1000 mm.

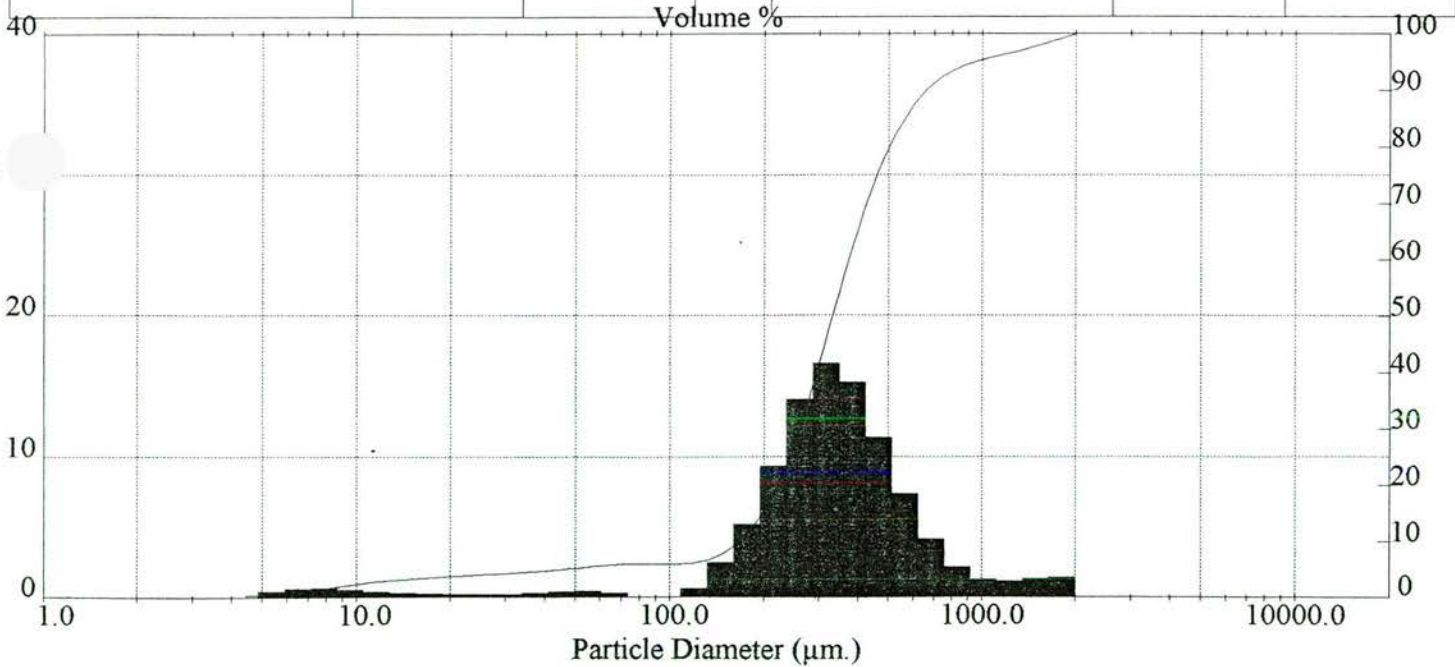
D50 gehele monster = 331 μm
D50 zandfractie = 342 μm
Dz 10 = 199 μm

< 63.0 μm : 5.8 %
Dz 90 = 677.1 μm

Dz 60/Dz 10 = 1.93

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	8.04	3.55
1680.0 - 2000.0	98.70	1.30	125.0 - 150.0	6.39	1.65
1410.0 - 1680.0	97.49	1.21	105.0 - 125.0	6.02	0.37
1190.0 - 1410.0	96.43	1.06	88.0 - 105.0	6.02	0.00
1000.0 - 1190.0	95.38	1.05	75.0 - 88.0	6.02	0.00
850.0 - 1000.0	94.05	1.33	63.0 - 75.0	5.77	0.25
707.0 - 850.0	91.46	2.60	50.0 - 63.0	5.22	0.56
600.0 - 707.0	87.24	4.22	35.0 - 50.0	4.51	0.71
500.0 - 600.0	79.82	7.41	25.0 - 35.0	4.05	0.46
420.0 - 500.0	69.18	10.65	16.0 - 25.0	3.45	0.60
354.0 - 420.0	55.78	13.40	8.0 - 16.0	1.76	1.69
300.0 - 354.0	41.54	14.24	4.0 - 8.0	0.14	1.62
250.0 - 300.0	27.43	14.11	2.0 - 4.0	0.01	0.13
210.0 - 250.0	17.43	10.00	0.1 - 2.0	0.00	0.01
177.0 - 210.0	11.59	5.84			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902029 98bc409-3

9902029 98bc409-3
onbehandeld

Datum meting : 20 Apr 1999 09:29
Obscuration = 17.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

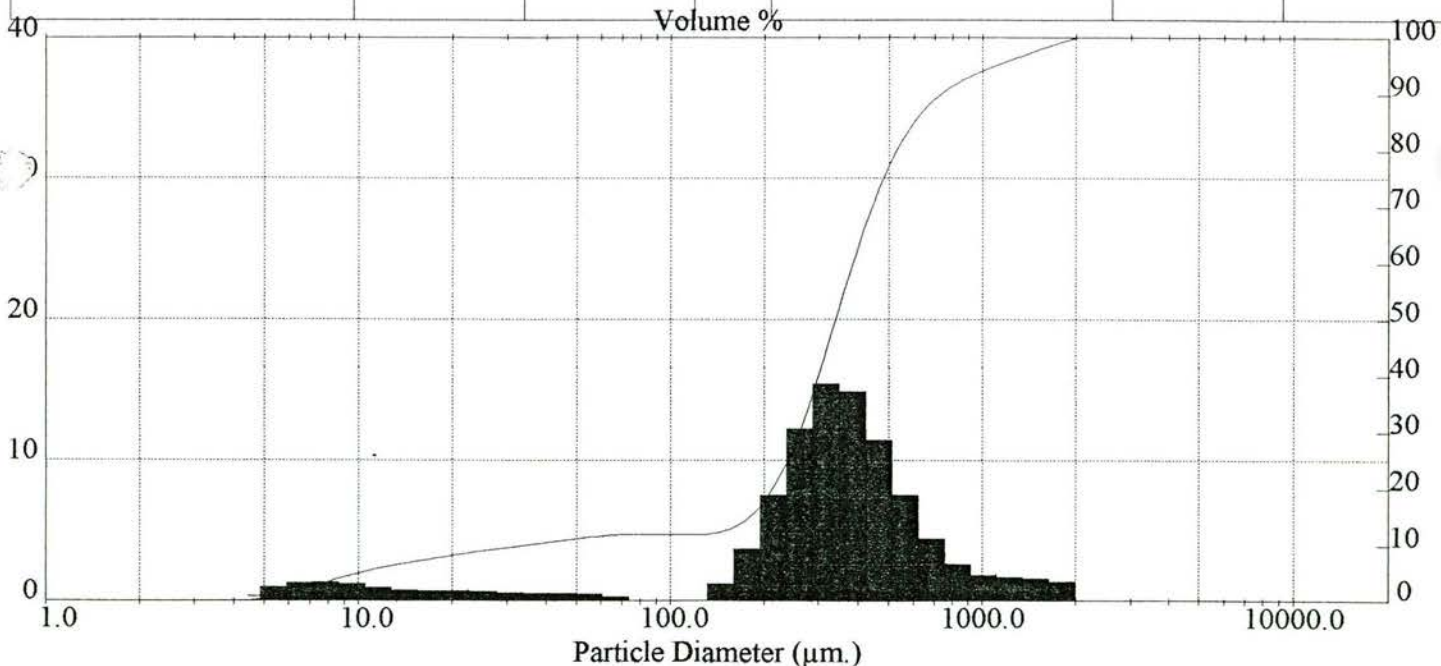
D50 gehele monster = 339 µm
D50 zandfractie = 364 µm
Dz 10 = 215 µm

< 63.0 µm : 11.8 %
Dz 90 = 785.0 µm

Dz 60/Dz 10 = 1.90

NITG - Afdeling GRANULOMETRIE

FRACIE µm	CUMULATIEF %	FRACIE %	FRACIE µm	CUMULATIEF %	FRACIE %
2000.0	100.00	0.00	150.0 - 177.0	12.65	2.11
1680.0 - 2000.0	98.72	1.28	125.0 - 150.0	12.03	0.62
1410.0 - 1680.0	97.27	1.45	105.0 - 125.0	12.03	0.00
1190.0 - 1410.0	95.74	1.52	88.0 - 105.0	12.03	0.00
1000.0 - 1190.0	94.12	1.62	75.0 - 88.0	12.03	0.00
850.0 - 1000.0	92.31	1.81	63.0 - 75.0	11.79	0.24
707.0 - 850.0	89.28	3.03	50.0 - 63.0	11.18	0.62
600.0 - 707.0	84.91	4.37	35.0 - 50.0	10.13	1.04
500.0 - 600.0	77.25	7.67	25.0 - 35.0	9.03	1.10
420.0 - 500.0	66.66	10.59	16.0 - 25.0	7.32	1.71
354.0 - 420.0	53.60	13.06	8.0 - 16.0	3.58	3.73
300.0 - 354.0	40.29	13.31	4.0 - 8.0	0.00	3.58
250.0 - 300.0	27.57	12.72	2.0 - 4.0	0.00	0.00
210.0 - 250.0	19.63	7.94	0.1 - 2.0	0.00	0.00
177.0 - 210.0	14.76	4.87			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902030 98bc409-4

9902030 98bc409-4
onbehandeld

Datum meting : 20 Apr 1999 10:24
Obscuration = 25.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

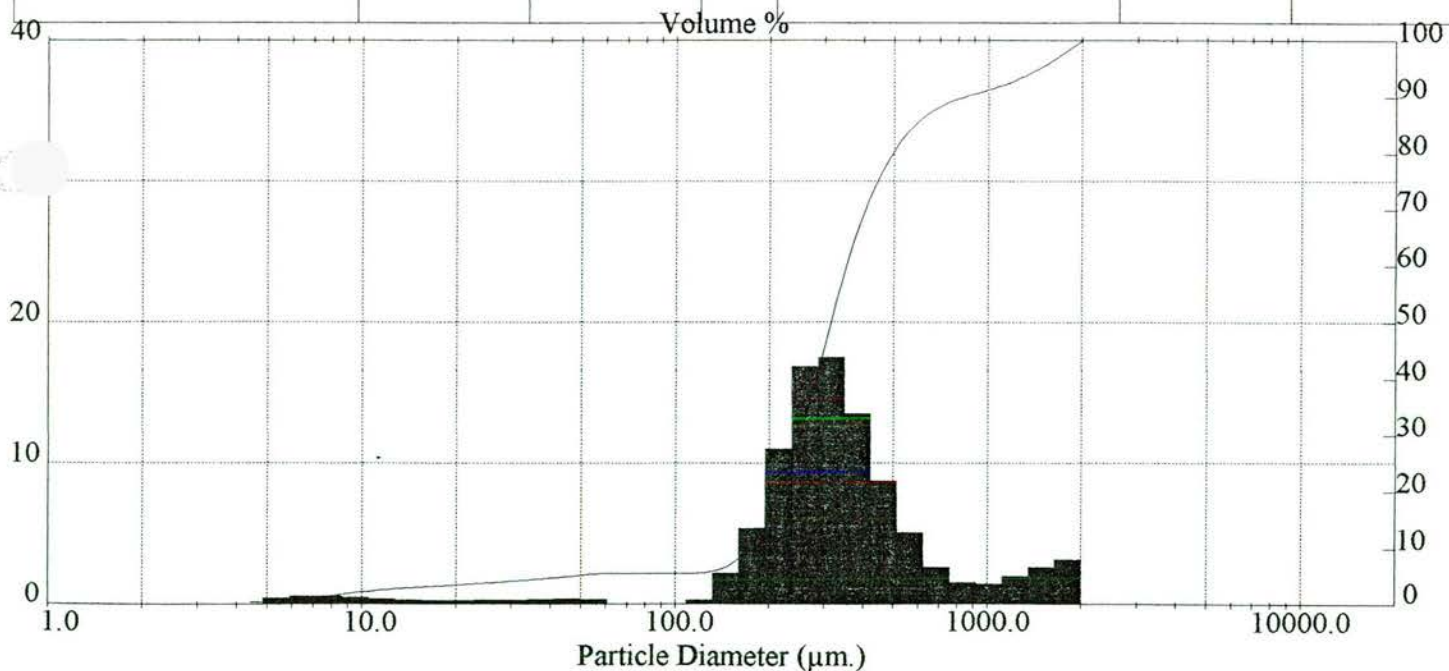
D50 gehele monster = 314 μm
D50 zandfractie = 324 μm
Dz 10 = 201 μm

< 63.0 μm : 5.7 %
Dz 90 = 903.0 μm

Dz 60/Dz 10 = 1.80

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	7.15	3.58
1680.0 - 2000.0	97.12	2.88	125.0 - 150.0	5.80	1.35
1410.0 - 1680.0	94.65	2.47	105.0 - 125.0	5.66	0.15
1190.0 - 1410.0	92.74	1.91	88.0 - 105.0	5.66	0.00
1000.0 - 1190.0	91.28	1.46	75.0 - 88.0	5.66	0.00
850.0 - 1000.0	90.13	1.16	63.0 - 75.0	5.66	0.00
707.0 - 850.0	88.38	1.75	50.0 - 63.0	5.28	0.37
600.0 - 707.0	85.70	2.68	35.0 - 50.0	4.50	0.78
500.0 - 600.0	80.36	5.33	25.0 - 35.0	3.90	0.61
420.0 - 500.0	72.22	8.14	16.0 - 25.0	3.20	0.70
354.0 - 420.0	60.42	11.80	8.0 - 16.0	1.62	1.58
300.0 - 354.0	45.77	14.65	4.0 - 8.0	0.13	1.49
250.0 - 300.0	29.27	16.50	2.0 - 4.0	0.01	0.12
210.0 - 250.0	17.13	12.14	0.1 - 2.0	0.00	0.01
177.0 - 210.0	10.73	6.40			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157, 2000 AD HAARLEM

monster : 9902031 98bc409-5

9902031 98bc409-5
onbehandeld

Datum meting : 21 Apr 1999 10:23 File: NRDZAPRL.SAM
Obscuration = 29.1 %

Sampler: MSX15
Focus = 1000 mm.

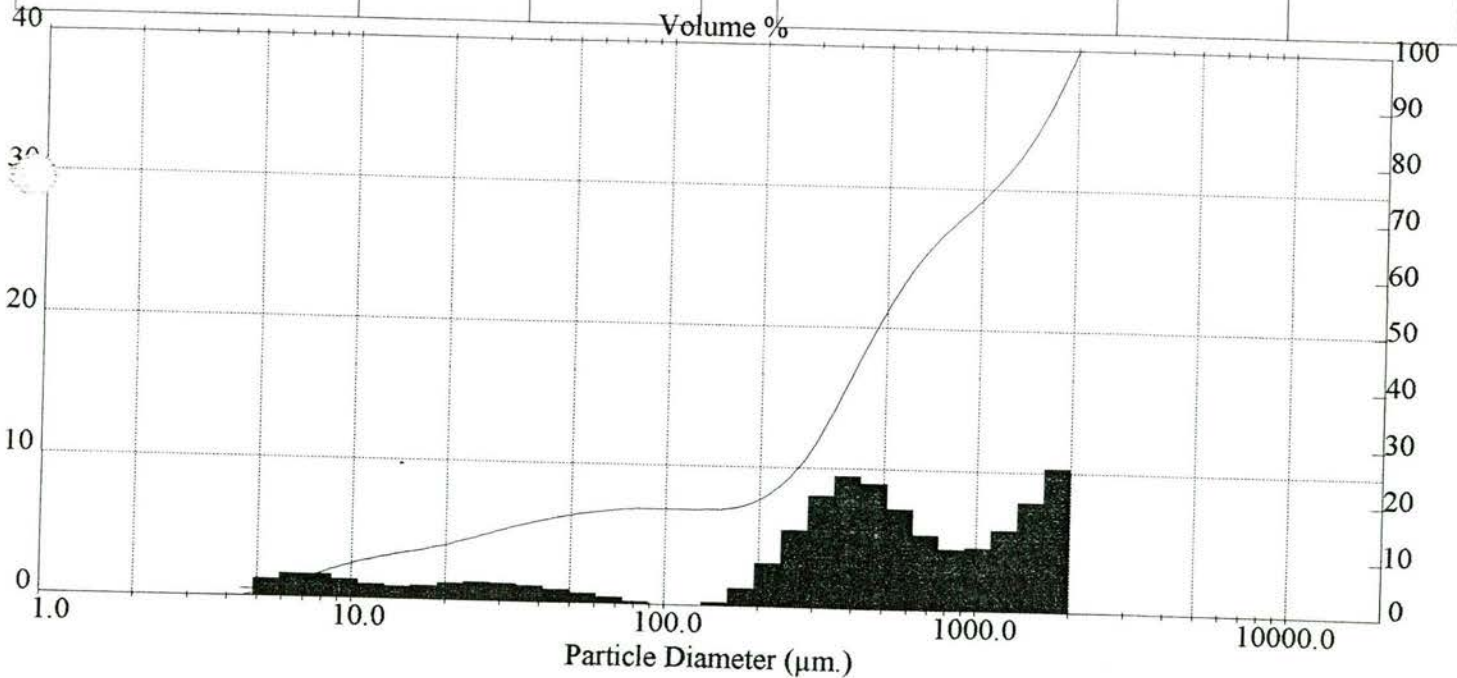
D50 gehele monster = 467 μm
D50 zandfractie = 570 μm
Dz 10 = 264 μm

< 63.0 μm : 16.7 %
Dz 90 = 1716.1 μm

Dz 60/Dz 10 = 2.84

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	17.49	0.69
1680.0 - 2000.0	90.61	9.39	125.0 - 150.0	17.38	0.11
1410.0 - 1680.0	83.16	7.45	105.0 - 125.0	17.38	0.00
1190.0 - 1410.0	77.64	5.52	88.0 - 105.0	17.37	0.01
1000.0 - 1190.0	73.20	4.44	75.0 - 88.0	17.17	0.20
850.0 - 1000.0	69.58	3.62	63.0 - 75.0	16.74	0.43
707.0 - 850.0	65.15	4.44	50.0 - 63.0	15.89	0.85
600.0 - 707.0	60.21	4.93	35.0 - 50.0	13.95	1.93
500.0 - 600.0	53.11	7.10	25.0 - 35.0	11.59	2.36
420.0 - 500.0	44.93	8.18	16.0 - 25.0	8.86	2.74
354.0 - 420.0	36.55	8.38	8.0 - 16.0	4.59	4.27
300.0 - 354.0	29.40	7.16	4.0 - 8.0	0.00	4.59
250.0 - 300.0	23.54	5.85	2.0 - 4.0	0.00	0.00
210.0 - 250.0	20.03	3.52	0.1 - 2.0	0.00	0.00
177.0 - 210.0	18.18	1.84			



monster : 98bc409-06

98bc409-06
onbehandeld

Datum meting : 21 Apr 1999 11:25
Obscuration = 18.9 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

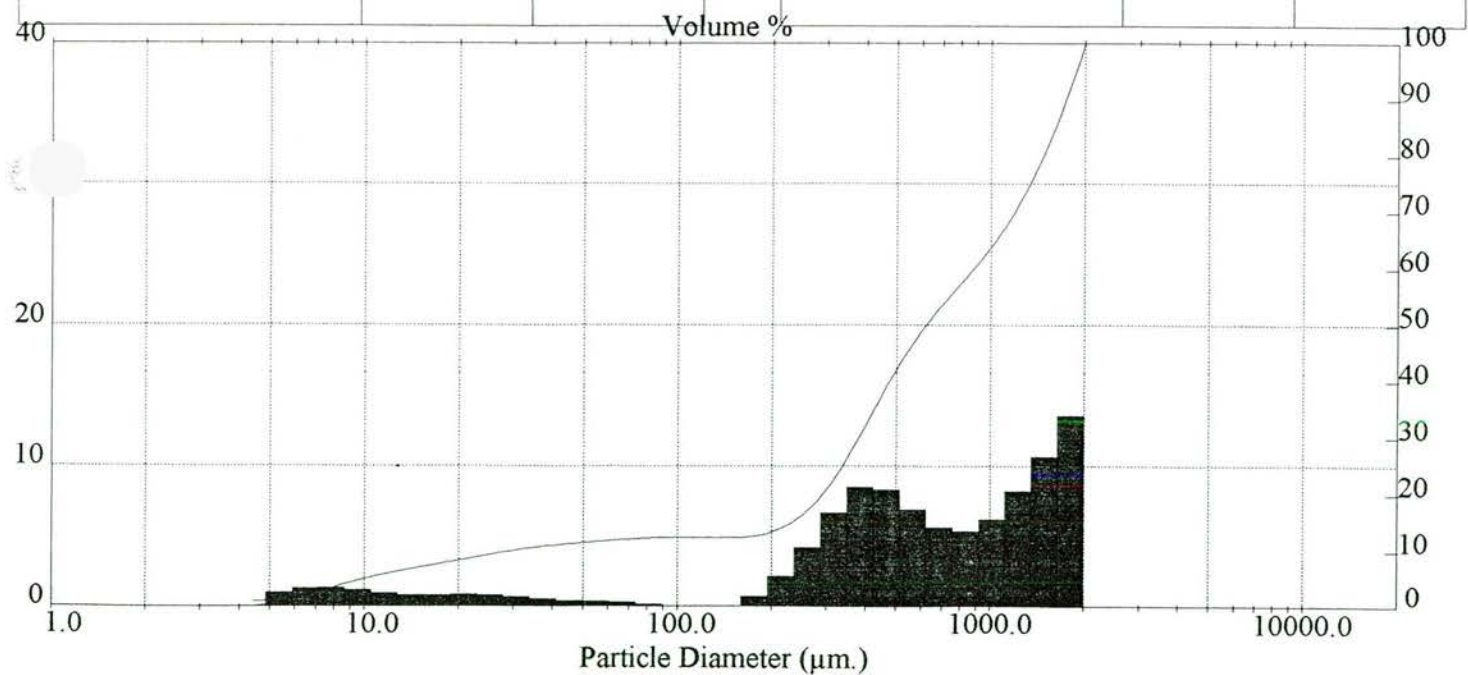
D50 gehele monster = 620 µm
D50 zandfractie = 761 µm
Dz 10 = 298 µm

< 63.0 µm : 12.0 %
Dz 90 = 1769.1 µm

Dz 60/Dz 10 = 3.46

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	12.45	0.25
1680.0 - 2000.0	87.72	12.28	125.0 - 150.0	12.45	0.00
1410.0 - 1680.0	77.69	10.03	105.0 - 125.0	12.45	0.00
1190.0 - 1410.0	69.98	7.71	88.0 - 105.0	12.44	0.01
1000.0 - 1190.0	63.77	6.21	75.0 - 88.0	12.26	0.18
850.0 - 1000.0	59.03	4.74	63.0 - 75.0	11.96	0.30
707.0 - 850.0	53.94	5.09	50.0 - 63.0	11.51	0.45
600.0 - 707.0	48.92	5.02	35.0 - 50.0	10.64	0.88
500.0 - 600.0	42.15	6.77	25.0 - 35.0	9.35	1.28
420.0 - 500.0	34.56	7.59	16.0 - 25.0	7.34	2.01
354.0 - 420.0	27.04	7.52	8.0 - 16.0	3.57	3.77
300.0 - 354.0	20.99	6.06	4.0 - 8.0	0.00	3.57
250.0 - 300.0	16.40	4.59	2.0 - 4.0	0.00	0.00
210.0 - 250.0	13.87	2.53	0.1 - 2.0	0.00	0.00
177.0 - 210.0	12.70	1.17			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902079 98dw410-1

9902079 98dw410-1
onbehandeld

Datum meting : 06 Apr 1999 12:48
Obscuration = 20.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

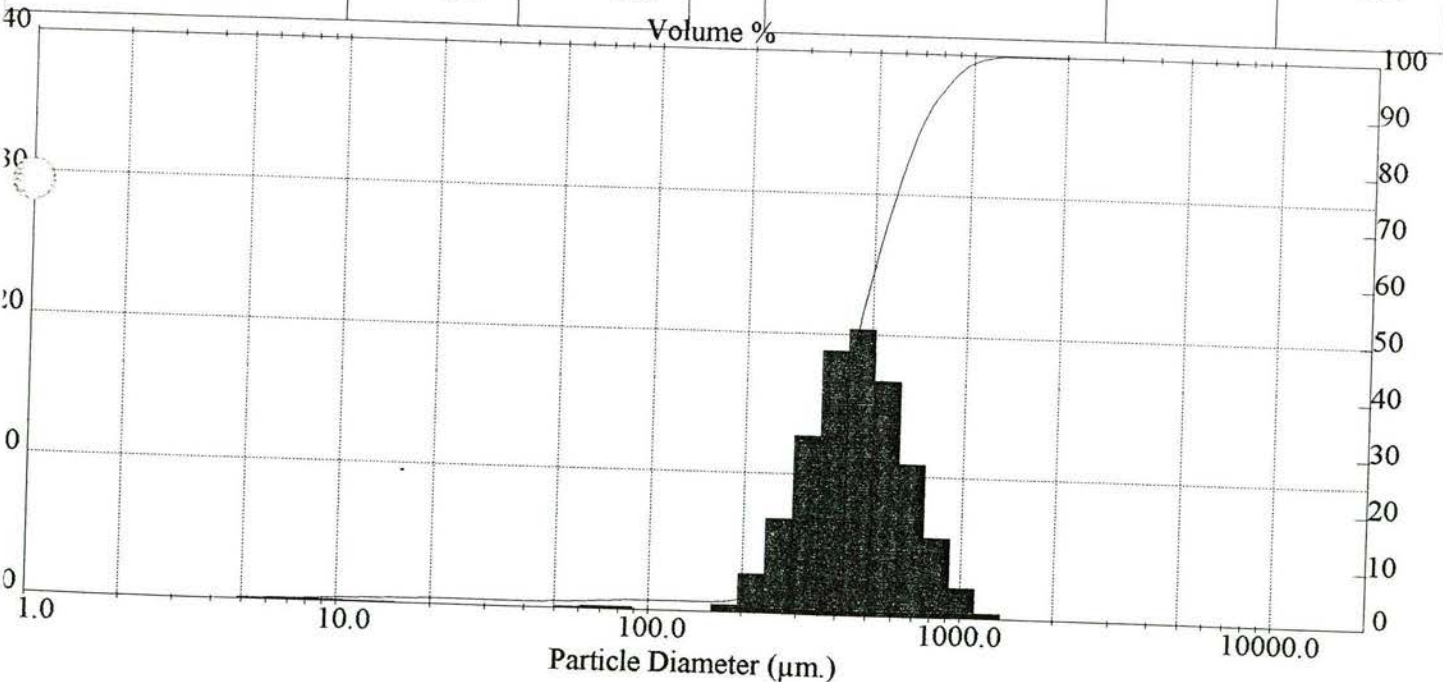
D50 gehele monster = 449 μm
D50 zandfractie = 452 μm
Dz 10 = 282 μm

< 63.0 μm : 1.5 %
Dz 90 = 730.0 μm

Dz 60/Dz 10 = 1.76

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.91	0.14
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.91	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	1.91	0.00
1190.0 - 1410.0	99.80	0.20	88.0 - 105.0	1.89	0.01
1000.0 - 1190.0	98.68	1.12	75.0 - 88.0	1.70	0.19
850.0 - 1000.0	95.39	3.29	63.0 - 75.0	1.47	0.23
707.0 - 850.0	88.61	6.78	50.0 - 63.0	1.28	0.20
600.0 - 707.0	77.87	10.74	35.0 - 50.0	1.22	0.06
500.0 - 600.0	61.37	16.50	25.0 - 35.0	1.21	0.01
420.0 - 500.0	42.96	18.41	16.0 - 25.0	1.07	0.14
354.0 - 420.0	26.27	16.69	8.0 - 16.0	0.58	0.50
300.0 - 354.0	14.29	11.97	4.0 - 8.0	0.05	0.52
250.0 - 300.0	6.94	7.36	2.0 - 4.0	0.00	0.05
210.0 - 250.0	3.19	3.75	0.1 - 2.0	0.00	0.00
177.0 - 210.0	2.05	1.14			



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Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902080 98dw410-2

9902080 98dw410-2
onbehandeld

Datum meting : 06 Apr 1999 11:58 File: NRDZAPRL.SAM
Obscuration = 17.6 %

Sampler: MSX15
Focus = 1000 mm.

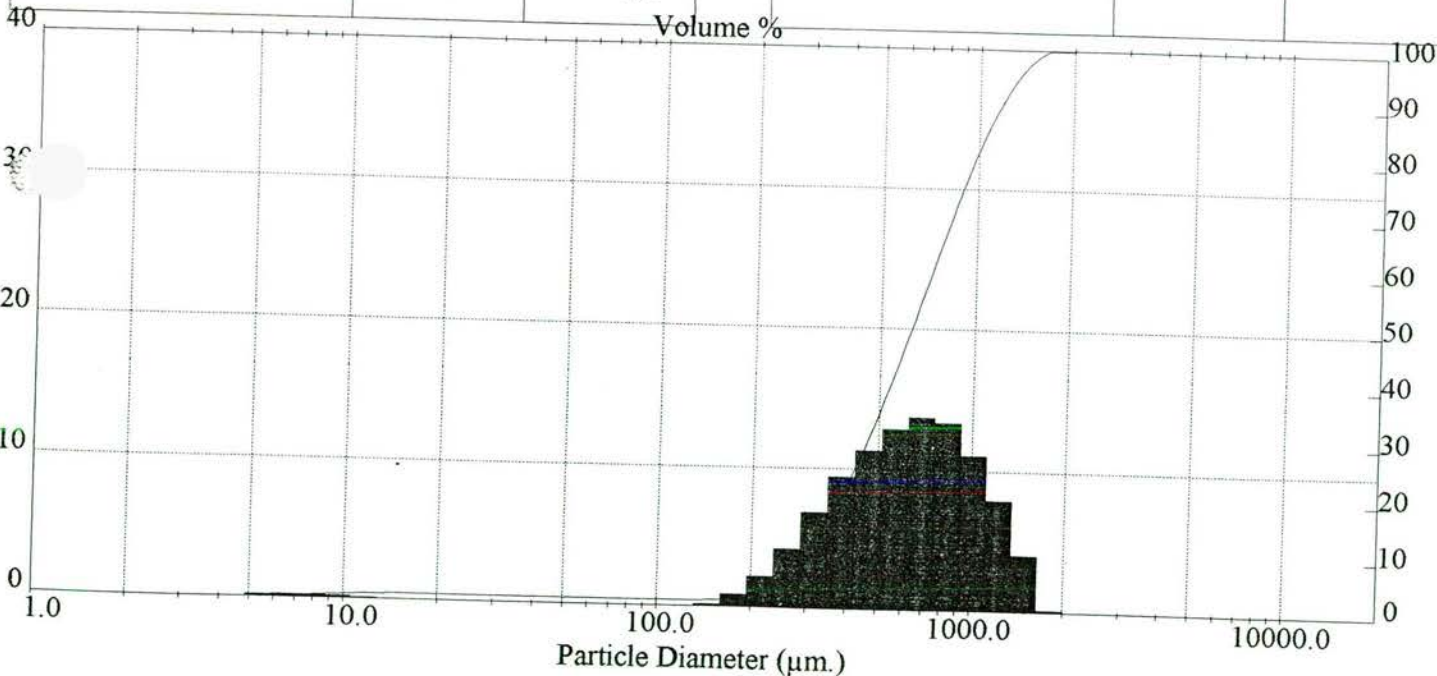
D50 gehele monster = 628 μm
D50 zandfractie = 634 μm
Dz 10 = 308 μm

< 63.0 μm : 1.2 %
Dz 90 = 1175.2 μm

Dz 60/Dz 10 = 2.37

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.31	0.49
1680.0 - 2000.0	99.92	0.08	125.0 - 150.0	1.22	0.09
1410.0 - 1680.0	96.83	3.08	105.0 - 125.0	1.22	0.00
1190.0 - 1410.0	90.69	6.14	88.0 - 105.0	1.22	0.00
1000.0 - 1190.0	81.74	8.94	75.0 - 88.0	1.22	0.00
850.0 - 1000.0	71.35	10.39	63.0 - 75.0	1.22	0.00
707.0 - 850.0	58.32	13.03	50.0 - 63.0	1.22	0.00
600.0 - 707.0	46.81	11.52	35.0 - 50.0	1.22	0.00
500.0 - 600.0	34.91	11.90	25.0 - 35.0	1.22	0.00
420.0 - 500.0	24.85	10.06	16.0 - 25.0	1.19	0.00
354.0 - 420.0	16.48	8.37	8.0 - 16.0	0.68	0.03
300.0 - 354.0	10.24	6.25	4.0 - 8.0	0.06	0.50
250.0 - 300.0	5.63	4.61	2.0 - 4.0	0.01	0.62
210.0 - 250.0	3.08	2.55	0.1 - 2.0	0.00	0.06
177.0 - 210.0	1.80	1.28			0.01



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afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902032 98bc411-1

9902032 98bc411-1
onbehandeld

Datum meting : 06 Apr 1999 11:51 File: NRDZAPRL.SAM
Obscuration = 18.0 %

Sampler: MSX15
Focus = 1000 mm.

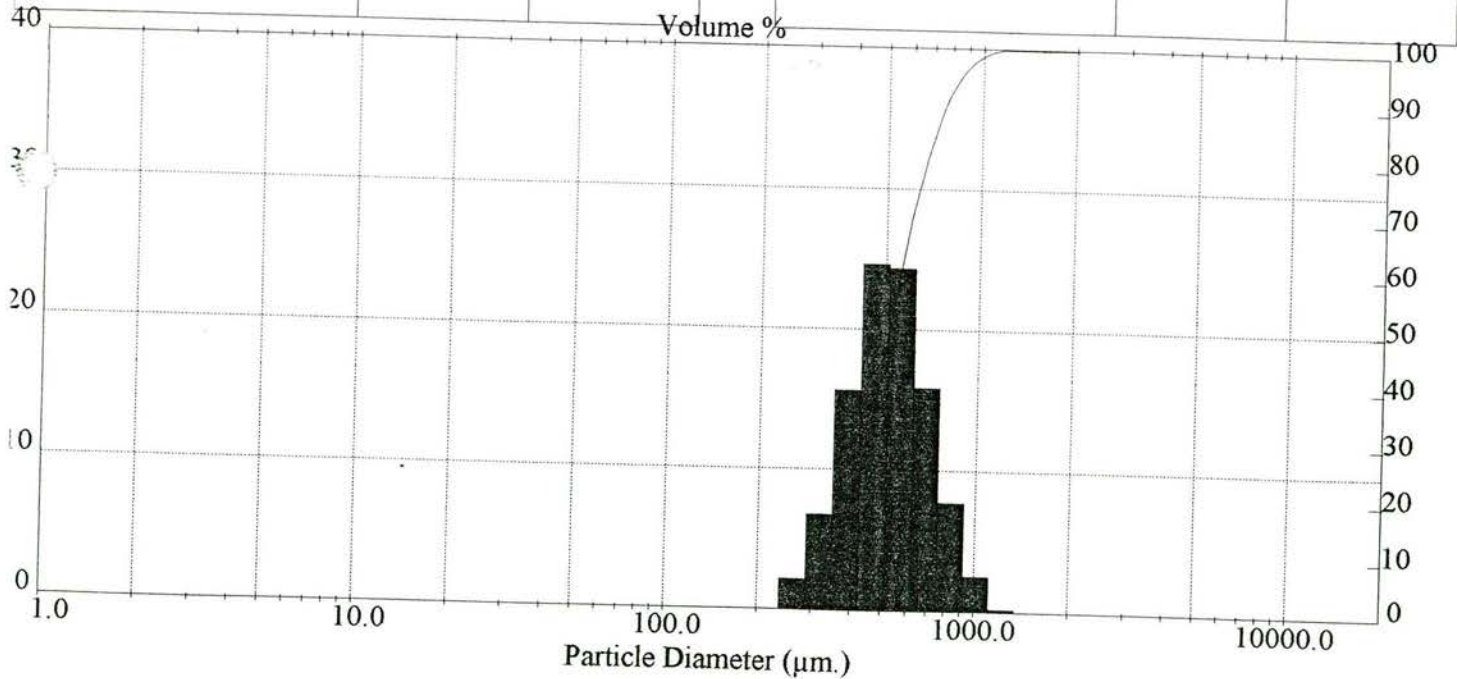
D50 gehele monster = 516 μm
D50 zandfractie = 516 μm
Dz 10 = 355 μm

< 63.0 μm : 0.0 %
Dz 90 = 764.7 μm

Dz 60/Dz 10 = 1.57

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	99.97	0.03	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	98.74	1.22	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	94.92	3.82	63.0 - 75.0	0.00	0.00
707.0 - 850.0	84.55	10.37	50.0 - 63.0	0.00	0.00
600.0 - 707.0	69.48	15.07	35.0 - 50.0	0.00	0.00
500.0 - 600.0	45.63	23.85	25.0 - 35.0	0.00	0.00
420.0 - 500.0	23.97	21.66	16.0 - 25.0	0.00	0.00
354.0 - 420.0	9.93	14.05	8.0 - 16.0	0.00	0.00
300.0 - 354.0	3.48	6.45	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.29	3.19	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.29	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



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Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157, 2000 AD HAARLEM

monster : 9902033 98bc411-2

9902033 98bc411-2
onbehandeld

Datum meting : 06 Apr 1999 11:46 File: NRDZAPRL.SAM
Obscuration = 16.8 %

Sampler: MSX15
Focus = 1000 mm.

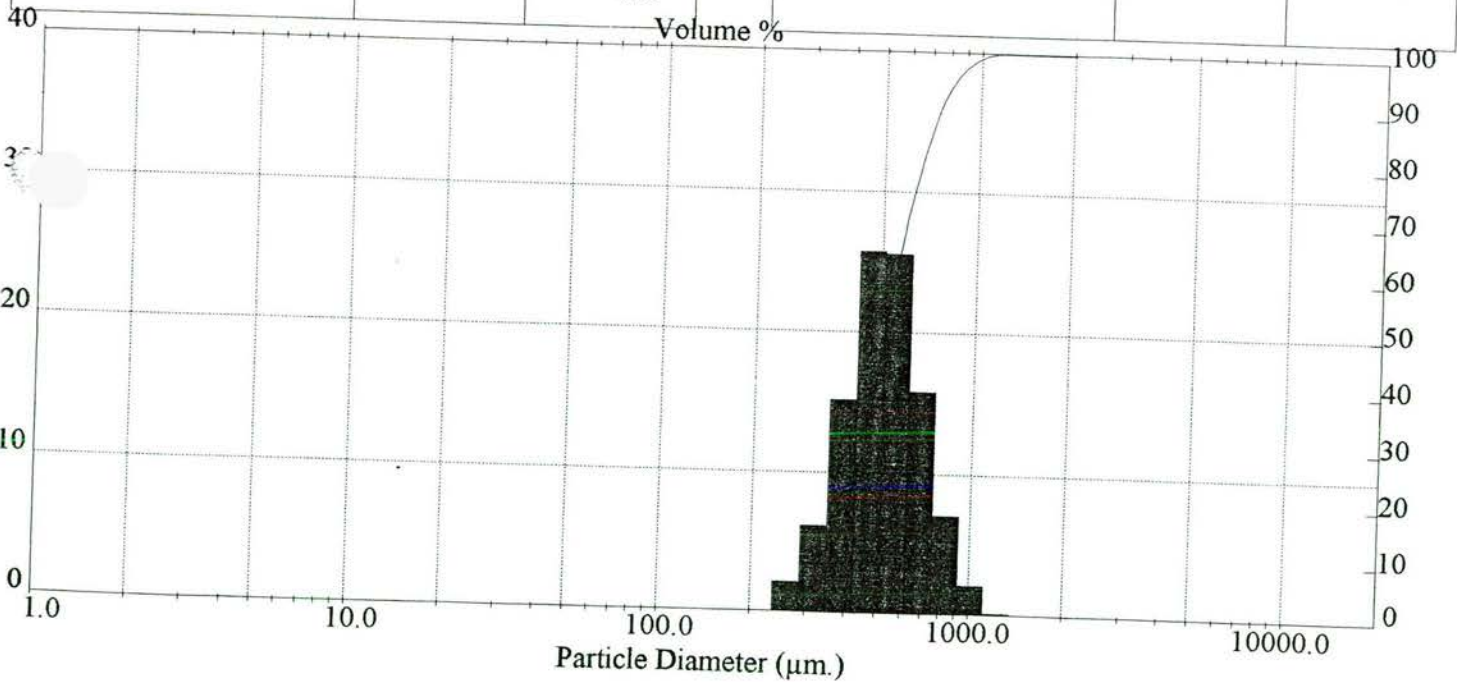
D50 gehele monster = 516 µm
D50 zandfractie = 516 µm
Dz 10 = 358 µm

< 63.0 µm : 0.0 %
Dz 90 = 749.7 µm

Dz 60/Dz 10 = 1.55

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	99.94	0.06	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	99.06	0.88	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	95.73	3.33	63.0 - 75.0	0.00	0.00
707.0 - 850.0	85.83	9.90	50.0 - 63.0	0.00	0.00
600.0 - 707.0	70.69	15.14	35.0 - 50.0	0.00	0.00
500.0 - 600.0	45.24	25.45	25.0 - 35.0	0.00	0.00
420.0 - 500.0	22.94	22.31	16.0 - 25.0	0.00	0.00
354.0 - 420.0	9.38	13.56	8.0 - 16.0	0.00	0.00
300.0 - 354.0	3.06	6.32	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.26	2.80	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.26	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



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afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902034 98bc411-3

9902033 98bc411-3
onbehandeld

Datum meting : 06 Apr 1999 11:38 File: NRDZAPRL.SAM
Obscuration = 16.9 %

Sampler: MSX15
Focus = 1000 mm.

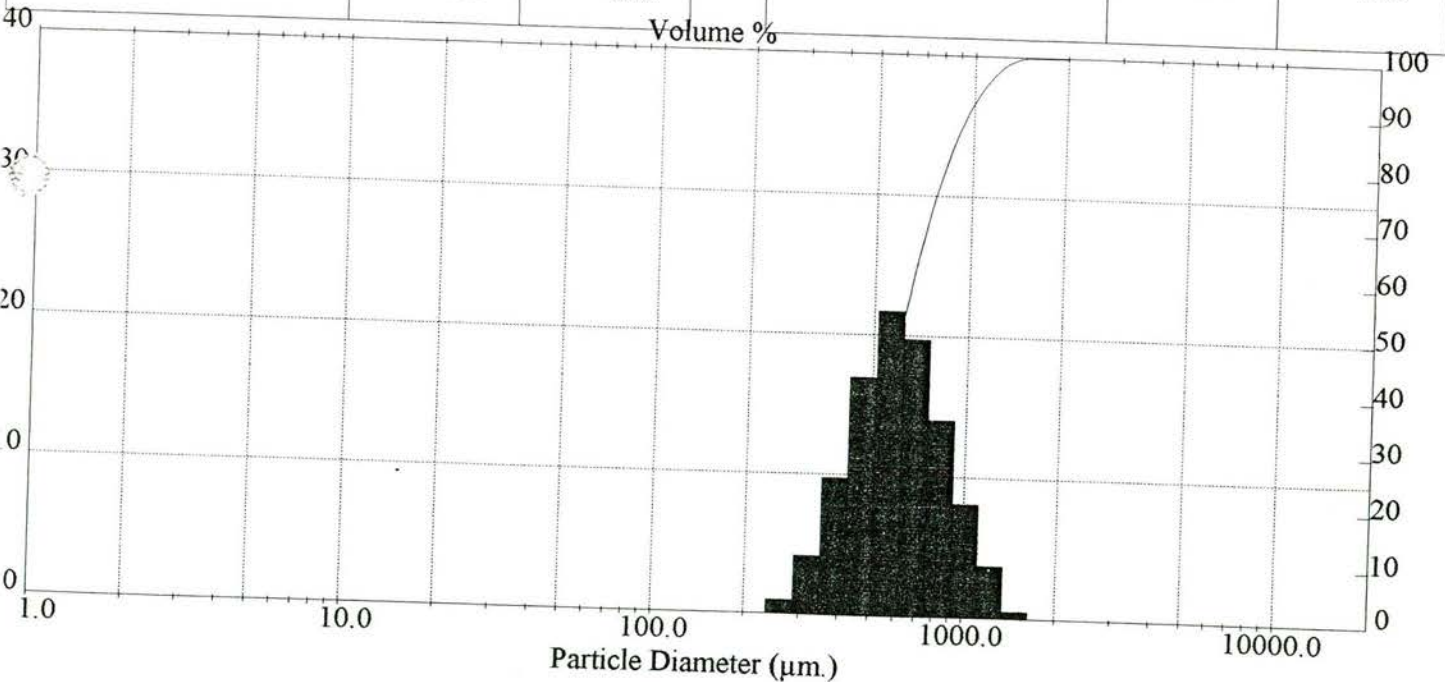
D50 gehele monster = 604 μm
D50 zandfractie = 604 μm
Dz 10 = 389 μm

< 63.0 μm : 0.0 %
Dz 90 = 965.4 μm

Dz 60/Dz 10 = 1.70

NITG - Afdeling GRANULOMETRIE

FRACHTIE μm	CUMULATIEF %	FRACHTIE %	FRACHTIE μm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	99.71	0.29	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	97.28	2.43	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	91.61	5.67	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	82.52	9.09	63.0 - 75.0	0.00	0.00
707.0 - 850.0	66.98	15.54	50.0 - 63.0	0.00	0.00
600.0 - 707.0	49.32	17.66	35.0 - 50.0	0.00	0.00
500.0 - 600.0	29.24	20.08	25.0 - 35.0	0.00	0.00
420.0 - 500.0	14.54	14.70	16.0 - 25.0	0.00	0.00
354.0 - 420.0	5.85	8.70	8.0 - 16.0	0.00	0.00
300.0 - 354.0	1.65	4.20	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.08	1.57	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.08	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



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Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie
Postbus 157; 2000 AD HAARLEM

monster : 9902035 98bc411-4

9902035 98bc411-4
onbehandeld

Datum meting : 06 Apr 1999 11:29 File: NRDZAPRL.SAM
Obscuration = 13.8 %

Sampler: MSX15
Focus = 1000 mm.

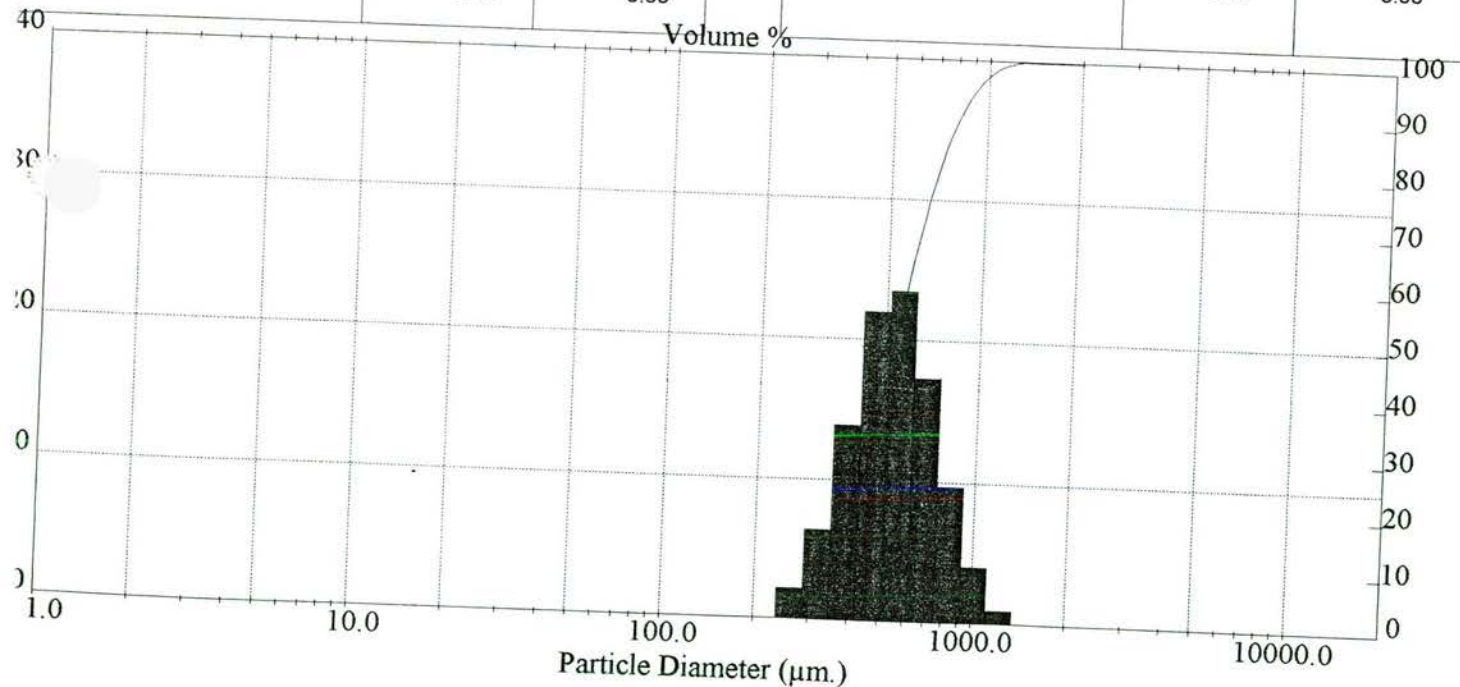
D50 gehele monster = 537 μ m
D50 zandfractie = 537 μ m
Dz 10 = 357 μ m

< 63.0 μ m : 0.0 %
Dz 90 = 819.2 μ m

Dz 60/Dz 10 = 1.63

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	99.59	0.41	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	97.27	2.32	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	91.83	5.44	63.0 - 75.0	0.00	0.00
707.0 - 850.0	80.01	11.82	50.0 - 63.0	0.00	0.00
600.0 - 707.0	63.62	16.39	35.0 - 50.0	0.00	0.00
500.0 - 600.0	41.22	22.41	25.0 - 35.0	0.00	0.00
420.0 - 500.0	21.95	19.27	16.0 - 25.0	0.00	0.00
354.0 - 420.0	9.55	12.40	8.0 - 16.0	0.00	0.00
300.0 - 354.0	3.26	6.29	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.28	2.98	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.28	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



monster : 9902036 98bc411-5

9902036 98bc411-5
 onbehandeld

Datum meting : 06 Apr 1999 11:19 File: NRDZAPRL.SAM
 Obscuration = 7.2 %

Sampler: MSX15
 Focus = 1000 mm.

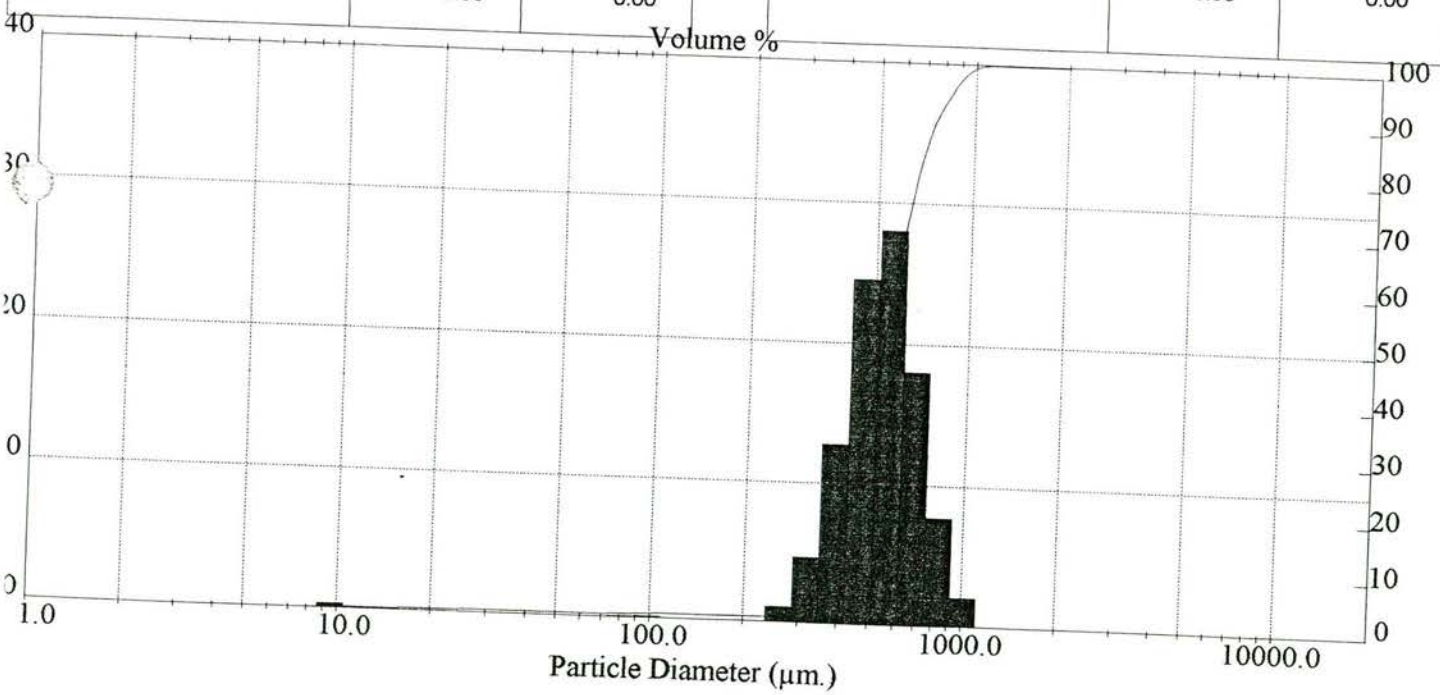
D50 gehele monster = 534 μm
 D50 zandfractie = 535 μm
 Dz 10 = 373 μm

< 63.0 μm : 0.6 %
 Dz 90 = 757.6 μm

Dz 60/Dz 10 = 1.53

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.95	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.95	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.93	0.02
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	0.79	0.14
1000.0 - 1190.0	99.35	0.65	75.0 - 88.0	0.69	0.11
850.0 - 1000.0	95.25	4.10	63.0 - 75.0	0.61	0.08
707.0 - 850.0	85.35	9.90	50.0 - 63.0	0.60	0.02
600.0 - 707.0	66.94	18.41	35.0 - 50.0	0.60	0.00
500.0 - 600.0	40.04	26.89	25.0 - 35.0	0.58	0.02
420.0 - 500.0	19.04	21.00	16.0 - 25.0	0.46	0.11
354.0 - 420.0	7.61	11.43	8.0 - 16.0	0.00	0.46
300.0 - 354.0	2.65	4.97	4.0 - 8.0	0.00	0.00
250.0 - 300.0	1.11	1.54	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.95	0.16	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.95	0.00			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902037 98bc411-6

9902037 98bc411-6
onbehandeld

Datum meting : 06 Apr 1999 13:52 File: NRDZAPRL.SAM
Obscuration = 16.1 %

Sampler: MSX15
Focus = 1000 mm.

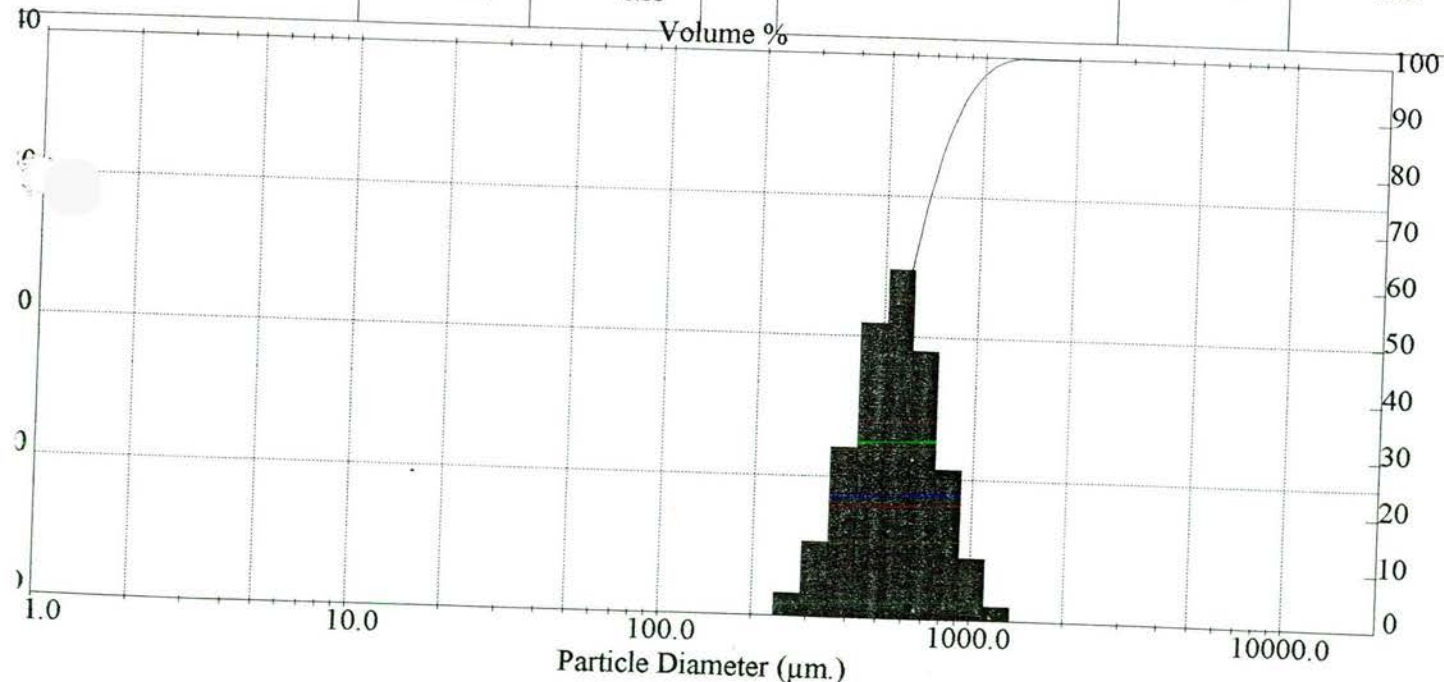
D50 gehele monster = 555 μm
D50 zandfractie = 555 μm
Dz 10 = 369 μm

< 63.0 μm : 0.0 %
Dz 90 = 832.7 μm

Dz 60/Dz 10 = 1.63

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.00	0.00
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.00	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.00	0.00
1190.0 - 1410.0	99.55	0.45	88.0 - 105.0	0.00	0.00
1000.0 - 1190.0	97.01	2.54	75.0 - 88.0	0.00	0.00
850.0 - 1000.0	91.05	5.96	63.0 - 75.0	0.00	0.00
707.0 - 850.0	77.98	13.07	50.0 - 63.0	0.00	0.00
600.0 - 707.0	60.10	17.88	35.0 - 50.0	0.00	0.00
500.0 - 600.0	36.66	23.44	25.0 - 35.0	0.00	0.00
420.0 - 500.0	18.65	18.01	16.0 - 25.0	0.00	0.00
354.0 - 420.0	7.83	10.82	8.0 - 16.0	0.00	0.00
300.0 - 354.0	2.46	5.37	4.0 - 8.0	0.00	0.00
250.0 - 300.0	0.18	2.28	2.0 - 4.0	0.00	0.00
210.0 - 250.0	0.00	0.18	0.1 - 2.0	0.00	0.00
177.0 - 210.0	0.00	0.00			



monster : 9902081 98dw412-1

9902081 98dw412-1
onbehandeld

Datum meting : 07 Apr 1999 08:25
Obscuration = 16.3 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

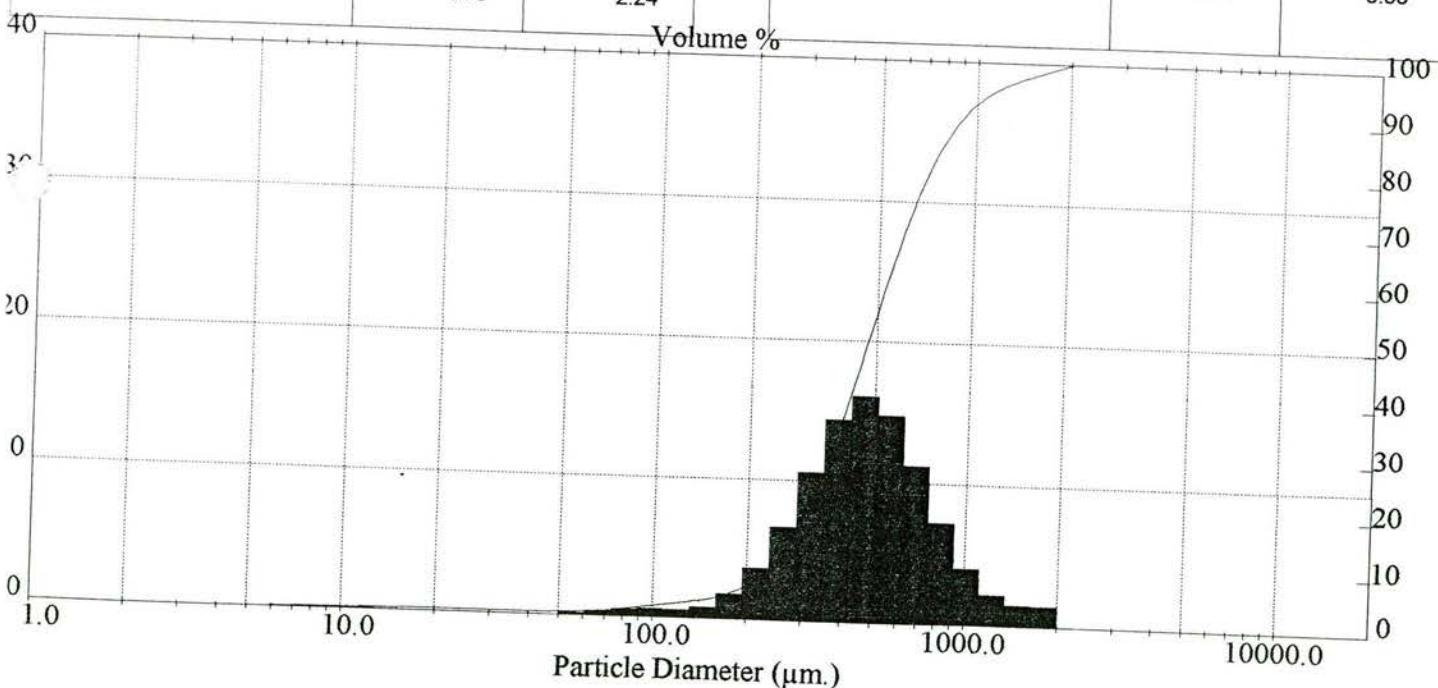
D50 gehele monster = 470 µm
D50 zandfractie = 473 µm
Dz 10 = 248 µm

< 63.0 µm : 1.0 %
Dz 90 = 903.9 µm

Dz 60/Dz 10 = 2.15

NITG - Afdeling GRANULOMETRIE

FRACHTIE µm	CUMULATIEF %	FRACHTIE %	FRACHTIE µm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	3.64	1.12
1680.0 - 2000.0	98.61	1.39	125.0 - 150.0	2.95	0.69
1410.0 - 1680.0	97.23	1.38	105.0 - 125.0	2.38	0.57
1190.0 - 1410.0	95.53	1.70	88.0 - 105.0	1.78	0.60
1000.0 - 1190.0	92.67	2.85	75.0 - 88.0	1.31	0.47
850.0 - 1000.0	88.09	4.58	63.0 - 75.0	0.95	0.36
707.0 - 850.0	79.79	8.30	50.0 - 63.0	0.71	0.24
600.0 - 707.0	69.37	10.42	35.0 - 50.0	0.67	0.04
500.0 - 600.0	55.10	14.27	25.0 - 35.0	0.67	0.00
420.0 - 500.0	40.65	14.45	16.0 - 25.0	0.58	0.09
354.0 - 420.0	27.88	12.77	8.0 - 16.0	0.20	0.38
300.0 - 354.0	18.27	9.61	4.0 - 8.0	0.00	0.20
250.0 - 300.0	11.12	7.15	2.0 - 4.0	0.00	0.00
210.0 - 250.0	7.00	4.12	0.1 - 2.0	0.00	0.00
177.0 - 210.0	4.76	2.24			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902082 98dw412-2

9902082 98dw412-2
onbehandeld

Datum meting : 07 Apr 1999 08:20 File: NRDZAPRL.SAM
Obscuration = 18.0 %

Sampler: MSX15
Focus = 1000 mm.

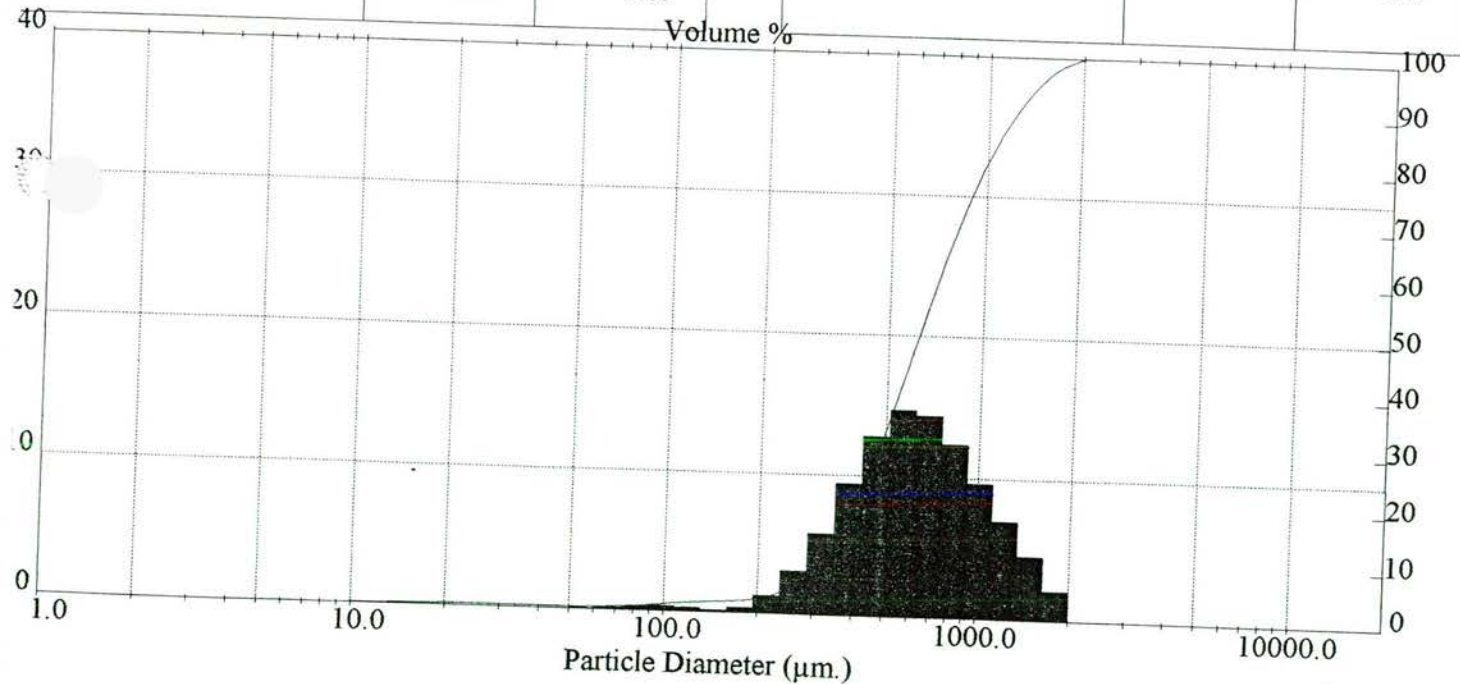
D50 gehele monster = 625 μm
D50 zandfractie = 628 μm
Dz 10 = 326 μm

< 63.0 μm : 0.7 %
Dz 90 = 1231.5 μm

Dz 60/Dz 10 = 2.20

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	2.10	0.23
1680.0 - 2000.0	98.14	1.86	125.0 - 150.0	1.88	0.22
1410.0 - 1680.0	94.38	3.76	105.0 - 125.0	1.54	0.33
1190.0 - 1410.0	88.79	5.59	88.0 - 105.0	1.16	0.38
1000.0 - 1190.0	81.06	7.73	75.0 - 88.0	0.87	0.29
850.0 - 1000.0	71.83	9.23	63.0 - 75.0	0.65	0.22
707.0 - 850.0	59.24	12.59	50.0 - 63.0	0.52	0.13
600.0 - 707.0	46.85	12.39	35.0 - 50.0	0.52	0.00
500.0 - 600.0	33.20	13.64	25.0 - 35.0	0.51	0.01
420.0 - 500.0	21.93	11.27	16.0 - 25.0	0.40	0.11
354.0 - 420.0	13.57	8.36	8.0 - 16.0	0.13	0.27
300.0 - 354.0	8.14	5.43	4.0 - 8.0	0.00	0.13
250.0 - 300.0	4.64	3.50	2.0 - 4.0	0.00	0.00
210.0 - 250.0	2.98	1.66	0.1 - 2.0	0.00	0.00
177.0 - 210.0	2.32	0.66			



monster : 9902083 98dw412-3

9902083 98dw412-3
onbehandeld

Datum meting : 07 Apr 1999 08:15 File: NRDZAPRL.SAM
Obscuration = 16.8 %

Sampler: MSX15
Focus = 1000 mm.

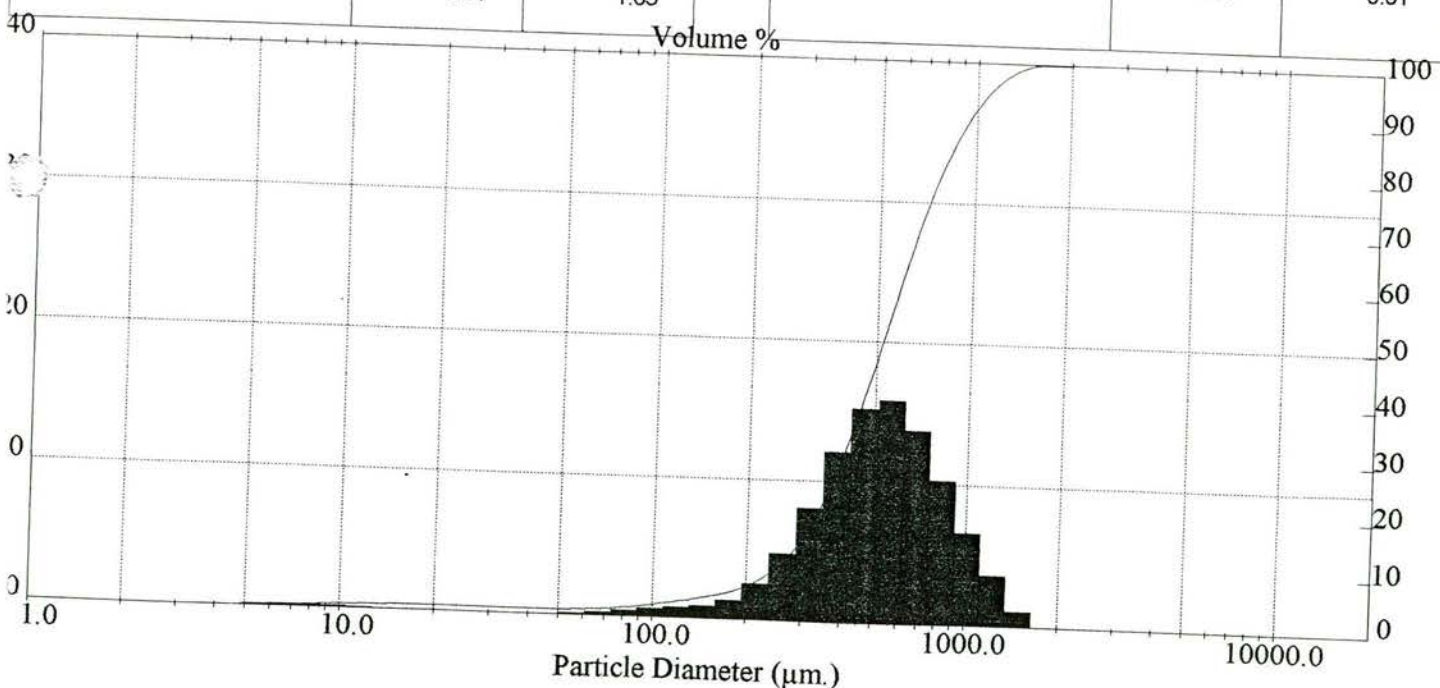
D50 gehele monster = 522 μ m
D50 zandfractie = 526 μ m
Dz 10 = 268 μ m

< 63.0 μ m : 1.3 %
Dz 90 = 955.5 μ m

Dz 60/Dz 10 = 2.22

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	4.06	0.96
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	3.25	0.81
1410.0 - 1680.0	99.23	0.77	105.0 - 125.0	2.55	0.69
1190.0 - 1410.0	96.66	2.57	88.0 - 105.0	1.96	0.60
1000.0 - 1190.0	91.83	4.83	75.0 - 88.0	1.55	0.40
850.0 - 1000.0	84.83	7.00	63.0 - 75.0	1.27	0.29
707.0 - 850.0	73.73	11.10	50.0 - 63.0	1.09	0.18
600.0 - 707.0	61.40	12.33	35.0 - 50.0	1.05	0.04
500.0 - 600.0	46.38	15.02	25.0 - 35.0	1.05	0.00
420.0 - 500.0	32.85	13.53	16.0 - 25.0	1.05	0.00
354.0 - 420.0	22.08	10.76	8.0 - 16.0	0.62	0.43
300.0 - 354.0	14.77	7.31	4.0 - 8.0	0.06	0.56
250.0 - 300.0	9.51	5.26	2.0 - 4.0	0.01	0.06
210.0 - 250.0	6.64	2.87	0.1 - 2.0	0.00	0.01
177.0 - 210.0	5.01	1.63			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902084 98dw412-4

9902084 98dw412-4
onbehandeld

Datum meting : 07 Apr 1999 08:09
Obscuration = 20.7 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

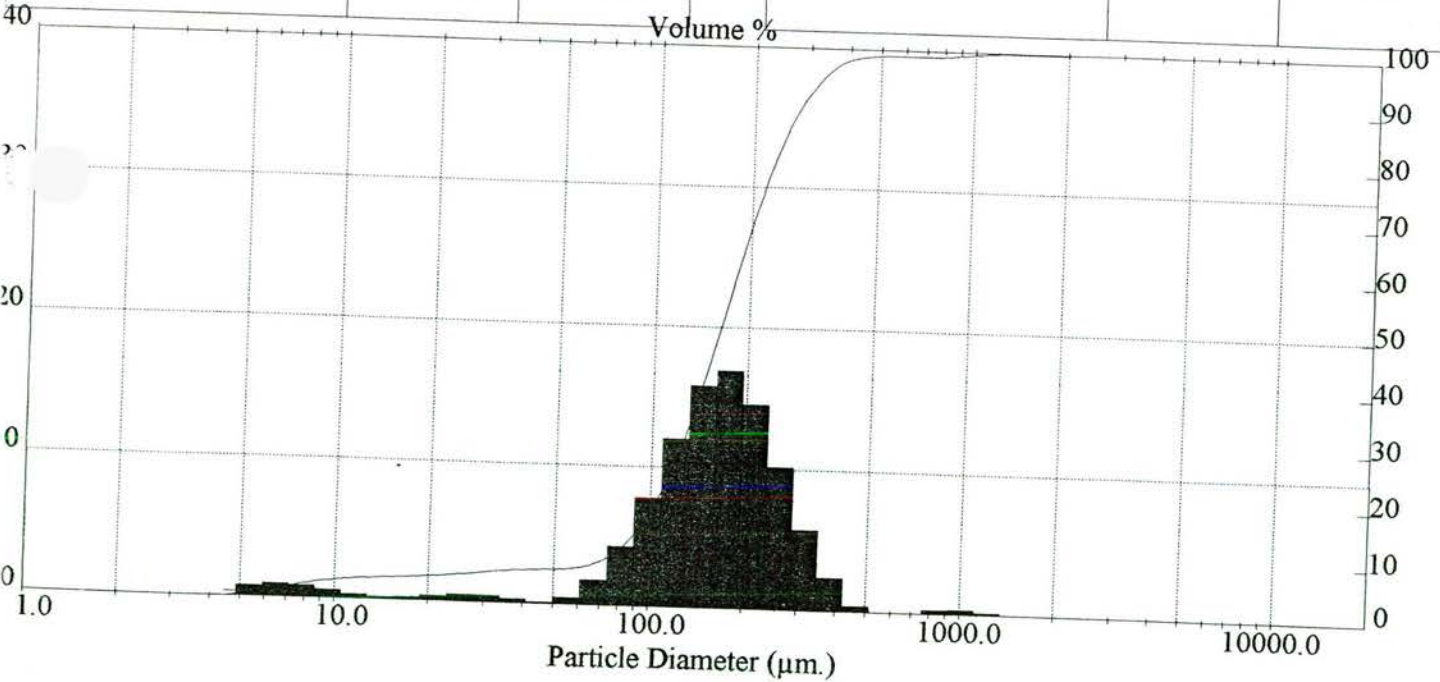
D50 gehele monster = 163 μ m
D50 zandfractie = 169 μ m
Dz 10 = 98 μ m

< 63.0 μ m : 7.1 %
Dz 90 = 290.4 μ m

Dz 60/Dz 10 = 1.92

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	42.97	14.39
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	28.98	14.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	19.21	9.77
1190.0 - 1410.0	99.90	0.10	88.0 - 105.0	12.49	6.72
1000.0 - 1190.0	99.58	0.32	75.0 - 88.0	8.97	3.52
850.0 - 1000.0	99.23	0.35	63.0 - 75.0	7.08	1.89
707.0 - 850.0	98.99	0.24	50.0 - 63.0	6.32	0.76
600.0 - 707.0	98.98	0.01	35.0 - 50.0	5.90	0.42
500.0 - 600.0	98.96	0.02	25.0 - 35.0	5.01	0.89
420.0 - 500.0	98.45	0.52	16.0 - 25.0	4.21	0.81
354.0 - 420.0	96.39	2.05	8.0 - 16.0	2.64	1.57
300.0 - 354.0	91.82	4.57	4.0 - 8.0	0.00	2.64
250.0 - 300.0	83.61	8.21	2.0 - 4.0	0.00	0.00
210.0 - 250.0	71.64	11.97	0.1 - 2.0	0.00	0.00
177.0 - 210.0	57.36	14.28			



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ern, U.K.

MasterSizer X Ver. 1.2a
Serial No.

21 Apr 99 08:59

monster : 9902085 98dw412-5

9902085 98dw412-5
onbehandeld

Datum meting : 07 Apr 1999 08:04 File: NRDZAPRL.SAM
Obscuration = 18.1 %

Sampler: MSX15
Focus = 1000 mm.

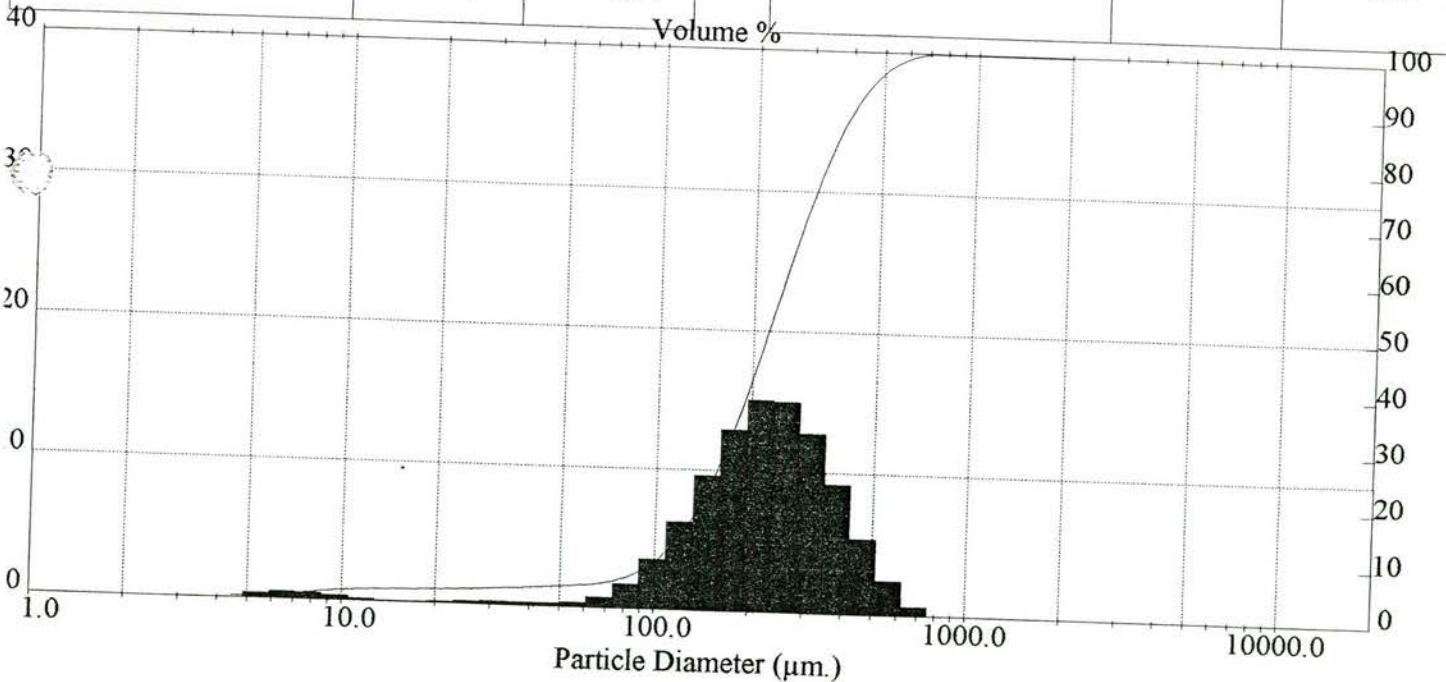
D50 gehele monster = 224 µm
D50 zandfractie = 230 µm
Dz 10 = 122 µm

< 63.0 µm : 4.3 %
Dz 90 = 412.6 µm

Dz 60/Dz 10 = 2.12

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	22.72	9.93
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	14.69	8.02
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	9.66	5.03
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	6.62	3.04
1000.0 - 1190.0	100.00	0.00	75.0 - 88.0	5.12	1.49
850.0 - 1000.0	100.00	0.00	63.0 - 75.0	4.33	0.80
707.0 - 850.0	99.90	0.10	50.0 - 63.0	3.85	0.48
600.0 - 707.0	98.96	0.94	35.0 - 50.0	3.28	0.56
500.0 - 600.0	96.25	2.71	25.0 - 35.0	2.78	0.50
420.0 - 500.0	91.12	5.13	16.0 - 25.0	2.45	0.34
354.0 - 420.0	83.11	8.01	8.0 - 16.0	1.51	0.94
300.0 - 354.0	72.64	10.47	4.0 - 8.0	0.00	1.51
250.0 - 300.0	58.89	13.75	2.0 - 4.0	0.00	0.00
210.0 - 250.0	45.10	13.79	0.1 - 2.0	0.00	0.00
177.0 - 210.0	32.65	12.45			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902039 98bc413-2

9902039 98bc413-2
onbehandeld

Datum meting : 06 Apr 1999 13:39 File: NRDZAPRL.SAM
Obscuration = 15.9 %

Sampler: MSX15
Focus = 1000 mm.

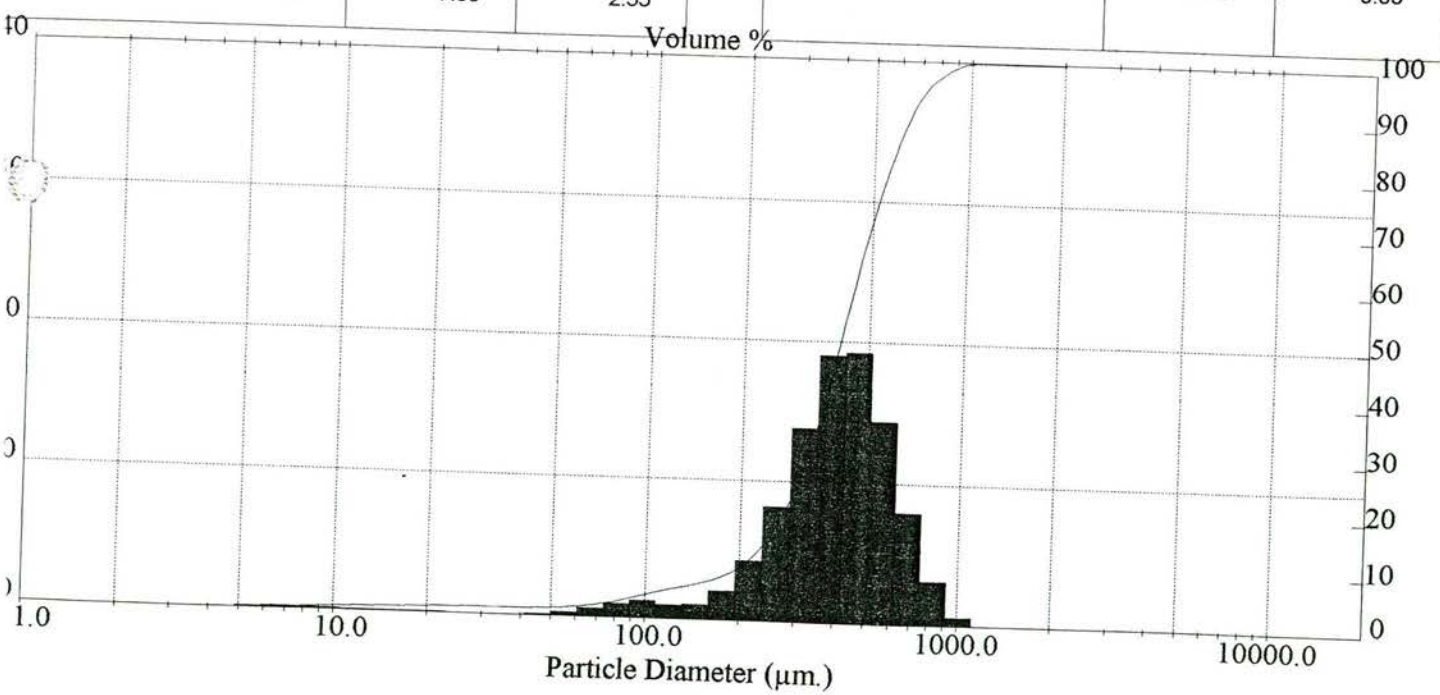
D50 gehele monster = 405 μm
D50 zandfractie = 409 μm
Dz 10 = 223 μm

< 63.0 μm : 2.1 %
Dz 90 = 646.7 μm

Dz 60/Dz 10 = 2.02

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	6.62	1.36
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	5.68	0.94
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	4.72	0.97
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	3.54	1.18
1000.0 - 1190.0	99.87	0.13	75.0 - 88.0	2.69	0.85
850.0 - 1000.0	98.30	1.57	63.0 - 75.0	2.06	0.63
707.0 - 850.0	94.14	4.16	50.0 - 63.0	1.60	0.46
600.0 - 707.0	85.81	8.34	35.0 - 50.0	1.41	0.19
500.0 - 600.0	71.31	14.49	25.0 - 35.0	1.36	0.05
420.0 - 500.0	53.80	17.51	16.0 - 25.0	1.11	0.25
354.0 - 420.0	36.99	16.81	8.0 - 16.0	0.59	0.52
300.0 - 354.0	24.23	12.77	4.0 - 8.0	0.06	0.53
250.0 - 300.0	15.54	8.69	2.0 - 4.0	0.00	0.05
210.0 - 250.0	10.51	5.03	0.1 - 2.0	0.00	0.00
177.0 - 210.0	7.99	2.53			



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21 Apr 99 08:37

Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902040 98bc413-3

9902040 98bc413-3
onbehandeld

Datum meting : 06 Apr 1999 13:33
Obscuration = 21.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

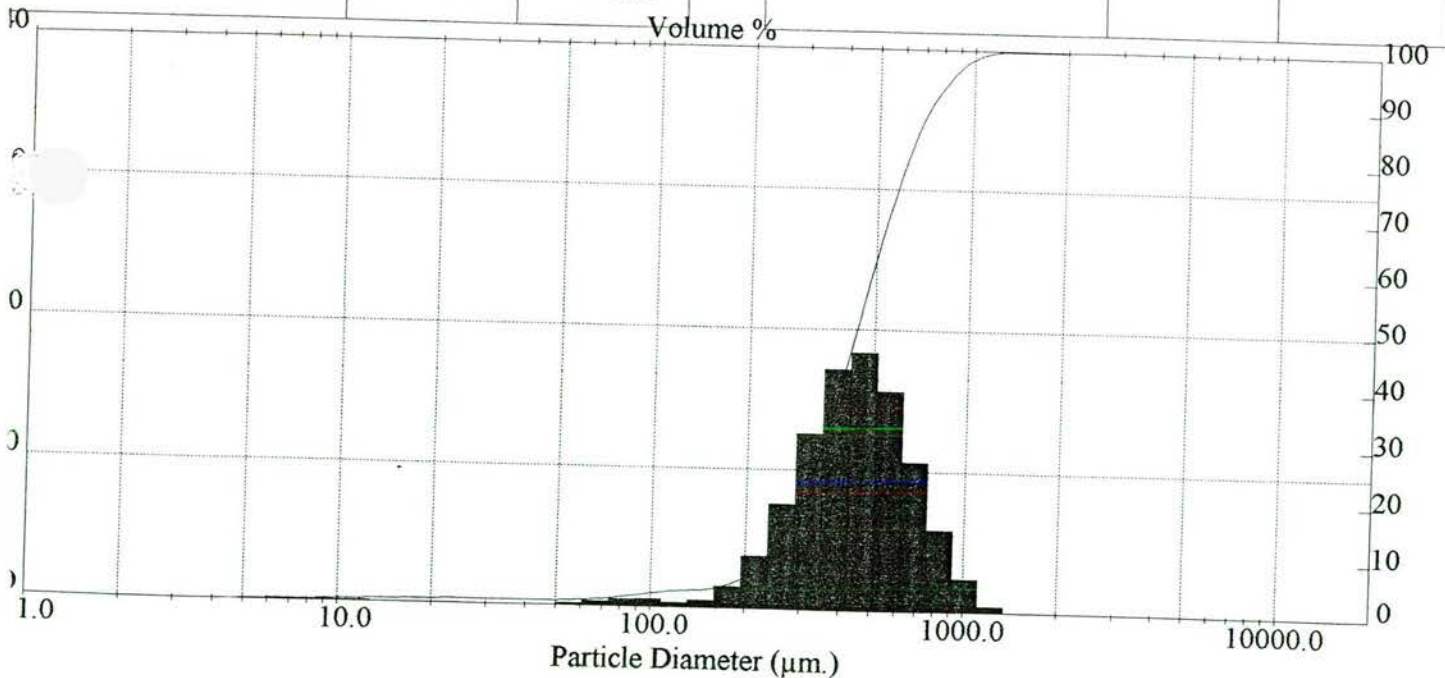
D50 gehele monster = 438 μm
D50 zandfractie = 441 μm
Dz 10 = 250 μm

< 63.0 μm : 1.3 %
Dz 90 = 737.5 μm

Dz 60/Dz 10 = 1.96

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	3.51	0.92
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	3.10	0.41
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	2.72	0.38
1190.0 - 1410.0	99.79	0.21	88.0 - 105.0	2.14	0.58
1000.0 - 1190.0	98.52	1.27	75.0 - 88.0	1.65	0.49
850.0 - 1000.0	95.03	3.49	63.0 - 75.0	1.27	0.39
707.0 - 850.0	88.15	6.88	50.0 - 63.0	1.00	0.27
600.0 - 707.0	77.76	10.39	35.0 - 50.0	0.95	0.06
500.0 - 600.0	62.47	15.29	25.0 - 35.0	0.94	0.01
420.0 - 500.0	45.92	16.55	16.0 - 25.0	0.80	0.14
354.0 - 420.0	30.74	15.18	8.0 - 16.0	0.42	0.38
300.0 - 354.0	19.16	11.58	4.0 - 8.0	0.00	0.42
250.0 - 300.0	11.14	8.02	2.0 - 4.0	0.00	0.00
210.0 - 250.0	6.55	4.59	0.1 - 2.0	0.00	0.00
177.0 - 210.0	4.43	2.12			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902041 98bc413-4

9902041 98bc413-4
onbehandeld

Datum meting : 06 Apr 1999 13:27 File: NRDZAPRL.SAM
Obscuration = 20.3 %

Sampler: MSX15
Focus = 1000 mm.

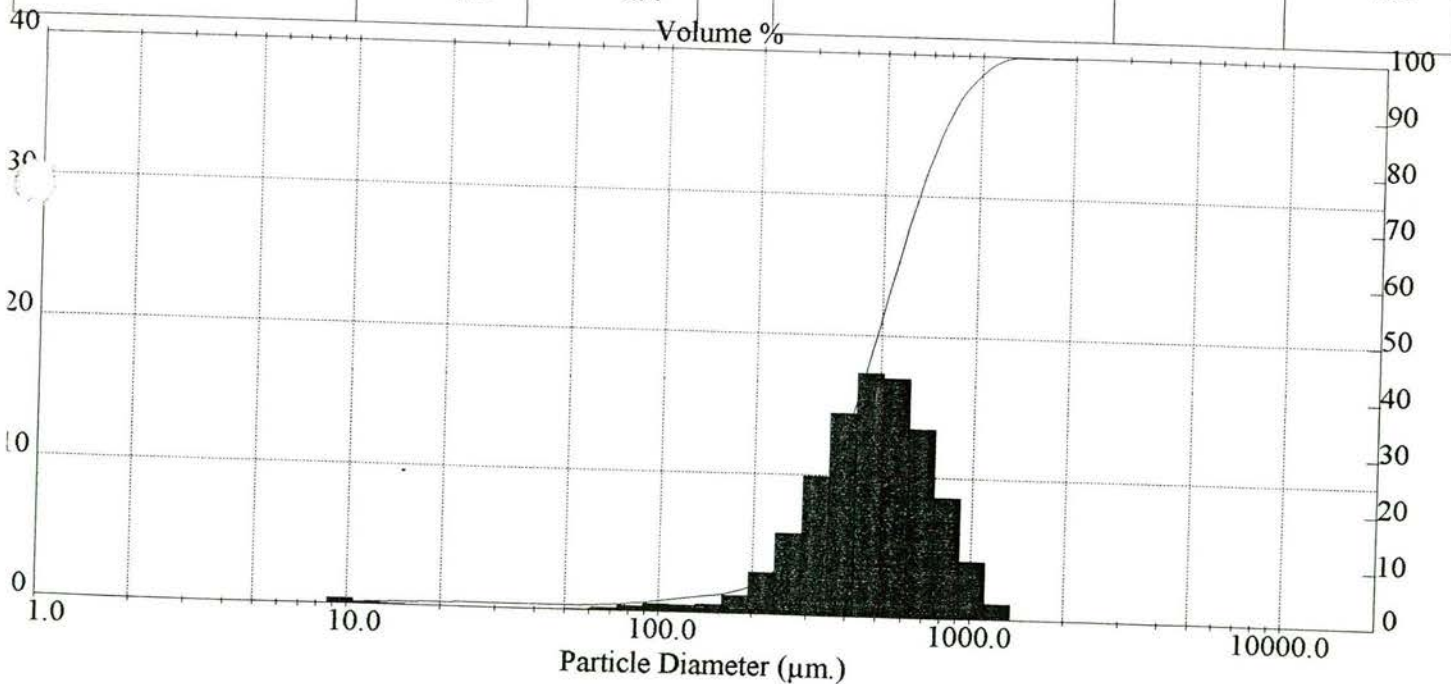
D50 gehele monster = 483 μm
D50 zandfractie = 486 μm
Dz 10 = 265 μm

< 63.0 μm : 1.1 %
Dz 90 = 816.1 μm

Dz 60/Dz 10 = 2.04

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	3.35	0.81
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	2.80	0.55
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	2.27	0.53
1190.0 - 1410.0	99.52	0.48	88.0 - 105.0	1.74	0.53
1000.0 - 1190.0	96.76	2.76	75.0 - 88.0	1.37	0.37
850.0 - 1000.0	91.95	4.80	63.0 - 75.0	1.12	0.25
707.0 - 850.0	81.81	10.14	50.0 - 63.0	0.98	0.14
600.0 - 707.0	69.43	12.38	35.0 - 50.0	0.97	0.01
500.0 - 600.0	53.13	16.30	25.0 - 35.0	0.95	0.02
420.0 - 500.0	37.64	15.49	16.0 - 25.0	0.77	0.18
354.0 - 420.0	24.76	12.88	8.0 - 16.0	0.00	0.77
300.0 - 354.0	15.78	8.99	4.0 - 8.0	0.00	0.00
250.0 - 300.0	9.31	6.47	2.0 - 4.0	0.00	0.00
210.0 - 250.0	5.90	3.41	0.1 - 2.0	0.00	0.00
177.0 - 210.0	4.16	1.74			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902042 98bc413-5

9902042 98bc413-5
onbehandeld

Datum meting : 06 Apr 1999 13:21 File: NRDZAPRL.SAM
Obscuration = 20.5 %

Sampler: MSX15
Focus = 1000 mm.

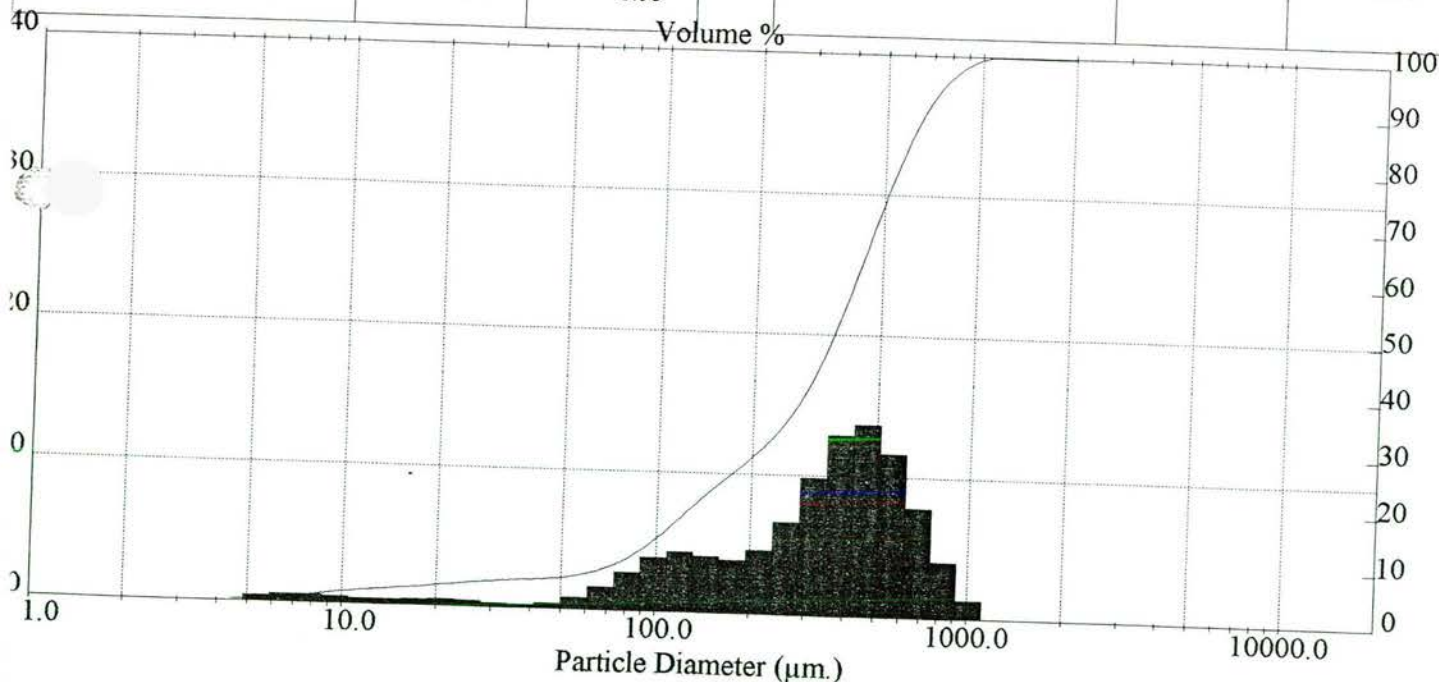
D50 gehele monster = 357 μm
D50 zandfractie = 377 μm
Dz 10 = 114 μm

< 63.0 μm : 6.9 %
Dz 90 = 680.2 μm

Dz 60/Dz 10 = 3.77

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	22.24	3.32
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	18.26	3.98
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	14.34	3.92
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	10.89	3.45
1000.0 - 1190.0	99.51	0.49	75.0 - 88.0	8.57	2.32
850.0 - 1000.0	97.31	2.20	63.0 - 75.0	6.93	1.65
707.0 - 850.0	92.21	5.10	50.0 - 63.0	5.78	1.14
600.0 - 707.0	84.65	7.56	35.0 - 50.0	5.14	0.64
500.0 - 600.0	73.23	11.42	25.0 - 35.0	4.47	0.67
420.0 - 500.0	60.91	12.32	16.0 - 25.0	3.33	1.14
354.0 - 420.0	49.53	11.38	8.0 - 16.0	1.64	1.69
300.0 - 354.0	40.67	8.85	4.0 - 8.0	0.00	1.64
250.0 - 300.0	33.72	6.95	2.0 - 4.0	0.00	0.00
210.0 - 250.0	29.12	4.61	0.1 - 2.0	0.00	0.00
177.0 - 210.0	25.56	3.56			



monster : 9902043 98bc413-6

9902043 98bc413-6
onbehandeld

Datum meting : 06 Apr 1999 13:01 File: NRDZAPRL.SAM
Obscuration = 20.2 %

Sampler: MSX15
Focus = 1000 mm.

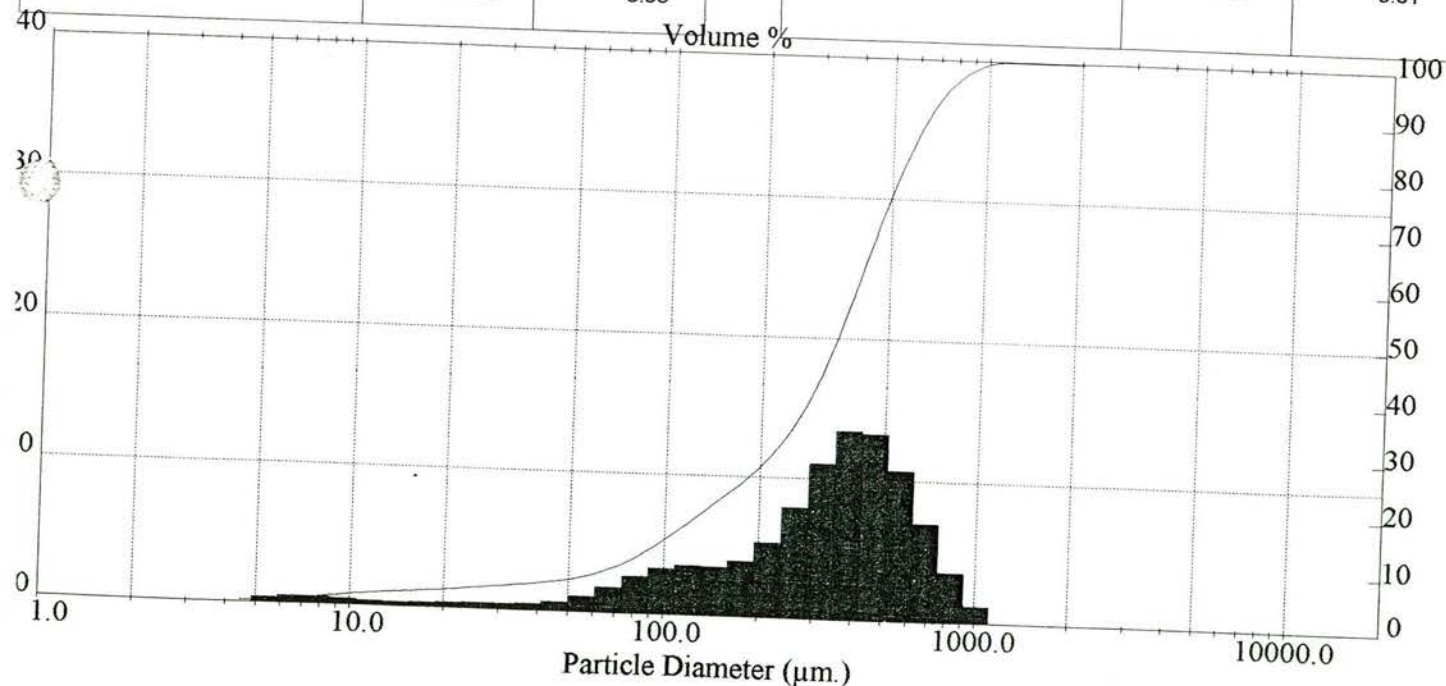
D50 gehele monster = 345 µm
D50 zandfractie = 365 µm
Dz 10 = 119 µm

< 63.0 µm : 7.4 %
Dz 90 = 664.3 µm

Dz 60/Dz 10 = 3.51

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	21.01	3.18
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	17.65	3.36
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	14.43	3.22
1190.0 - 1410.0	99.98	0.02	88.0 - 105.0	11.43	3.00
1000.0 - 1190.0	99.47	0.51	75.0 - 88.0	9.21	2.22
850.0 - 1000.0	97.55	1.92	63.0 - 75.0	7.43	1.78
707.0 - 850.0	93.00	4.55	50.0 - 63.0	5.95	1.48
600.0 - 707.0	86.19	6.81	35.0 - 50.0	4.80	1.15
500.0 - 600.0	75.61	10.59	25.0 - 35.0	3.99	0.81
420.0 - 500.0	63.58	12.02	16.0 - 25.0	3.01	0.99
354.0 - 420.0	51.73	11.85	8.0 - 16.0	1.50	1.51
300.0 - 354.0	41.87	9.87	4.0 - 8.0	0.13	1.36
250.0 - 300.0	33.66	8.21	2.0 - 4.0	0.01	0.12
210.0 - 250.0	28.14	5.52	0.1 - 2.0	0.00	0.01
177.0 - 210.0	24.19	3.95			



monster : 9902044 98bc413-7

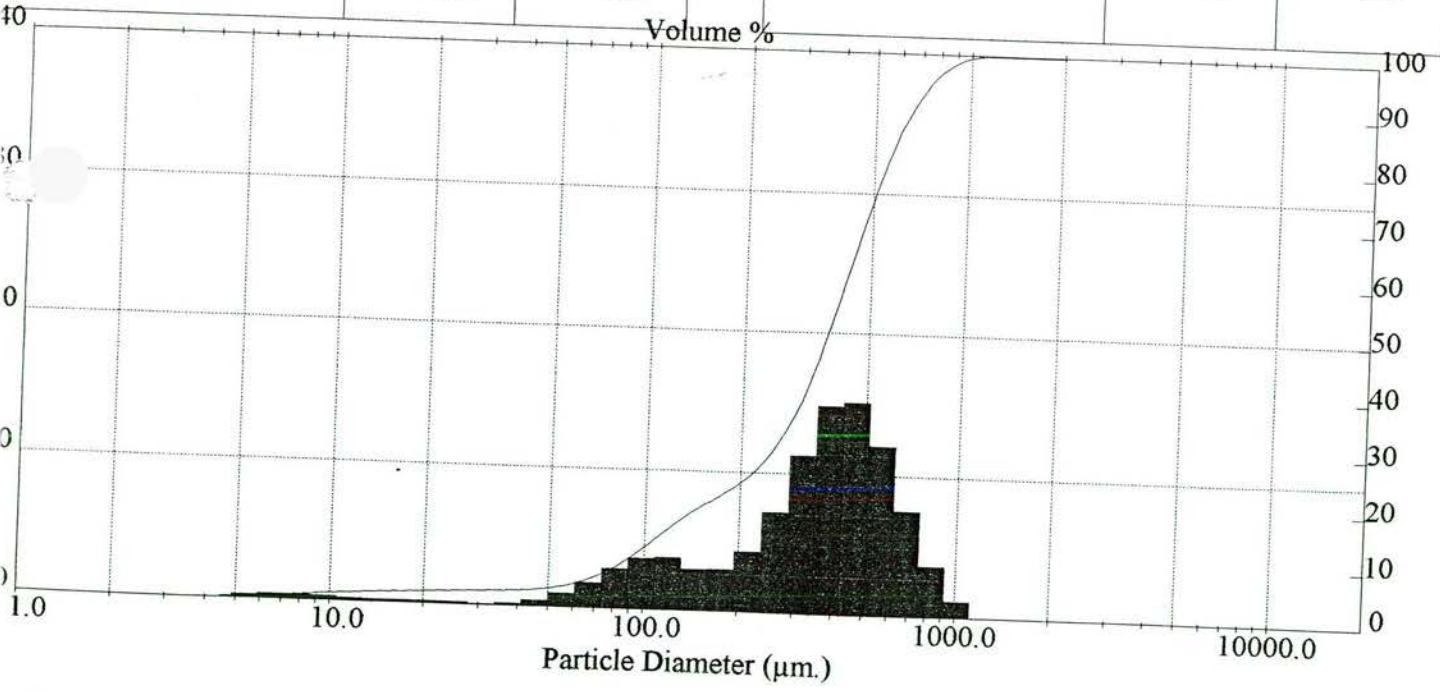
9902044 98bc413-7
 onbehandeld

Datum meting : 06 Apr 1999 14:39 File: NRDZAPRL.SAM Sampler: MSX15
 Obscuraton = 23.4 % Focus = 1000 mm.

D50 gehele monster = 370 µm < 63.0 µm : 4.8 % Dz 60/Dz 10 = 3.71
 D50 zandfractie = 382 µm Dz 90 = 666.4 µm

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	18.72	2.43
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	15.72	3.01
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	12.24	3.48
1190.0 - 1410.0	99.99	0.01	88.0 - 105.0	8.93	3.31
1000.0 - 1190.0	99.51	0.48	75.0 - 88.0	6.55	2.38
850.0 - 1000.0	97.69	1.82	63.0 - 75.0	4.78	1.77
707.0 - 850.0	92.81	4.88	50.0 - 63.0	3.46	1.31
600.0 - 707.0	85.64	7.17	35.0 - 50.0	2.79	0.67
500.0 - 600.0	73.54	12.10	25.0 - 35.0	2.54	0.25
420.0 - 500.0	59.87	13.67	16.0 - 25.0	2.05	0.49
354.0 - 420.0	46.75	13.12	8.0 - 16.0	1.08	0.96
300.0 - 354.0	36.43	10.32	4.0 - 8.0	0.10	0.98
250.0 - 300.0	28.88	7.55	2.0 - 4.0	0.01	0.10
210.0 - 250.0	24.15	4.73	0.1 - 2.0	0.00	0.01
177.0 - 210.0	21.15	3.00			



monster : 9902086 98dw414-1

9902086 98dw414-1
onbehandeld

Datum meting : 07 Apr 1999 13:30
Obscuration = 17.0 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

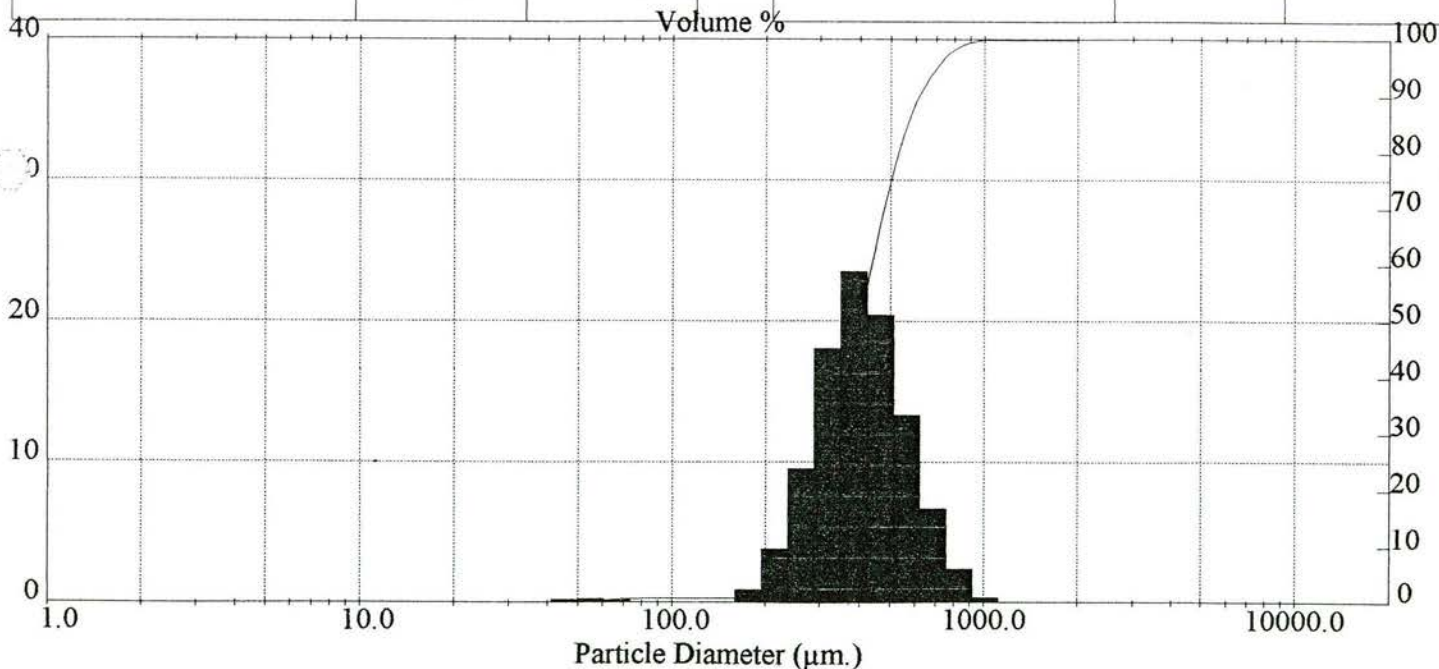
D50 gehele monster = 400 µm
D50 zandfractie = 401 µm
Dz 10 = 264 µm

< 63.0 µm : 0.6 %
Dz 90 = 618.3 µm

Dz 60/Dz 10 = 1.65

NITG - Afdeling GRANULOMETRIE

FRACHTIE µm	CUMULATIEF %	FRACHTIE %	FRACHTIE µm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.81	0.29
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.81	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.81	0.00
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	0.81	0.00
1000.0 - 1190.0	99.90	0.10	75.0 - 88.0	0.76	0.05
850.0 - 1000.0	99.02	0.88	63.0 - 75.0	0.58	0.18
707.0 - 850.0	95.17	3.85	50.0 - 63.0	0.25	0.33
600.0 - 707.0	88.56	6.62	35.0 - 50.0	0.00	0.25
500.0 - 600.0	74.63	13.93	25.0 - 35.0	0.00	0.00
420.0 - 500.0	55.83	18.80	16.0 - 25.0	0.00	0.00
354.0 - 420.0	35.06	20.78	8.0 - 16.0	0.00	0.00
300.0 - 354.0	18.23	16.82	4.0 - 8.0	0.00	0.00
250.0 - 300.0	7.83	10.40	2.0 - 4.0	0.00	0.00
210.0 - 250.0	2.69	5.14	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.10	1.59			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902087 98dw414-2

9902087 98dw414-2
onbehandeld

Datum meting : 07 Apr 1999 13:24
Obscuration = 16.1 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

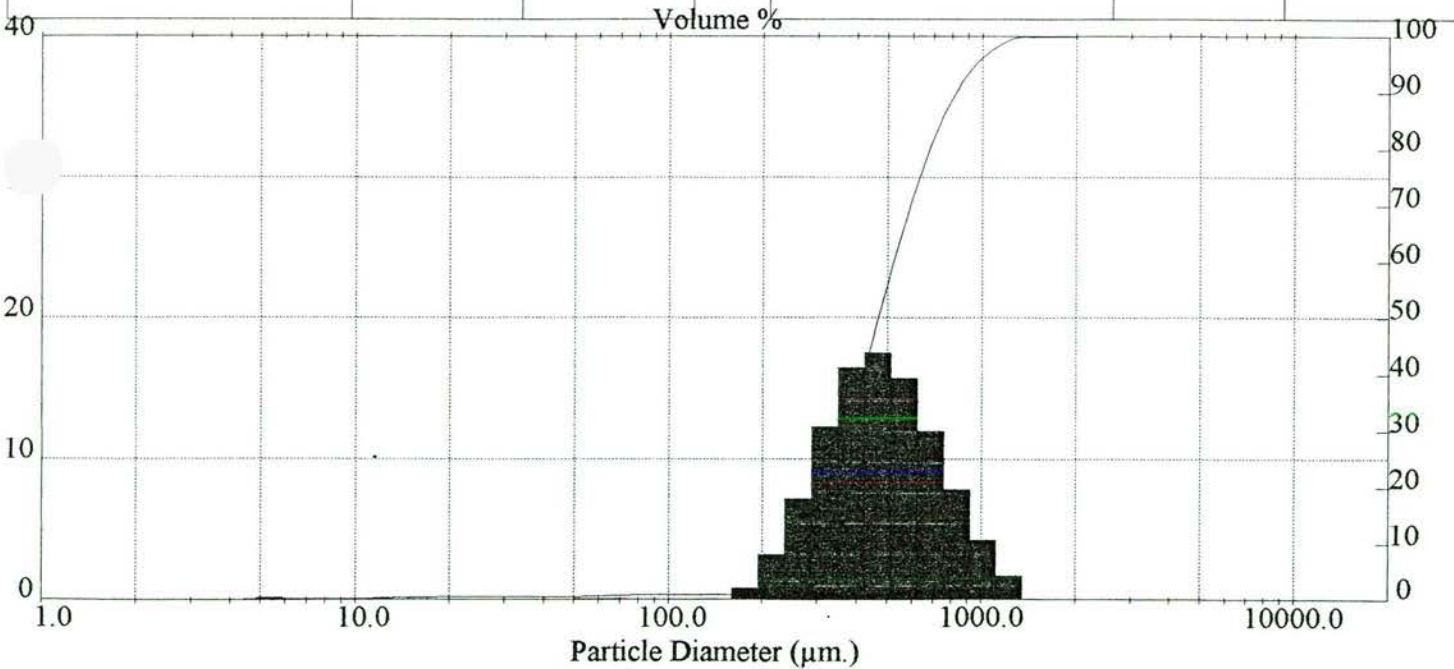
D50 gehele monster = 467 μm
D50 zandfractie = 469 μm
Dz 10 = 278 μm

< 63.0 μm : 0.8 %
Dz 90 = 823.8 μm

Dz 60/Dz 10 = 1.89

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.96	0.25
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	0.96	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	0.96	0.00
1190.0 - 1410.0	99.16	0.84	88.0 - 105.0	0.96	0.00
1000.0 - 1190.0	96.25	2.91	75.0 - 88.0	0.90	0.06
850.0 - 1000.0	91.33	4.92	63.0 - 75.0	0.78	0.12
707.0 - 850.0	82.41	8.93	50.0 - 63.0	0.65	0.13
600.0 - 707.0	71.33	11.08	35.0 - 50.0	0.60	0.05
500.0 - 600.0	56.09	15.24	25.0 - 35.0	0.60	0.00
420.0 - 500.0	40.30	15.78	16.0 - 25.0	0.53	0.07
354.0 - 420.0	25.74	14.56	8.0 - 16.0	0.31	0.22
300.0 - 354.0	14.57	11.17	4.0 - 8.0	0.07	0.23
250.0 - 300.0	6.65	7.92	2.0 - 4.0	0.01	0.07
210.0 - 250.0	2.73	3.92	0.1 - 2.0	0.00	0.01
177.0 - 210.0	1.22	1.51			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902088 98dw414-3

9902088 98dw414-3
onbehandeld

Datum meting : 07 Apr 1999 13:19 File: NRDZAPRL.SAM
Obscuration = 13.7 %

Sampler: MSX15
Focus = 1000 mm.

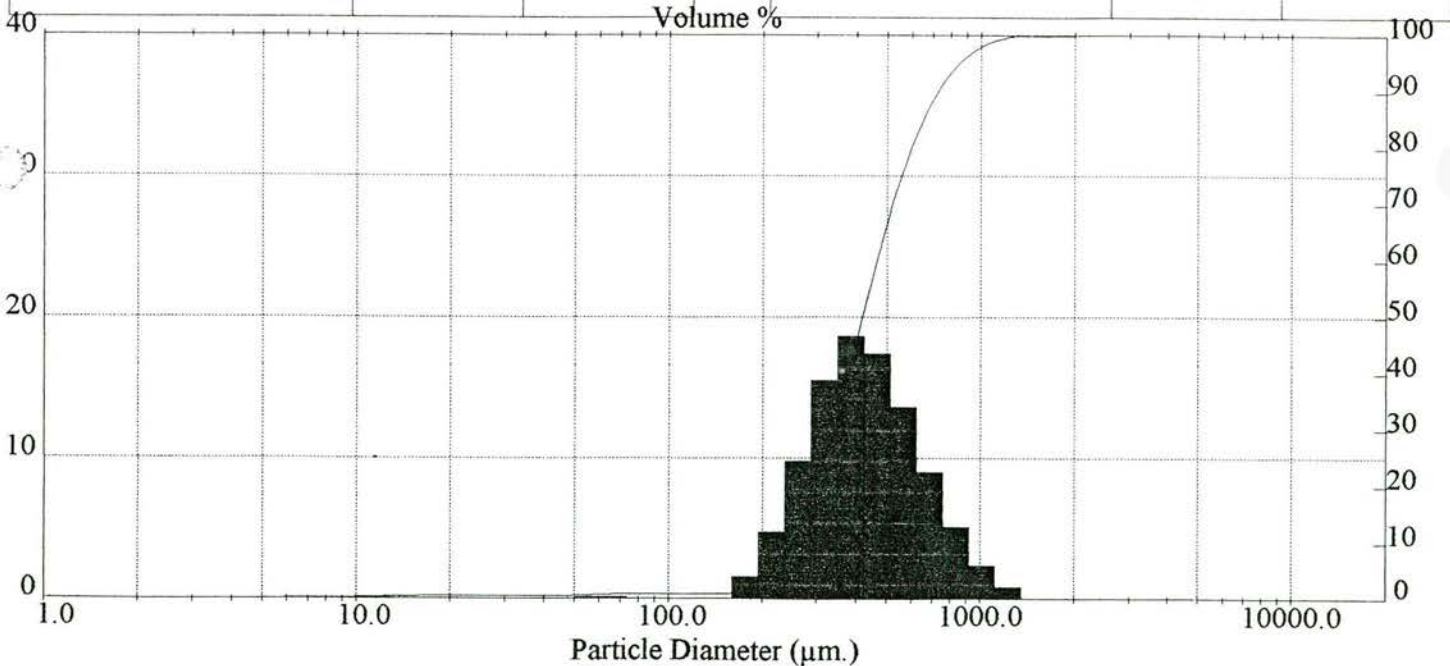
D50 gehele monster = 417 µm
D50 zandfractie = 419 µm
Dz 10 = 256 µm

< 63.0 µm : 0.9 %
Dz 90 = 729.0 µm

Dz 60/Dz 10 = 1.82

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.02	0.53
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.02	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	1.02	0.00
1190.0 - 1410.0	99.57	0.43	88.0 - 105.0	1.02	0.00
1000.0 - 1190.0	97.99	1.58	75.0 - 88.0	1.01	0.00
850.0 - 1000.0	94.99	3.00	63.0 - 75.0	0.88	0.13
707.0 - 850.0	88.82	6.17	50.0 - 63.0	0.69	0.19
600.0 - 707.0	80.15	8.67	35.0 - 50.0	0.61	0.08
500.0 - 600.0	66.65	13.50	25.0 - 35.0	0.61	0.00
420.0 - 500.0	50.75	15.90	16.0 - 25.0	0.57	0.04
354.0 - 420.0	34.28	16.47	8.0 - 16.0	0.22	0.35
300.0 - 354.0	20.37	13.91	4.0 - 8.0	0.00	0.22
250.0 - 300.0	9.72	10.65	2.0 - 4.0	0.00	0.00
210.0 - 250.0	4.05	5.67	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.54	2.50			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902089 98dw414-4

9902089 98dw414-4
onbehandeld

Datum meting : 07 Apr 1999 13:09
Obscuration = 13.1 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

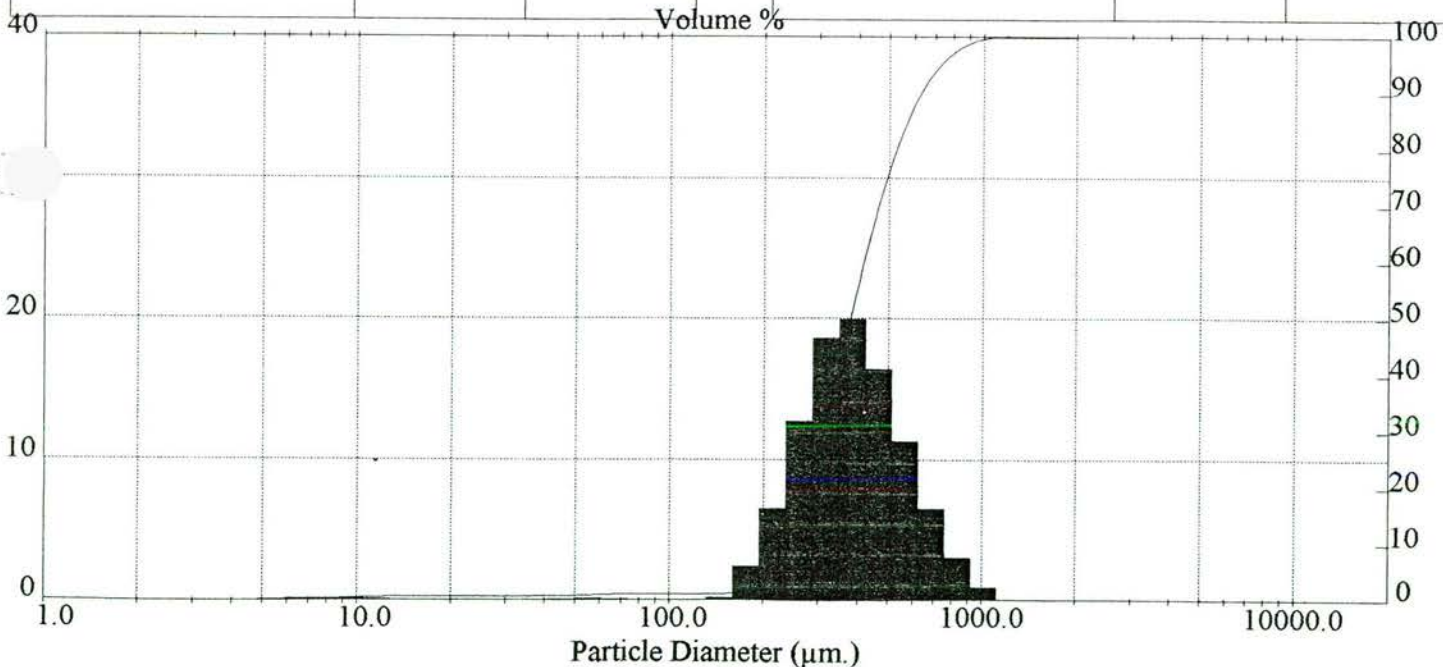
D50 gehele monster = 377 μm
D50 zandfractie = 379 μm
Dz 10 = 239 μm

< 63.0 μm : 1.1 %
Dz 90 = 632.4 μm

Dz 60/Dz 10 = 1.75

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.21	1.07
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.21	0.01
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	1.21	0.00
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	1.21	0.00
1000.0 - 1190.0	99.66	0.34	75.0 - 88.0	1.21	0.00
850.0 - 1000.0	98.14	1.52	63.0 - 75.0	1.11	0.10
707.0 - 850.0	94.19	3.95	50.0 - 63.0	0.93	0.18
600.0 - 707.0	87.66	6.53	35.0 - 50.0	0.79	0.14
500.0 - 600.0	76.17	11.49	25.0 - 35.0	0.79	0.00
420.0 - 500.0	61.02	15.15	16.0 - 25.0	0.77	0.02
354.0 - 420.0	43.46	17.56	8.0 - 16.0	0.39	0.38
300.0 - 354.0	27.04	16.42	4.0 - 8.0	0.00	0.39
250.0 - 300.0	13.43	13.61	2.0 - 4.0	0.00	0.00
210.0 - 250.0	5.83	7.60	0.1 - 2.0	0.00	0.00
177.0 - 210.0	2.28	3.55			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902090 98dw414-5

9902090 98dw414-5
onbehandeld

Datum meting : 07 Apr 1999 11:38 File: NRDZAPRL.SAM
Obscuration = 19.6 %

Sampler: MSX15
Focus = 1000 mm.

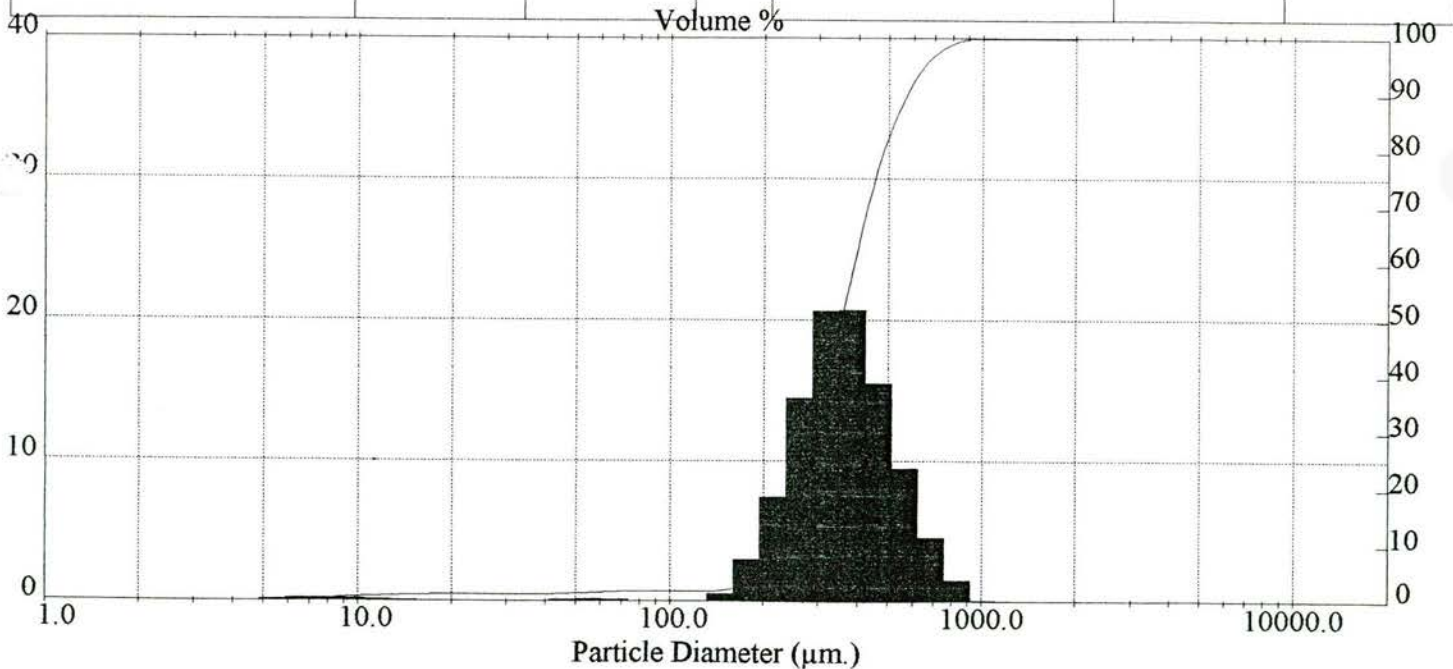
D50 gehele monster = 355 µm
D50 zandfractie = 357 µm
Dz 10 = 229 µm

< 63.0 µm : 1.8 %
Dz 90 = 574.3 µm

Dz 60/Dz 10 = 1.70

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	2.08	1.40
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.86	0.23
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	1.86	0.00
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	1.86	0.00
1000.0 - 1190.0	99.97	0.03	75.0 - 88.0	1.86	0.00
850.0 - 1000.0	99.54	0.43	63.0 - 75.0	1.75	0.11
707.0 - 850.0	97.16	2.39	50.0 - 63.0	1.51	0.24
600.0 - 707.0	92.18	4.98	35.0 - 50.0	1.28	0.23
500.0 - 600.0	82.58	9.60	25.0 - 35.0	1.27	0.01
420.0 - 500.0	68.04	14.54	16.0 - 25.0	1.23	0.04
354.0 - 420.0	49.83	18.20	8.0 - 16.0	0.61	0.62
300.0 - 354.0	31.83	18.01	4.0 - 8.0	0.05	0.56
250.0 - 300.0	16.13	15.70	2.0 - 4.0	0.00	0.04
210.0 - 250.0	7.94	8.19	0.1 - 2.0	0.00	0.00
177.0 - 210.0	3.49	4.46			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902091 98dw414-6

9902091 98dw414-6
onbehandeld

Datum meting : 07 Apr 1999 11:29
Obscuration = 21.6 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

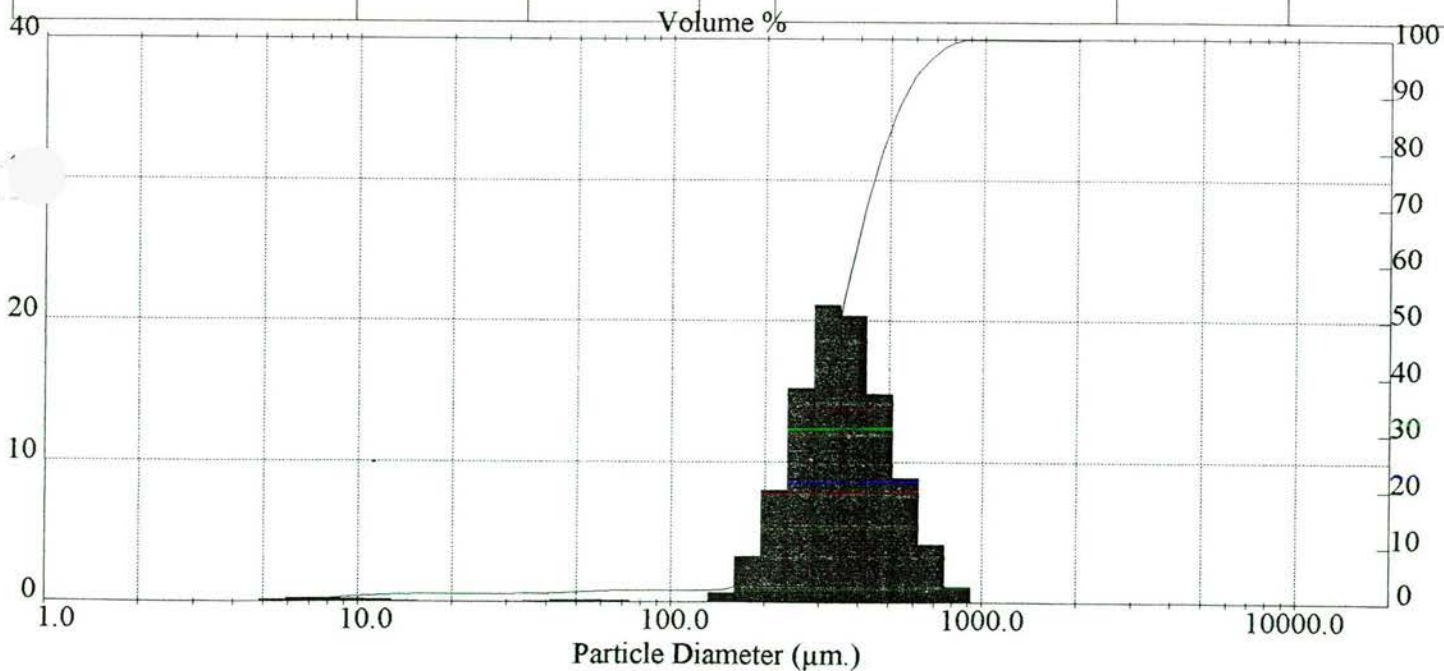
D50 gehele monster = 346 μm
D50 zandfractie = 350 μm
Dz 10 = 227 μm

< 63.0 μm : 2.2 %
Dz 90 = 555.9 μm

Dz 60/Dz 10 = 1.69

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	2.49	1.92
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	2.26	0.23
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	2.26	0.00
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	2.26	0.00
1000.0 - 1190.0	100.00	0.00	75.0 - 88.0	2.26	0.00
850.0 - 1000.0	99.83	0.17	63.0 - 75.0	2.16	0.11
707.0 - 850.0	97.63	2.20	50.0 - 63.0	1.90	0.26
600.0 - 707.0	93.47	4.16	35.0 - 50.0	1.62	0.28
500.0 - 600.0	84.10	9.37	25.0 - 35.0	1.58	0.03
420.0 - 500.0	70.31	13.80	16.0 - 25.0	1.53	0.05
354.0 - 420.0	52.44	17.87	8.0 - 16.0	0.78	0.75
300.0 - 354.0	34.07	18.37	4.0 - 8.0	0.06	0.72
250.0 - 300.0	17.98	16.10	2.0 - 4.0	0.01	0.05
210.0 - 250.0	8.56	9.41	0.1 - 2.0	0.00	0.01
177.0 - 210.0	4.41	4.15			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902092 98dw414-7

9902092 98dw414-7
onbehandeld

Datum meting : 07 Apr 1999 14:23 File: NRDZAPRL.SAM
Obscuration = 19.7 %

Sampler: MSX15
Focus = 1000 mm.

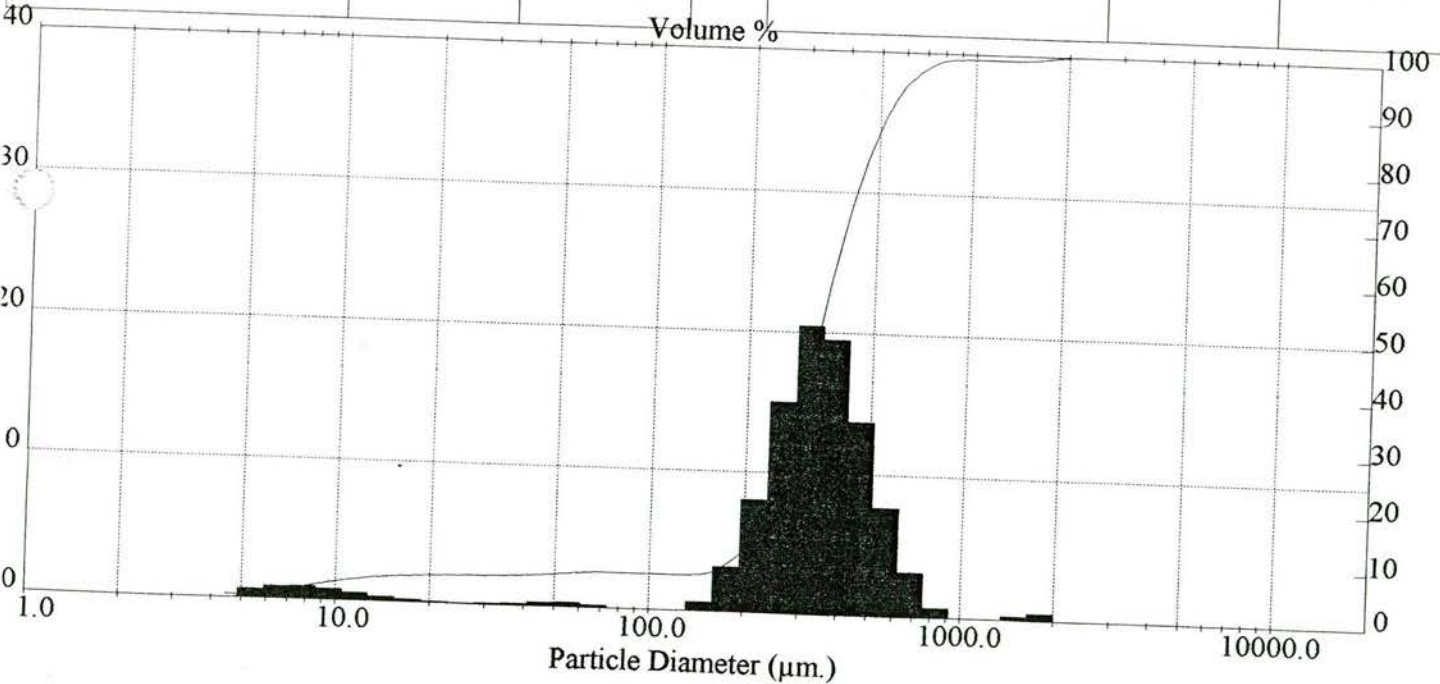
D50 gehele monster = 335 μ m
D50 zandfractie = 345 μ m
Dz 10 = 224 μ m

< 63.0 μ m : 6.4 %
Dz 90 = 547.5 μ m

Dz 60/Dz 10 = 1.68

NITG - Afdeling GRANULOMETRIE

FRACHTIE μ m	CUMULATIEF %	FRACHTIE %	FRACHTIE μ m	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	6.80	1.90
1680.0 - 2000.0	99.49	0.51	125.0 - 150.0	6.58	0.22
1410.0 - 1680.0	99.14	0.35	105.0 - 125.0	6.58	0.00
1190.0 - 1410.0	99.10	0.04	88.0 - 105.0	6.58	0.00
1000.0 - 1190.0	99.10	0.00	75.0 - 88.0	6.58	0.00
850.0 - 1000.0	99.00	0.10	63.0 - 75.0	6.40	0.17
707.0 - 850.0	97.44	1.57	50.0 - 63.0	5.97	0.43
600.0 - 707.0	94.13	3.31	35.0 - 50.0	5.45	0.52
500.0 - 600.0	85.87	8.26	25.0 - 35.0	5.21	0.24
420.0 - 500.0	73.04	12.84	16.0 - 25.0	4.77	0.44
354.0 - 420.0	55.91	17.13	8.0 - 16.0	2.49	2.28
300.0 - 354.0	38.10	17.81	4.0 - 8.0	0.00	2.49
250.0 - 300.0	22.31	15.79	2.0 - 4.0	0.00	0.00
210.0 - 250.0	12.87	9.44	0.1 - 2.0	0.00	0.00
177.0 - 210.0	8.70	4.17			



ern Instruments Ltd.
ern, U.K.

MasterSizer X Ver. 1.2a
Serial No.

20 Apr 99 16:09

monster : 9902093 98dw414-8

9902093 98dw414-8
onbehandeld

Datum meting : 07 Apr 1999 14:18
Obscuration = 15.2 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

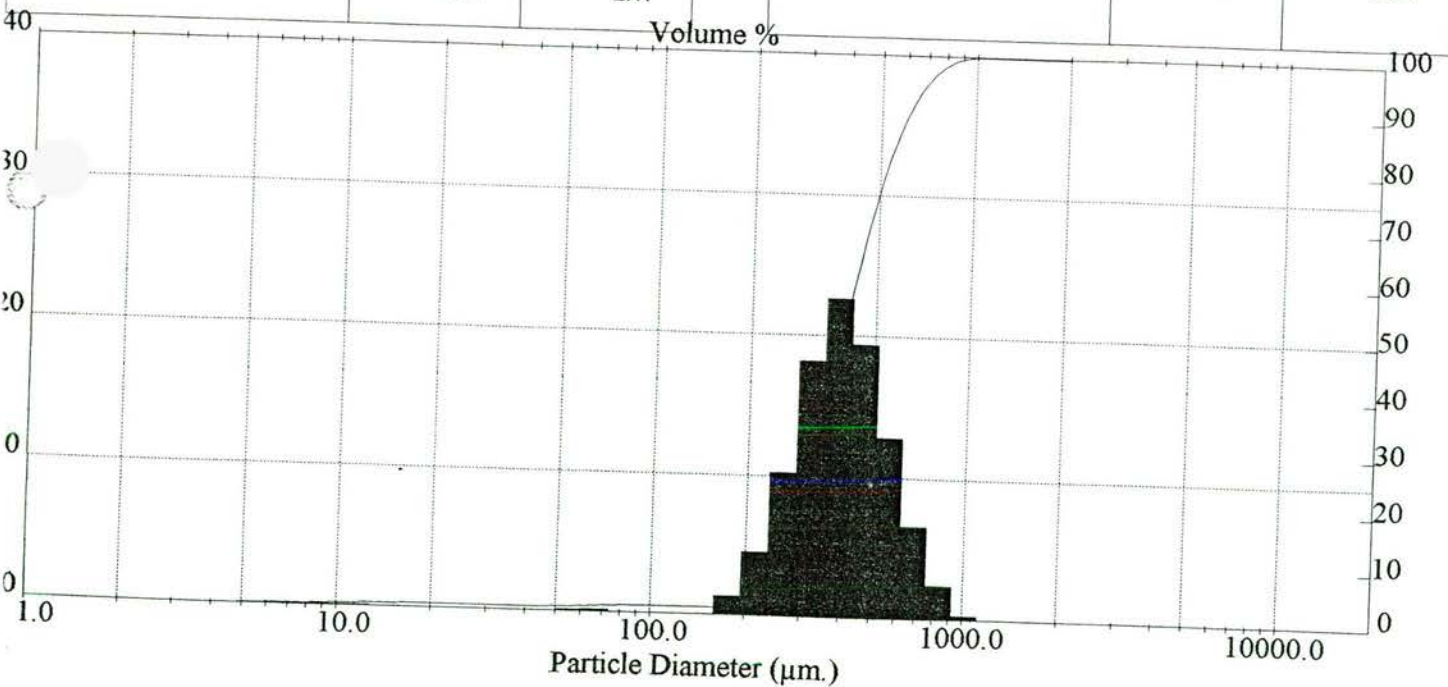
D50 gehele monster = 393 μ m
D50 zandfractie = 395 μ m
Dz 10 = 256 μ m

< 63.0 μ m : 1.1 %
Dz 90 = 617.9 μ m

Dz 60/Dz 10 = 1.68

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.39	0.48
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.39	0.00
1410.0 - 1680.0	100.00	0.00	105.0 - 125.0	1.39	0.00
1190.0 - 1410.0	100.00	0.00	88.0 - 105.0	1.39	0.00
1000.0 - 1190.0	99.95	0.05	75.0 - 88.0	1.33	0.06
850.0 - 1000.0	99.05	0.90	63.0 - 75.0	1.14	0.18
707.0 - 850.0	95.45	3.59	50.0 - 63.0	0.93	0.21
600.0 - 707.0	88.57	6.88	35.0 - 50.0	0.84	0.10
500.0 - 600.0	75.42	13.15	25.0 - 35.0	0.84	0.00
420.0 - 500.0	57.58	17.84	16.0 - 25.0	0.80	0.04
354.0 - 420.0	37.65	19.92	8.0 - 16.0	0.43	0.37
300.0 - 354.0	20.91	16.75	4.0 - 8.0	0.00	0.43
250.0 - 300.0	9.86	11.05	2.0 - 4.0	0.00	0.00
210.0 - 250.0	4.04	5.82	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.87	2.17			



monster : 9902094 98dw415-1

9902094 98dw415-1
onbehandeld

Datum meting : 07 Apr 1999 08:41 File: NRDZAPRL.SAM
Obscuration = 13.7 %

Sampler: MSX15
Focus = 1000 mm.

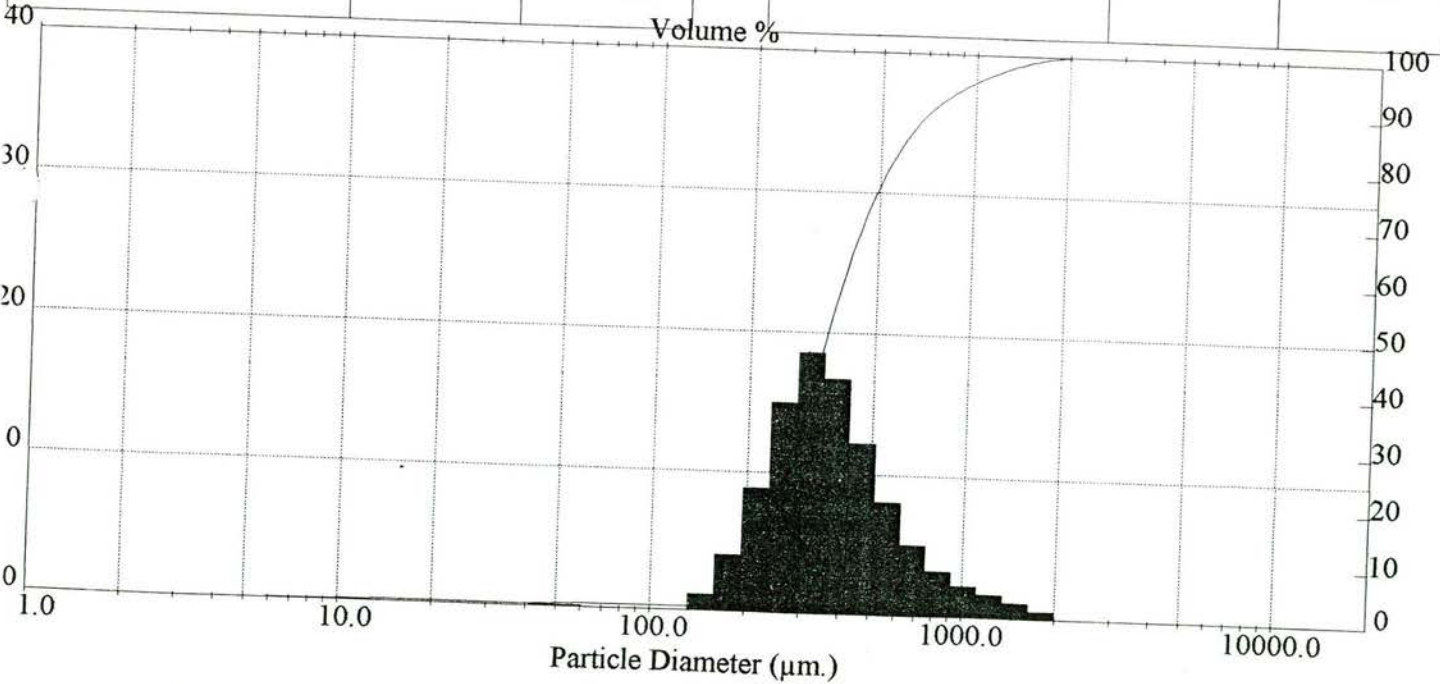
D50 gehele monster = 353 μ m
D50 zandfractie = 355 μ m
Dz 10 = 217 μ m

< 63.0 μ m : 0.9 %
Dz 90 = 731.5 μ m

Dz 60/Dz 10 = 1.83

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.50	2.21
1680.0 - 2000.0	99.47	0.53	125.0 - 150.0	0.91	0.59
1410.0 - 1680.0	98.48	1.00	105.0 - 125.0	0.91	0.00
1190.0 - 1410.0	97.05	1.43	88.0 - 105.0	0.91	0.00
1000.0 - 1190.0	95.20	1.85	75.0 - 88.0	0.91	0.00
850.0 - 1000.0	92.95	2.26	63.0 - 75.0	0.88	0.03
707.0 - 850.0	89.29	3.65	50.0 - 63.0	0.69	0.18
600.0 - 707.0	84.40	4.89	35.0 - 50.0	0.49	0.20
500.0 - 600.0	76.19	8.21	25.0 - 35.0	0.49	0.01
420.0 - 500.0	64.85	11.34	16.0 - 25.0	0.49	0.00
354.0 - 420.0	50.18	14.67	8.0 - 16.0	0.23	0.26
300.0 - 354.0	34.32	15.86	4.0 - 8.0	0.00	0.23
250.0 - 300.0	18.71	15.61	2.0 - 4.0	0.00	0.00
210.0 - 250.0	9.28	9.43	0.1 - 2.0	0.00	0.00
177.0 - 210.0	3.71	5.57			



monster : 9902095 98dw415-2

9902095 98dw415-2
 onbehandeld

Datum meting : 07 Apr 1999 08:36 File: NRDZAPRL.SAM
 Obscuration = 12.2 %

Sampler: MSX15
 Focus = 1000 mm.

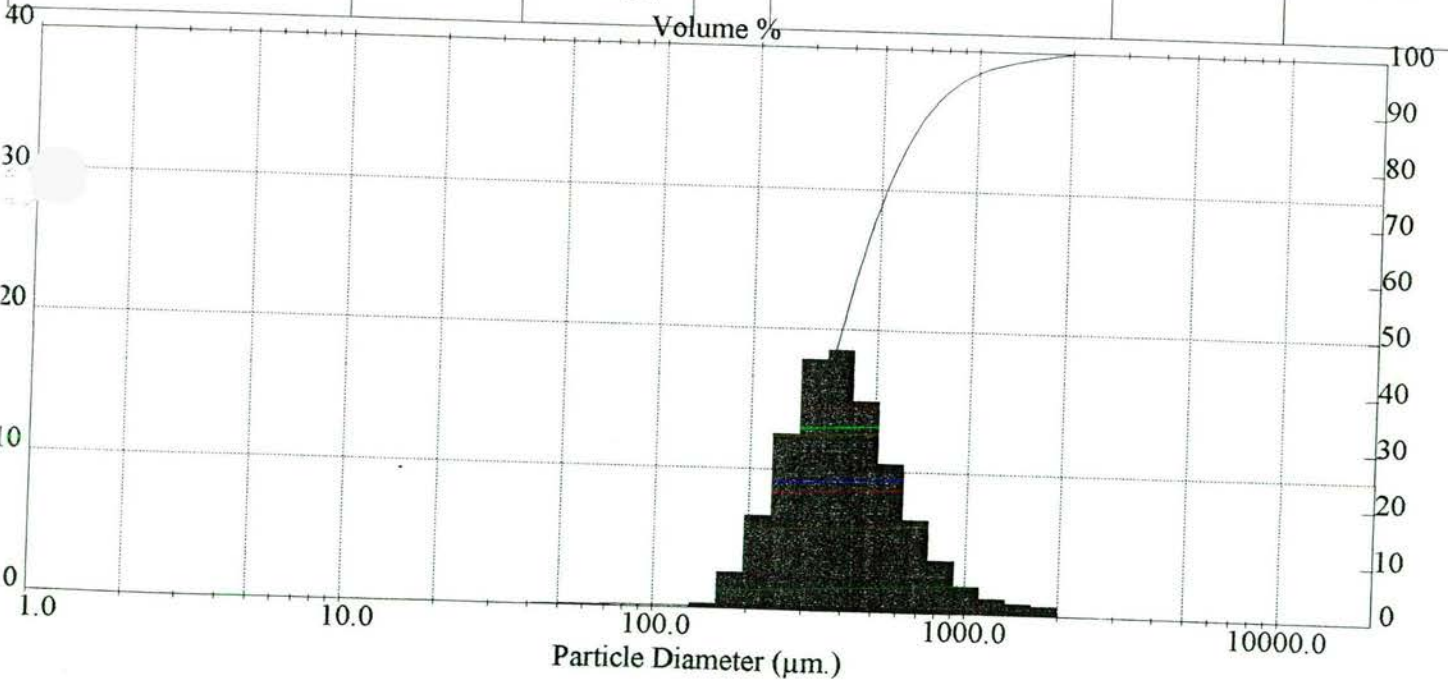
D50 gehele monster = 383 μ m
 D50 zandfractie = 384 μ m
 Dz 10 = 237 μ m

< 63.0 μ m : 0.4 %
 Dz 90 = 721.5 μ m

Dz 60/Dz 10 = 1.81

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.60	1.19
1680.0 - 2000.0	99.34	0.66	125.0 - 150.0	0.48	0.12
1410.0 - 1680.0	98.58	0.76	105.0 - 125.0	0.48	0.00
1190.0 - 1410.0	97.64	0.95	88.0 - 105.0	0.48	0.00
1000.0 - 1190.0	96.19	1.44	75.0 - 88.0	0.48	0.00
850.0 - 1000.0	93.90	2.30	63.0 - 75.0	0.39	0.09
707.0 - 850.0	89.41	4.49	50.0 - 63.0	0.18	0.21
600.0 - 707.0	82.99	6.42	35.0 - 50.0	0.00	0.18
500.0 - 600.0	72.38	10.61	25.0 - 35.0	0.00	0.00
420.0 - 500.0	58.58	13.80	16.0 - 25.0	0.00	0.00
354.0 - 420.0	42.27	16.31	8.0 - 16.0	0.00	0.00
300.0 - 354.0	26.61	15.66	4.0 - 8.0	0.00	0.00
250.0 - 300.0	13.06	13.55	2.0 - 4.0	0.00	0.00
210.0 - 250.0	5.79	7.27	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.78	4.01			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902096 98dw415-3

9902096 98dw415-3
onbehandeld

Datum meting : 07 Apr 1999 09:46
Obscuration = 17.9 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

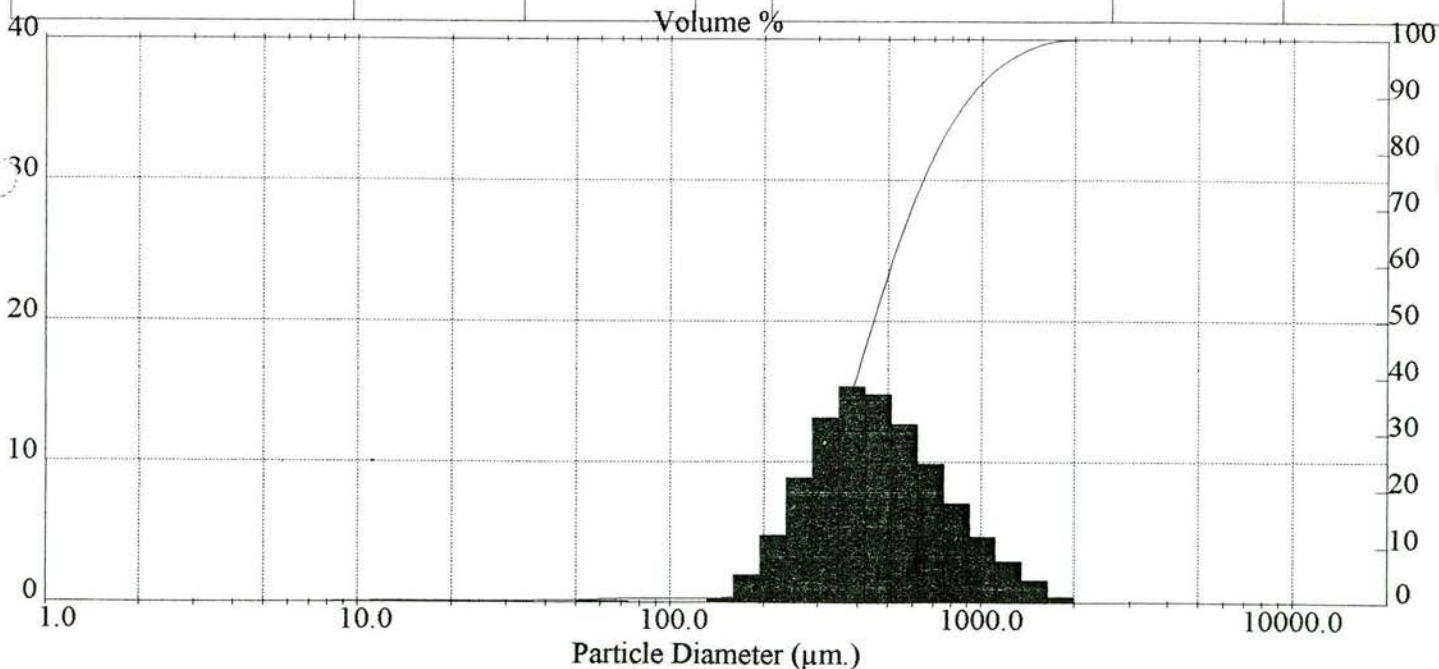
D50 gehele monster = 448 µm
D50 zandfractie = 450 µm
Dz 10 = 253 µm

< 63.0 µm : 0.7 %
Dz 90 = 919.7 µm

Dz 60/Dz 10 = 2.03

NITG - Afdeling GRANULOMETRIE

FRACHTIE µm	CUMULATIEF %	FRACHTIE %	FRACHTIE µm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.98	1.01
1680.0 - 2000.0	99.61	0.39	125.0 - 150.0	0.85	0.12
1410.0 - 1680.0	98.29	1.32	105.0 - 125.0	0.85	0.00
1190.0 - 1410.0	95.98	2.31	88.0 - 105.0	0.85	0.00
1000.0 - 1190.0	92.38	3.59	75.0 - 88.0	0.85	0.00
850.0 - 1000.0	87.49	4.89	63.0 - 75.0	0.74	0.11
707.0 - 850.0	79.75	7.74	50.0 - 63.0	0.57	0.18
600.0 - 707.0	70.72	9.03	35.0 - 50.0	0.45	0.11
500.0 - 600.0	58.40	12.32	25.0 - 35.0	0.45	0.00
420.0 - 500.0	44.96	13.44	16.0 - 25.0	0.43	0.02
354.0 - 420.0	31.37	13.59	8.0 - 16.0	0.22	0.21
300.0 - 354.0	19.66	11.71	4.0 - 8.0	0.00	0.22
250.0 - 300.0	10.21	9.45	2.0 - 4.0	0.00	0.00
210.0 - 250.0	4.75	5.46	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.98	2.77			



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afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902097 98dw415-4

9902097 98dw415-4
onbehandeld

Datum meting : 07 Apr 1999 09:41
Obscuration = 17.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

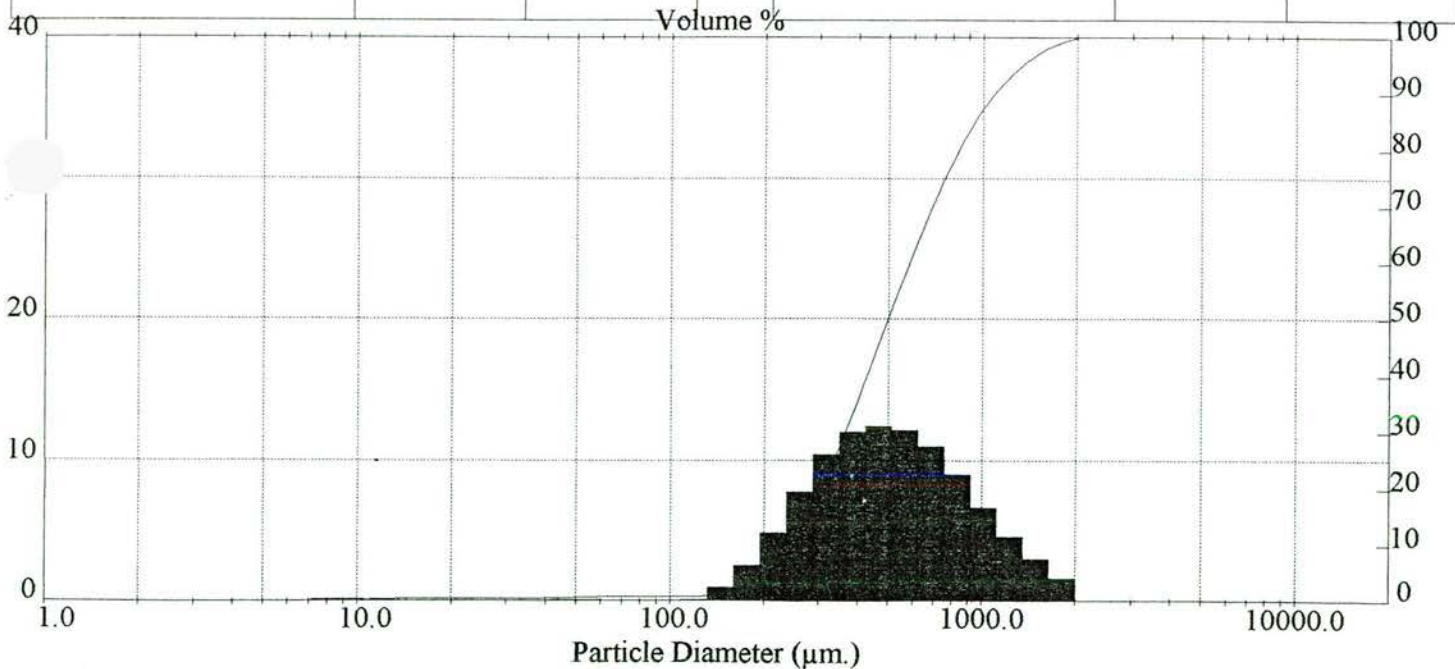
D50 gehele monster = 498 μm
D50 zandfractie = 501 μm
Dz 10 = 247 μm

< 63.0 μm : 0.8 %
Dz 90 = 1089.9 μm

Dz 60/Dz 10 = 2.38

NITG - Afdeling GRANULOMETRIE

FRACTIE μm	CUMULATIEF %	FRACTIE %	FRACTIE μm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.47	1.53
1680.0 - 2000.0	98.57	1.43	125.0 - 150.0	0.88	0.59
1410.0 - 1680.0	96.11	2.47	105.0 - 125.0	0.86	0.02
1190.0 - 1410.0	92.50	3.61	88.0 - 105.0	0.86	0.00
1000.0 - 1190.0	87.31	5.19	75.0 - 88.0	0.86	0.00
850.0 - 1000.0	80.77	6.54	63.0 - 75.0	0.83	0.03
707.0 - 850.0	71.41	9.36	50.0 - 63.0	0.68	0.14
600.0 - 707.0	61.76	9.66	35.0 - 50.0	0.54	0.14
500.0 - 600.0	50.24	11.51	25.0 - 35.0	0.54	0.00
420.0 - 500.0	39.07	11.17	16.0 - 25.0	0.52	0.02
354.0 - 420.0	28.46	10.62	8.0 - 16.0	0.09	0.43
300.0 - 354.0	19.25	9.21	4.0 - 8.0	0.00	0.09
250.0 - 300.0	11.24	8.00	2.0 - 4.0	0.00	0.00
210.0 - 250.0	6.05	5.19	0.1 - 2.0	0.00	0.00
177.0 - 210.0	3.00	3.05			



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afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902X098 98dw415-5

9902098 98dw415-5
onbehandeld

Datum meting : 07 Apr 1999 09:36
Obscuration = 16.1 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

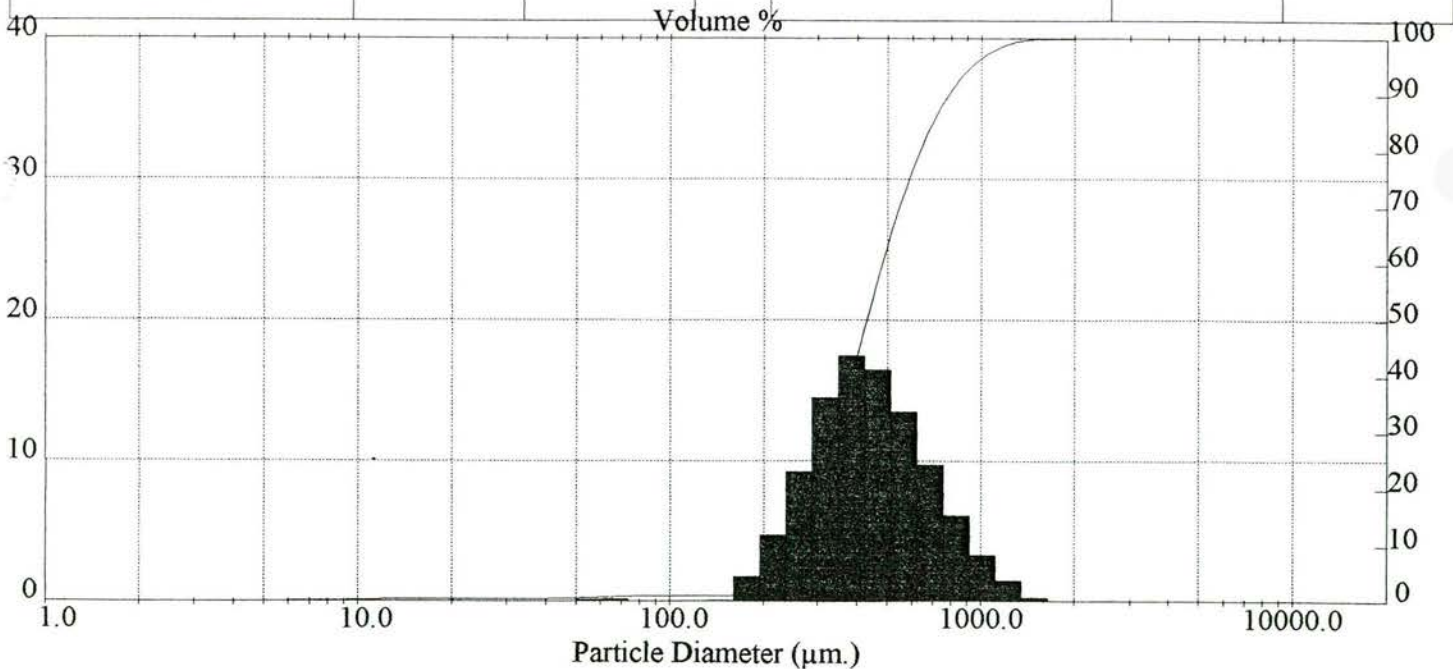
D50 gehele monster = 428 µm
D50 zandfractie = 430 µm
Dz 10 = 255 µm

< 63.0 µm : 0.9 %
Dz 90 = 785.3 µm

Dz 60/Dz 10 = 1.89

NITG - Afdeling GRANULOMETRIE

FRACTIE µm	CUMULATIEF %	FRACTIE %	FRACTIE µm	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.05	0.75
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.05	0.00
1410.0 - 1680.0	99.81	0.19	105.0 - 125.0	1.05	0.00
1190.0 - 1410.0	98.83	0.98	88.0 - 105.0	1.05	0.00
1000.0 - 1190.0	96.57	2.26	75.0 - 88.0	1.01	0.03
850.0 - 1000.0	92.74	3.83	63.0 - 75.0	0.86	0.15
707.0 - 850.0	85.66	7.08	50.0 - 63.0	0.66	0.20
600.0 - 707.0	76.55	9.11	35.0 - 50.0	0.55	0.11
500.0 - 600.0	63.33	13.22	25.0 - 35.0	0.55	0.00
420.0 - 500.0	48.34	14.99	16.0 - 25.0	0.53	0.02
354.0 - 420.0	32.93	15.41	8.0 - 16.0	0.28	0.25
300.0 - 354.0	19.91	13.02	4.0 - 8.0	0.00	0.28
250.0 - 300.0	9.89	10.02	2.0 - 4.0	0.00	0.00
210.0 - 250.0	4.42	5.47	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.80	2.62			



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afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902099 98dw415-6

9902099 98dw415-6
onbehandeld

Datum meting : 07 Apr 1999 09:32
Obscuration = 14.8 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

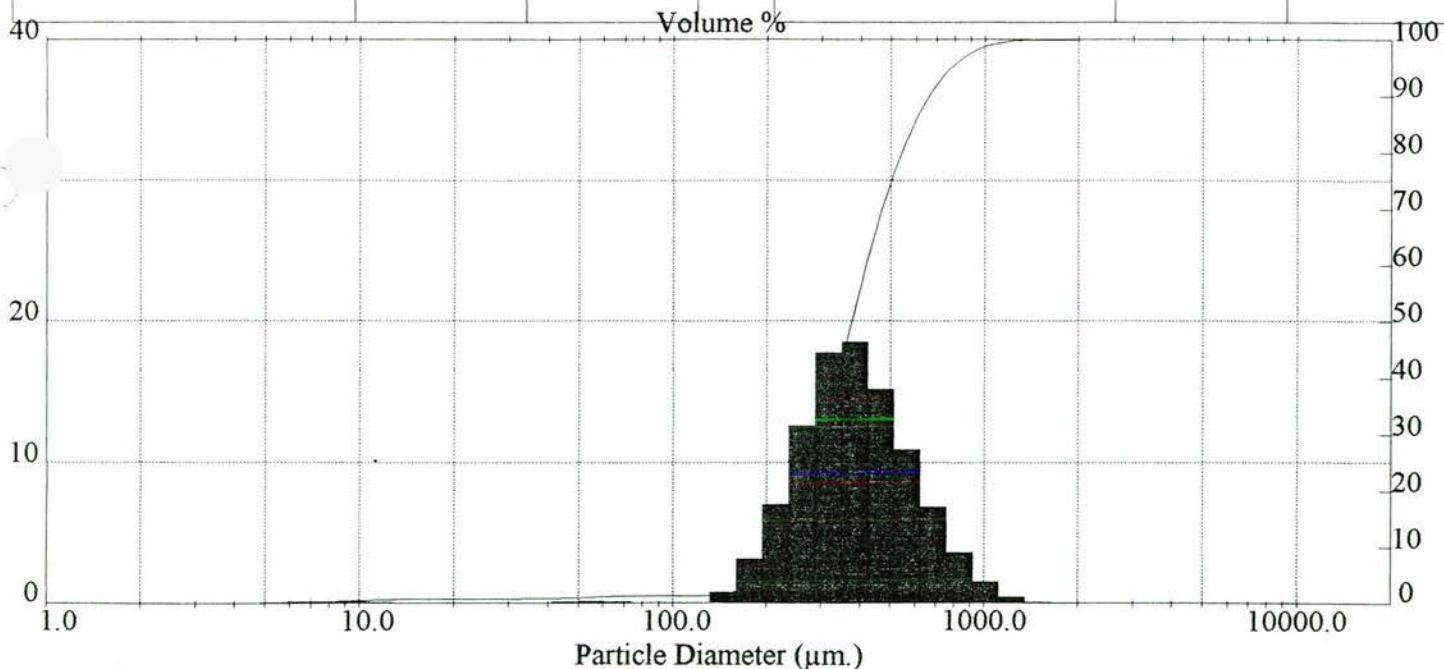
D50 gehele monster = 375 μ m
D50 zandfractie = 377 μ m
Dz 10 = 230 μ m

< 63.0 μ m : 1.4 %
Dz 90 = 665.4 μ m

Dz 60/Dz 10 = 1.82

NITG - Afdeling GRANULOMETRIE

FRACTIE μ m	CUMULATIEF %	FRACTIE %	FRACTIE μ m	CUMULATIEF %	FRACTIE %
2000.0	100.00	0.00	150.0 - 177.0	1.82	1.72
1680.0 - 2000.0	100.00	0.00	125.0 - 150.0	1.47	0.35
1410.0 - 1680.0	99.93	0.07	105.0 - 125.0	1.47	0.00
1190.0 - 1410.0	99.66	0.27	88.0 - 105.0	1.47	0.00
1000.0 - 1190.0	98.76	0.90	75.0 - 88.0	1.47	0.00
850.0 - 1000.0	96.76	2.01	63.0 - 75.0	1.36	0.11
707.0 - 850.0	92.27	4.49	50.0 - 63.0	1.13	0.23
600.0 - 707.0	85.61	6.66	35.0 - 50.0	0.92	0.21
500.0 - 600.0	74.68	10.93	25.0 - 35.0	0.91	0.01
420.0 - 500.0	60.69	13.98	16.0 - 25.0	0.87	0.04
354.0 - 420.0	44.42	16.27	8.0 - 16.0	0.42	0.46
300.0 - 354.0	28.86	15.56	4.0 - 8.0	0.00	0.42
250.0 - 300.0	15.56	13.30	2.0 - 4.0	0.00	0.00
210.0 - 250.0	7.68	7.88	0.1 - 2.0	0.00	0.00
177.0 - 210.0	3.54	4.14			



Nederlands Instituut voor Toegepaste Geowetenschappen TNO

afdeling Granulometrie

Postbus 157; 2000 AD HAARLEM

monster : 9902100 98dw415-7

9902100 98dw415-7
onbehandeld

Datum meting : 07 Apr 1999 09:27
Obscuration = 18.5 %

File: NRDZAPRL.SAM

Sampler: MSX15
Focus = 1000 mm.

D50 gehele monster = 335 µm
D50 zandfractie = 336 µm
Dz 10 = 237 µm

< 63.0 µm : 0.8 %
Dz 90 = 482.5 µm

Dz 60/Dz 10 = 1.52

NITG - Afdeling GRANULOMETRIE

FRACHTIE µm	CUMULATIEF %	FRACHTIE %	FRACHTIE µm	CUMULATIEF %	FRACHTIE %
2000.0	100.00	0.00	150.0 - 177.0	0.90	0.94
1680.0 - 2000.0	99.90	0.10	125.0 - 150.0	0.84	0.07
1410.0 - 1680.0	99.89	0.01	105.0 - 125.0	0.84	0.00
1190.0 - 1410.0	99.89	0.00	88.0 - 105.0	0.84	0.00
1000.0 - 1190.0	99.89	0.00	75.0 - 88.0	0.84	0.00
850.0 - 1000.0	99.89	0.00	63.0 - 75.0	0.77	0.07
707.0 - 850.0	99.74	0.16	50.0 - 63.0	0.59	0.18
600.0 - 707.0	97.63	2.11	35.0 - 50.0	0.04	0.55
500.0 - 600.0	91.87	5.76	25.0 - 35.0	0.00	0.04
420.0 - 500.0	79.23	12.64	16.0 - 25.0	0.00	0.00
354.0 - 420.0	57.97	21.26	8.0 - 16.0	0.00	0.00
300.0 - 354.0	33.62	24.35	4.0 - 8.0	0.00	0.00
250.0 - 300.0	13.94	19.68	2.0 - 4.0	0.00	0.00
210.0 - 250.0	5.77	8.17	0.1 - 2.0	0.00	0.00
177.0 - 210.0	1.84	3.92			

