DANMARKS OG GRØNLANDS GEOLOGISKE UNDERSØGELSE RAPPORT 2009/69

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Based on Computer-Controlled Scanning Electron Microscopy analyses of heavy mineral concentrates

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Abstract

59 sandstone and drill core samples from Nuussuaq (West Greenland) and its surrounding islands were investigated with computer-controlled scanning electron microscopy (CCSEM) for their detrital heavy mineral contents, the composition of their garnets and FeTi-oxides, and their grain size distribution. The fluvial channel sediments from the Atane, Atanikerluk, Quikavsak and Kome Formations show a broad spectrum of minerals, derived from two or more different source rocks. The Atane Formation and possibly the Kome Formation seem to be reworked into the Itilli Formation. Most of the samples are very poor in heavy minerals, and have probably been derived from granite/granodiorite or orthogneiss. Some of the samples from five formations shows a heavy mineral assemblage that usually is observed in very high-grade metamorphosed metasedimentary rocks. These samples are rich in Mg-rich almandine and demonstrate an increased Ti-concentration in ilmenite, features that might point to very high-grade metamorphosed metasedimentary rocks. Samples from the Upernivik Næs Formation are similar to the Atane and Kome Formations. Samples from the Atanikerluk and Eqaliluk Formations are distinctively different from the previous formations reflecting the on-set of Palaeogene volcanism.

Introduction

Computer controlled scanning electron microscopy (CCSEM) combines the advantages of energy dispersive X-ray spectrometry (EDX) with those of digital image analysis of back scattered electron (BSE) micrographs. CCSEM as an analysis tool for a wide range of geological or non-geological materials has been developed at the Geological Survey of Denmark and Greenland (GEUS) as a fast and reliable method to determine the chemistry of individual grains and bulk samples. The chemical analysis is combined with measurements of the two-dimensional size and morphology of every single grain.

Here the CCSEM technique was applied to 59 Cretaceous and Palaeocene sandstones from Nuussuaq, Disko and surrounding islands and from the drill holes GRO#3 and GGU247801 at Ataata Kuua on Nuussuaq. Sedimentation is related to the opening of the Davis Strait between Baffin Island and Greenland. The sediments are covered by Palaeogene basalts. The Disko-Nuussuaq area is used as an onshore analogue for offshore sedimentary basins.

To investigate the chemostratigraphy and provenance of the heavy mineral suite of the sediments in the Nuussuaq Bassin the composition of the heavy mineral suite, the composition of garnets and FeTi-oxides, their grain size and shape properties of the samples have been analysed.

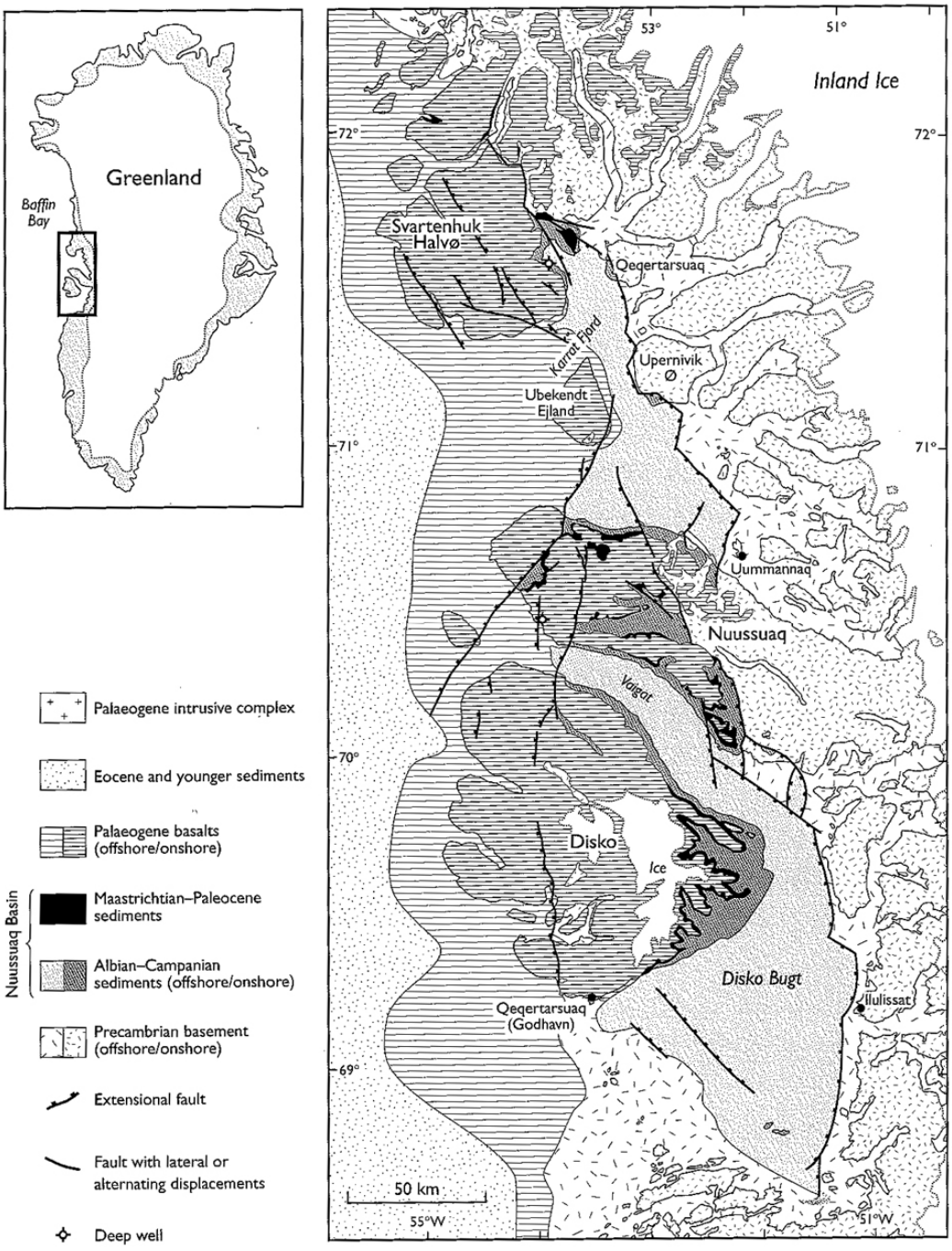


Figure 1: Simplified map of the Disko Bay and Nuussuaq basin showing the offshore and onshore geology and the position of the main extensional faults in the area. After Gutzon Larsen & Pulvertaft, 2000.

Short description of the CCSEM method

Range of application for the CCSEM technique

The CCSEM technique was initiated at the beginning of the 1980s for the characterisation of coal minerals (Lee & Kelly 1980; Huggins *et al.* 1980) and the study of synthetic crystals for super-conductors and catalysts (Lin & Barnes 1984). Soon it was developed to a broader range of application in the study of dust particles and fibres in lung tissue of mine workers (Friedrichs 1987); in the analyses of aerosols for air quality control and source emission characterisation (e.g. Heasman & Watt 1989); and the degree of sintering and consolidation of coal ash deposits (e.g. Huffman *et al.* 1994). CCSEM has been used in the earth sciences for the determination of the sediment budget of a lake (Yin & Johnson 1984), for the characterisation of soil and dust (Pirrie *et al.* 2004), for provenance analysis of ilmenite-bearing beach sands (Knudsen *et al.* 2005; Bernstein *et al.* 2008), and provenance studies on sandstones in oil-bearing basins (Frei *et al.* 2005). Other areas where CCSEM has been applied include the characterisation of small inclusions, e.g. impurities in metal alloys or steel (Schwoeble *et al.* 1988), analyses of gun-shot residues (e.g. Steffen *et al.* 2007), and analyses of bladder stones obtained from a skeleton found in a Mesolithic cave-tomb (D'Alessio *et al.* 2005).

Sample preparation

The sandstone samples were crushed and treated with a 10% HCl solution to dissolve the calcite cement. Other types of cement and authigenic overgrowths are not removed. Samples were washed and sieved to obtain the 45-500 micrometer fraction. A heavy mineral separate of the sample was collected by putting the sample through bromoform (ρ = 2.8 g/cm^3). If available, approximately 1 g of heavy mineral concentrate was mounted in epoxy resin, using a technique that ensures that almost every grain is completely embedded in the epoxy, without touching any neighbouring grains (e.g. McLimans et al., 1999). The epoxy mounts are cut to show a representative part of the mount. For samples with less than 0.1 – 0.2 g of heavy minerals, the grains were spread out on a sticky tape and mounted in epoxy. The mounts are subsequently polished, and coated with carbon to enhance their conductivity.

CCSEM analysis

CCSEM analysis use a Philips XL40 SEM equipped with two EDX detectors: a Thermo Nanotrace 30 mm^2 window and a Pioneer Voyager 2.7 10 mm^2 window Si(Li) detector. The tungsten filament of the SEM is operated with an acceleration voltage of 17 kV, a filament current of typically 50–70 μA, and the sample was placed at a distance of 10 mm from the detectors. The Noran System SIX software package automatically collects X-ray spectra, grain size and morphology of all particles and recalculates the data following the Proza ($\phi\rho$Z)

data correction and the filtering quantification technique. The technique described here is an improvement of the method described by Frei *et al.* (2005) and Bernstein *et al.* (2008).

The samples are studied in the BSE contrast mode of the electron microscope; the individual particles appeared as different shades of grey in their black epoxy matrix (Fig. 2). Grey-level intensity thresholding by the image analysis function integrated in the software creates a binary image of the BSE micrograph and allowed for the separation and selection of individual grains (Fig. 2B). A grid of image frames covering the whole sample area is defined by feeding the end-coordinates of the sample to the computer and by setting the required magnification (typically 30–100x) for the analyses (Fig. 2A). Grids consisted of 15 to 60 frames with approximately 20–35 grains per frame. A guard region between each frame avoids the double measurement of very large particles in the sample and ensured that only grains that lie completely within the image frame are included for analysis and thus recorded the apparent shape of grains. A 'hole-fill' function enabled more precise measurement of the grain size and shape from the binary image. Since the grains are mounted in epoxy resin in such a fashion that they do not touch each other, no grain separation techniques, as commonly applied in automatic particle analysis software, had to be used. Thus, the original 2D grain shape and grain size were completely available for analyses, without the introduction of artefacts by grain erosion and dilation or median filtering. All standard grain shape factors can be measured. The smallest grains in the sample can be excluded from the analysis to avoid the measurement of particles that are only a few pixels in size, especially if a good grain morphology resolution is required.

The binary image created formed the basis for the measurements of the grain chemistry. The software controlled the microscope to scan within the perimeter of each grain to obtain the chemistry of either the whole grain area or from a single point in the centre of the grain mass. A typical spectrum for one particle contained 1000–2000 counts for the highest peak. Spectra with a very low number of counts can be removed to ensure good measurement statistics. Commonly, 800–1200 grains were measured in approximately three-four hours.

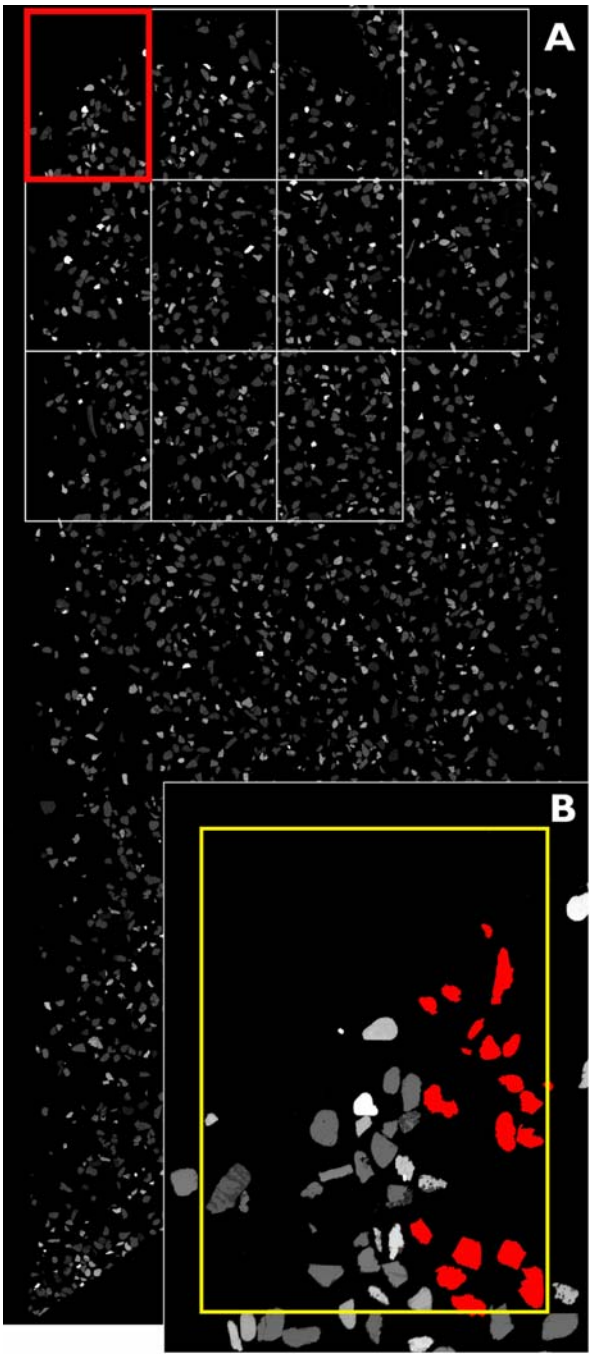


Fig. 2. A: CCSEM sample of beach sediment from Jutland, western Denmark, divided into a number of frames in a grid. Part of the grid is outlined in white. Grains of different chemical compositions (different grey values) are embedded in an epoxy resin. Length of the sample is approximately 1.5 cm. B: Enlargement of one of the frames of the grid (indicated in red in A). The guard region (yellow) prevents double or incomplete measurements of grains (see text). The grey-level threshold function selects the grains one after one from the matrix for analyses of chemical composition, grain size and grain shape. Already analysed grains are shown in red; the image represents a snapshot of the CCSEM-procedure.

CCSEM output files and parameters

The Noran software produces a results table that lists grain shape, grain size and grain chemistry for each individual grain. All spectrum files and image frames, with a typical size of 1024 x 774 pixels are stored after analysis in the database. Spectrum files can be reprocessed to include accidentally omitted elements retrospectively, without the need to physically reanalyse the sample. The chemical data are further reduced using a software package developed at GEUS that is connected to a mineral library database for automatic mineral classification and data storage. Data can be exported from the database in Excel format and pictures of some field outcrops and SEM BSE images of analysed grains can be viewed and saved.

Samples are currently analysed for the following elements:
Na, Mg, Al, Si, P, S, K, Ca, Ti, Cr, Mn, Fe, Ni, Cu, Y, Zr, Nb, Sn and Ce. All elements heavier than Ne can be added to the analyses. However, some elements show a peak-overlap in the EDX spectrum, and can therefore be problematic. Oxygen (and other light elements between B and F in the periodic system) is hard to measure precisely. To avoid problems, it is common practise for EDX analyses to assume that all elements are bound to oxygen and to express elements as oxide phases, e.g. Na2O, MgO, Al2O3. For the recalculation, it is assumed that enough oxygen was present in the sample. This can occasionally cause problems in hydrated samples. All EDX measurements are standardless, this means that the total element or oxide concentration in a single measurement is automatically recalculated to 100%.

The following minerals are currently identified in the database:
Ilmenite, leucoxene, rutile, Ti-magnetite, magnetite, chromite, spinel, garnet, sillimanite-kyanite, staurolite, dark mica, white mica, feldspar, quartz, epidote, chlorite, olivine, clino-amphibole/pyroxene, ortho-amphibole/pyroxene, other silicates, corundum, pyrite, monazite, xenotime, phosphates, carbonates, and other minerals (unclassified).

For each of the grains the following grain shape parameters are selected for measurement: length (the derived length of particle or fibre, after it is straightened into a rectangle of equal area and perimeter); width, aspect ratio (maximum projection/width), circularity ($\text{perimeter}^2/(4\,\pi\,\text{Area})$).

Data can be exported from the on-line database as a PDF report. The PDF report shows the average mineral composition and parameters for the analysed minerals, the TiO2-grade distribution in Ti-minerals, garnet composition and an interactive grain size distribution plot. The plots are also available directly via the web-interface of the database, were an element scatter plot is included as well.

Cost and efficiency

CCSEM provides a rapid and cost efficient way of measuring samples. With CCSEM analyses on large amounts of single grains can be performed in a short amount of time and without intensive labour by an operator. CCSEM is as well able to provide additional data on the grain size and grain shape of each of the particles. However, CCSEM analyses are based on EDX measurements; these are standardless semi-quantitative measurements and are therefore not comparable in accuracy to XRF or microprobe data. The electron microscope EDX system was not developed for the measurements of trace elements in samples.

method	**XRF**	**microprobe**	**CCSEM**
Multi grain analysis	no	no	yes
Single grain analysis	no	yes	yes
Bulk analysis	yes	no	yes
Grain size and shape	no	limited	yes
error	very low	low	medium
cost	low	high	low-medium

Table 1: Overview of the costs, advantages and errors of XRF, microprobe and CCSEM analyses.

Validity of the CCSEM measurements

Accuracy of the CCSEM in comparison to the electron microprobe

To test the accuracy of the CCSEM, indicator minerals from the 'Garnet Lake' kimberlite body in West Greenland were used. A series of hand-picked pyrope (garnet) grains were mounted in epoxy resin. The sample was analysed using CCSEM, with extended counting times (5000 counts in the highest peak) to ensure good statistics: the relative error in the reproducibility of the measurements is *ca.* 1–2% for major elements (>20 wt %) and *ca.* 4–8% for minor elements (>2 wt %). The accuracy of CCSEM was tested by comparing the results with compositional data obtained from electron microprobe analyses for the same minerals, as reported in Hutchison (2005). A good reproduction of the EMP measurements was achieved by CCSEM (Fig. 3); the statistical correlation between the two methods for these elements is 70%. The three outliers reflect those garnet grains that show a compositional gradient from core to rim. The EMP point analyses were carried out on the cores of the grains,

whereas the CCSEM analyses average the whole surface of the grains, therefore providing slightly different results that are closer to the bulk composition of the grains.

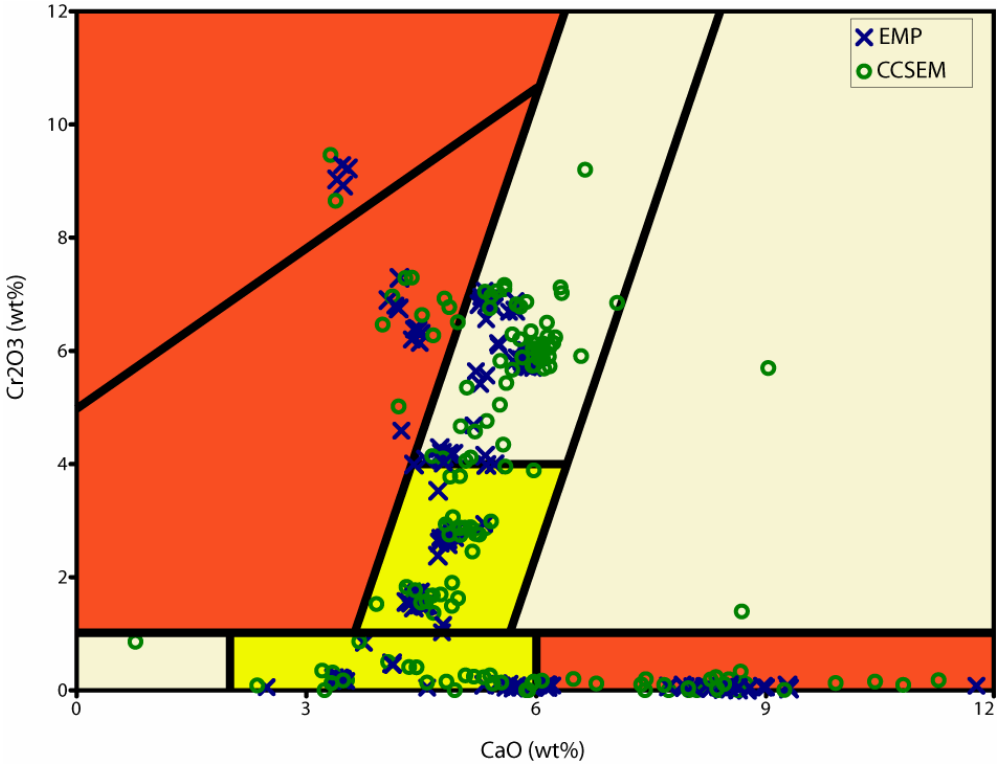


Fig. 3: Comparison of electron microprobe (EMP) and CCSEM measurements for chromium oxide and calcium oxide in Mg-rich garnets from diamond bearing rocks. Note the good correlation between the results obtained with CCSEM and the EMP data.

Precision of the CCSEM analyses

Figure 4 shows the precision of the CCSEM method for a major element (TiO2; 93.71 wt %), a minor element (Fe2O3; 2.19 wt %) and a trace element (SO2; 0.21 wt %), measured repeatedly from the same grain. Five sets of measurements at nine different maximum peak count settings (equivalent to nine different time periods) were undertaken to evaluate the reproducibility of the data. For standard (i.e. approximately 60 seconds measuring time) single spot or single grain analyses the relatively errors are high compared to other analytical methods: 2–3% for major elements (>20 wt %), 5–10% for minor elements (>2 wt %) and 50–100% for elements present in smaller quantities. However, these figures can easily be improved by increasing the counting time slightly, as is shown in Figure 4. This shows that the analysis time can be usefully tailored to the sample set depending on the required precision of the measurements and the amount of available time or money.

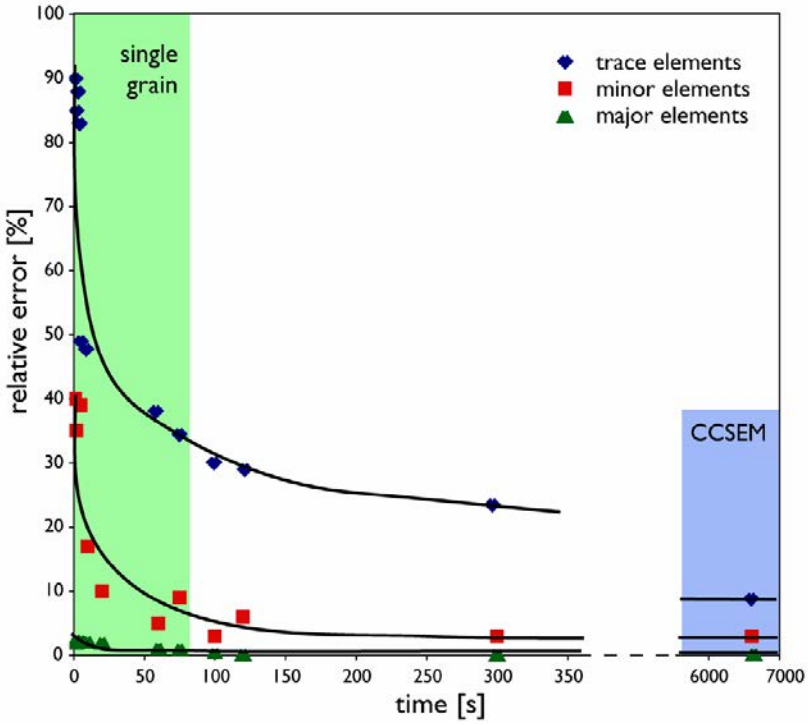


Fig. 4: Precision of single grain (green background) and bulk sample CCSEM (blue background) analyses as a function of measurement times. Note that two detectors were used for the analyses. The precision increases with longer counting time, thus bulk sample (average of all grains) values have a much lower analytical error than single grain analyses.

Some notes on the mineral classification

Care should be taken when interpreting the CCSEM results on heavy minerals. The mineral classification is purely based on chemical composition of the measured grains. There are no further petrological investigations involved in the classification. The distinction between ilmenite, leucoxene and rutile for example occurs on the measurements of the TiO2 wt% only. The boundaries in the CCSEM classification scheme for Ti-minerals lie at: Magnetite < 21 wt% TiO2 < Ti-Magnetite < 46 wt% TiO2 < Ilmenite < 70 wt% TiO2 < Leucoxene < 87.5 wt% TiO2 < Rutile. For the same reason, sillimanite and kyanite cannot be distinguished, they have the same chemical composition and are grouped as one mineral.

This can have major implications for the provenance and metamorphic history of the samples, as grains interpreted as leucoxene based on their TiO2 grade can in fact be ilmenite or rutile grains and areas with abundant kyanite have very different history from areas where sillimanite is abundant.

Additionally, grains might have (micro-) inclusions, which composition will be included in the chemistry of the host grain. Grains can incidentally be non-liberated, which leads to a mixed chemistry of the two compositions. For a full interpretation of the data, additional petrography is needed.

The amount of water in the crystal lattice cannot be determined with EDX (thus not with CCSEM) analyses for two reasons: 1) It is not possible to measure light elements, like O, precisely and very light elements, like H, at all. Thus, it cannot be determined whether water is present or not. 2) The EDX software automatically recalculates the obtained concentrations to 100%, since analyses cannot be quantified absolutely (standard-less analysis). Therefore, it is not possible to observe that certain elements were missing in the analysis. As a result it is not possible to distinguish between pyroxenes and hornblendes. There is a large compositional overlap between the two minerals, if the water in hornblende crystal lattice is not taken into account. Therefore, the mineral classification scheme lists both minerals together: clino-amphibole/pyroxene and ortho-amphibole/pyroxene, or clino-pyrobole and ortho-pyrobole for short. For the same reasons, no distinction can be made between magnetite and hematite (and even goethite) or between corundum and bauxite.

There is a minor compositional overlap between hornblende/Al-rich clino-pyroxene, epidote and garnet. Therefore, there remains a small possibility that some of the garnets are in fact hornblende, or some of the garnets are classified as epidote or pyroxene/amphibole. The analysis for garnet only includes Al-garnets. Garnets that are very rich in Fe, like e.g. andradite, are classified as clino-pyrobole or ortho-pyrobole.

Heavy Mineral Analysis

All the results discussed in this report are solely based on the geochemistry and grain shape of the grains in the mounts that were analysed with CCSEM. Only the size fraction 45-500 micrometers has been considered and all results and interpretation are only based on these few grains.

The density of the used heavy liquid is 2.9 g/cm3, which removes quartz and feldspars, but keeps minerals like hornblende (3-3.4 g/cm3), dolomite (2.9 g/cm3), white mica (ca. 2.9 g/cm3), which are not heavy minerals sensu stricto. In this report, however, all analysed minerals, except quartz and feldspars, will be referred to as heavy minerals. Only a small fraction, one or a few percent for most sediments, of the grains remains after heavy liquid treatment. For brevity, we will refer to the analysed mounts as “the sample/the formation” and not as “the heavy mineral s.l. suite of the sample/formation”. Terms like “abundant” or “rare” should be read in perspective, since they reflect the composition of the heavy mineral suite, unless stated differently.

Sample set

We analysed 59 Cretaceous and Palaeocene sandstones from Nuussuaq, Disko and surrounding islands and from the the drill holes GRO#3 and GGU247801 on Nuussuaq. An

overview of the analysed samples is found in Table 2. All data on the samples can be obtained from the internet database (https://jupiter.geus.dk/Titan/Login). Spread sheets with data are supplemented on a CD, which also includes some of the figures at larger scale. See Appendix D for a summary for each sample.

YLat	XLong	Sample#	CCSEM number	Locality	Altitude	Formation	Member
69.7913	**-52.0350**	**453101**	**2003913**	**Pingu**	**240**	**Atane**	**Skansen**
69.7898	-52.0358	453104	2003914	Pingu	315	Atane	Transition?
69.7889	**-52.0357**	**453105**	**2003915**	**Pingu**	**368**	**Atanikerluk**	**Akuneq**
69.7841	-52.0374	453109	2003916	Pingu	602	Atanikerluk	Umiussat
69.7838	**-52.0410**	**453110**	**2003917**	**Pingu**	**679**	**Atanikerluk**	**Assoq**
70.3312	-53.0101	453111	2003918	Ivisaannguit	563	Quikavsak	Tupaasat
70.3315	**-53.0097**	**453113**	**2003919**	**Ivisaannguit**	**575**	**Quikavsak**	**Tupaasat**
70.1883	-53.2680	453122	2003920	Asuk	37	Itilli	Kussinerujuq
70.1893	**-53.2630**	**453125**	**2003921**	**Asuk**	**4**	**Atane**	**Channel**
70.2158	-53.4212	453127	2003922	Kamafiaraq	128	Atane	Channel
70.2124	**-53.4274**	**453129**	**2003923**	**Kamafiaraq**	**211**	**Atane**	**Channel**
70.2107	-53.4376	453130	2003924	Kamafiaraq	334	Atane	Channel
70.6059	**-54.2299**	**453132**	**2003925**	**Itilli**	**126**	**Itilli**	**Anariartorfik**
70.6143	-54.2027	453134	2003926	Itilli	173	Itilli	Anariartorfik
70.6164	**-54.1827**	**453138**	**2003927**	**Itilli**	**182**	**Itilli**	**Anariartorfik**
70.6179	-54.1672	453141	2003928	Itilli	212	Itilli	Anariartorfik
70.6178	**-54.1630**	**453142**	**2003929**	**Itilli**	**227**	**Itilli**	**Anariartorfik**
70.5702	-54.2588	453145	2003930	Itilli	142	Itilli	Anariartorfik
70.7424	**-53.4185**	**453146**	**2003931**	**Kangilia**	**213**	**Itilli**	**Umiivik**
70.7391	-53.4182	453147	2003932	Kangilia	259	Kangilia	Fossil Wood
70.7299	**-53.4258**	**453148**	**2003933**	**Kangilia**	**743**	**Eqalulik**	
70.7641	-53.0706	453149	2003934	Ikorfat	208	Kome	
70.7586	**-53.0643**	**453151**	**2003935**	**Ikorfat**	**444**	**Atane**	**Ravn Kløft**
70.7527	-53.0746	453153	2003936	Ikorfat	719	Atane	Ravn Kløft
70.7641	**-53.5419**	**453156**	**2003937**	**Niaqorsuaq**	**11**	**Itilli**	**Umiivik**
70.6415	-52.3645	453158	2003938	Kuuk	33	Kome	Slibestensfjeld?
70.6351	**-52.3812**	**453160**	**2003939**	**Kuuk**	**262**	**Kome**	**Slibestensfjeld?**
70.6124	-52.3624	453162	2003940	Kuuk	334	Kome	
71.6202	**-53.4434**	**453163**	**2003941**	**Qeqertarsuaq**	**5**	**Upernivik Næs**	
71.6062	-53.4091	453165	2003942	Qeqertarsuaq	210	Upernivik Næs	
71.1840	**-53.0305**	**453170**	**2003943**	**Upernivik_Næs**	**14**	**Upernivik Næs**	
71.1760	-53.0104	453172	2003944	Upernivik_Næs	39	Upernivik Næs	
70.6439	**-52.3673**	**453174**	**2003945**	**Kuuk**	**6**	**Kome**	
70.6180	-54.1509	453175	2003946	Itilli	208	Itilli	Anariartorfik
70.6155	**-54.1263**	**453177**	**2003947**	**Itilli**	**305**	**Itilli**	**Anariartorfik**
70.6168	-54.1005	453179	2003948	Itilli	325	Itilli	Anariartorfik
70.6168	**-54.1005**	**453182**	**2003949**	**Tuapaat Qqaqaat**	**580**	**Atanikerluk**	**Assoq**
70.3311	-52.9197	247801-254,255,257,257	2003950	GGU247801 (Ataata Kuua)	562,7-564,7	Atane	Qilakitsoq
70.3311	**-52.9197**	**247801-258,259,260,261**	**2003951**	**GGU247801 (Ataata Kuua)**	**535,1-539,79**	**Atane**	**Qilakitsoq**
70.3311	-52.9197	247801-262,263,264,265	2003952	GGU247801 (Ataata Kuua)	413,51-425,91	Atane	Qilakitsoq
70.3311	**-52.9197**	**247801-266,267,268**	**2003953**	**GGU247801 (Ataata Kuua)**	**270,85-274,5**	**Atane**	**Qilakitsoq**
70.3311	-52.9197	247801-269,270,271	2003954	GGU247801 (Ataata Kuua)	99,34-100,30	Atane	Qilakitsoq
70.3311	**-52.9197**	**247801-272-273,274**	**2003955**	**GGU247801 (Ataata Kuua)**	**35,37-36,43**	**Atane**	**Qilakitsoq**
70.27.45	-54.05.13	439401	2003956	GRO#3	510-525	Agatdal	
70.27.45	**-54.05.13**	**439401**	**2003957**	**GRO#3**	**590-600**	**Agatdal**	
70.27.45	-54.05.13	439401	2003958	GRO#3	660-680	Agatdal	
70.27.45	**-54.05.13**	**439401**	**2003959**	**GRO#3**	**725-740**	**Kangilia**	
70.27.45	-54.05.13	439401	2003960	GRO#3	815-835	Kangilia	
70.27.45	**-54.05.13**	**439401**	**2003961**	**GRO#3**	**890-915**	**Kangilia**	
70 46.460	-53 48.006	486805	2003962	Itilli	125	Itilli	
70 46.395	**-53 47.670**	**486806**	**2003963**	**Iterlaap Qaqqai**	**185**	**Itilli**	
70 46.395	-53 47.670	486807	2003964	Iterlaap Qaqqai	275	Itilli	
70 47.901	**-53 51.782**	**486808**	**2003965**	**Tupersuartaa**	**3**	**Eqalulik**	
70 47.643	-53 51.133	486809	2003966	Tupersuartaa	35	Itilli	
70 46.842	**-53 51.815**	**486810**	**2003967**	**Tupersuartaa**	**40**	**Itilli**	
70 45.280	-53 48.385	486811	2003968	Tunorsuaq	100	Itilli	
70 45.212	***-53 47.905***	***486812***	***2003969***	***Tunorsuaq***	***150***	***Itilli***	
70 44.819	-53 47.222	486813	2003970	Tunorsuaq	145	Itilli	
70 45.912	**-53 49.916**	**486814**	**2003971**	**Tunorsuaq**	**40**	**Itilli**	
70 44.740	-53 40.508	486815	2003972	Tunorsuaq	770	Eqalulik	

Table 2: Overview of the localities, sample numbers and formations of all sandstone samples from the Disko-Nuussuaq area that were analysed with CCSEM.

Results

Heavy mineral suites

Table 3 shows the amounts of heavy minerals in the samples in the size fraction between 45 and 500 micrometer. A large variation in the amount of heavy minerals is observed for these sandstones: samples from the GRO#3 drill core show very high amounts, up to 46%, whereas most samples have a very low amount of heavy minerals (< 1%). All samples with more than 5% heavy minerals have at least 50% clino-pyrobole in their heavy mineral suite. The sample (486808) with the highest amount of heavy minerals (78.38%) is rich in clinopyrobole and is cemented with dolomite.

The result of the analyses for heavy minerals of the 59 samples for 24 different heavy minerals is shown in Appendix A1-A3 in columnar diagrams. Quartz, feldspar, dolomite (calcite was removed before the analysis), pyrite (assumed to be an authigenic mineral, M. Sønderholm, pers. comm.), undifferentiated silicates and unclassified minerals are omitted from these diagrams. The data set shows a large variation in the heavy mineral suite. Figure 5 shows the same data set as pie diagrams.

CCSEMnr	**Sample**	Heavy Min % 45-500 microns	CCSEMnr	**Sample**	Heavy Min % 45-500 microns
2003913	453101	1.39	2003943	453170	0.05
2003914	453104	0.24	2003944	453172	0.03
2003915	453105	0.51	2003945	453174	0.19
2003916	453109	0.89	2003946	453175	0.92
2003917	453110	0.26	2003947	453177	0.40
2003918	453111	0.19	2003948	453179	0.63
2003919	453113	0.22	2003949	453182	2.71
2003920	453122	0.12	2003950	247801-254,255,257,257	3.52
2003921	453125	1.08	2003951	247801-258,259,260,261	3.01
2003922	453127	0.66	2003952	247801-262,263,264,265	0.19
2003923	453129	0.17	2003953	247801-266,267,268	0.51
2003924	453130	0.13	2003954	247801-269,270,271	0.09
2003925	453132	0.09	2003955	247801-272-273,274	0.06
2003926	453134	0.32	2003956	439401 (510-525)	45.67
2003927	453138	15.06	2003957	439401 (590-600)	31.82
2003928	453141	2.21	2003958	439401 (660-680)	5.40
2003929	453142	0.41	2003959	439401 (725-740)	11.55
2003930	453145	0.37	2003960	439401 (815-835)	42.97
2003931	453146	3.54	2003961	439401 (890-915)	11.54
2003932	453147	0.58	2003962	486805	4.12
2003933	453148	6.08	2003963	486806	0.16
2003934	453149	0.08	2003964	486807	1.78
2003935	453151	0.16	2003965	486808	78.38
2003936	453153	0.14	2003966	486809	0.12
2003937	453156	0.81	2003967	486810	0.10
2003938	453158	0.08	2003968	486811	1.37
2003939	453160	0.46	2003970	486813	0.08
2003940	453162	2.49	2003971	486814	0.09
2003941	453163	0.12	2003972	486815	4.91
2003942	453165	5.23			

Table 3: Percentage of heavy minerals in the sample material between 45 and 500 micrometer.

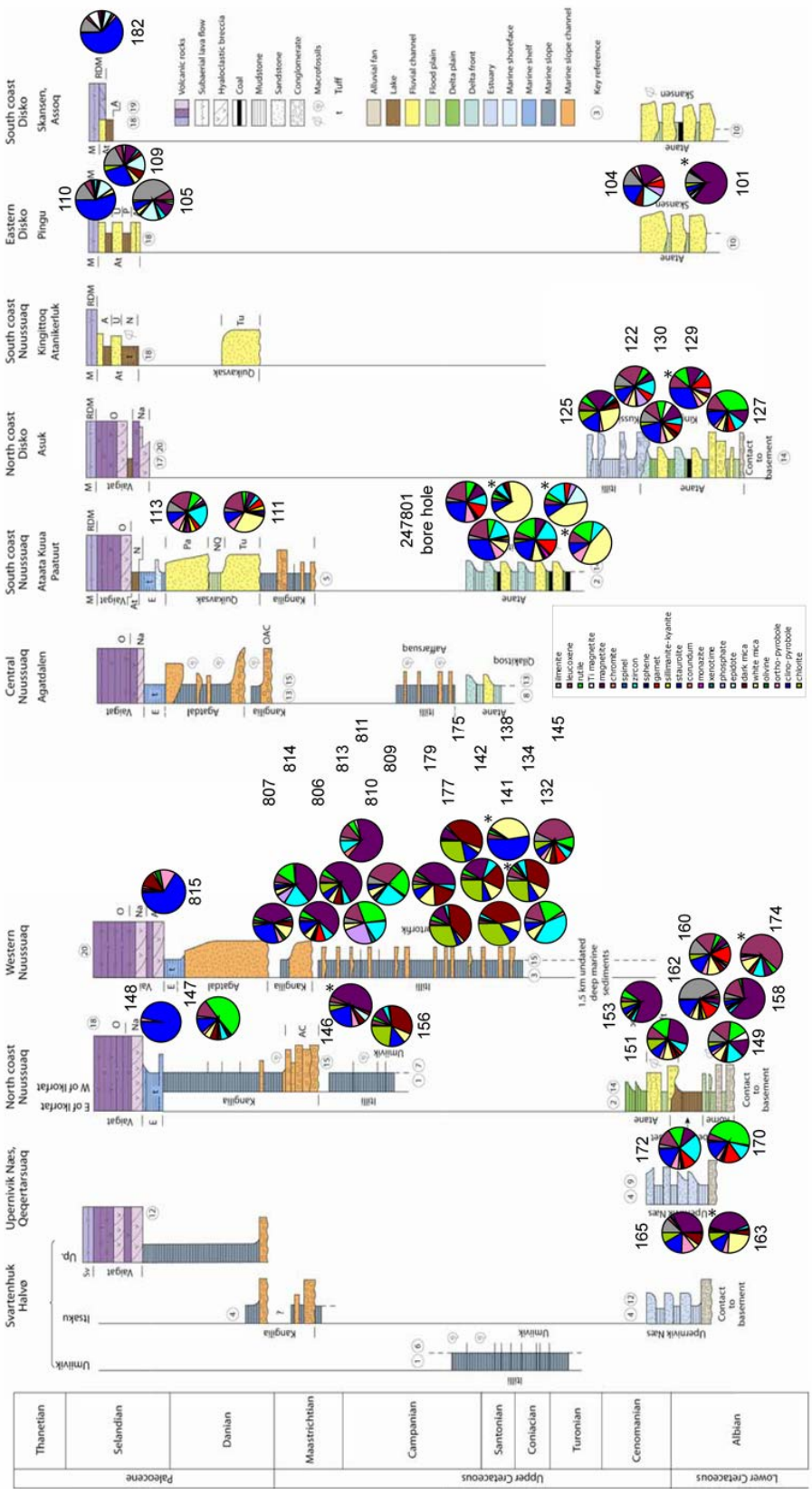


*Figure 5: Heavy mineral concentrate composition for the sediments from Nuussuaq and surroundings. Lithostratigraphy after Dam et al., in press. Pie charts marked with * are based on less than 200 grains.*

Figure 5 shows that most of the studied formations show a large internal variation in their heavy mineral suite. Especially the Itilli Formation displays a wide range of compositions. Samples from the Atane, Kome, Atanikerluk and Quikavsak Formations show a more diverse composition than most samples of the Kangilia and Itilli Formations. On the other hand, some overlapping behaviour is observed between the different formations. For example the Upernivik Næs Formation, which is located in geographically separated areas, further north from the area in which the other samples were collected, shows a similar heavy mineral distribution to the Atane Formation or the Kome Formation for the samples from Qeqertarsuaq and with the Atane Formation at Upernivik Næs. “Similar” is quantified as a correlation probability coefficient > 0.7. A table with all correlation coefficients is included on the CD.

The Kome Formation is rich in Fe and Ti oxides; in all samples but one (453160) these minerals form more than half of the heavy mineral suite. Ti-minerals are also abundant in samples from Pingu, especially for the Atanikerluk Formation, but less so in samples further away from the Cretaceous Eastern Boundary Fault (the extensional fault in Figure 1). Samples from the Kome Formation, especially at Kuuk, yield some to abundant garnet-sillimanite/kyanite-staurolite assemblages. This group of minerals has also been found in samples from other formations at localities in the eastern part of the basin such as Ivisaannguit, Pingu and Iterlaap Qaqqai and more rarely at the Itilli valley in western Nuussuaq. The heavy mineral suite of the samples from the Kome Formation is similar to the samples from the Atane Formation and some of the samples in the Itilli Formation.

The Atane Formation can be divided into two groups. The samples from the GGU247801 bore hole at Ataata Kuua (except the uppermost one, -35.37 – -36.43 m) are poor in heavy minerals and relatively rich in muscovite. A low amount of heavy minerals, combined with a relatively high amount of muscovite is also observed for samples from the lower part of Itilli Formation (southern Itilli valley).

The samples from the lower Atane Formation (the samples from the northern coast of Nuussuaq and Disko) are abundant in leucoxene, rutile, zircon and garnet. This group of minerals is also observed as the lower unit of the Itilli Formation on Western Nuussuaq. Also the uppermost Atane Formation shows a broad heavy mineral spectrum, with locally a strong presence of magnetite. These samples are similar to the Kome, Quikavsaq and upper part of the Itilli Formations.

The GRO#3 drill core and the lowermost sample from the cliff at Tupersuartaa (486808) show a heavy mineral suite is dominated by clino-pyroxene/amphibole, with some magnetite and ortho-pyroxene/amphibole. Those samples are dominated by material derived

from cross-cutting dykes, hence the high amount of clinopyrobole in these samples. These samples are omitted from further analyses.

Samples from the Atanikerluk Formation are characterised by ilmenite, epidote and clino-pyroxene/amphibole. Epidote was furthermore observed in the Upernivik Næs Formation and locally in the Atane Formation, especially in the samples from Pingu.

Chlorite was observed in the Upernivik Næs Formation samples from Qeqertarsuaq and in some of the Itilli Formation samples that are also rich in muscovite, biotite and dolomite and very poor in heavy minerals sensu lato (Table 3). Detrital and authigenic chlorite cannot be distinguished in the current data set.

Garnet composition and abundance

Appendix B shows garnet composition diagrams for the aluminous garnets with pyrope (Mg), almandine (Fe), spessartine (Mn) and grossular (Ca) as end members. All samples with abundant garnet and representative samples with a few garnet grains are shown. In most samples garnet is rare or even absent. A higher frequency of garnets is observed in the Kome Formation, in the Atane Formation, in the Upernivik Næs Formation at Upernivik Næs and locally in the Itilli Formation. Garnet is more abundant in heavy mineral suites that are poor in muscovite, chlorite and clino-pyroxene/amphibole (and the diagenetic minerals pyrite and dolomite) and most abundant in samples that are enriched in ilmenite, leucoxene, rutile and zircon.

The analysed garnets were divided into three groups, based on their Fe-Mg-Ca content (Figure 6, Appendix B). Some of the garnets have an XCa of 0.15-0.30, especially those from western Nuussuaq (Group 1 – see legend in Figure 6). The remaining garnets yield XCa of ca. 0.10. Of those, the garnets from northern Disko and western Nuussuaq show more pyrope-rich garnets (XFe+XMn<80 – Group 3). In these areas the more almandine-rich garnets (Group 2) occur as well.

An elevated Cr concentration in garnet, a high Ca concentration in pyrope or an elevated amount of Ti in pyrope are typical for eclogitic garnets. None of the garnets yielded an elevated Cr concentation and none of the high pyrope garnets had very high Ca concentration. However, some garnets showed minor quantities of Ti, especially those from the Kome Formation, Upernivik Næs Formation and occasionally in the Itilli Formation. In most of the samples with abundant Mn-enriched garnets (XMn > 0.05) were observed (Figure 7); samples from the Atane and Kome Formation contain ca. 20% Mn-enrich garnets.

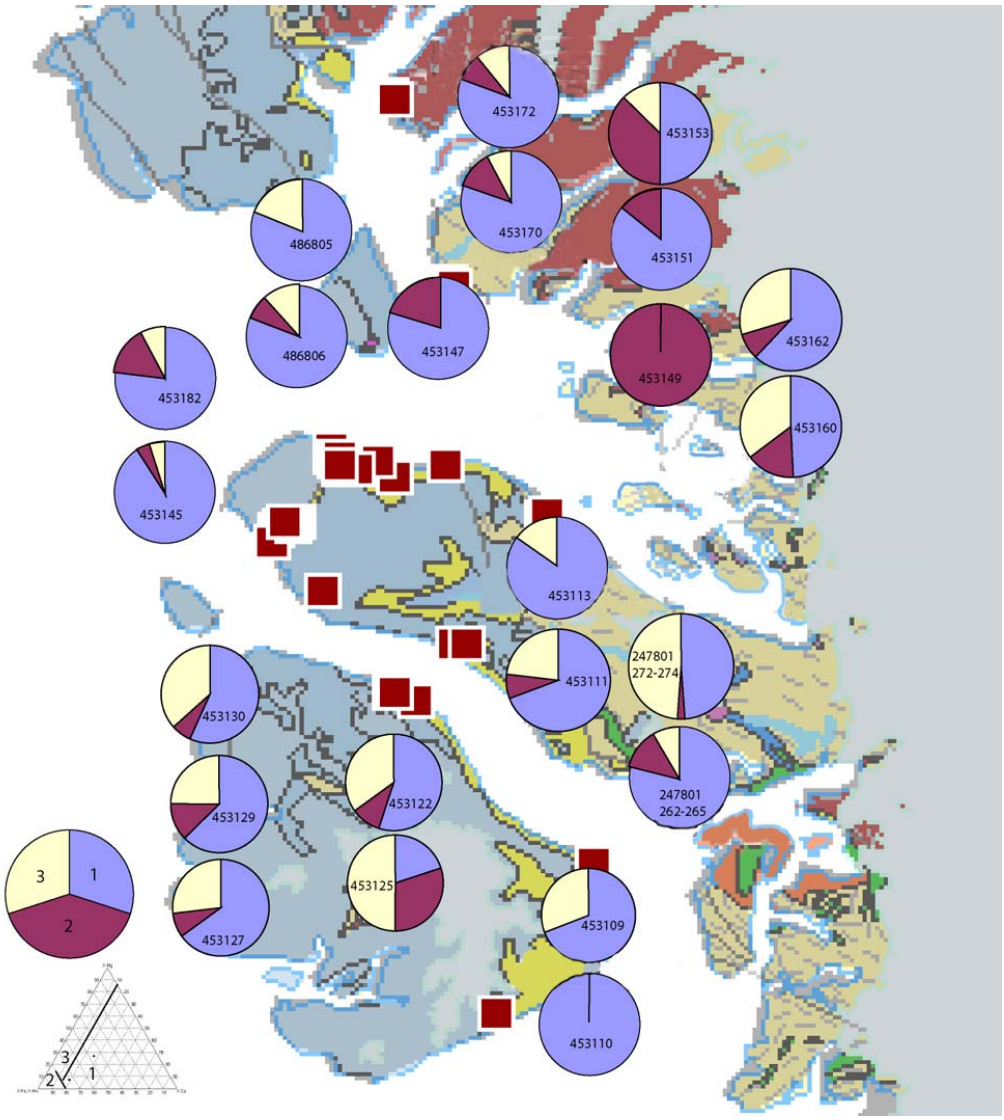


Figure 6: Map of the Disco Nuussuaq area. The pie charts indicate the relative abundance of the three different garnet types. Group 1: XCa > 0.15, Group 2: XFe-Mn >0.80 and XCa\< 0.15, Group 3: XCa \< 0.15 and XFe-Mn<0.80. Samples in vertical succession were collected at the same locality.

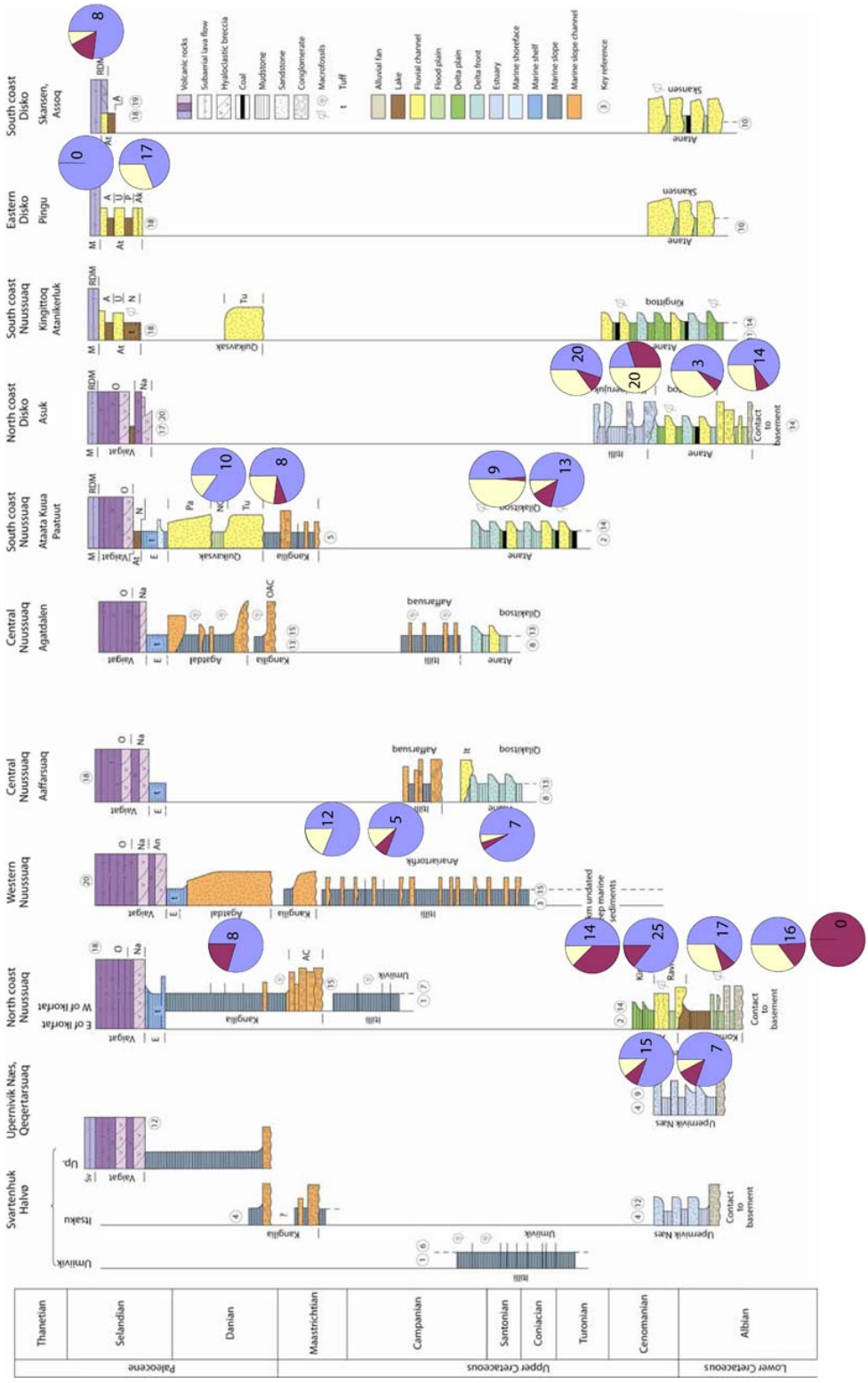


Figure 7: Stratigraphic column showing the Disco Nuussuaq area. The pie charts indicate the relative abundance of the three different garnet types, legend for the pie charts as in Figure 6. Numbers indicate the % of garnets with XMn > 0.05 as a percentage of the total amount of garnets.

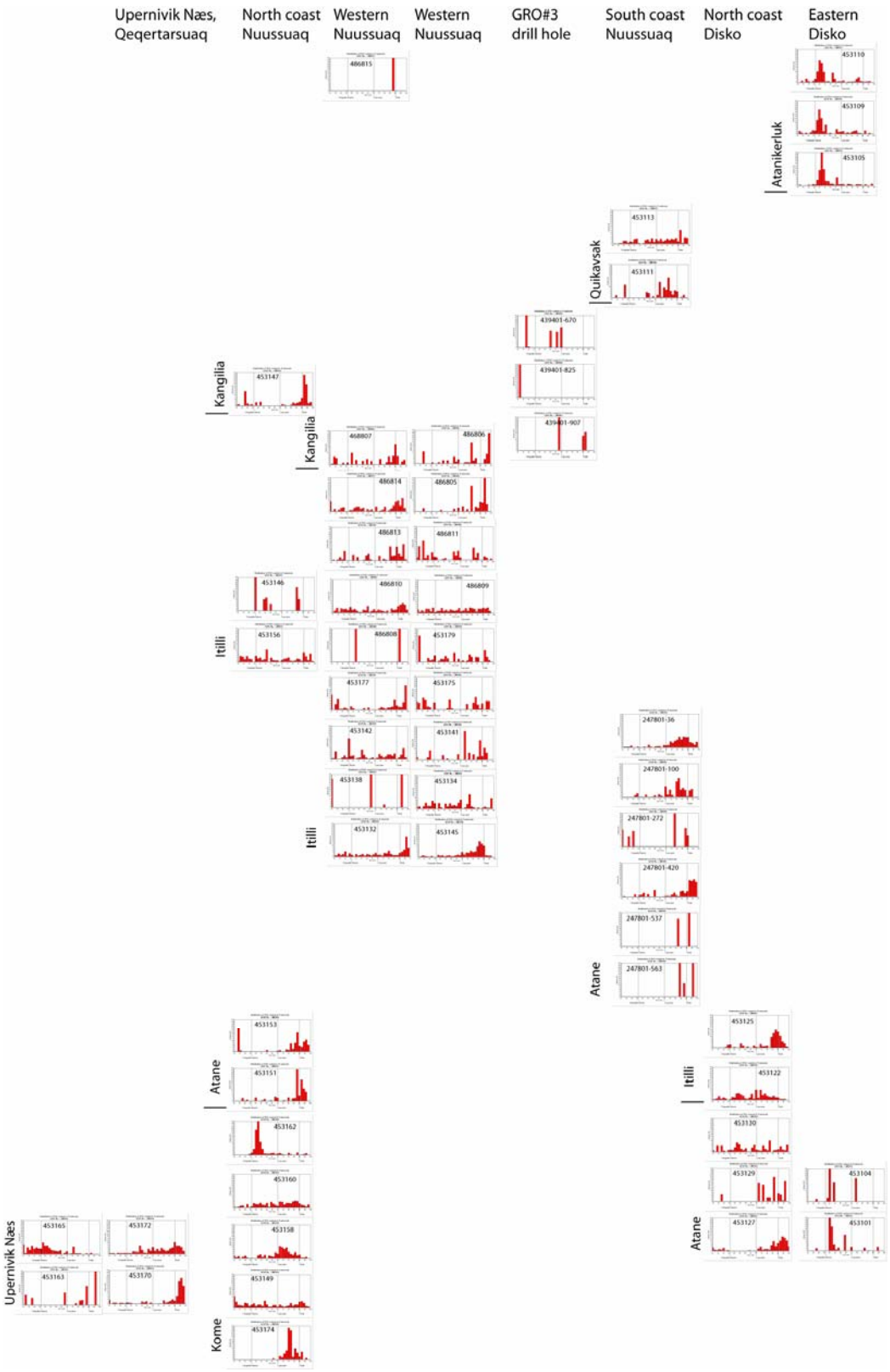


Figure 8: TiO2 concentration in titanomagnetite, ilmenite, leucoxene and rutile grains. Histograms for all samples in which at least one of those minerals is observed. Note that the distinction between the individual minerals is based on chemistry only.

TiO2 concentration in FeTi-oxides

The TiO2 concentration in FeTi-oxides (titanomagnetite, ilmenite, leucoxene and rutile) was measured and is shown in Figure 8. This figure is best read from a computer screen, or printed out on A2 format. There is a large variation in both the amount of FeTi-oxide, and the grade (TiO2-concentration) of the oxide. There appears to be a positive correlation between the amount of FeTi-oxide and the grade.

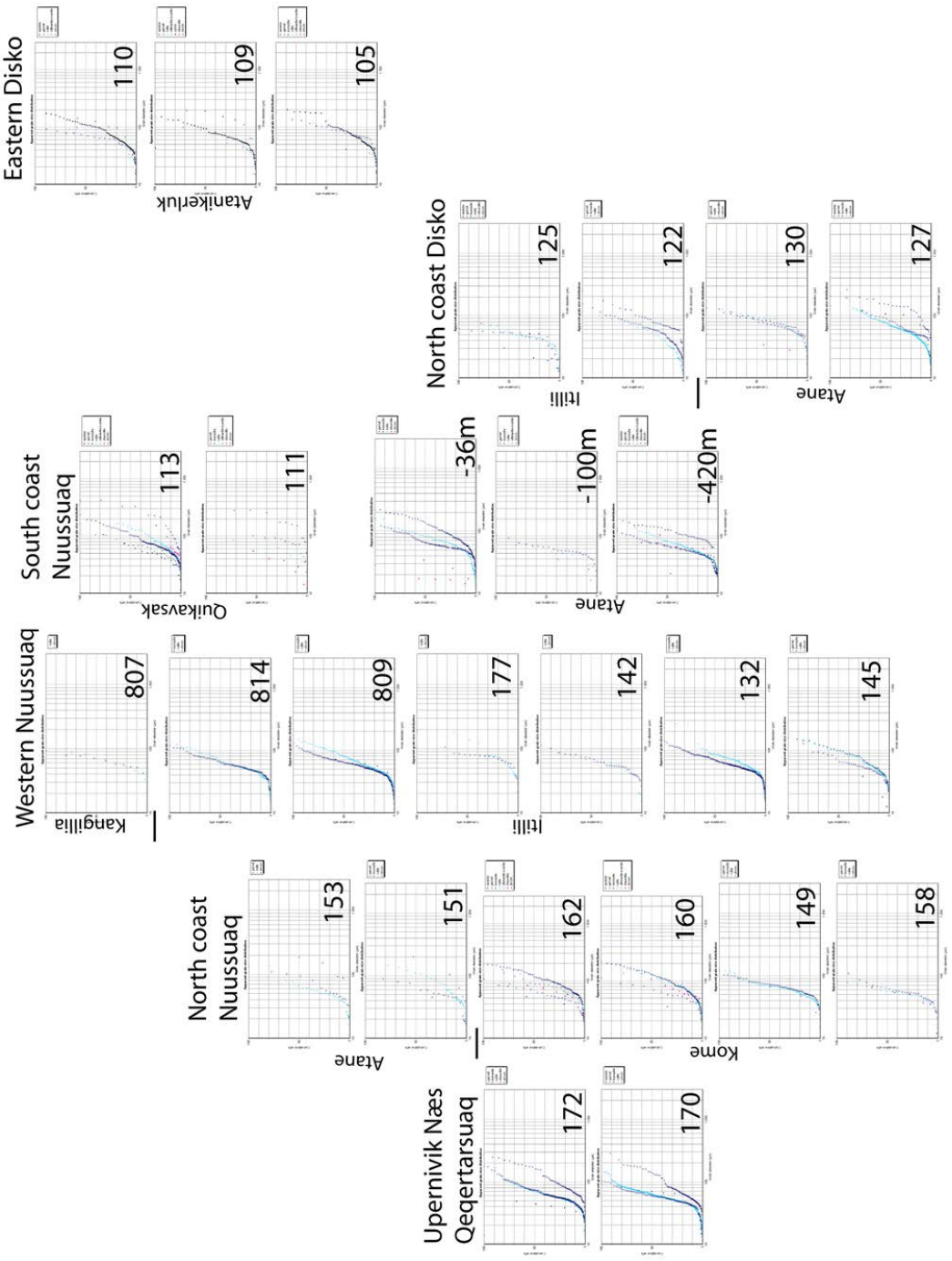
Sandstones from the Kome Formation, Atane Formation, Quikavsak Formation, and lower Itilli Formation generally show a broad TiO2-concentration spectrum, with ilmenite and leucoxene grades that are higher than the grade of stochiometric ilmenite (52 wt% TiO2). As for the garnets, the higher grades of ilmenite, leucoxene and rutile seem to occur preferentially in heavy mineral suites that are poor in pyrite, dolomite, muscovite, chlorite and clino-pyroxene/amphibole and the FeTi-oxides are most abundant in samples that are enriched in garnet and zircon, and bear sillimanite/kyanite and staurolite. Samples from the Kangilia Formation, the Eqalulik Formation are poor in titanium minerals. In general terms there seems to be a decrease in TiO2 concentrations when moving towards younger units, with the exception of the Quikavsak Formation.

Grain size distribution

The grain size distribution of the five to seven most abundant minerals in the analysed samples are shown in Appendix C. It shows a wide range of grain sizes within the different formations and between formations. Due to the fixed properties of the individual diagrams of which this Figure is composed, it is best read from a computer screen, or printed out on A2 format. The data set is not optimal (not one consistent mineral through all the diagrams, sieving of the samples before measurement, and irregular spacing of the samples), but a large scale fining upward and westward trend seems to prevail.

Figure 9 shows the grain size distribution for the minerals that are most resistant against chemical and mechanical weathering and commonly form grain sizes within the 45-500 micrometers in their source rocks: rutile, monazite, zircon, garnet, spinel, staurolite, sillimanite/kyanite, and epidote. The grain size distribution for these heavy minerals is very uniform. For most localities no vertical grain size variation was observed. The Itilli Formation is generally a bit finer grained than the Atane Formation.

Figure 9: Grain size distribution of rutile, zircon, garnet, epidote, sillimanite/kyanite, monazite and staurolite for selected samples. Sample numbers (or depth in case of the Ataata Kuaa samples) are indicated with their last three digits.



Discussion

Heavy mineral suite

The sample set shows a wide variation for the heavy mineral suite (Figure 5). With the exception of the very clinopyrobole-rich samples (453148), none of the samples can be derived from just one lithology. Especially the samples from the Quikavsaq, Atane, Atanikerluk, and Kome Formations show a very broad spectrum of heavy minerals. These samples have been collected in fluvial channel sandstones and are probably sourced from least two or three different kinds of lithologies.

The total amount of heavy minerals in the samples is very low, well below 1%, which makes it likely the source rock of the sandstones was granitic or a granitic orthogneiss. This fit well with the occurrence of garnet, zircon, phosphates, magnetite in many of the heavy mineral suites.

Parts of the Itilli Formation might consist of reworked sediments from the Atane Formation. The upper Atane and the lower Itilli Formations show very similar characteristics, with garnet, zircon, leucoxene and rutile as dominant phases and with less frequent occurrences of sillimanite/kyanite and staurolite. Within the Atane Formation, large amounts of muscovite are found, this mineral is observed in the upper Itilli Formation as well, together with chlorite and biotite.

Figure 7 shows that garnets are most abundant in the fluvial channel samples from the Upernivik Næs Formation at Upernivik, the Kome Formation in Kuuk, and the upper Atane Formation in the Ataata Kuaa drill core. The Atane Formation is richer in garnets than the Itilli Formation. Pyrope-rich garnet (group 3) is mainly observed on Disko and on Eastern Nuussuaq (Fig. 6), but is completely or almost lacking at other localities. Samples from the southern part of the investigated area are richer in Ca (more group 1 like garnets) than those from the northern part of the area. Pyrope-rich garnets mainly occur in the Atane, Kome and Itilli formation samples that are also yielding a silliminate/kyanite and staurolite paragenisis. Pyrope-rich garnets are associated to high grade metamorphism.

Abundant Ti-minerals were observed in nearly half of the samples. Stochiometric ilmenite has ca. 52 wt% TiO2. Weathering before and after deposition of the primary ilmenite causes alteration of the ilmenite to leucoxene by leaching of iron, which leads to a significant increase in the TiO2 -grade of the Ti-mineral fraction in a mature sediment (e.g. Weibel 2003). Rutile can loose TiO2 by the same processes and form leucoxene in extreme cases. Most samples in this study do not show a distinct peak at stochiometric values. The samples that have a distinct leucoxene peak, a shifted ilmenite peak or a shifted rutile peak are roughly

the same samples as those that consist of silliminate/kyanite, staurolite, garnet, zircon, ±ilmenite/leucoxene, ±magnetite, ± rutile.

Grain size distribution

Interpreting the heavy mineral grain size distribution of the samples (Appendix 3) is not entirely straight forward, since the samples were sieved before analysis and therefore the largest and smallest grains were removed from the analyses. Some heavy minerals, like zircon, do usually not crystallize in sizes larger than 500 μm, but for other minerals, like biotite or hornblende, this is more common.

Some of the grain size curves show clear evidence for a bimodal distribution of the grain sizes of their host rock. In most cases individual minerals from one locality form a Gaussian distribution of grain sizes. Kinks in the probability plots for the grain size distribution (Appendix 3), indicate a bimodal distribution. These can be explained by processes in the source rock that reduced the grain size, e.g. resulting from tectonic processes or by two different kinds of source rock, with a different grain size distribution.

Figure 9 shows the grain size distribution for the heavy mineral suite for rutile, zircon, garnet, sillimanite/kyanite, staurolite, monazite and epidote for samples in which at least some of these minerals occur abundantly. These minerals all have a very high density and are resistant to mechanical and chemical weathering (Morton & Hallsworth, 1999). The samples show a very uniform size distribution, with zircon 60-90 micrometer at 50 % of the cumulative weight, rutile 60-100 micrometer, and garnet 70-120 micrometer.

The grain size distribution of the heavy mineral concentrate is determined by the grain size of the source rock, processes acting on the grains during transport and after sedimentation. The distribution in grain sizes of different minerals within one sample (as can be studied from Figure 9 and Appendix C), might in some cases give some evidence on conditions during deposition. In high-energy environments, like beaches or on steep slopes, grains are sorted by their density (e.g. smaller grained zircon coexists with slightly larger grained rutile) and hydrological properties (flat minerals react differently to current movements than equant grains). Generally, especially for the samples from the Atane, Quikavsak, upper part of the Kome and the Upernivik Næs Formation at Qeqertarsuaq, a fixed size ratio between zircon:rutile:garnet = 1: 1.1 : 1.45 is observed, which correlates with the density of the minerals. It is therefore likely that at least some hydraulic sorting has taken place. However, more data and information on the grain sizes in the source rock is needed, before a further analysis can be made.

Brief comparison with the heavy mineral suite of the stream sediment samples

Stream sediment samples were collected from the basement rocks north, east and south of Nuussuaq. Samples from the Proterozoic basement South of 69° N, show sillimanite/kyanite, garnet and some staurolite. Samples from this area are all abundant in epidote and sphene. Sphene is a relatively stable mineral, but was was hardly ever observed in the studied sandstone samples. This makes the Proterozoic basement South of 69° N a less likely source for the sillimanite/kyanite bearing samples. Sillimanite/kyanite, staurolite, ilmenite, magnetite and garnets were observed in the heavy mineral separates from stream sediments from the islands north of eastern Nuussuaq (e.g. Ikerasak). This might indicate a northeastern source, apart from the metasedimentary rocks on eastern Nuussuaq or from the area around Eqip Sermia (Garde & Steenfelt, 1999).

Samples from the basement north of Nuussuaq, especially those from the peninsula North of Upernivik Ø are richer in muscovite, biotite and chlorite than the samples discussed before. They bear a good resemblance to the samples in the Upernivik Formation from Qeqertarsuaq.

Most garnet grains, derived from stream sediment samples collected north, east and southeast of Nuussuaq and on eastern Nuussuaq, display a similar composition to garnet group 1 composition for the sandstone samples. The more almandine-rich group2 garnets are hardly observed in stream sediments collected north, east and southeast of Nuussuaq and on eastern Nuussuaq. Very almandine-rich samples were observed in streams south of Søndre Strømfjord, but are rare between Søndre Strømfjord and Jacobshavn Isfjord. It is therefore unlikely that neither the basement east of Nuussuaq, nor the basement south of Nuussuaq is the only source of the garnet-bearing samples.

Brief comparison with the zircon data

A K-S test (Table 4) on the ages of the concordant zircons from the same sandstone samples shows that the samples from the Itilli, Atane, Kome and Quikavsak Formations show a very similar pattern in zircon distributions (with values of >0.8 in the K-S test). Figure 10 visualises the cumulative probability for these zircon ages. The Kangilia Formation is significantly different from the Atane and Itilli Formation, the Atane Formation is significantly different from the Atanikerluk Formation. For all other pairs of Formations, low values were obtained.

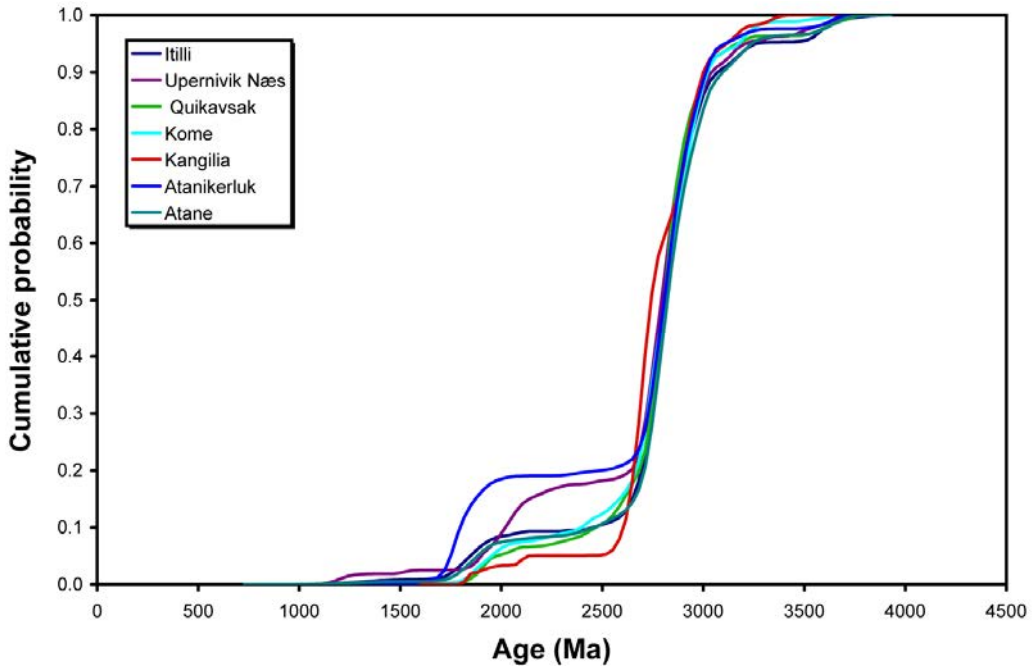


Figure 10: Cumulative probability for the zircon age distribution for the concordant zircons, grouped by formation.

	Itilli	Upernivik Næs	Quikavsak	Kome	Kangilia	Atanikerluk	Atane
Itilli		**0.403**	**0.810**	**0.898**	0.020	**0.056**	**0.842**
Upernivik Næs	**0.403**		**0.496**	**0.614**	**0.334**	**0.165**	**0.209**
Quikavsak	**0.810**	**0.496**		**0.840**	**0.063**	**0.076**	**0.372**
Kome	**0.898**	**0.614**	**0.840**		**0.217**	**0.064**	**0.362**
Kangilia	0.020	**0.334**	**0.063**	**0.217**		**0.106**	0.004
Atanikerluk	**0.056**	**0.165**	**0.076**	**0.064**	**0.106**		0.014
Atane	**0.842**	**0.209**	**0.372**	**0.362**	0.004	0.014	

Table 4: Results of the K-S test for the zircon age distribution of the sandstone samples from the Nuussuaq area.

However, the heavy mineral suite of the Atane and Itilli Formations show some internal variation. Therefore, a regrouping of the samples from the Atane and Itilli Formations, into the upper and lower Atane and upper and lower Itilli Formation was made (Table 5). Additionally, based on the results of the heavy mineral suites of sandstones, the samples from the Upernivik Næs Formation were split up by locality into a southern (Qeqertarsuaq) and a northern (Upernivik Næs locality) group. The results of the regrouping and those for the Kome, Quikavsak, Kangilia and Atanikerluk Formation are shown in Figure 11 and in Table 6.

Upper Itilli	Lower Itilli	Upper Atane	Lower Atane
486806	453122	247801-036	453101
486807	453132	247801-100	453104
486809	453134	247801-272	453127
486810	453138	247801-420	453129
486811	453141	247801-537	453130
486813	453142	247801-563	453151
486814	453145	453125	453153
453146	453175		
	453177		
	453179		
	453156		

Table 5: Regrouping of the samples from the Atane and Itilli Formations into four groups, based on the mineralogy of the heavy mineral suite and the stratigraphic position of the sample.

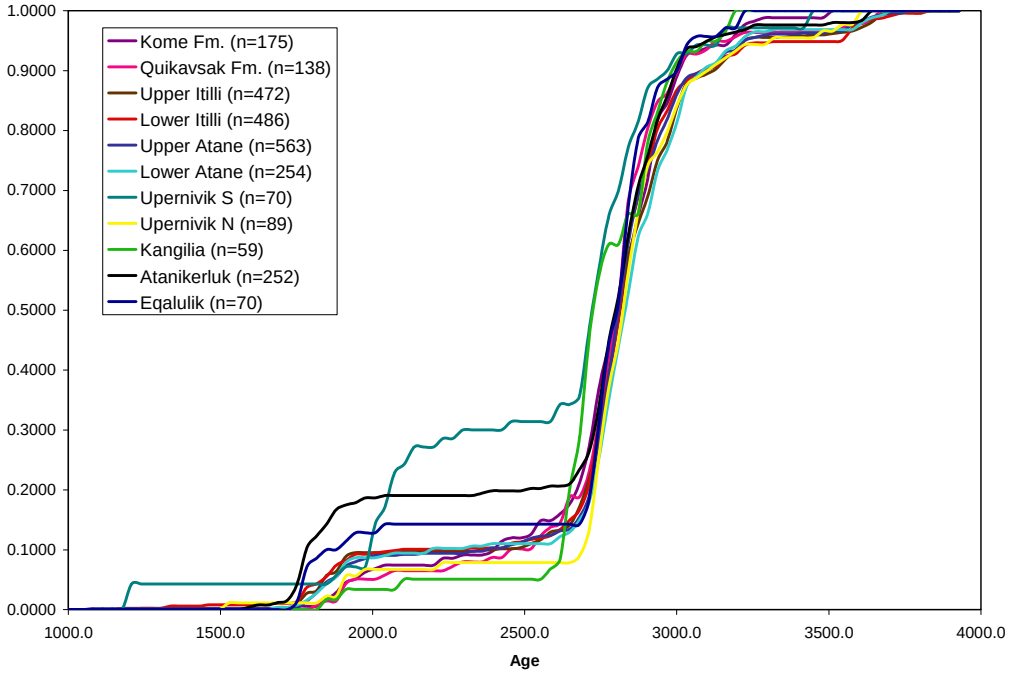


Figure 11: Cumulative probability for the zircon age distribution for the concordant zircons. Grouping for the Itilli and Atane Formations as described in Table 5 and for the Upernivik Næs Formation by locality.

K-S P-values using error in the CDF

	Kome Fm.	Quikav-sak	Upper Itilli	Lower Itilli	Upper Atane	Lower Atane	Upperni-vik S	Upperni-vik N	Kangilia	Atanikerluk
Kome Fm.		**0.840**	**0.632**	**0.793**	**0.420**	**0.202**	0.030	**0.345**	**0.217**	**0.064**
Quikavsak Fm.	**0.840**		**0.255**	**0.884**	**0.828**	**0.109**	0.012	**0.764**	**0.063**	**0.076**
Upper Itilli	**0.632**	**0.255**		**0.563**	**0.832**	**0.872**	0.001	**0.931**	0.010	**0.097**
Lower Itilli	**0.793**	**0.884**	**0.563**		**0.999**	**0.349**	0.001	**0.843**	0.015	**0.113**
Upp. Atane	**0.420**	**0.828**	**0.832**	**0.999**		**0.375**	0.000	**0.978**	0.006	**0.058**
Low. Atane	**0.202**	**0.109**	**0.872**	**0.349**	**0.375**		0.000	**0.929**	0.003	**0.153**
Upernivik S	0.030	0.012	0.001	0.001	0.000	0.000		0.001	0.024	0.019
Upernivik N	**0.345**	**0.764**	**0.931**	**0.843**	**0.978**	**0.929**	0.001		0.008	**0.203**
Kangilia	**0.217**	**0.063**	0.010	0.015	0.006	0.003	0.024	0.008		**0.106**
Atanikerluk	**0.064**	**0.076**	**0.097**	**0.113**	**0.058**	**0.153**	0.019	**0.203**	**0.106**	

Table 6: Results of the K-S test for the zircon age distribution of the sandstone samples from the Nuussuaq area.

After regrouping, the samples from the Itilli and Atane formations can be divided into two different groups based on their zircon age distribution: the upper Itilli and the lower Atane Formations compare to a value of 0.872 in the K-S test, the upper Atane and lower Itilli Formations even to 0.999 (identical = 1.000). These two values are higher than for the comparison between the upper and lower Atane Formation (0.375) or the upper and lower Itilli Formation (0.563). The whole Itilli and Atane Formations are very similar (> 0.84 in K-S test) in zircon age distribution to the Upernivik Næs Formation at Upernivik. The Upernivik Næs Formation at Qeqertarsuaq on the other hand, has a dissimilar zircon age compared to all other Formation.

The similarity between samples from the lower Atane and upper Itilli Formation, and between samples from the upper Atane and lower Itilli Formation strengthens the idea based on the heavy mineral assemblage that the Atane Formation might have been reworked into the Itilli Formation. Alternatively, since the exact sedimentary age of the lower Itilli Formation is unknown, the lower Itilli and upper Atane formation could be coeval, formed in different parts of the delta-slope system from sediment derived from the same source (M. Sønderholm, pers. comm.).

Speculations on the provenance of the samples

The sandstone samples are derived from a source rock that is poor in heavy minerals and rich in quartz and/or feldspar, suggesting that the source is either a granitic-granodioritic basement or a granite intrusion. Mica are rare in most samples; and might have been removed before deposition. In the upper Atane and lower Itilli mica minerals are observed, their presence results from a high sedimentation rate, such that time was too short to weather away the mica minerals.

Some of the mineral suites provide some extra information about the possible location of origin of the samples. A mineral paragenesis consisting of silliminate/kyanite, staurolite, garnet, zircon, ±ilmenite/leucoxene, ±magnetite, ± rutile might be derived from a high metamorphic grade aluminium-rich protolith, like for example a granulite facies metamorphosed, meta-sedimentary unit within the gneissic basement rock. This mineral paragenesis is characteristic for mature sediment where weathering processes selectively removed the pyroxene/amphiboles and mica minerals.

The garnets in these possibly high-grade metasedimentary derived samples are Mg-rich almandine (group 1 garnets, Figure 6, Appendix B), which typically occur in metasediments that were metamorphosed under high PT-conditions, although more Mg-rich almandine can also be an indicator of a more mafic composition of the host rock. The

observations on the garnets are therefore in concordance with observations on the heavy mineral assemblage.

High grade metasedimentary rocks are present in three places in the area around Nuussuaq. Sillimanite/kyanite-staurolite-garnet-FeTi-oxides-zircon assemblages have been found in small amounts in stream sediments in the region north of Nuussuaq (Knudsen, 1983). Archaean metamorphosed mica-garnet schist (pelitic and psamnitic) were mapped along the south-eastern coast of Nuussuaq and further south east around Eqip Sermia (Garde & Steenfelt, 1999). Further southward, south of 69° N, abundant silliminate/kyanite was observed in the Palaeoproterozoic basement.

Manganese-iron-calcium-rich garnets are often found in skarn deposits and other metasomatised rocks, often of a more felsic composition. They often coexist with epidote, clinopyroxene, actinolite, and magnetite. This combination of heavy minerals was observed in samples from Upernivik Næs, Kamaffiaraq, Ivisaannguit and Kuuk. Epidote-forming alteration, associated with Mn-enriched deposits was observed in the metasedimentary rocks on southeastern Nuussuaq and further south east around Eqip Sermia. Stream sediments samples from the area northeast of Nuussuaq show the same assemblage and suggest the Mârmorilik Formation or Karrat group sediments as source region. One or several of these areas seems to be a likely source rock for this set of samples.

Further evidence for presence of a high grade metasedimentary hinterland for the samples of the Upernivik Næs, Atane, Itilli, Kome and Quikavsak Formations is formed by the TiO2-concentration in the FeTi-oxides. It is most commonly assumed that a higher TiO2-concentration is the effect of weathering in a (tropical) beach or alluvial plain environment. However, growing evidence (e.g. Bernstein et al., 2008) suggests that the host-rock of the ilmenite/leucoxene plays an important role as well and especially metasedimentary rocks that were metamorphosed under high temperature conditions are prone to this increase in TiO2 concentration during weathering. The group of samples that have an elevated TiO2 concentration is roughly similar with the more mature samples that consist of silliminate/kyanite, staurolite, garnet, zircon, ±ilmenite/leucoxene, ±magnetite, ± rutile. The samples from the Atane, Itilli, Kome, Quikavsak Formation might therefore be interpreted as partially derived from a metamedimentary host rock, and partially from rocks with either a lower grade or a different composition (more biotite and muscovite) or both.

It seems most likely that the pyrite in the heavy mineral suite is formed by diagenetic processes, especially since it mainly occurs in samples that are rich in dolomite. This is confirmed by a petrological study perfomed for Dong (M. Sønderholm, pers. comm.).

The heavy mineral suite of few samples (e.g. 453182, 486815) are very rich in clino-pyroxene/amphibole, which reveal an amphibolitic, gabbroic rock or basaltic influence in the

hinterland. Tuffs are reported for the Eqalulik Formation (Dam et al., in press). Further investigations are necessary to separate the amphiboles from the pyroxenes, to facilitate a more detailed interpretation of these rocks.

Summary

59 sediment samples from Nuussuaq and its surrounding area, including 6 core samples from the GGU drilling at Ataata Kuua (247801), were measured with computer-controlled scanning electron microscopy in order to determine their heavy mineral suite, including the chemistry of the garnets, the TiO2-concentration of the FeTi-oxides, the grain size of the five most frequent heavy minerals. 6 samples from the GRO#3 drill hole were discarded, because of a too high influence of cross-cutting dykes.

The major part of the sediments is most likely derived from a granitic or gneissic source rock. The basement rock at Nuussuaq and sorth and east of Nuussuaq are probably not the source of the sediment: all the stream sediment samples from these areas show a distinct amount of sphene, which is hardly ever observed in the sediments on and around Nuussuaq and garnets from that basement rock area are much richer in Mg than observed in the sediments on and around Nuussuaq. Further analysis of the stream sediments is necessarily to pinpoint the area of origin of the sediments more precisely. Samples from the Upernivik Næs Formation at Qeqertarsuaq show a good correlation with the stream sediments from the peninsula North of Upernivik Ø.

Samples from the Atane, Atanikerluk, Kome and Quikavsak Formations are fluvial channel deposits sourced from several different kinds of rock. Part of these samples show abundant garnet, sillimanite/kyanite, staurolite, rutile, ilmenite in the heavy mineral suite and are probably derived from a high-grade metasedimentary rock. The garnet composition of these more mature sediments yields many almandine grains, which are indicative for very high grade metamorphism. Additionally, these sediments show a high TiO2-concentration in FeTi-oxides, which is mainly observed in ilmenite/leucoxene grains derived from granulite facies metasedimentary host rocks that weathered under warmer temperature conditions. These high grade metasedimentary rocks might originate from the area around Eqip Sermia or Nunataq. Alternatively, the eastern Nuussuaq basement rocks might serve as a source area.

Part of the samples have been subject to diagenetic alteration after deposition during which dolomite and pyrite were formed. This is especially abundant in the Kangilia and Itilli Formations.

The samples from the syn-volcanic Atanikerluk and Eqaliluk Formations are richer in clino-pyroxene/amphibole than any of the stream sediment samples from the surrounding

areas. For the Eqalulik and Atanikerluk Formation, magmatic rocks might have been, at least partially, the source of the clino-pyroxene/amphibole.

The Itilli Formation might have been reworked from the Atane Formation and possibly the Kome Formation, were the lower Itilli Formation resembles the upper Atane Formation and the upper Itilli the lower Atane Formation. The rocks show a very similar heavy mineral suite, and very similar zircon, garnet and FeTi-oxide data.

Suggestions for further research

For a further understanding of the heavy mineral fraction of the sediments from the Nuussuaq area and its surroundings several lines of investigation could be pursued.

1) The stream sediment CCSEM data could be further investigated for their heavy mineral suite, garnet composition, their TiO2 concentration, and grain size. Relative ratios between inert minerals could be calculated as an extra help to determine the provenance of the samples. Ca. 55 stream sediment samples from the area between Sukkertoppen and Upernivik Næs have been analysed and more samples are available from the same region. Ca. 20 more heavy mineral separates of sediment samples from southern Disko and south-eastern Nuussuaq were analysed with CCSEM. An integration of the data for these sediments with the results of this study is expected to help to identify the provenance of the samples in this study.
2) A large data set exists for the zircons of these sediments, of the stream sediments and for samples from the other drill holes in the area (e.g. Scherstén et al., 2007). The results obtained from those should be included in these analyses.
3) For a complete overview of the correlation between the samples (including the data from the stream sediments) within one locality, between different localities of the same formation and of reworked samples in other formation and a linking between the sediments and their possible source rock areas a multivariate study needs to be performed. With this statistical technique the relative influence of many variables can be studied simultaneously. With this method a large number of variables (like the composition of the heavy mineral suite, but also the composition of individual minerals within this suite, like garnet or titanium, grain size, grain shape, coordinates, altitude, age) is reduced to a smaller number of factors, which are used to obtain a better understanding of the problem and to select the principal controlling factors, which than can form the input parameters for further modelling studies.
4) Much work has already been done on the sediments and basement in this area, which has not been incorporated in this study so far. Integration with literature data on the area would improve the quality of the attempts to link the sediments to their host rocks. A

petrographic study of the samples from the same area has been performed (Dong, confidential report). It would be beneficial to integrate the data from that report with the results from this study. One of the problems that could be sorted out in this way is which minerals are authigenic and which ones are parts of the original detrital assembly.

5) A more detailed investigation of the different kinds of clino-pyroxene/amphiboles could help to in the further understanding of the provenance of these rocks. Quantification should be made based on chemistry and might give some clues on the mineralogy of the sediments.

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Nynke T. Keulen

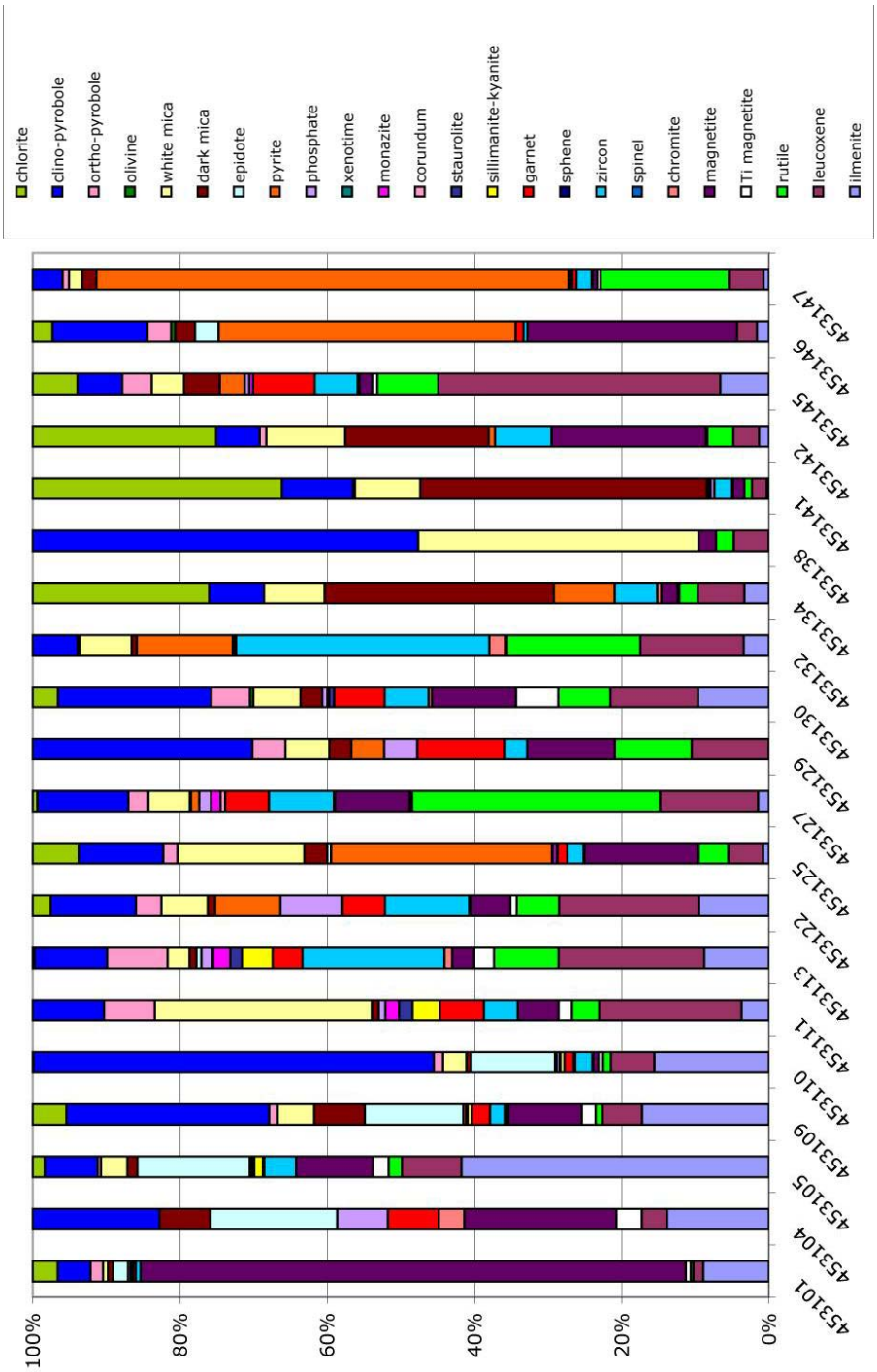
Geological Survey of Denmark and Greenland (GEUS)

Øster Voldgade 10

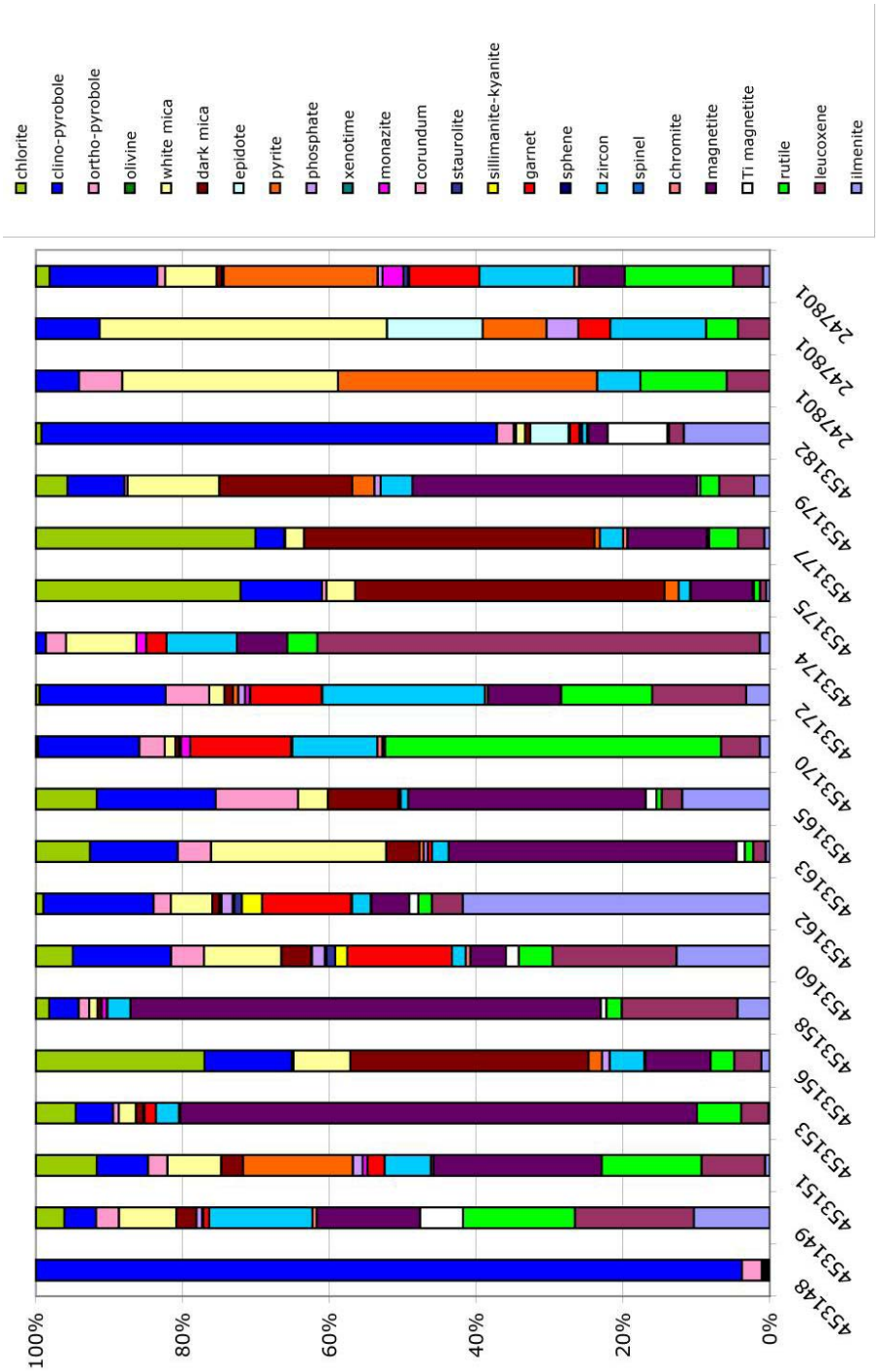
DK-1350 Copenhagen K

Denmark

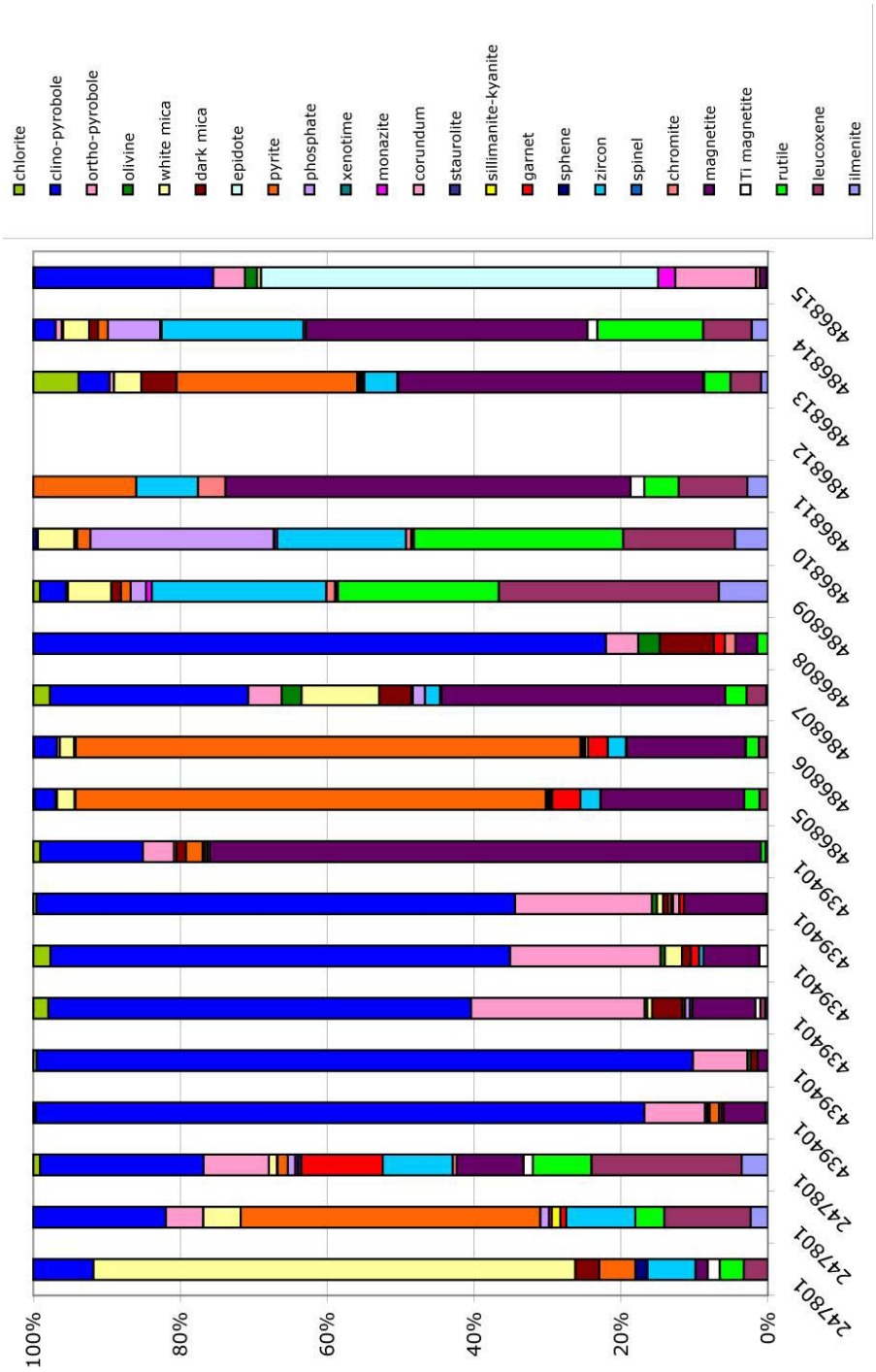
ntk@geus.dk
381 42 251



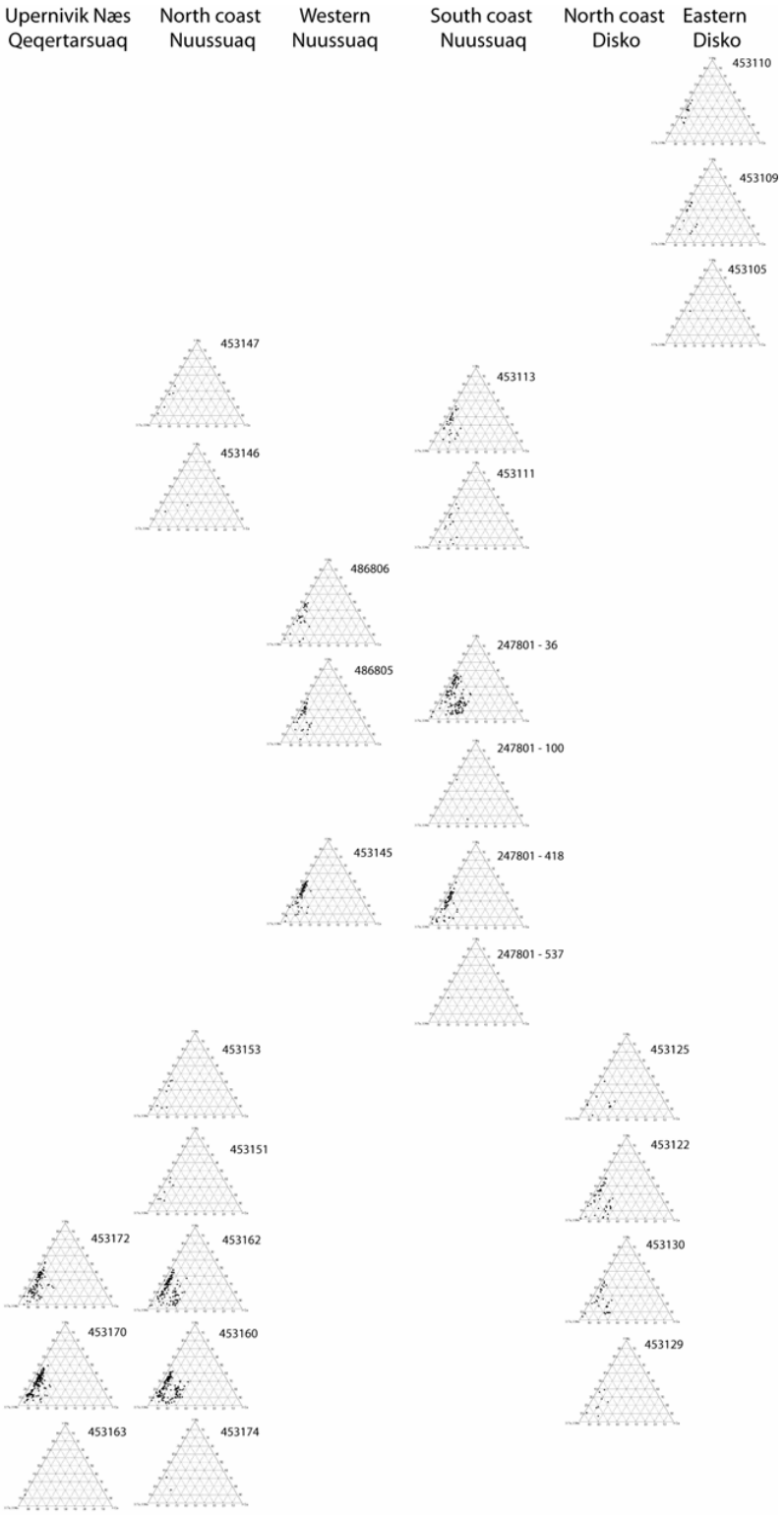
Appendix A1: overview of heavy mineral paragenesis of all samples



Appendix A2: Overview of heavy mineral paragenesis of all samples

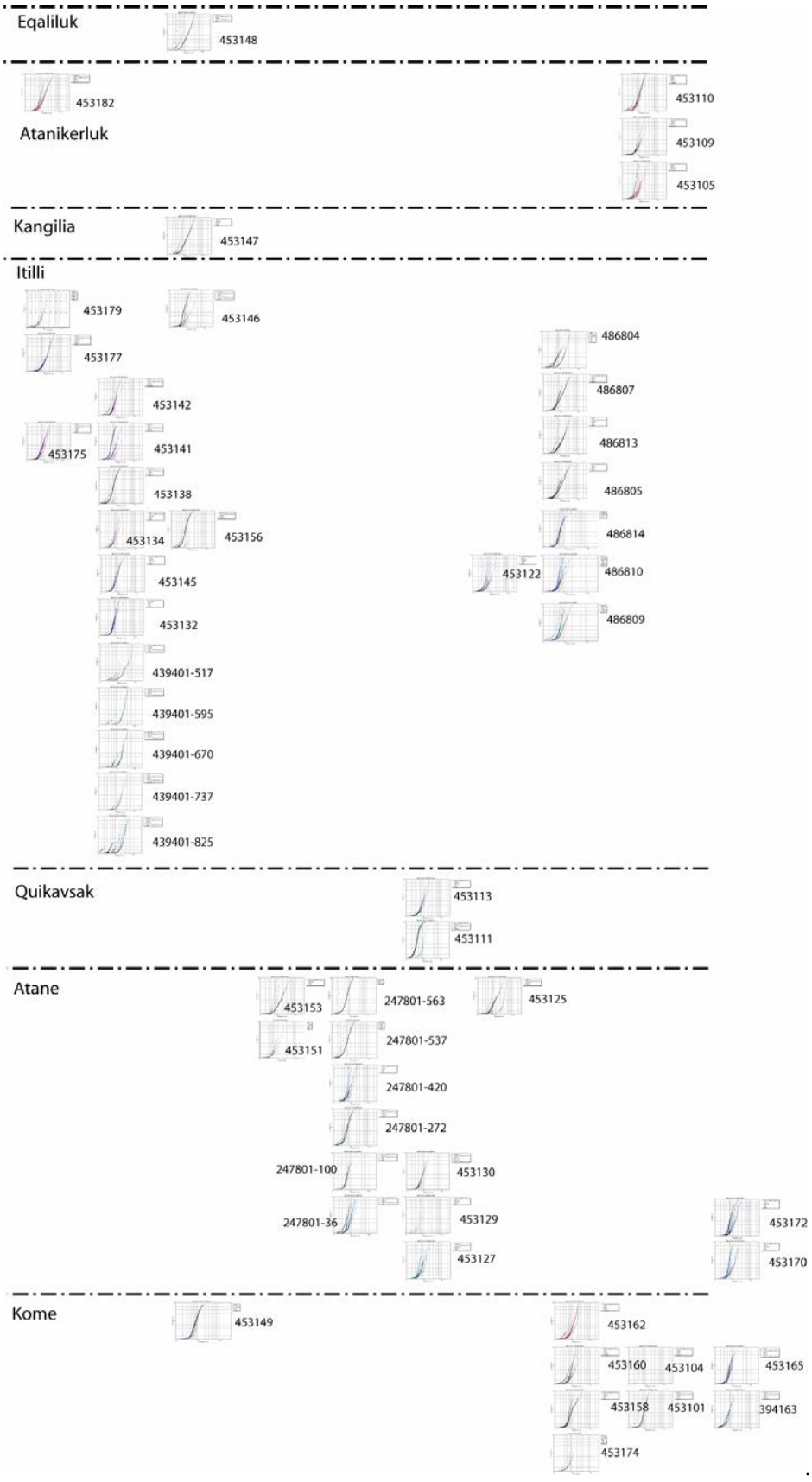


Appendix A3: Overview of heavy mineral paragenesis of all samples.



Appendix B: Composition of individual Al-garnet grains from sediment samples from the Nuussuaq area. Some samples with none or few garnet grains were omitted. The garnet composition is plotted from its four endmembers.

Appendix C: Grain size distribution for the 5 to 7 most abundant minerals in the analysed sample.



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Sample GEUS #: 2003913

Description: Pingu, 240 m, Atane Formation Skansen Member, 453101, outcrop

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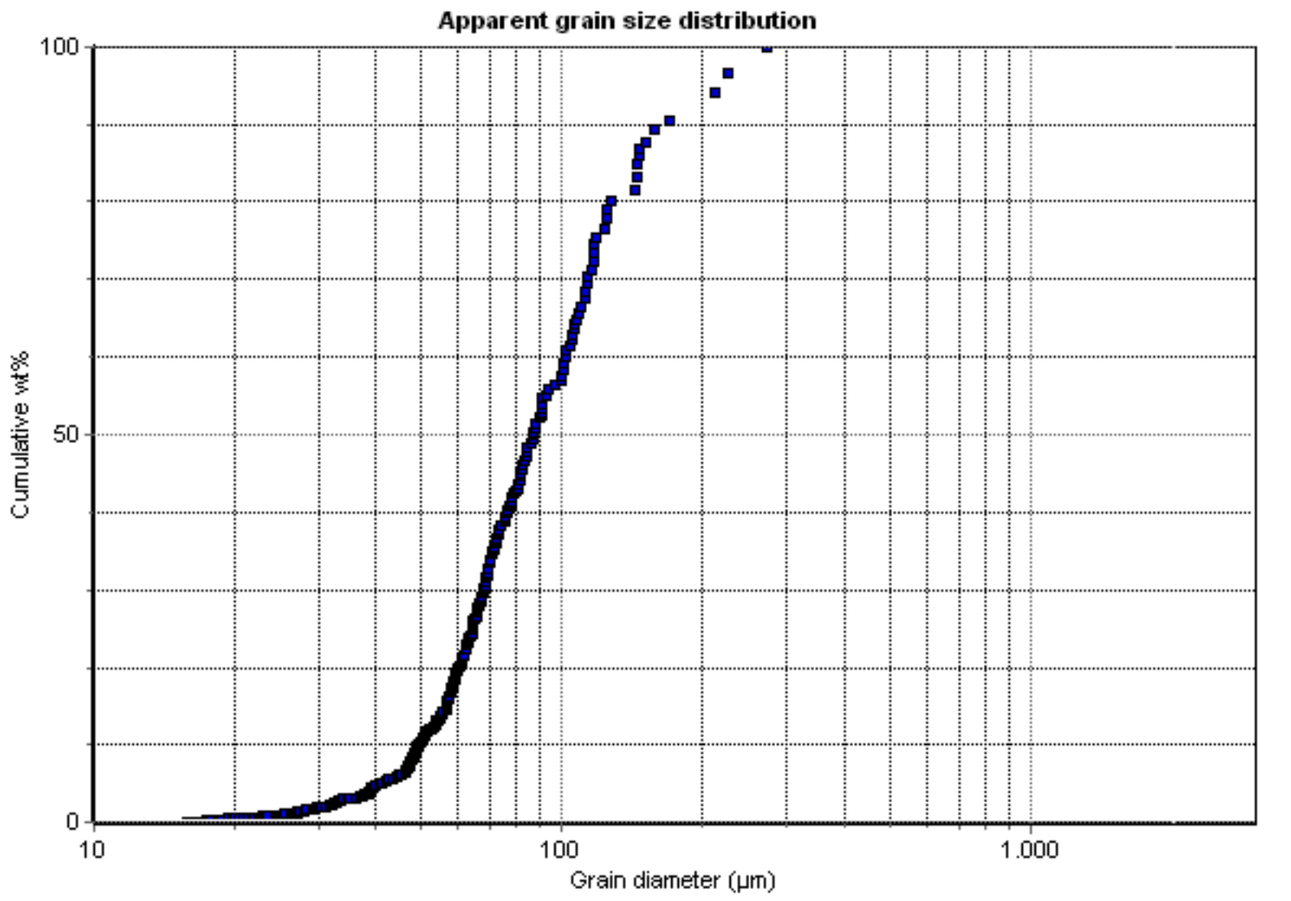

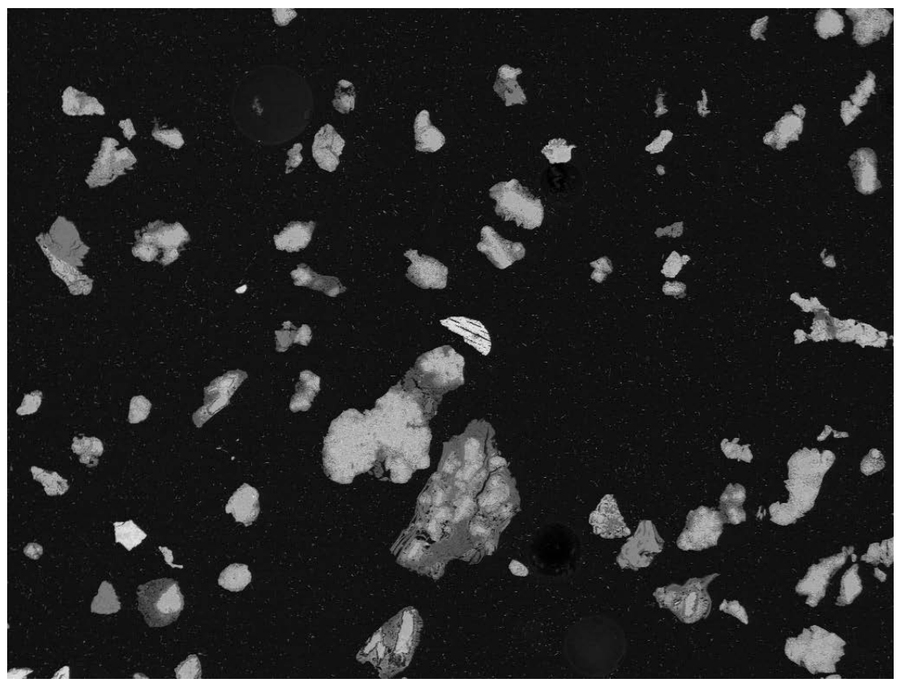

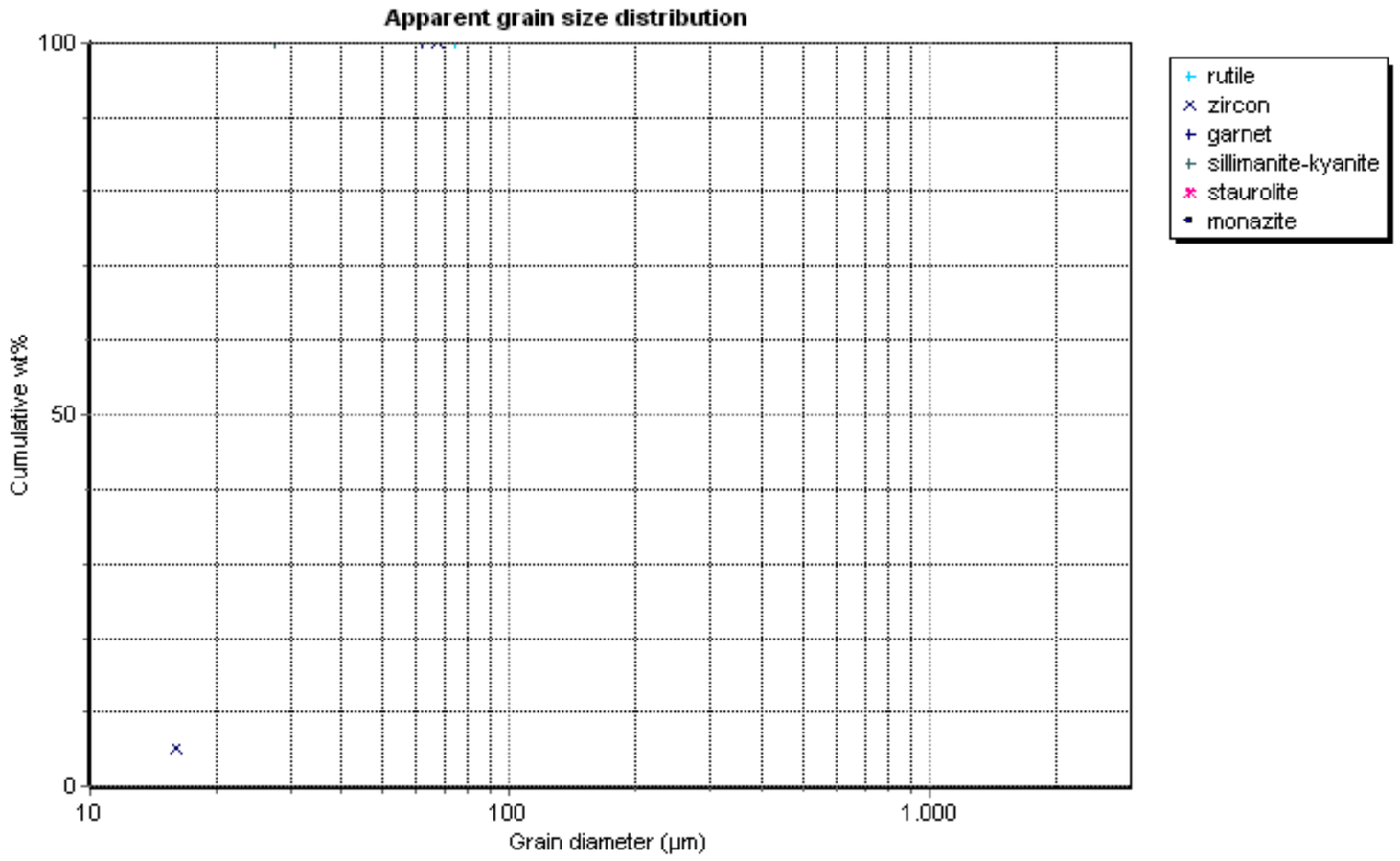

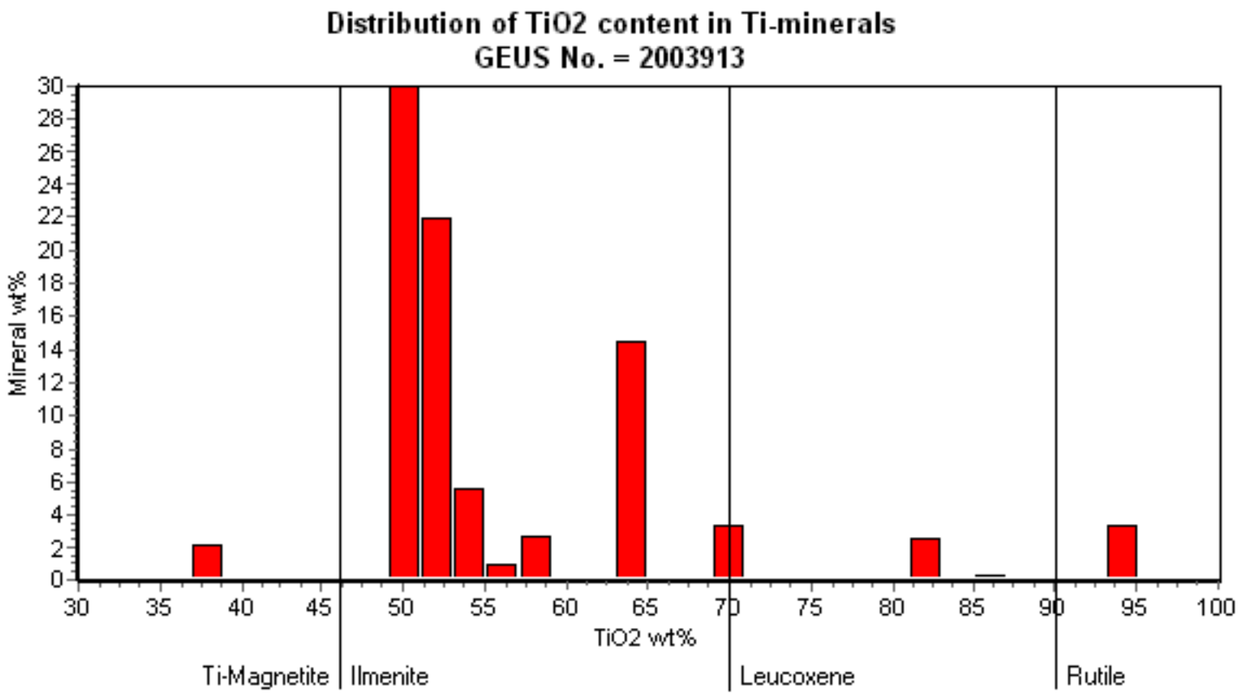

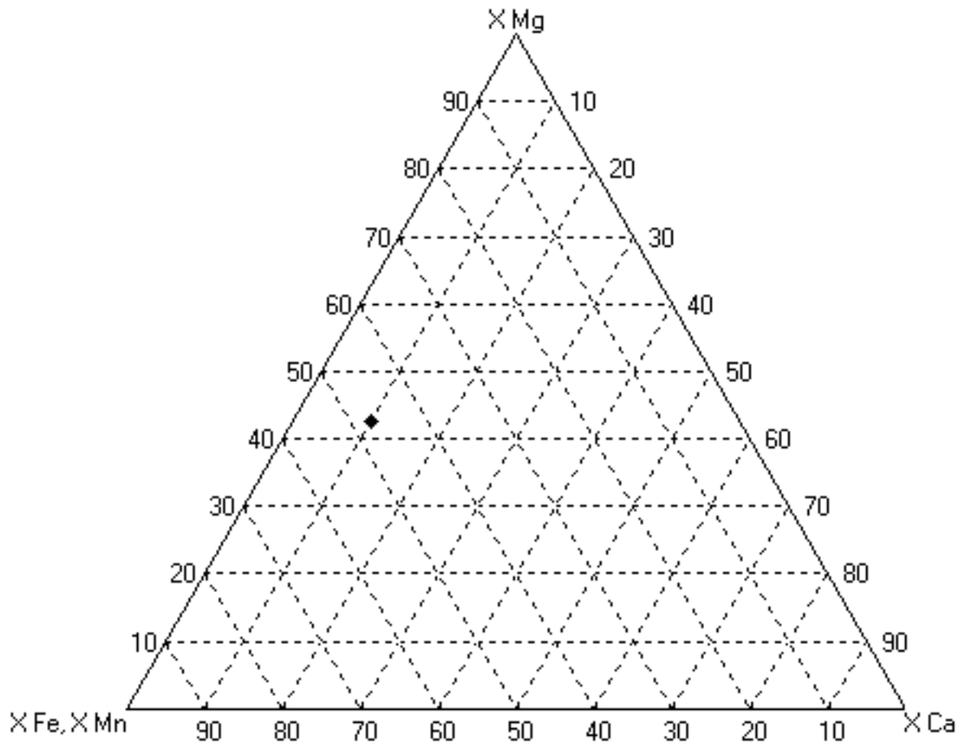

Sample GEUS #: 2003913

Description: Pingu, 240 m, Atane Formation Skansen Member, 453101, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.15	0.4	0.62	1.7	0.13	0.04	0.09	52.17	0.07	1.34	42.66	0.04	0.1	0.04	0.16	0.09	0.01	0.09	0.13	26
leucoxene	0.36	0.15	3.77	6.99	0.19	0.06	0.17	78.75	0.0	0.14	8.73	0.11	0.17	0.0	0.22	0.12	0.01	0.0	0.06	4
rutile	0.0	0.0	0.46	1.28	0.0	0.0	0.08	94.82	0.19	0.0	2.31	0.0	0.08	0.0	0.7	0.07	0.0	0.0	0.0	1
Ti magnetite	0.5	0.72	8.55	24.44	0.22	0.03	0.44	28.64	0.05	1.09	33.95	0.0	0.26	0.36	0.56	0.0	0.0	0.11	0.13	2
magnetite	2.22	3.15	5.45	11.18	0.33	0.11	0.69	0.14	0.06	0.84	74.68	0.08	0.15	0.2	0.29	0.14	0.07	0.12	0.1	217
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.09	0.77	29.19	0.0	0.03	1.14	0.03	0.01	0.07	0.89	0.07	0.0	67.46	0.0	0.0	0.0	0.18	0.1	2
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	10.24	23.53	40.09	0.0	0.0	3.36	0.15	0.0	0.42	21.95	0.0	0.13	0.0	0.0	0.0	0.0	0.0	0.14	1
sillimanite-kyanite	0.0	0.21	60.26	39.1	0.0	0.0	0.17	0.0	0.0	0.0	0.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	4.71	0.06	22.18	62.82	0.0	6.03	1.99	0.11	0.07	0.16	1.19	0.01	0.0	0.0	0.0	0.0	0.0	0.09	0.58	4
silicate-other	3.83	1.35	27.85	56.38	0.14	1.3	0.17	0.42	0.08	0.13	8.01	0.07	0.0	0.0	0.0	0.0	0.0	0.09	0.22	4
quartz	0.0	0.19	0.34	95.21	0.05	0.02	0.05	0.26	0.0	0.23	2.09	0.12	0.24	0.21	0.0	0.18	0.0	0.56	0.26	3
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.0	1.08	0.43	0.0	0.2	0.15	0.0	0.0	0.0	0.27	1.27	0.0	10.57	0.0	36.43	48.54	1.06	0.0	1
carbonate	1.06	3.33	1.53	2.5	0.0	0.08	87.14	0.02	0.0	0.0	3.49	0.0	0.54	0.0	0.22	0.06	0.0	0.0	0.0	1
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	0.21	25.74	38.78	0.03	0.07	23.05	0.8	0.08	0.06	10.66	0.01	0.08	0.02	0.0	0.03	0.0	0.11	0.28	6
dark mica	1.17	1.5	16.28	38.19	0.0	4.03	0.52	0.25	0.0	0.24	36.7	0.0	0.01	0.0	0.0	0.1	0.0	0.12	0.93	2
white mica	0.46	1.32	29.86	47.78	0.0	10.8	0.0	1.26	0.04	0.05	6.57	0.07	0.14	0.0	0.0	0.0	0.0	0.29	1.42	2
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	2.04	27.01	40.21	0.07	0.21	1.71	0.28	0.06	0.81	26.62	0.08	0.31	0.08	0.0	0.0	0.0	0.3	0.23	5
clino-amphibole/clino-pyroxene	2.87	2.79	20.77	36.85	0.15	0.4	4.24	0.13	0.08	0.5	30.28	0.13	0.04	0.13	0.24	0.1	0.08	0.09	0.11	13
chlorite	1.21	2.33	17.91	26.89	0.11	0.95	0.61	1.04	0.04	0.56	47.35	0.04	0.11	0.17	0.29	0.08	0.1	0.09	0.14	10
unclassified	1.24	3.49	10.76	29.6	0.57	1.36	13.68	0.9	0.17	0.52	34.59	0.03	0.33	0.24	0.32	0.26	0.04	0.79	1.12	9

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Sample GEUS #: 2003914

Description: Pingu, altitude 315, provenance, Atane formation,453104, outcrop

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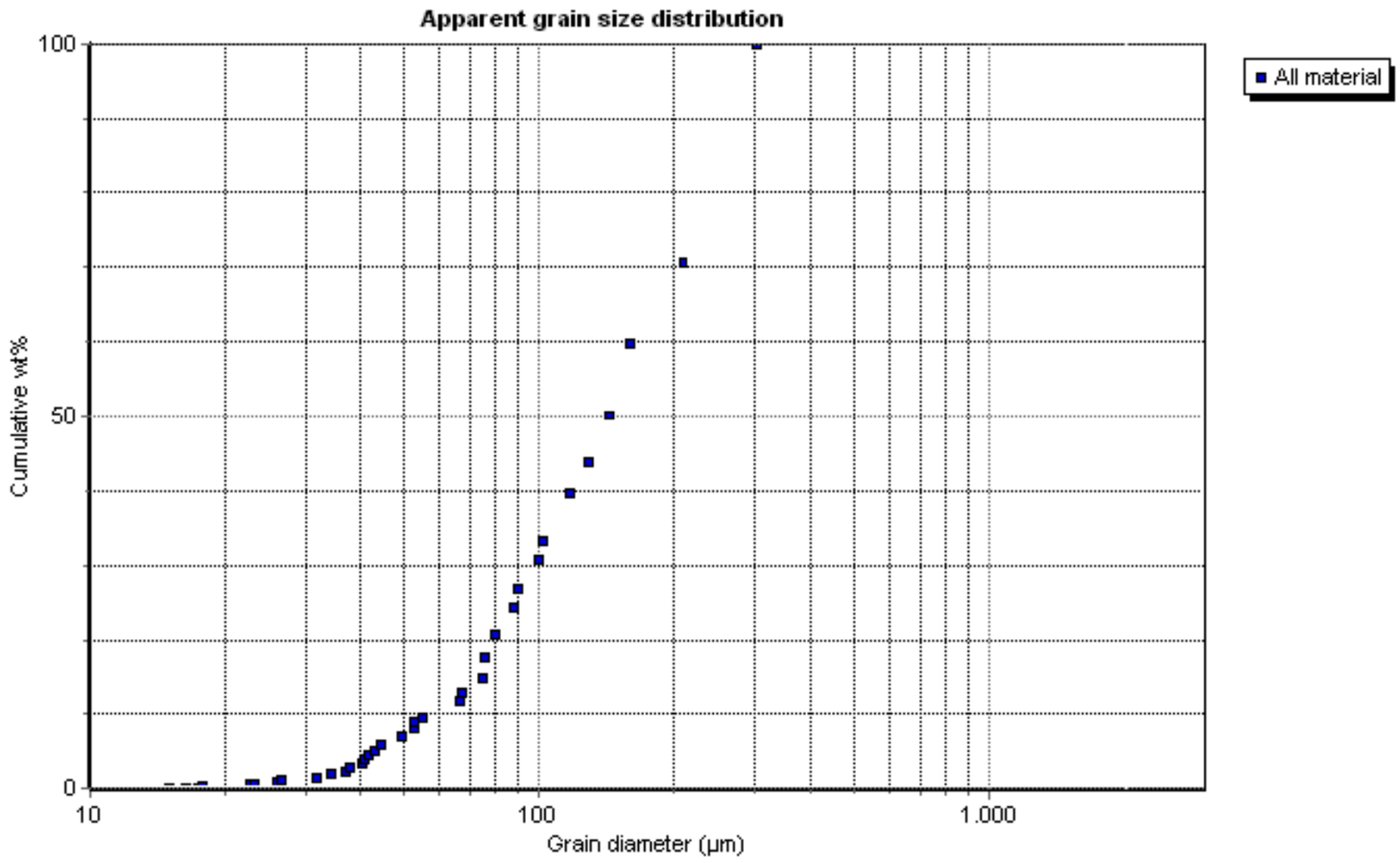

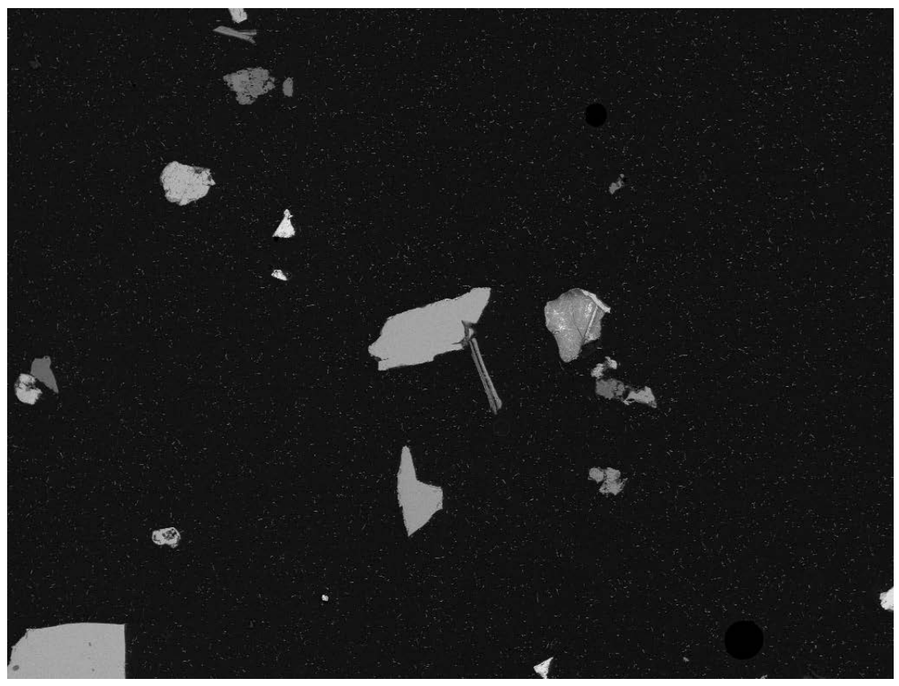

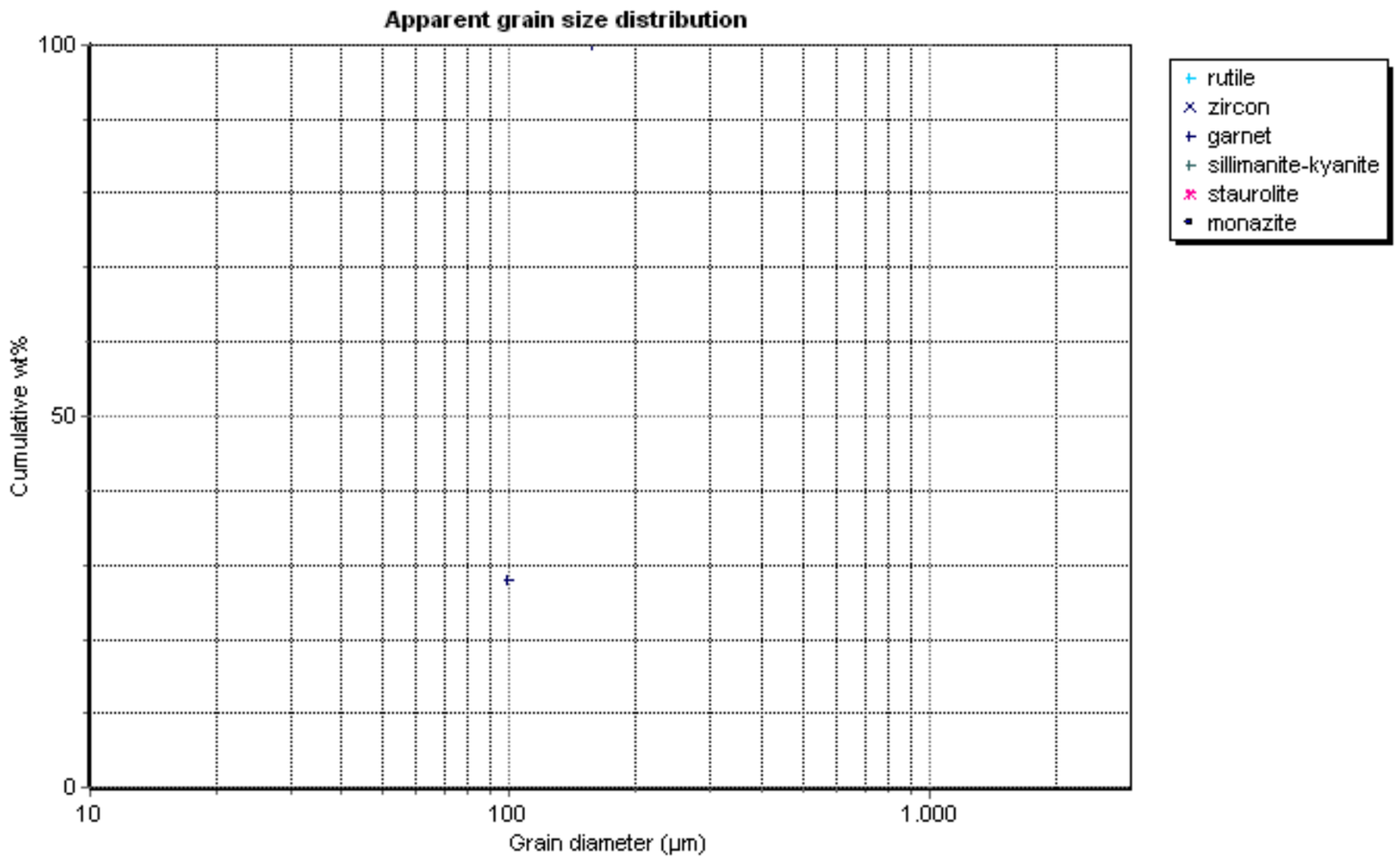

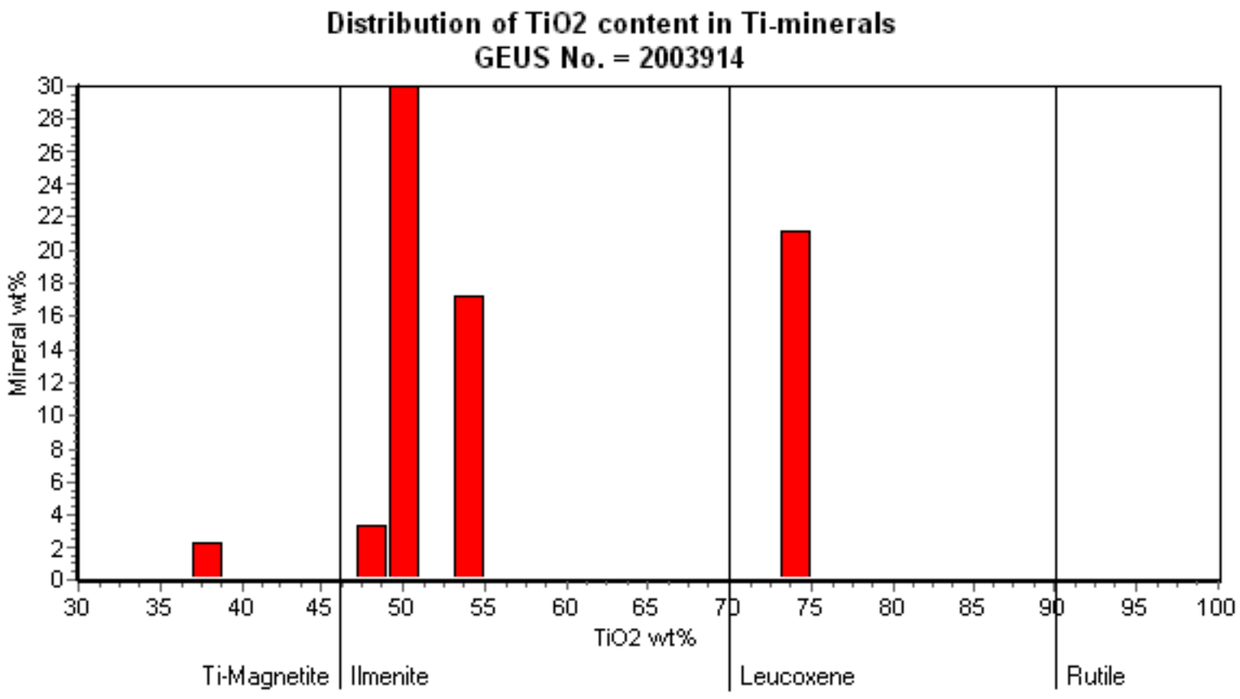

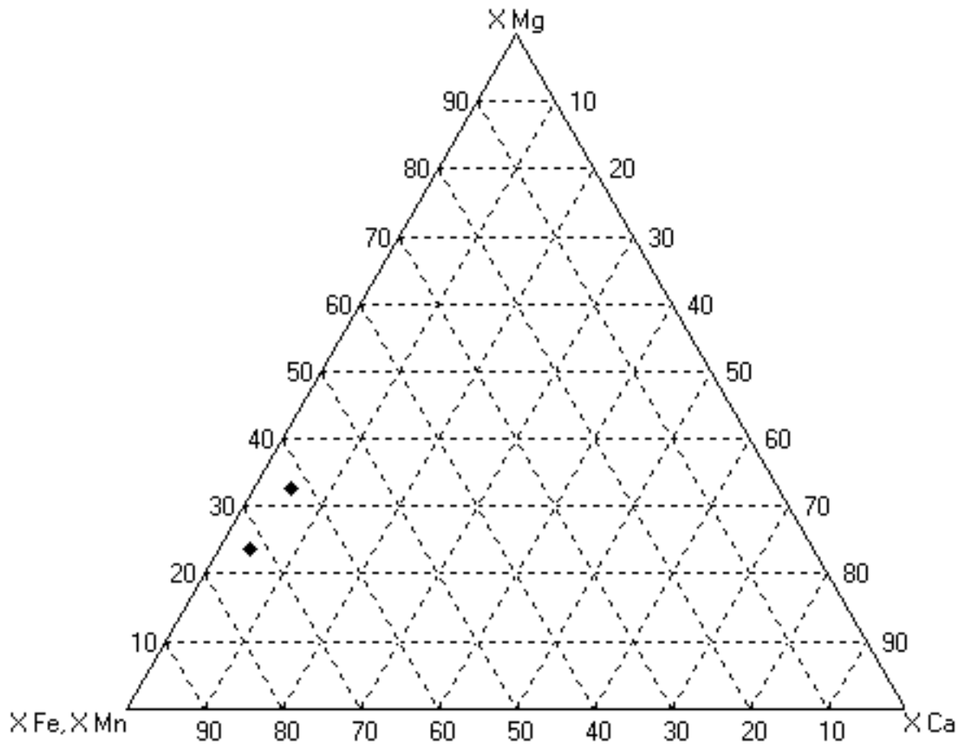

Sample GEUS #: 2003914

Description: Pingu, altitude 315, provenance, Atane formation,453104, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.45	0.53	1.79	0.17	0.04	0.03	50.32	0.04	0.72	45.52	0.08	0.09	0.0	0.1	0.06	0.0	0.0	0.09	4
leucoxene	0.0	0.35	7.86	11.3	0.32	0.06	1.3	73.29	0.36	0.0	3.09	0.12	0.1	0.98	0.13	0.73	0.0	0.0	0.0	1
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	0.0	0.0	0.49	22.28	1.36	0.12	0.31	37.94	0.0	0.95	35.72	0.02	0.0	0.13	0.48	0.0	0.08	0.0	0.13	1
magnetite	0.5	0.92	6.53	16.45	0.14	0.14	2.43	0.2	0.13	1.06	70.77	0.09	0.01	0.14	0.15	0.05	0.03	0.13	0.14	6
chromite	0.0	1.46	13.89	3.1	0.62	0.0	0.05	7.82	26.28	0.18	45.35	0.21	0.0	0.23	0.5	0.0	0.0	0.0	0.32	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	6.31	22.92	38.3	0.0	0.04	1.38	0.15	0.23	0.76	29.01	0.16	0.31	0.0	0.0	0.04	0.0	0.35	0.07	2
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.47	0.07	23.05	56.97	0.24	0.11	11.26	0.09	0.13	0.05	3.76	0.26	0.07	0.08	0.0	0.22	0.0	0.0	0.22	2
silicate-other	3.39	0.29	24.78	62.82	0.43	0.05	3.84	0.19	0.13	0.03	3.19	0.05	0.06	0.05	0.0	0.18	0.0	0.14	0.37	3
quartz	0.16	0.06	2.29	95.2	0.04	0.07	0.01	0.3	0.07	0.19	0.81	0.0	0.33	0.0	0.0	0.0	0.0	0.0	0.49	2
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.12	0.51	0.89	0.35	0.09	53.35	0.0	0.13	0.07	0.26	0.32	0.39	6.3	0.0	36.77	0.0	0.12	0.35	2
carbonate	1.81	2.95	0.29	0.98	1.46	0.05	90.62	0.0	0.0	0.0	0.98	0.22	0.0	0.0	0.0	0.0	0.0	0.04	0.59	1
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	0.15	28.96	38.69	0.01	0.07	24.42	0.15	0.07	0.14	6.75	0.11	0.08	0.0	0.0	0.0	0.0	0.07	0.32	5
dark mica	0.0	5.87	24.95	43.0	0.22	5.01	0.18	1.79	0.0	0.17	17.91	0.18	0.3	0.0	0.0	0.0	0.0	0.0	0.45	2
white mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
clino-amphibole/clino-pyroxene	1.88	5.82	23.98	39.98	0.08	0.07	7.72	0.08	0.07	0.57	19.02	0.02	0.03	0.0	0.0	0.04	0.0	0.32	0.31	5
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	0.0	0.27	5.89	48.37	0.0	2.69	1.73	0.07	0.0	0.08	1.44	0.0	0.0	36.4	3.07	0.0	0.0	0.0	0.0	1

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Sample GEUS #: 2003915

Description: 453105, Pingu, 368m, Atanikerluk formation, Akuneq member, 453105, outcrop

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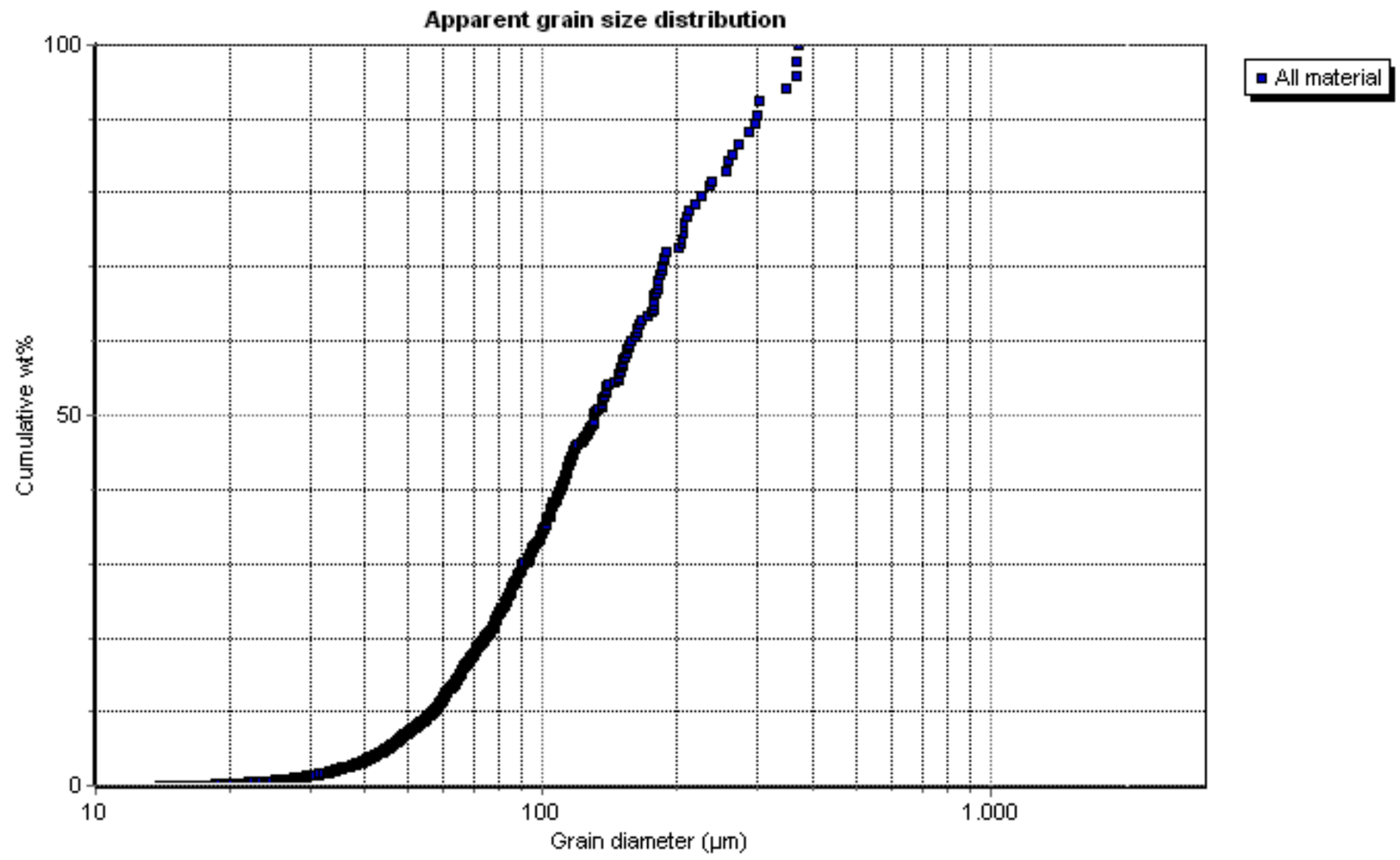

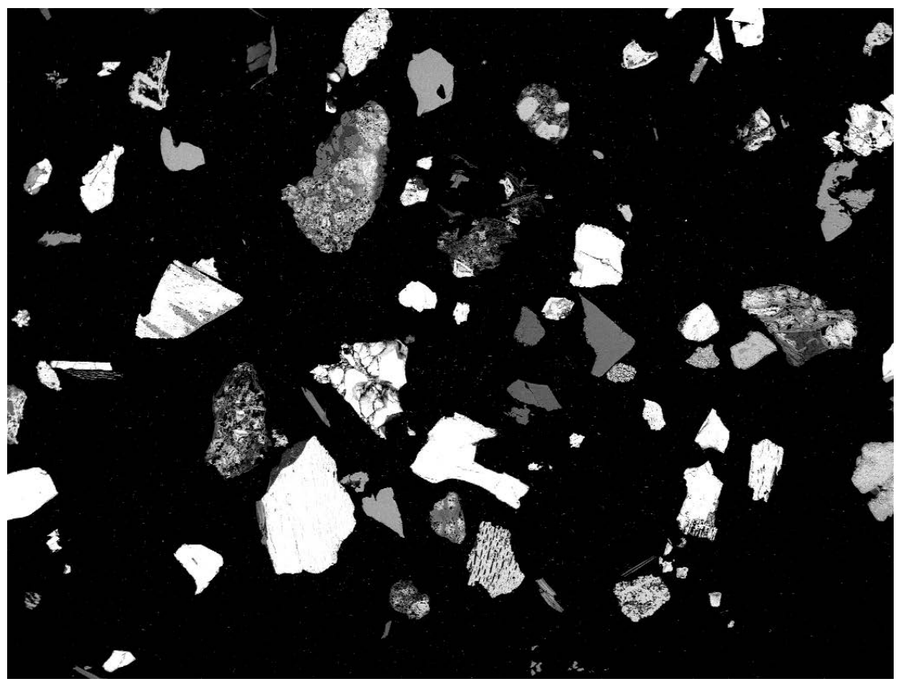

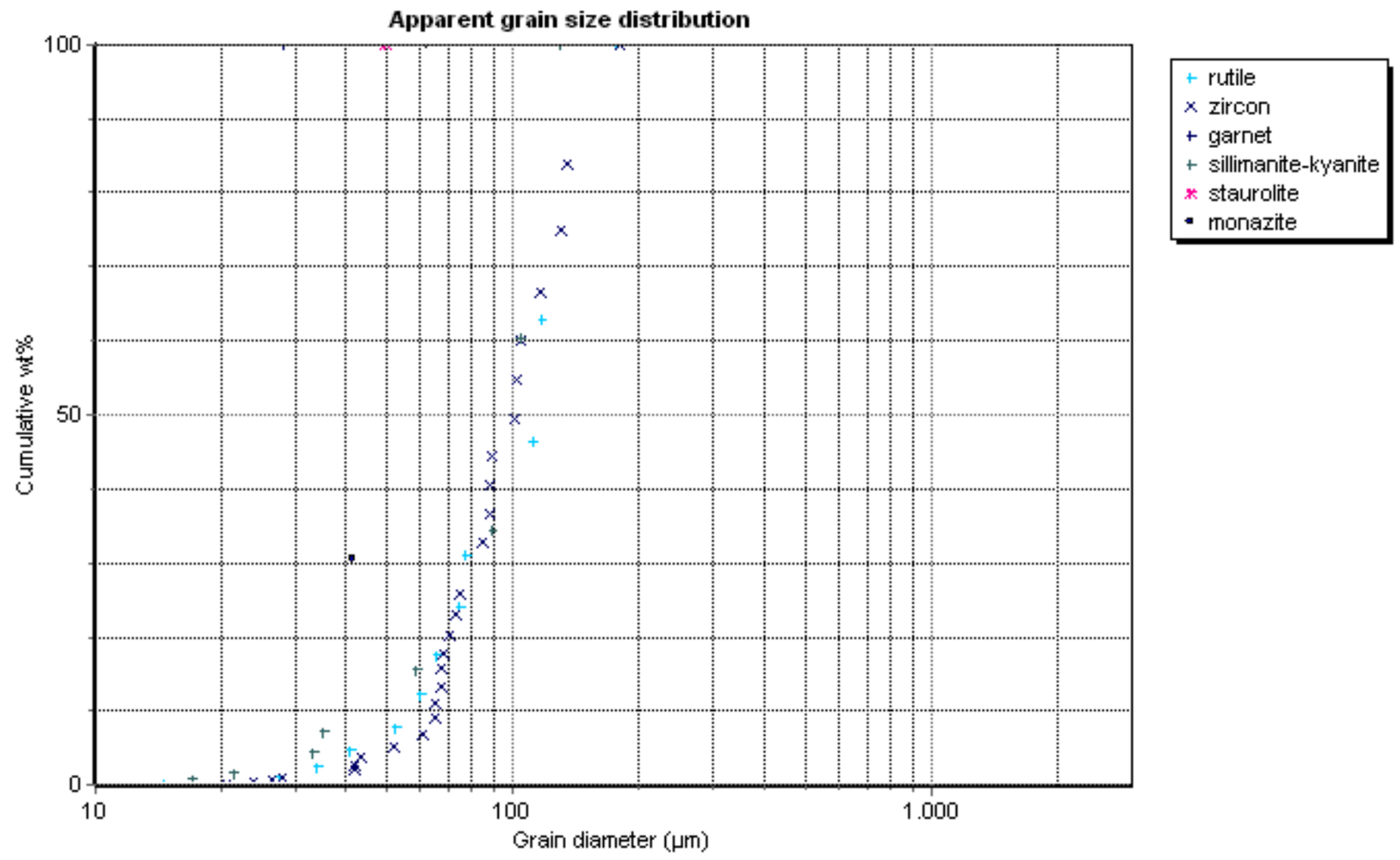

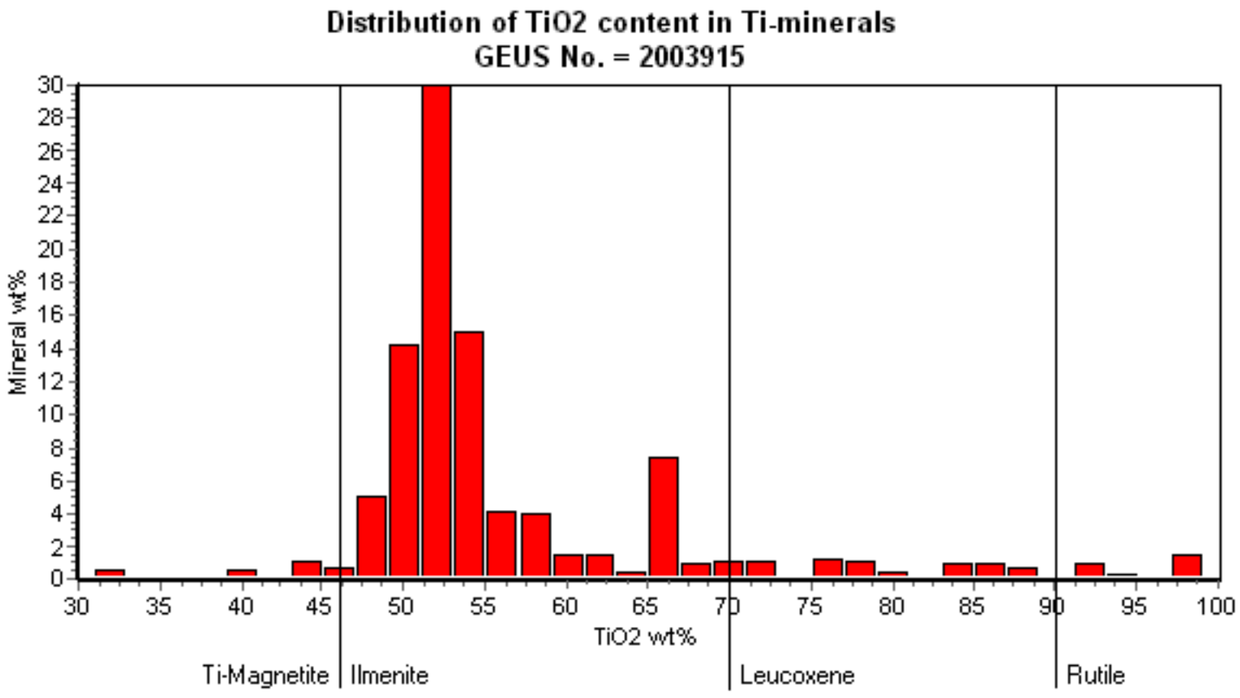

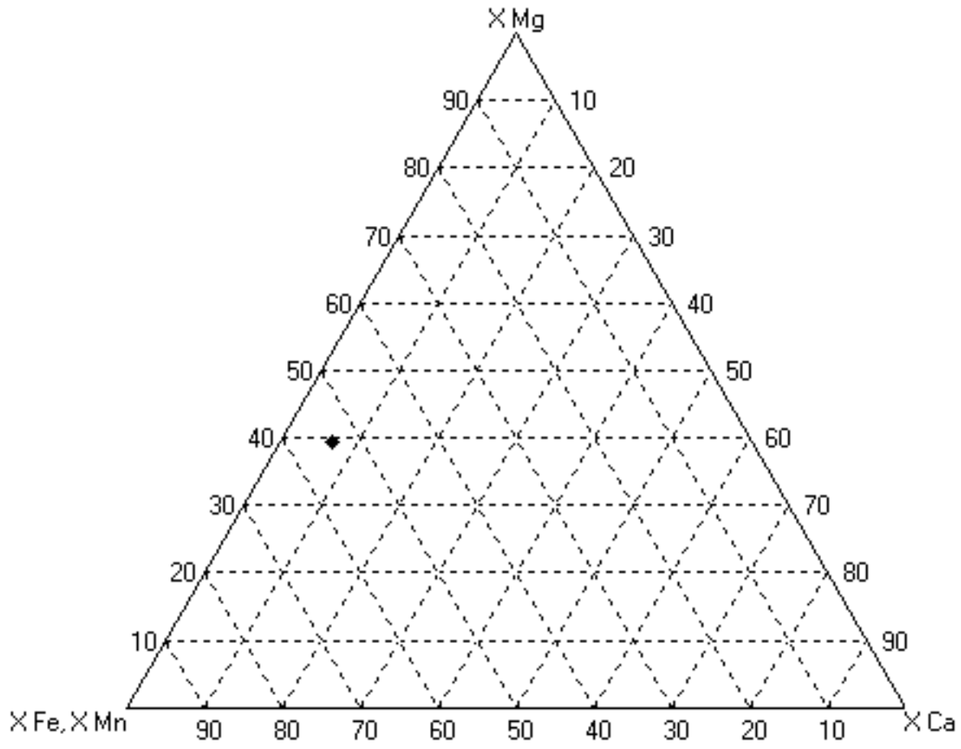

Sample GEUS #: 2003915

Description: 453105, Pingu, 368m, Atanikerluk formation, Akuneq member, 453105, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.18	0.6	1.43	2.65	0.22	0.04	0.16	53.51	0.07	1.18	39.05	0.08	0.12	0.12	0.28	0.11	0.02	0.11	0.08	279
leucoxene	0.22	0.37	4.12	6.36	0.41	0.06	0.76	79.24	0.19	0.36	5.64	0.1	0.1	0.83	0.46	0.53	0.08	0.05	0.12	54
rutile	0.04	0.2	1.43	2.18	0.2	0.05	0.14	92.73	0.08	0.17	1.65	0.2	0.14	0.04	0.37	0.18	0.01	0.13	0.07	12
Ti magnetite	0.62	1.46	6.71	13.79	0.58	0.16	0.96	37.68	0.2	0.78	34.27	0.1	0.08	0.39	0.91	0.28	0.14	0.56	0.33	14
magnetite	2.76	2.93	5.6	15.07	0.41	0.17	1.96	0.52	0.07	0.36	68.45	0.11	0.22	0.42	0.27	0.27	0.14	0.13	0.15	70
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.16	0.58	30.2	0.02	0.1	0.57	0.34	0.06	0.08	0.62	0.14	0.04	66.33	0.0	0.21	0.08	0.18	0.12	29
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	6.6	25.78	43.24	0.63	0.6	1.58	0.0	1.08	0.21	17.75	0.42	0.41	1.0	0.0	0.0	0.0	0.5	0.22	1
sillimanite-kyanite	0.11	0.35	58.0	39.55	0.39	0.07	0.03	0.09	0.05	0.14	0.37	0.19	0.15	0.0	0.0	0.0	0.0	0.19	0.33	8
staurolite	0.0	2.21	53.24	30.09	0.0	0.0	0.1	0.62	0.0	0.21	13.21	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.25	1
feldspar	3.55	0.18	24.11	57.36	0.31	1.99	8.12	0.26	0.09	0.1	2.89	0.11	0.05	0.09	0.0	0.03	0.0	0.25	0.5	29
silicate-other	1.26	1.77	32.66	52.35	0.26	0.93	2.98	0.44	0.09	0.09	6.49	0.12	0.11	0.09	0.0	0.03	0.0	0.17	0.18	56
quartz	0.32	0.18	2.92	93.91	0.24	0.17	0.4	0.2	0.1	0.1	0.55	0.19	0.14	0.04	0.0	0.12	0.0	0.16	0.25	31
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	1.49	0.7	10.38	15.39	2.02	0.53	1.34	0.0	0.0	0.0	1.99	0.04	0.36	7.67	0.0	38.44	0.0	19.0	0.68	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.38	2.23	2.31	0.0	0.0	0.45	0.34	0.39	0.0	0.0	0.0	0.0	9.49	0.0	46.21	38.2	0.0	0.0	1
carbonate	0.52	1.81	0.55	1.47	1.67	0.24	90.31	0.47	0.15	0.14	0.59	0.18	0.08	0.0	0.11	0.01	0.0	0.92	0.77	9
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.15	0.14	26.78	40.28	0.11	0.07	22.52	0.26	0.06	0.16	8.87	0.06	0.07	0.02	0.0	0.01	0.0	0.11	0.33	102
dark mica	3.38	6.82	22.25	41.88	0.2	4.56	0.52	1.4	0.1	0.08	18.11	0.04	0.08	0.17	0.03	0.12	0.0	0.0	0.26	9
white mica	1.36	1.02	33.39	50.75	0.3	8.69	0.26	0.72	0.1	0.07	2.3	0.04	0.05	0.13	0.0	0.02	0.0	0.16	0.63	24
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	1.5	19.59	47.26	0.0	0.55	1.6	0.16	0.07	0.22	28.73	0.0	0.2	0.07	0.0	0.0	0.0	0.0	0.05	3
clino-amphibole/clino-pyroxene	3.15	3.63	22.0	38.66	0.12	0.6	6.78	0.51	0.05	0.16	23.21	0.11	0.14	0.14	0.2	0.1	0.11	0.13	0.19	48
chlorite	0.24	2.87	18.3	28.06	0.32	0.81	1.23	0.45	0.15	0.28	45.34	0.05	0.19	0.25	0.56	0.39	0.14	0.06	0.3	11
unclassified	2.24	3.0	12.9	34.15	1.45	0.78	9.96	10.39	0.22	0.27	19.36	0.2	0.27	2.25	0.97	0.62	0.15	0.44	0.37	47

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Sample GEUS #: 2003916

Description: Pingu, 602 m, Atanikerluk formation, Assoq member, 453109, outcrop

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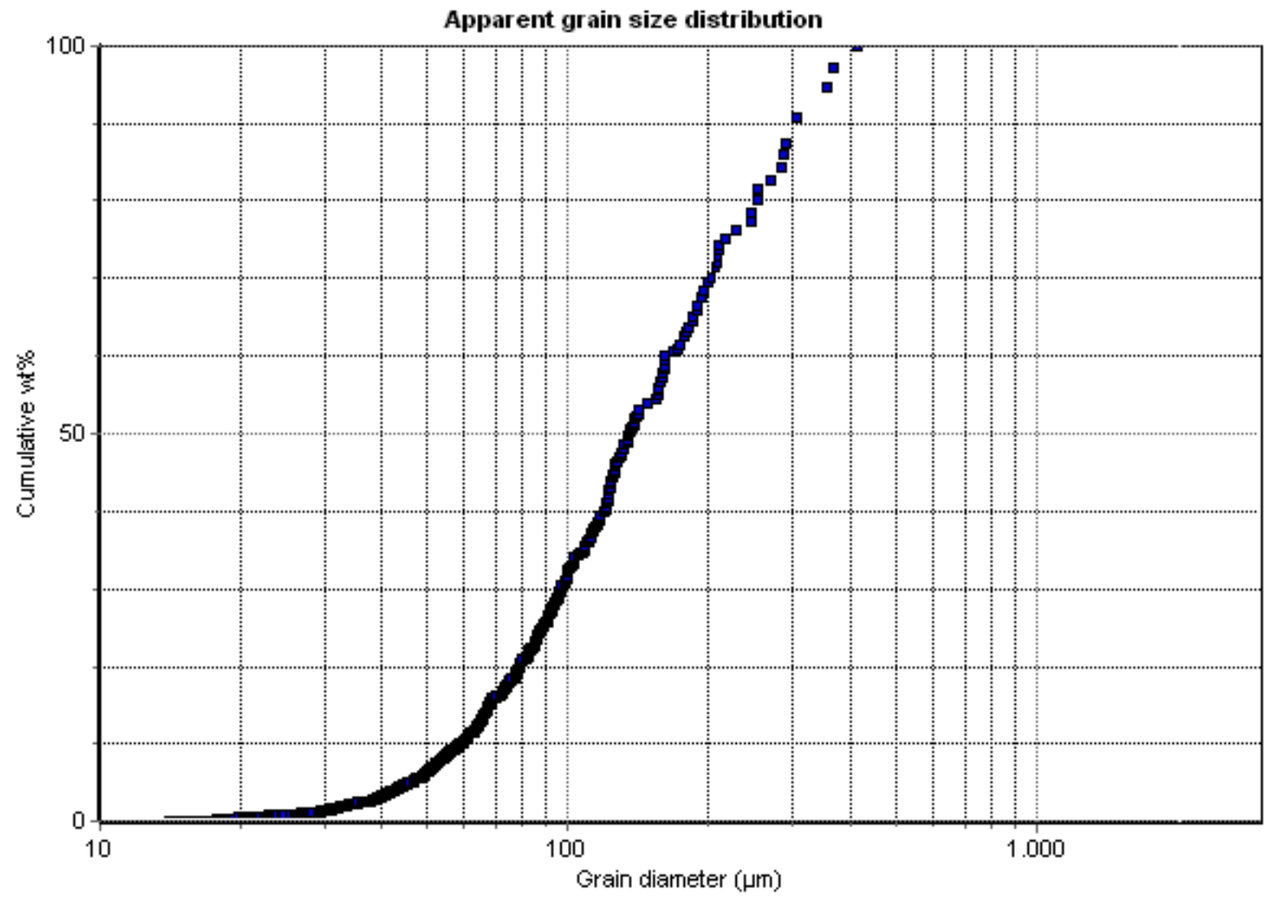

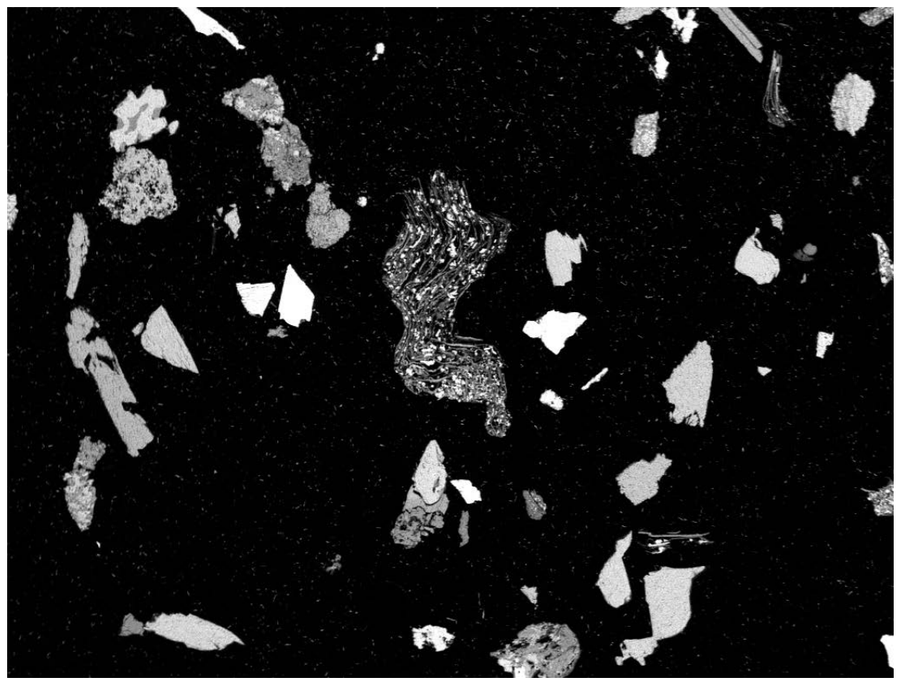

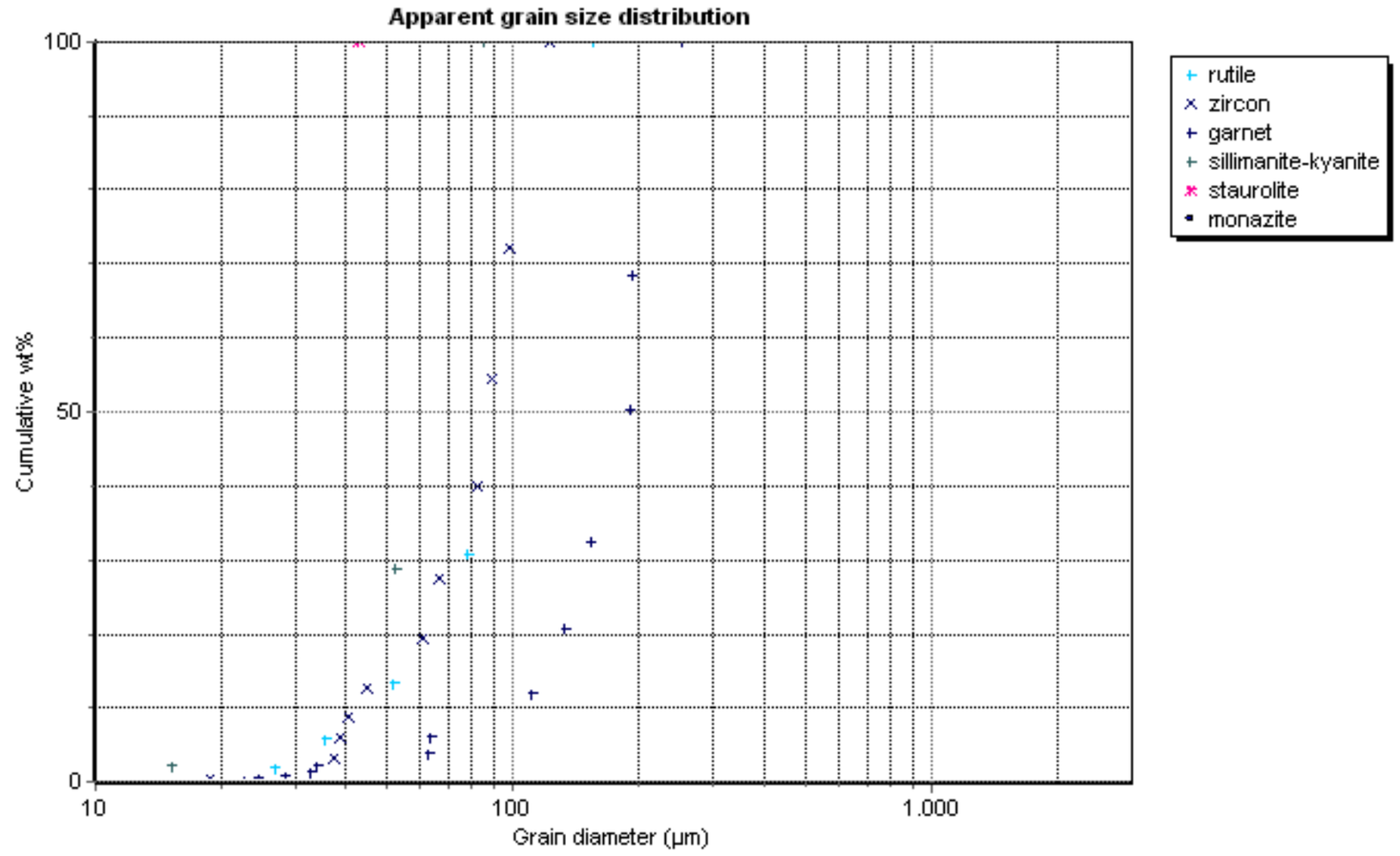

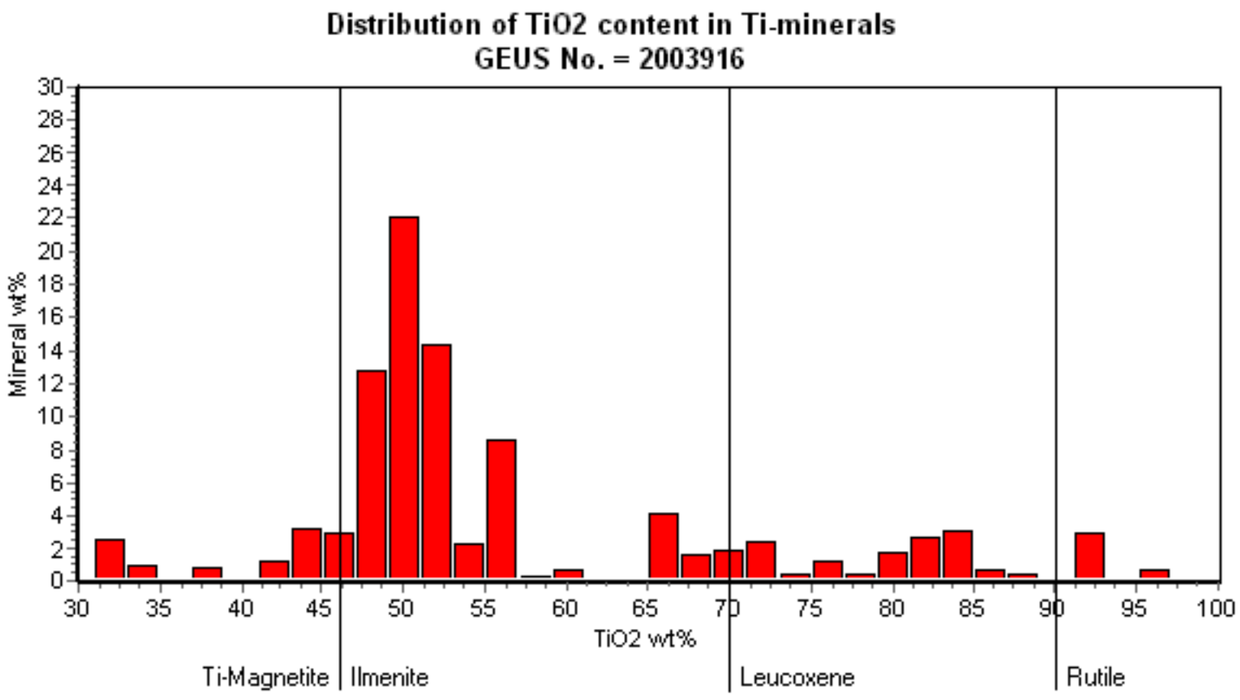

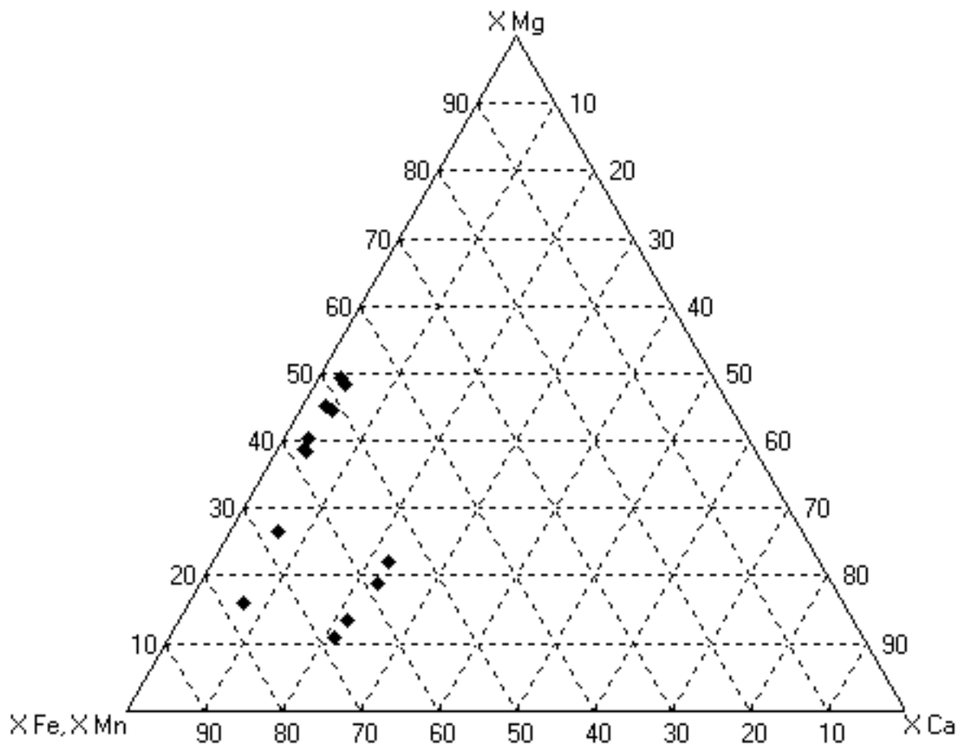

Sample GEUS #: 2003916

Description: Pingu, 602 m, Atanikerluk formation, Assoq member, 453109, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.29	0.83	1.02	2.1	0.17	0.04	0.35	51.87	0.04	1.56	40.98	0.07	0.1	0.12	0.18	0.1	0.02	0.11	0.06	90
leucoxene	0.44	0.5	4.24	5.56	0.81	0.1	1.23	77.88	0.22	0.22	6.44	0.08	0.1	0.79	0.34	0.78	0.1	0.08	0.09	28
rutile	0.22	0.04	0.77	2.03	0.2	0.07	0.06	93.43	0.06	0.23	2.1	0.01	0.23	0.15	0.21	0.11	0.03	0.02	0.03	5
Ti magnetite	0.82	2.89	4.56	8.34	0.37	0.3	2.15	38.49	0.07	0.55	38.75	0.07	0.13	0.56	0.43	1.32	0.13	0.01	0.07	10
magnetite	1.8	1.62	4.68	9.29	0.48	0.21	3.4	0.3	0.06	1.07	75.48	0.12	0.17	0.17	0.43	0.32	0.06	0.12	0.21	52
chromite	0.76	0.21	0.72	0.61	0.0	0.0	0.13	1.2	36.75	0.89	58.24	0.0	0.0	0.0	0.0	0.05	0.0	0.45	0.0	1
spinel	0.0	20.77	49.87	0.48	0.1	0.18	0.0	0.0	9.05	0.08	18.43	0.0	0.12	0.0	0.45	0.37	0.0	0.0	0.11	1
zircon	0.31	0.13	0.18	29.78	0.07	0.08	1.0	0.18	0.03	0.15	0.71	0.09	0.02	66.77	0.0	0.0	0.0	0.29	0.24	11
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.1	7.56	22.18	38.58	0.05	0.06	3.2	0.26	0.06	0.73	26.79	0.05	0.13	0.01	0.02	0.01	0.0	0.07	0.14	13
sillimanite-kyanite	0.0	0.33	58.89	39.25	0.37	0.01	0.16	0.12	0.13	0.0	0.6	0.03	0.05	0.0	0.0	0.0	0.0	0.01	0.04	3
staurolite	0.94	2.41	51.67	29.16	0.0	0.0	0.01	0.31	0.0	0.57	14.87	0.0	0.06	0.0	0.0	0.0	0.0	0.0	0.0	1
feldspar	2.86	0.27	24.74	51.63	0.16	2.9	11.97	0.58	0.13	0.12	3.72	0.11	0.05	0.12	0.0	0.27	0.0	0.13	0.25	22
silicate-other	0.44	2.33	29.94	50.27	0.24	1.48	3.42	1.25	0.07	0.14	9.5	0.16	0.12	0.08	0.0	0.11	0.0	0.22	0.22	30
quartz	0.24	0.13	0.31	96.98	0.19	0.03	0.11	0.17	0.13	0.09	0.58	0.15	0.23	0.16	0.0	0.16	0.0	0.18	0.15	31
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.79	2.04	0.66	4.46	1.86	0.14	86.45	0.26	0.02	0.26	1.44	0.17	0.56	0.06	0.23	0.07	0.01	0.22	0.31	4
pyrite	0.0	0.17	1.03	4.03	56.79	0.03	0.72	0.1	0.09	0.08	36.3	0.01	0.0	0.31	0.22	0.15	0.0	0.0	0.0	2
epidote	0.18	0.27	25.11	37.98	0.05	0.08	23.84	0.4	0.06	0.18	11.2	0.07	0.11	0.01	0.01	0.04	0.01	0.12	0.27	70
dark mica	0.51	7.94	18.67	38.4	0.56	5.25	0.46	3.09	0.13	0.17	23.33	0.12	0.19	0.35	0.07	0.17	0.03	0.23	0.33	36
white mica	0.94	1.32	30.86	50.76	0.12	10.13	0.23	0.77	0.09	0.09	3.74	0.03	0.09	0.04	0.0	0.11	0.0	0.13	0.57	26
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.34	10.63	21.25	41.35	0.35	0.14	1.28	0.23	0.04	0.49	23.45	0.03	0.1	0.0	0.0	0.13	0.0	0.06	0.14	6
clino-amphibole/clino-pyroxene	1.83	9.09	13.67	46.28	0.11	0.65	11.83	0.95	0.09	0.23	14.51	0.08	0.12	0.05	0.02	0.08	0.01	0.11	0.29	144
chlorite	0.0	6.8	16.45	29.46	0.29	2.21	1.22	1.9	0.11	0.31	39.27	0.19	0.14	0.35	0.46	0.25	0.18	0.2	0.2	24
unclassified	3.7	2.18	12.03	33.32	1.93	3.44	12.64	8.26	0.15	0.31	15.56	0.31	0.21	3.22	0.68	0.84	0.2	0.66	0.36	53

DONG sample Report - Page 1/3

Sample GEUS #: 2003917

Description: Pingu, 679 m, Atanikerluk formation, Assoq member, 453110, outcrop

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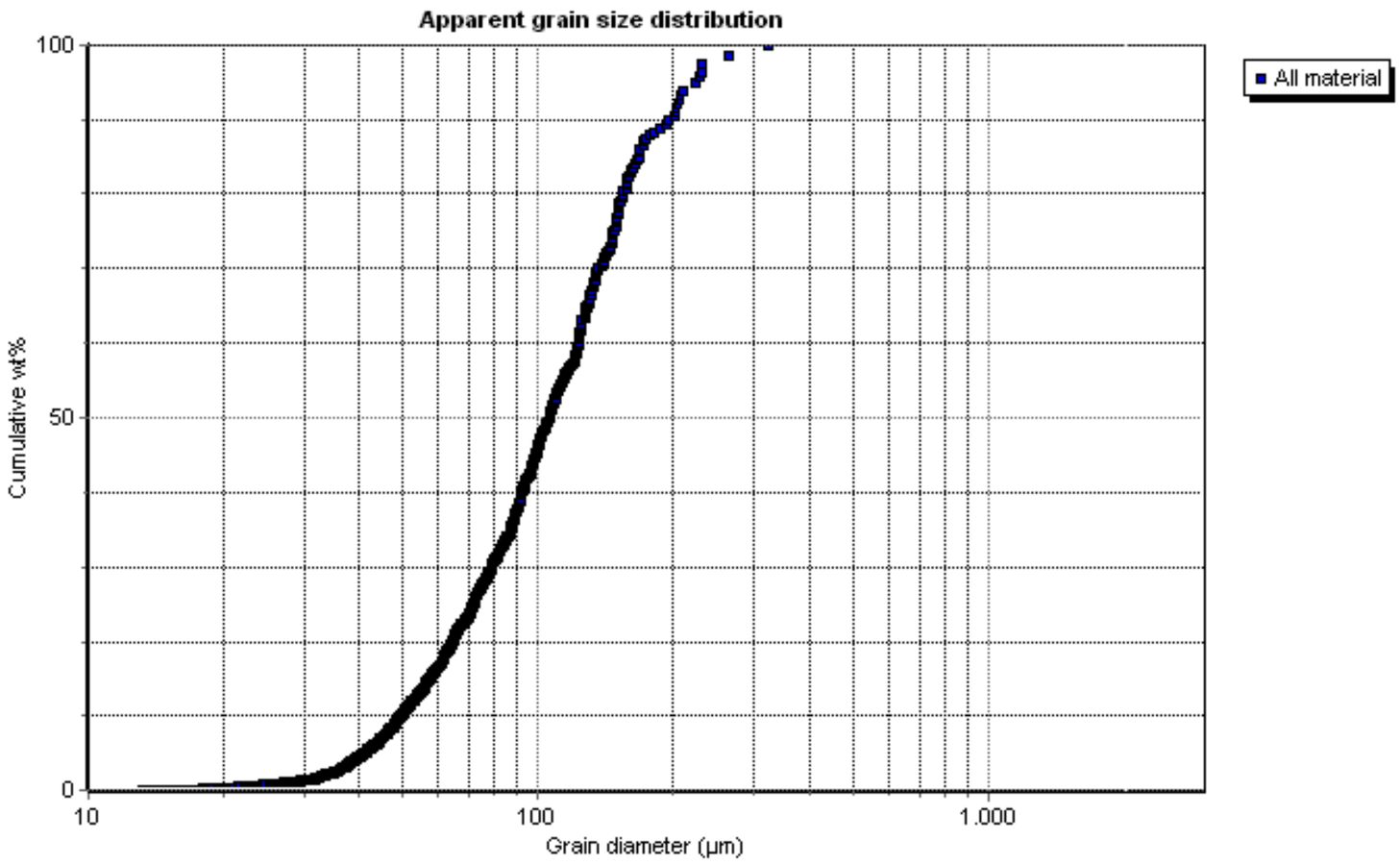

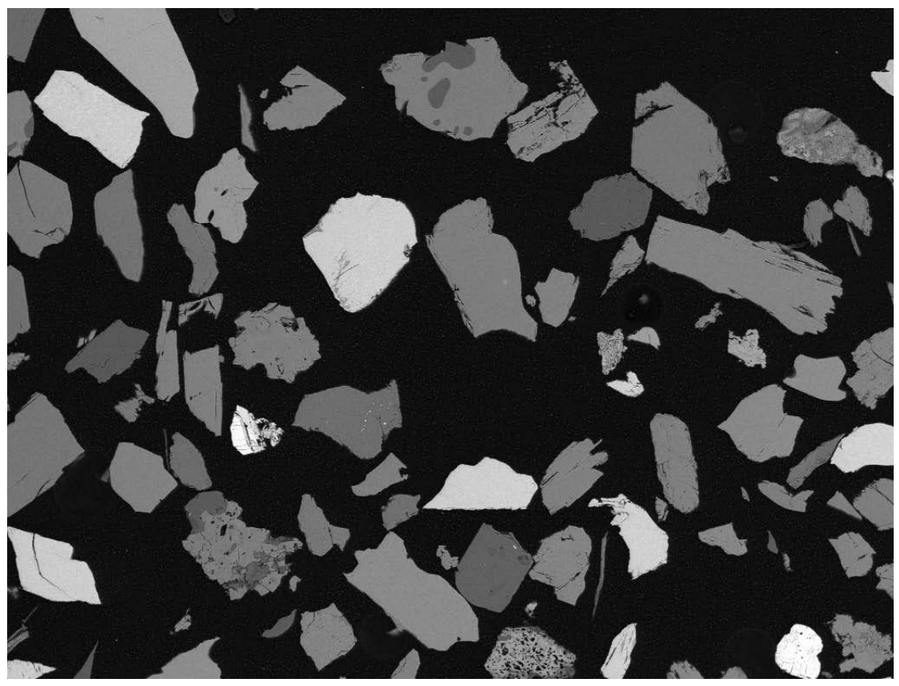

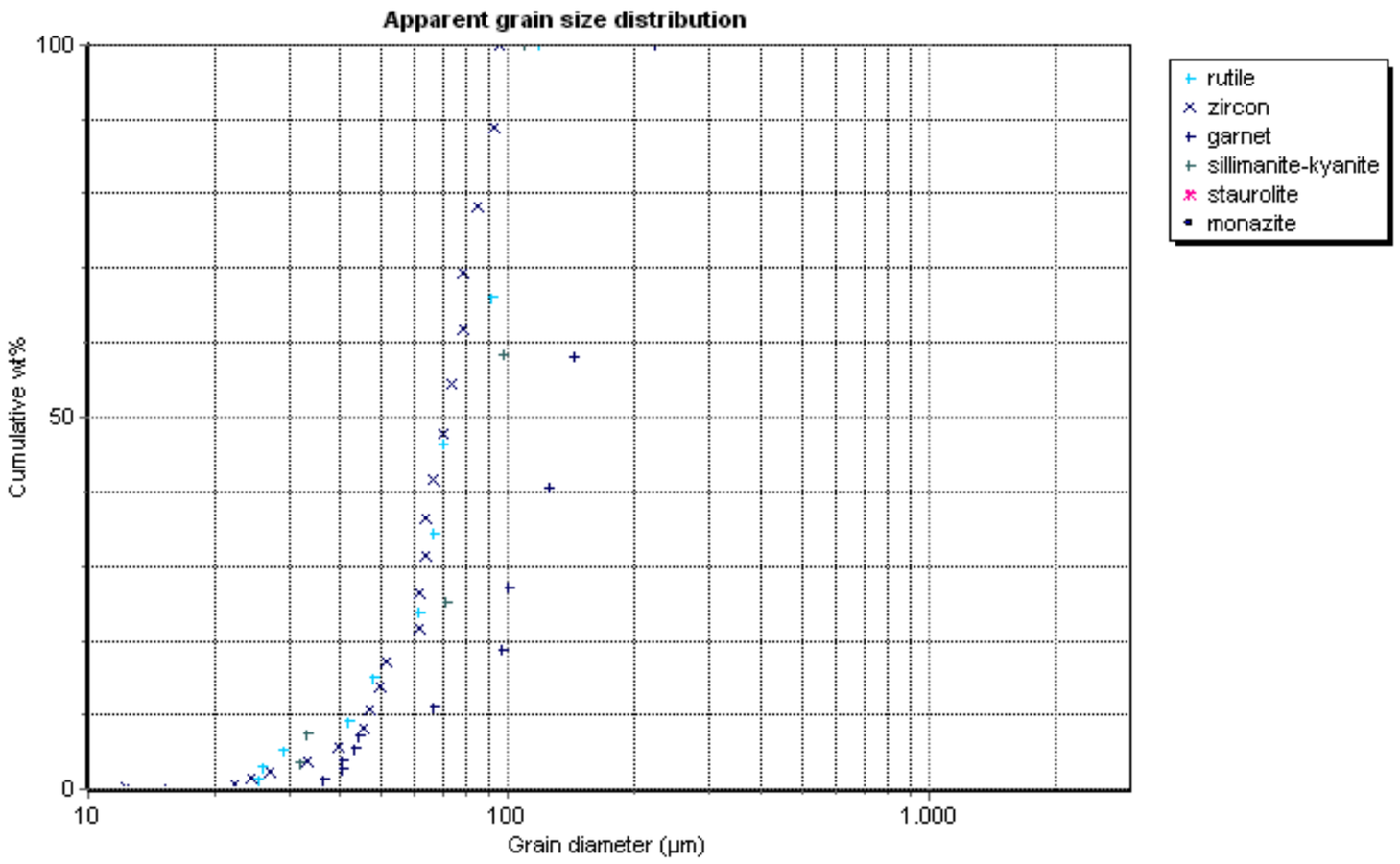

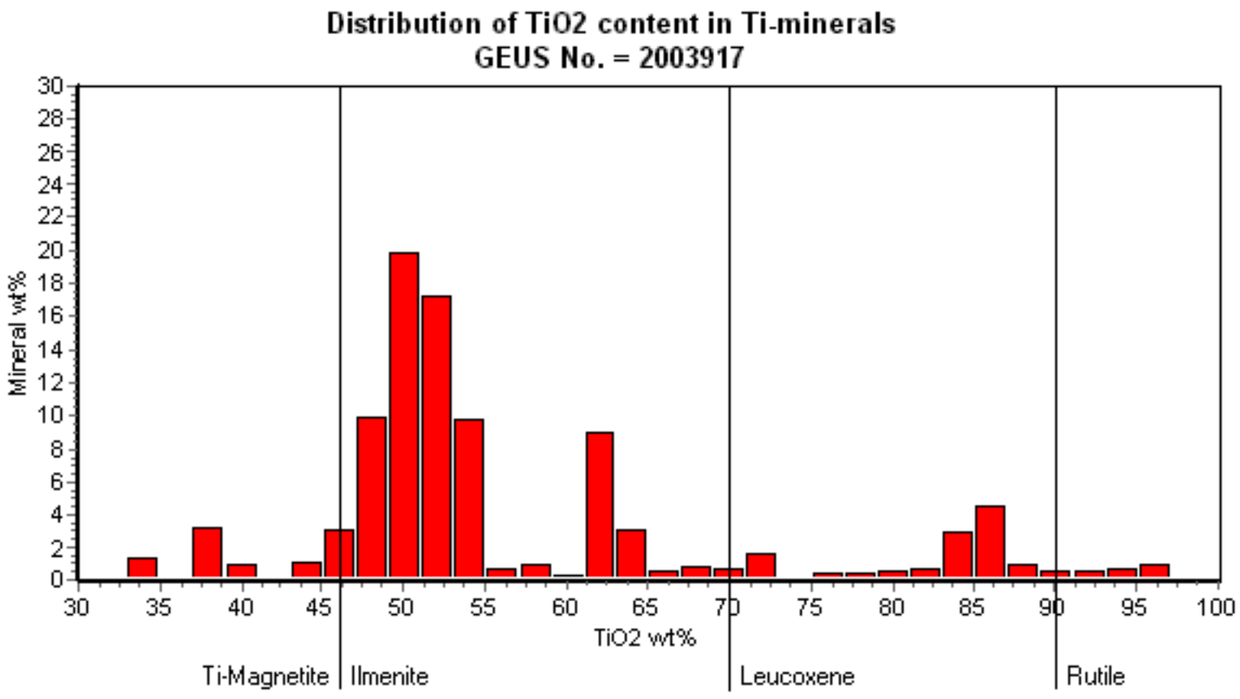

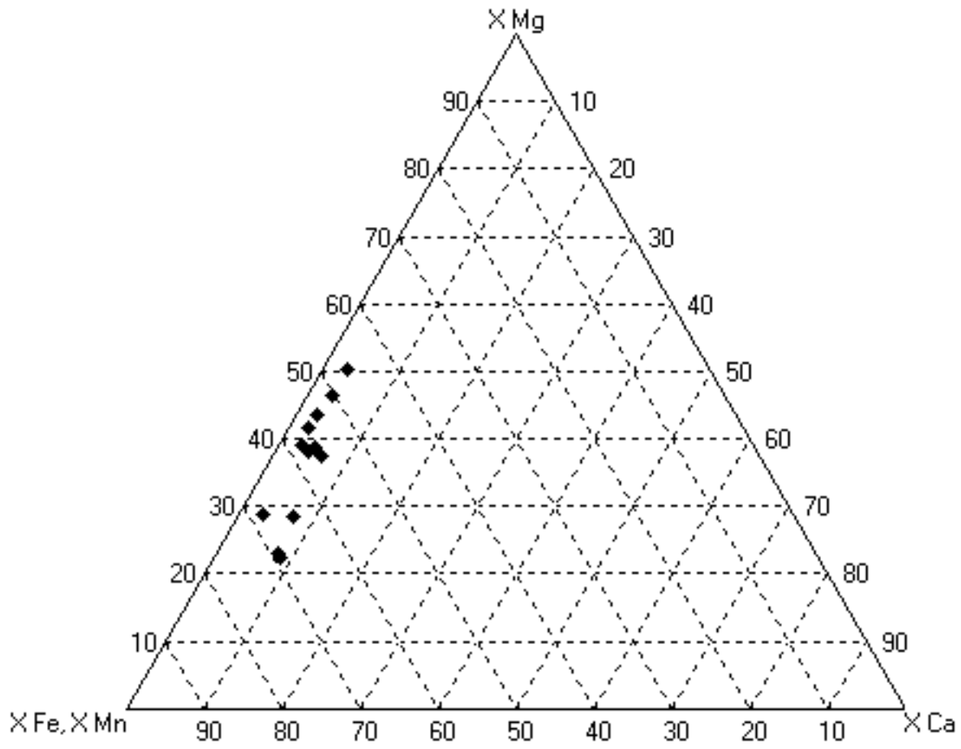

Sample GEUS #: 2003917

Description: Pingu, 679 m, Atanikerluk formation, Assoq member, 453110, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.17	0.51	1.07	1.73	0.19	0.06	0.28	52.87	0.07	1.64	40.6	0.07	0.08	0.12	0.16	0.1	0.01	0.21	0.07	147
leucoxene	0.19	0.35	4.11	3.69	0.41	0.06	1.18	81.48	0.16	0.29	5.76	0.1	0.11	0.84	0.25	0.81	0.02	0.1	0.09	56
rutile	0.06	0.24	1.67	0.87	0.25	0.05	0.49	91.76	0.12	0.12	3.02	0.06	0.06	0.27	0.21	0.42	0.01	0.24	0.1	10
Ti magnetite	0.65	3.46	5.82	16.78	0.0	0.52	2.05	38.61	0.1	0.65	30.26	0.05	0.1	0.22	0.23	0.24	0.04	0.12	0.1	6
magnetite	2.59	1.09	5.75	12.39	1.88	0.53	0.5	0.52	0.07	0.3	73.13	0.15	0.07	0.25	0.16	0.34	0.11	0.0	0.17	7
chromite	0.0	7.18	3.26	0.19	0.0	0.0	0.0	12.84	11.71	0.36	63.49	0.42	0.0	0.34	0.19	0.0	0.0	0.0	0.02	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.2	0.11	0.53	30.74	0.02	0.05	0.53	0.15	0.07	0.08	1.04	0.13	0.02	65.6	0.0	0.49	0.0	0.12	0.11	22
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.09	1.61	28.4	0.16	0.09	27.2	40.9	0.04	0.19	0.0	0.14	0.19	0.05	0.24	0.23	0.21	0.22	0.08	2
garnet	0.0	8.74	22.89	38.36	0.0	0.04	1.54	0.14	0.09	0.57	27.06	0.05	0.08	0.08	0.0	0.16	0.0	0.04	0.16	12
sillimanite-kyanite	0.04	0.11	59.53	39.23	0.07	0.06	0.03	0.11	0.04	0.06	0.39	0.02	0.09	0.0	0.0	0.02	0.0	0.01	0.19	5
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	6.01	0.13	25.44	57.83	0.07	1.0	6.85	0.25	0.07	0.08	1.45	0.09	0.1	0.09	0.0	0.14	0.0	0.15	0.26	51
silicate-other	1.63	1.58	26.27	58.33	0.1	0.77	3.53	0.68	0.11	0.08	5.79	0.14	0.11	0.18	0.0	0.42	0.0	0.12	0.16	40
quartz	0.15	0.12	0.35	96.32	0.16	0.06	0.2	0.3	0.09	0.09	0.56	0.14	0.16	0.41	0.0	0.54	0.0	0.17	0.19	120
corundum	0.0	0.42	96.0	0.0	0.0	0.0	0.0	0.0	0.03	0.1	2.14	0.17	0.0	0.18	0.68	0.0	0.27	0.0	0.0	1
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.72	0.11	0.39	0.64	1.56	0.02	41.61	0.0	0.12	0.04	0.85	0.08	0.07	8.29	0.0	39.17	0.0	5.81	0.52	4
carbonate	0.82	1.78	0.48	0.1	1.84	0.05	92.3	0.35	0.14	0.25	0.74	0.35	0.13	0.0	0.0	0.0	0.0	0.43	0.27	4
pyrite	0.0	0.0	2.07	2.38	62.77	0.01	0.05	0.0	0.02	0.07	30.6	0.0	0.11	0.46	0.0	0.9	0.11	0.45	0.04	2
epidote	0.13	0.23	25.05	38.06	0.05	0.08	23.68	0.37	0.05	0.18	11.44	0.06	0.09	0.05	0.0	0.05	0.0	0.12	0.31	108
dark mica	4.25	9.57	19.01	36.85	0.09	5.2	0.33	3.56	0.04	0.2	19.64	0.28	0.14	0.13	0.08	0.15	0.05	0.2	0.25	6
white mica	0.49	0.82	29.67	51.56	0.08	12.18	0.31	0.45	0.09	0.08	3.47	0.07	0.1	0.05	0.0	0.1	0.0	0.1	0.38	30
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.1	16.89	7.61	54.16	0.07	0.07	1.2	0.14	0.1	0.55	18.39	0.09	0.19	0.04	0.0	0.23	0.0	0.07	0.11	12
clino-amphibole/clino-pyroxene	1.54	10.16	11.17	45.76	0.06	0.88	12.37	1.2	0.06	0.3	15.69	0.09	0.1	0.12	0.0	0.13	0.0	0.11	0.26	515
chlorite	0.0	11.57	21.92	29.72	0.11	0.0	0.33	5.47	0.0	0.17	30.09	0.0	0.0	0.04	0.25	0.0	0.0	0.18	0.14	1
unclassified	1.44	2.24	14.96	31.63	4.57	1.21	4.92	9.75	0.08	0.25	20.52	0.14	0.14	5.22	0.39	2.04	0.17	0.18	0.15	38

Sample GEUS #: 2003918

Description: Ivisaannguit, 563 m, Quikavsak formation, Tupaasat member, 453111, outcrop

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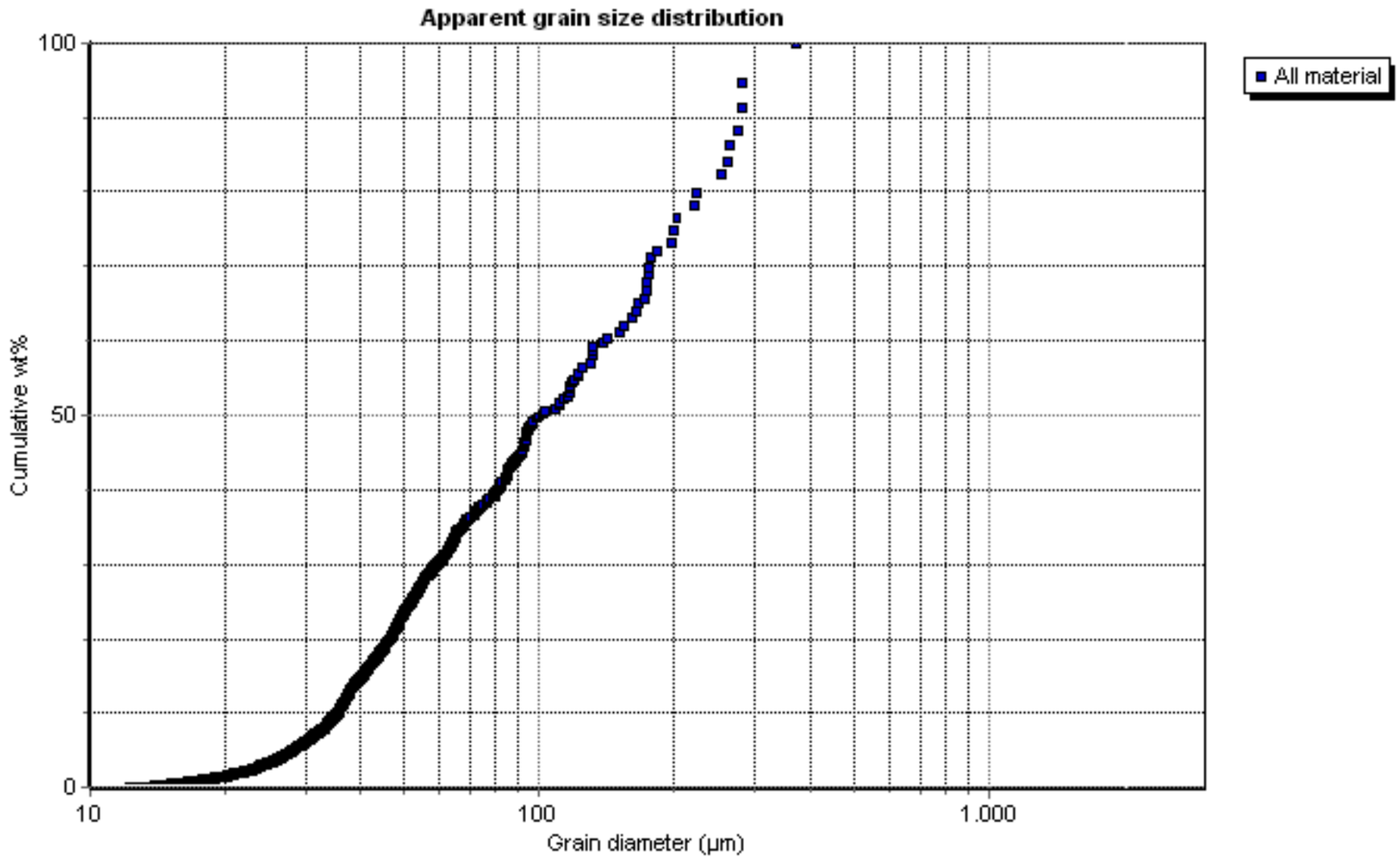
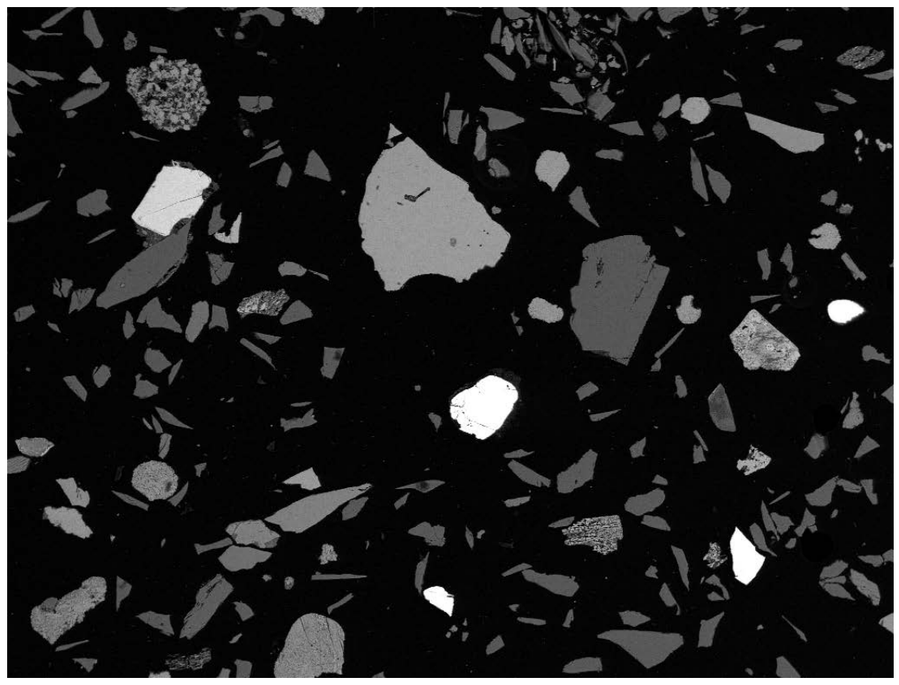
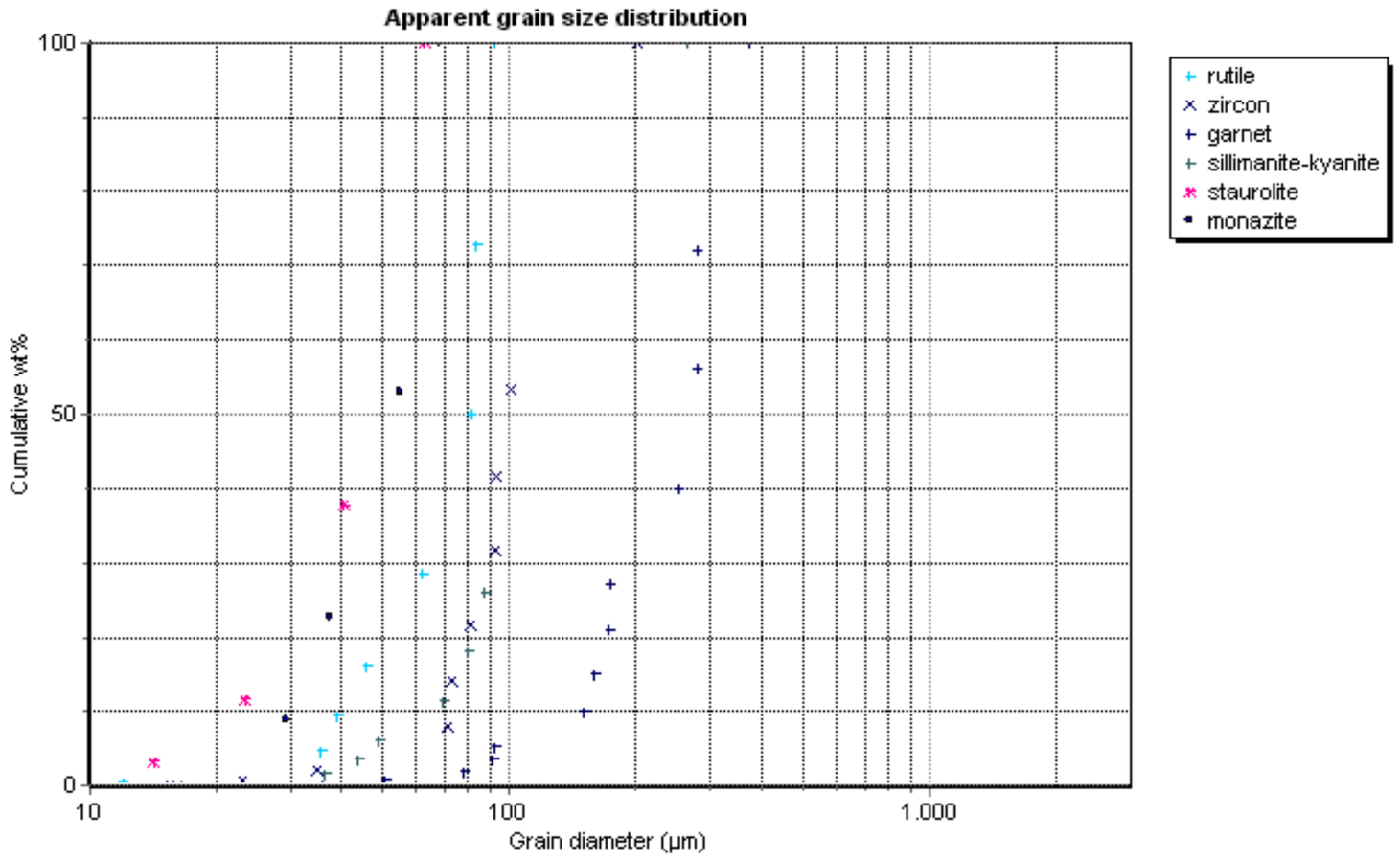
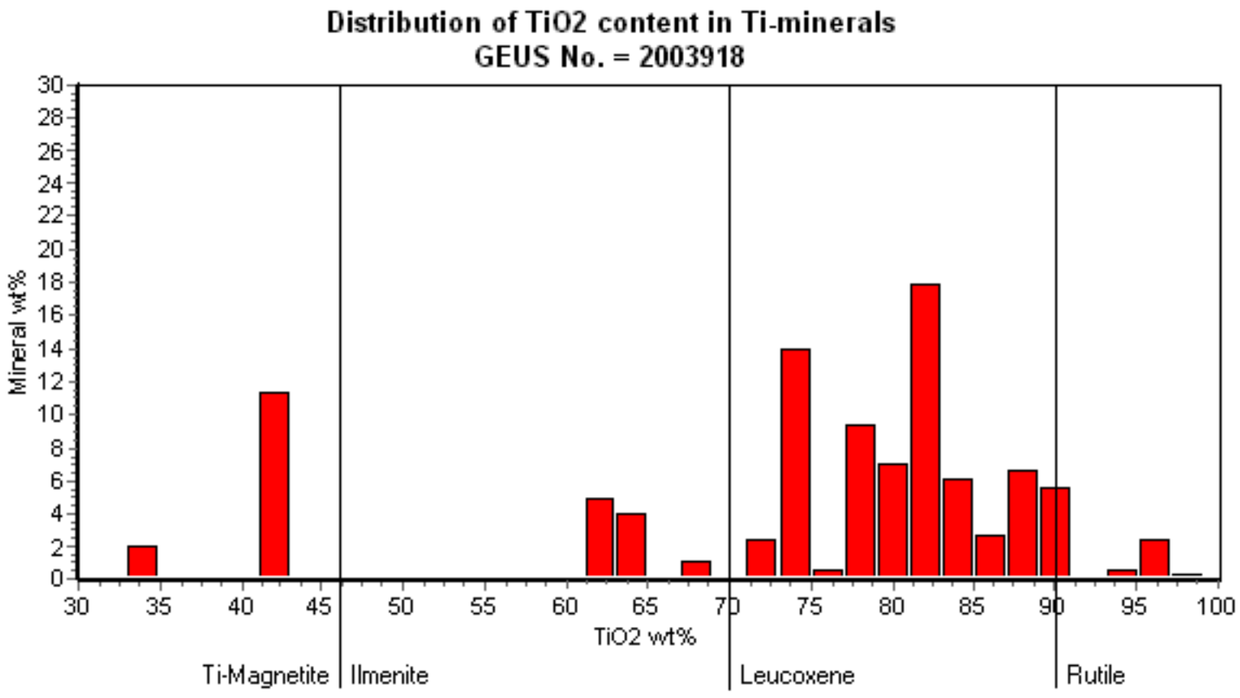
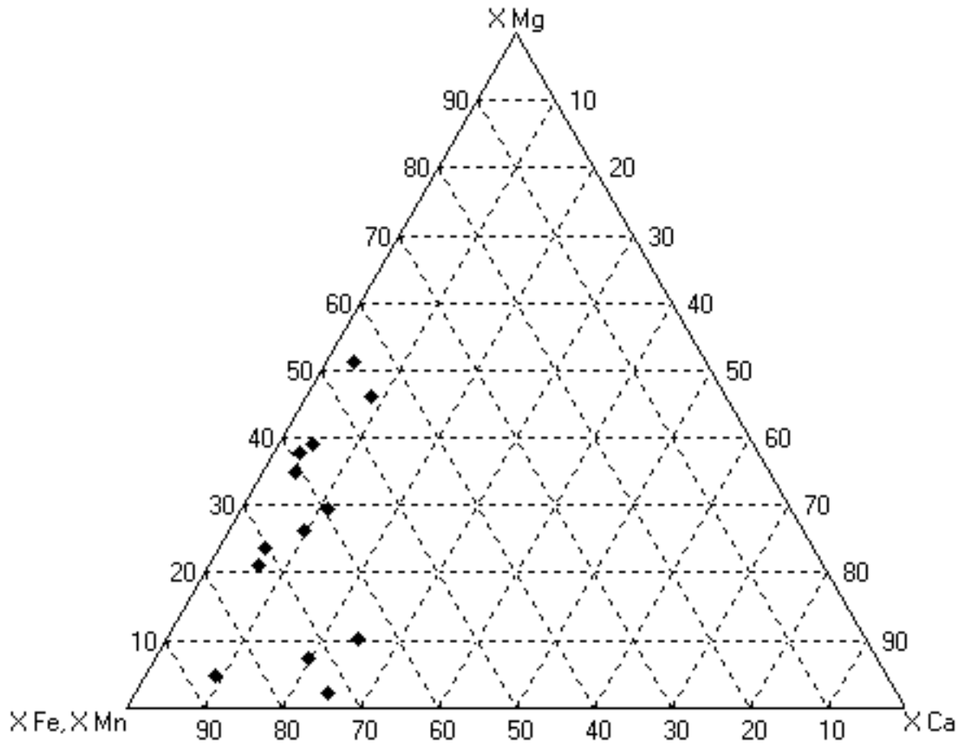










Sample GEUS #: 2003918

Description: Ivisaannguit, 563 m, Quikavsak formation, Tupaasat member, 453111, outcrop

Average Content

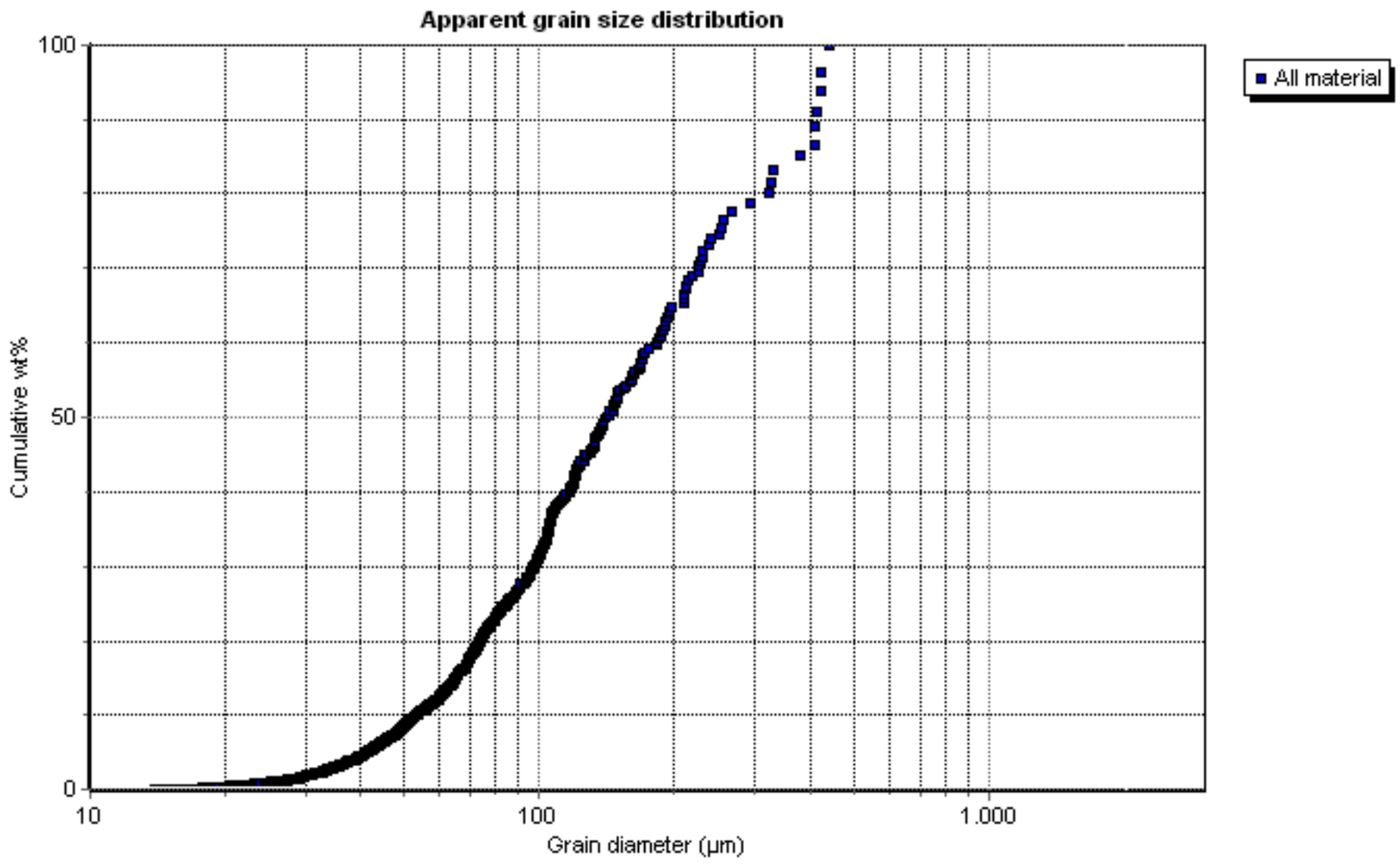
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.45	5.04	10.14	1.57	0.31	0.53	61.55	0.41	0.3	17.88	0.09	0.05	0.54	0.28	0.61	0.18	0.0	0.11	8
leucoxene	0.27	0.27	3.33	4.11	0.44	0.09	0.57	80.46	0.31	0.1	7.9	0.11	0.08	0.49	0.35	0.96	0.05	0.03	0.1	42
rutile	0.08	0.04	1.49	1.67	0.24	0.03	0.14	92.86	0.22	0.07	2.02	0.07	0.11	0.38	0.29	0.15	0.05	0.0	0.09	8
Ti magnetite	0.72	0.53	13.11	15.09	0.45	0.07	0.39	31.65	0.09	0.32	35.93	0.12	0.16	0.25	0.28	0.63	0.04	0.0	0.17	4
magnetite	1.83	0.7	4.96	9.89	15.01	0.76	0.6	0.82	0.1	0.16	63.33	0.06	0.18	0.38	0.31	0.61	0.2	0.04	0.09	12
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.16	0.1	0.52	29.76	0.05	0.09	0.5	0.15	0.1	0.03	0.36	0.2	0.09	67.6	0.0	0.0	0.0	0.1	0.19	10
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.15	6.1	22.44	38.19	0.01	0.03	3.33	0.09	0.07	2.48	26.71	0.09	0.11	0.07	0.0	0.05	0.0	0.02	0.07	13
sillimanite-kyanite	0.07	0.28	58.05	38.45	0.45	0.04	0.05	0.5	0.12	0.05	1.06	0.09	0.22	0.0	0.0	0.08	0.0	0.15	0.34	8
staurolite	0.43	2.02	52.17	29.28	0.08	0.04	0.05	0.64	0.08	0.13	14.74	0.0	0.13	0.0	0.2	0.0	0.0	0.02	0.02	4
feldspar	4.98	0.01	21.71	62.55	0.06	6.39	1.69	0.17	0.09	0.07	0.91	0.17	0.1	0.15	0.0	0.11	0.0	0.15	0.68	13
silicate-other	1.25	3.18	35.56	54.18	0.49	0.33	1.14	0.4	0.1	0.07	2.8	0.08	0.07	0.04	0.0	0.03	0.0	0.15	0.13	32
quartz	0.15	0.09	0.35	97.23	0.15	0.07	0.07	0.14	0.11	0.1	0.32	0.14	0.15	0.25	0.0	0.3	0.0	0.19	0.19	835
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	1.46	0.44	2.51	3.62	1.27	0.0	3.67	0.0	0.0	0.0	1.16	0.21	0.22	9.97	0.0	50.16	0.0	24.77	0.55	4
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.9	0.1	1.1	2.28	2.78	0.0	1.21	0.0	0.0	0.0	0.0	0.27	0.0	14.55	0.0	47.39	0.0	27.82	1.61	2
carbonate	1.47	3.1	0.38	1.16	2.05	0.06	89.59	0.11	0.06	0.06	0.68	0.18	0.19	0.0	0.21	0.0	0.03	0.27	0.42	12
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	2.89	5.16	18.96	39.56	13.38	0.84	0.4	0.43	0.16	0.06	17.86	0.14	0.16	0.0	0.0	0.03	0.0	0.03	0.0	2
white mica	0.67	0.31	23.81	58.08	0.06	14.28	0.27	0.39	0.09	0.08	1.1	0.08	0.13	0.05	0.0	0.06	0.0	0.14	0.41	64
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.13	23.17	10.31	44.27	0.09	0.05	0.91	0.26	0.09	0.36	19.76	0.15	0.07	0.1	0.0	0.12	0.0	0.06	0.1	15
clino-amphibole/clino-pyroxene	2.76	9.79	19.93	39.51	0.04	0.13	5.43	0.86	0.07	0.74	20.07	0.07	0.09	0.03	0.0	0.21	0.0	0.08	0.21	21
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	4.63	0.59	4.21	13.45	33.5	2.01	0.88	0.9	0.49	0.14	37.26	0.07	0.1	0.4	0.29	0.46	0.1	0.35	0.17	91

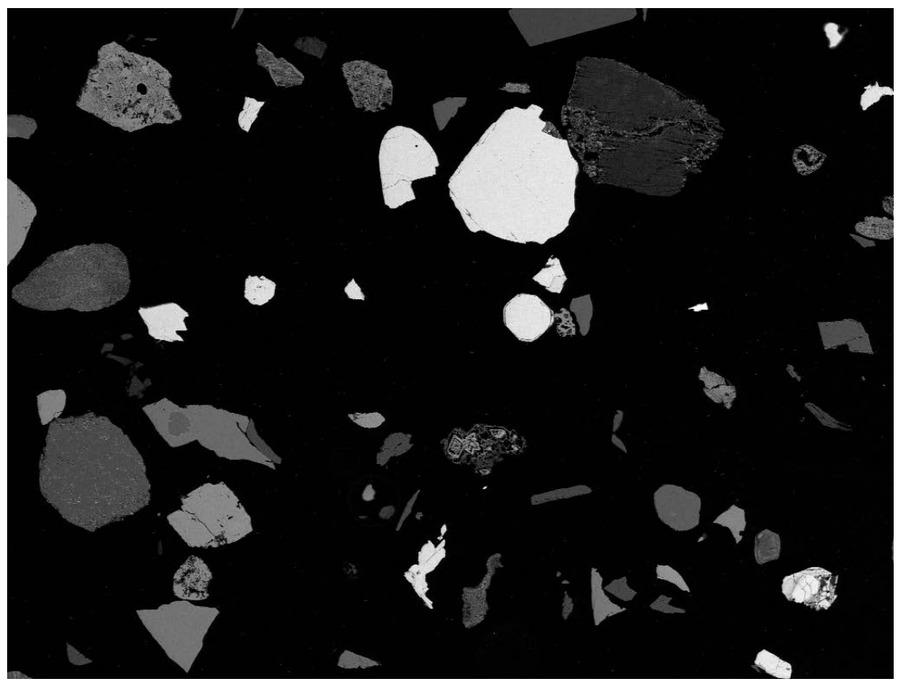
DONG sample Report - Page 1/3

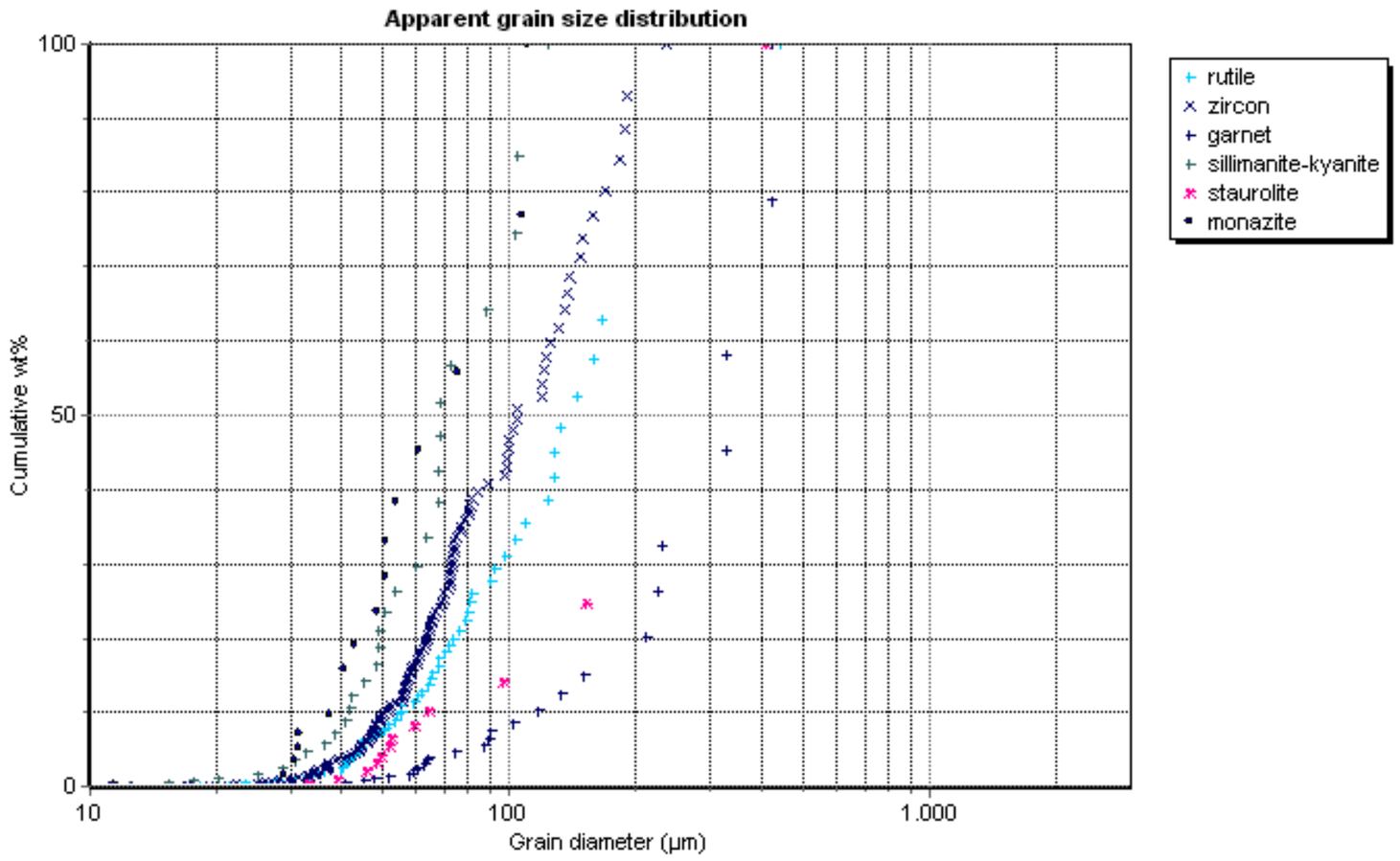
Sample GEUS #: 2003919

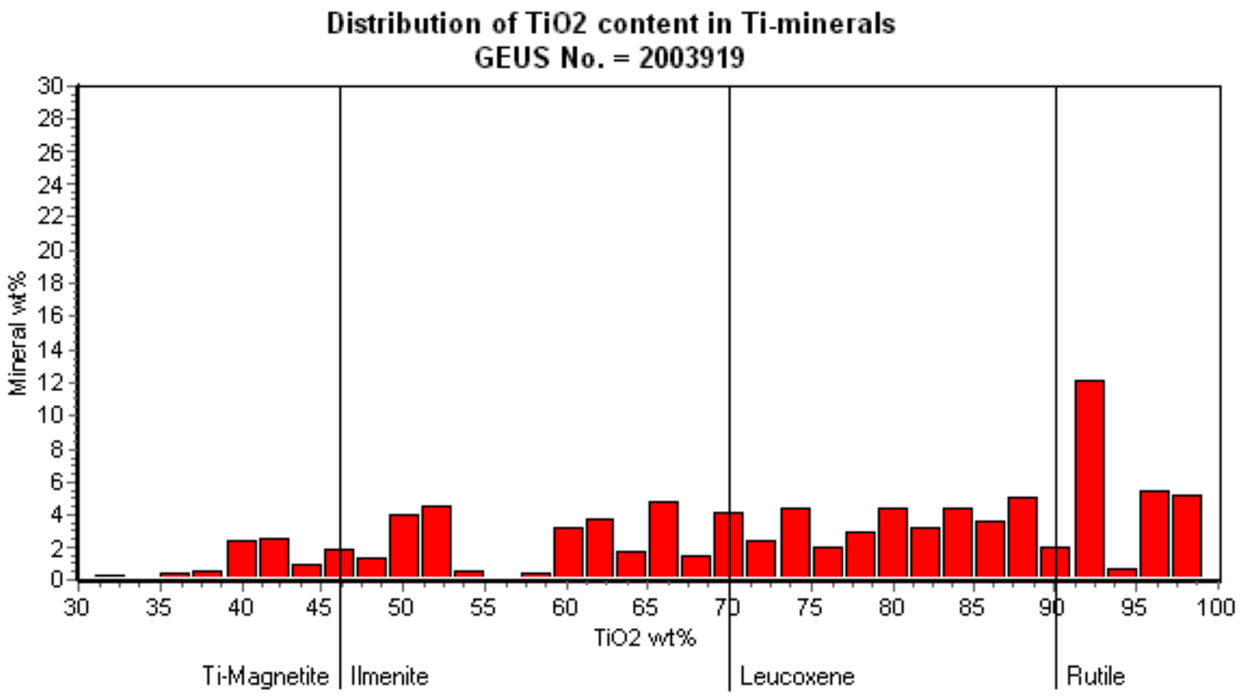
Description: Ivisaannguit, 575 m, Quikavsak formation, Tupaasat member,453113, outcrop

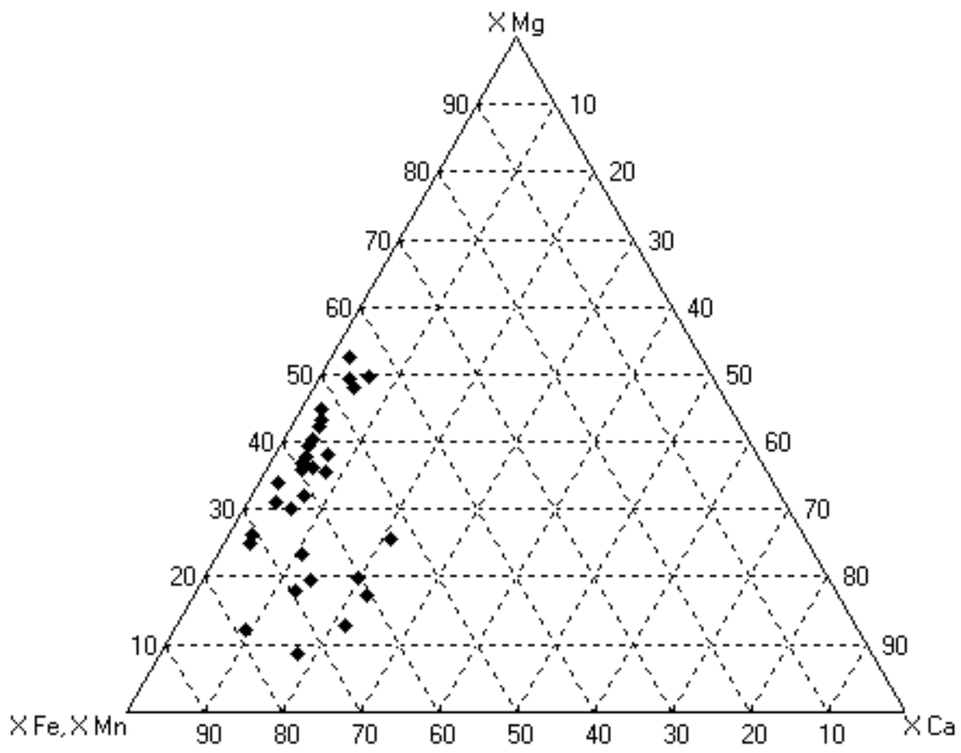
This document was created on: Mon Nov 09 10:28:47 CET 2009











Sample GEUS #: 2003919

Description: Ivisaannguit, 575 m, Quikavsak formation, Tupaasat member,453113, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.21	0.55	4.39	7.64	1.52	0.21	0.58	58.5	0.29	0.11	24.15	0.09	0.15	0.52	0.22	0.65	0.09	0.04	0.11	65
leucoxene	0.17	0.32	3.56	5.6	0.58	0.11	0.41	78.81	0.27	0.08	8.27	0.1	0.1	0.49	0.33	0.65	0.03	0.04	0.09	147
rutile	0.05	0.08	1.59	1.61	0.21	0.05	0.16	93.22	0.17	0.11	1.57	0.08	0.09	0.25	0.31	0.27	0.02	0.13	0.05	65
Ti magnetite	0.92	1.54	2.72	6.52	2.84	0.3	0.64	37.92	0.17	0.18	44.56	0.08	0.16	0.35	0.24	0.68	0.04	0.04	0.1	20
magnetite	1.51	1.38	7.81	16.17	0.61	0.26	0.7	0.66	0.09	0.47	68.65	0.19	0.1	0.27	0.37	0.45	0.14	0.04	0.14	22
chromite	1.72	3.3	10.6	1.52	0.27	0.06	0.05	1.16	42.12	0.35	38.01	0.07	0.27	0.0	0.06	0.09	0.0	0.22	0.14	8
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.08	0.18	30.42	0.08	0.05	0.26	0.29	0.06	0.08	0.37	0.1	0.03	67.38	0.0	0.18	0.0	0.19	0.11	143
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	7.67	22.75	38.41	0.07	0.03	2.62	0.09	0.09	1.08	26.67	0.08	0.06	0.07	0.0	0.08	0.0	0.09	0.15	30
sillimanite-kyanite	0.04	0.19	59.11	39.0	0.08	0.05	0.05	0.18	0.13	0.06	0.53	0.11	0.11	0.03	0.0	0.05	0.0	0.14	0.13	31
staurolite	0.38	2.06	50.81	29.17	0.05	0.01	0.04	1.27	0.08	0.23	15.05	0.02	0.08	0.0	0.32	0.2	0.09	0.09	0.06	12
feldspar	2.29	0.56	24.07	57.03	0.06	8.14	4.99	0.34	0.09	0.05	1.22	0.05	0.17	0.12	0.0	0.11	0.0	0.22	0.48	5
silicate-other	0.38	2.42	44.32	45.79	0.15	0.22	0.69	1.1	0.09	0.09	4.28	0.07	0.09	0.02	0.0	0.06	0.0	0.08	0.15	65
quartz	0.2	0.1	0.38	96.81	0.21	0.07	0.09	0.31	0.09	0.13	0.34	0.18	0.16	0.28	0.0	0.25	0.0	0.22	0.19	309
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.68	0.46	5.58	6.41	3.31	0.05	3.5	0.0	0.0	0.0	1.19	0.19	0.24	8.6	0.05	44.16	0.31	24.71	0.58	17
xenotime	1.3	0.0	5.46	0.69	5.43	0.0	0.33	0.41	0.02	0.0	2.93	0.09	0.0	0.24	1.38	40.64	40.56	0.53	0.0	1
phosphate	0.37	0.33	1.31	6.18	3.47	0.01	7.76	0.0	0.0	0.0	1.09	0.21	0.32	12.43	0.0	41.35	0.8	24.11	0.27	11
carbonate	1.06	2.42	0.22	0.95	1.16	0.13	90.93	0.0	0.07	0.61	0.71	0.59	0.0	0.19	0.0	0.07	0.16	0.17	0.61	2
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.2	2.56	22.83	37.57	0.06	0.06	24.16	0.74	0.09	0.31	10.78	0.06	0.08	0.02	0.08	0.0	0.0	0.05	0.35	5
dark mica	2.97	8.92	19.8	37.08	2.04	5.19	0.54	5.12	0.14	0.1	17.4	0.11	0.05	0.09	0.11	0.11	0.0	0.06	0.18	7
white mica	0.89	0.94	30.59	52.25	0.08	11.07	0.22	0.55	0.13	0.07	2.48	0.09	0.07	0.05	0.0	0.07	0.0	0.16	0.28	22
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.02	29.53	6.05	44.53	0.08	0.1	1.15	0.42	0.2	0.28	17.1	0.05	0.09	0.1	0.0	0.12	0.0	0.08	0.12	61
clino-amphibole/clino-pyroxene	2.26	10.76	14.39	42.69	0.04	0.09	10.08	1.36	0.13	0.47	17.03	0.07	0.12	0.09	0.01	0.11	0.01	0.09	0.19	73
chlorite	0.0	1.45	21.85	28.3	2.98	0.42	0.83	0.67	0.14	0.15	41.23	0.28	0.0	0.69	0.62	0.0	0.3	0.0	0.13	2
unclassified	1.93	6.99	16.28	28.73	2.06	0.76	3.39	16.63	1.32	0.6	14.45	0.08	0.22	4.71	0.33	0.85	0.07	0.42	0.18	77

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Sample GEUS #: 2003920

Description: Asuk, 37 m, Itillil formation, Kussinerujuq member, 453122, outcrop

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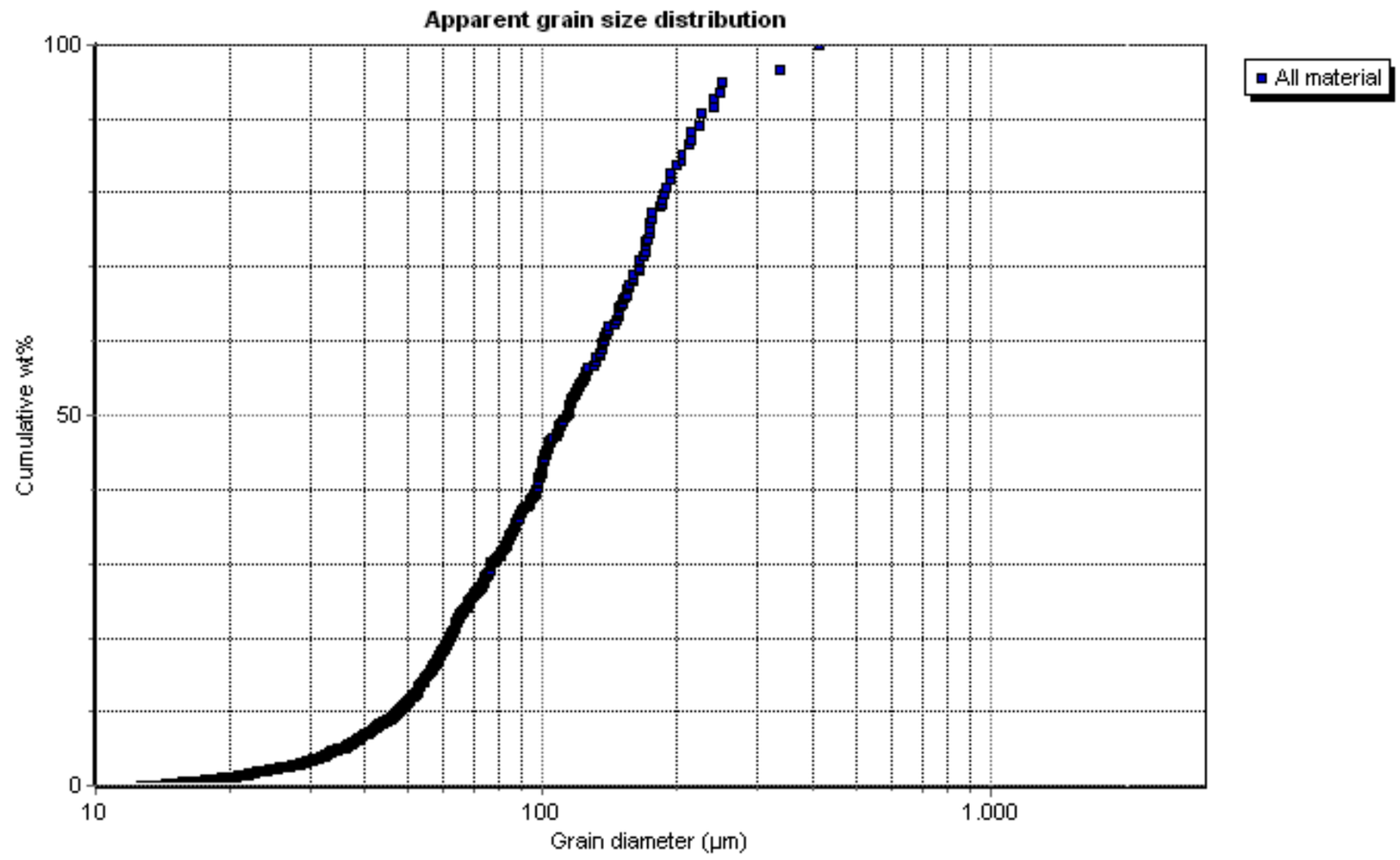

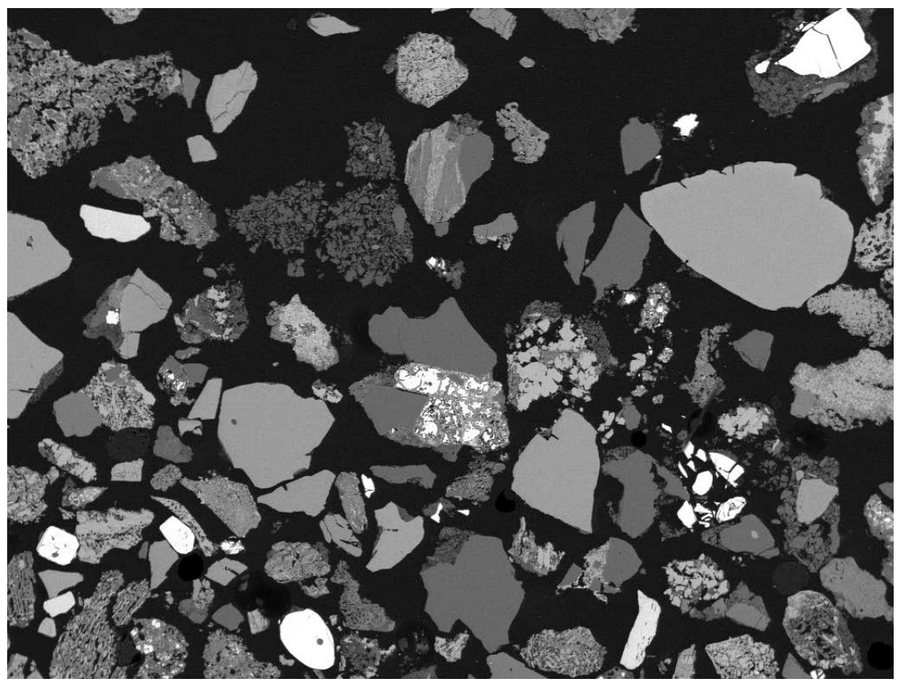

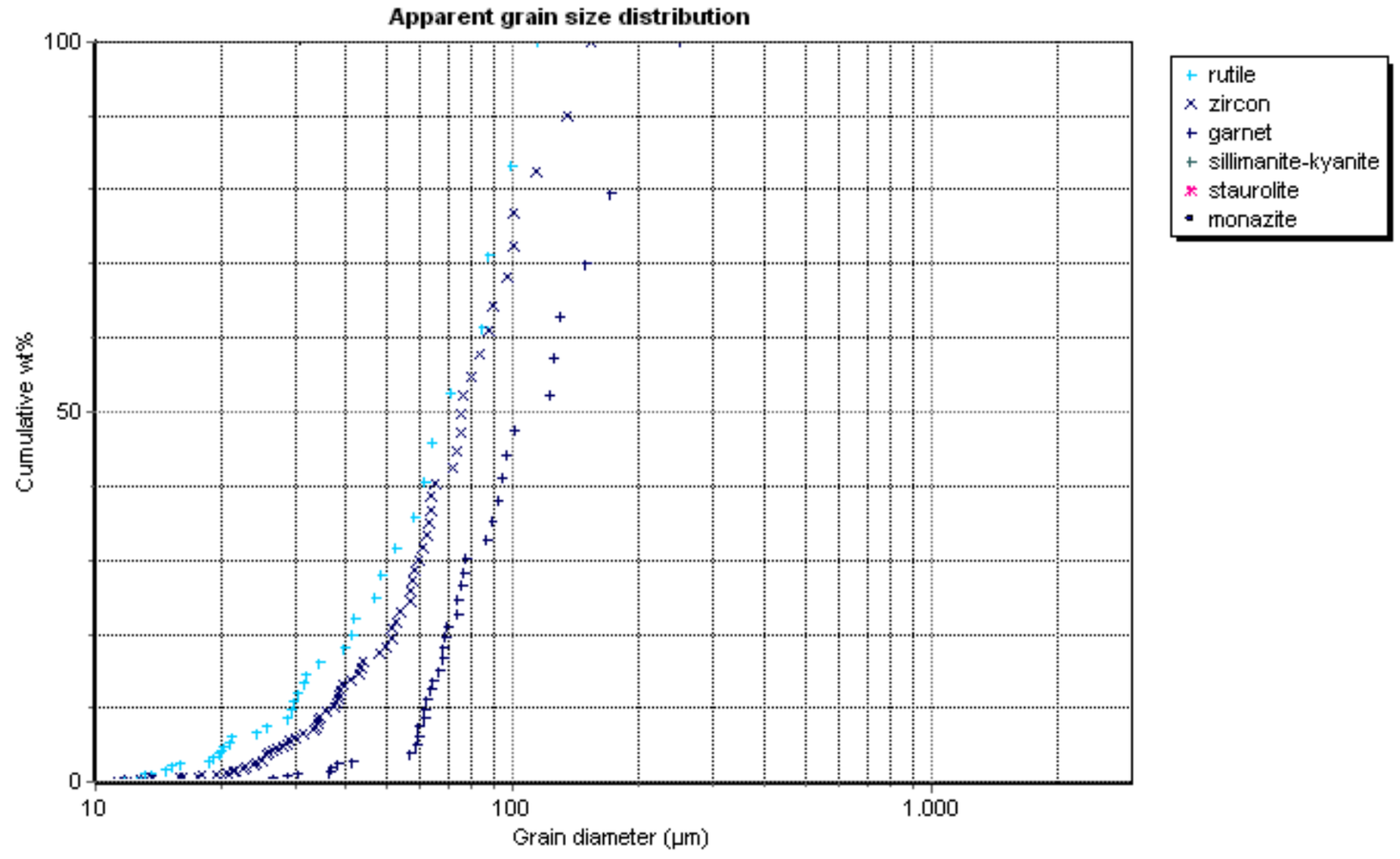

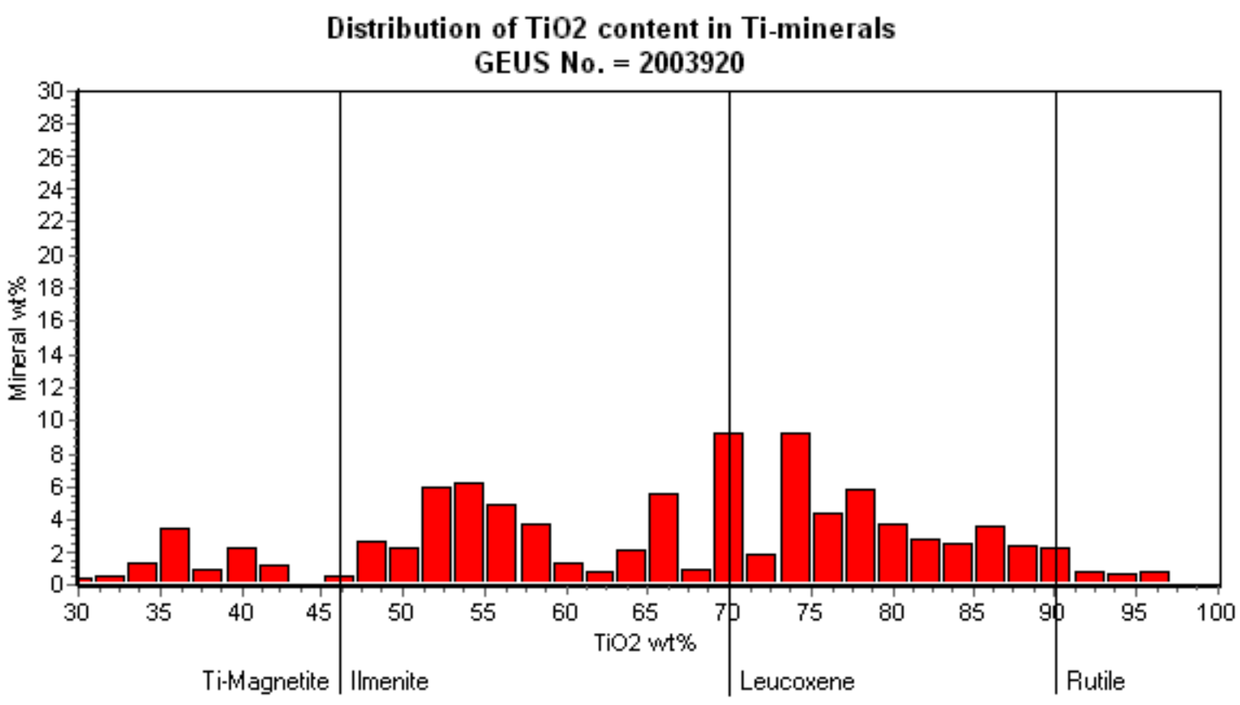

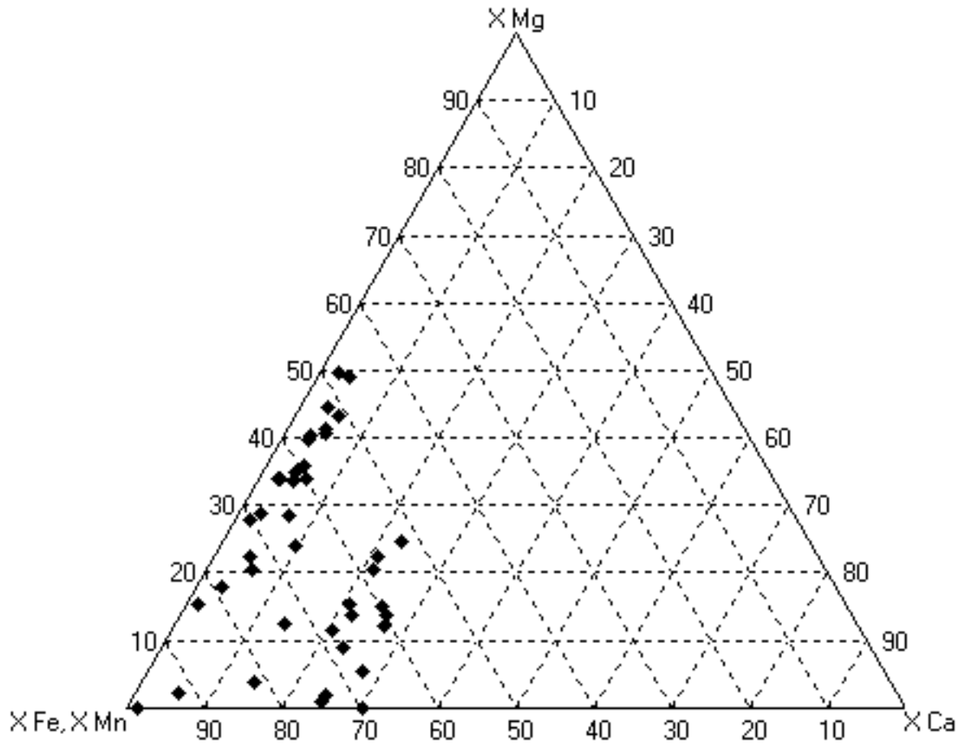

Sample GEUS #: 2003920

Description: Asuk, 37 m, Itillil formation, Kussinerujuq member, 453122, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.12	0.22	6.84	8.42	1.47	0.28	0.48	56.71	0.14	0.49	21.42	0.11	0.13	0.88	0.14	1.94	0.07	0.08	0.09	66
leucoxene	0.12	0.14	4.11	4.56	1.12	0.15	0.3	78.31	0.19	0.11	8.28	0.12	0.11	0.65	0.17	1.4	0.04	0.04	0.09	133
rutile	0.05	0.1	1.57	1.39	0.41	0.05	0.14	92.15	0.13	0.1	2.73	0.1	0.11	0.36	0.16	0.31	0.0	0.09	0.06	40
Ti magnetite	0.79	0.43	9.64	17.97	2.8	0.38	0.46	32.39	0.17	0.19	31.27	0.18	0.19	0.68	0.27	1.86	0.18	0.14	0.01	6
magnetite	1.27	0.51	9.72	10.71	12.81	0.37	0.42	0.45	0.08	0.42	59.24	0.09	0.14	0.93	0.12	2.33	0.13	0.14	0.13	37
chromite	0.0	5.27	17.06	0.83	0.26	0.0	0.1	2.09	38.76	0.09	35.08	0.35	0.13	0.0	0.0	0.0	0.0	0.0	0.0	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.19	0.12	1.5	29.79	0.29	0.06	0.39	0.44	0.09	0.09	1.33	0.15	0.04	65.21	0.0	0.0	0.01	0.2	0.13	80
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.13	5.4	22.04	38.35	0.11	0.05	3.66	0.32	0.07	1.44	27.65	0.08	0.11	0.15	0.02	0.15	0.02	0.11	0.16	40
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	2.9	0.05	21.78	60.07	0.22	9.81	1.21	0.5	0.09	0.06	1.83	0.12	0.11	0.25	0.0	0.34	0.0	0.22	0.44	38
silicate-other	0.74	0.57	34.31	52.85	0.53	0.39	0.6	0.47	0.09	0.16	7.55	0.09	0.11	0.27	0.0	1.03	0.0	0.11	0.14	137
quartz	0.16	0.12	1.25	94.92	0.14	0.07	0.08	0.38	0.1	0.1	0.95	0.16	0.15	0.48	0.0	0.53	0.0	0.21	0.21	125
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.0	3.02	3.51	7.22	0.0	3.89	0.0	0.0	0.0	0.42	0.0	0.0	10.66	0.0	51.14	0.0	19.48	0.67	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.64	0.09	2.04	2.41	0.67	0.22	51.12	0.16	0.06	0.1	1.74	0.13	0.15	6.77	0.02	33.29	0.0	0.13	0.28	58
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.02	0.07	2.16	2.37	61.58	0.13	0.16	0.08	0.05	0.08	31.45	0.05	0.11	0.37	0.13	0.95	0.03	0.13	0.08	62
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.59	2.41	21.76	35.83	4.5	3.71	0.44	4.15	0.07	0.16	22.35	0.33	0.12	0.52	0.13	1.46	0.19	0.05	0.22	7
white mica	0.96	0.35	24.19	57.03	0.07	13.23	0.36	0.5	0.09	0.07	2.07	0.09	0.12	0.13	0.0	0.32	0.0	0.15	0.27	44
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.13	4.67	20.65	42.53	1.32	0.08	1.07	0.4	0.05	0.6	27.42	0.12	0.16	0.07	0.0	0.5	0.0	0.13	0.09	24
clino-amphibole/clino-pyroxene	3.42	5.94	22.67	36.53	0.66	0.3	2.87	0.43	0.07	0.81	24.86	0.1	0.14	0.15	0.13	0.58	0.08	0.13	0.15	81
chlorite	1.39	0.78	21.67	26.2	3.05	0.77	0.67	0.45	0.09	0.49	41.43	0.24	0.16	0.69	0.23	1.07	0.39	0.09	0.12	17
unclassified	1.48	0.49	11.66	26.37	17.14	1.45	1.75	7.41	0.09	0.23	22.87	0.09	0.1	5.94	0.29	2.11	0.13	0.23	0.17	202

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Sample GEUS #: 2003921

Description: Asuk, 4 m, Atane formation, Channel member, 453125, outcrop

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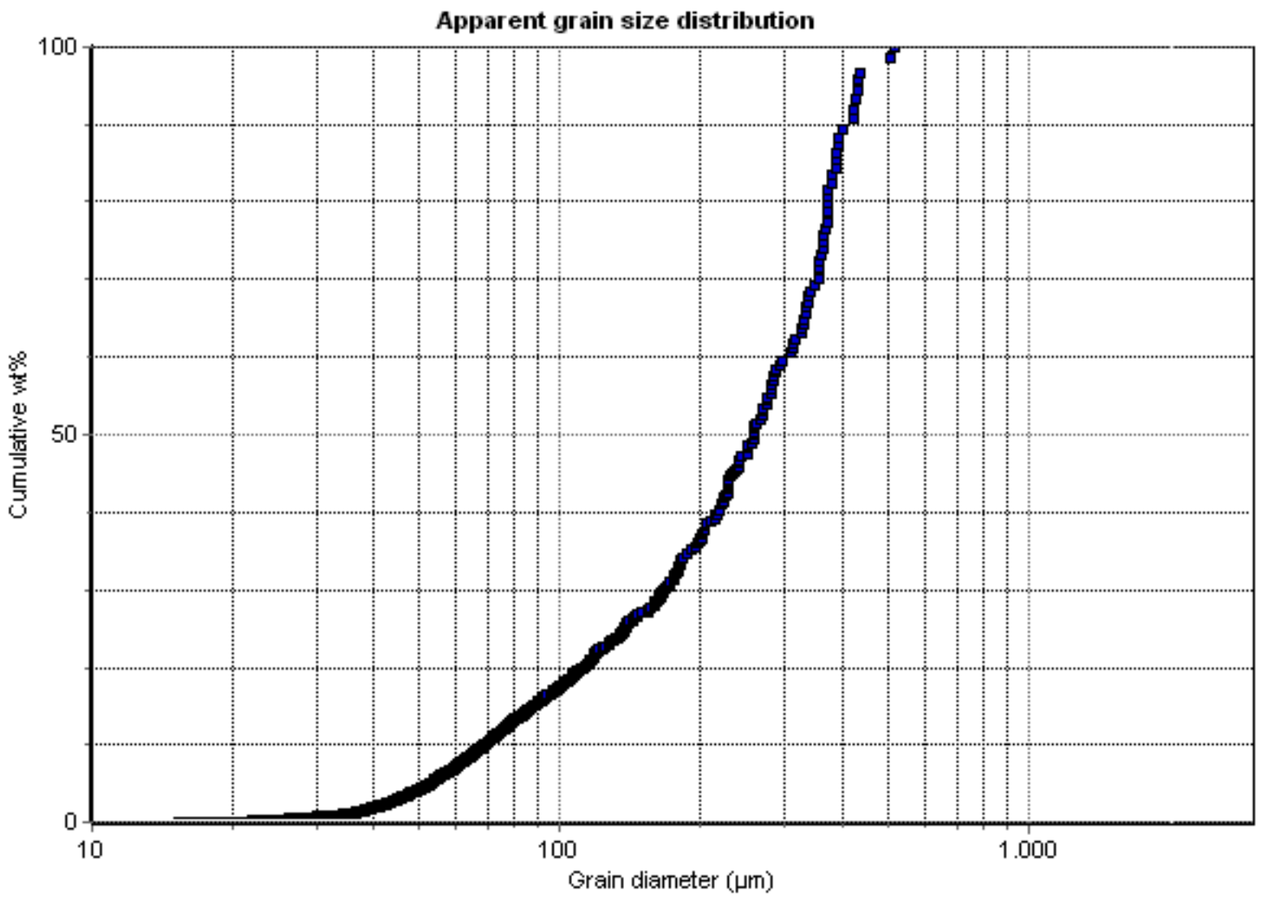

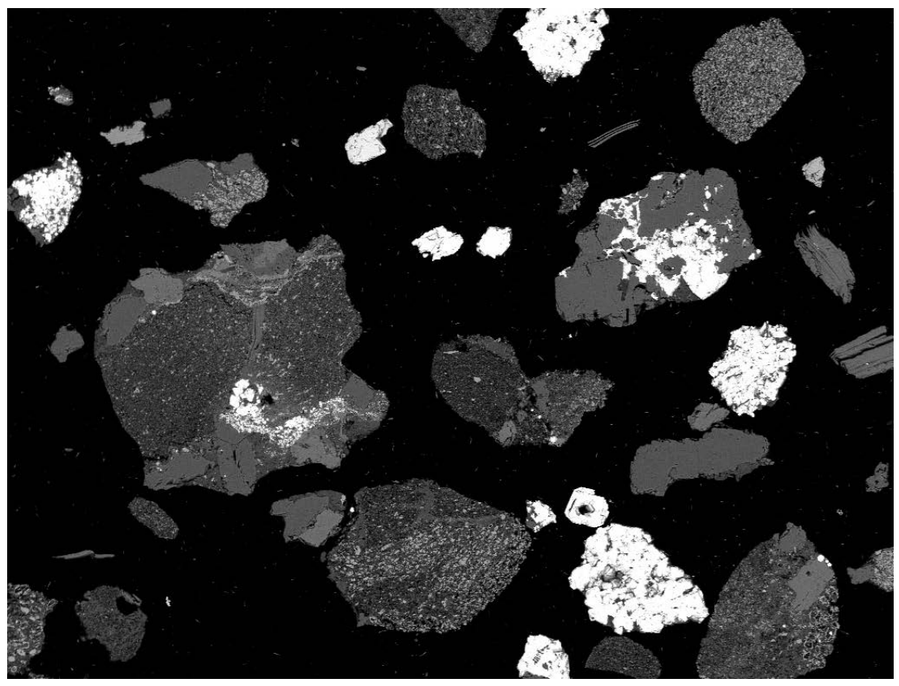

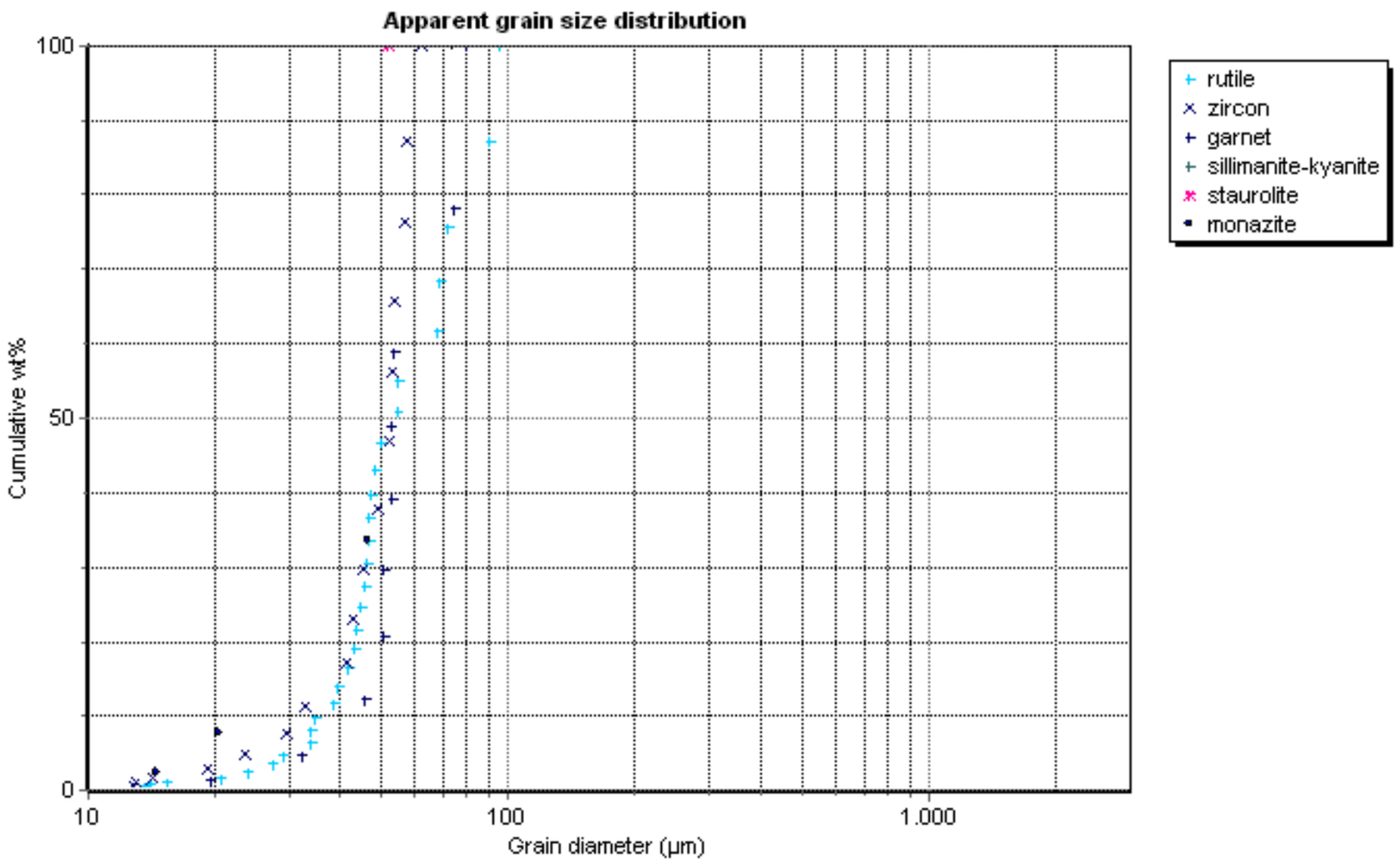

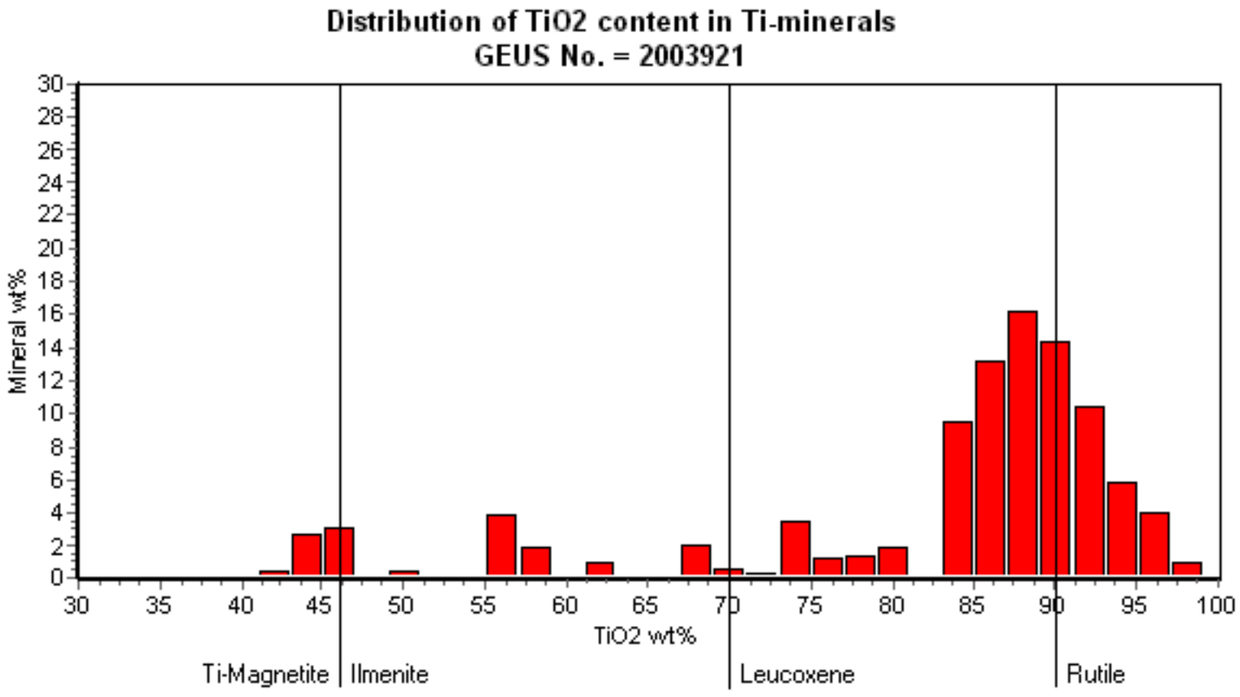

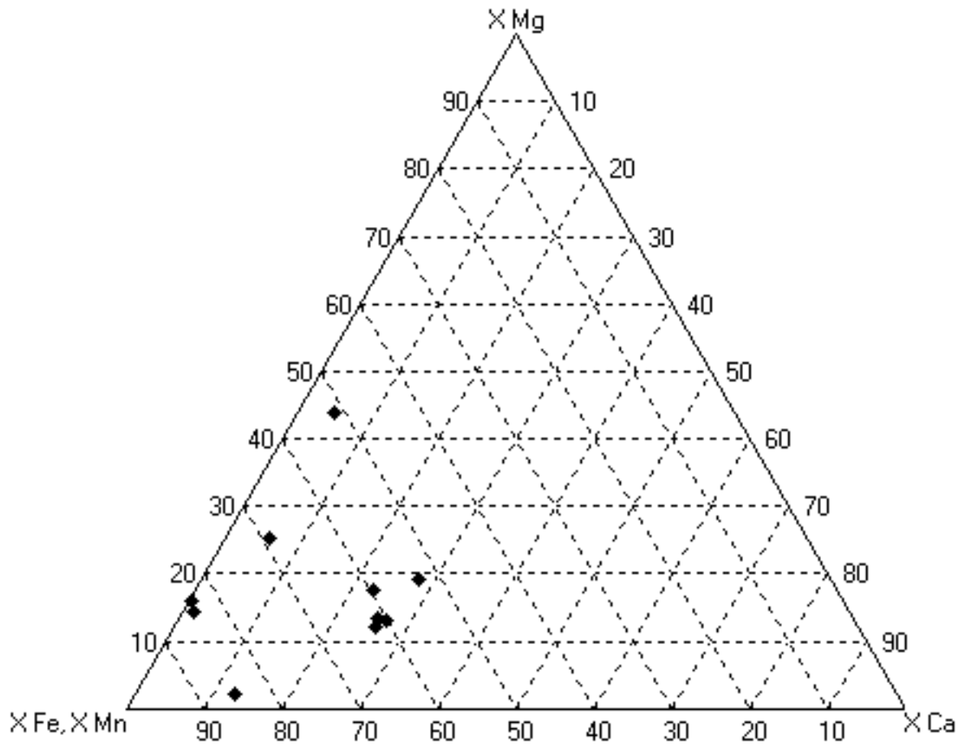

Sample GEUS #: 2003921

Description: Asuk, 4 m, Atane formation, Channel member, 453125, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	1.03	0.5	10.11	24.34	0.33	0.87	0.25	58.94	0.13	0.05	2.01	0.01	0.09	0.4	0.35	0.11	0.13	0.27	0.09	6
leucoxene	0.26	0.19	4.55	6.74	0.38	0.13	0.4	81.95	0.35	0.09	2.92	0.12	0.12	0.6	0.39	0.6	0.05	0.07	0.09	36
rutile	0.16	0.12	1.78	1.71	0.26	0.05	0.24	92.13	0.22	0.06	1.95	0.09	0.04	0.38	0.31	0.27	0.01	0.12	0.1	31
Ti magnetite	0.0	1.0	7.74	18.71	0.4	0.41	0.65	24.28	0.13	0.0	44.5	0.05	0.37	0.0	0.14	1.14	0.0	0.0	0.47	1
magnetite	2.33	2.69	5.33	9.4	2.78	0.23	2.47	0.34	0.08	1.25	71.55	0.1	0.16	0.3	0.25	0.39	0.09	0.15	0.11	118
chromite	0.0	3.1	5.39	1.12	0.05	0.04	0.04	0.45	42.01	0.0	47.37	0.14	0.0	0.0	0.0	0.02	0.11	0.13	0.02	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.22	0.08	0.2	30.42	0.01	0.02	0.36	0.14	0.06	0.13	0.87	0.06	0.03	66.39	0.0	0.56	0.05	0.29	0.1	17
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.04	4.05	22.42	38.34	0.01	0.06	4.87	0.1	0.02	1.17	28.3	0.06	0.08	0.03	0.0	0.11	0.0	0.16	0.17	10
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0.0	1.88	52.31	29.14	0.0	0.0	0.01	0.45	0.4	0.08	14.76	0.44	0.4	0.0	0.0	0.0	0.0	0.14	0.0	1
feldspar	5.25	0.04	22.86	61.68	0.61	4.97	2.1	0.39	0.08	0.05	1.02	0.08	0.15	0.11	0.0	0.09	0.0	0.12	0.4	69
silicate-other	2.09	1.89	25.8	57.31	1.08	0.9	0.8	0.65	0.1	0.1	8.45	0.13	0.11	0.13	0.0	0.15	0.0	0.12	0.2	63
quartz	0.23	0.11	1.6	95.14	0.11	0.07	0.1	0.21	0.1	0.12	0.91	0.16	0.18	0.22	0.0	0.34	0.0	0.19	0.22	78
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	1.39	0.28	4.98	24.0	6.54	0.0	1.83	0.0	0.0	0.0	2.06	0.3	0.09	6.29	0.0	33.25	0.0	19.01	0.0	4
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	1.57	0.2	3.06	4.94	4.83	0.0	1.84	0.0	0.0	0.0	0.65	0.0	0.0	14.02	0.0	41.7	1.24	25.95	0.0	1
carbonate	0.69	23.05	0.75	1.26	0.66	0.22	58.33	0.13	0.09	0.44	12.93	0.09	0.08	0.05	0.3	0.14	0.09	0.23	0.48	12
pyrite	0.2	0.07	2.12	4.68	63.62	0.21	0.07	0.2	0.04	0.06	28.02	0.07	0.11	0.06	0.14	0.1	0.02	0.11	0.09	230
epidote	0.51	0.13	24.69	37.86	0.04	0.05	23.71	0.03	0.04	0.26	12.1	0.06	0.14	0.0	0.0	0.1	0.0	0.04	0.25	4
dark mica	2.29	1.88	14.88	35.91	16.55	4.23	0.62	0.66	0.06	0.17	21.83	0.07	0.09	0.23	0.11	0.12	0.03	0.11	0.19	24
white mica	0.74	1.09	30.59	50.46	0.18	11.21	0.22	0.81	0.08	0.09	3.71	0.07	0.09	0.06	0.0	0.08	0.0	0.15	0.37	132
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.26	4.33	21.54	42.23	0.25	0.43	0.94	0.55	0.08	0.37	28.17	0.06	0.15	0.09	0.0	0.25	0.0	0.09	0.21	15
clino-amphibole/clino-pyroxene	4.44	6.41	20.63	39.15	0.49	0.79	1.59	0.63	0.08	0.32	24.49	0.09	0.14	0.18	0.14	0.14	0.06	0.1	0.13	88
chlorite	0.32	5.46	19.27	27.49	1.12	0.74	1.2	1.57	0.1	0.36	39.92	0.15	0.22	0.49	0.51	0.52	0.22	0.14	0.19	48
unclassified	1.8	3.15	14.78	31.7	16.83	1.71	2.22	2.47	0.18	0.22	23.37	0.1	0.14	0.3	0.33	0.22	0.12	0.16	0.19	211

DONG sample Report - Page 1/3

Sample GEUS #: 2003922

Description: Kamafiaraq, 128 m, Atane formation, Channel member, 453127, outcrop

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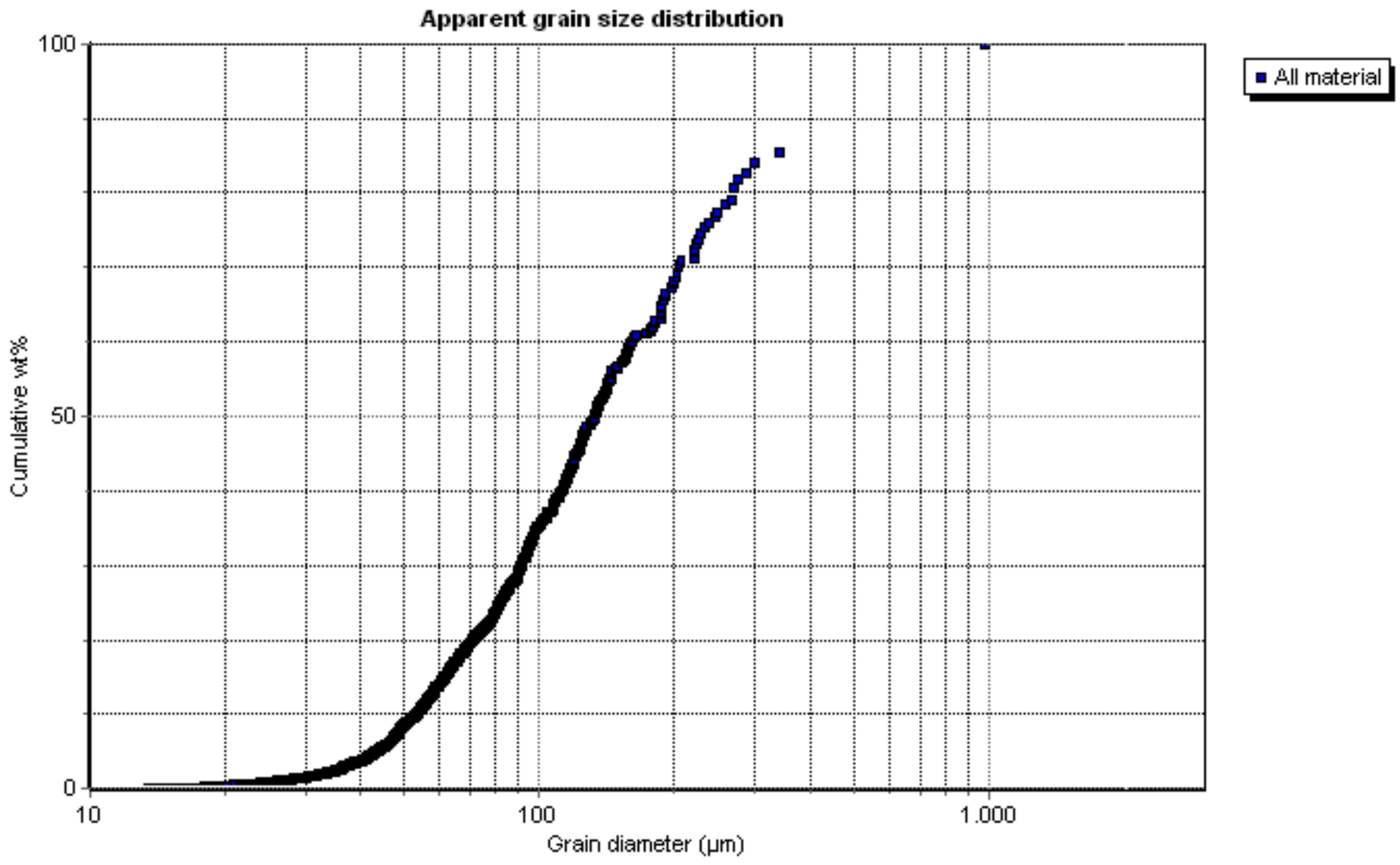

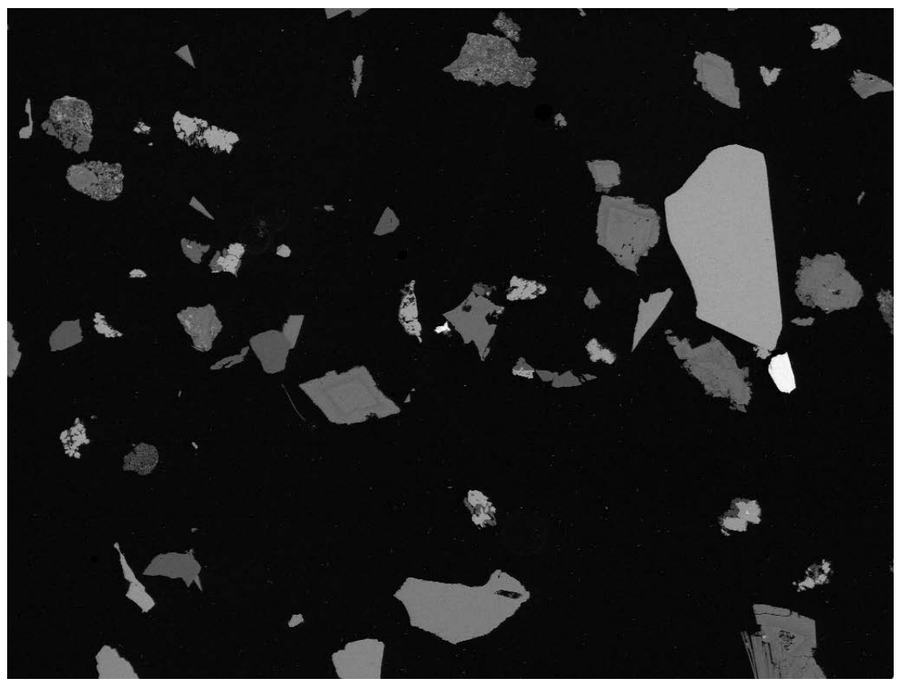

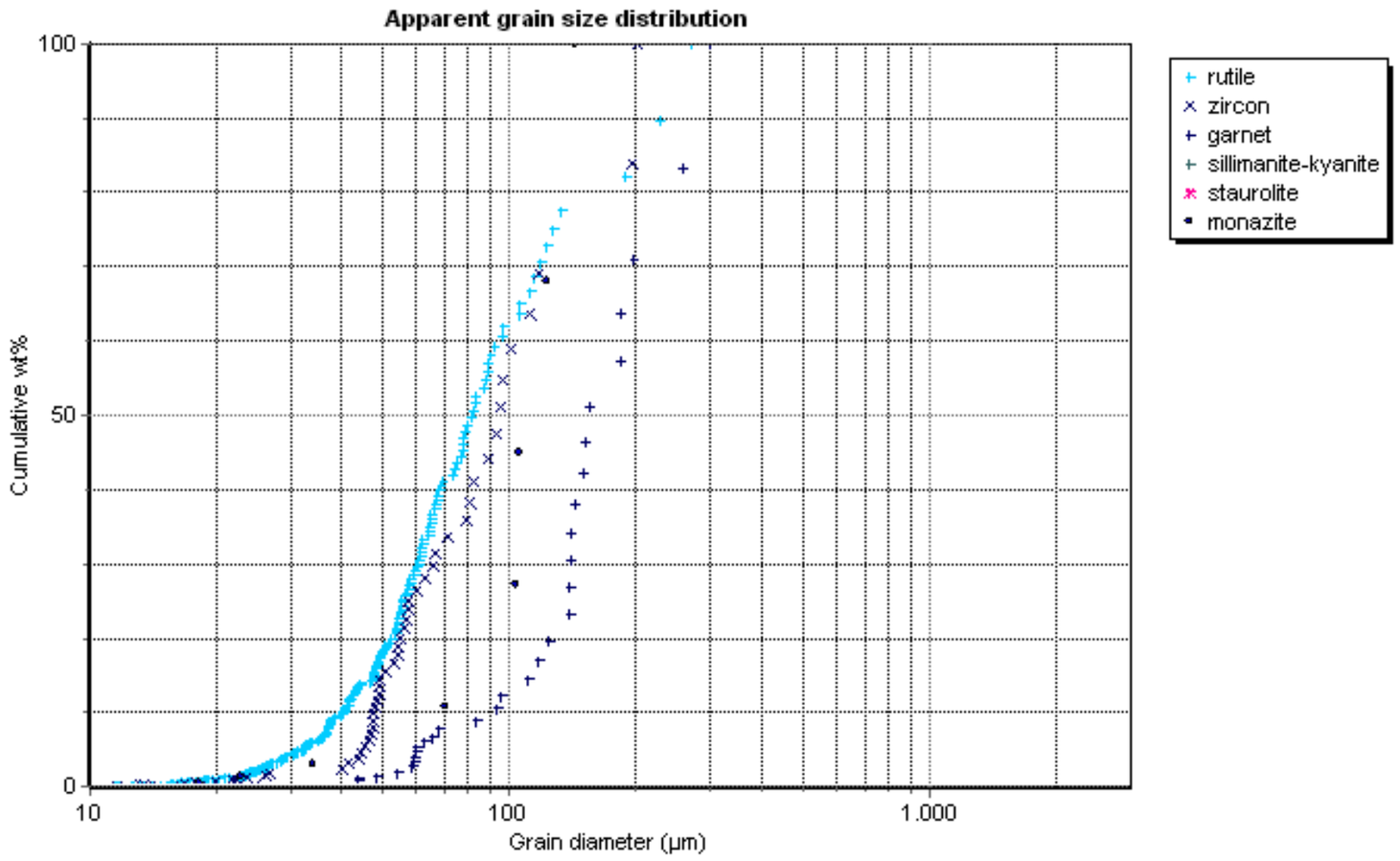

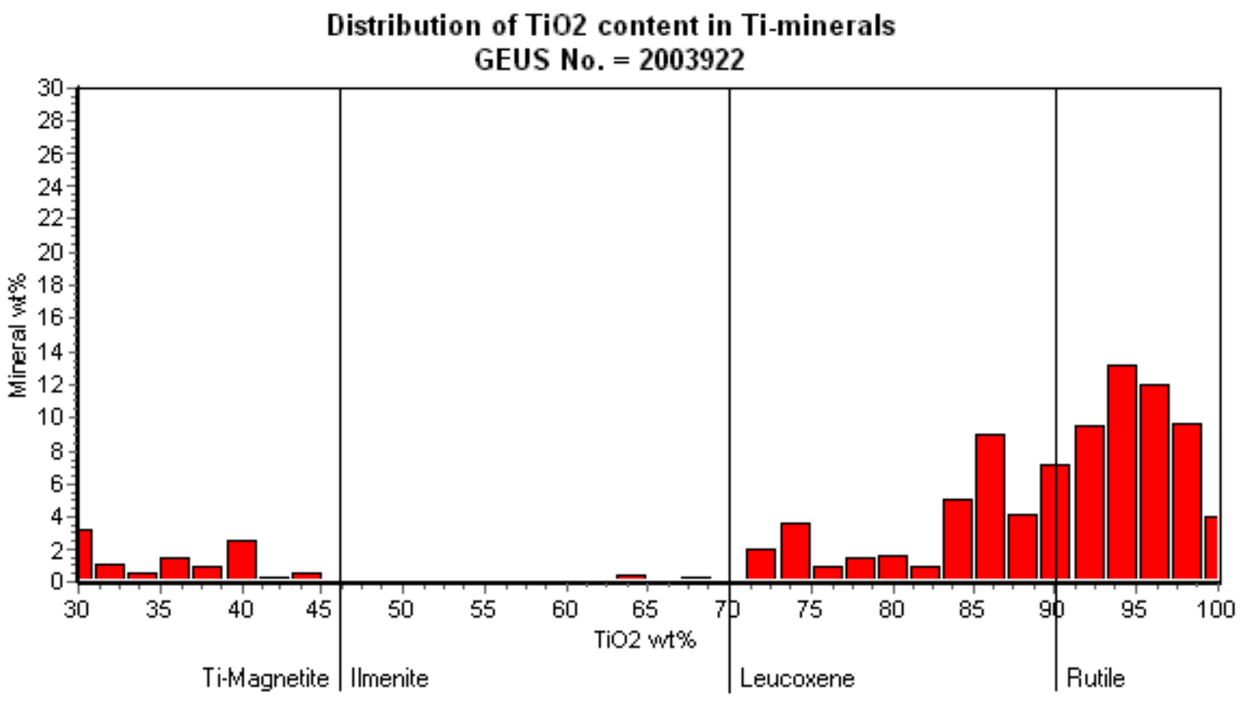

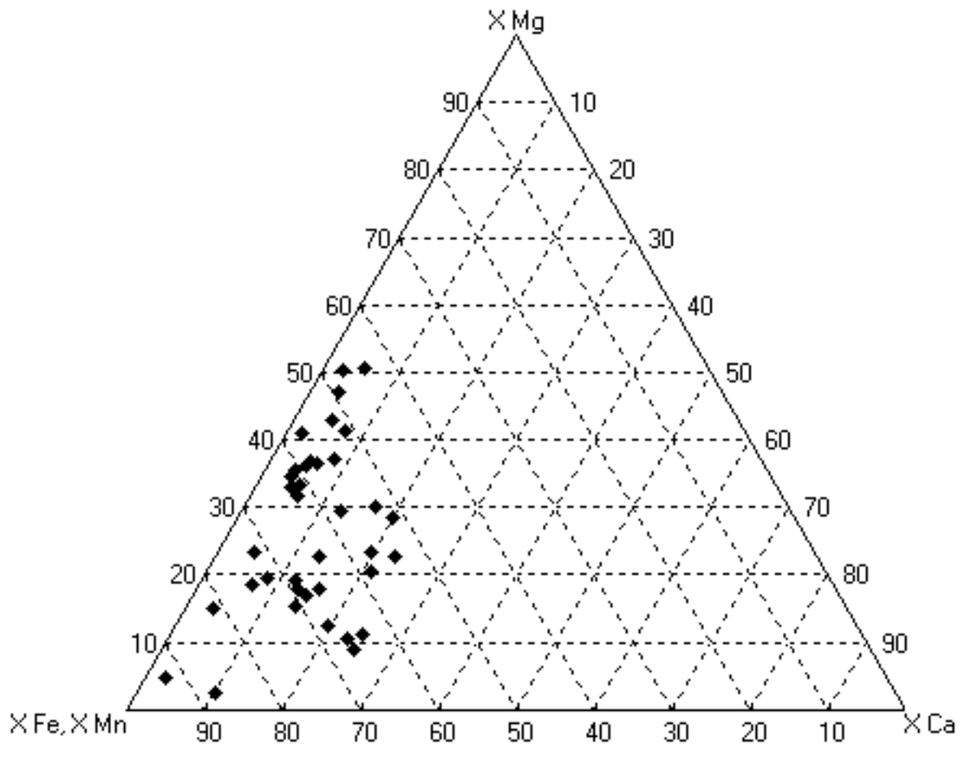

Sample GEUS #: 2003922

Description: Kamafiaraq, 128 m, Atane formation, Channel member, 453127, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.15	1.64	4.91	20.69	4.61	0.23	0.67	56.52	0.13	1.53	7.15	0.11	0.02	0.27	0.63	0.47	0.03	0.11	0.13	9
leucoxene	0.4	0.38	3.0	6.19	0.74	0.09	0.49	81.59	0.18	0.28	4.99	0.17	0.15	0.4	0.47	0.22	0.03	0.15	0.11	83
rutile	0.07	0.15	1.22	1.61	0.29	0.05	0.22	93.37	0.15	0.09	1.68	0.11	0.12	0.22	0.29	0.18	0.01	0.1	0.07	210
Ti magnetite	1.03	0.99	0.71	0.79	22.02	0.02	0.93	37.91	0.07	0.26	34.54	0.02	0.0	0.06	0.15	0.15	0.0	0.39	0.0	2
magnetite	4.03	6.98	4.45	7.99	0.77	0.07	3.4	0.5	0.08	1.01	69.46	0.07	0.15	0.17	0.22	0.32	0.04	0.14	0.17	63
chromite	2.92	3.19	17.61	0.15	0.1	0.15	0.0	0.81	40.53	0.33	33.27	0.0	0.0	0.0	0.52	0.23	0.0	0.0	0.19	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.14	0.11	0.2	30.05	0.04	0.05	0.45	0.5	0.06	0.07	0.33	0.08	0.07	67.07	0.0	0.41	0.05	0.22	0.08	55
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.06	5.92	23.04	39.53	0.04	0.02	3.3	0.22	0.06	1.74	25.56	0.09	0.11	0.05	0.0	0.02	0.0	0.07	0.16	37
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	8.01	0.05	22.59	62.09	0.14	1.92	1.45	1.79	0.09	0.06	0.72	0.09	0.13	0.24	0.03	0.09	0.0	0.17	0.35	50
silicate-other	3.25	2.56	25.21	57.35	0.28	0.64	2.76	0.82	0.11	0.17	6.12	0.11	0.08	0.06	0.0	0.09	0.0	0.14	0.24	45
quartz	0.25	0.14	0.6	96.64	0.19	0.04	0.1	0.18	0.11	0.24	0.55	0.11	0.13	0.16	0.0	0.2	0.0	0.19	0.16	40
corundum	0.05	0.15	95.32	0.27	0.78	0.16	0.25	0.02	0.18	0.15	0.29	0.36	0.19	0.25	0.65	0.32	0.22	0.32	0.1	4
monazite	0.75	0.35	1.09	3.65	2.65	0.0	1.61	0.0	0.0	0.0	0.75	0.16	0.2	10.26	0.0	52.38	0.16	25.99	0.0	8
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.51	0.19	4.23	3.27	1.11	0.05	27.61	0.41	0.05	0.09	0.16	0.0	0.22	11.98	0.02	36.93	1.09	11.59	0.51	10
carbonate	0.47	19.0	1.54	2.53	0.35	0.18	57.21	0.39	0.13	0.57	16.44	0.12	0.18	0.04	0.15	0.04	0.03	0.17	0.46	93
pyrite	0.0	0.83	1.32	1.78	61.33	0.18	1.63	5.72	0.04	0.12	26.17	0.17	0.14	0.15	0.08	0.02	0.0	0.12	0.18	7
epidote	0.0	4.97	32.7	36.84	0.0	0.24	19.45	0.0	0.07	0.0	5.29	0.0	0.18	0.19	0.0	0.0	0.0	0.0	0.07	1
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	1.5	1.31	31.34	50.7	0.22	9.72	0.25	0.62	0.12	0.1	3.04	0.09	0.09	0.18	0.0	0.04	0.0	0.19	0.51	35
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.16	7.49	23.37	40.5	0.14	0.03	1.9	0.2	0.05	0.97	24.59	0.08	0.14	0.1	0.0	0.06	0.0	0.05	0.15	17
clino-amphibole/clino-pyroxene	4.81	7.85	21.12	38.07	0.05	0.14	6.82	0.59	0.06	0.57	19.08	0.1	0.11	0.06	0.14	0.05	0.03	0.15	0.21	77
chlorite	0.0	4.8	18.2	30.08	0.23	1.6	1.89	2.04	0.08	0.67	37.92	0.02	0.04	0.52	0.74	0.1	0.62	0.08	0.4	4
unclassified	4.21	14.31	7.3	16.64	0.7	0.81	31.54	5.03	0.12	0.45	15.4	0.12	0.15	0.97	0.64	0.18	0.12	0.31	1.01	349

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Sample GEUS #: 2003923

Description: Kamafiaraq, 211 m, Atane formation, Channel member, 453129, outcrop

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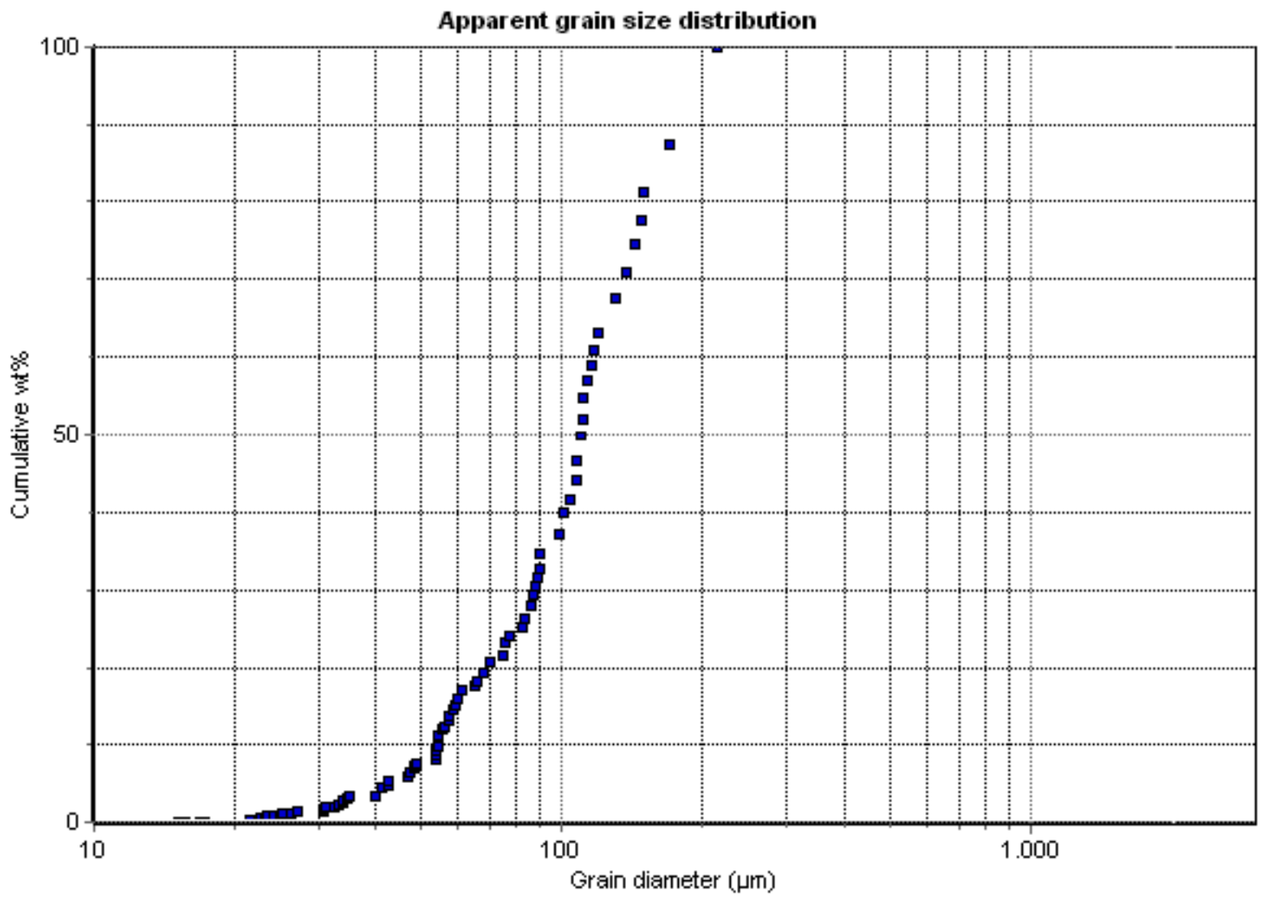

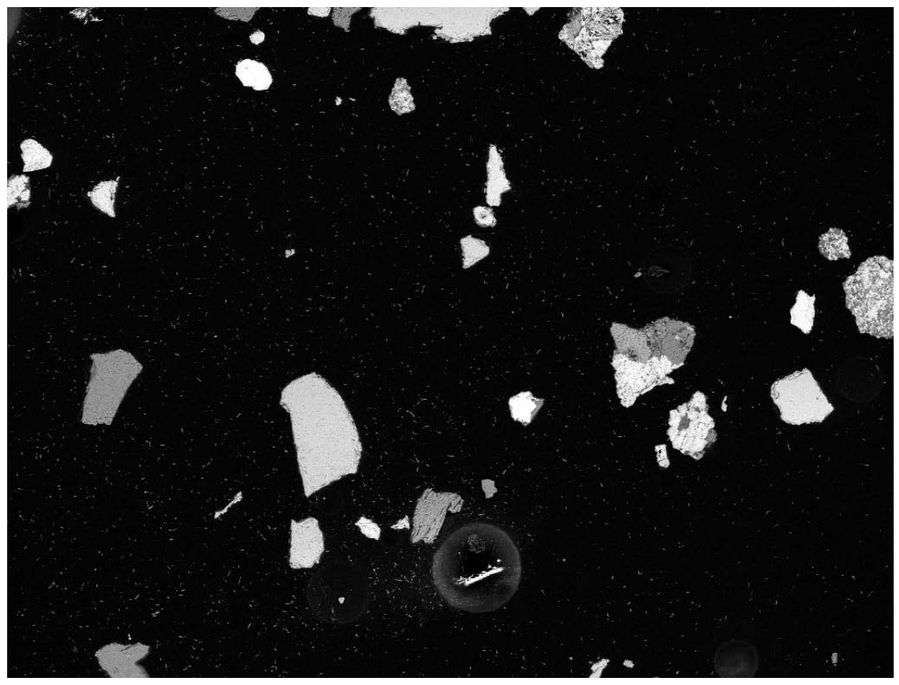

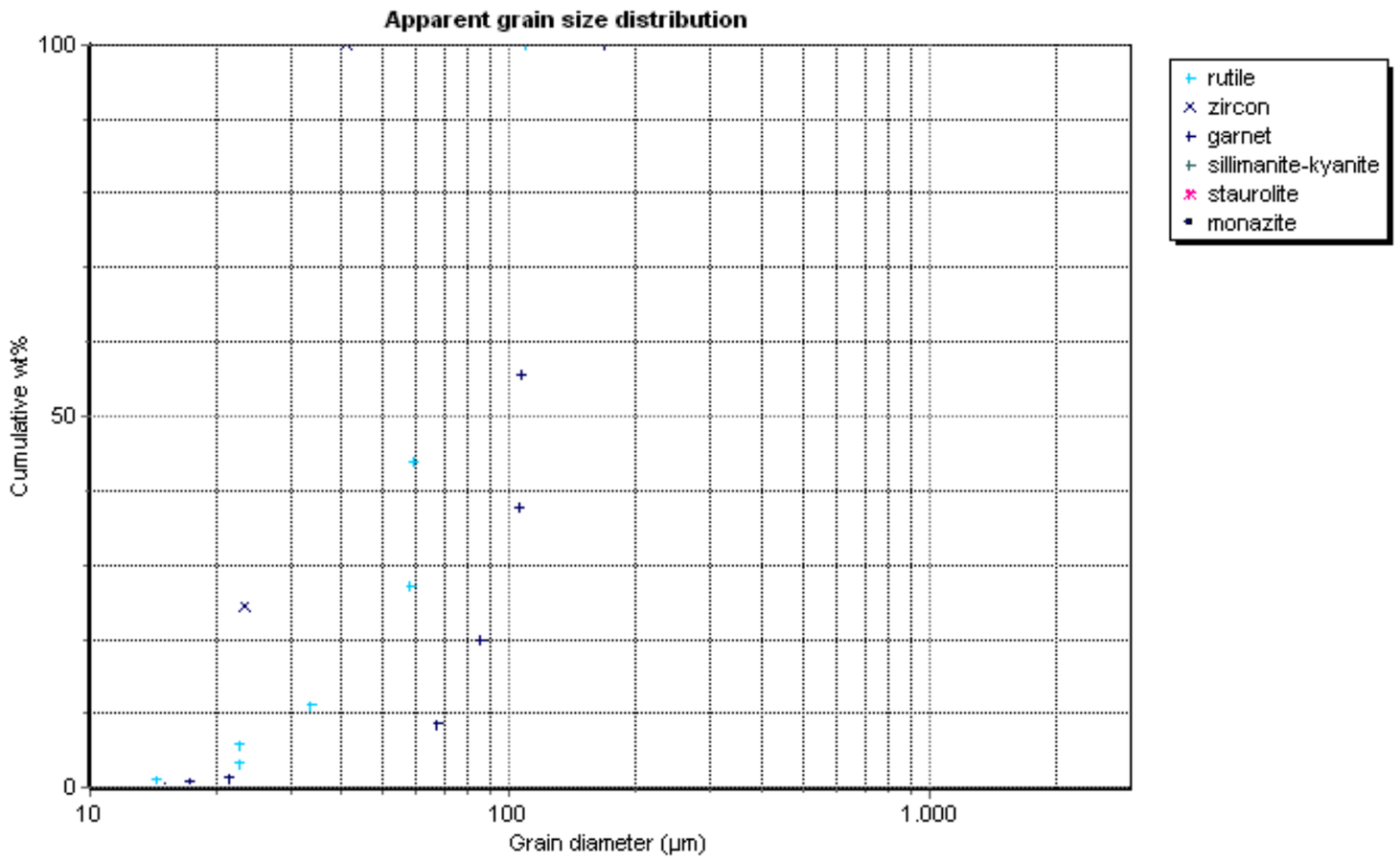

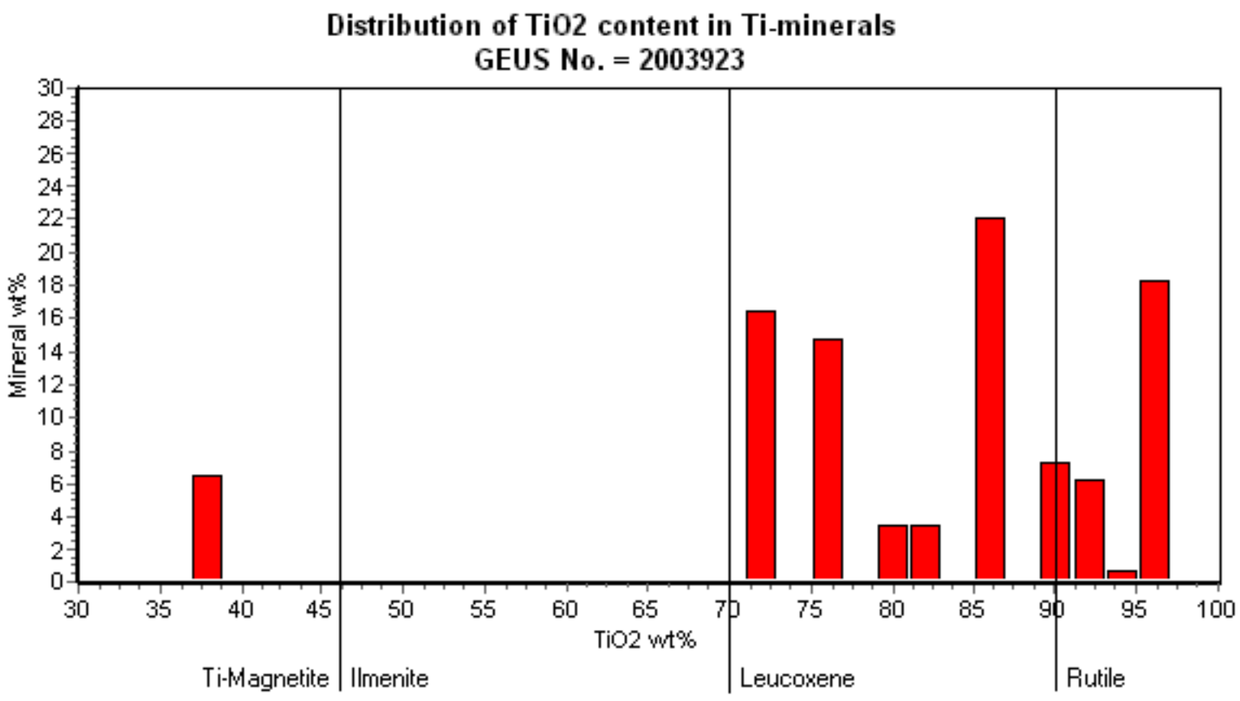

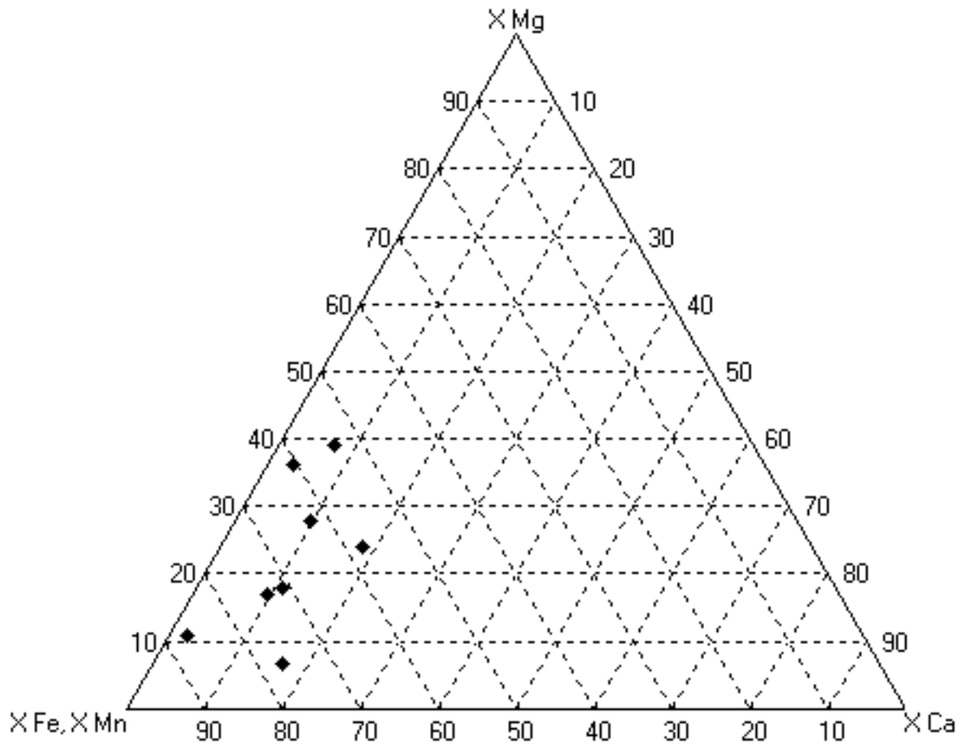

Sample GEUS #: 2003923

Description: Kamafiaraq, 211 m, Atane formation, Channel member, 453129, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.5	0.24	2.99	7.96	0.13	0.06	0.38	79.28	0.45	0.19	6.96	0.08	0.1	0.23	0.07	0.36	0.05	0.0	0.01	7
rutile	0.04	0.13	1.67	2.56	0.28	0.03	0.32	91.99	0.19	0.07	1.26	0.05	0.12	0.47	0.35	0.3	0.02	0.1	0.04	7
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	2.38	3.66	6.46	12.75	0.39	0.35	2.52	0.28	0.07	2.35	67.3	0.28	0.15	0.08	0.28	0.32	0.02	0.06	0.32	8
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.28	0.09	0.64	28.55	0.0	0.05	1.17	0.34	0.19	0.0	0.1	0.18	0.02	68.04	0.0	0.0	0.0	0.1	0.28	2
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	5.15	21.74	38.97	0.12	0.06	3.12	0.06	0.02	2.96	27.21	0.07	0.17	0.04	0.0	0.03	0.0	0.17	0.1	8
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	8.22	0.0	24.02	60.61	0.0	0.13	5.34	0.07	0.0	0.0	0.59	0.0	0.0	0.0	0.0	0.47	0.0	0.0	0.56	1
silicate-other	1.86	2.75	26.1	55.19	0.54	0.4	1.74	0.44	0.1	1.68	8.53	0.07	0.09	0.32	0.0	0.01	0.0	0.13	0.06	8
quartz	0.3	0.04	0.2	97.25	0.46	0.0	0.0	0.23	0.31	0.03	0.24	0.0	0.46	0.0	0.0	0.25	0.0	0.27	0.0	2
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.26	0.05	1.73	9.38	0.75	0.01	47.77	0.0	0.05	0.14	0.45	0.12	0.0	7.35	0.0	31.45	0.0	0.17	0.31	3
carbonate	0.0	6.81	0.58	1.98	0.59	0.14	87.35	0.0	0.36	0.43	0.63	0.22	0.0	0.0	0.0	0.74	0.0	0.17	0.0	1
pyrite	0.0	0.04	0.26	5.64	62.95	0.0	0.05	2.23	0.0	0.1	27.75	0.43	0.08	0.04	0.0	0.07	0.0	0.22	0.13	3
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	4.05	0.62	17.46	42.62	0.32	3.98	0.61	0.2	0.11	0.05	29.46	0.04	0.0	0.19	0.0	0.15	0.0	0.09	0.1	2
white mica	1.18	1.39	31.73	48.65	0.06	10.27	0.15	0.71	0.06	0.03	4.5	0.16	0.09	0.0	0.0	0.0	0.0	0.28	0.75	4
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	6.15	20.78	39.84	0.15	0.38	1.75	0.26	0.12	0.79	29.25	0.14	0.22	0.11	0.0	0.0	0.0	0.02	0.02	3
clino-amphibole/clino-pyroxene	3.78	9.76	16.41	39.67	0.05	0.21	6.49	0.36	0.06	0.56	21.93	0.02	0.1	0.04	0.04	0.09	0.03	0.12	0.27	20
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	1.34	2.65	9.24	21.27	12.96	2.23	3.45	7.1	1.03	1.99	11.21	1.09	6.31	5.71	7.03	0.23	1.43	1.92	1.81	9

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Sample GEUS #: 2003924

Description: Kamafiaraq, 334 m, Atane formation, Channel member, 453130, outcrop

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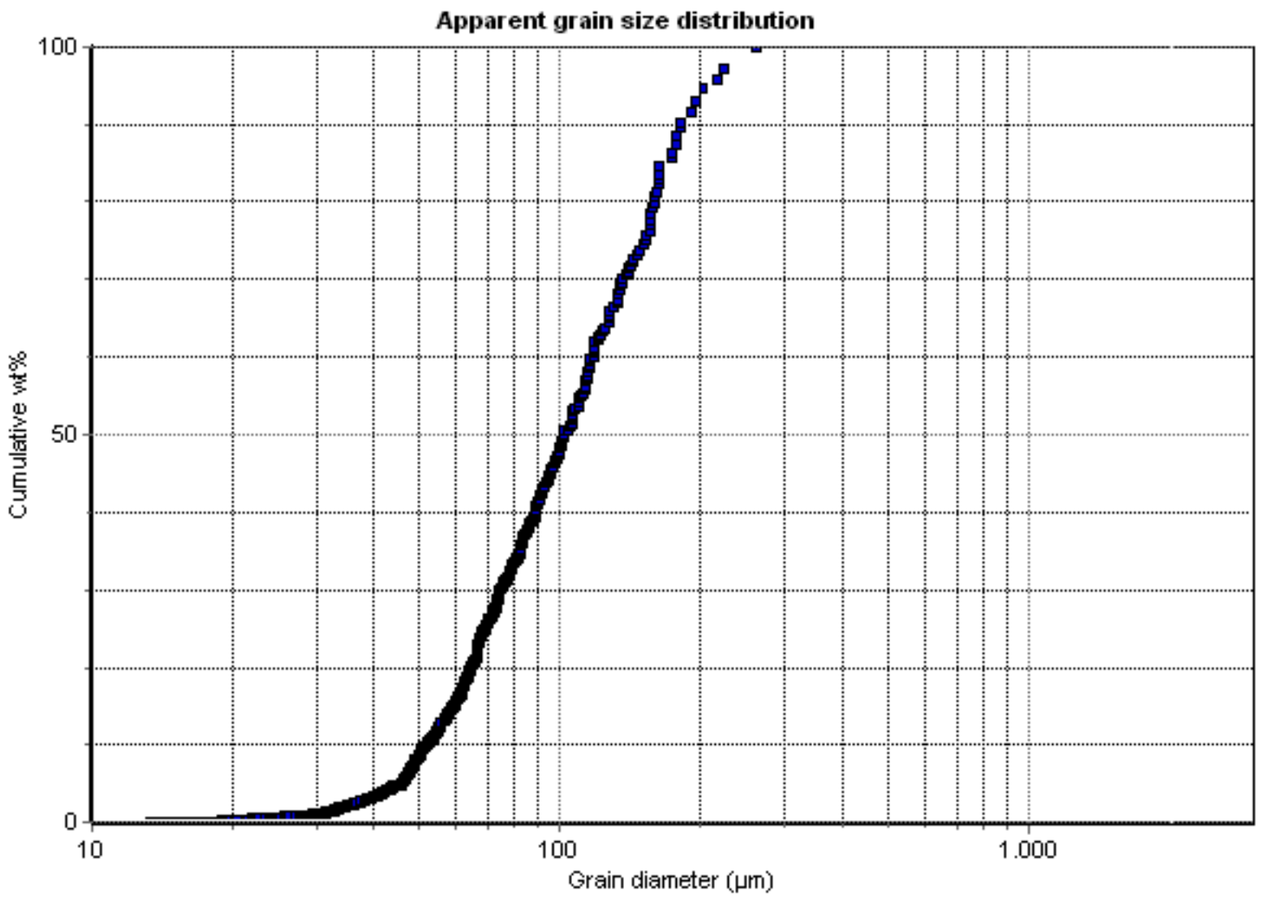

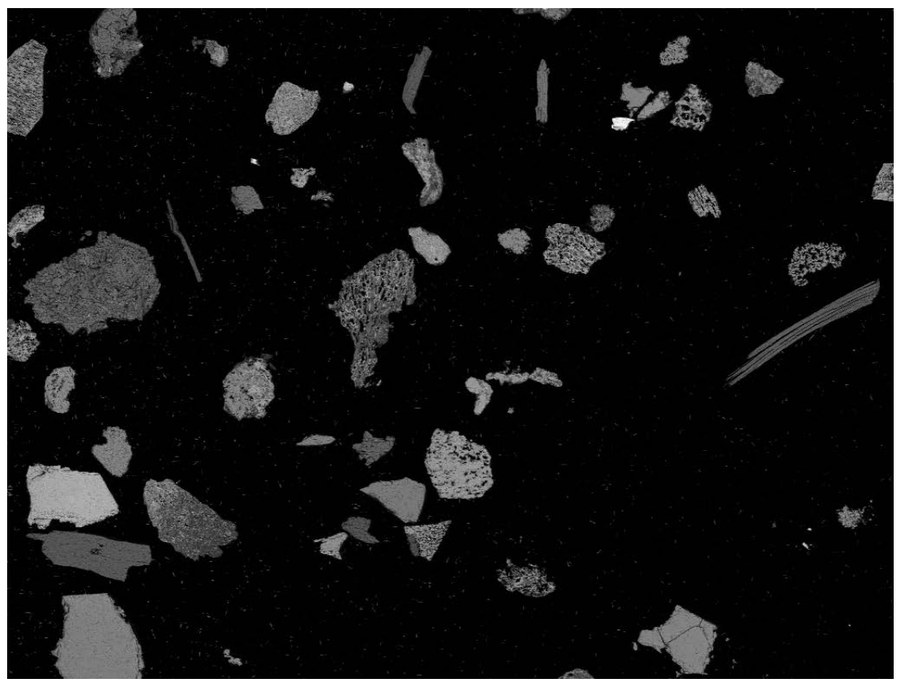

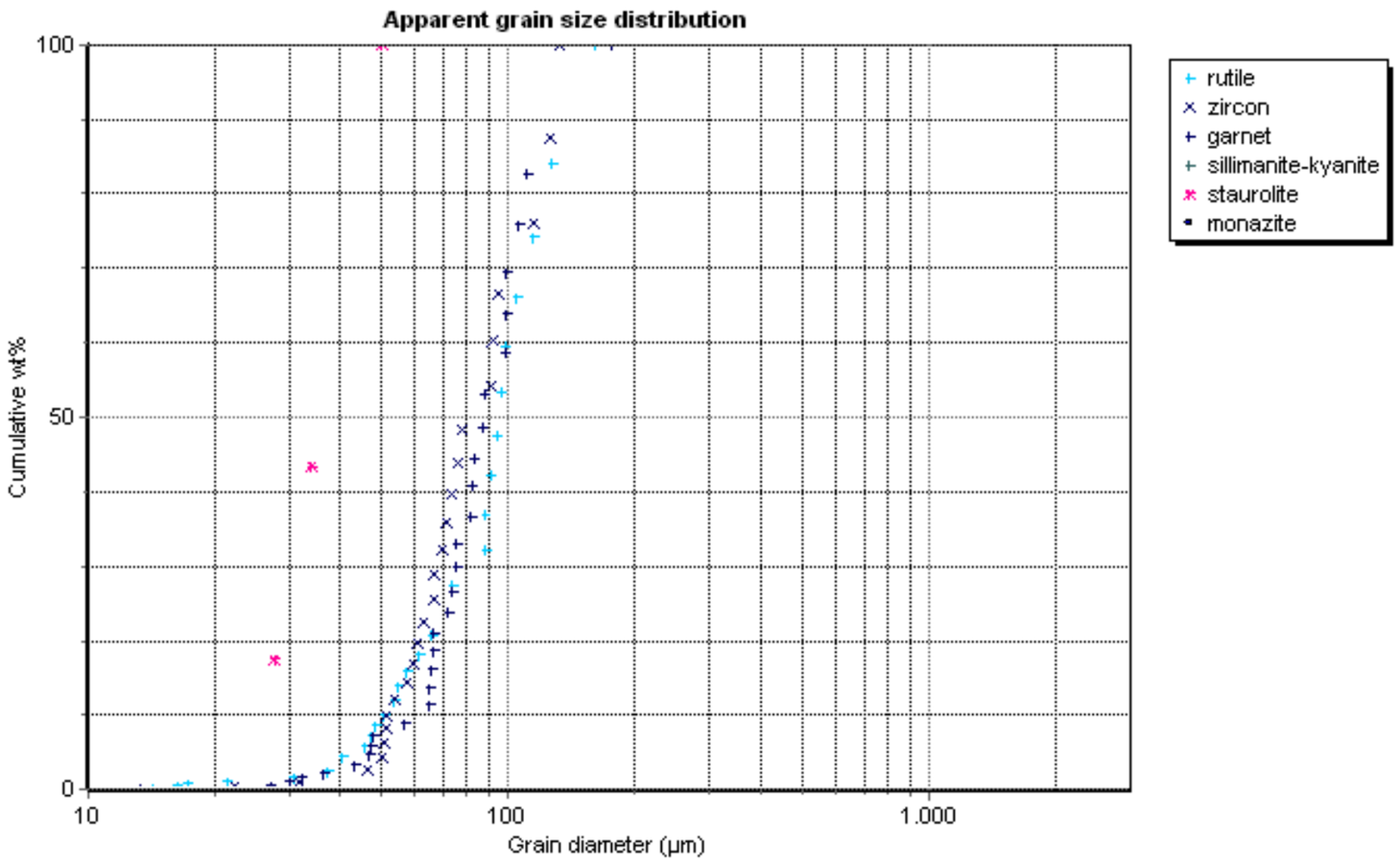

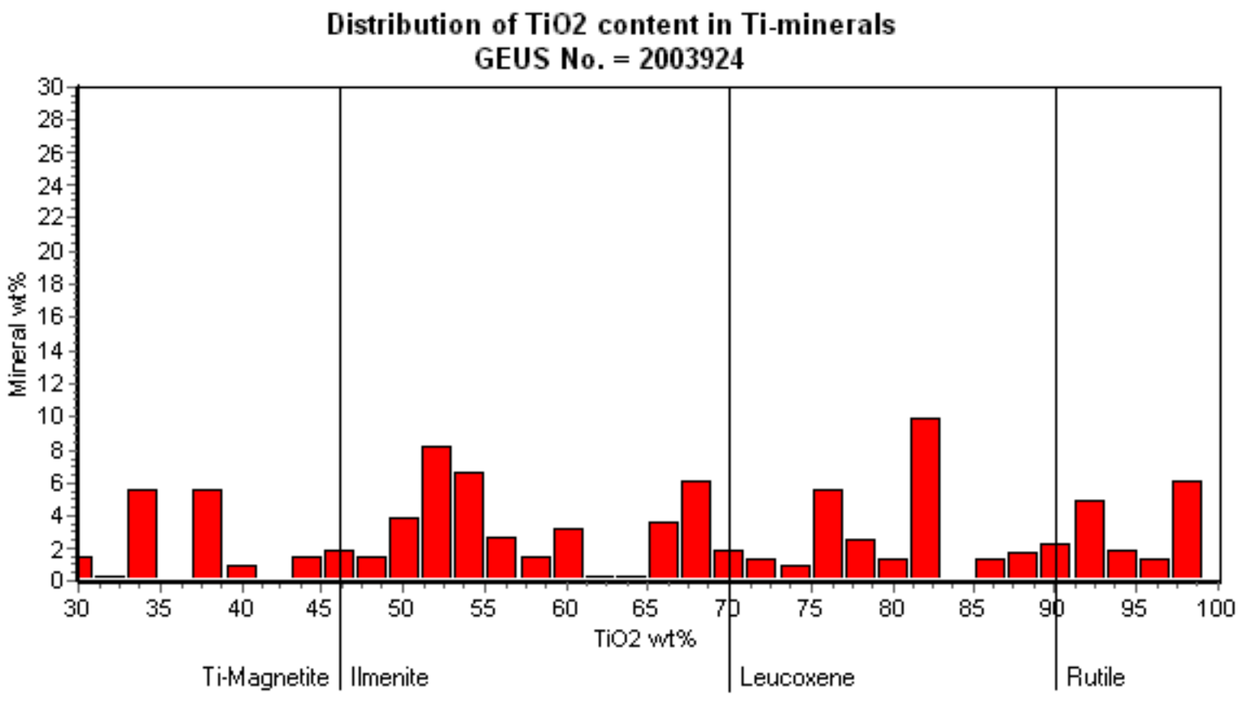

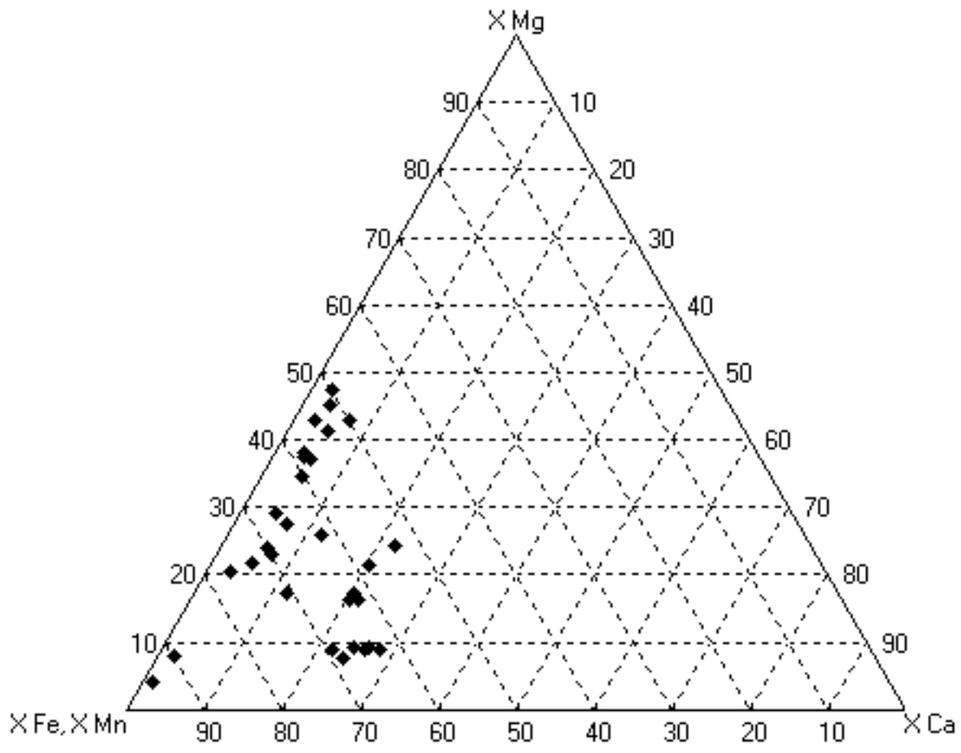

Sample GEUS #: 2003924

Description: Kamafiaraq, 334 m, Atane formation, Channel member, 453130, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.26	0.34	3.62	9.63	0.86	0.22	0.39	58.24	0.17	0.31	24.79	0.08	0.08	0.3	0.19	0.2	0.03	0.19	0.1	42
leucoxene	0.13	0.21	2.57	6.68	0.46	0.12	0.37	79.2	0.2	0.15	8.5	0.09	0.12	0.47	0.22	0.23	0.03	0.1	0.13	52
rutile	0.04	0.08	1.02	2.14	0.28	0.04	0.18	92.71	0.18	0.08	2.31	0.09	0.11	0.21	0.22	0.16	0.02	0.08	0.06	31
Ti magnetite	1.02	0.8	5.7	11.51	2.82	0.45	0.53	29.23	0.11	0.49	46.2	0.07	0.15	0.36	0.12	0.18	0.07	0.1	0.1	25
magnetite	0.85	0.93	4.76	10.13	16.18	1.33	0.74	0.49	0.07	0.53	62.64	0.12	0.13	0.23	0.2	0.37	0.06	0.14	0.12	50
chromite	0.57	2.3	11.77	18.06	0.04	0.01	0.07	0.95	33.17	0.0	32.66	0.02	0.16	0.0	0.0	0.02	0.0	0.16	0.08	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.12	0.07	0.26	30.1	0.03	0.04	0.51	0.21	0.09	0.04	0.75	0.09	0.01	67.28	0.0	0.16	0.0	0.1	0.14	26
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.12	5.74	21.9	37.86	0.04	0.05	3.92	0.11	0.06	1.06	28.72	0.06	0.07	0.01	0.01	0.02	0.0	0.07	0.19	30
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0.0	1.3	52.82	29.41	0.0	0.03	0.05	0.53	0.11	0.16	14.82	0.0	0.16	0.0	0.24	0.0	0.28	0.05	0.05	3
feldspar	2.05	0.54	21.74	60.87	0.09	9.53	1.94	0.46	0.06	0.07	1.43	0.16	0.02	0.0	0.0	0.0	0.0	0.32	0.73	6
silicate-other	0.82	5.47	31.18	47.37	0.18	0.05	1.63	0.9	0.14	0.14	11.38	0.11	0.13	0.0	0.0	0.11	0.0	0.16	0.22	17
quartz	0.13	0.12	0.66	95.86	0.09	0.1	0.07	0.41	0.12	0.1	1.0	0.13	0.2	0.37	0.0	0.13	0.0	0.2	0.31	27
corundum	0.0	0.22	74.6	19.94	1.36	0.0	0.02	0.05	0.0	0.0	0.08	0.27	0.0	0.0	1.63	0.89	0.0	0.52	0.41	1
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.62	0.08	0.4	2.1	4.27	0.04	20.45	0.0	0.05	0.0	0.91	0.06	0.54	12.22	0.0	39.17	0.33	17.84	0.92	3
carbonate	1.14	11.74	0.51	2.28	1.03	0.19	69.14	0.15	0.1	0.91	11.59	0.11	0.15	0.01	0.09	0.11	0.01	0.0	0.76	7
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.3	11.3	14.55	39.75	3.35	6.77	0.41	3.58	0.22	0.14	17.69	0.09	0.1	0.03	0.0	0.13	0.0	0.11	0.46	13
white mica	0.46	1.0	30.31	50.64	0.37	11.23	0.25	0.71	0.08	0.03	3.89	0.07	0.09	0.02	0.0	0.05	0.0	0.21	0.57	28
olivine	2.14	33.57	0.64	37.02	0.0	0.03	0.48	0.14	0.1	0.35	25.45	0.0	0.0	0.0	0.0	0.06	0.0	0.0	0.04	2
ortho-amphibole/ortho-pyroxene	0.07	30.09	4.76	44.07	0.05	0.08	1.08	0.78	0.22	0.3	17.97	0.05	0.1	0.05	0.0	0.13	0.0	0.08	0.13	23
clino-amphibole/clino-pyroxene	1.75	9.1	14.47	42.27	0.06	0.23	10.69	1.19	0.07	0.39	19.03	0.04	0.1	0.03	0.05	0.18	0.02	0.08	0.27	91
chlorite	0.63	1.19	20.37	27.82	0.37	0.62	0.48	0.77	0.09	0.52	46.33	0.02	0.13	0.09	0.17	0.21	0.01	0.08	0.1	15
unclassified	1.73	1.46	5.28	12.33	29.15	3.34	0.88	5.44	0.15	0.12	37.58	0.08	0.09	1.19	0.24	0.21	0.04	0.37	0.3	152

DONG sample Report - Page 1/3

Sample GEUS #: 2003925

Description: Itilli, 126 m, Itilli formation, Anariartorfik member, 453132, outcrop

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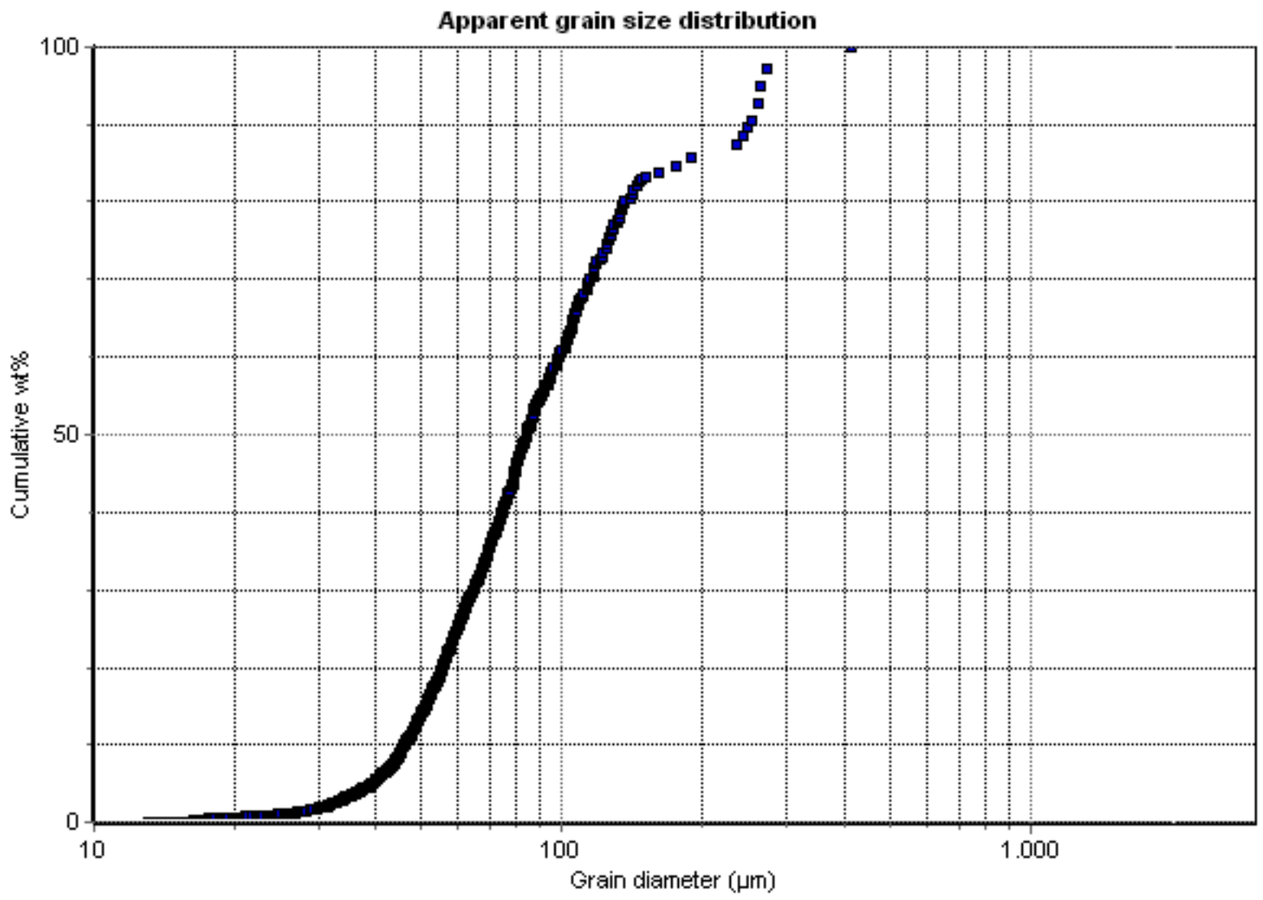

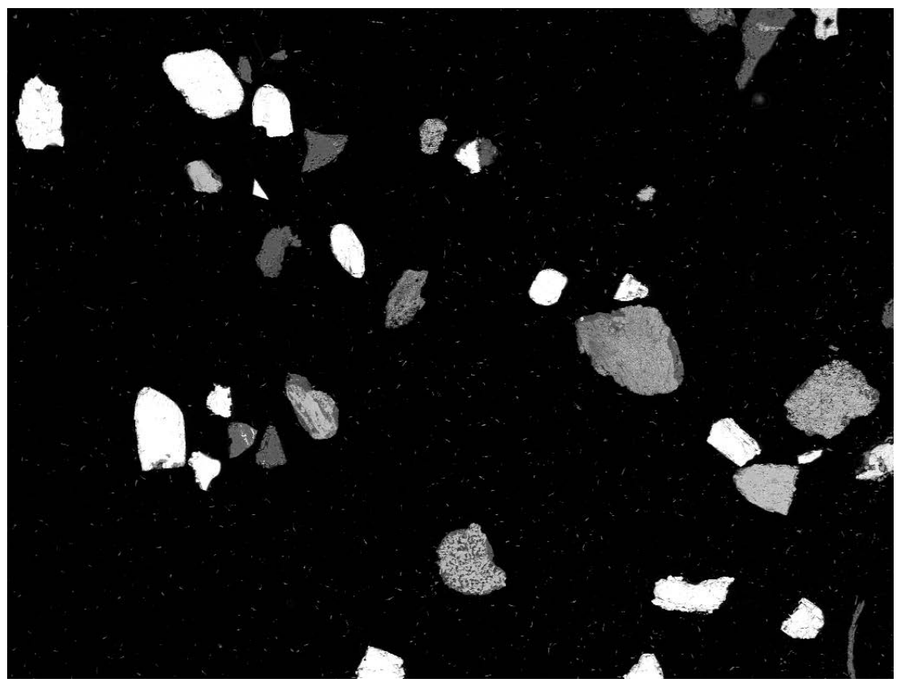

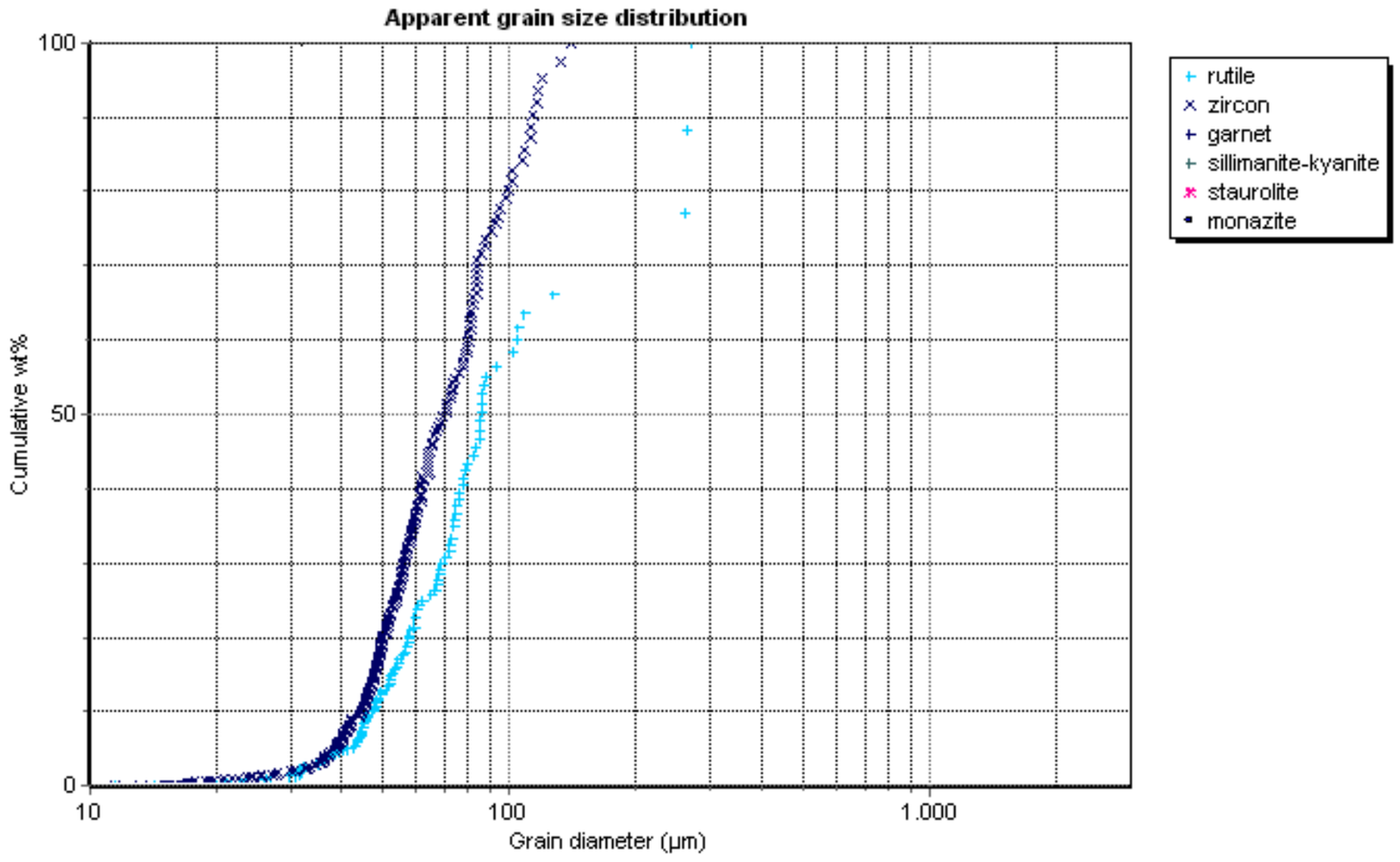

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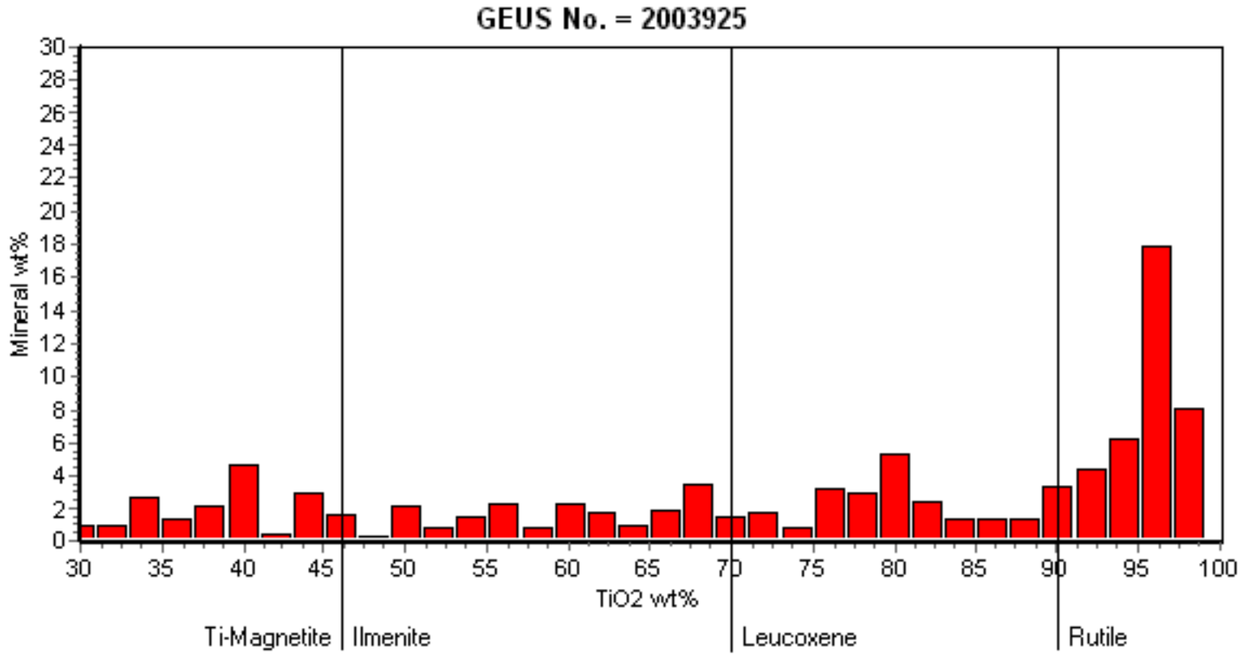

Sample GEUS #: 2003925

Description: Itilli, 126 m, Itilli formation, Anariartorfik member, 453132, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.35	0.17	12.5	23.52	0.11	2.18	0.18	59.48	0.09	0.07	0.45	0.08	0.05	0.1	0.19	0.16	0.04	0.2	0.1	24
leucoxene	0.2	0.11	7.64	12.86	0.22	1.26	0.14	76.12	0.13	0.05	0.24	0.08	0.1	0.13	0.27	0.1	0.04	0.19	0.13	99
rutile	0.04	0.08	1.4	2.32	0.2	0.17	0.12	93.83	0.24	0.08	0.57	0.1	0.1	0.11	0.32	0.13	0.01	0.09	0.07	128
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.57	0.73	2.77	5.22	14.67	0.29	0.3	0.0	0.22	0.25	72.34	0.0	0.11	1.19	0.0	0.34	0.0	0.0	0.0	1
chromite	1.15	5.05	15.45	1.2	0.17	0.09	0.05	0.66	41.03	0.21	34.5	0.12	0.05	0.03	0.12	0.04	0.02	0.01	0.05	16
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.22	0.08	0.41	30.64	0.08	0.08	0.27	0.24	0.07	0.06	0.29	0.11	0.03	66.88	0.0	0.15	0.11	0.17	0.11	243
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.46	0.04	1.88	28.46	0.16	0.24	26.01	38.08	0.1	0.31	2.52	0.0	0.0	0.2	0.26	0.0	0.79	0.12	0.35	1
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	5.73	0.15	22.3	59.38	0.22	0.18	6.07	2.3	0.09	0.0	2.69	0.05	0.14	0.17	0.0	0.0	0.0	0.16	0.4	2
silicate-other	0.31	5.83	31.35	49.97	0.07	0.79	1.27	1.14	0.11	0.08	8.42	0.1	0.1	0.08	0.0	0.1	0.0	0.15	0.13	26
quartz	0.11	0.08	1.13	96.2	0.13	0.19	0.08	0.37	0.09	0.12	0.27	0.13	0.13	0.23	0.0	0.32	0.0	0.16	0.25	123
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	1.26	0.34	0.55	43.53	0.82	0.0	0.0	0.0	0.0	0.0	0.8	0.05	0.05	5.21	0.0	32.99	0.0	14.39	0.0	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	1.66	0.06	0.31	5.33	3.53	0.0	1.89	0.0	0.0	0.0	0.52	0.27	0.0	13.57	0.0	48.92	0.0	23.93	0.0	1
carbonate	1.17	2.19	0.34	1.59	2.16	0.15	90.42	0.18	0.12	0.08	0.35	0.25	0.27	0.0	0.03	0.04	0.03	0.26	0.39	28
pyrite	0.01	0.04	1.47	2.71	66.64	0.31	0.07	0.06	0.05	0.07	27.88	0.14	0.09	0.05	0.13	0.07	0.01	0.1	0.1	92
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	2.14	5.66	31.56	40.08	2.45	1.8	0.35	0.77	0.12	0.07	14.28	0.04	0.25	0.03	0.0	0.04	0.0	0.11	0.28	5
white mica	0.47	0.77	33.4	50.05	0.15	9.83	0.29	1.27	0.07	0.05	2.49	0.06	0.08	0.12	0.0	0.21	0.0	0.18	0.54	50
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.43	11.01	17.57	45.71	0.0	0.61	1.7	1.59	0.08	0.0	20.21	0.37	0.0	0.0	0.0	0.52	0.0	0.0	0.25	2
clino-amphibole/clino-pyroxene	1.49	11.71	10.94	49.22	0.1	0.13	12.95	1.31	0.07	0.22	11.13	0.07	0.11	0.11	0.0	0.1	0.0	0.13	0.21	43
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	1.23	0.51	16.63	33.45	6.73	3.49	2.52	26.93	0.12	0.13	3.35	0.21	1.02	2.16	0.4	0.16	0.07	0.71	0.19	123

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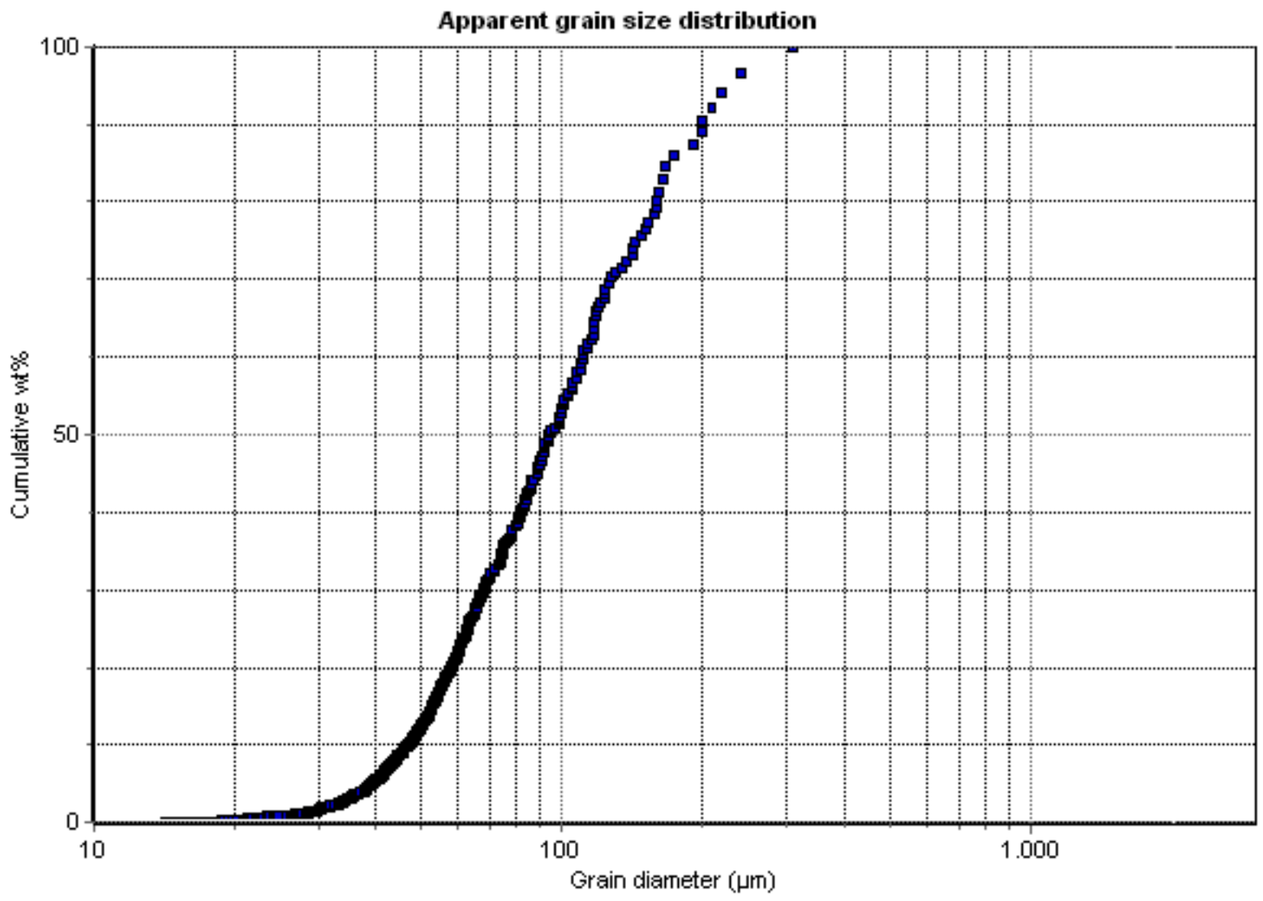
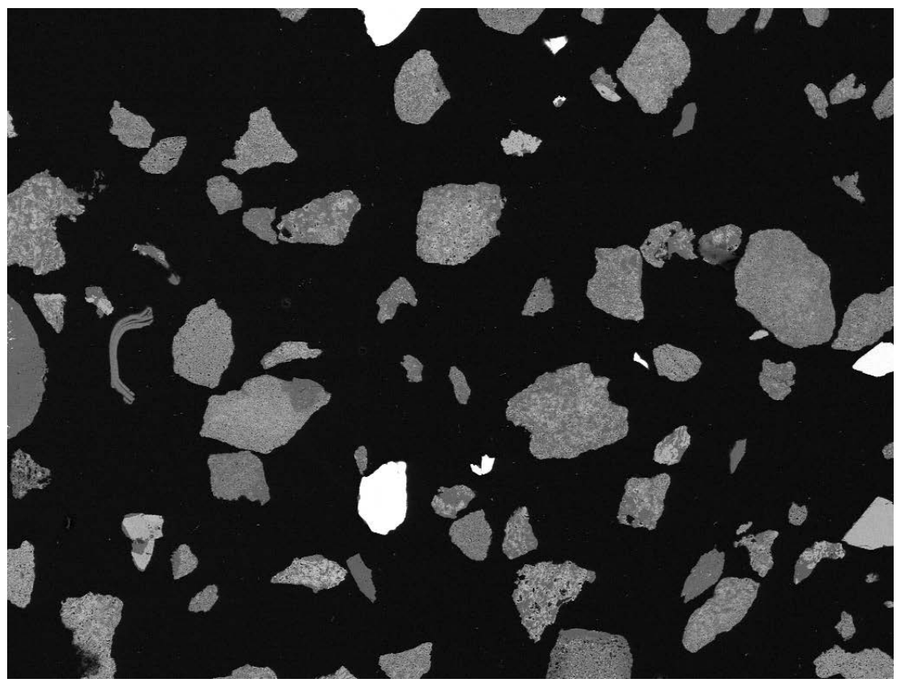
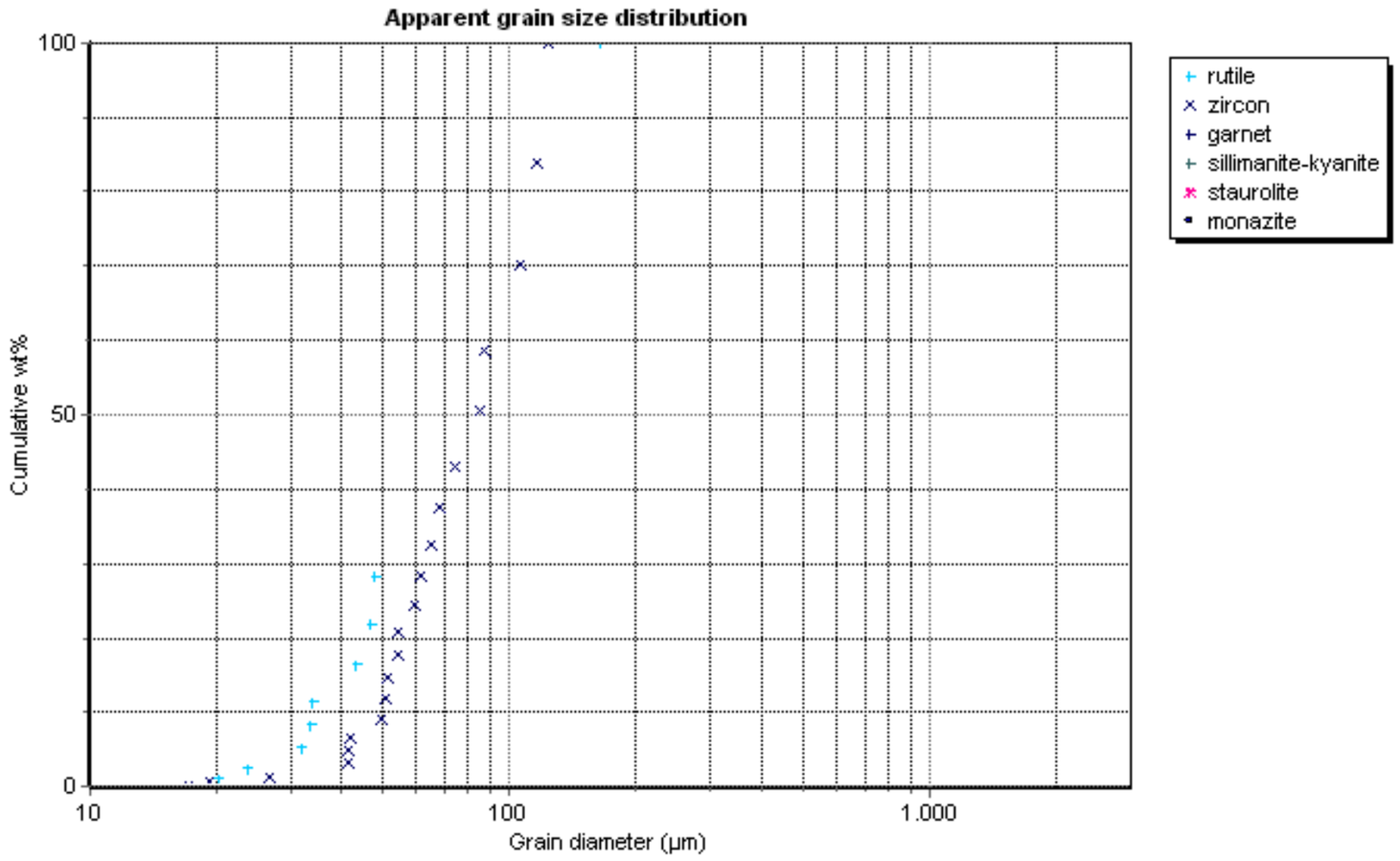
Sample GEUS #: 2003926

Description: Itilli, 173 m, Itilli formation, Anariartorfik member, 453134, outcrop

This document was created on: Mon Nov 09 10:51:36 CET 2009







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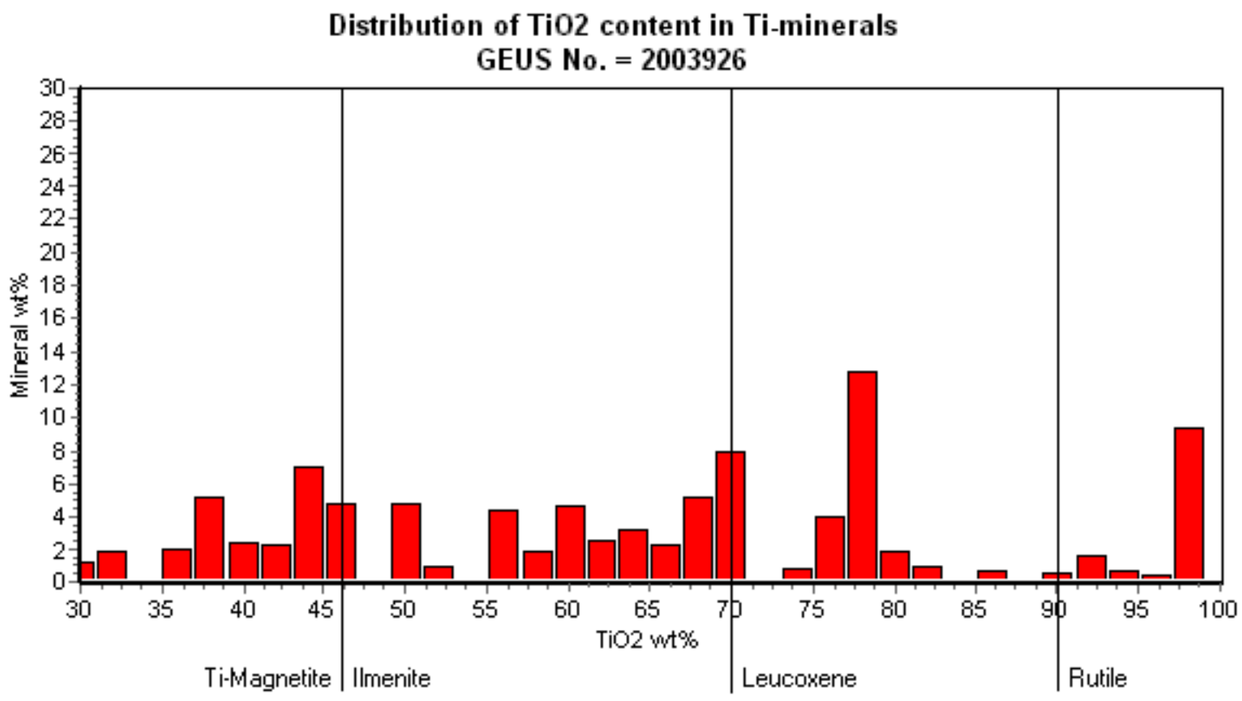


Sample GEUS #: 2003926

Description: Itilli, 173 m, Itilli formation, Anariartorfik member, 453134, outcrop

Average Content

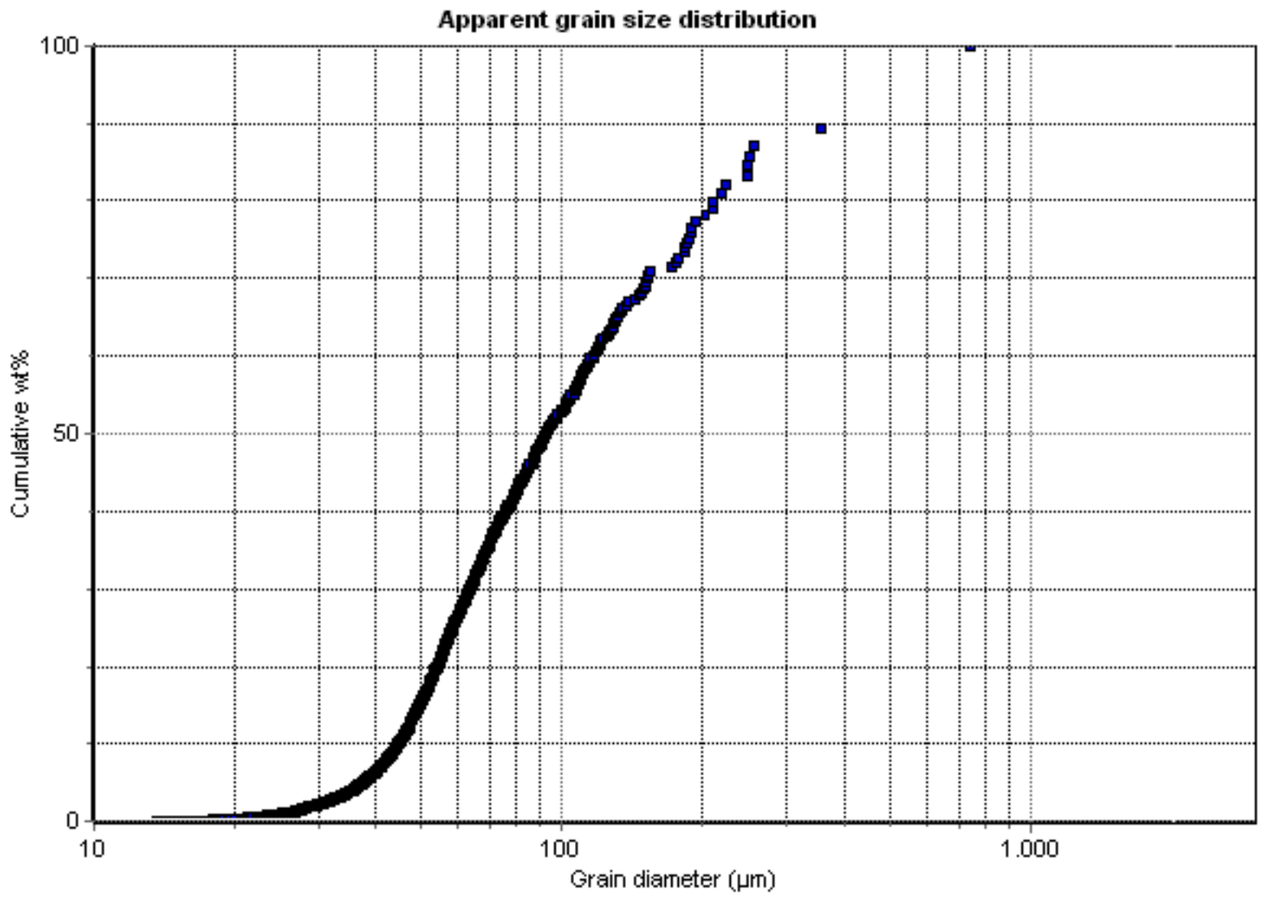
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.13	0.32	13.28	17.78	2.71	2.27	0.15	57.7	0.1	0.06	4.47	0.04	0.11	0.09	0.22	0.07	0.08	0.37	0.06	12
leucoxene	0.21	0.13	7.92	14.81	0.09	1.25	0.08	73.34	0.18	0.04	0.91	0.07	0.08	0.11	0.26	0.09	0.06	0.23	0.12	23
rutile	0.0	0.15	1.56	2.49	0.16	0.25	0.09	93.44	0.21	0.1	0.63	0.11	0.04	0.09	0.3	0.09	0.02	0.22	0.04	9
Ti magnetite	0.0	0.33	12.55	18.16	0.09	2.2	0.17	41.66	0.0	0.21	23.46	0.08	0.37	0.0	0.19	0.53	0.0	0.0	0.0	1
magnetite	1.49	1.37	10.7	16.17	4.79	1.62	0.27	0.15	0.06	0.54	60.97	0.05	0.17	0.4	0.33	0.48	0.22	0.09	0.15	8
chromite	1.05	1.71	18.49	15.73	0.0	0.28	0.03	0.35	26.28	0.16	35.26	0.05	0.09	0.0	0.21	0.25	0.0	0.01	0.11	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.08	0.71	30.61	0.18	0.08	0.09	0.13	0.05	0.08	0.8	0.13	0.03	66.6	0.0	0.0	0.03	0.13	0.14	21
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	9.81	0.0	21.88	66.28	0.11	0.05	0.26	0.15	0.06	0.17	0.2	0.08	0.18	0.0	0.0	0.0	0.0	0.43	0.33	3
silicate-other	4.04	1.69	23.24	60.5	0.11	0.92	0.3	0.82	0.05	0.14	7.44	0.09	0.03	0.06	0.0	0.25	0.0	0.13	0.18	16
quartz	0.37	0.1	2.0	94.97	0.11	0.27	0.04	0.19	0.09	0.04	0.63	0.21	0.12	0.27	0.0	0.25	0.0	0.13	0.21	38
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.04	0.37	2.81	67.55	0.1	0.03	0.07	0.04	0.07	27.8	0.45	0.17	0.1	0.18	0.04	0.02	0.11	0.04	30
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.92	1.05	25.2	34.77	0.45	4.38	0.35	1.58	0.08	0.19	29.49	0.11	0.13	0.23	0.22	0.4	0.1	0.15	0.23	113
white mica	1.1	0.78	32.48	48.9	0.08	8.81	0.22	1.95	0.07	0.05	4.56	0.13	0.1	0.04	0.0	0.1	0.0	0.18	0.45	30
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
clino-amphibole/clino-pyroxene	3.31	1.6	20.24	33.21	0.1	2.78	0.35	0.62	0.09	0.2	35.96	0.04	0.14	0.26	0.19	0.57	0.11	0.08	0.13	27
chlorite	1.18	1.4	19.97	28.43	0.21	3.23	0.33	0.48	0.08	0.27	42.55	0.1	0.11	0.33	0.33	0.53	0.15	0.11	0.2	87
unclassified	1.54	0.72	17.66	34.85	4.48	3.38	0.99	19.13	0.13	0.14	13.54	0.23	0.23	1.22	0.55	0.61	0.13	0.27	0.19	80

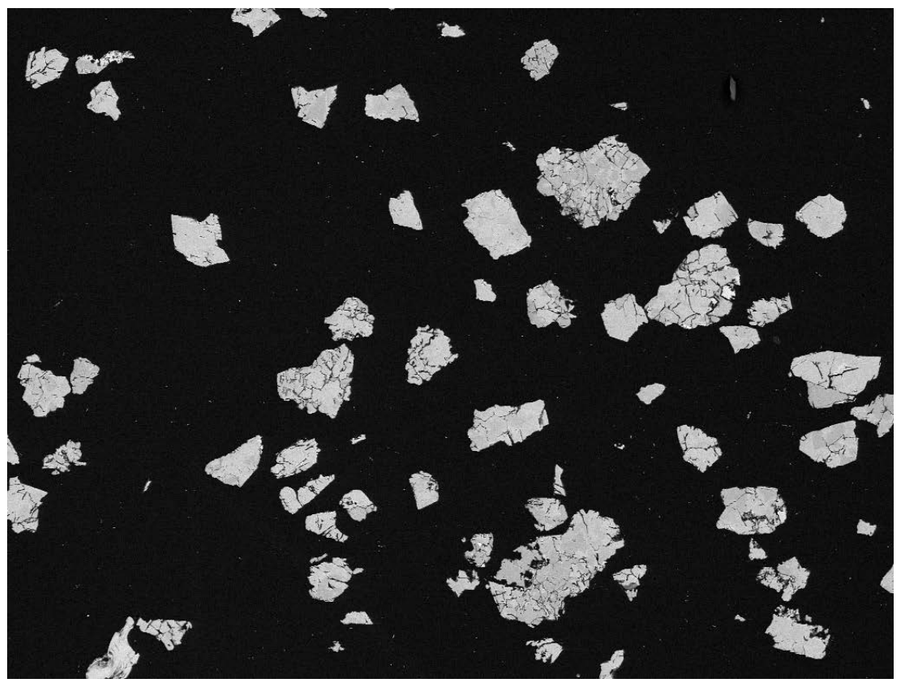
DONG sample Report - Page 1/3

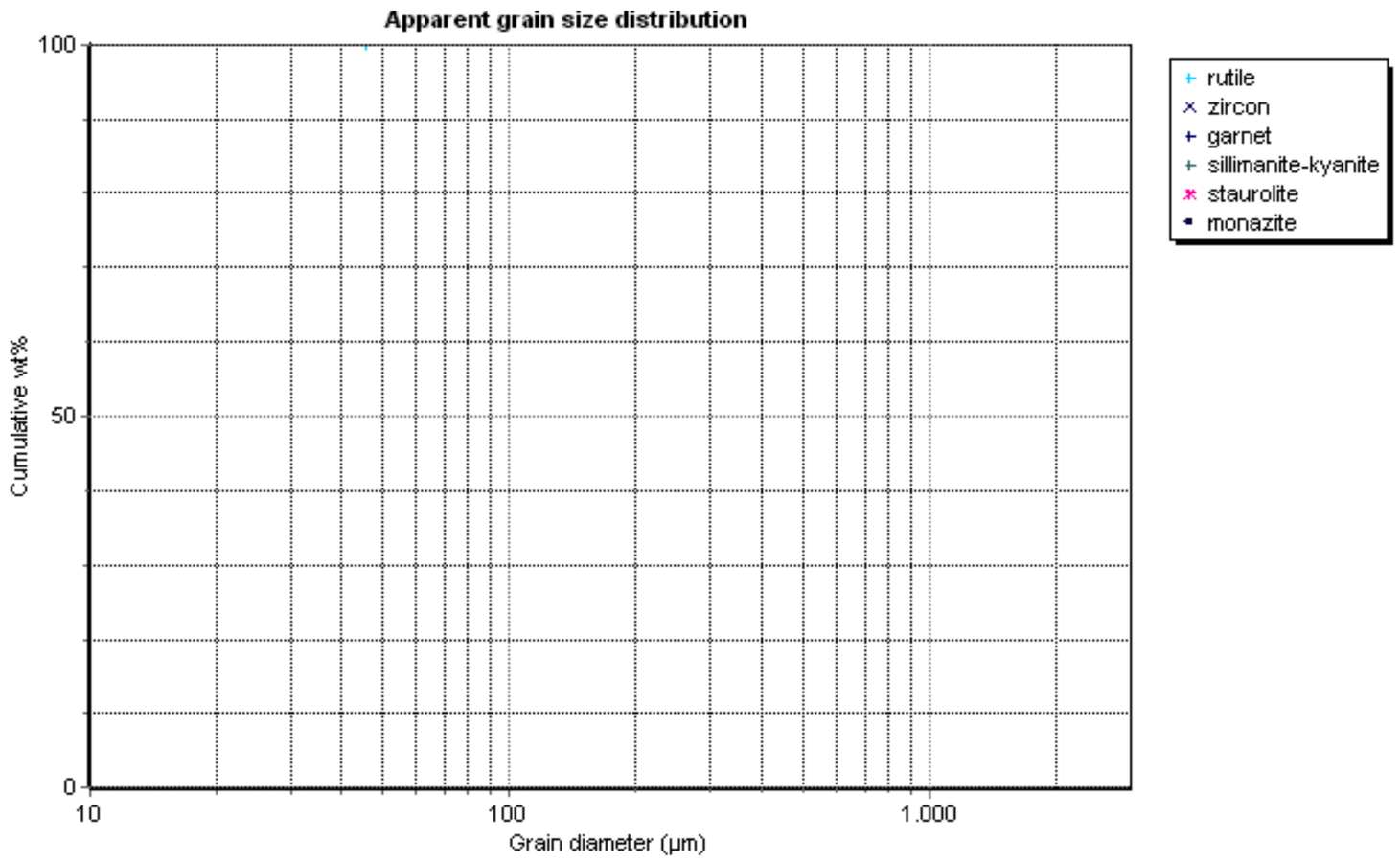
Sample GEUS #: 2003927

Description: Itilli, 182 m, Itilli formation, Anariartorfik member, 453138, outcrop

This document was created on: Mon Nov 09 10:52:50 CET 2009







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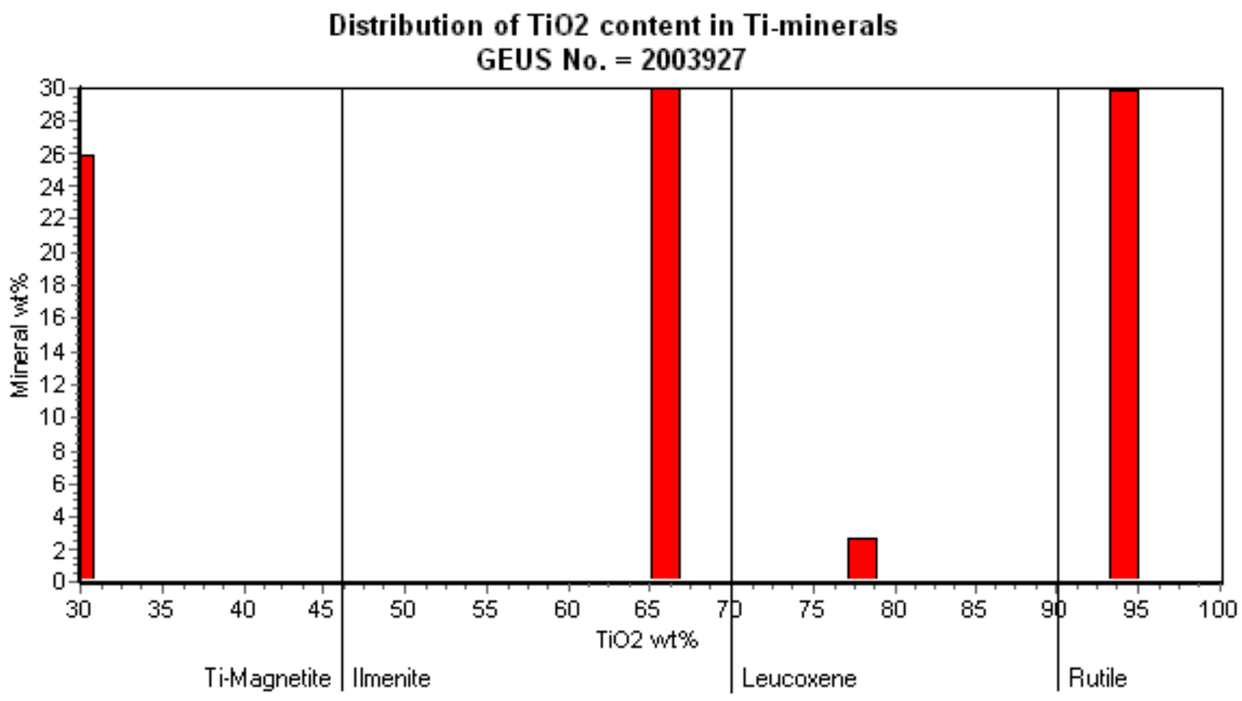

Sample GEUS #: 2003927

Description: Itilli, 182 m, Itilli formation, Anariartorfik member, 453138, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.0	0.15	10.92	13.58	0.2	1.58	0.21	71.78	0.03	0.05	0.14	0.06	0.19	0.16	0.42	0.0	0.28	0.3	0.0	2
rutile	0.0	0.36	1.44	1.52	0.0	0.21	0.54	94.18	0.1	0.22	0.68	0.0	0.22	0.0	0.5	0.0	0.0	0.0	0.03	1
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	4.5	2.06	0.08	4.36	2.73	0.38	1.62	0.22	0.04	0.47	80.59	0.0	0.0	0.0	0.98	1.14	0.0	0.66	0.18	1
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	6.95	1.17	25.05	58.77	0.1	1.71	3.87	0.16	0.1	0.14	1.16	0.06	0.1	0.17	0.0	0.1	0.0	0.07	0.32	11
silicate-other	2.32	5.08	22.01	50.73	0.05	3.69	11.19	0.36	0.09	0.27	3.41	0.02	0.16	0.2	0.0	0.05	0.0	0.16	0.23	14
quartz	0.17	0.19	1.92	94.59	0.18	0.32	0.21	0.12	0.12	0.05	0.35	0.3	0.12	0.16	0.0	0.24	0.0	0.39	0.57	11
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.14	32.76	1.19	1.28	0.35	0.26	49.81	0.17	0.15	0.32	10.97	0.2	0.22	0.16	0.44	0.24	0.14	0.31	0.89	761
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	1.18	0.69	34.88	51.67	0.09	7.91	0.42	0.45	0.17	0.12	1.43	0.1	0.17	0.0	0.0	0.07	0.0	0.17	0.5	16
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
clino-amphibole/clino-pyroxene	4.03	12.14	11.88	41.54	0.16	1.13	21.86	0.17	0.08	0.13	5.04	0.07	0.15	0.22	0.09	0.18	0.02	0.12	0.98	22
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	0.87	24.76	6.95	11.49	0.66	1.14	38.91	0.76	0.2	0.3	9.45	0.32	0.27	0.3	0.84	0.39	0.21	0.41	1.76	361

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Sample GEUS #: 2003928

Description: Itilli, 212 m, Itilli formation, Anariartorfik member, 463141, outcrop

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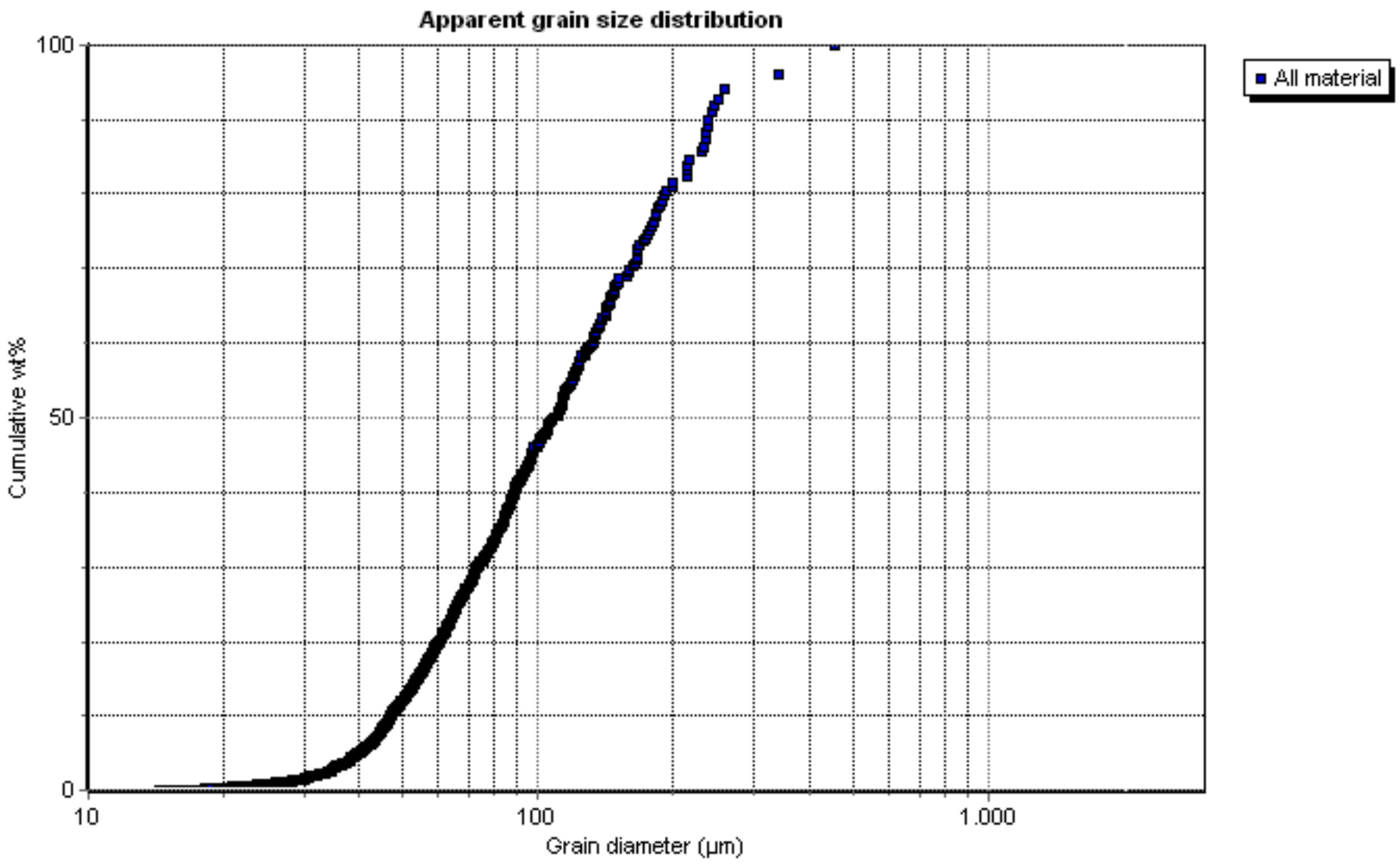

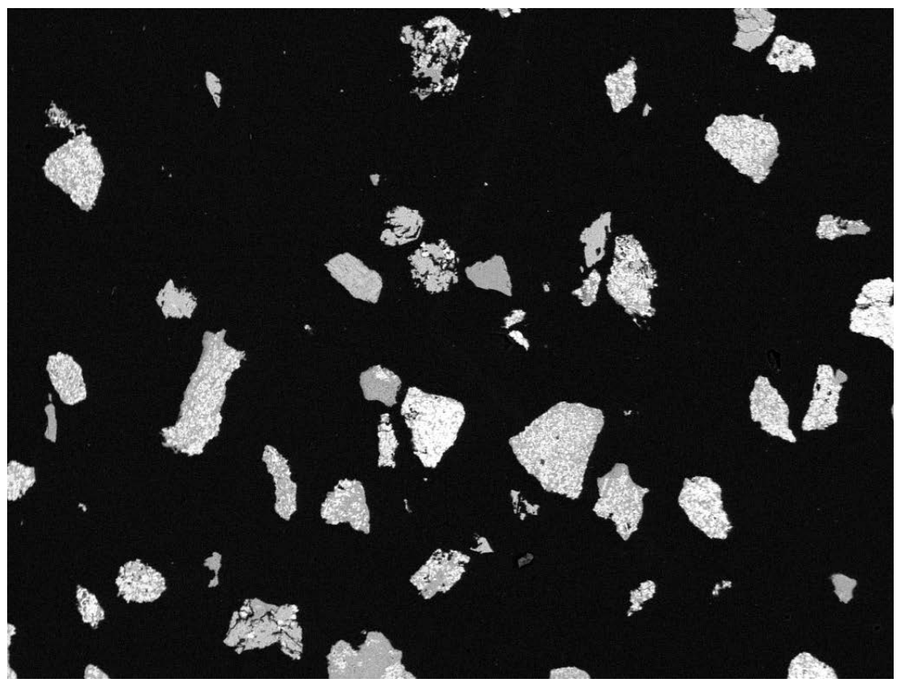

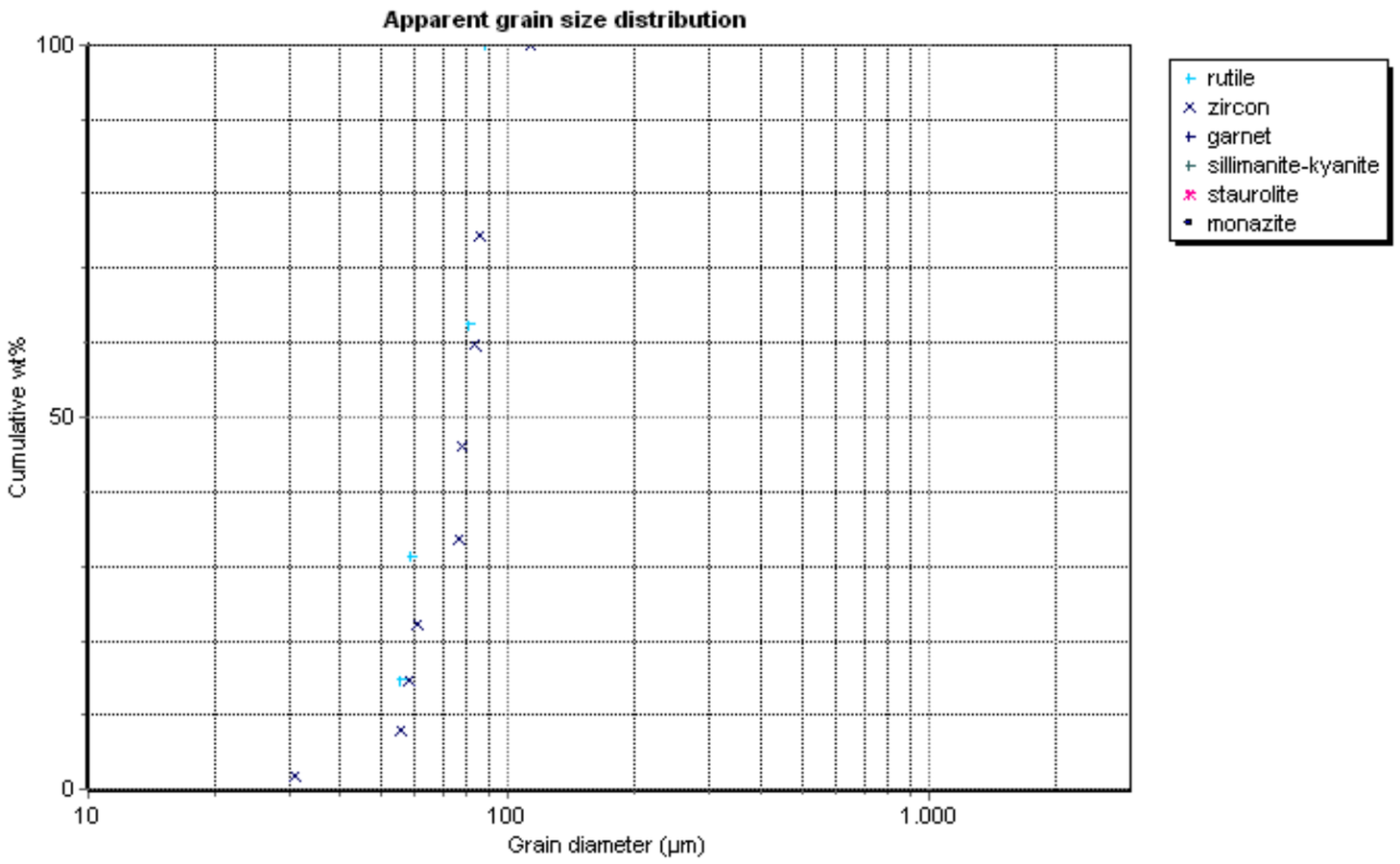

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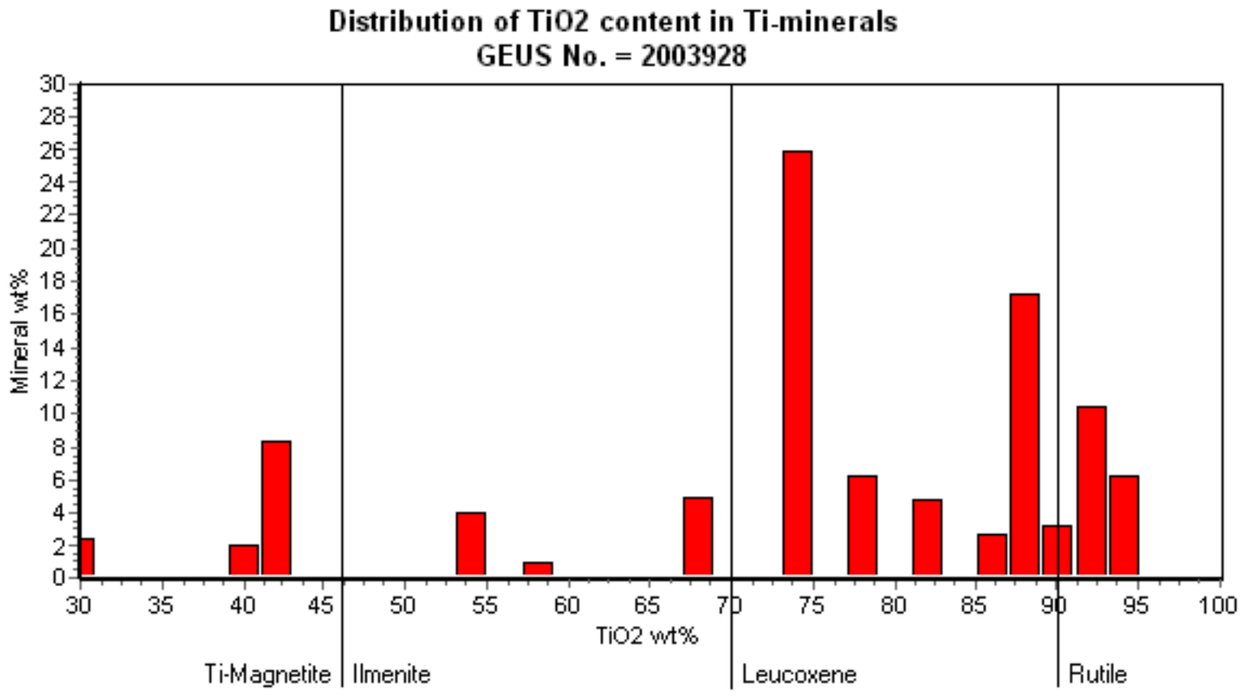

Sample GEUS #: 2003928

Description: Itilli, 212 m, Itilli formation, Anariartorfik member, 463141, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.5	0.24	14.08	18.5	0.0	2.35	0.18	58.79	0.0	0.0	1.67	0.0	0.0	0.5	0.46	0.0	0.55	1.25	0.94	1
leucoxene	0.38	0.13	5.99	9.84	0.26	0.85	0.26	79.74	0.16	0.14	0.71	0.17	0.07	0.21	0.41	0.01	0.04	0.42	0.24	8
rutile	0.0	0.11	1.59	2.02	0.23	0.18	0.18	91.88	0.66	0.02	1.45	0.15	0.23	0.0	0.62	0.15	0.0	0.45	0.11	4
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	3.19	11.21	4.16	6.7	1.34	0.66	0.81	0.08	0.16	0.59	69.29	0.21	0.16	0.24	0.49	0.37	0.08	0.19	0.1	6
chromite	0.0	9.81	19.82	1.35	0.33	0.13	0.22	0.11	40.84	0.0	26.19	0.0	0.3	0.0	0.66	0.03	0.0	0.0	0.21	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.09	0.15	0.31	30.11	0.23	0.07	0.08	0.09	0.14	0.11	0.77	0.25	0.13	67.21	0.0	0.0	0.0	0.18	0.08	9
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	8.74	0.51	22.85	62.12	0.48	0.81	1.45	0.05	0.17	0.12	1.25	0.23	0.17	0.41	0.0	0.07	0.0	0.23	0.36	8
silicate-other	1.7	2.66	21.06	55.62	0.1	2.71	1.36	0.36	0.13	0.23	12.78	0.12	0.15	0.19	0.0	0.23	0.0	0.15	0.45	40
quartz	0.37	0.17	2.01	93.67	0.19	0.24	0.17	0.15	0.1	0.16	0.9	0.11	0.24	0.44	0.0	0.61	0.0	0.23	0.26	41
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.33	0.07	0.71	1.81	0.63	0.22	51.78	0.06	0.0	0.0	1.08	0.09	0.0	6.24	0.19	35.71	0.0	0.55	0.58	2
carbonate	0.04	25.0	1.07	1.72	0.43	0.2	50.28	0.29	0.19	0.5	18.29	0.16	0.24	0.1	0.43	0.22	0.12	0.28	0.42	317
pyrite	0.0	0.13	0.67	0.92	69.05	0.11	0.05	0.0	0.02	0.0	28.33	0.37	0.25	0.0	0.0	0.1	0.0	0.0	0.0	1
epidote	0.0	11.67	10.2	33.23	0.0	1.4	23.64	1.05	0.12	0.38	17.35	0.22	0.0	0.0	0.7	0.04	0.0	0.0	0.0	1
dark mica	0.57	4.92	26.97	35.84	0.09	4.16	0.68	0.56	0.11	0.28	24.24	0.11	0.23	0.26	0.19	0.19	0.11	0.17	0.31	153
white mica	0.81	0.98	34.28	50.03	0.08	7.81	0.37	0.75	0.14	0.09	3.7	0.11	0.17	0.08	0.0	0.12	0.0	0.17	0.33	35
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	6.36	8.2	50.81	0.57	1.3	5.9	0.0	0.0	0.28	24.87	0.0	0.21	0.84	0.0	0.0	0.0	0.0	0.66	1
clino-amphibole/clino-pyroxene	4.76	7.75	18.76	36.86	0.09	2.3	6.26	0.29	0.11	0.34	21.11	0.13	0.2	0.18	0.2	0.12	0.12	0.18	0.23	38
chlorite	0.08	8.63	20.58	26.88	0.15	2.87	1.02	0.26	0.14	0.42	36.82	0.13	0.24	0.3	0.43	0.27	0.24	0.19	0.35	133
unclassified	1.79	14.07	13.45	18.45	0.63	1.94	16.01	1.64	0.16	0.43	28.94	0.23	0.26	0.3	0.48	0.34	0.17	0.23	0.48	401

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Sample GEUS #: 2003929

Description: Itilli, 227 m, Itilli formation, Anariartorfik member, 453142, outcrop

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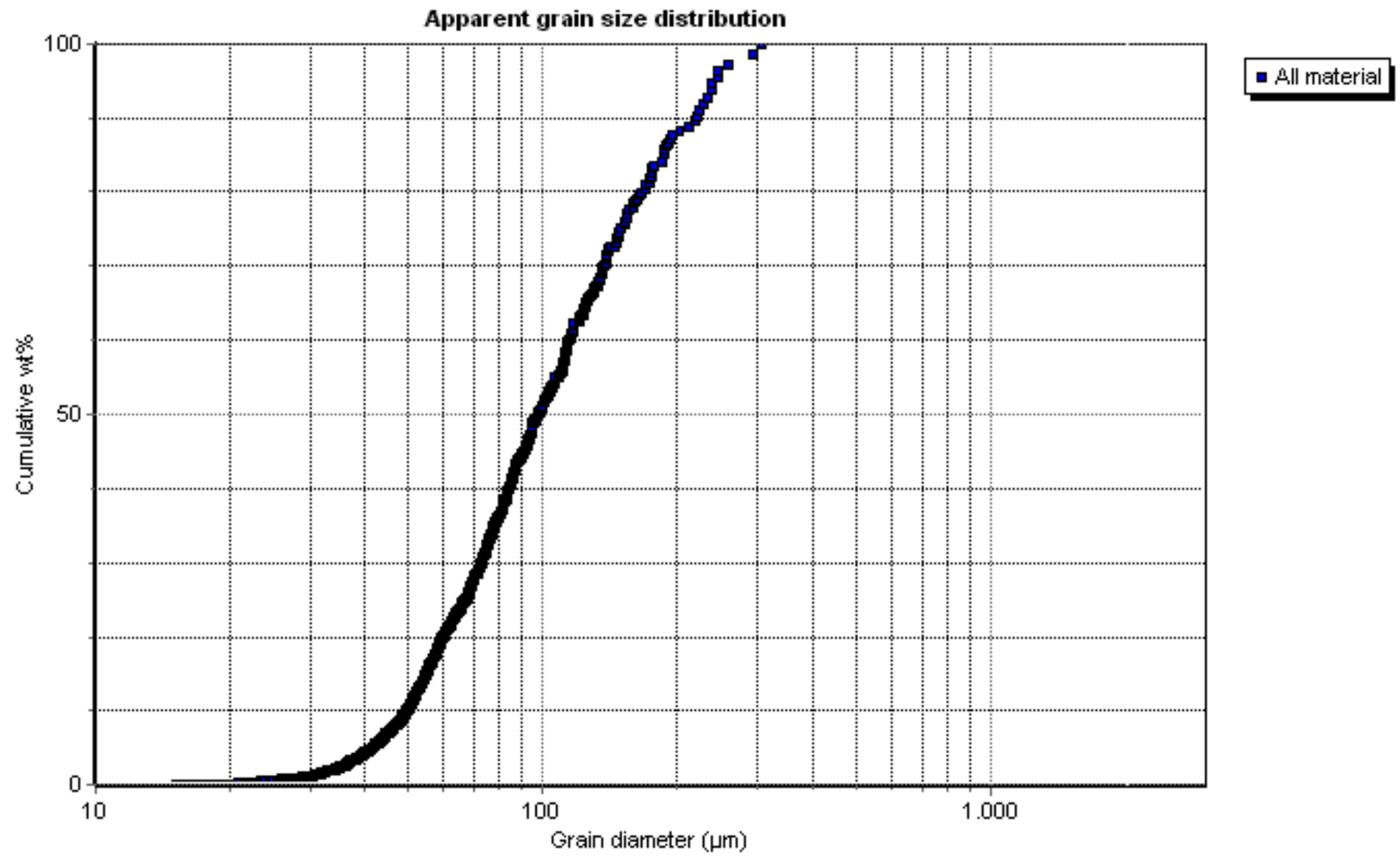

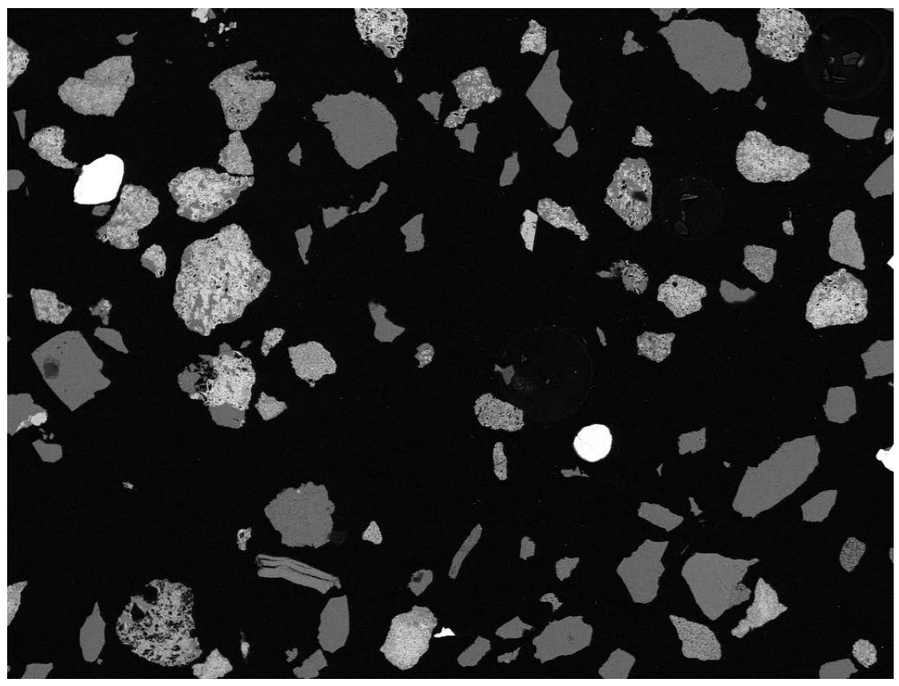

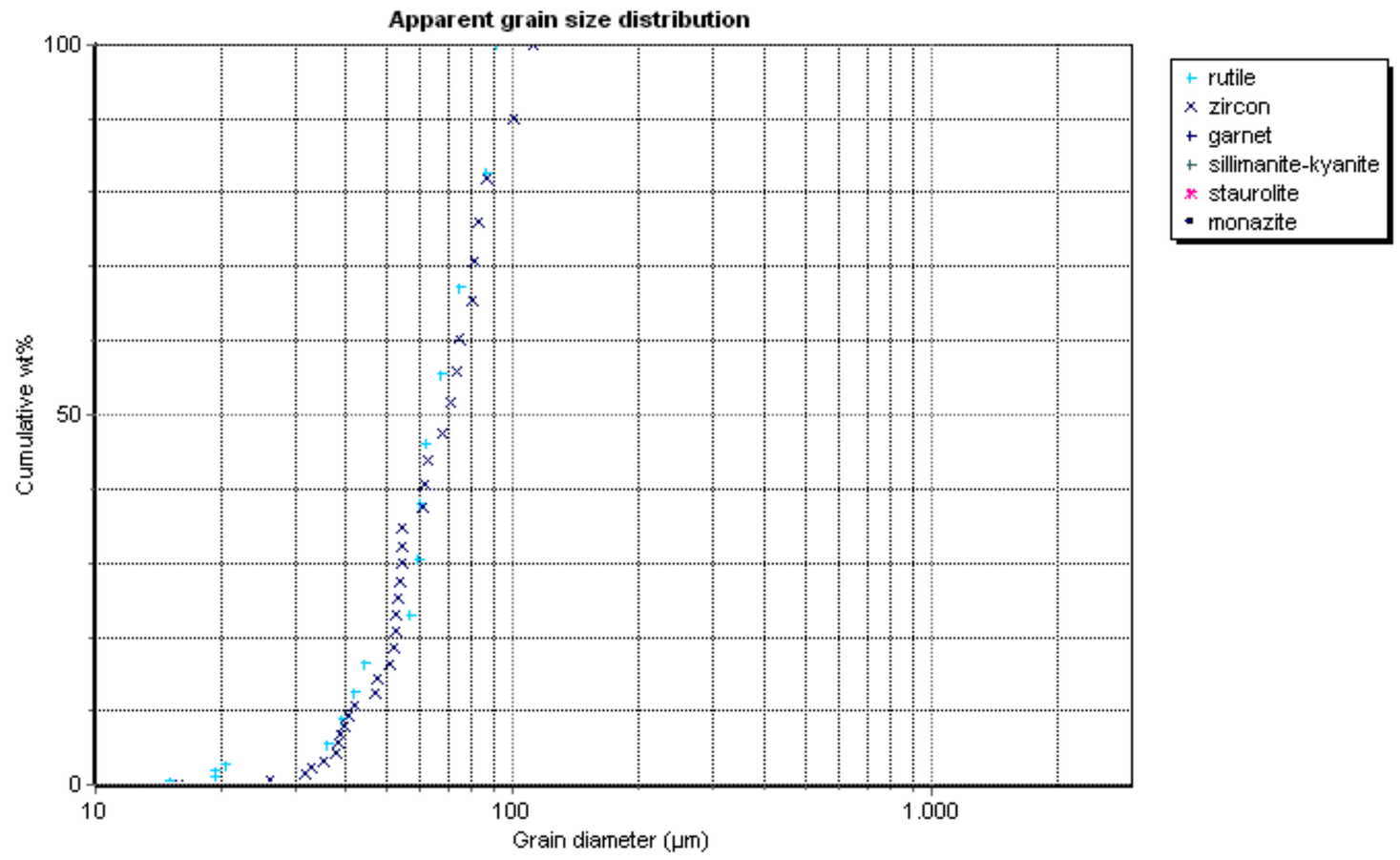

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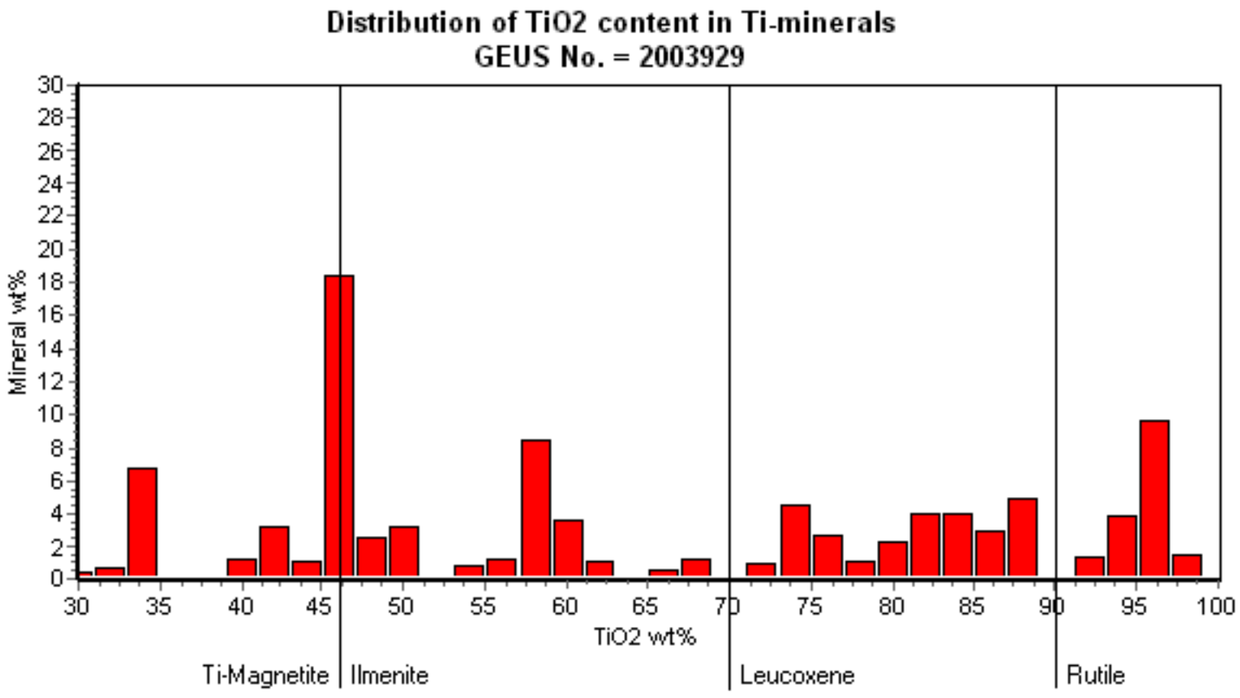


Sample GEUS #: 2003929

Description: Itilli, 227 m, Itilli formation, Anariartorfik member, 453142, outcrop

Average Content

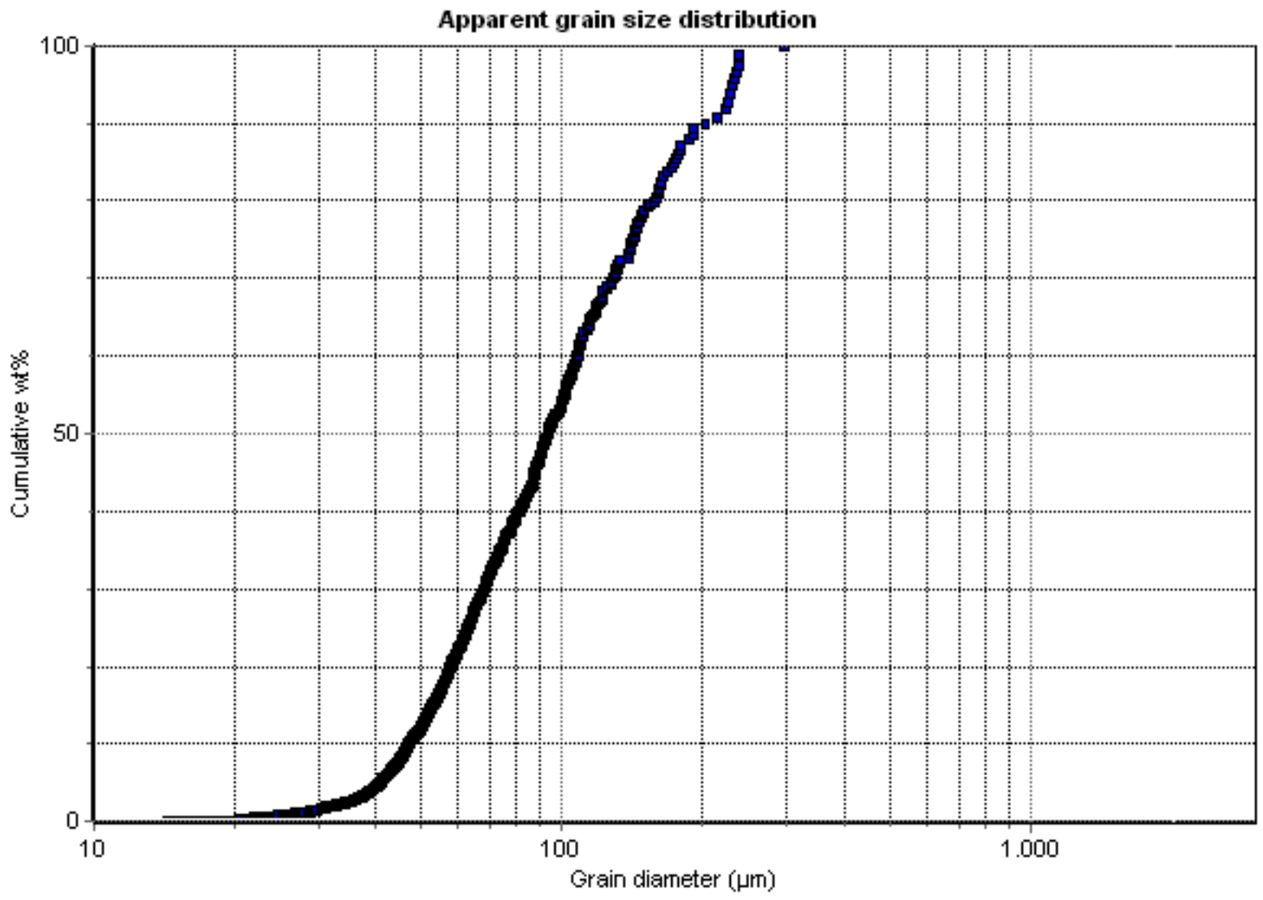
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.14	0.42	14.05	20.9	0.03	2.58	0.24	56.61	0.06	0.07	3.69	0.05	0.07	0.14	0.19	0.13	0.06	0.5	0.07	6
leucoxene	0.25	0.17	6.98	11.33	0.13	1.26	0.15	77.51	0.11	0.03	0.19	0.07	0.03	0.9	0.32	0.07	0.11	0.29	0.1	16
rutile	0.11	0.08	1.2	2.26	0.15	0.17	0.06	93.37	0.22	0.06	1.12	0.09	0.18	0.08	0.54	0.1	0.01	0.13	0.08	16
Ti magnetite	1.08	1.05	13.88	18.52	0.03	2.44	0.37	41.19	0.09	0.29	19.59	0.0	0.62	0.0	0.53	0.34	0.0	0.0	0.0	1
magnetite	1.97	2.27	11.67	17.24	0.73	1.78	0.55	0.38	0.09	0.63	59.79	0.11	0.11	0.57	0.23	1.46	0.12	0.08	0.21	96
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.17	0.06	0.26	30.66	0.14	0.05	0.07	0.13	0.09	0.11	0.82	0.12	0.04	66.9	0.0	0.12	0.03	0.15	0.07	35
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	9.06	0.03	22.32	65.72	0.12	0.77	0.15	0.12	0.08	0.08	0.83	0.09	0.1	0.07	0.0	0.03	0.0	0.18	0.24	50
silicate-other	5.73	0.32	20.14	67.03	0.06	0.98	0.16	0.23	0.12	0.11	4.26	0.08	0.13	0.09	0.0	0.16	0.0	0.16	0.23	146
quartz	0.23	0.09	1.39	95.96	0.11	0.19	0.07	0.16	0.09	0.1	0.44	0.14	0.16	0.19	0.0	0.24	0.0	0.2	0.23	400
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.12	0.04	1.19	8.7	63.98	0.25	0.03	0.01	0.02	0.05	24.92	0.07	0.03	0.0	0.1	0.1	0.0	0.09	0.3	4
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.04	1.5	26.1	35.43	0.15	4.57	0.46	1.08	0.08	0.26	27.58	0.11	0.1	0.31	0.18	0.62	0.09	0.13	0.22	89
white mica	1.03	0.8	33.48	50.94	0.15	8.36	0.28	0.64	0.09	0.06	3.19	0.08	0.11	0.14	0.0	0.08	0.0	0.15	0.42	49
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	7.73	9.53	56.28	0.08	0.62	0.11	0.15	0.36	0.25	23.37	0.15	0.08	0.0	0.0	0.84	0.0	0.14	0.32	4
clino-amphibole/clino-pyroxene	4.08	2.73	17.93	38.14	0.13	2.25	1.4	0.55	0.06	0.31	30.55	0.06	0.17	0.29	0.19	0.79	0.08	0.08	0.21	27
chlorite	1.06	1.8	19.55	26.9	0.21	3.08	0.46	0.67	0.07	0.44	43.09	0.12	0.15	0.48	0.34	1.17	0.17	0.09	0.15	114
unclassified	2.86	1.52	14.61	30.24	4.04	3.2	1.03	7.51	0.3	0.43	26.95	0.27	0.29	3.07	1.51	1.07	0.23	0.41	0.48	147

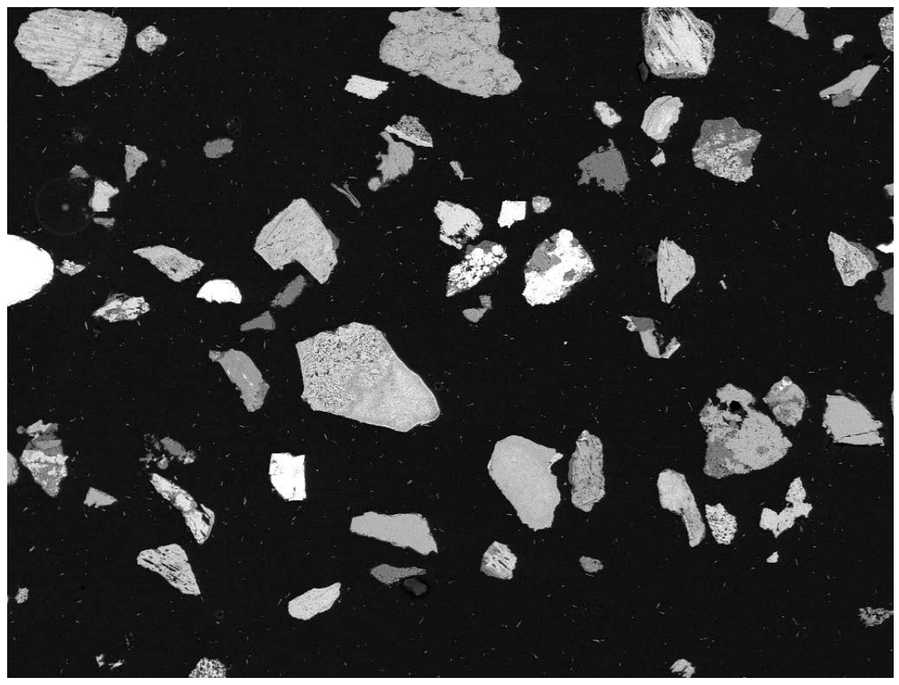
DONG sample Report - Page 1/3

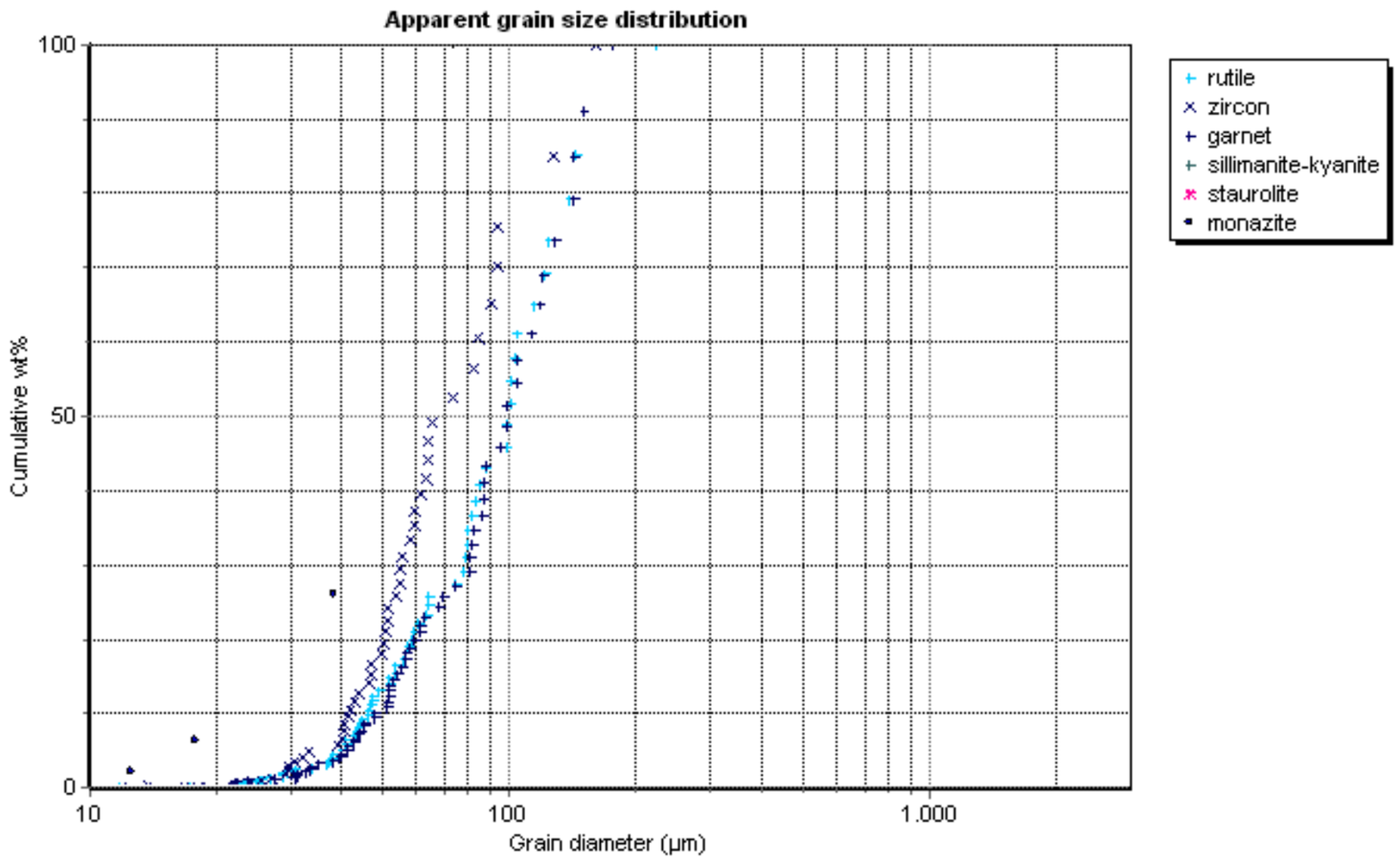
Sample GEUS #: 2003930

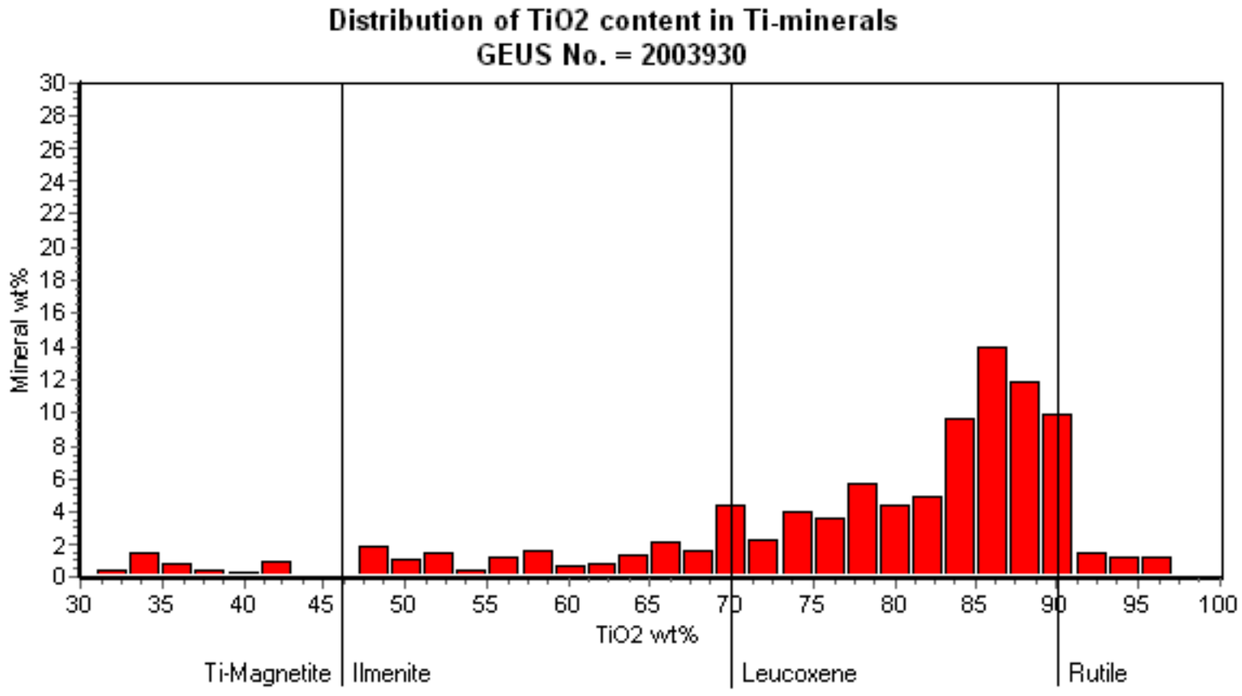
Description: Itilli, 142 m, Itilli formation, Anariartorfik member, 453145, outcrop

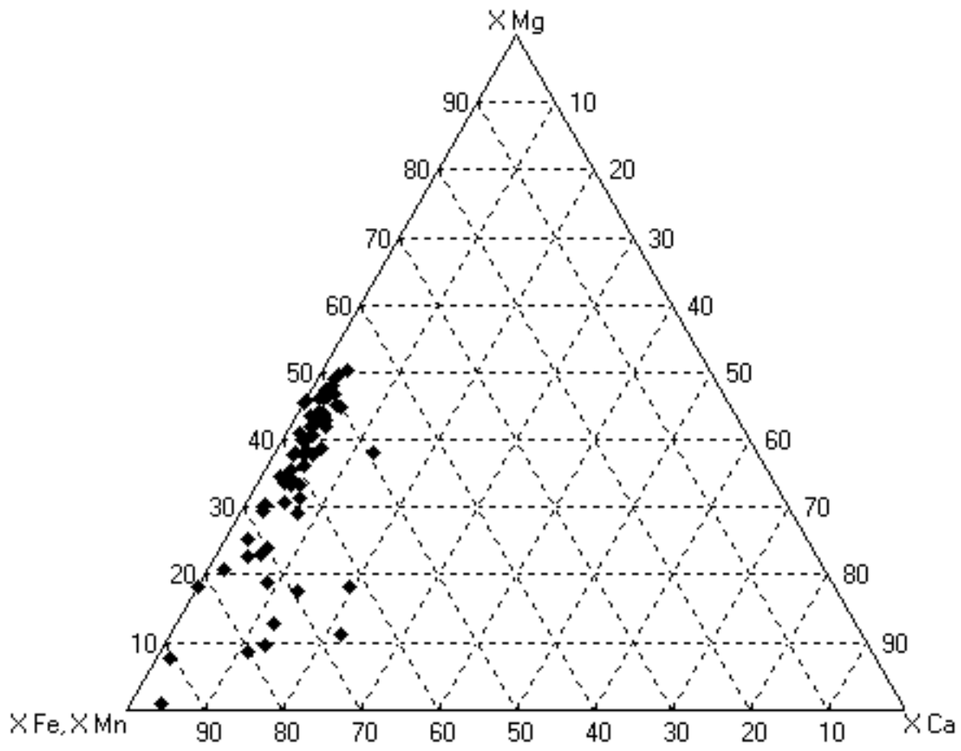
This document was created on: Mon Nov 09 10:59:45 CET 2009











Sample GEUS #: 2003930

Description: Itilli, 142 m, Itilli formation, Anariartorfik member, 453145, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.17	0.63	9.34	15.93	0.34	0.81	0.45	57.78	0.1	0.15	12.47	0.13	0.2	0.34	0.26	0.43	0.14	0.17	0.17	54
leucoxene	0.07	0.23	3.0	5.09	0.34	0.21	0.38	81.53	0.16	0.12	7.46	0.11	0.11	0.21	0.18	0.46	0.03	0.18	0.13	315
rutile	0.03	0.12	1.62	2.43	0.24	0.09	0.26	91.08	0.18	0.11	2.78	0.12	0.1	0.17	0.18	0.28	0.0	0.09	0.1	68
Ti magnetite	0.07	0.97	9.33	15.0	12.47	1.09	0.28	30.27	0.08	0.18	28.66	0.02	0.06	0.36	0.17	0.47	0.1	0.1	0.34	6
magnetite	0.24	1.56	7.86	16.32	4.07	0.64	0.91	1.17	0.1	0.41	63.21	0.18	0.28	0.67	0.22	1.52	0.18	0.25	0.22	14
chromite	1.54	4.06	9.52	2.16	0.24	0.06	0.18	1.49	38.96	0.0	41.09	0.01	0.35	0.0	0.15	0.18	0.0	0.05	0.0	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.11	0.1	0.54	30.54	0.01	0.06	0.27	0.39	0.09	0.09	0.89	0.16	0.06	66.36	0.0	0.0	0.0	0.25	0.09	48
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.02	8.35	22.73	38.95	0.04	0.04	1.46	0.26	0.1	0.88	26.59	0.1	0.15	0.06	0.0	0.05	0.0	0.14	0.09	69
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.07	0.05	21.79	60.47	0.09	9.36	1.93	0.45	0.17	0.17	0.94	0.14	0.17	0.01	0.0	0.25	0.0	0.32	0.62	11
silicate-other	2.39	2.08	27.31	52.64	0.14	1.38	0.51	0.86	0.09	0.17	11.53	0.14	0.19	0.08	0.0	0.16	0.0	0.16	0.19	79
quartz	0.11	0.12	1.37	95.37	0.11	0.13	0.09	0.32	0.15	0.12	0.71	0.2	0.21	0.12	0.0	0.23	0.0	0.28	0.36	101
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.79	0.64	4.92	13.68	3.42	0.43	1.15	1.24	1.25	0.0	1.36	0.55	0.95	7.21	3.42	29.13	0.55	29.33	0.0	4
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	1.9	0.51	4.36	7.28	6.05	0.64	3.43	0.09	0.0	0.24	2.11	1.0	0.37	9.57	0.0	39.12	0.89	21.99	0.45	5
carbonate	0.21	4.37	0.78	2.06	1.76	0.24	82.92	0.35	0.25	0.28	4.47	0.45	0.51	0.07	0.27	0.15	0.0	0.13	0.75	4
pyrite	0.02	0.14	1.99	4.15	63.15	0.3	0.08	0.06	0.05	0.1	29.01	0.13	0.13	0.13	0.18	0.09	0.01	0.18	0.12	28
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.68	2.71	22.91	35.75	3.52	3.42	0.49	1.0	0.08	0.2	27.62	0.14	0.17	0.22	0.17	0.54	0.05	0.15	0.18	40
white mica	0.94	0.8	30.18	52.29	0.27	9.54	0.38	0.79	0.08	0.11	3.63	0.09	0.16	0.07	0.0	0.07	0.0	0.17	0.44	36
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.14	5.71	25.78	38.03	0.28	0.56	0.43	0.58	0.06	0.24	27.33	0.13	0.14	0.1	0.0	0.13	0.0	0.13	0.21	33
clino-amphibole/clino-pyroxene	3.17	6.34	22.39	39.33	0.24	0.66	2.67	0.73	0.07	0.38	22.78	0.13	0.19	0.08	0.15	0.17	0.11	0.15	0.25	50
chlorite	0.06	2.55	18.88	29.13	0.94	2.3	0.6	1.01	0.14	0.32	41.08	0.13	0.21	0.59	0.33	1.0	0.22	0.15	0.34	50
unclassified	1.8	2.37	14.28	30.27	12.62	1.69	2.96	8.38	0.77	0.38	16.98	0.36	0.62	1.95	1.27	0.89	0.13	1.59	0.68	183

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Sample GEUS #: 2003931

Description: Kangilia, 213 m, Itilli formation, Uniivik member, 453146, outcrop

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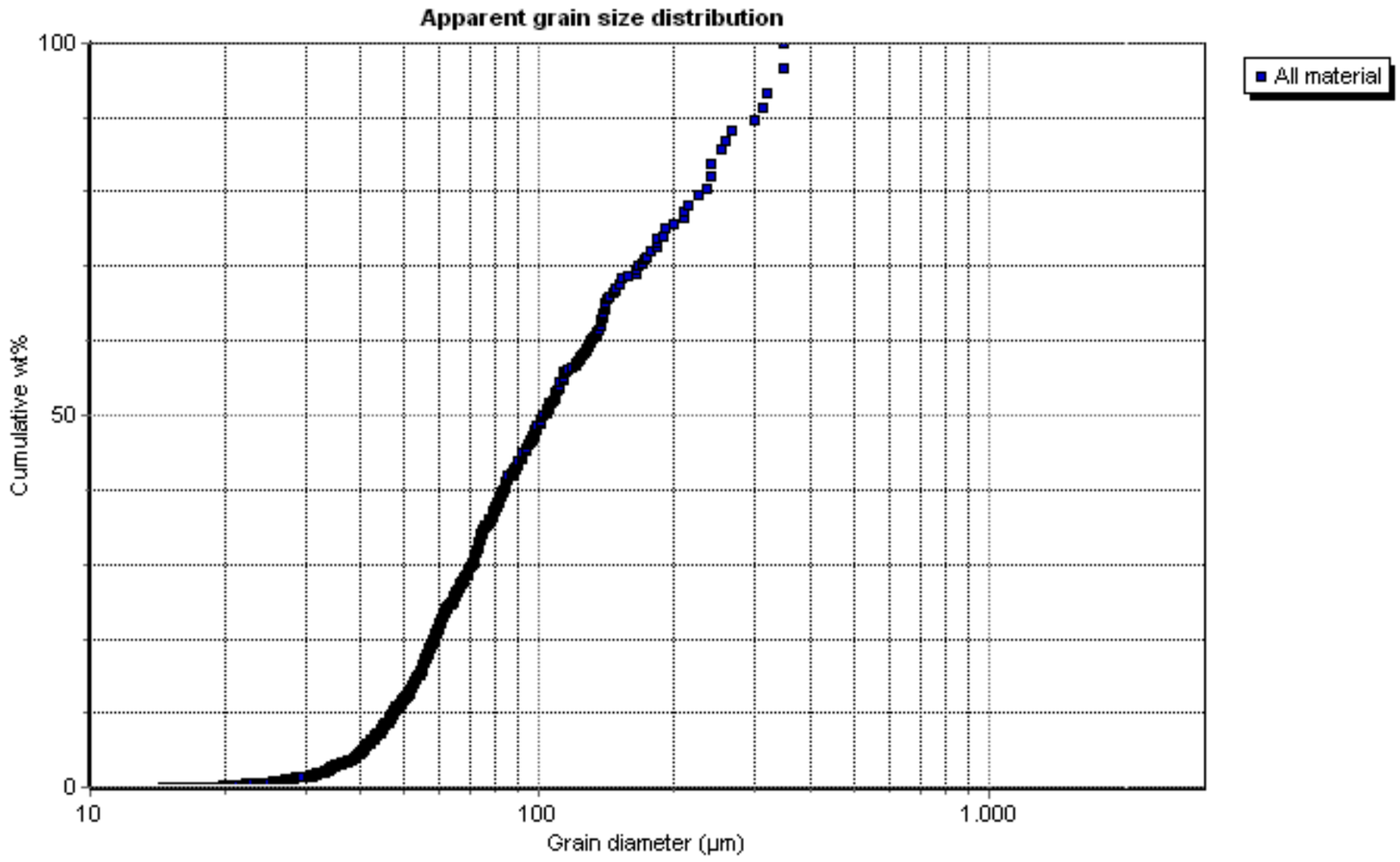

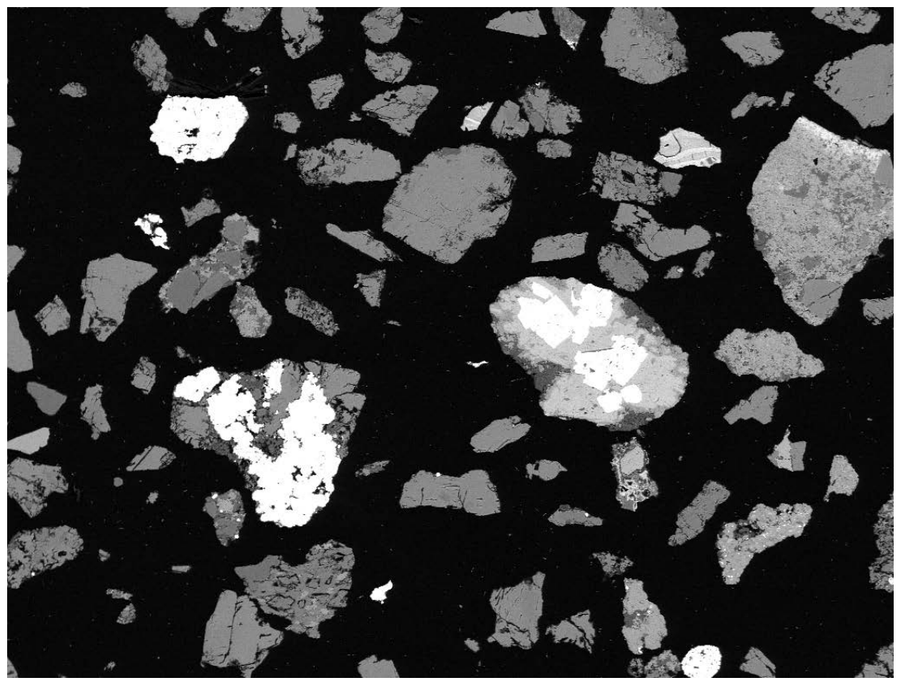

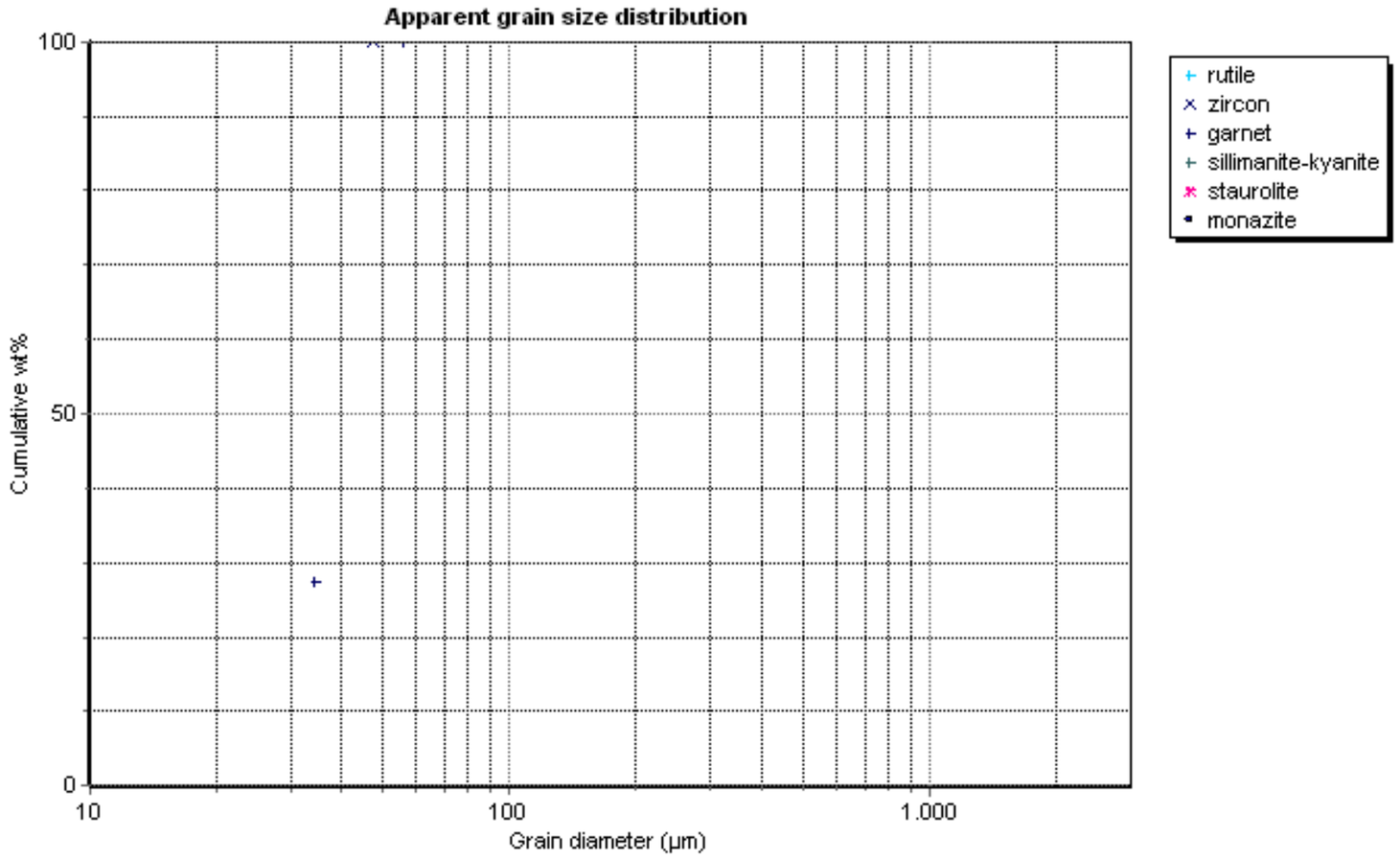

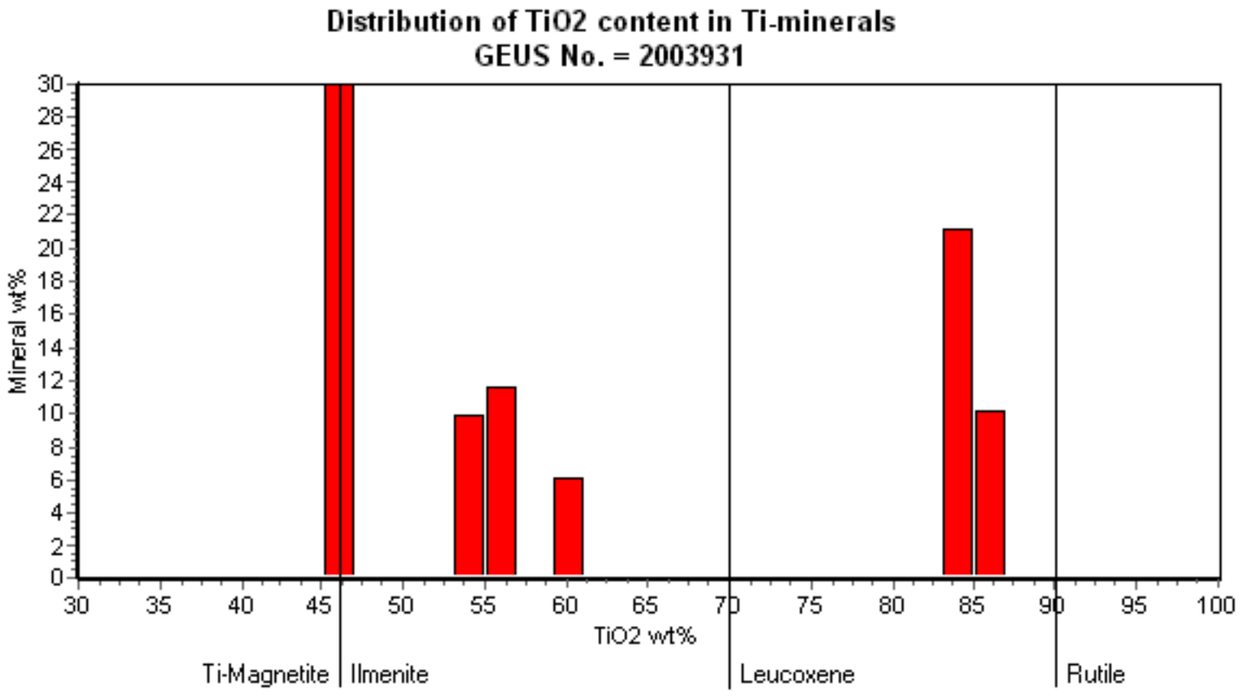

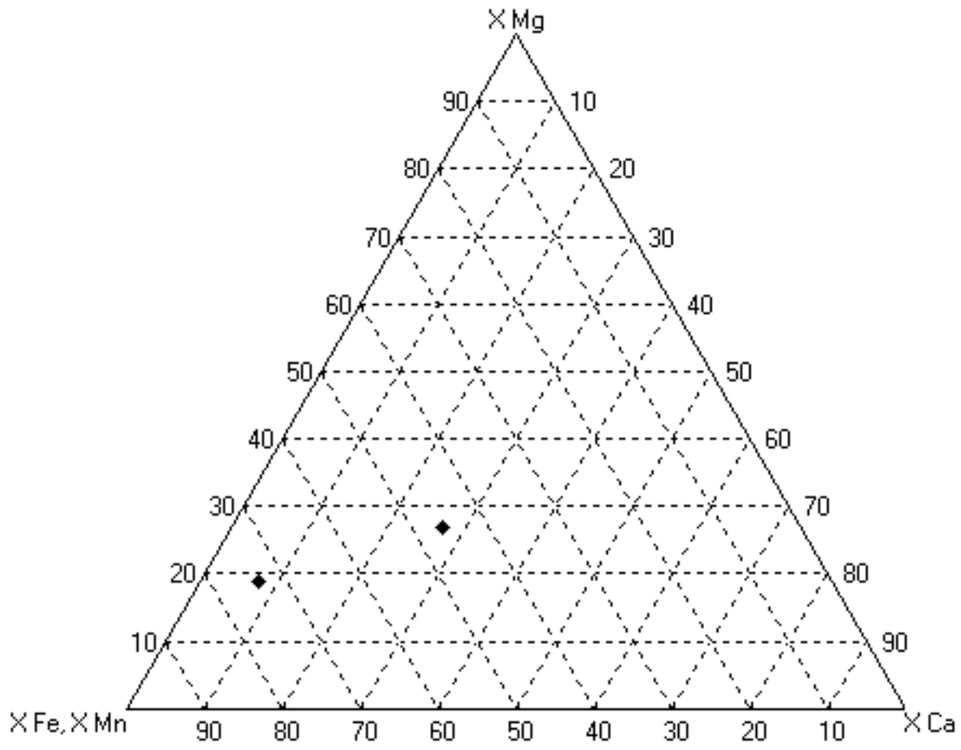

Sample GEUS #: 2003931

Description: Kangilia, 213 m, Itilli formation, Uniivik member, 453146, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.31	2.07	7.79	20.94	1.42	0.18	1.7	56.99	0.01	0.16	6.6	0.04	0.16	0.54	0.27	0.42	0.16	0.19	0.03	3
leucoxene	0.2	0.16	3.87	2.6	1.21	0.08	0.49	83.23	0.31	0.04	6.37	0.13	0.19	0.2	0.08	0.68	0.0	0.02	0.15	5
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0.86	8.23	8.26	6.55	3.75	0.15	2.56	0.3	0.09	0.6	66.9	0.19	0.25	0.27	0.1	0.49	0.07	0.15	0.22	53
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.0	0.0	29.07	0.0	0.0	0.0	0.2	0.11	0.21	0.58	0.29	0.61	68.85	0.0	0.0	0.0	0.0	0.09	1
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	5.25	19.12	39.84	0.0	0.29	5.5	1.67	0.06	0.99	26.12	0.29	0.42	0.0	0.0	0.49	0.0	0.02	0.0	2
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	7.75	0.0	24.3	61.71	0.24	0.78	3.46	0.24	0.11	0.05	0.59	0.11	0.16	0.06	0.0	0.06	0.0	0.16	0.26	6
silicate-other	2.56	3.37	20.5	53.24	0.49	0.39	6.96	0.29	0.07	0.53	10.36	0.05	0.19	0.09	0.0	0.4	0.0	0.19	0.33	18
quartz	0.1	0.12	1.02	95.55	0.3	0.25	0.15	0.25	0.11	0.21	0.51	0.12	0.18	0.21	0.0	0.54	0.0	0.13	0.25	29
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.02	21.83	1.18	2.02	0.46	0.16	50.94	0.12	0.13	0.4	21.14	0.14	0.21	0.05	0.27	0.19	0.07	0.21	0.47	359
pyrite	0.08	0.22	0.95	2.6	66.02	0.13	0.53	0.04	0.04	0.1	28.38	0.1	0.12	0.05	0.2	0.1	0.03	0.17	0.11	75
epidote	0.0	11.94	12.47	31.14	1.32	0.6	27.67	1.22	0.15	0.19	11.5	0.14	0.22	0.12	0.16	0.24	0.16	0.21	0.55	6
dark mica	1.26	1.38	22.09	33.58	12.28	3.08	0.68	0.64	0.1	0.17	23.42	0.15	0.15	0.05	0.31	0.26	0.2	0.13	0.07	5
white mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
olivine	0.0	12.81	0.14	39.85	0.0	0.2	1.93	0.0	0.0	0.79	43.41	0.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
ortho-amphibole/ortho-pyroxene	0.42	3.94	17.88	45.64	1.8	0.43	1.79	0.31	0.05	0.25	26.53	0.06	0.25	0.15	0.0	0.26	0.0	0.08	0.18	6
clino-amphibole/clino-pyroxene	3.22	7.69	13.54	42.89	0.64	0.36	11.5	0.55	0.11	0.46	17.74	0.13	0.09	0.08	0.09	0.15	0.11	0.18	0.48	24
chlorite	0.51	7.88	20.88	26.58	1.78	0.41	1.51	1.46	0.02	0.74	35.79	0.22	0.43	0.08	0.23	0.57	0.47	0.21	0.22	5
unclassified	0.74	17.64	5.68	10.59	1.84	0.61	37.19	0.43	0.12	0.47	22.34	0.18	0.21	0.17	0.4	0.24	0.16	0.29	0.7	602

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Sample GEUS #: 2003932

Description: Kangilia 259 m, Kangilia formation, Fossil Wood member, 463147, outcrop

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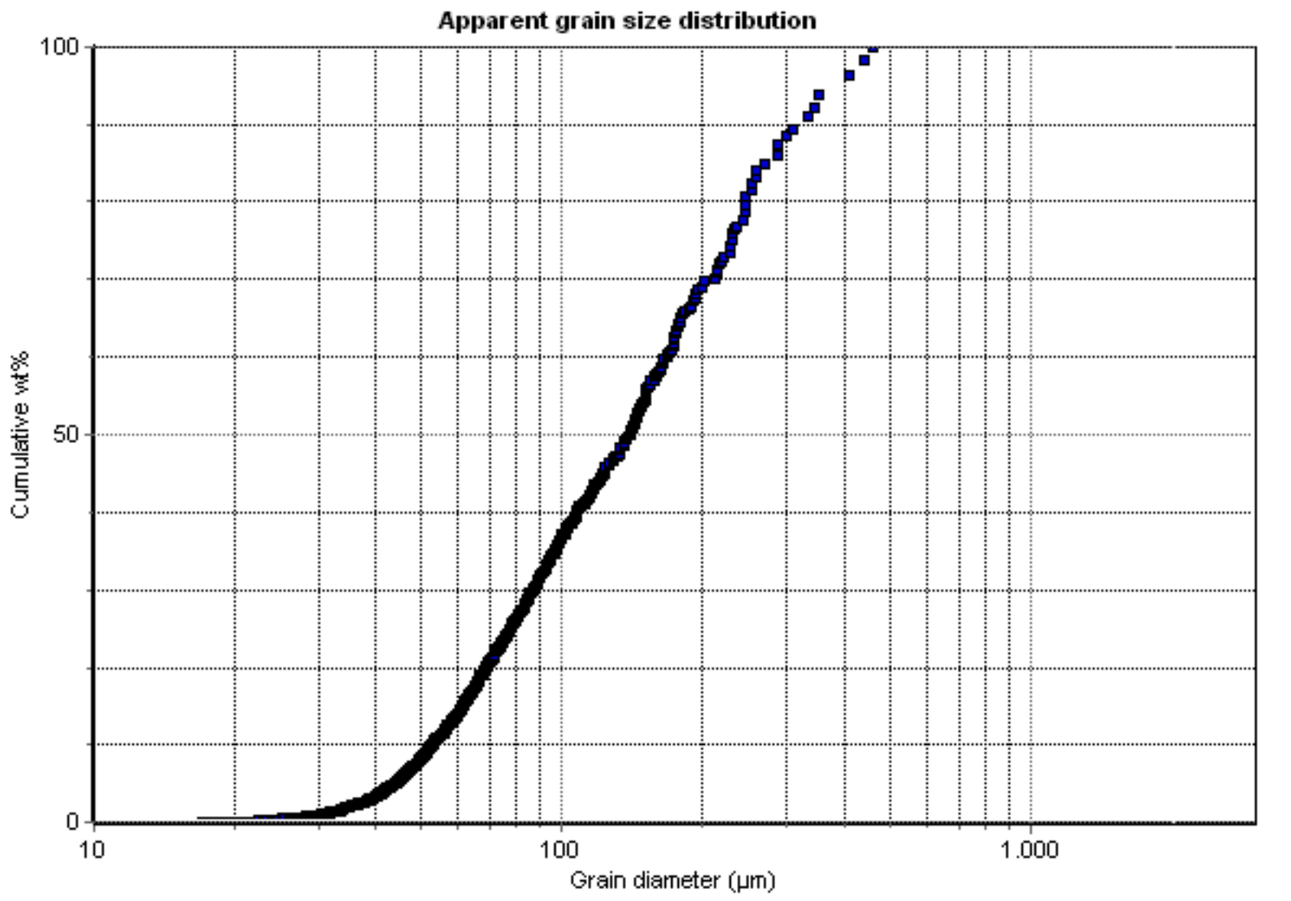

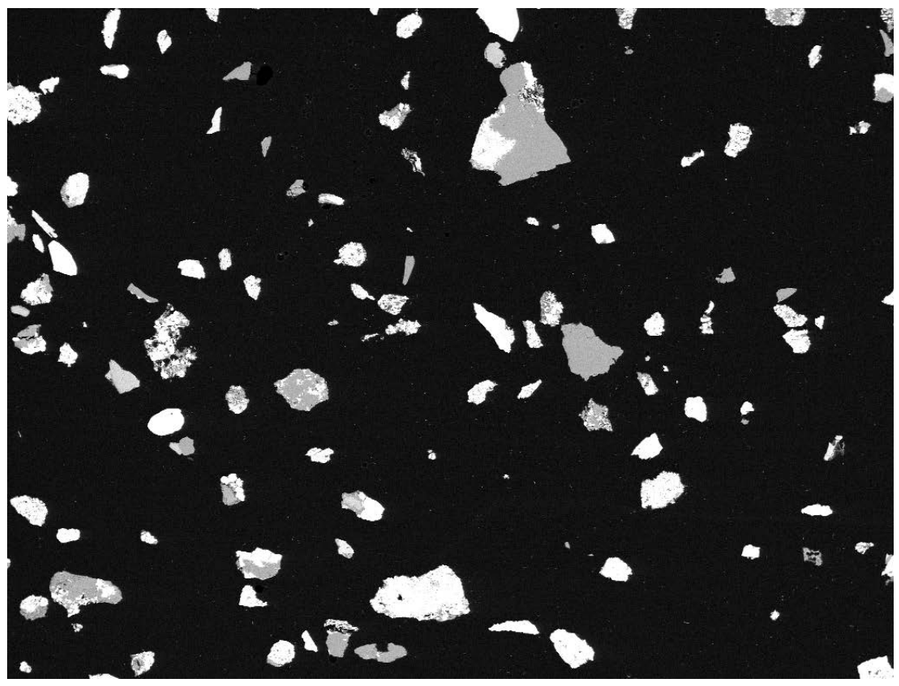

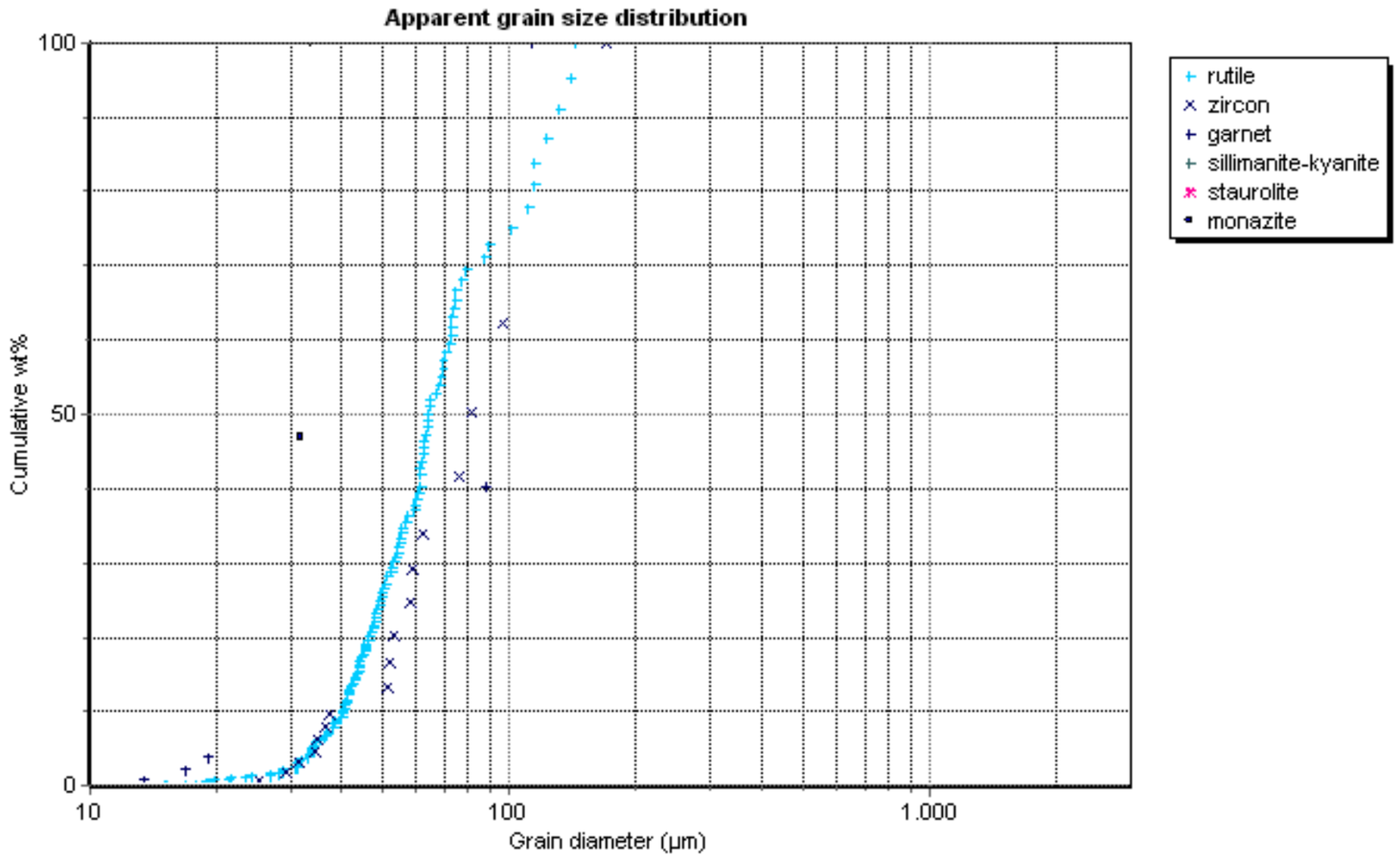

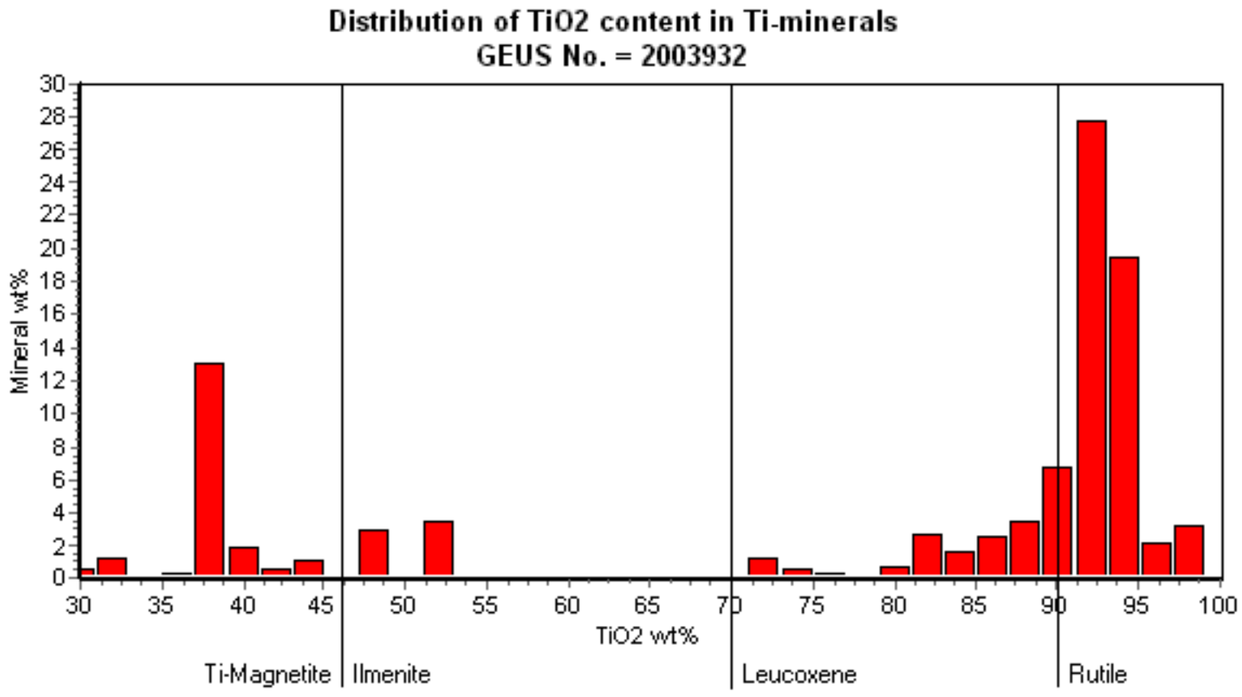

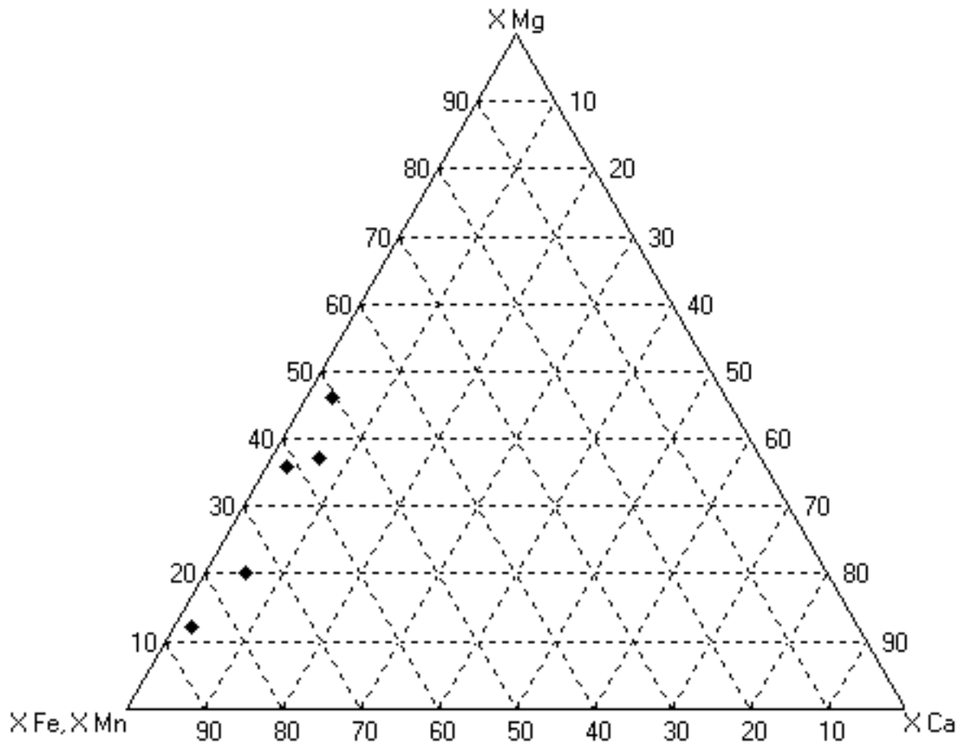

Sample GEUS #: 2003932

Description: Kangilia 259 m, Kangilia formation, Fossil Wood member, 463147, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.2	1.39	7.48	21.69	0.06	0.14	50.46	0.1	0.02	17.63	0.11	0.12	0.11	0.05	0.35	0.0	0.08	0.01	6
leucoxene	0.28	0.4	2.47	6.71	1.71	0.22	0.33	80.88	0.18	0.1	5.03	0.08	0.11	0.49	0.28	0.45	0.08	0.12	0.09	39
rutile	0.09	0.13	1.07	1.92	0.7	0.05	0.26	92.21	0.16	0.1	2.07	0.09	0.1	0.43	0.13	0.37	0.01	0.05	0.07	145
Ti magnetite	0.0	0.1	1.13	10.08	32.38	0.05	0.15	28.91	0.07	0.04	26.63	0.12	0.0	0.19	0.0	0.07	0.0	0.05	0.07	4
magnetite	0.36	14.87	2.32	5.46	7.41	0.42	3.51	0.17	0.02	0.32	63.59	0.1	0.0	0.42	0.24	0.28	0.15	0.16	0.18	5
chromite	1.32	1.67	12.92	20.93	0.23	2.02	0.09	0.77	29.94	2.36	26.76	0.07	0.0	0.24	0.36	0.0	0.11	0.04	0.18	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.17	0.11	0.36	30.04	0.09	0.03	0.34	0.69	0.11	0.06	0.58	0.14	0.05	66.84	0.0	0.0	0.1	0.16	0.14	17
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.28	6.95	22.8	37.91	0.19	0.02	1.24	0.14	0.15	0.96	28.52	0.14	0.24	0.15	0.11	0.03	0.0	0.14	0.0	5
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	5.65	0.03	22.23	62.55	0.38	5.04	1.66	0.55	0.11	0.06	0.8	0.07	0.1	0.01	0.0	0.01	0.0	0.2	0.56	32
silicate-other	5.0	0.69	22.04	65.75	0.7	1.17	0.76	0.65	0.1	0.05	2.39	0.12	0.12	0.06	0.0	0.09	0.0	0.16	0.15	39
quartz	0.25	0.1	1.26	95.84	0.14	0.17	0.14	0.19	0.09	0.11	0.69	0.16	0.18	0.14	0.0	0.14	0.0	0.2	0.19	94
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.31	1.43	5.28	5.15	0.0	2.11	0.0	0.0	0.0	1.41	0.19	1.55	9.07	0.0	43.9	0.0	29.63	0.0	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.47	0.86	4.95	5.67	0.0	1.75	0.0	0.0	0.0	0.56	0.62	0.49	14.49	0.0	45.33	1.9	22.94	0.0	2
carbonate	0.0	18.81	0.97	2.5	0.88	0.2	61.02	0.41	0.2	0.3	13.42	0.0	0.08	0.0	0.13	0.23	0.0	0.29	0.59	4
pyrite	0.4	0.11	2.42	5.61	63.23	0.31	0.06	0.09	0.04	0.05	27.03	0.11	0.08	0.07	0.1	0.05	0.02	0.11	0.11	533
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.58	0.18	10.93	31.18	36.39	1.32	0.28	0.19	0.06	0.04	15.28	0.06	0.11	0.03	0.13	0.02	0.0	0.1	0.14	16
white mica	2.14	0.67	23.08	57.46	1.74	9.99	0.4	0.88	0.03	0.06	2.73	0.11	0.1	0.05	0.0	0.02	0.0	0.09	0.44	15
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	26.76	4.36	47.09	0.17	0.09	1.86	0.3	0.15	0.65	17.87	0.1	0.25	0.12	0.0	0.01	0.0	0.08	0.14	7
clino-amphibole/clino-pyroxene	1.82	9.52	11.01	46.0	0.1	0.26	12.64	1.42	0.07	0.37	16.25	0.06	0.06	0.03	0.02	0.06	0.0	0.1	0.24	34
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	2.23	1.68	8.87	35.39	28.36	1.48	1.33	3.89	0.07	0.08	14.94	0.14	0.2	0.48	0.2	0.21	0.08	0.16	0.2	200

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Sample GEUS #: 2003933

Description: Kangilia, 743 m, Eqalulik formation, 453148, outcrop

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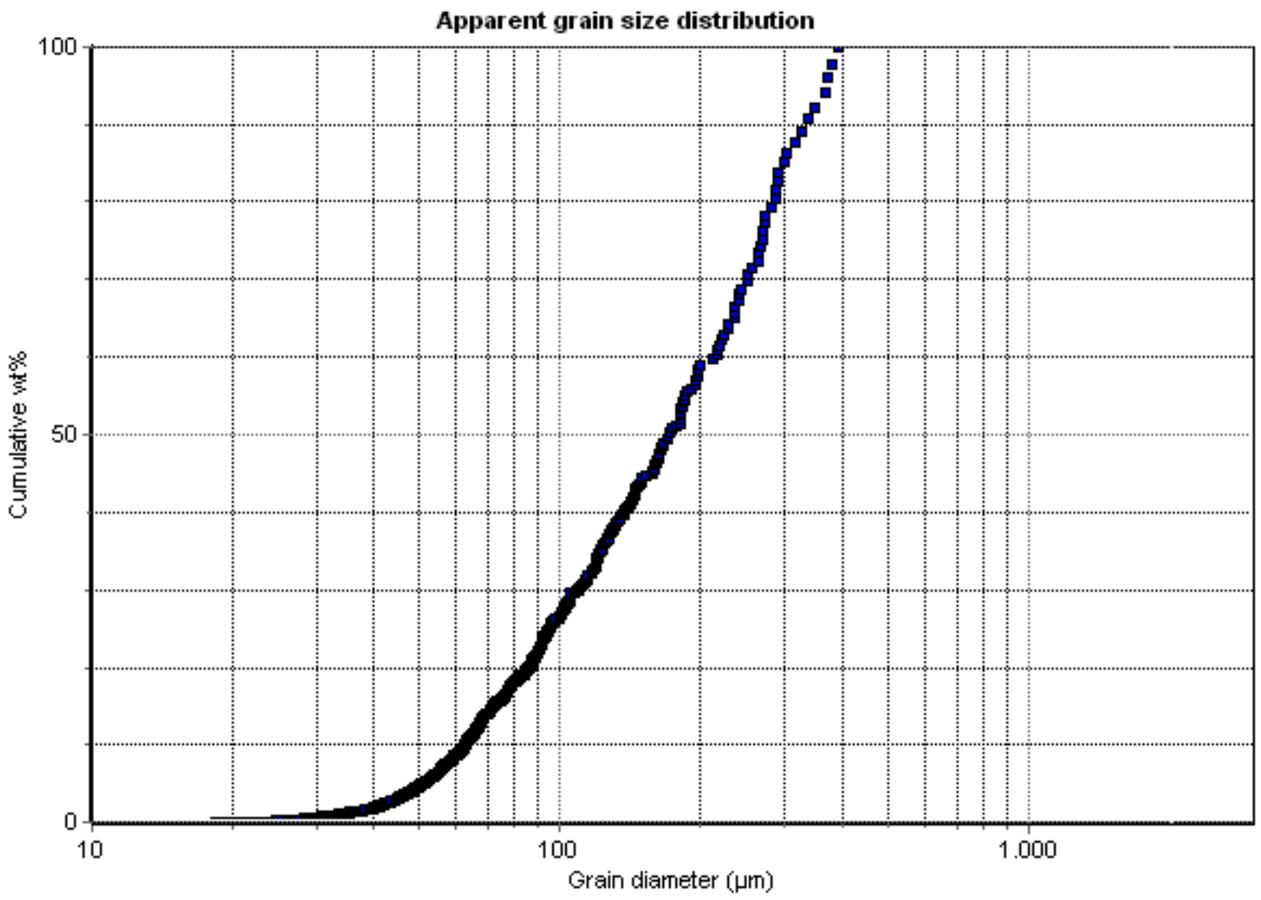

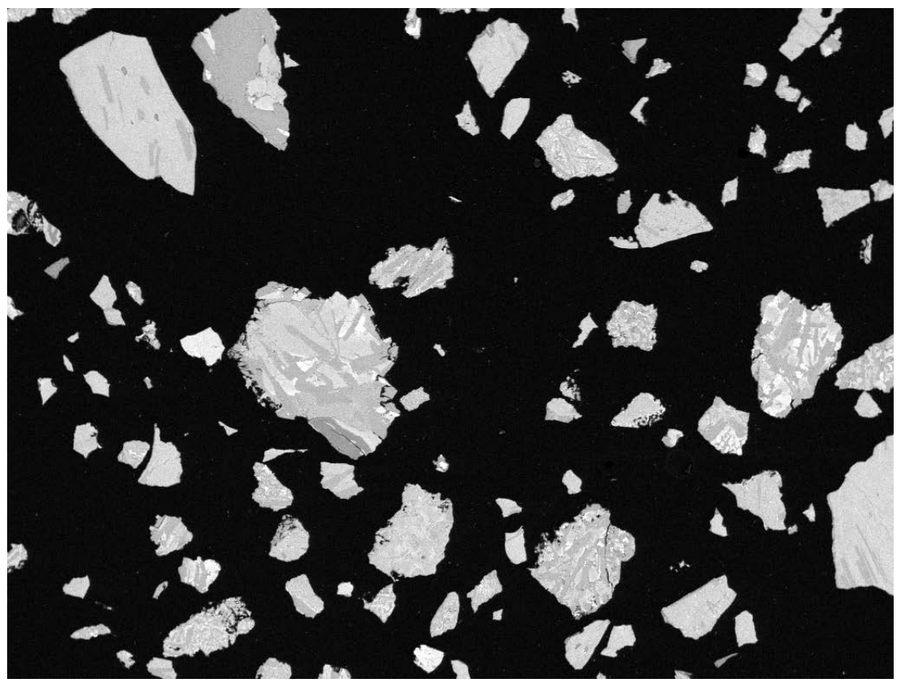

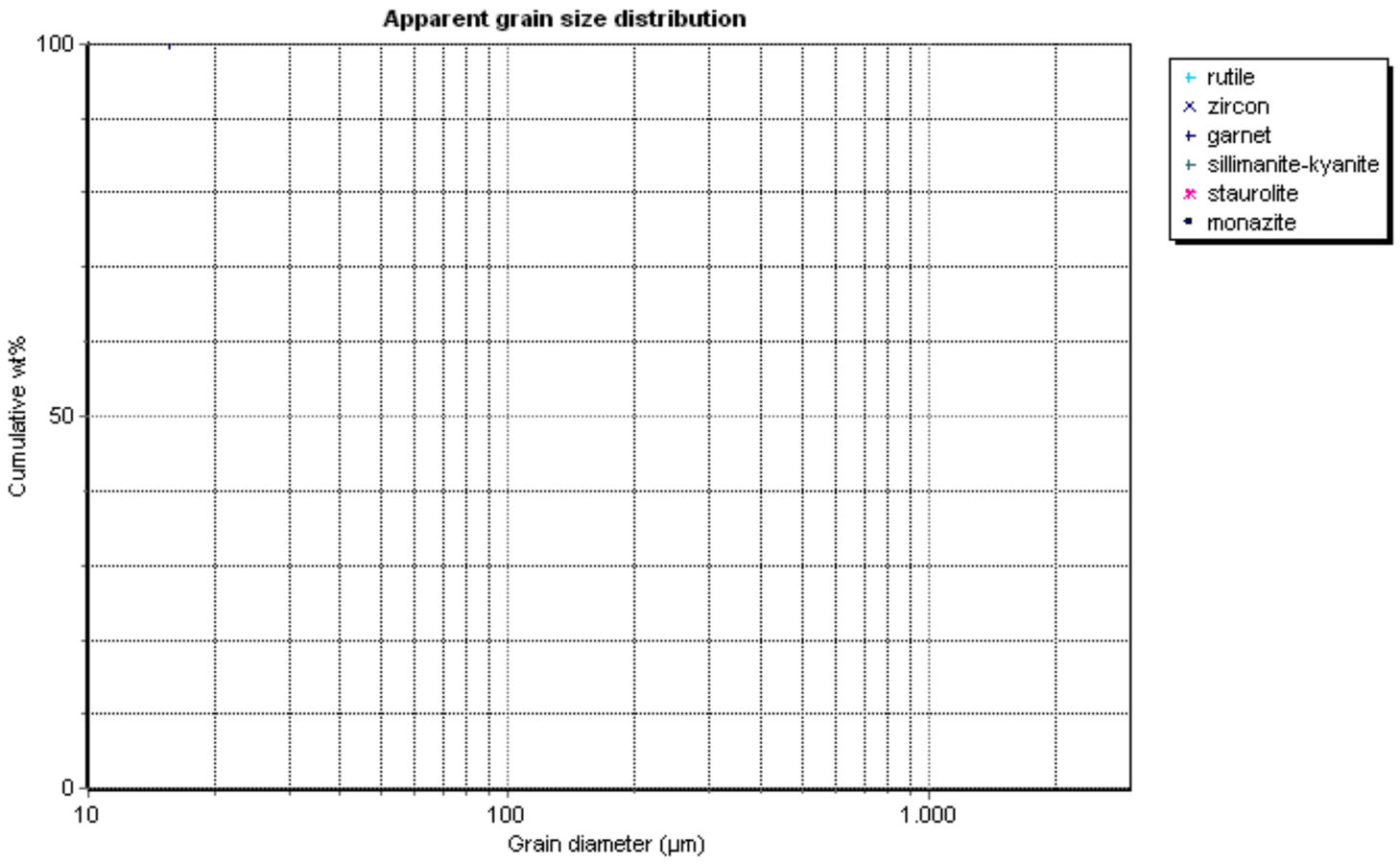

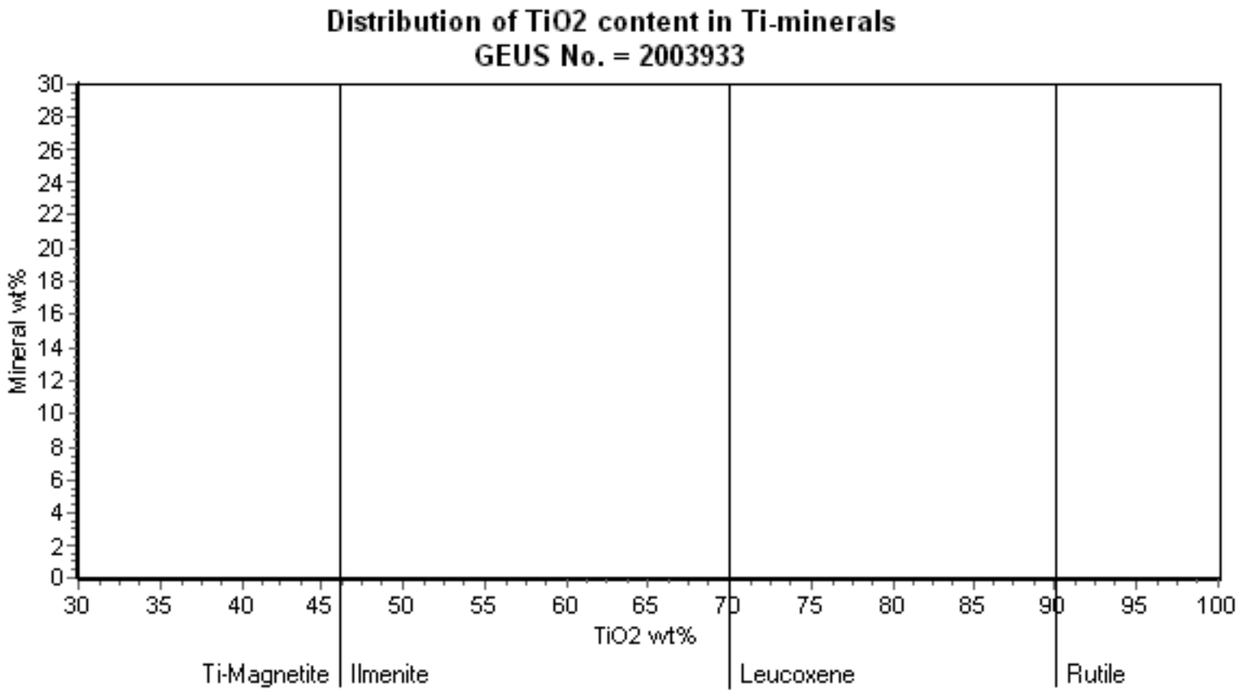

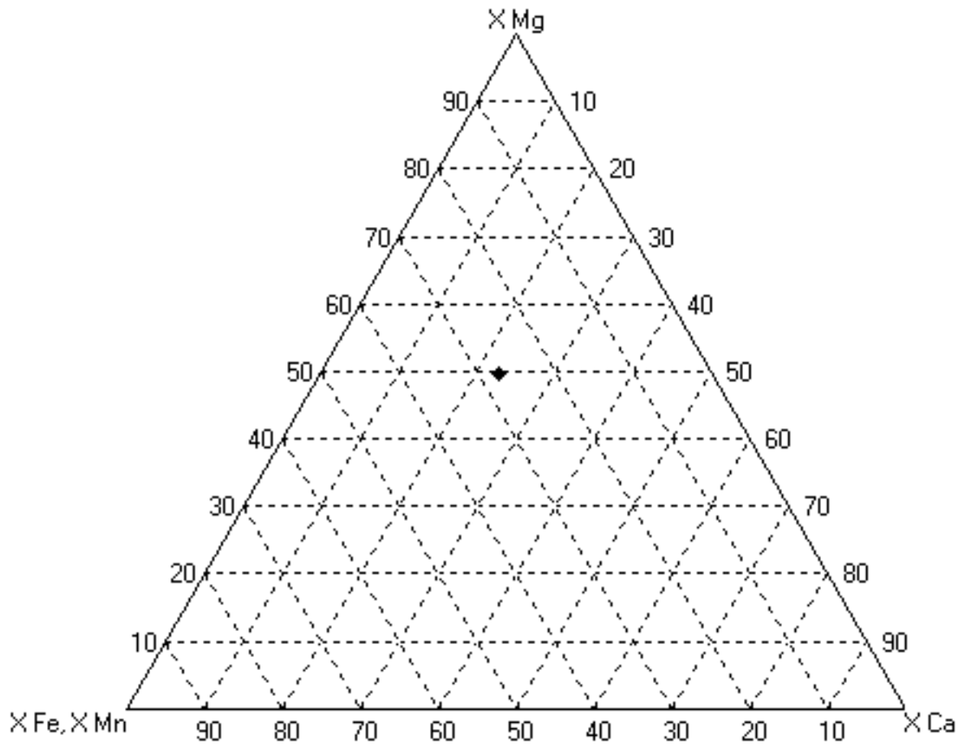

Sample GEUS #: 2003933

Description: Kangilia, 743 m, Eqalulik formation, 453148, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	4.96	8.23	4.65	13.42	0.16	0.08	0.37	16.93	0.18	1.49	48.8	0.0	0.22	0.07	0.25	0.12	0.06	0.0	0.0	1
magnetite	0.0	3.2	0.65	3.63	2.91	0.0	1.12	0.25	0.43	1.19	86.04	0.32	0.08	0.0	0.0	0.19	0.0	0.0	0.0	1
chromite	0.0	12.71	21.69	6.4	0.0	0.0	0.16	1.48	32.66	0.0	24.42	0.29	0.13	0.0	0.0	0.0	0.0	0.0	0.06	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	12.95	16.35	45.2	0.35	0.21	8.25	0.55	0.1	0.0	14.12	0.42	0.13	0.93	0.0	0.45	0.0	0.0	0.0	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.07	1.05	27.23	49.7	0.46	0.23	14.25	0.37	0.09	0.08	2.73	0.08	0.12	0.07	0.0	0.06	0.0	0.09	0.31	48
silicate-other	2.02	13.42	11.81	53.87	0.23	0.72	4.35	1.36	0.09	0.33	10.82	0.14	0.1	0.24	0.0	0.01	0.0	0.32	0.19	6
quartz	0.06	0.1	0.29	97.78	0.19	0.1	0.07	0.17	0.09	0.08	0.19	0.15	0.11	0.24	0.0	0.04	0.0	0.2	0.15	12
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.0	28.13	0.95	1.31	0.18	0.18	53.5	0.08	0.11	0.25	13.93	0.09	0.15	0.05	0.33	0.06	0.12	0.29	0.27	11
pyrite	0.0	0.2	0.33	0.75	69.34	0.1	0.25	0.11	0.0	0.0	28.31	0.0	0.27	0.0	0.27	0.0	0.0	0.07	0.0	1
epidote	0.0	9.72	10.42	42.36	0.0	0.13	25.36	1.06	0.0	0.0	10.19	0.02	0.0	0.0	0.0	0.0	0.0	0.39	0.35	1
dark mica	3.85	19.92	13.66	35.16	0.12	2.04	0.53	0.21	0.23	0.29	22.34	0.0	0.12	0.48	0.27	0.38	0.29	0.0	0.14	2
white mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.41	22.65	9.02	46.49	0.43	0.11	4.47	0.47	0.09	0.22	14.96	0.04	0.14	0.05	0.0	0.06	0.0	0.13	0.26	20
clino-amphibole/clino-pyroxene	1.99	7.4	15.87	48.1	0.13	0.18	14.36	1.06	0.1	0.19	9.87	0.07	0.1	0.05	0.0	0.1	0.0	0.1	0.32	707
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	3.21	12.16	14.97	24.95	1.95	0.61	13.5	2.53	7.57	0.23	16.09	0.06	0.1	0.33	0.16	0.64	0.08	0.26	0.6	16

DONG sample Report - Page 1/3

Sample GEUS #: 2003934

Description: Ikorfat, 208 m, Kome formation, 463139, outcrop

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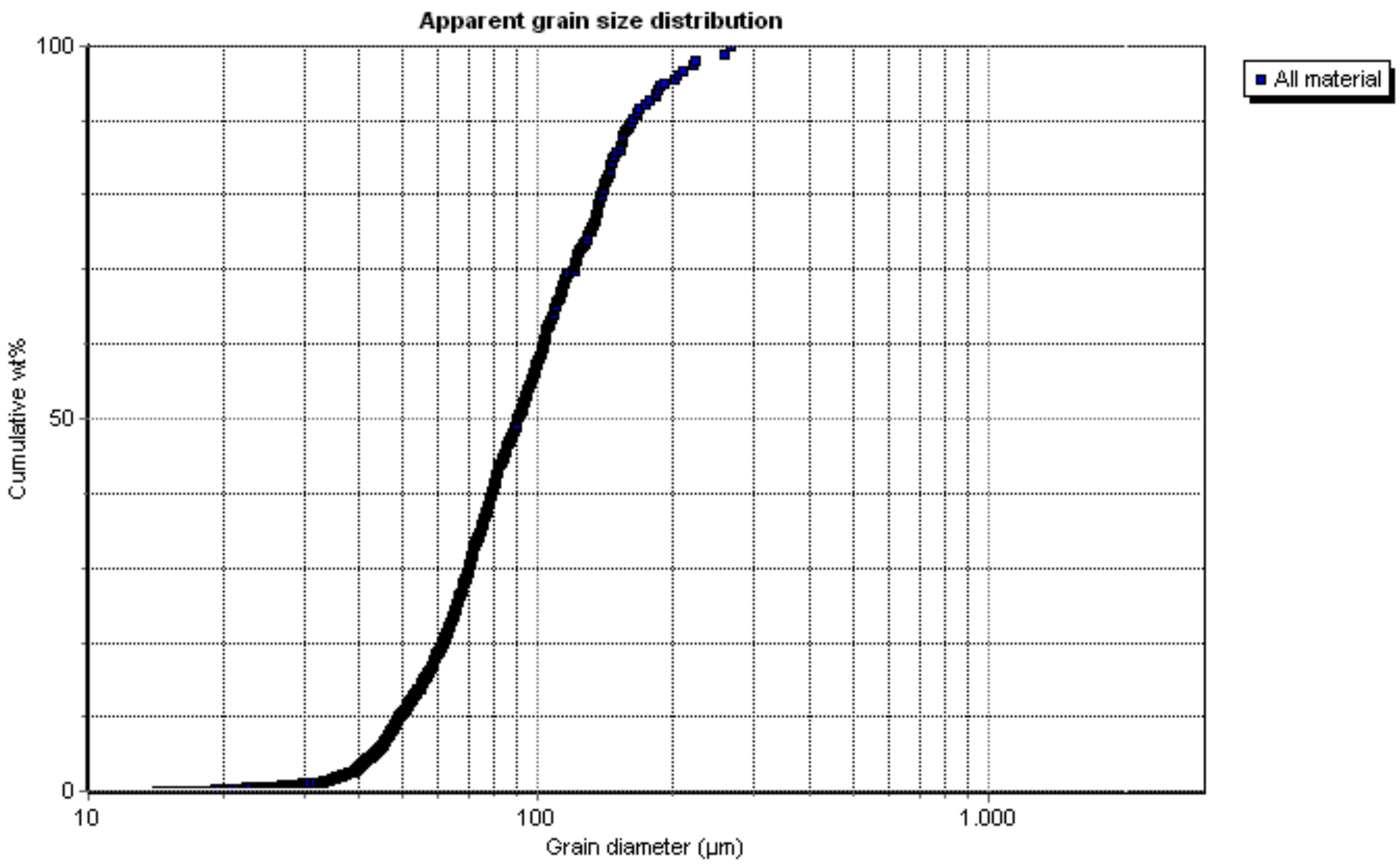

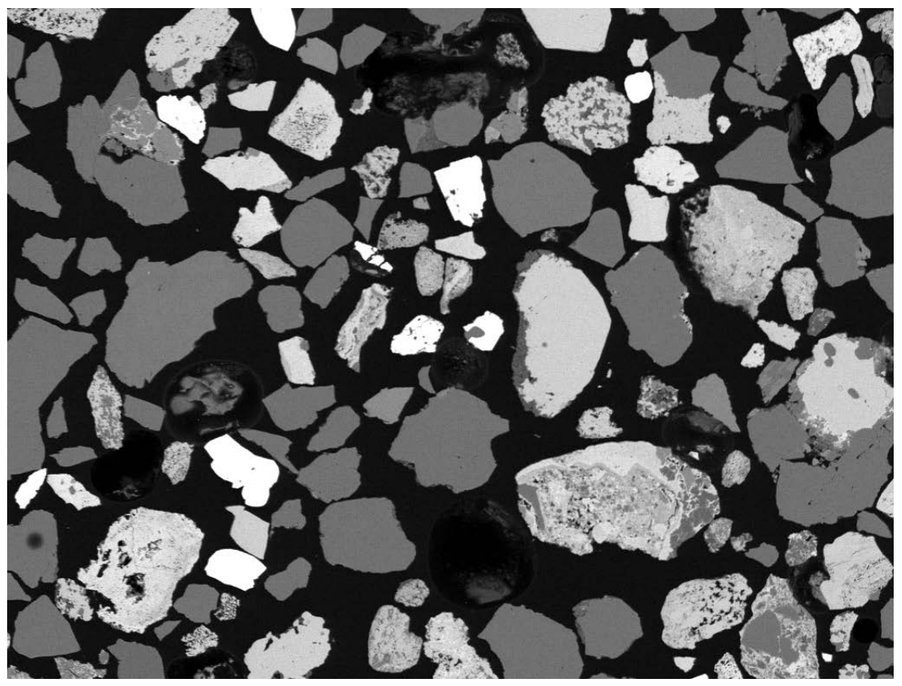

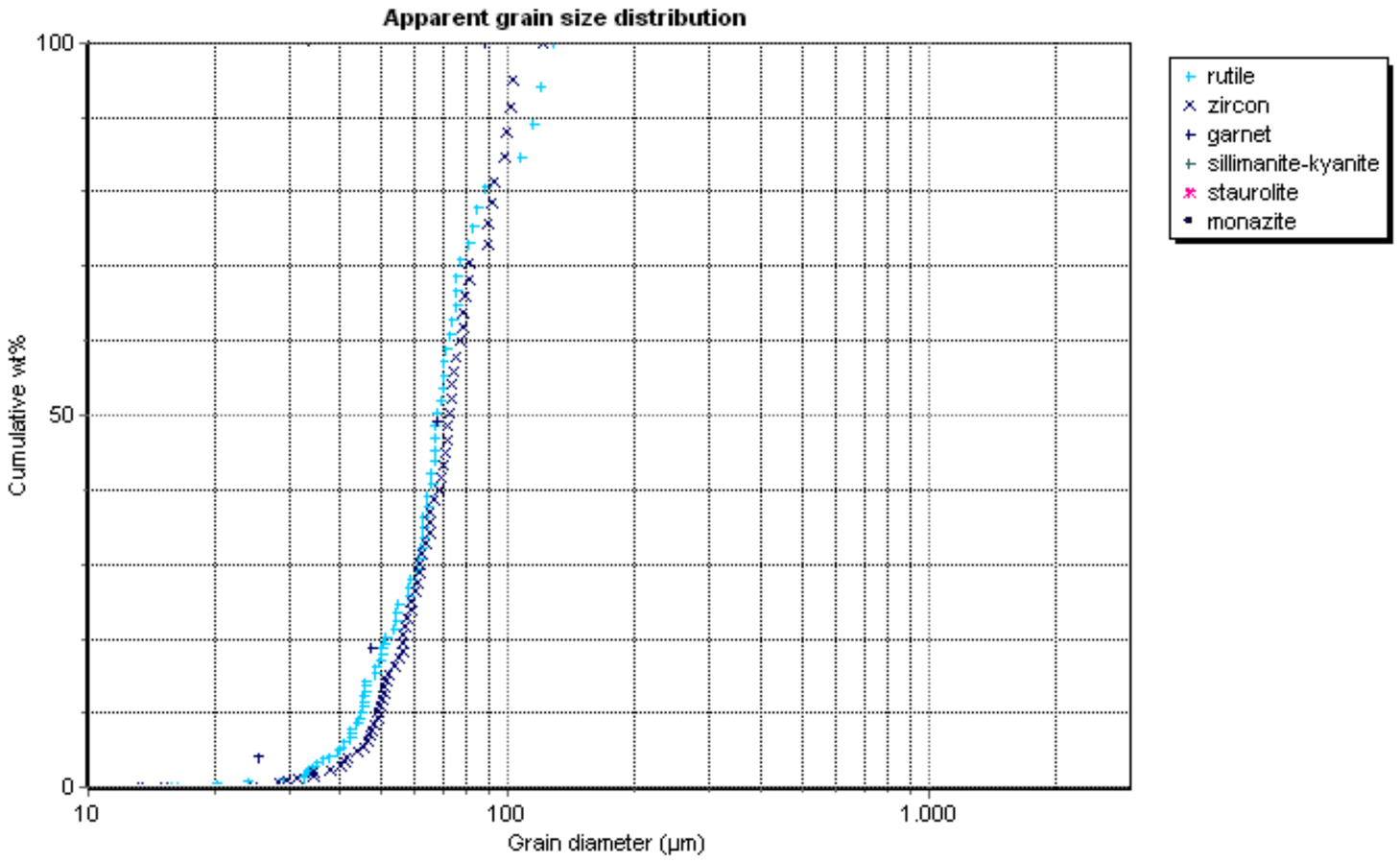

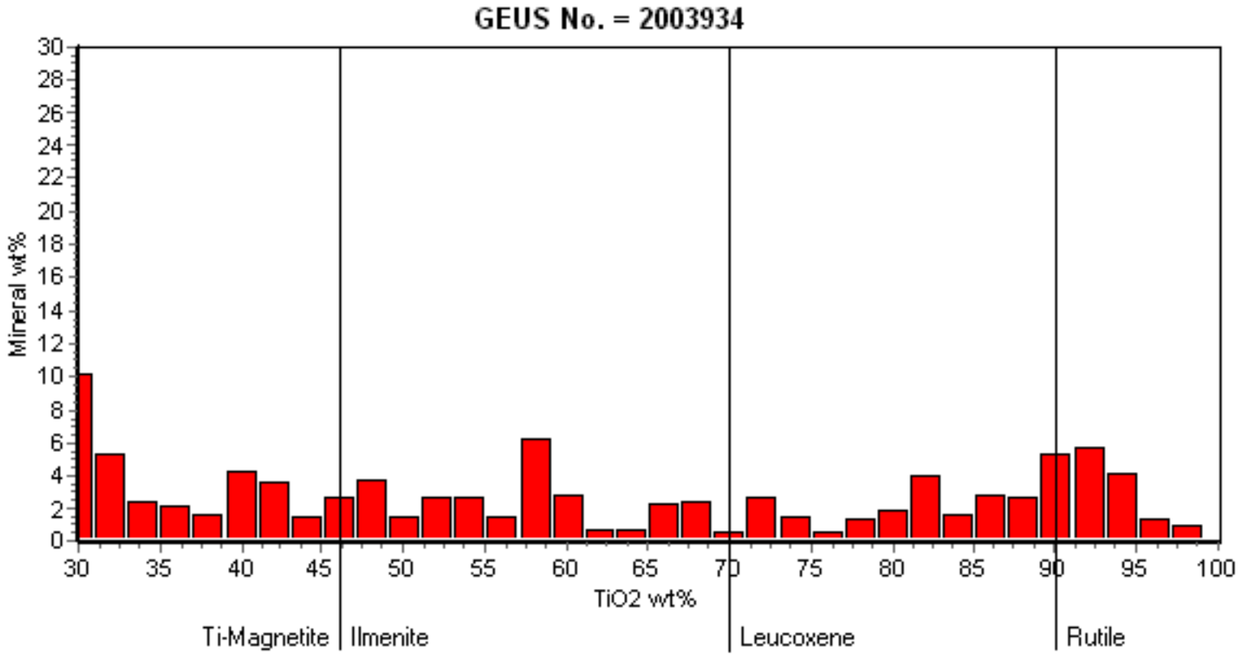

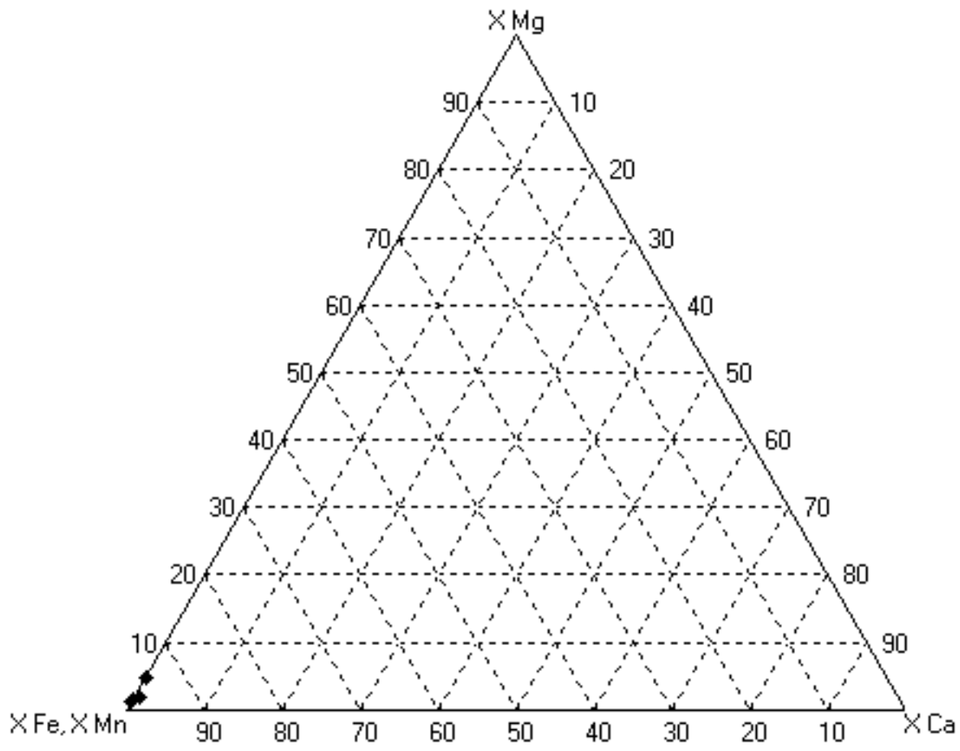

Sample GEUS #: 2003934

Description: Ikorfat, 208 m, Kome formation, 463139, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.26	0.33	3.89	13.31	0.21	0.07	0.26	56.33	0.11	0.07	22.96	0.08	0.12	1.29	0.28	0.16	0.02	0.19	0.08	53
leucoxene	0.1	0.17	3.19	7.67	0.19	0.13	0.2	79.72	0.17	0.06	7.16	0.09	0.1	0.38	0.24	0.19	0.01	0.14	0.07	83
rutile	0.09	0.12	2.02	1.86	0.17	0.06	0.17	92.2	0.16	0.06	1.93	0.06	0.13	0.26	0.33	0.2	0.01	0.1	0.06	78
Ti magnetite	0.86	0.57	5.36	15.58	0.17	0.24	0.34	33.08	0.19	0.13	42.08	0.11	0.17	0.65	0.2	0.09	0.03	0.04	0.1	30
magnetite	1.05	0.83	10.46	17.39	0.16	0.26	0.35	0.84	0.08	0.1	67.17	0.15	0.14	0.25	0.21	0.23	0.04	0.17	0.11	72
chromite	3.17	2.87	9.07	3.34	0.28	0.09	0.26	2.05	39.37	0.3	37.35	0.53	0.16	0.0	0.5	0.52	0.0	0.0	0.14	3
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.13	0.11	0.81	29.6	0.02	0.03	0.46	0.31	0.07	0.08	0.6	0.14	0.03	67.25	0.0	0.12	0.0	0.17	0.07	72
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.66	0.45	20.49	40.28	0.0	0.07	0.05	0.26	0.04	0.09	36.98	0.04	0.2	0.0	0.0	0.13	0.0	0.01	0.27	4
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0.63	0.05	20.31	61.45	0.13	14.18	0.23	0.34	0.14	0.03	0.6	0.21	0.14	0.0	0.0	0.0	0.0	0.19	1.36	9
silicate-other	0.74	4.3	22.92	58.99	0.02	0.28	0.58	0.77	0.07	0.07	10.51	0.11	0.1	0.01	0.0	0.22	0.0	0.11	0.2	63
quartz	0.1	0.09	0.68	97.05	0.08	0.08	0.07	0.27	0.1	0.1	0.44	0.16	0.16	0.07	0.0	0.18	0.0	0.2	0.19	472
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.08	1.87	3.31	2.75	0.0	2.99	0.0	0.0	0.0	10.63	0.0	0.0	8.92	0.0	47.42	0.0	20.33	1.69	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.69	0.48	22.52	3.48	1.5	0.17	3.97	0.96	0.0	0.0	1.11	0.12	0.26	9.65	0.0	40.2	0.37	14.48	0.05	4
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.57	4.13	23.02	39.94	0.03	4.4	0.27	2.54	0.04	0.12	23.0	0.07	0.15	0.01	0.02	0.07	0.0	0.12	0.5	14
white mica	0.7	0.12	20.53	60.51	0.06	15.71	0.22	0.4	0.07	0.07	0.51	0.13	0.09	0.04	0.0	0.07	0.0	0.21	0.58	40
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.18	5.05	13.61	48.31	0.1	0.26	0.09	1.23	0.04	0.09	30.16	0.14	0.21	0.09	0.0	0.12	0.0	0.09	0.23	16
clino-amphibole/clino-pyroxene	2.06	4.95	19.01	41.76	0.07	0.32	4.96	0.89	0.07	0.12	24.9	0.15	0.12	0.08	0.02	0.15	0.02	0.14	0.19	22
chlorite	0.35	0.49	19.7	29.7	0.16	1.27	0.32	0.65	0.06	0.06	46.19	0.06	0.18	0.15	0.19	0.13	0.04	0.15	0.16	20
unclassified	0.44	0.65	8.22	46.92	0.67	1.45	0.65	14.98	0.13	0.1	10.49	0.22	0.15	11.88	1.1	0.74	0.35	0.6	0.25	144

DONG sample Report - Page 1/3

Sample GEUS #: 2003935

Description: Ikorfat, 444 m, Atane formation, Ravn Kløft member, 453151, outcrop

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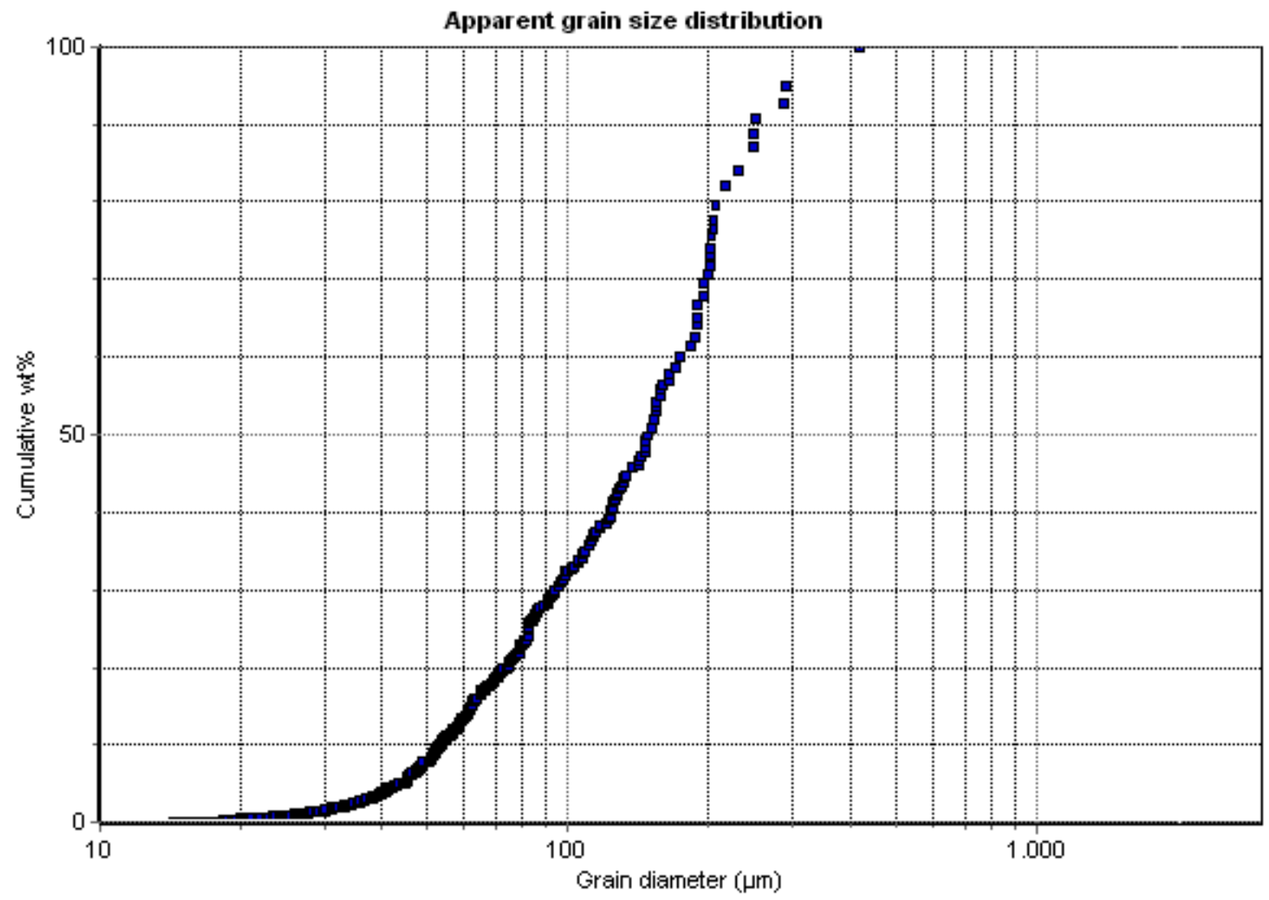

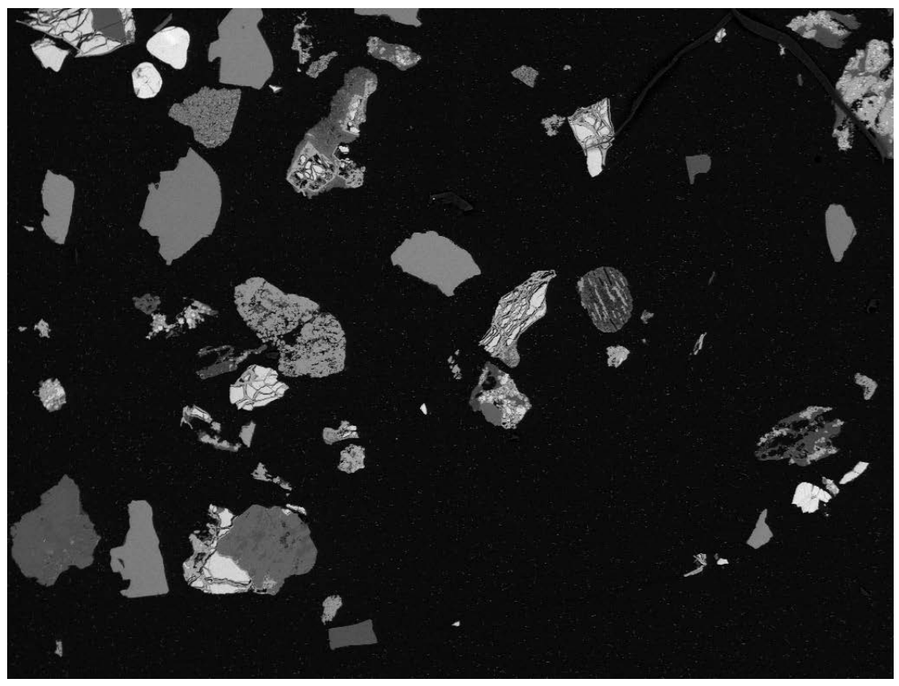

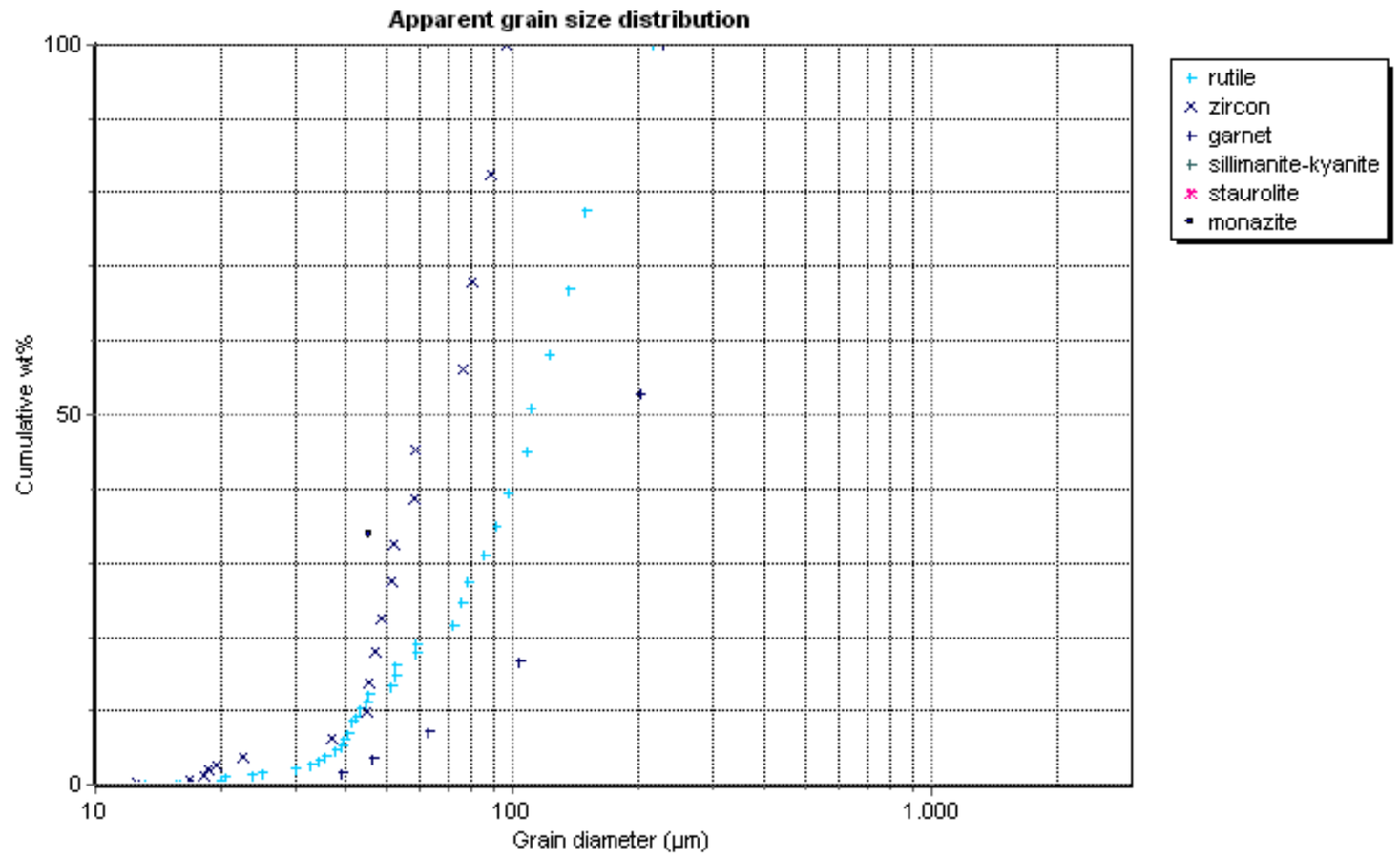

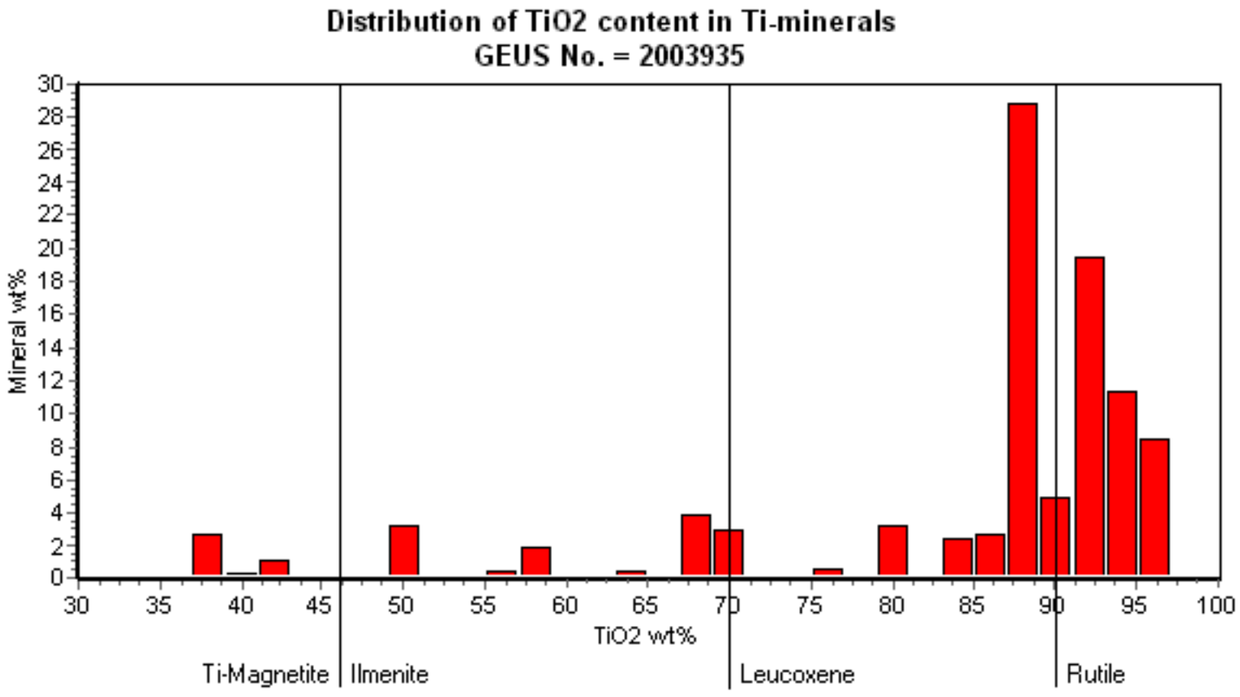

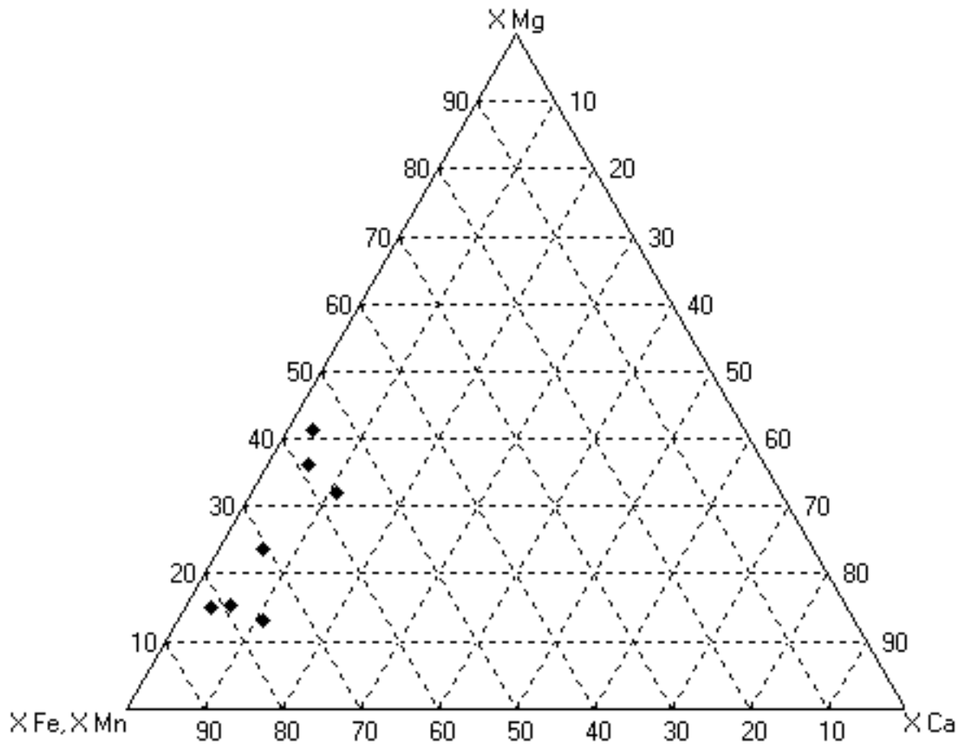

Sample GEUS #: 2003935

Description: Ikorfat, 444 m, Atane formation, Ravn Kløft member, 453151, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.02	1.55	38.35	0.07	0.05	0.05	56.66	0.17	0.15	2.12	0.05	0.19	0.1	0.0	0.1	0.0	0.21	0.21	2
leucoxene	0.27	0.25	4.03	8.54	0.44	0.17	0.16	78.97	0.12	0.11	5.52	0.09	0.13	0.44	0.43	0.13	0.07	0.04	0.11	26
rutile	0.17	0.1	1.43	2.59	0.25	0.04	0.12	92.01	0.14	0.06	2.0	0.11	0.1	0.31	0.3	0.09	0.01	0.09	0.07	41
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.09	1.16	6.44	12.64	16.25	0.16	0.49	0.23	0.06	0.4	59.98	0.07	0.14	0.25	0.23	0.17	0.08	0.08	0.08	69
chromite	3.85	2.12	7.34	3.31	0.52	0.0	0.34	1.33	20.36	1.56	57.72	0.43	0.0	0.0	0.43	0.51	0.0	0.17	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.18	0.13	0.43	29.67	0.16	0.07	0.7	0.22	0.07	0.06	0.72	0.12	0.09	66.85	0.0	0.1	0.01	0.2	0.21	19
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.4	5.75	22.97	38.2	0.0	0.06	2.02	0.02	0.09	0.97	29.02	0.04	0.17	0.02	0.0	0.0	0.0	0.05	0.21	7
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	4.63	0.02	21.63	61.45	0.17	7.9	0.91	0.29	0.14	0.07	1.83	0.09	0.09	0.15	0.0	0.01	0.0	0.0	0.65	4
silicate-other	1.06	1.89	30.67	51.32	0.53	0.33	0.34	0.31	0.1	0.1	12.66	0.1	0.16	0.14	0.0	0.06	0.0	0.17	0.08	25
quartz	0.2	0.13	0.79	96.17	0.11	0.04	0.05	0.19	0.03	0.1	1.05	0.12	0.15	0.16	0.0	0.13	0.0	0.36	0.21	20
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.52	2.31	4.89	3.24	0.0	2.53	0.0	0.0	0.0	14.13	0.19	0.13	10.26	0.0	38.83	0.63	22.36	0.0	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.32	0.03	1.02	2.28	3.91	0.0	2.27	0.0	0.0	0.0	0.48	0.34	0.11	13.62	0.0	45.2	0.51	29.93	0.0	4
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.07	0.12	0.81	2.41	60.61	0.12	0.12	0.06	0.04	0.13	34.83	0.06	0.1	0.1	0.17	0.06	0.01	0.1	0.09	45
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.1	0.43	15.21	37.72	16.41	3.88	0.26	0.2	0.01	0.11	21.94	0.05	0.13	0.18	0.06	0.06	0.04	0.07	0.13	9
white mica	0.69	0.97	30.23	51.38	0.15	11.78	0.15	1.0	0.11	0.07	2.53	0.09	0.11	0.09	0.0	0.09	0.0	0.18	0.39	22
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	3.23	22.1	44.25	2.09	0.26	0.54	0.64	0.05	0.26	26.01	0.03	0.16	0.08	0.0	0.05	0.0	0.15	0.11	8
clino-amphibole/clino-pyroxene	3.46	6.37	23.42	35.15	1.14	0.06	1.4	0.19	0.06	0.53	27.57	0.04	0.07	0.06	0.08	0.09	0.03	0.16	0.11	21
chlorite	0.74	0.97	19.58	26.41	5.69	0.31	0.33	0.52	0.06	0.31	44.03	0.09	0.13	0.19	0.18	0.16	0.11	0.06	0.12	25
unclassified	1.05	0.86	9.81	20.54	25.81	1.07	1.38	3.23	0.15	0.24	34.51	0.11	0.14	0.21	0.32	0.21	0.04	0.11	0.2	82

DONG sample Report - Page 1/3

Sample GEUS #: 2003936

Description: Ikorfat, 719 m, Atane formation, Ravn Kløft member, 453153, outcrop

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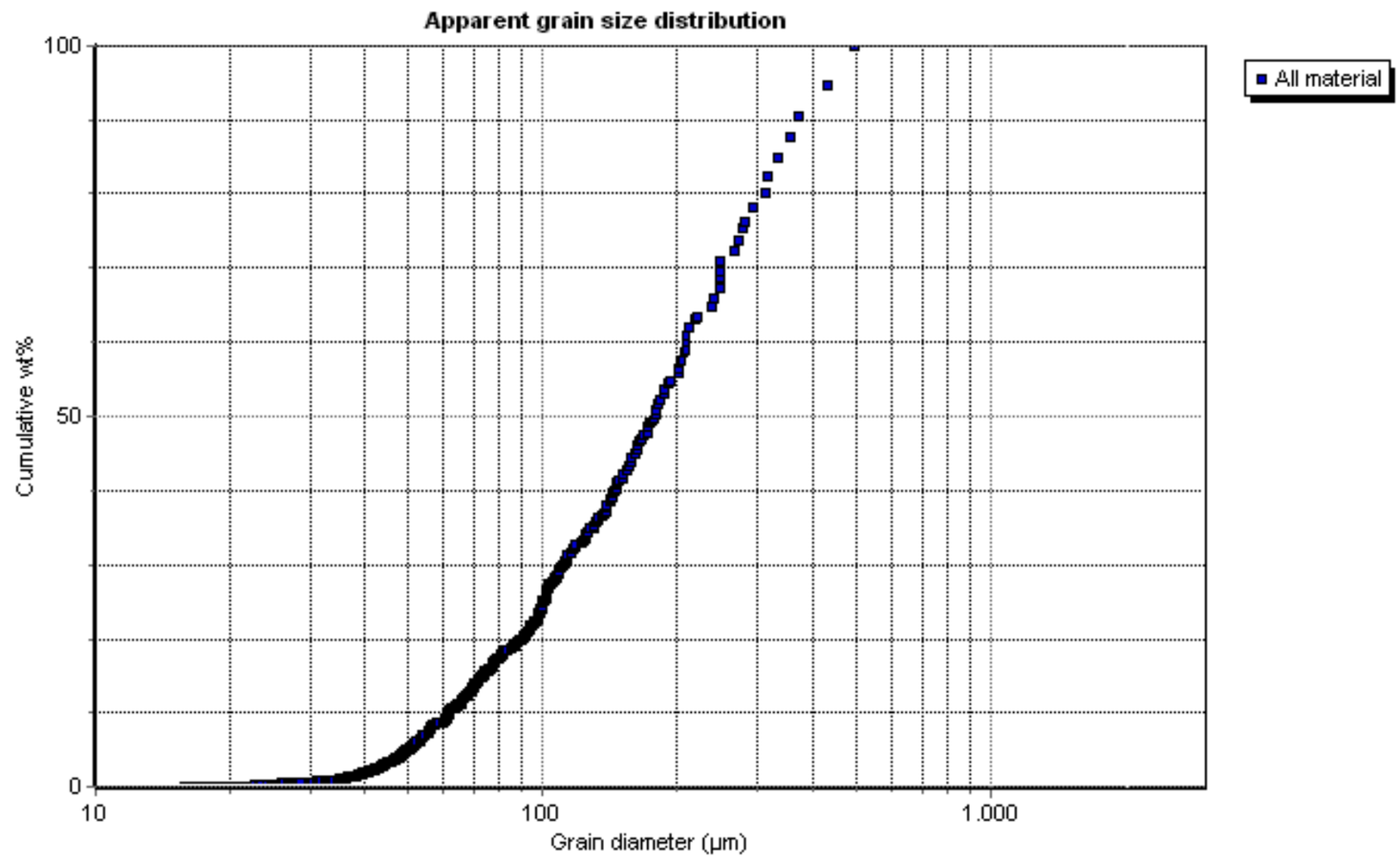

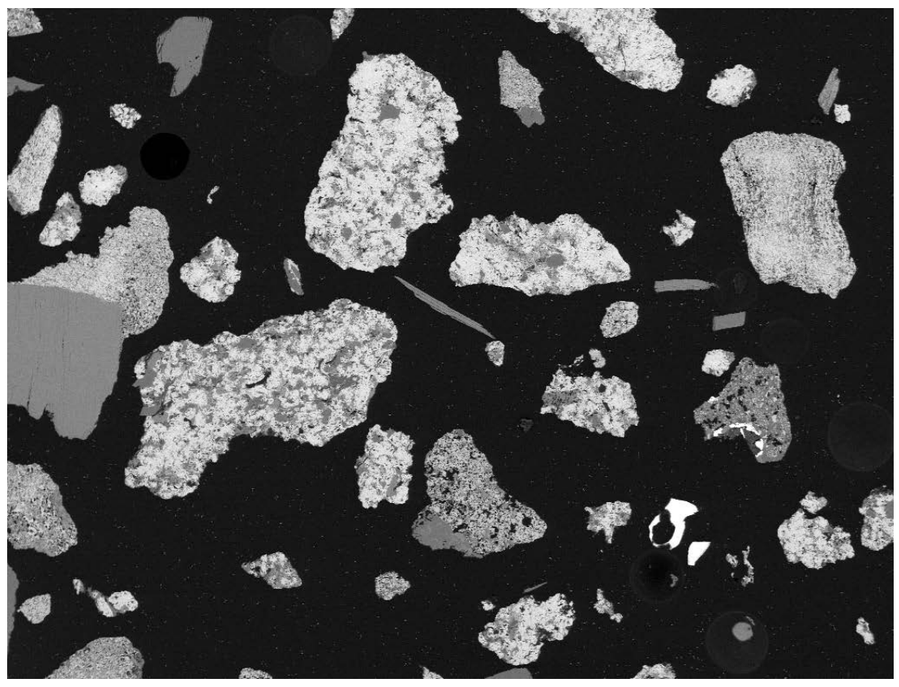

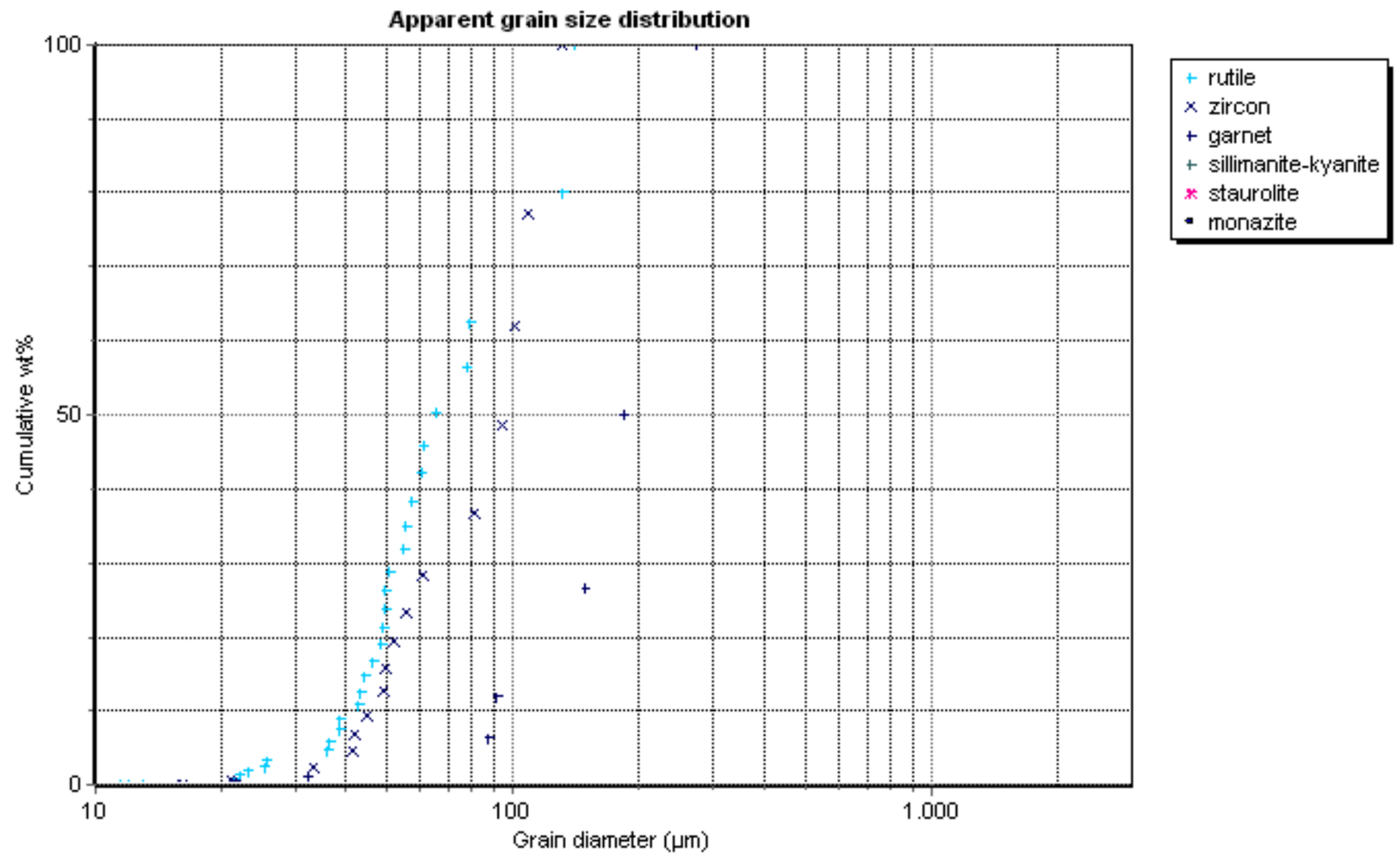

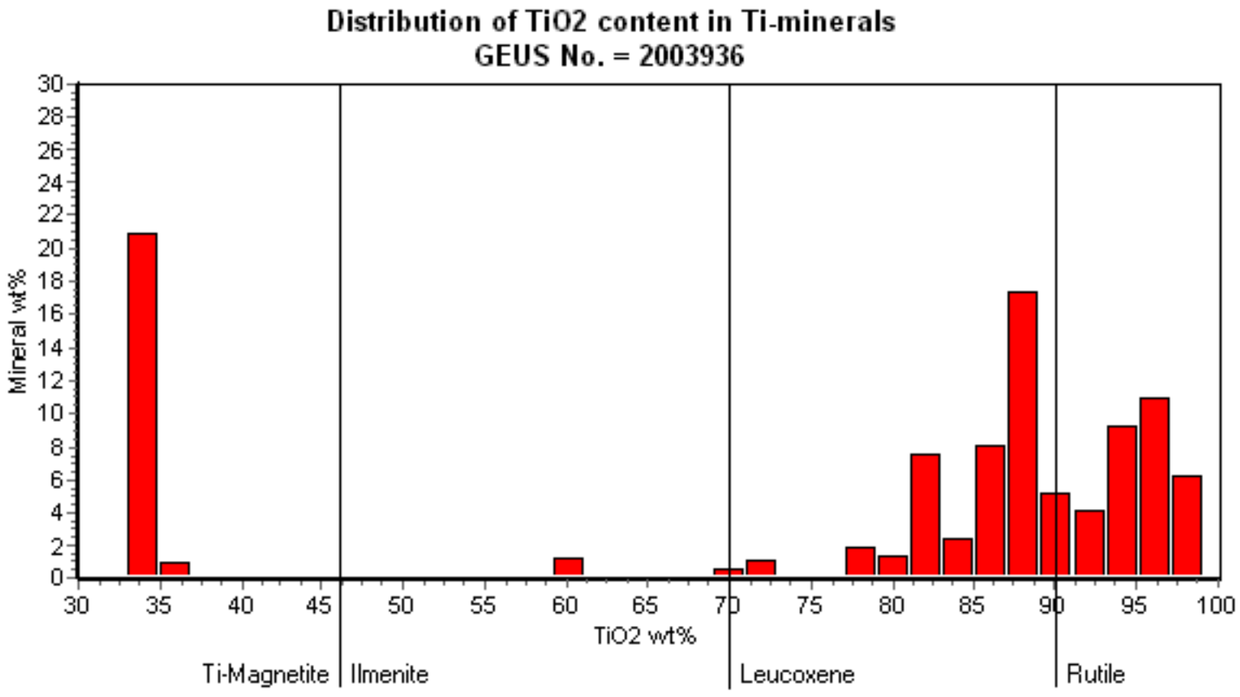

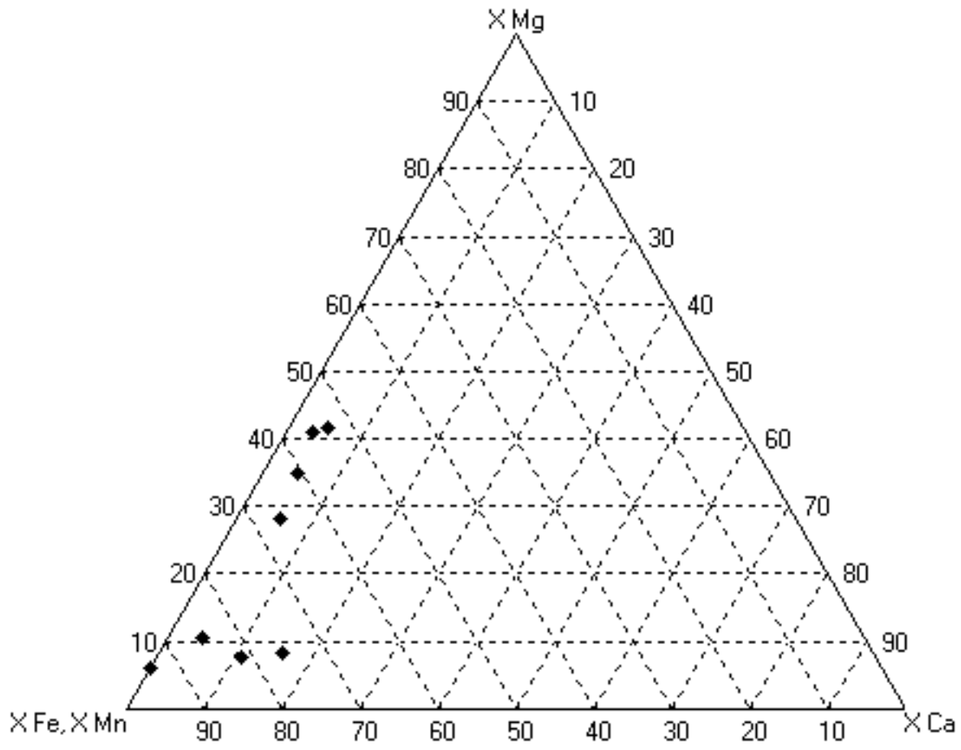

Sample GEUS #: 2003936

Description: Ikorfat, 719 m, Atane formation, Ravn Kløft member, 453153, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.25	16.8	18.28	0.43	0.12	0.2	60.55	0.0	0.0	1.79	0.0	0.0	1.1	0.06	0.22	0.19	0.0	0.0	1
leucoxene	0.18	0.16	5.27	7.6	0.28	0.22	0.16	81.25	0.18	0.13	3.05	0.1	0.11	0.42	0.42	0.22	0.08	0.06	0.11	19
rutile	0.06	0.1	1.57	2.55	0.19	0.08	0.09	92.19	0.22	0.07	1.78	0.1	0.12	0.25	0.33	0.14	0.02	0.1	0.06	31
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.94	1.81	7.96	14.44	0.38	0.46	0.42	0.36	0.1	0.83	69.46	0.13	0.2	0.32	0.33	0.41	0.11	0.15	0.19	361
chromite	0.0	10.02	20.12	0.54	0.0	0.06	0.04	0.44	41.51	0.31	26.01	0.14	0.0	0.0	0.43	0.19	0.0	0.0	0.2	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.14	0.64	29.98	0.0	0.06	0.39	0.25	0.08	0.12	0.86	0.16	0.09	66.73	0.0	0.0	0.0	0.22	0.14	16
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	4.76	22.5	39.99	0.01	0.1	1.87	0.17	0.13	1.38	27.87	0.08	0.16	0.09	0.0	0.4	0.0	0.12	0.36	8
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	5.65	0.02	20.99	63.83	0.06	6.54	0.36	0.39	0.02	0.04	1.13	0.11	0.09	0.38	0.0	0.27	0.0	0.14	0.02	2
silicate-other	1.15	4.3	33.12	45.42	0.38	0.36	0.57	0.89	0.06	0.17	12.52	0.08	0.13	0.14	0.0	0.34	0.0	0.15	0.21	16
quartz	0.31	0.16	0.7	95.13	0.18	0.12	0.04	0.13	0.04	0.12	1.79	0.11	0.14	0.45	0.0	0.31	0.0	0.13	0.14	17
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.0	41.7	0.0	0.0	0.0	5.78	1.98	0.0	0.0	2.33	0.22	0.63	0.0	0.0	40.2	0.0	6.64	0.53	1
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.11	2.61	19.26	36.93	0.07	5.62	0.69	2.29	0.02	0.52	29.57	0.06	0.22	0.1	0.2	0.22	0.02	0.27	0.22	5
white mica	0.8	1.51	30.62	49.33	0.14	10.37	0.2	0.73	0.06	0.11	5.02	0.22	0.06	0.04	0.0	0.19	0.0	0.37	0.22	12
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	1.3	23.29	38.17	0.18	0.13	0.44	0.21	0.0	1.16	34.17	0.04	0.07	0.56	0.0	0.0	0.0	0.22	0.07	4
clino-amphibole/clino-pyroxene	3.71	3.88	19.51	38.47	0.15	0.51	1.29	0.48	0.06	0.4	29.96	0.1	0.23	0.12	0.25	0.45	0.1	0.12	0.21	26
chlorite	1.14	1.38	17.22	27.56	0.22	1.22	0.49	0.63	0.11	0.51	47.6	0.11	0.14	0.32	0.45	0.31	0.19	0.12	0.28	28
unclassified	2.65	1.17	14.5	29.28	1.0	2.36	1.34	5.75	0.44	0.79	30.87	0.82	1.41	2.09	2.05	1.34	0.35	1.21	0.58	34

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Sample GEUS #: 2003937

Description: Niaqorsuaq, 11 m, Itilli formation, Umiivik member, 453156, outcrop

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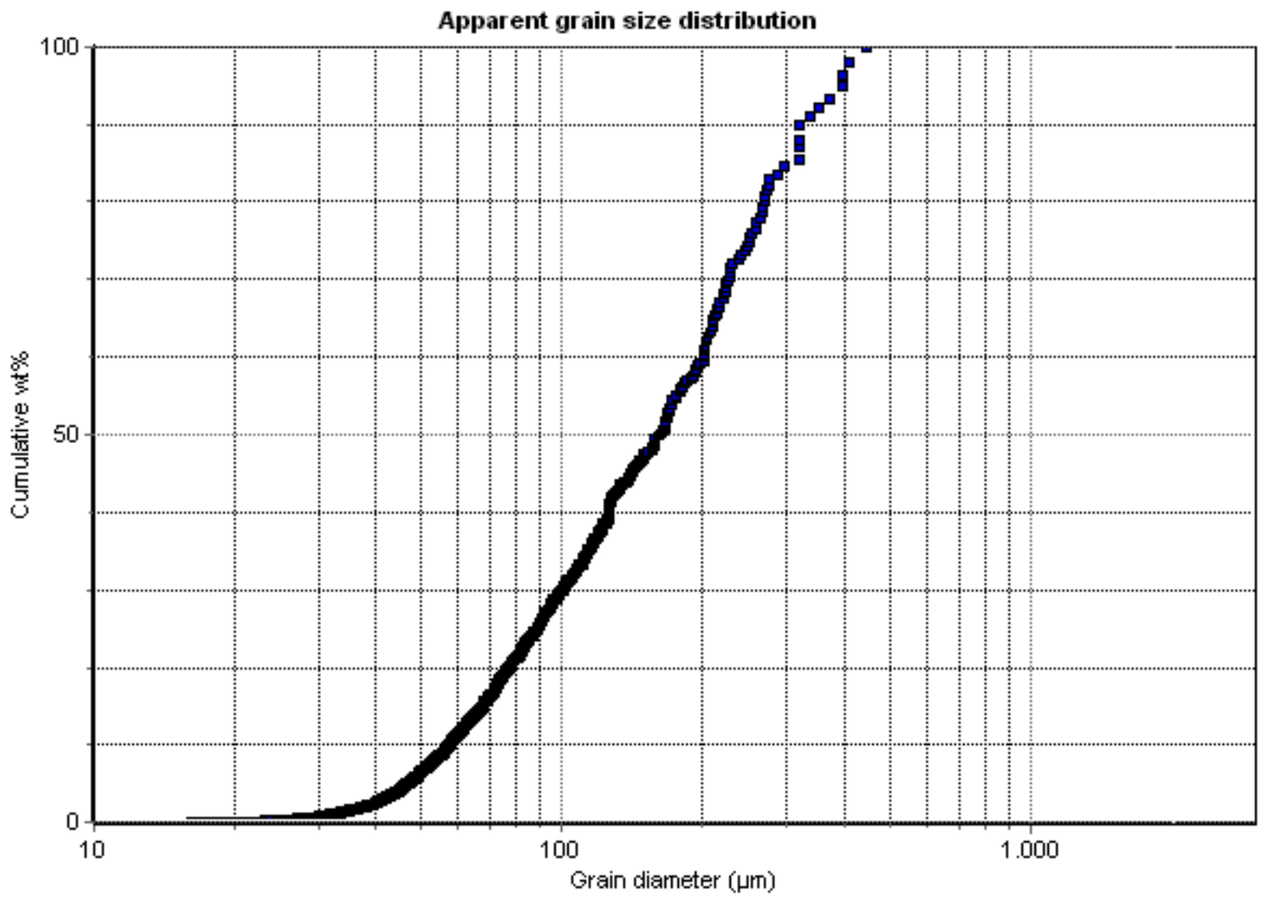

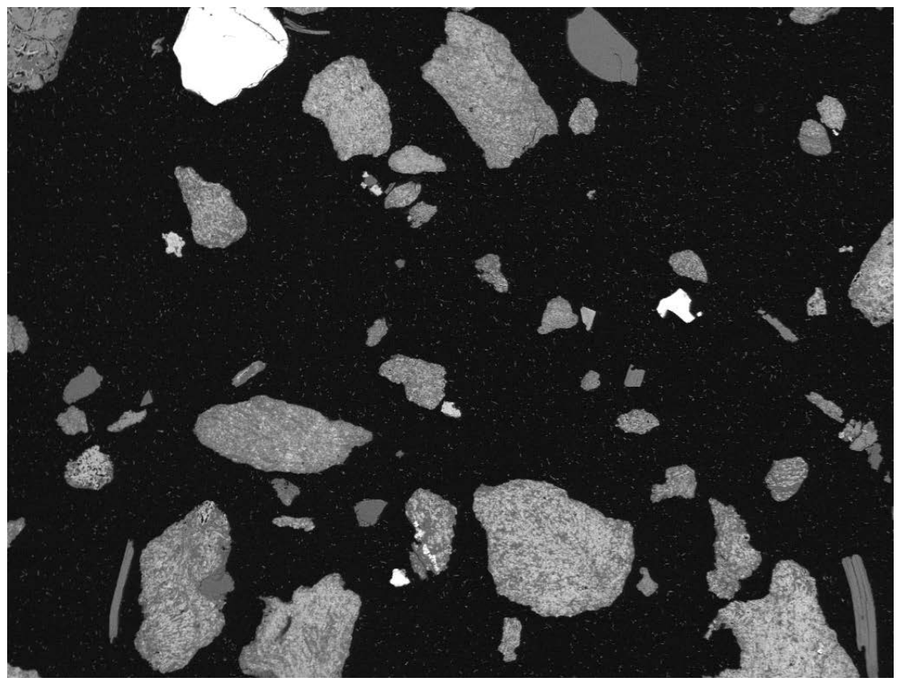

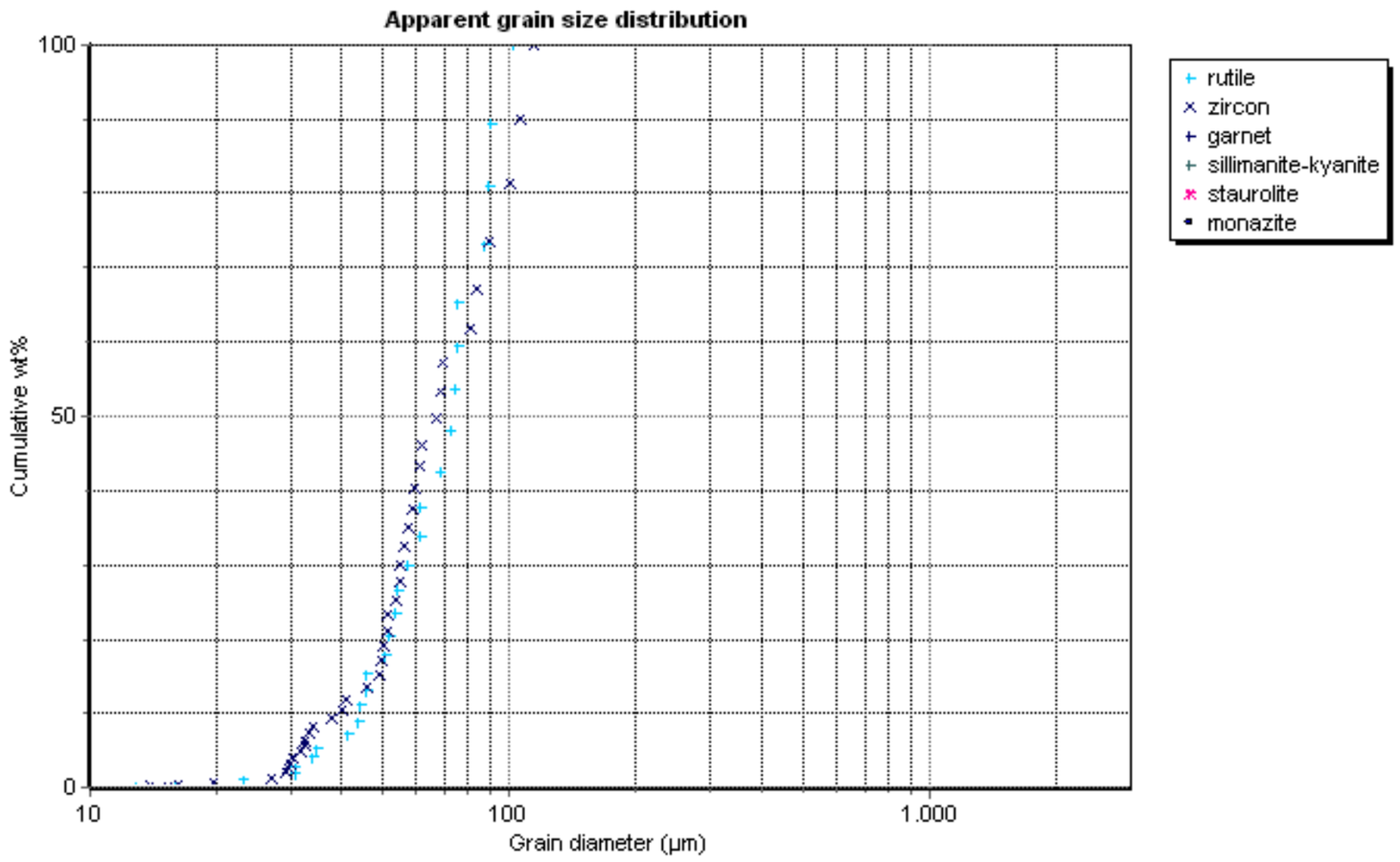

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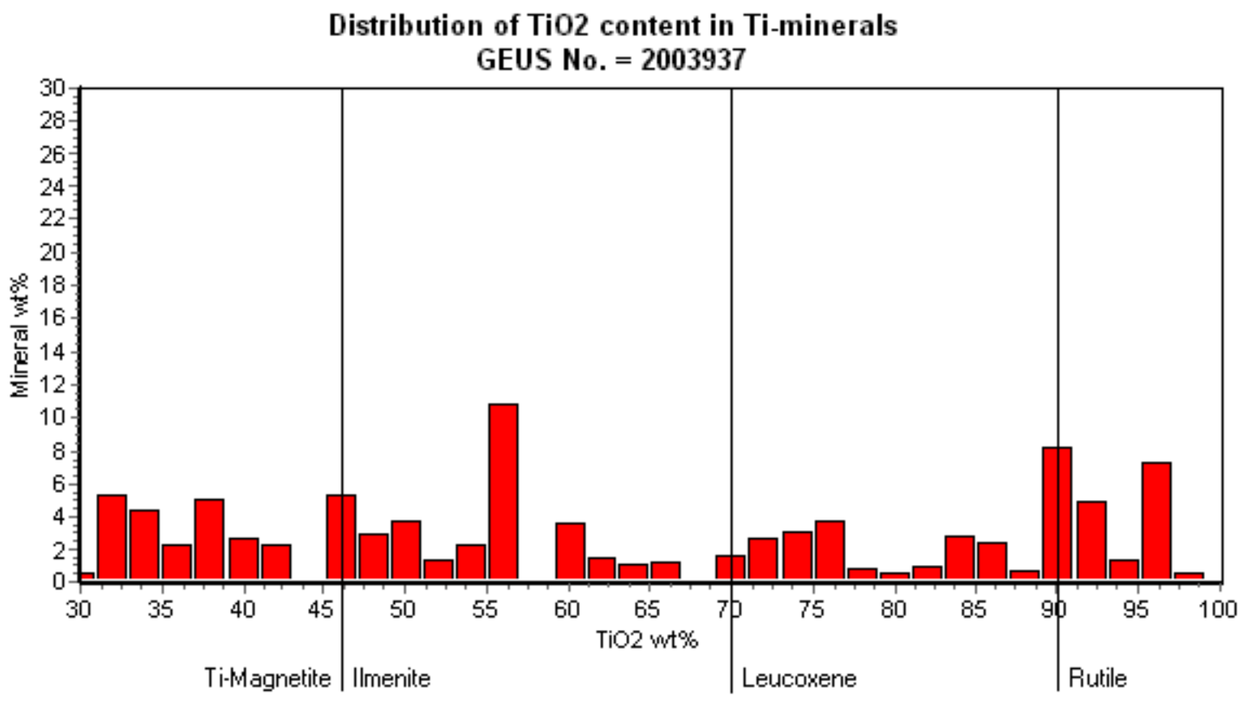

Sample GEUS #: 2003937

Description: Niaqorsuaq, 11 m, Itilli formation, Umiivik member, 453156, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.22	0.21	13.63	17.72	0.23	1.47	0.25	59.38	0.13	0.08	1.99	0.1	0.08	0.69	0.21	2.25	0.07	1.18	0.13	10
leucoxene	0.13	0.14	6.24	10.72	0.53	0.74	0.14	76.71	0.14	0.08	3.33	0.09	0.06	0.19	0.27	0.21	0.06	0.08	0.14	32
rutile	0.02	0.09	1.6	2.38	0.16	0.16	0.06	92.54	0.27	0.05	1.8	0.06	0.06	0.18	0.26	0.2	0.03	0.06	0.06	28
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.17	3.64	11.73	17.44	1.3	1.46	0.33	0.44	0.09	0.96	60.46	0.13	0.13	0.1	0.22	0.07	0.08	0.09	0.18	77
chromite	3.88	7.01	15.94	2.72	0.19	0.15	0.05	0.31	42.18	0.0	26.98	0.06	0.33	0.0	0.0	0.07	0.0	0.13	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.09	0.08	0.47	30.83	0.01	0.09	0.05	0.15	0.08	0.1	0.71	0.14	0.03	66.48	0.0	0.41	0.0	0.17	0.11	41
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	6.84	0.03	20.89	64.98	0.06	4.43	0.39	0.12	0.07	0.07	1.16	0.07	0.24	0.15	0.0	0.06	0.0	0.09	0.34	10
silicate-other	4.21	0.86	23.63	59.22	0.06	1.43	0.39	0.34	0.1	0.17	8.87	0.05	0.11	0.04	0.0	0.19	0.0	0.16	0.19	27
quartz	0.26	0.08	1.97	94.98	0.17	0.14	0.07	0.13	0.09	0.13	0.7	0.19	0.17	0.11	0.0	0.34	0.0	0.24	0.22	28
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	1.5	0.15	30.27	7.92	0.63	0.23	0.08	16.28	0.76	0.06	0.58	0.12	0.05	4.92	0.0	26.8	0.0	9.53	0.13	9
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.05	2.0	3.91	62.61	0.34	0.06	0.08	0.02	0.08	30.07	0.05	0.05	0.22	0.09	0.19	0.03	0.1	0.06	16
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.92	1.01	26.03	35.4	0.13	3.94	0.32	1.17	0.08	0.5	29.71	0.12	0.11	0.05	0.12	0.06	0.04	0.1	0.17	281
white mica	0.9	0.87	31.3	50.24	0.07	10.34	0.26	0.78	0.08	0.07	4.08	0.1	0.07	0.06	0.0	0.18	0.0	0.21	0.38	67
olivine	0.0	19.98	6.53	21.69	0.27	0.17	0.83	0.11	0.0	0.06	48.75	0.18	0.33	0.59	0.49	0.0	0.0	0.0	0.0	1
ortho-amphibole/ortho-pyroxene	0.0	0.5	15.21	55.83	0.21	0.57	0.0	0.04	0.13	0.7	26.15	0.14	0.07	0.23	0.0	0.0	0.0	0.0	0.2	1
clino-amphibole/clino-pyroxene	4.45	3.2	20.52	35.35	0.13	2.09	0.42	0.56	0.07	0.47	31.67	0.11	0.12	0.14	0.22	0.16	0.09	0.11	0.12	103
chlorite	0.72	0.94	20.51	28.23	0.23	2.85	0.28	0.56	0.09	0.76	43.92	0.13	0.12	0.07	0.21	0.07	0.09	0.08	0.14	199
unclassified	4.59	11.22	13.74	21.96	1.73	1.3	0.56	7.78	0.15	0.33	29.73	0.09	0.11	1.85	0.24	3.11	0.1	1.26	0.15	269

DONG sample Report - Page 1/3

Sample GEUS #: 2003938

Description: Kuuk, 33 m, Kome formation, Slibestensfjeld ? member, 453158, outcrop

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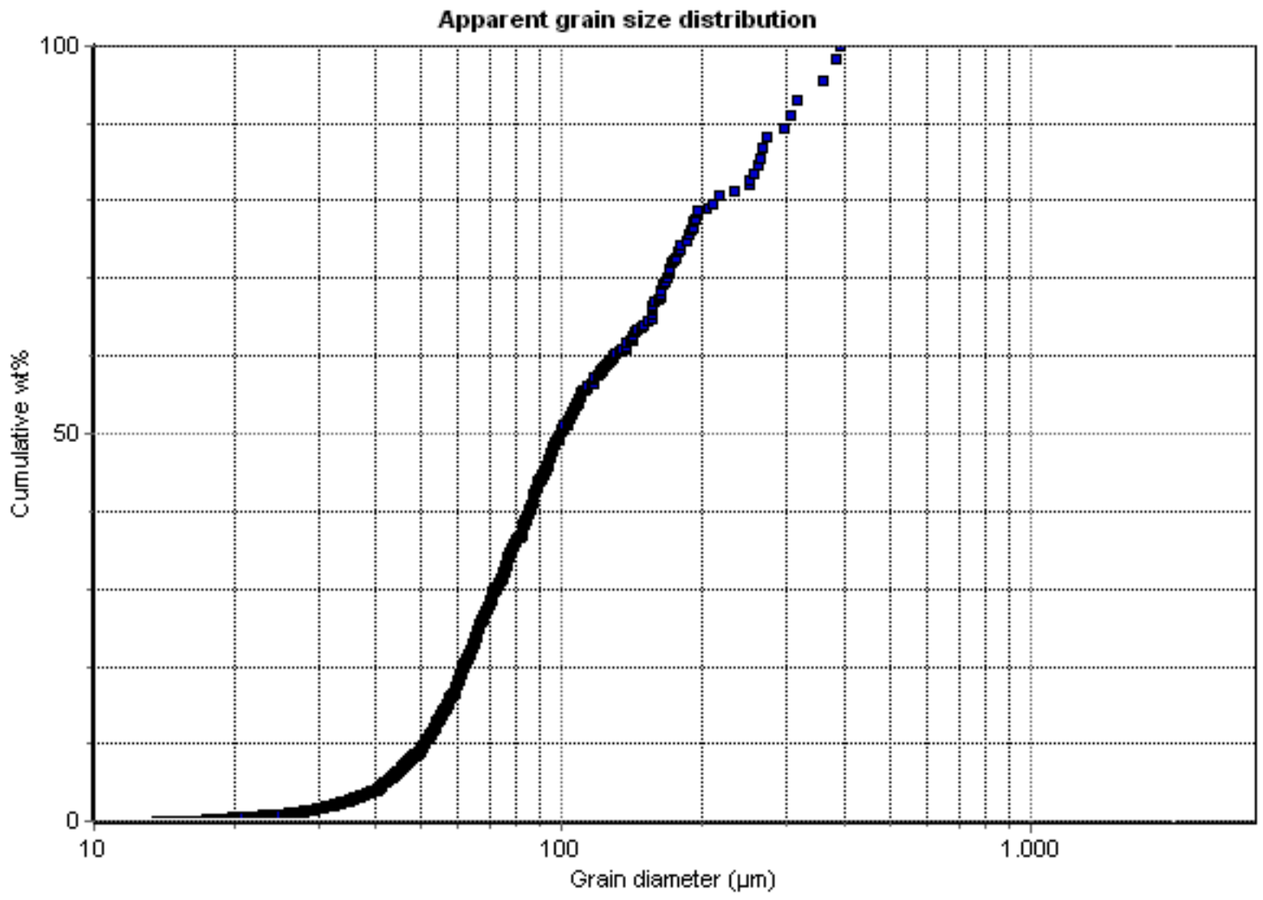

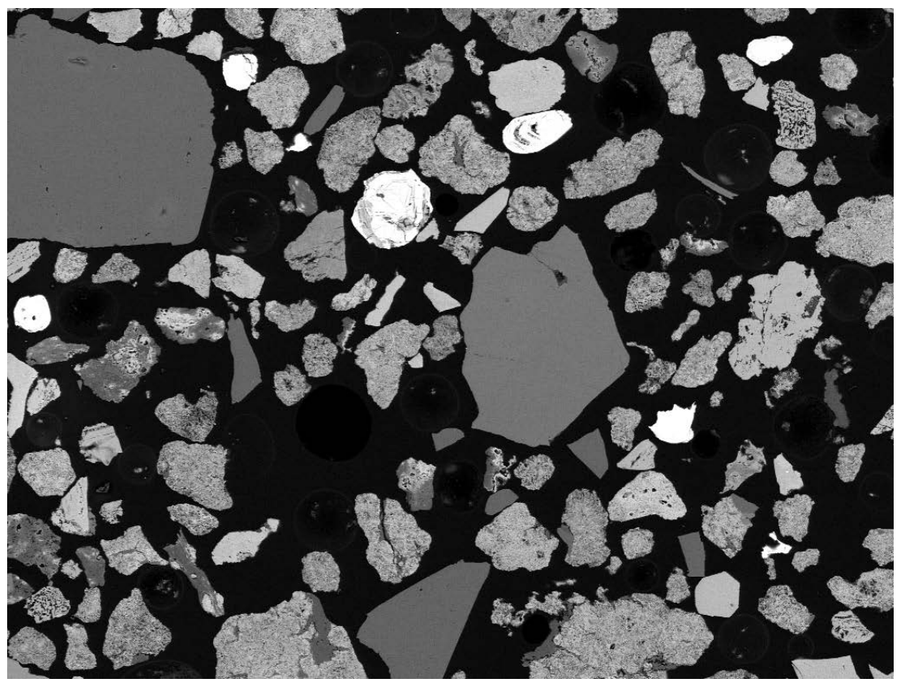

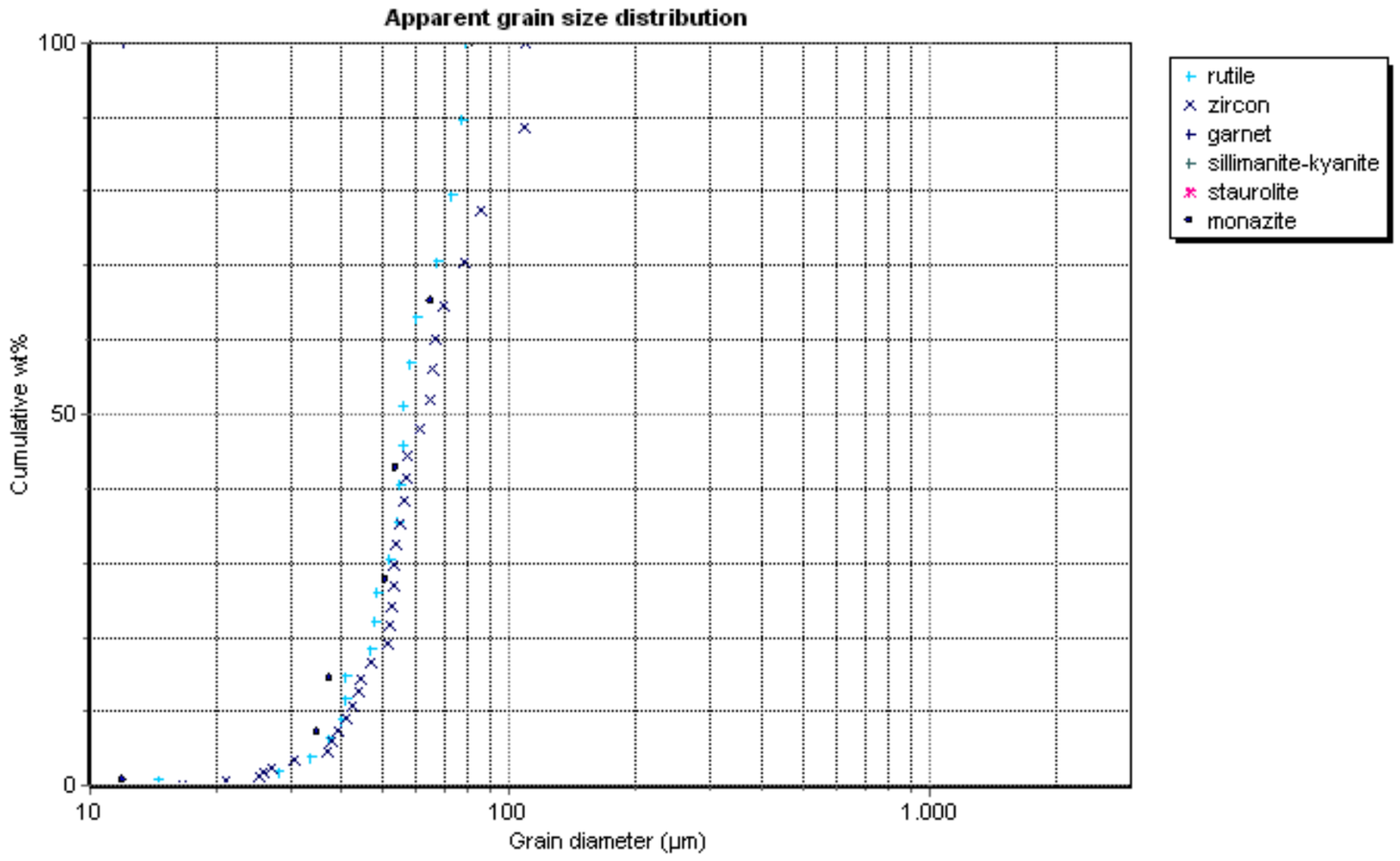

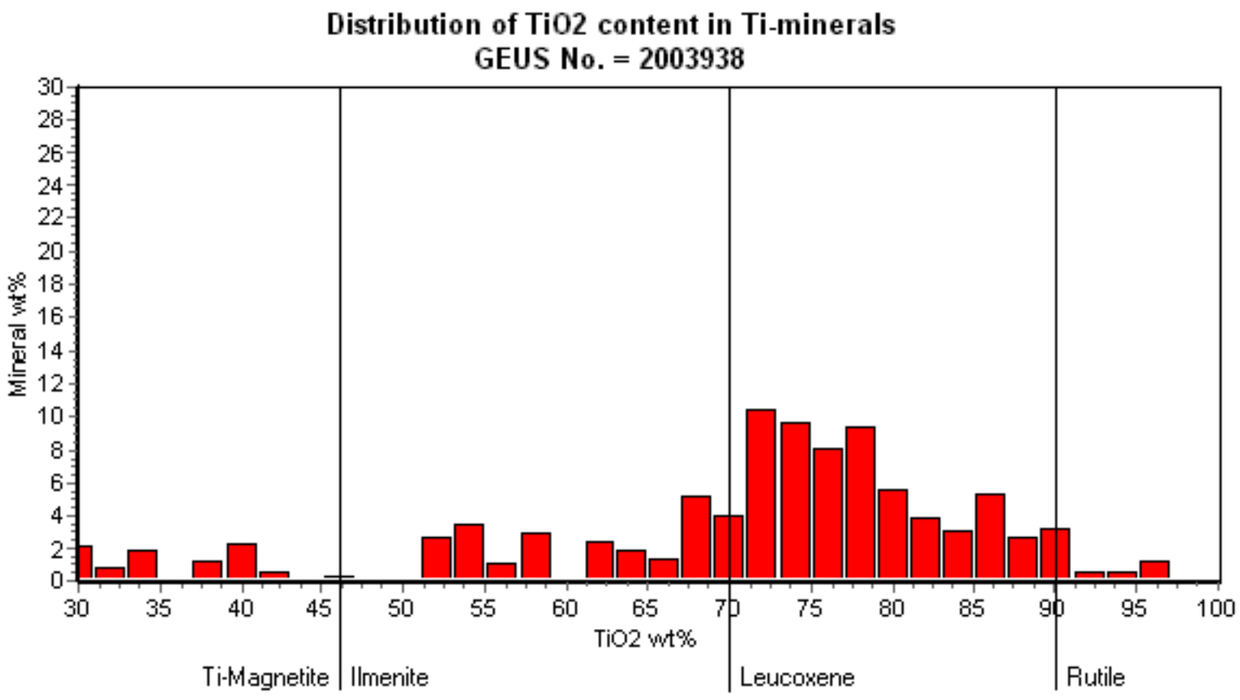

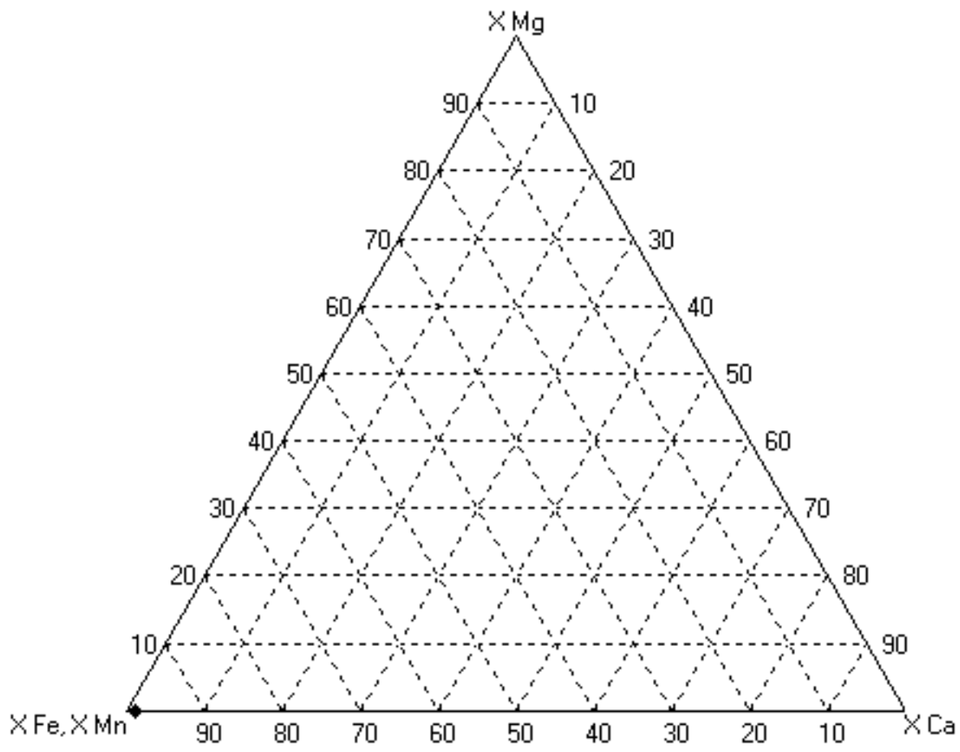

Sample GEUS #: 2003938

Description: Kuuk, 33 m, Kome formation, Slibestensfjeld ? member, 453158, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.26	0.31	3.7	5.34	0.34	0.04	0.28	59.16	0.19	0.56	28.57	0.13	0.13	0.36	0.18	0.23	0.02	0.14	0.06	46
leucoxene	0.04	0.18	2.82	2.89	0.25	0.04	0.37	77.79	0.2	0.16	13.81	0.09	0.11	0.53	0.22	0.3	0.01	0.14	0.07	165
rutile	0.05	0.11	1.75	1.12	0.2	0.05	0.26	92.19	0.13	0.04	2.78	0.05	0.05	0.32	0.55	0.19	0.01	0.07	0.08	22
Ti magnetite	2.41	0.75	3.59	4.79	0.72	0.07	0.32	32.08	0.11	0.95	52.38	0.23	0.21	0.35	0.29	0.28	0.02	0.29	0.18	8
magnetite	3.03	1.12	5.31	8.55	1.29	0.16	0.45	0.95	0.08	1.17	76.32	0.13	0.17	0.27	0.35	0.25	0.09	0.16	0.15	670
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.13	0.14	0.84	28.46	0.39	0.06	0.87	0.27	0.04	0.07	1.66	0.09	0.04	66.56	0.0	0.02	0.0	0.17	0.18	33
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	0.0	17.2	34.83	0.88	0.6	0.34	3.77	0.0	0.78	40.76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.84	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0.44	0.07	20.82	59.46	0.07	14.31	0.36	0.24	0.09	0.08	3.07	0.16	0.35	0.0	0.0	0.17	0.0	0.01	0.3	3
silicate-other	0.81	0.99	32.81	48.43	0.48	0.29	1.19	0.59	0.1	0.21	13.32	0.05	0.1	0.16	0.0	0.15	0.0	0.18	0.15	29
quartz	0.22	0.1	0.7	95.72	0.16	0.06	0.05	0.33	0.12	0.12	1.15	0.12	0.15	0.36	0.0	0.36	0.0	0.13	0.17	51
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.19	0.39	4.97	7.55	1.97	0.66	1.99	0.0	0.0	0.0	2.8	0.18	0.37	7.66	0.0	49.2	0.2	21.6	0.26	7
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	2.18	0.36	41.89	5.91	0.0	0.31	3.72	0.19	0.0	0.0	4.89	0.08	0.0	0.0	0.0	31.8	0.0	7.91	0.77	1
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.09	3.45	16.0	37.03	3.05	5.97	0.41	1.51	0.0	0.48	29.86	0.11	0.2	0.24	0.22	0.0	0.17	0.18	0.04	5
white mica	0.98	1.13	32.15	48.92	0.19	10.27	0.22	0.92	0.09	0.04	4.32	0.05	0.08	0.05	0.0	0.11	0.0	0.09	0.41	12
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.21	0.28	15.52	51.02	0.1	0.09	0.14	0.6	0.04	0.54	30.52	0.05	0.12	0.26	0.0	0.04	0.0	0.16	0.3	15
clino-amphibole/clino-pyroxene	2.29	2.79	21.02	38.81	0.51	0.41	3.26	0.98	0.07	0.43	28.42	0.13	0.1	0.13	0.21	0.1	0.1	0.13	0.13	42
chlorite	1.57	0.68	20.14	26.41	1.62	0.96	0.28	0.86	0.05	0.74	45.17	0.14	0.22	0.17	0.31	0.16	0.16	0.23	0.15	19
unclassified	1.8	0.65	13.06	23.0	7.77	2.4	1.9	4.65	0.12	0.27	23.46	0.26	0.46	17.85	0.72	0.63	0.13	0.49	0.38	71

DONG sample Report - Page 1/3

Sample GEUS #: 2003939

Description: Kuuk, 262 m, Kome formation, Slibestensfjeld ? member, 453160, outcrop

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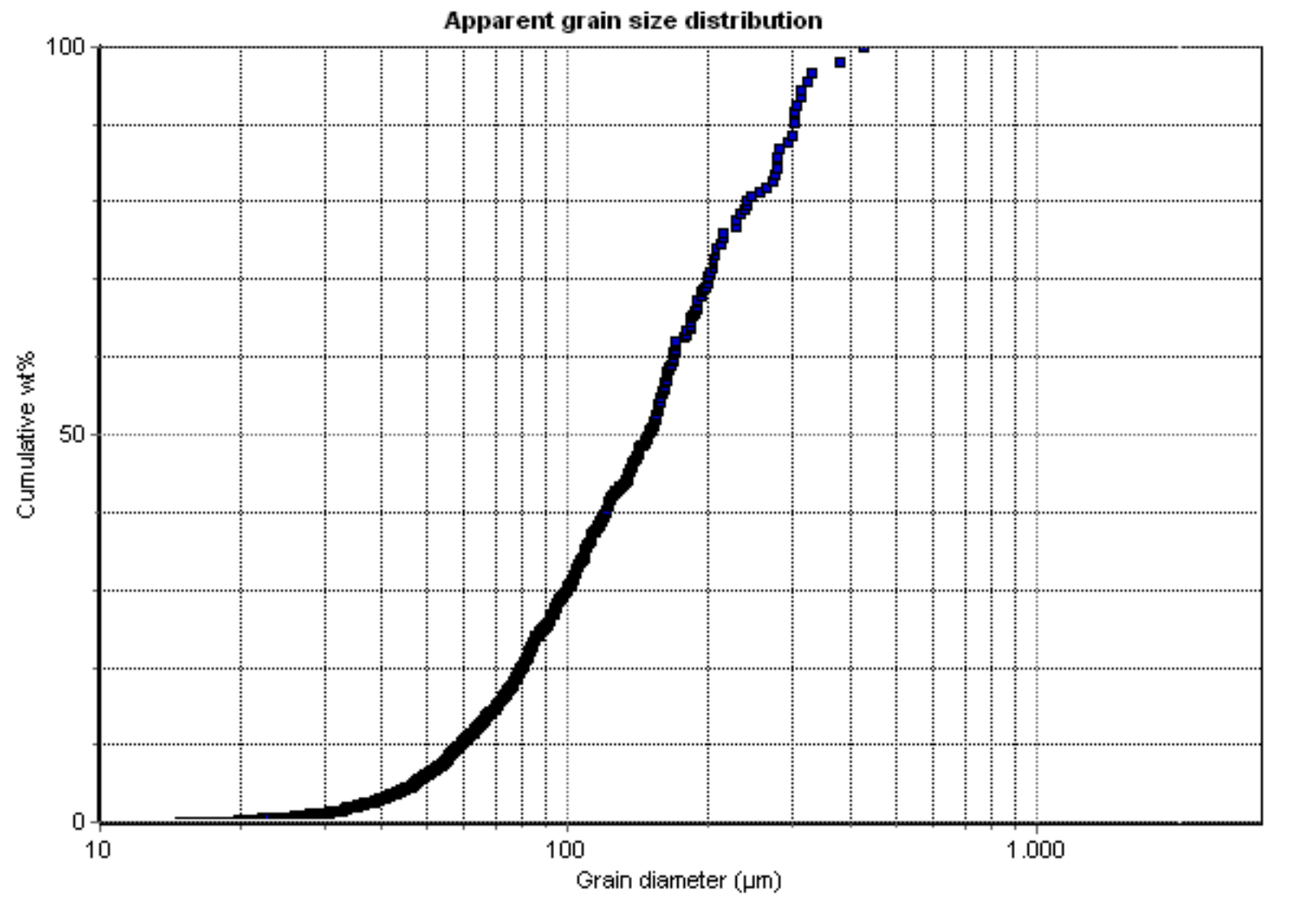

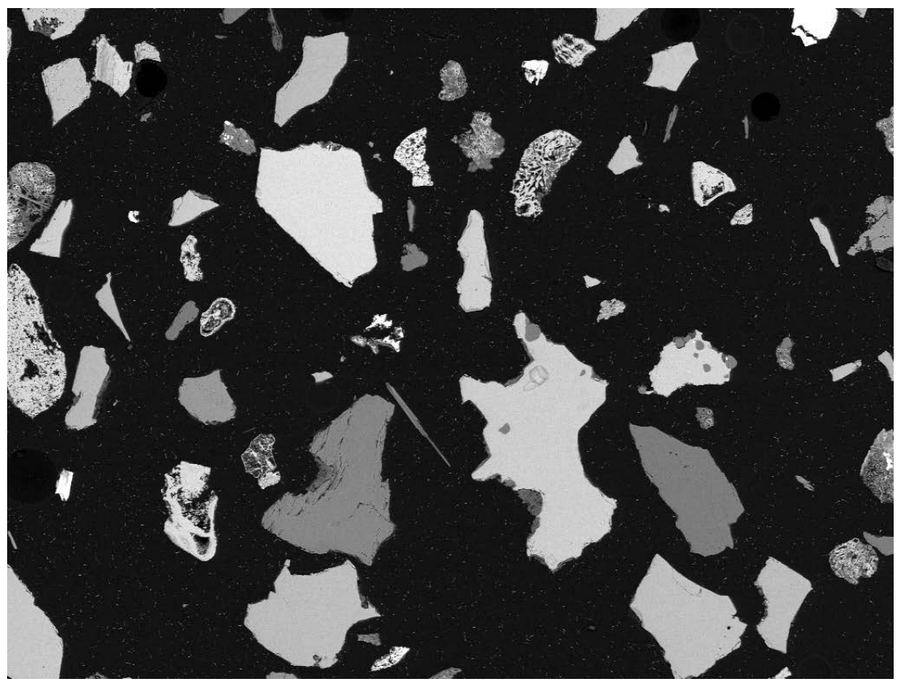

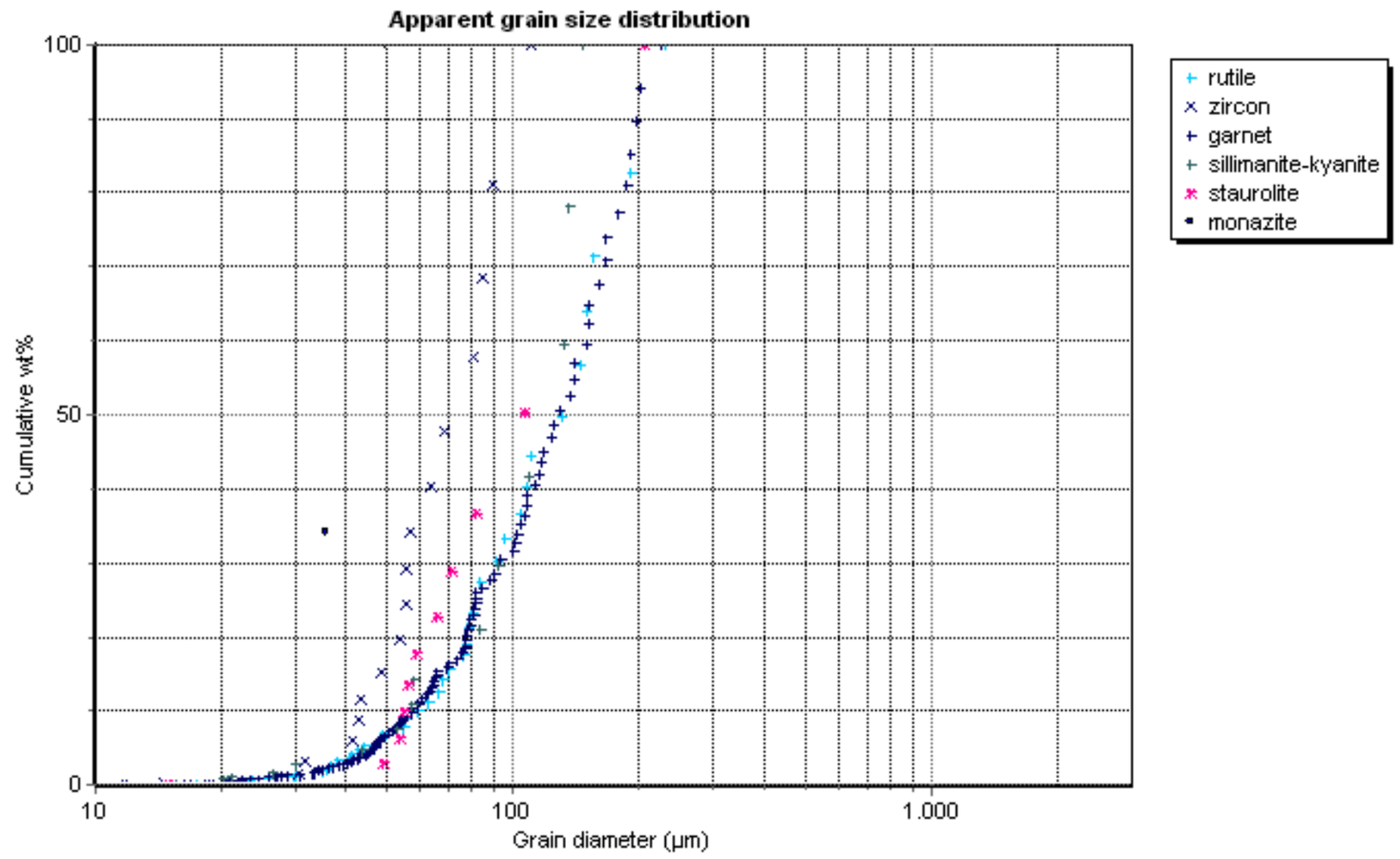

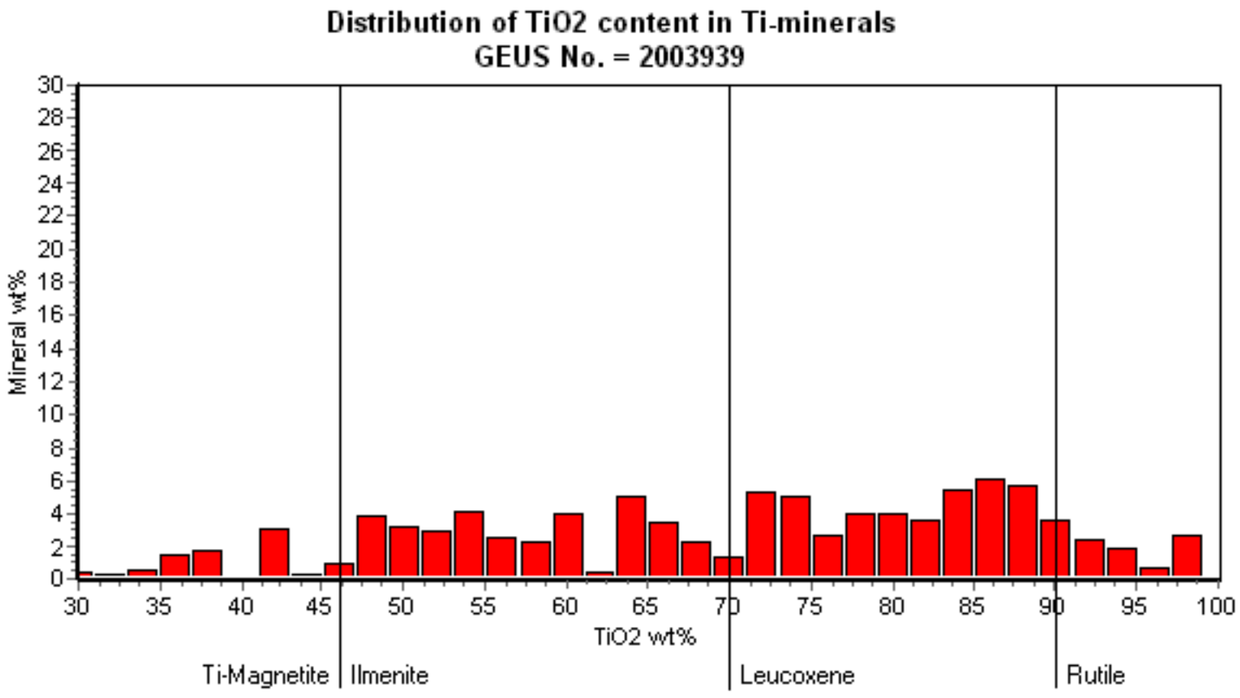

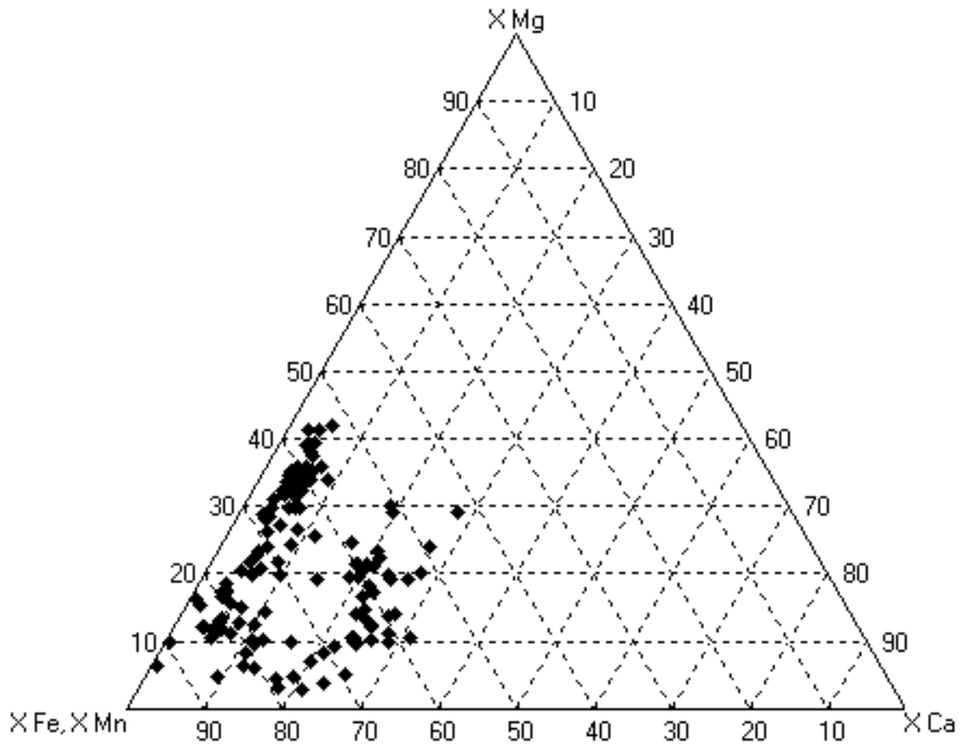

Sample GEUS #: 2003939

Description: Kuuk, 262 m, Kome formation, Slibestensfjeld ? member, 453160, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.03	0.6	3.35	7.9	0.23	0.15	0.2	55.96	0.1	0.71	29.91	0.09	0.1	0.14	0.23	0.1	0.02	0.1	0.09	116
leucoxene	0.1	0.32	4.24	7.57	0.22	0.09	0.55	79.2	0.17	0.14	5.99	0.08	0.12	0.48	0.31	0.23	0.04	0.09	0.08	154
rutile	0.01	0.14	1.58	3.01	0.2	0.04	0.3	91.39	0.16	0.08	1.96	0.09	0.09	0.33	0.33	0.12	0.02	0.07	0.08	42
Ti magnetite	0.0	1.12	7.91	17.97	0.38	0.22	0.69	34.09	0.1	0.66	35.6	0.13	0.15	0.16	0.41	0.13	0.1	0.11	0.1	16
magnetite	0.82	1.42	8.61	20.12	0.31	0.31	0.69	1.55	0.09	0.46	64.51	0.08	0.14	0.21	0.23	0.22	0.05	0.07	0.12	44
chromite	1.85	3.02	11.99	1.97	0.16	0.08	0.15	2.63	31.5	0.35	45.57	0.21	0.03	0.04	0.11	0.11	0.08	0.05	0.11	6
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.09	0.07	0.28	30.52	0.02	0.03	0.39	0.2	0.1	0.03	0.66	0.14	0.01	66.73	0.0	0.55	0.03	0.13	0.04	17
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.09	4.78	21.95	38.03	0.05	0.03	3.84	0.17	0.07	1.48	29.03	0.07	0.09	0.01	0.02	0.02	0.01	0.11	0.15	130
sillimanite-kyanite	0.03	0.19	59.3	38.87	0.1	0.01	0.02	0.16	0.05	0.09	0.63	0.1	0.19	0.0	0.0	0.0	0.0	0.1	0.14	15
staurolite	0.4	1.95	51.59	28.85	0.08	0.02	0.03	1.3	0.07	0.12	14.61	0.11	0.13	0.0	0.49	0.04	0.06	0.1	0.05	11
feldspar	0.35	0.12	20.13	60.89	0.08	14.71	0.24	0.37	0.1	0.11	0.33	0.08	0.04	0.06	0.0	0.13	0.0	0.2	2.07	12
silicate-other	0.38	1.67	35.98	51.65	0.29	1.27	0.46	0.68	0.11	0.13	6.79	0.1	0.12	0.06	0.0	0.08	0.0	0.11	0.14	97
quartz	0.18	0.1	1.24	96.03	0.09	0.07	0.07	0.55	0.09	0.08	0.6	0.13	0.18	0.04	0.0	0.08	0.0	0.21	0.26	90
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.54	0.37	1.44	5.23	3.1	0.0	3.55	0.0	0.0	0.0	1.49	0.17	0.0	9.56	0.0	37.24	2.76	34.13	0.45	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.2	0.1	0.59	1.46	1.23	0.08	48.56	0.03	0.05	0.08	0.68	0.15	0.11	9.48	0.0	33.12	0.63	3.21	0.22	16
carbonate	0.0	1.99	0.62	2.6	1.7	0.18	89.3	0.47	0.05	0.14	1.4	0.34	0.23	0.0	0.05	0.01	0.08	0.2	0.65	6
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	0.66	32.1	39.49	0.0	0.12	21.44	3.35	0.18	0.01	1.52	0.16	0.0	0.0	0.0	0.0	0.0	0.67	0.29	1
dark mica	0.8	7.04	20.9	39.06	0.14	6.78	0.27	3.67	0.08	0.13	20.19	0.07	0.1	0.07	0.06	0.11	0.01	0.12	0.39	37
white mica	0.49	0.76	30.85	52.45	0.13	10.64	0.21	0.81	0.12	0.06	2.59	0.07	0.11	0.04	0.0	0.05	0.0	0.15	0.48	96
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.06	4.17	23.12	39.79	0.06	0.18	1.75	0.84	0.06	0.64	28.83	0.05	0.09	0.01	0.0	0.08	0.0	0.11	0.15	41
clino-amphibole/clino-pyroxene	3.08	6.64	21.7	35.79	0.08	0.23	3.29	0.52	0.07	0.85	27.14	0.08	0.09	0.03	0.1	0.03	0.04	0.09	0.15	122
chlorite	0.5	2.89	17.35	29.85	0.16	1.05	0.65	1.93	0.08	0.33	44.07	0.08	0.13	0.11	0.29	0.16	0.08	0.12	0.18	46
unclassified	2.4	1.49	16.76	32.68	2.68	2.45	6.47	13.71	0.34	0.31	13.13	0.17	0.23	2.02	1.58	2.08	0.3	0.71	0.5	83

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Sample GEUS #: 2003940

Description: Kuuk, 334 m, Kome formation, 453162, outcrop

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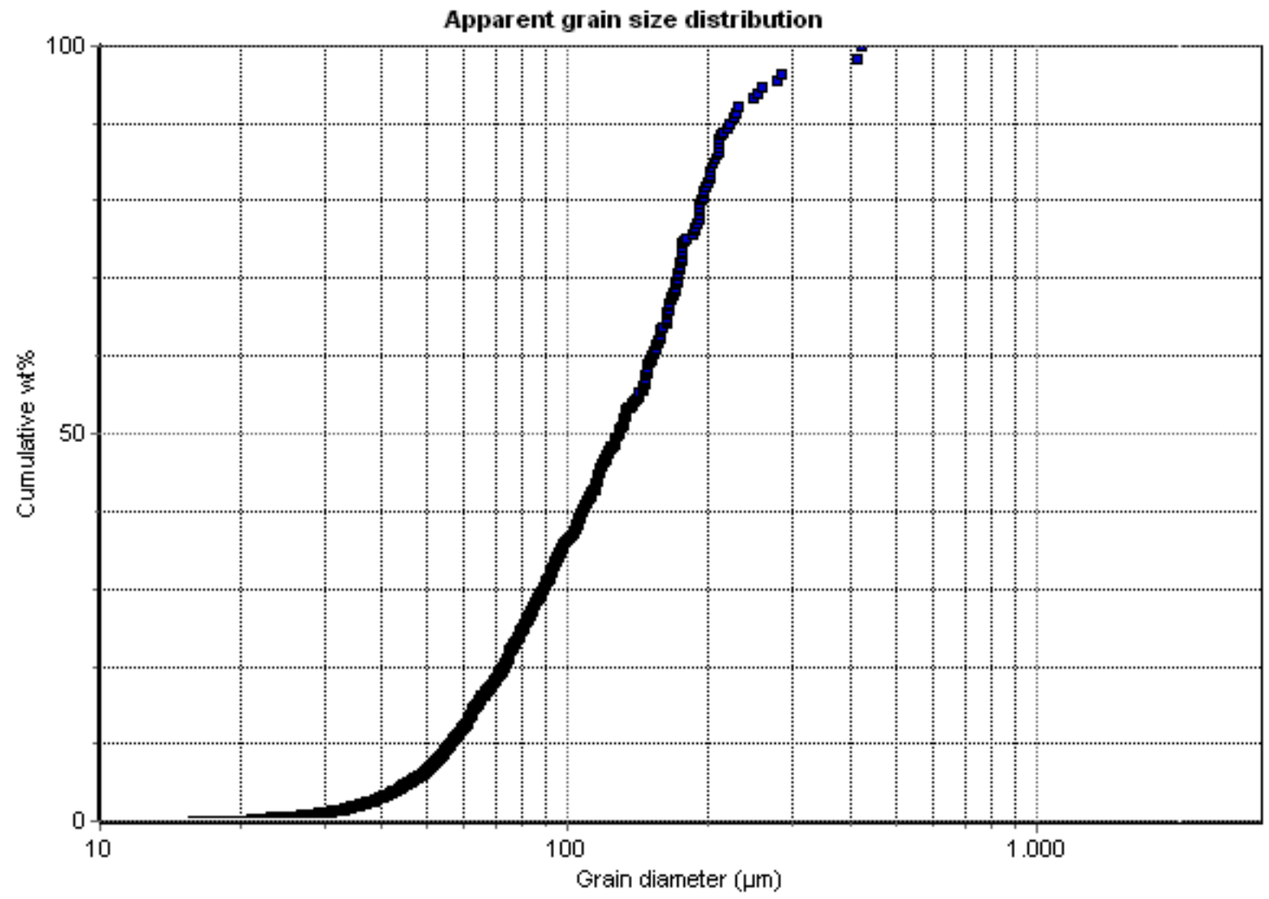

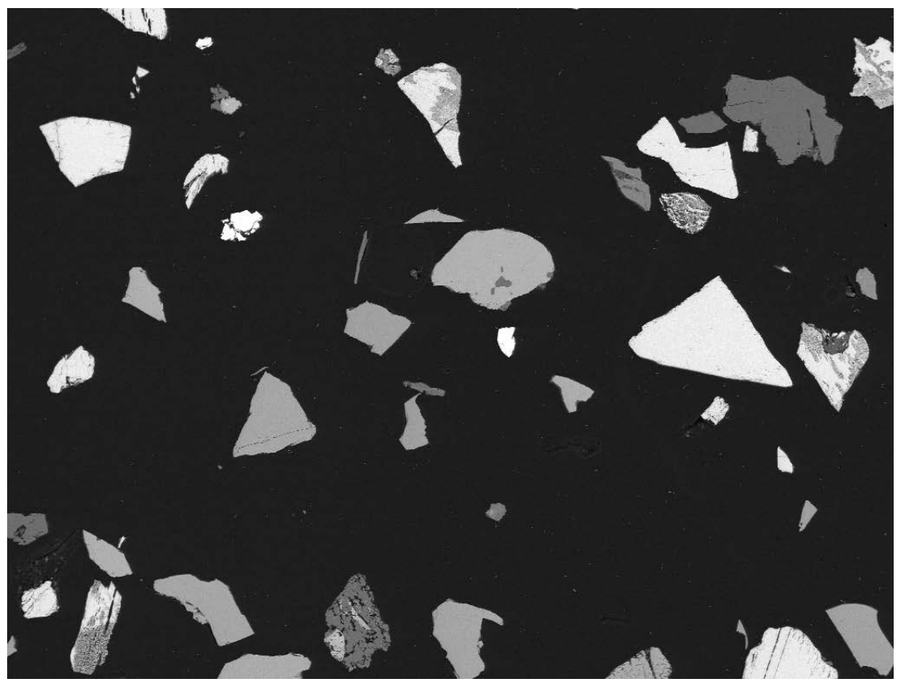

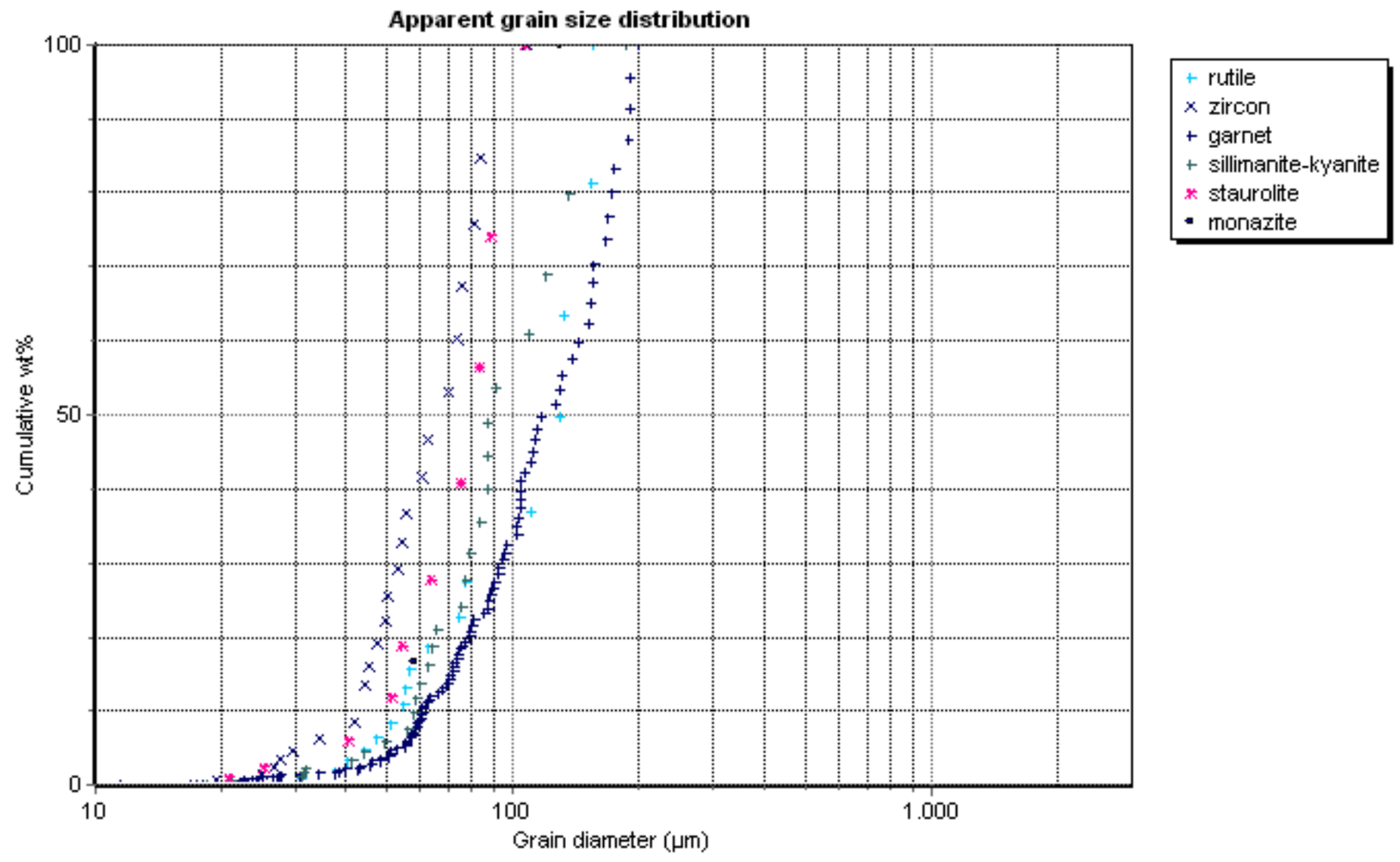

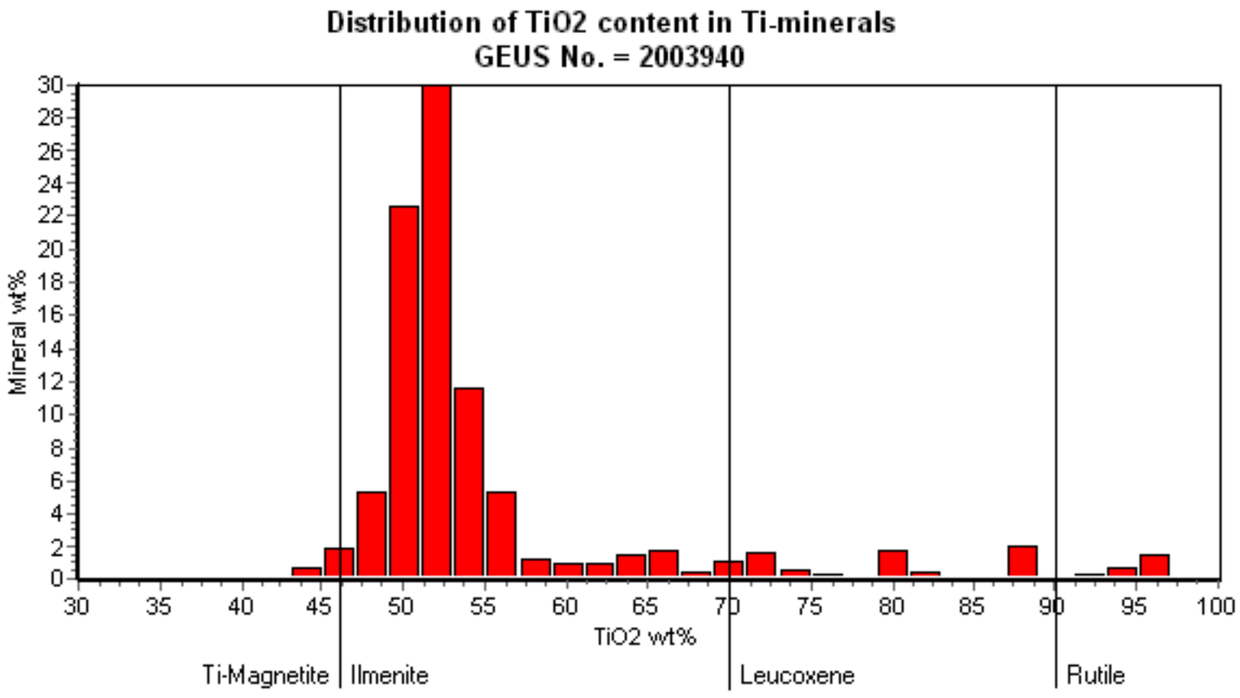

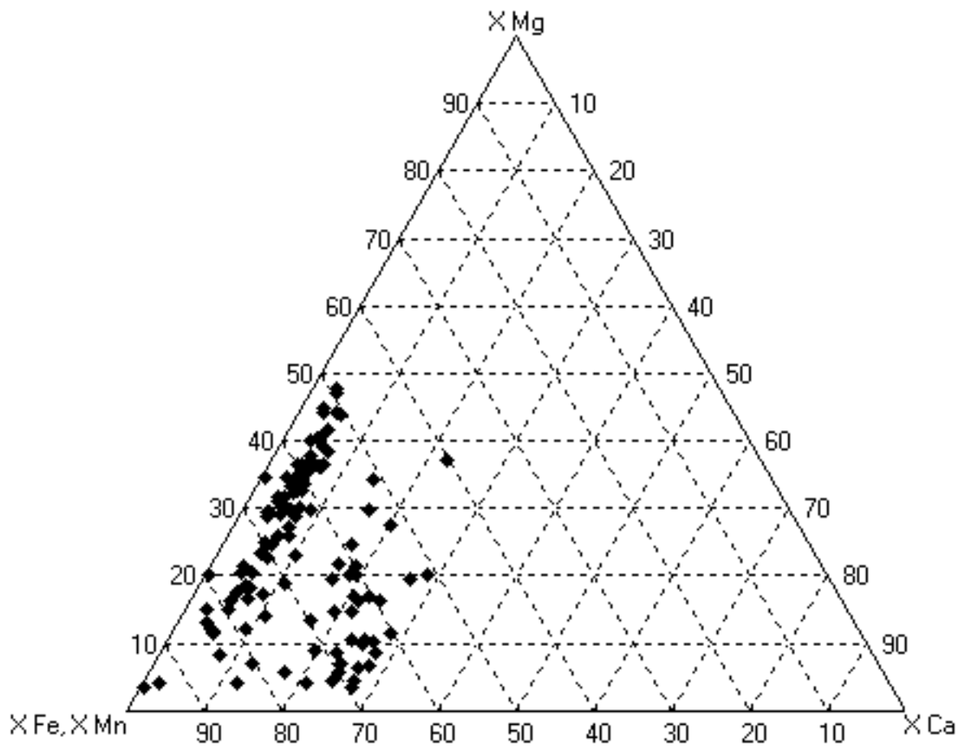

Sample GEUS #: 2003940

Description: Kuuk, 334 m, Kome formation, 453162, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.03	0.35	1.04	2.06	0.13	0.04	0.08	52.47	0.05	1.37	41.77	0.05	0.09	0.05	0.14	0.06	0.0	0.14	0.07	407
leucoxene	0.1	0.23	3.1	5.38	0.17	0.1	0.3	78.33	0.14	0.78	10.44	0.04	0.09	0.32	0.19	0.12	0.03	0.1	0.04	41
rutile	0.01	0.11	1.19	2.6	0.18	0.04	0.1	92.72	0.12	0.13	1.71	0.08	0.15	0.13	0.3	0.04	0.01	0.32	0.08	18
Ti magnetite	0.04	0.62	5.44	15.84	0.12	0.2	0.19	37.64	0.08	0.78	36.75	0.04	0.17	1.4	0.37	0.09	0.02	0.15	0.09	12
magnetite	1.15	1.31	7.7	14.27	0.31	0.25	0.86	0.72	0.07	0.78	71.52	0.08	0.19	0.17	0.2	0.23	0.04	0.04	0.11	50
chromite	1.41	3.64	14.78	2.3	0.0	0.06	0.0	0.61	42.25	0.05	34.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.13	0.82	30.36	0.0	0.03	0.45	0.29	0.08	0.07	0.91	0.12	0.01	66.04	0.0	0.14	0.0	0.21	0.18	25
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.08	2.25	29.41	0.0	0.03	26.95	40.85	0.0	0.0	0.0	0.16	0.0	0.0	0.0	0.0	0.0	0.28	0.0	1
garnet	0.1	5.59	22.36	38.31	0.07	0.04	3.37	0.19	0.07	1.13	28.22	0.08	0.11	0.03	0.01	0.06	0.0	0.09	0.17	118
sillimanite-kyanite	0.02	0.2	58.91	39.13	0.04	0.02	0.06	0.24	0.08	0.09	0.67	0.12	0.1	0.02	0.0	0.04	0.0	0.1	0.16	27
staurolite	0.21	1.74	51.82	29.68	0.03	0.03	0.07	0.63	0.08	0.11	14.46	0.04	0.17	0.33	0.28	0.07	0.08	0.11	0.06	10
feldspar	3.32	0.24	22.87	59.32	0.11	6.82	3.38	0.43	0.07	0.08	2.0	0.1	0.11	0.0	0.0	0.28	0.0	0.28	0.6	10
silicate-other	0.52	1.35	34.04	52.84	0.26	1.19	0.69	0.88	0.11	0.29	6.99	0.11	0.14	0.09	0.0	0.17	0.0	0.17	0.17	96
quartz	0.15	0.13	1.56	95.76	0.12	0.04	0.07	0.35	0.1	0.13	0.64	0.16	0.17	0.02	0.0	0.14	0.0	0.22	0.22	74
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.36	1.12	2.55	0.9	0.0	1.97	7.77	0.0	0.0	5.35	0.02	0.05	9.5	0.0	39.97	0.84	29.62	0.0	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	2.83	0.24	1.41	2.62	1.49	0.04	26.09	0.04	0.01	0.04	0.91	0.11	0.2	10.89	0.0	38.64	1.05	13.28	0.1	15
carbonate	0.6	13.08	1.27	2.16	0.61	0.3	71.38	0.24	0.08	0.8	7.61	0.13	0.02	0.13	0.21	0.01	0.15	0.17	1.05	3
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	0.15	23.1	36.98	0.0	0.07	27.34	0.23	0.14	0.61	10.58	0.04	0.11	0.0	0.0	0.0	0.0	0.25	0.4	3
dark mica	0.22	9.2	19.29	40.74	0.06	6.45	0.46	3.01	0.04	0.13	19.39	0.13	0.16	0.04	0.0	0.01	0.0	0.16	0.51	9
white mica	0.54	0.77	30.25	52.71	0.11	11.0	0.24	0.91	0.11	0.07	2.47	0.08	0.1	0.05	0.0	0.06	0.0	0.13	0.41	55
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.09	5.27	24.81	38.39	0.04	0.07	1.89	0.15	0.05	0.98	27.98	0.07	0.08	0.0	0.0	0.02	0.0	0.04	0.07	23
clino-amphibole/clino-pyroxene	2.54	7.66	19.52	37.99	0.02	0.2	5.54	0.41	0.05	0.73	24.77	0.08	0.11	0.02	0.04	0.03	0.01	0.09	0.2	146
chlorite	0.3	3.0	19.69	29.88	0.14	0.4	1.27	0.73	0.07	0.66	42.7	0.18	0.15	0.18	0.23	0.13	0.11	0.08	0.12	10
unclassified	2.03	1.96	16.21	33.54	3.04	2.24	3.92	7.95	1.16	1.26	18.94	0.29	0.5	3.75	1.43	0.66	0.09	0.64	0.39	44

DONG sample Report - Page 1/3

Sample GEUS #: 2003941

Description: Qeqertarsuaq, 5 m, Upernivik formation, 453163, outcrop

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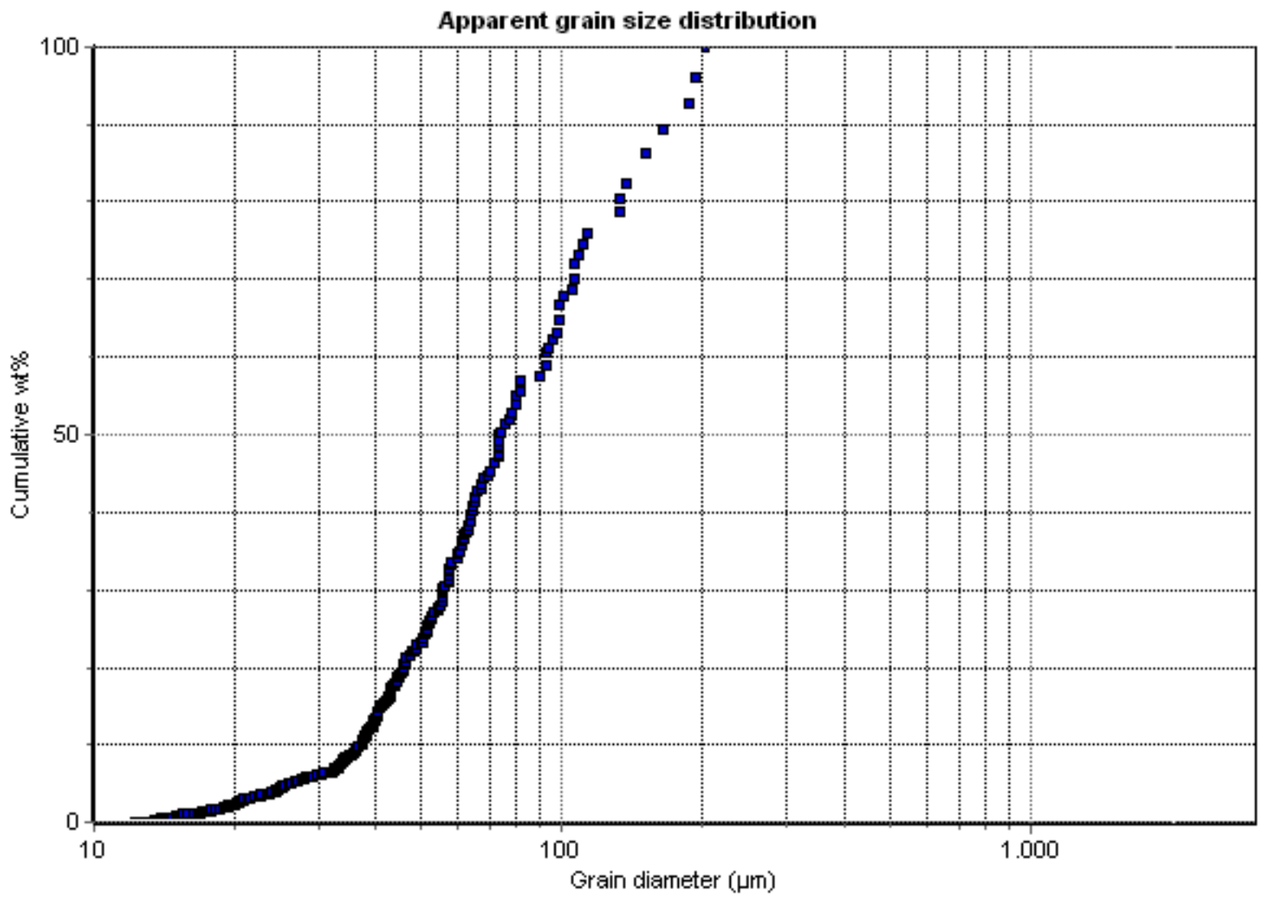

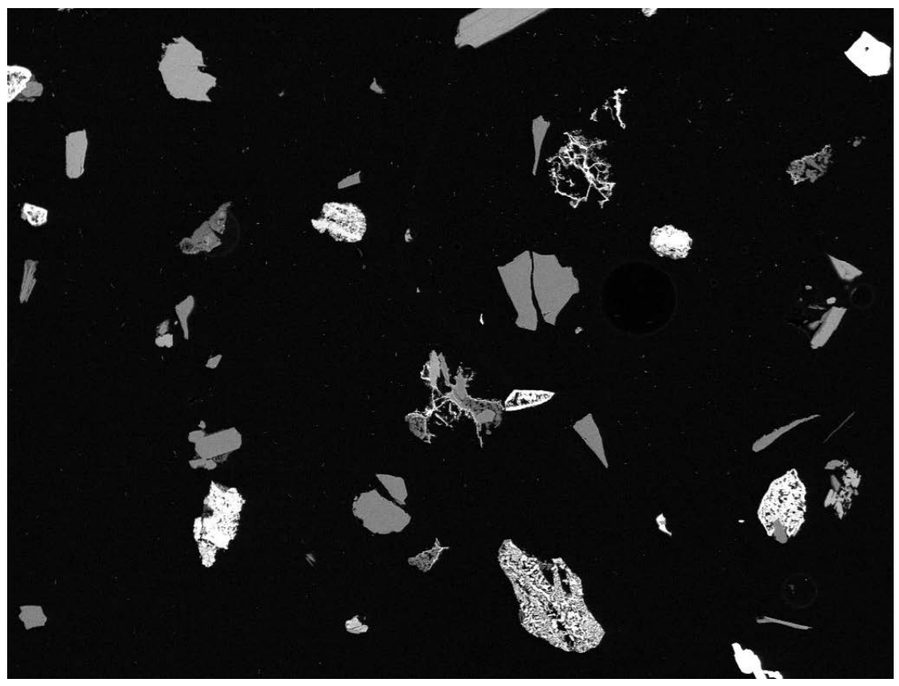

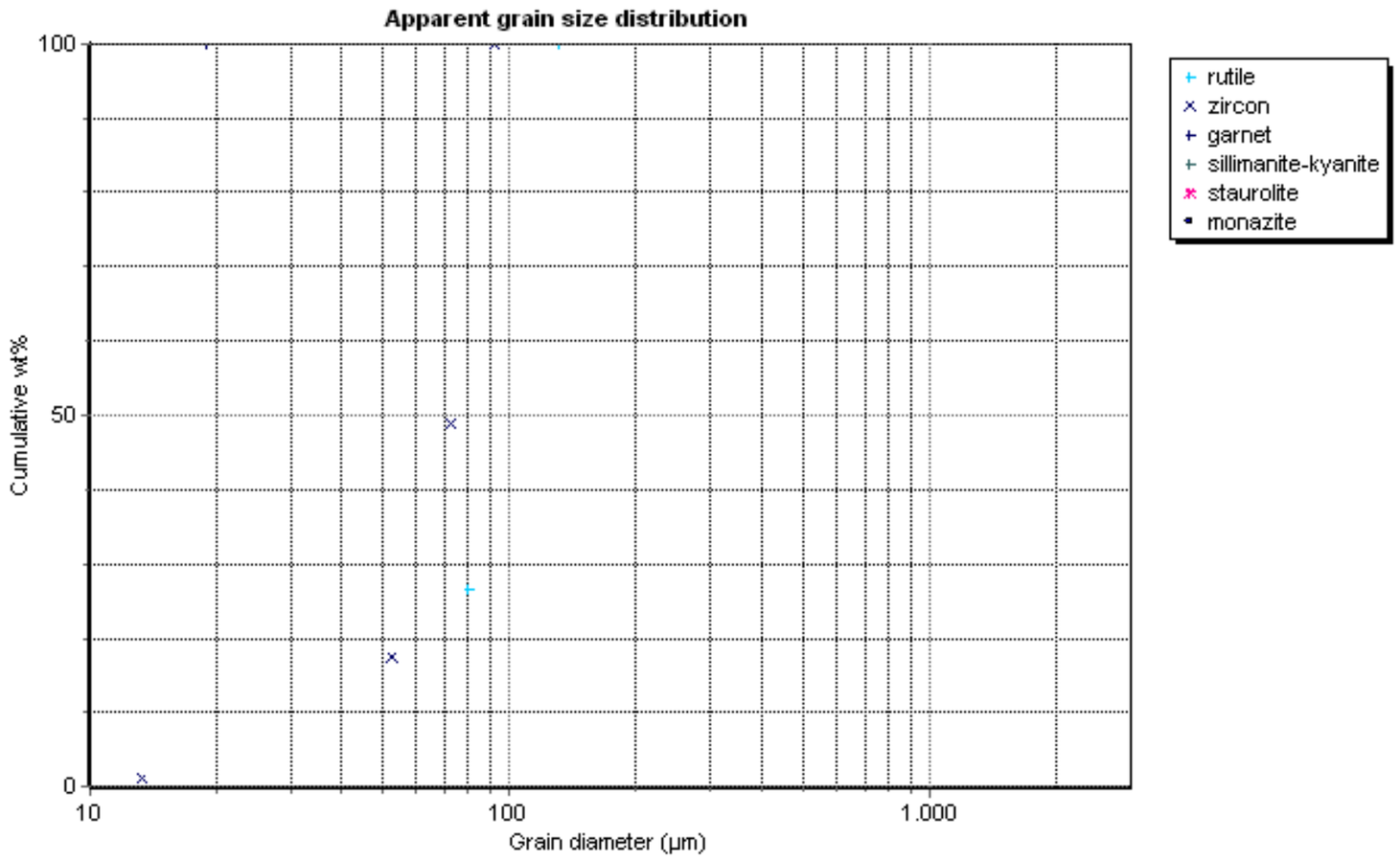

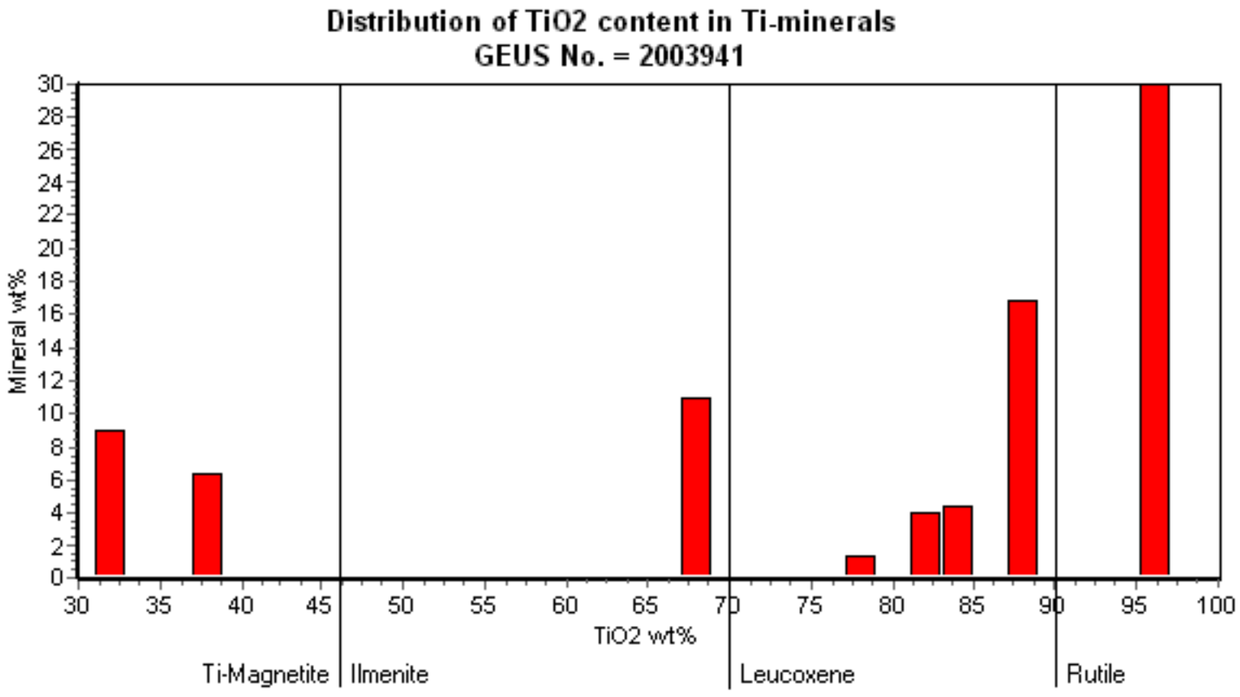

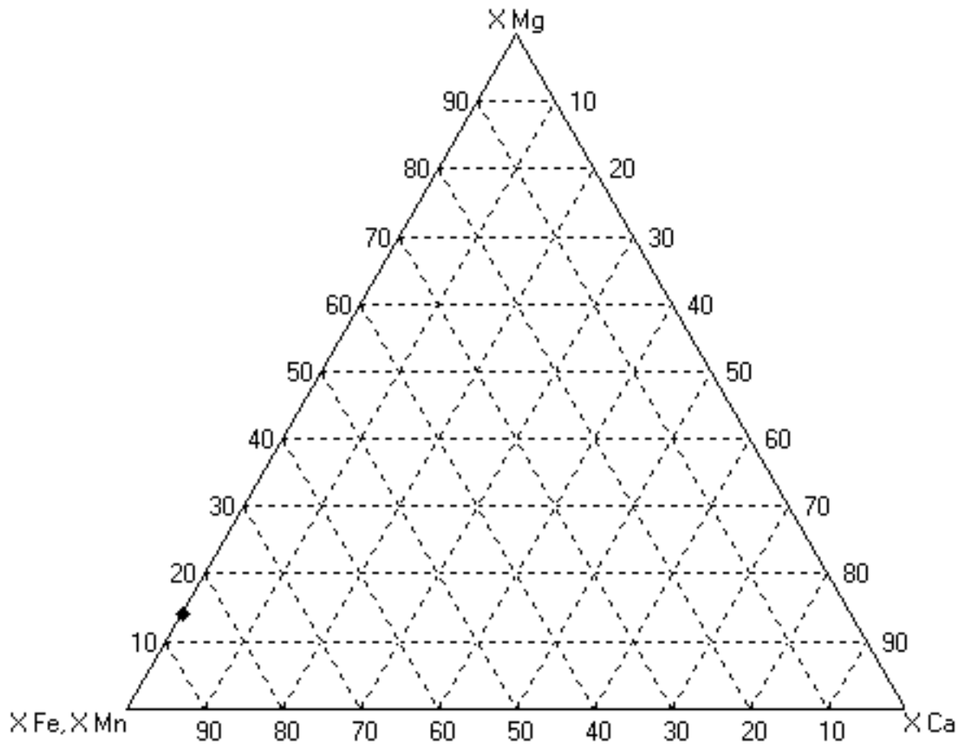

Sample GEUS #: 2003941

Description: Qeqertarsuaq, 5 m, Upernivik formation, 453163, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.18	4.01	5.31	0.06	0.16	0.55	67.28	0.21	0.35	20.16	0.0	0.08	0.29	0.46	0.37	0.17	0.26	0.1	1
leucoxene	0.0	0.12	3.18	11.78	0.28	0.27	0.25	81.36	0.08	0.08	1.26	0.2	0.13	0.53	0.15	0.05	0.13	0.0	0.15	3
rutile	0.0	0.16	1.02	1.69	0.2	0.05	0.03	92.84	0.17	0.02	1.95	0.15	0.01	0.25	1.38	0.11	0.0	0.0	0.0	2
Ti magnetite	0.0	0.88	9.59	17.26	0.26	0.2	0.37	18.09	0.0	0.07	52.39	0.0	0.15	0.0	0.37	0.29	0.0	0.0	0.11	2
magnetite	1.94	1.52	8.79	16.73	1.89	0.45	0.42	0.47	0.08	0.26	66.06	0.1	0.16	0.24	0.4	0.13	0.1	0.1	0.17	69
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.15	0.06	0.34	29.97	0.0	0.04	0.55	0.28	0.19	0.1	1.06	0.11	0.0	67.0	0.0	0.0	0.0	0.04	0.11	4
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	1.0	2.37	24.73	41.18	0.22	0.65	0.02	0.1	0.05	0.39	28.25	0.0	0.55	0.0	0.0	0.03	0.0	0.46	0.02	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	2.1	0.39	21.31	59.7	0.27	10.3	1.9	0.21	0.11	0.09	1.96	0.15	0.15	0.04	0.0	0.04	0.0	0.21	1.08	12
silicate-other	1.28	0.74	23.04	57.51	0.18	1.5	0.57	0.24	0.06	0.09	13.94	0.08	0.13	0.12	0.0	0.17	0.0	0.11	0.24	21
quartz	0.16	0.11	0.55	97.04	0.13	0.13	0.08	0.1	0.11	0.08	0.5	0.16	0.17	0.07	0.0	0.17	0.0	0.24	0.21	94
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.09	0.72	2.07	0.0	0.27	52.09	0.0	0.0	0.02	1.87	0.48	0.0	6.68	0.0	35.47	0.0	0.0	0.24	1
carbonate	0.15	2.13	0.46	2.92	1.86	0.17	89.66	0.04	0.08	0.23	0.92	0.19	0.16	0.0	0.0	0.01	0.03	0.2	0.81	12
pyrite	0.0	0.0	0.04	1.49	55.18	0.0	0.17	0.0	0.0	0.04	43.04	0.0	0.04	0.0	0.0	0.0	0.0	0.0	0.0	1
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.38	3.94	18.48	40.25	0.24	6.43	0.25	1.45	0.05	0.1	26.29	0.08	0.25	0.18	0.06	0.03	0.0	0.2	0.35	8
white mica	0.7	0.97	32.31	50.06	0.2	10.67	0.15	0.68	0.1	0.08	2.97	0.07	0.1	0.07	0.0	0.03	0.0	0.19	0.67	42
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.13	0.76	15.56	46.25	0.14	0.19	0.19	0.21	0.05	0.17	35.52	0.02	0.1	0.16	0.0	0.14	0.0	0.12	0.33	8
clino-amphibole/clino-pyroxene	5.26	2.04	19.69	41.69	0.14	0.8	1.03	0.45	0.07	0.18	27.71	0.06	0.11	0.08	0.15	0.07	0.11	0.14	0.23	21
chlorite	0.98	2.06	18.73	28.71	0.2	1.59	0.36	1.54	0.06	0.37	43.74	0.12	0.28	0.09	0.46	0.08	0.29	0.21	0.12	13
unclassified	1.7	0.84	13.95	29.51	7.52	1.03	11.43	5.18	0.22	0.22	25.2	0.17	0.06	0.16	0.35	0.13	0.13	2.02	0.18	22

DONG sample Report - Page 1/3

Sample GEUS #: 2003942

Description: Qeqertarsuaq, 210 m, Upernivik Næs formation, 453165, outcrop

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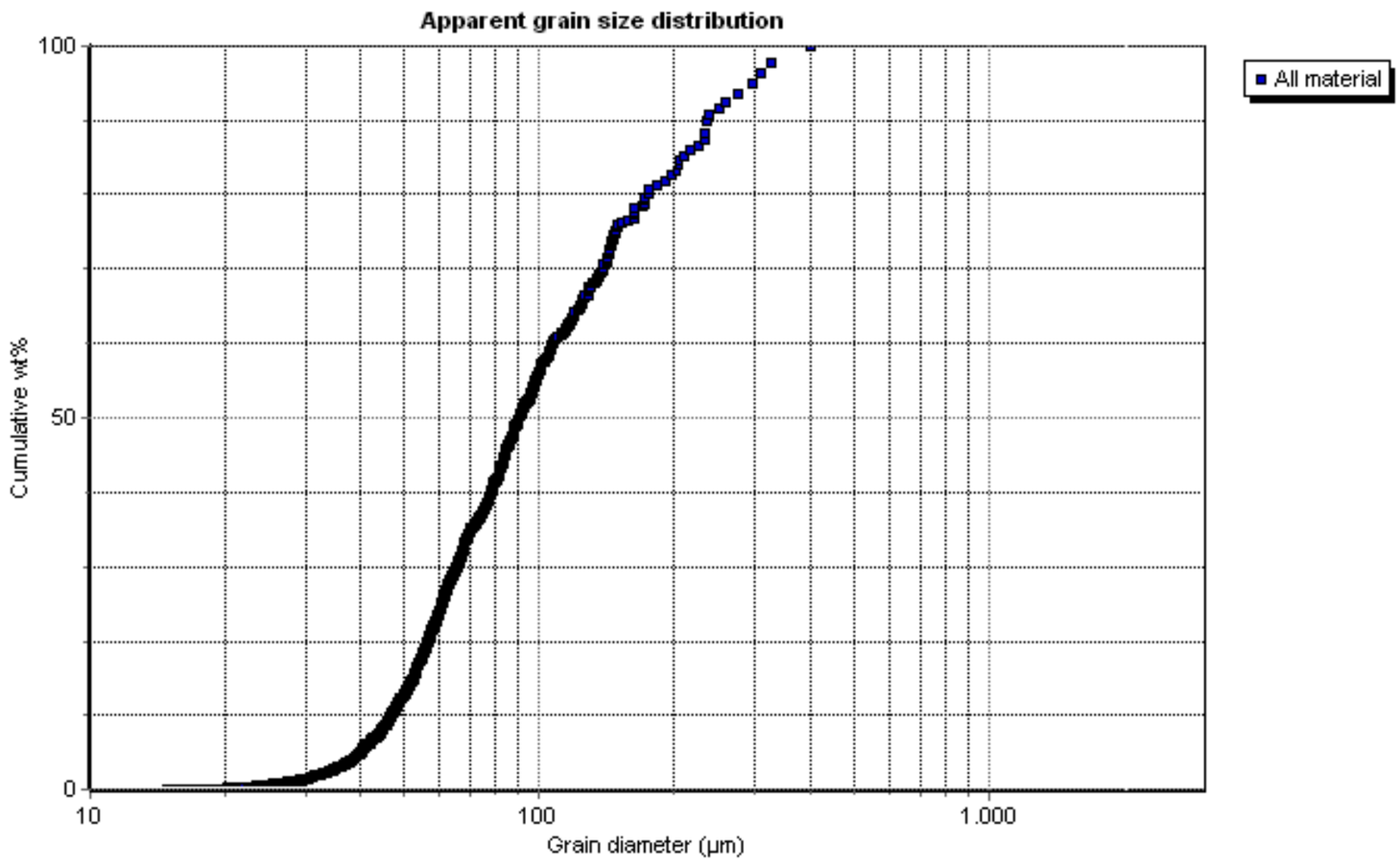

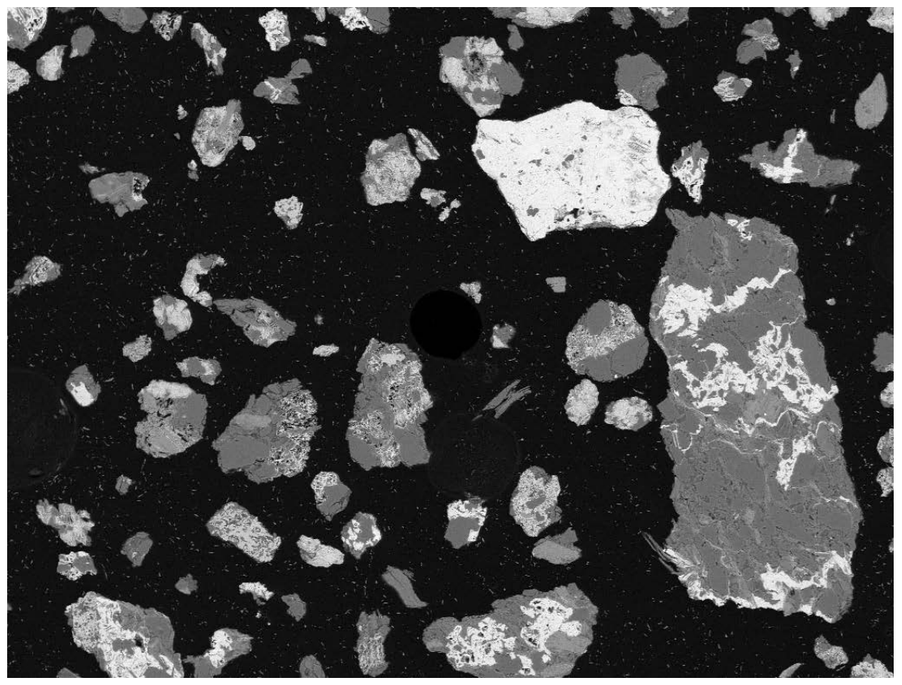

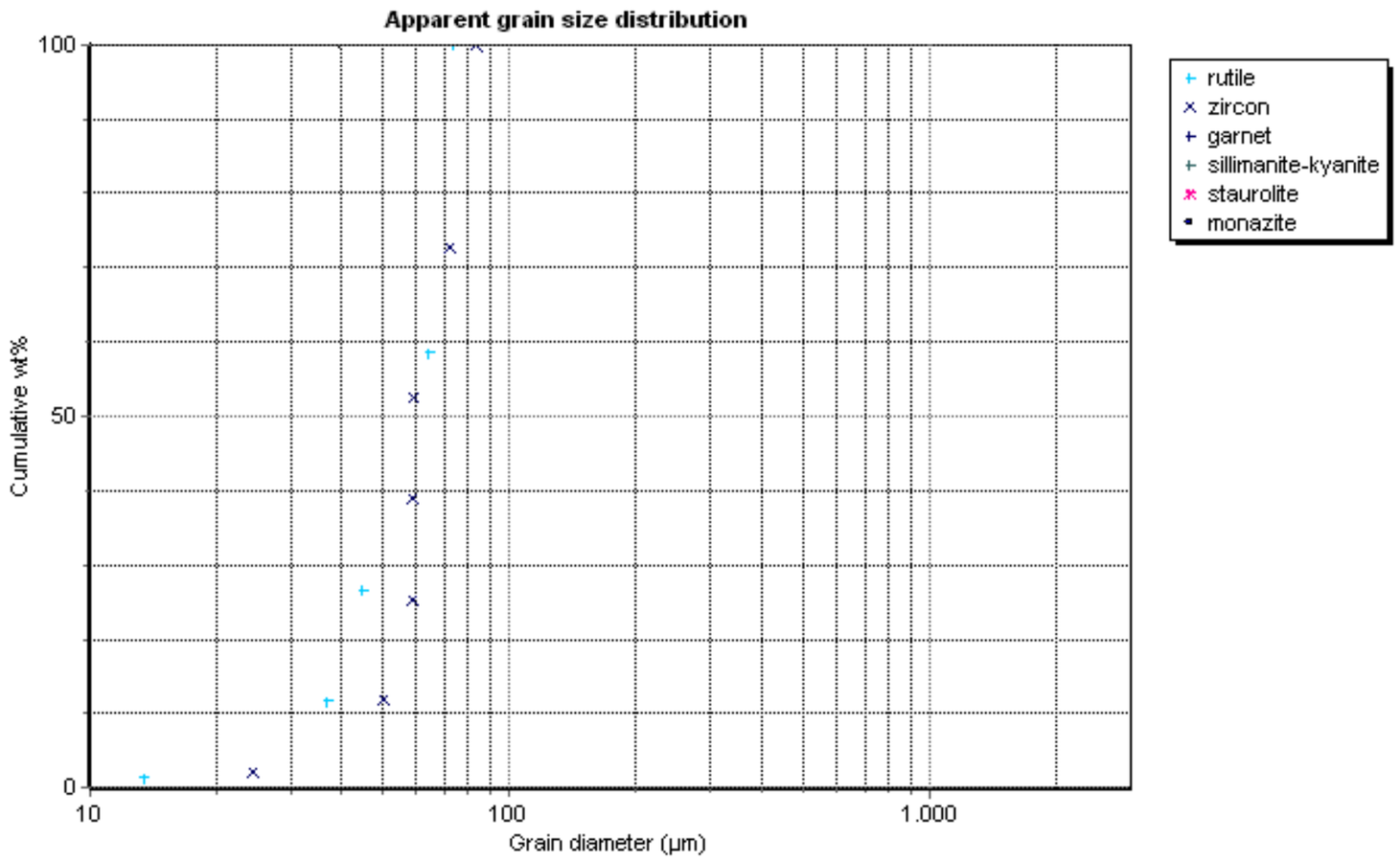

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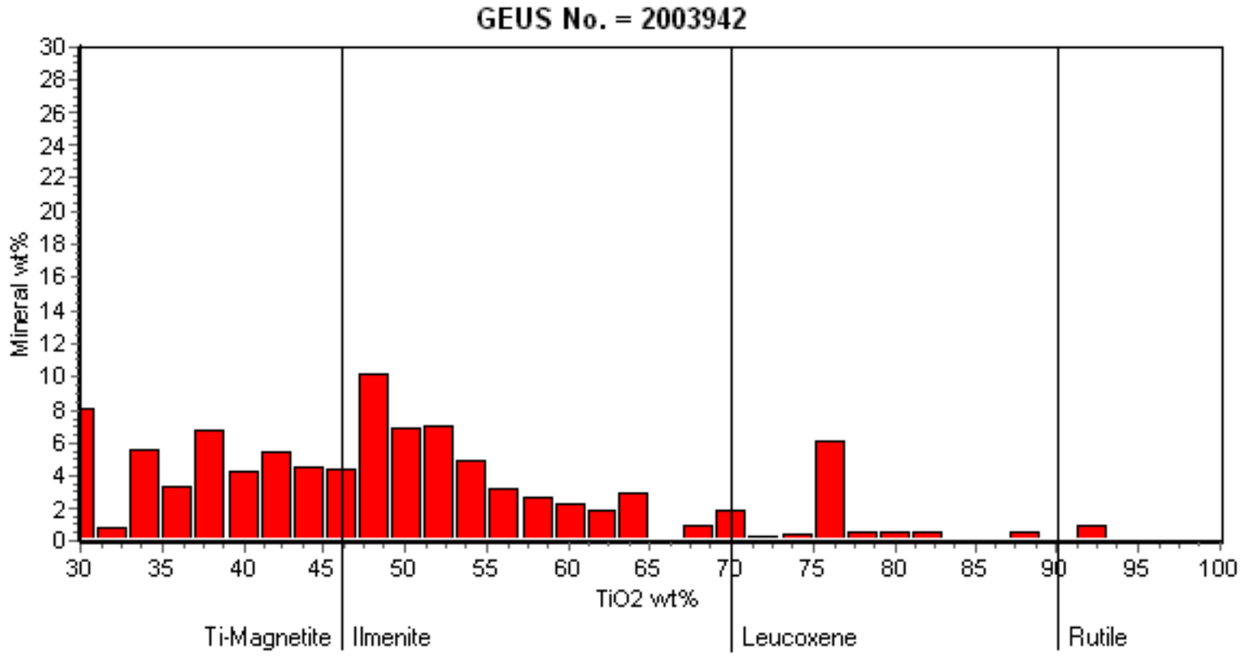

Sample GEUS #: 2003942

Description: Qeqertarsuaq, 210 m, Upernivik Næs formation, 453165, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.2	0.35	8.25	21.5	0.06	0.63	0.07	52.21	0.05	0.14	15.67	0.07	0.1	0.1	0.13	0.07	0.03	0.21	0.14	82
leucoxene	0.18	0.21	4.11	14.7	0.08	0.41	0.24	74.23	0.03	0.06	4.9	0.09	0.09	0.12	0.12	0.04	0.05	0.21	0.12	19
rutile	0.07	0.14	2.03	5.28	0.11	0.32	0.04	90.45	0.04	0.05	0.51	0.06	0.16	0.11	0.12	0.0	0.0	0.39	0.11	5
Ti magnetite	0.47	0.49	12.08	22.39	0.09	0.96	0.09	36.69	0.07	0.15	25.69	0.06	0.08	0.04	0.13	0.12	0.04	0.22	0.17	10
magnetite	1.7	1.43	8.49	20.96	0.23	1.11	0.12	0.42	0.06	0.27	63.78	0.08	0.13	0.26	0.22	0.33	0.08	0.11	0.22	222
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.17	0.15	3.01	30.57	0.0	0.36	0.44	0.29	0.05	0.11	2.77	0.05	0.0	61.78	0.0	0.0	0.0	0.2	0.03	7
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	4.22	0.64	23.5	62.21	0.11	5.1	0.43	0.4	0.01	0.02	2.8	0.06	0.18	0.04	0.0	0.1	0.0	0.15	0.01	3
silicate-other	0.29	0.85	16.0	61.02	0.07	2.31	0.14	0.69	0.07	0.11	17.69	0.08	0.12	0.07	0.0	0.11	0.0	0.13	0.23	299
quartz	0.13	0.17	4.33	90.8	0.13	0.32	0.06	0.3	0.09	0.09	2.48	0.1	0.13	0.13	0.0	0.17	0.0	0.17	0.39	56
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.62	12.22	17.04	0.0	0.73	1.39	0.0	0.0	0.0	9.6	0.68	0.25	9.46	0.0	28.9	1.68	17.01	0.43	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.0	29.53	0.92	5.84	0.5	0.38	55.03	0.11	0.09	0.06	5.2	0.0	0.32	0.0	0.27	0.67	0.18	0.39	0.53	1
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	9.01	21.67	33.38	0.55	0.72	20.48	0.1	0.0	0.3	12.29	0.0	0.02	0.58	0.63	0.0	0.01	0.26	0.0	1
dark mica	1.34	4.53	21.89	39.99	0.07	4.94	0.2	1.4	0.07	0.12	24.58	0.08	0.1	0.08	0.03	0.12	0.01	0.12	0.33	66
white mica	0.62	1.15	31.74	50.7	0.12	8.74	0.18	0.77	0.08	0.04	5.02	0.12	0.12	0.07	0.0	0.08	0.0	0.14	0.29	28
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.26	0.56	7.82	53.83	0.07	0.79	0.09	0.42	0.06	0.16	35.1	0.1	0.2	0.04	0.0	0.18	0.0	0.09	0.25	77
clino-amphibole/clino-pyroxene	2.37	1.76	13.67	42.75	0.09	1.62	0.25	0.67	0.06	0.16	35.62	0.08	0.16	0.13	0.06	0.21	0.02	0.1	0.22	111
chlorite	0.99	1.34	16.15	30.58	0.13	2.13	0.12	0.7	0.06	0.24	46.14	0.08	0.19	0.19	0.28	0.24	0.15	0.09	0.19	57
unclassified	0.88	1.17	12.89	44.22	0.23	1.6	0.55	21.03	0.07	0.13	15.82	0.08	0.12	0.31	0.09	0.31	0.02	0.28	0.22	155

DONG sample Report - Page 1/3

Sample GEUS #: 2003943

Description: Upernivik Næs, 14 m, Upernivik Næs formation, 453170, outcrop

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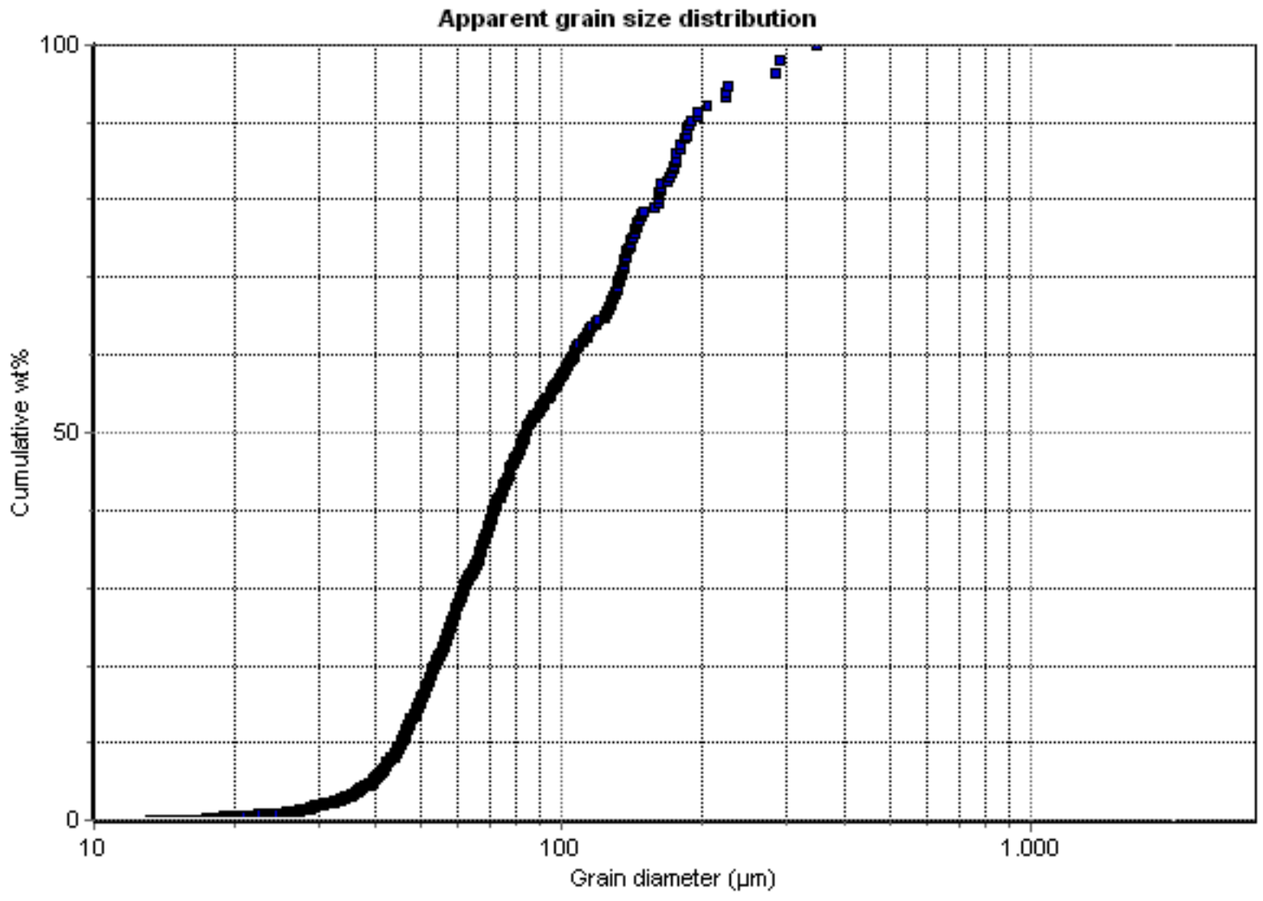
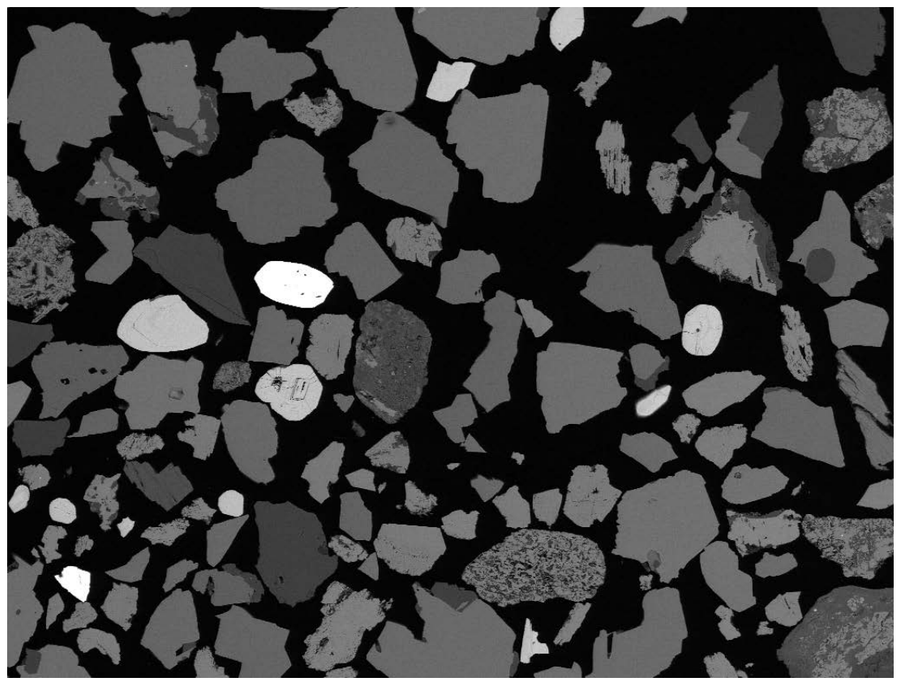
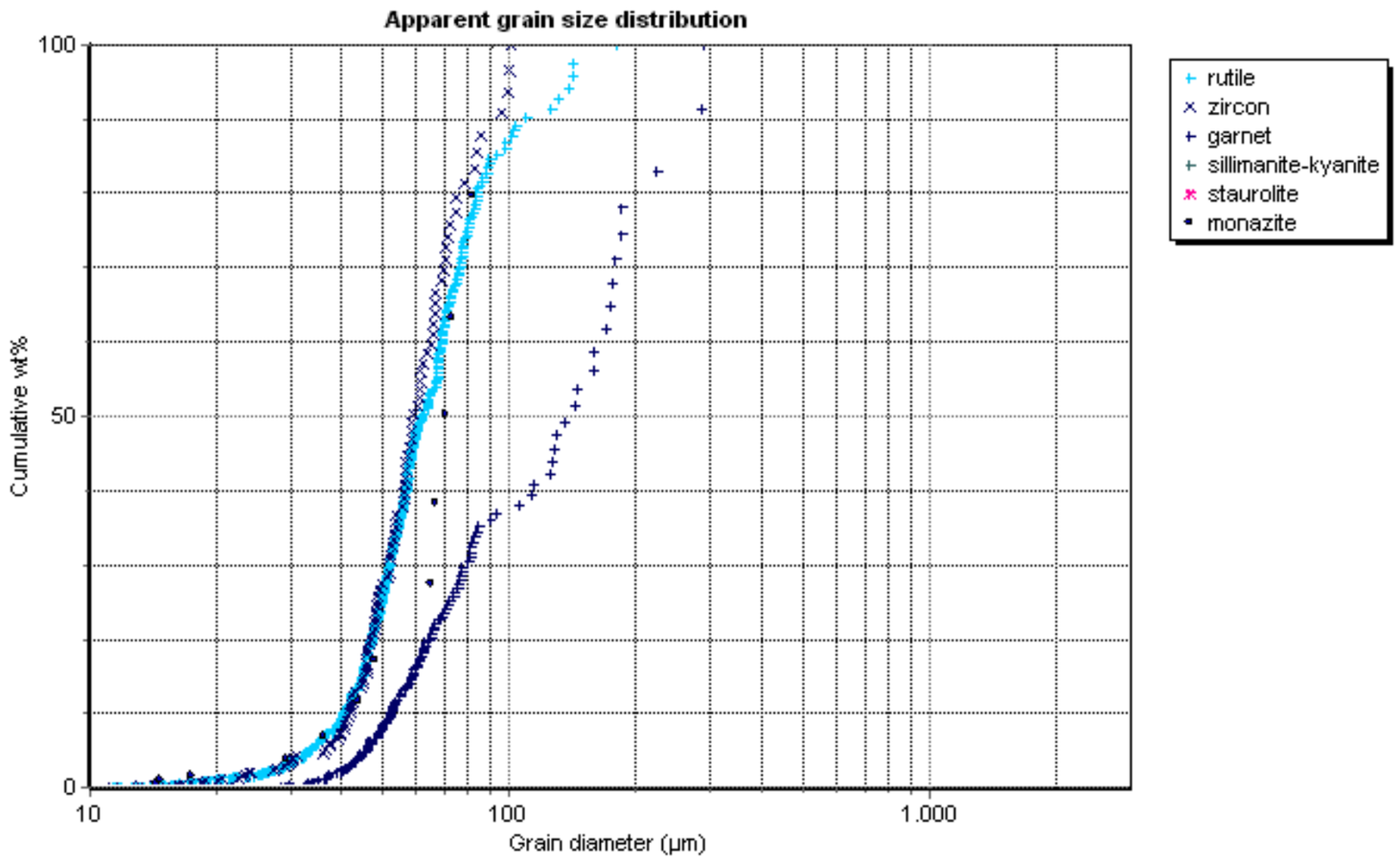
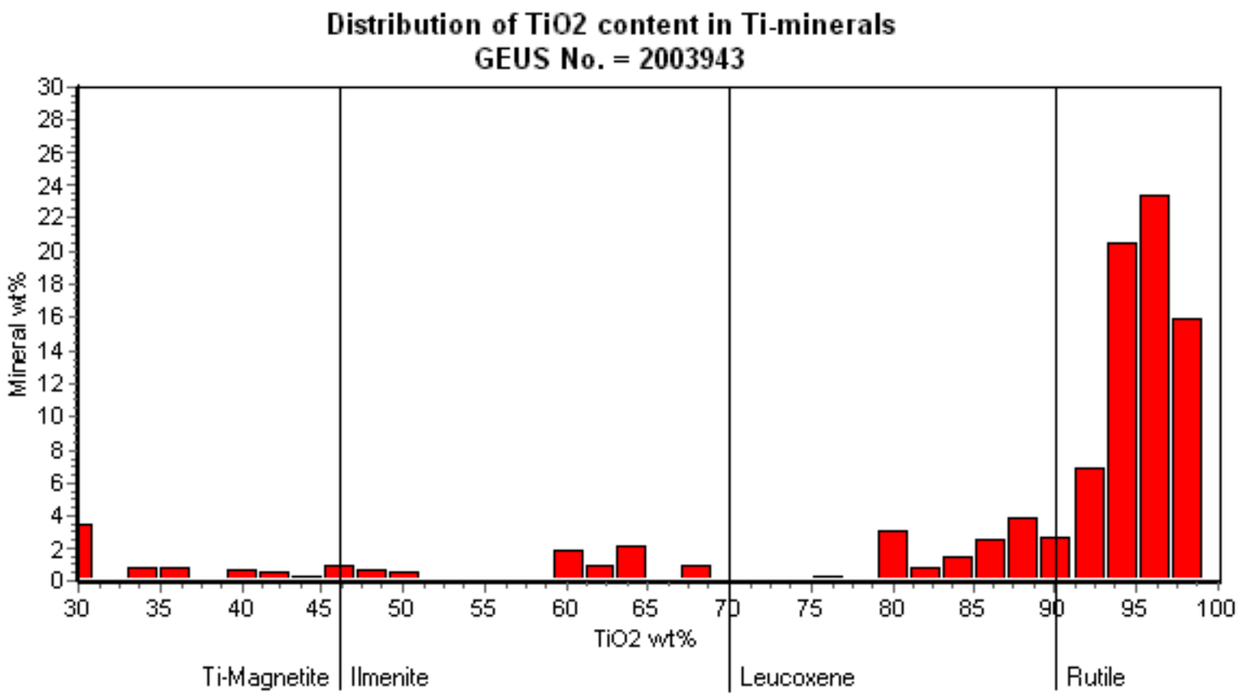
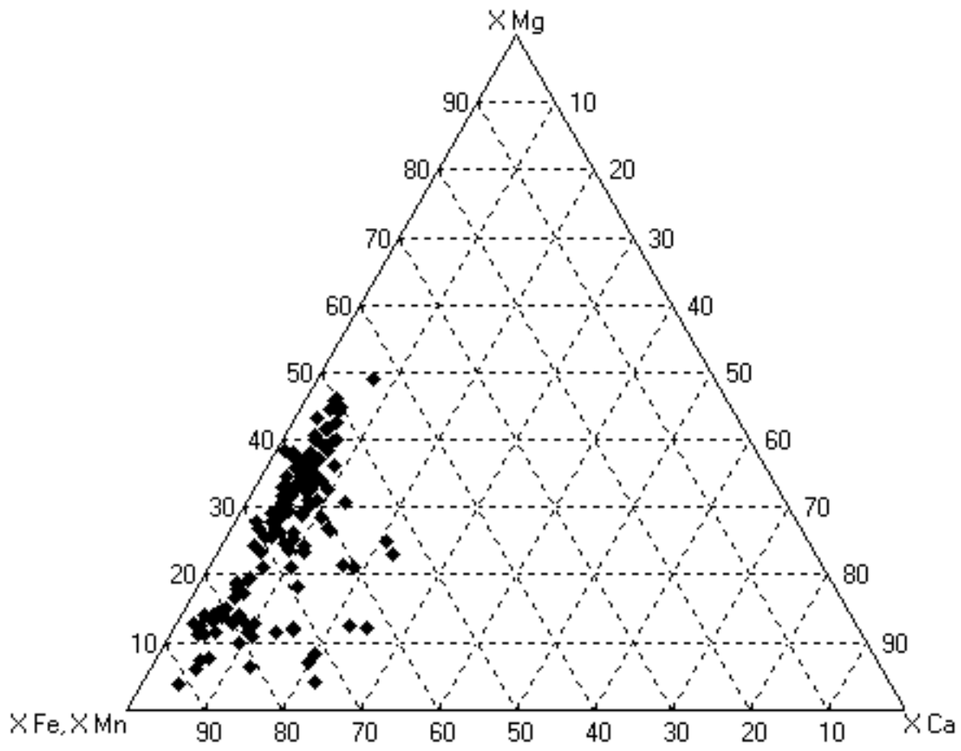










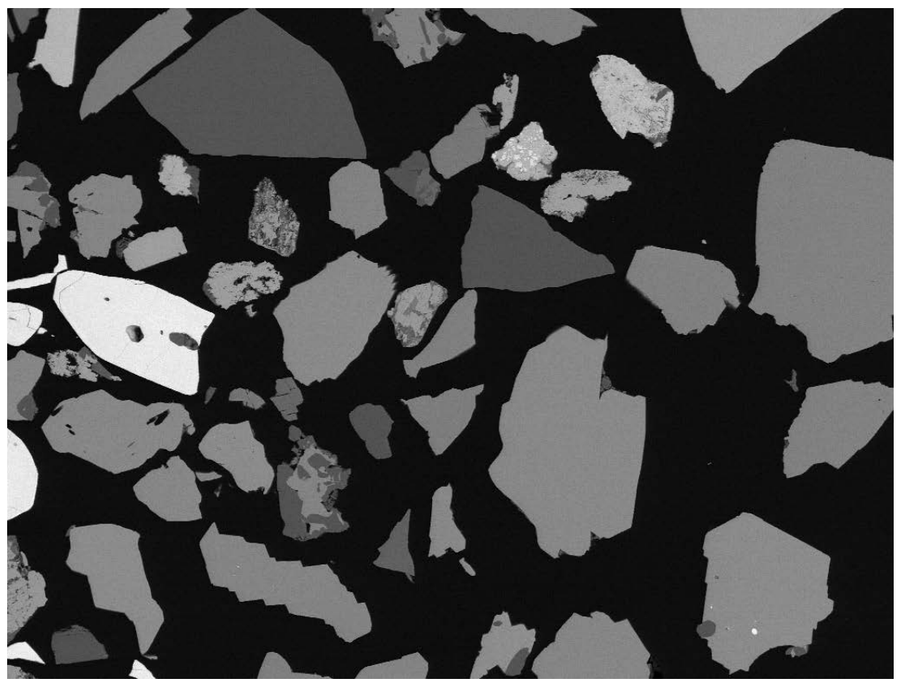
Sample GEUS #: 2003943

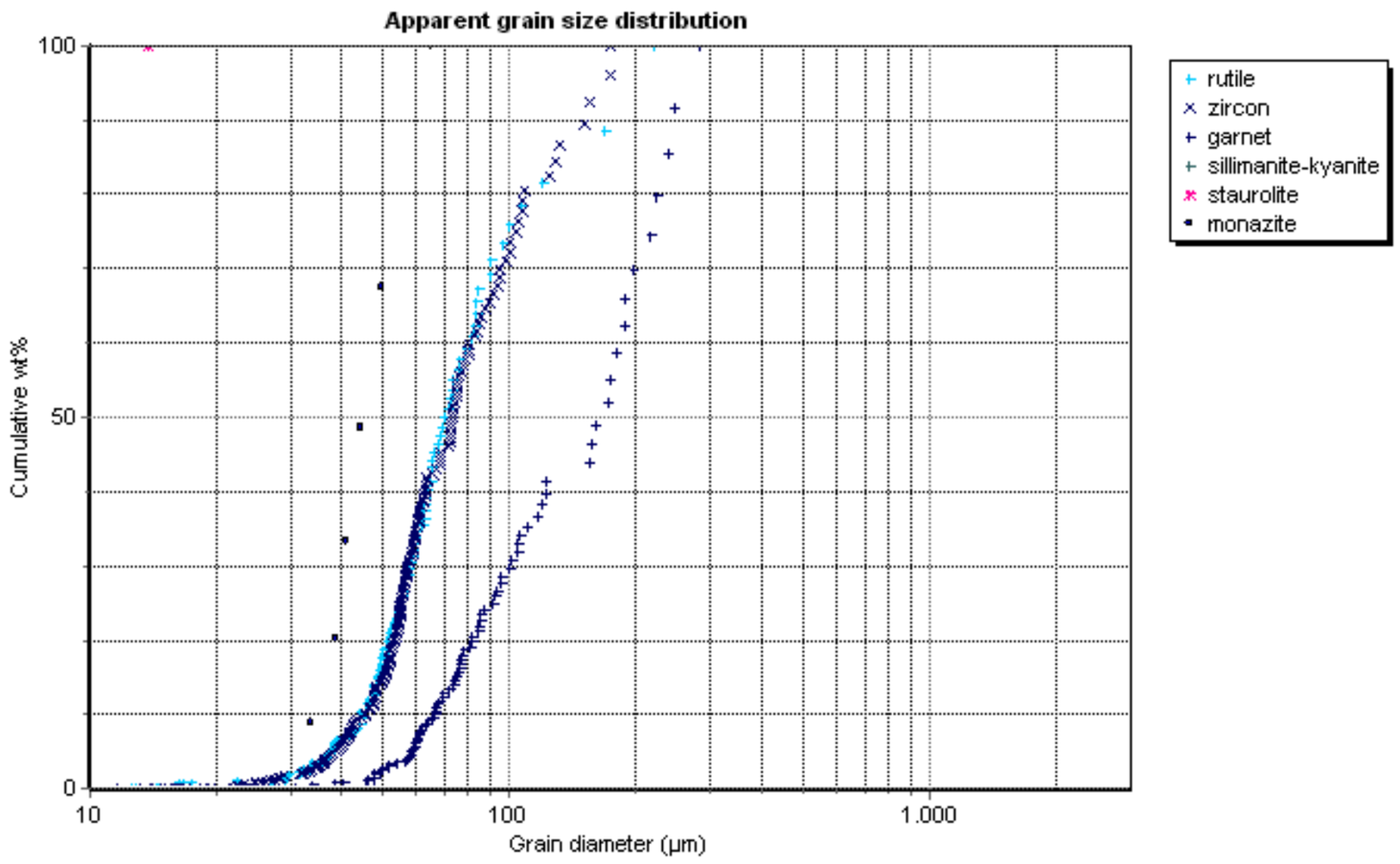
Description: Upernivik Næs, 14 m, Upernivik Næs formation, 453170, outcrop

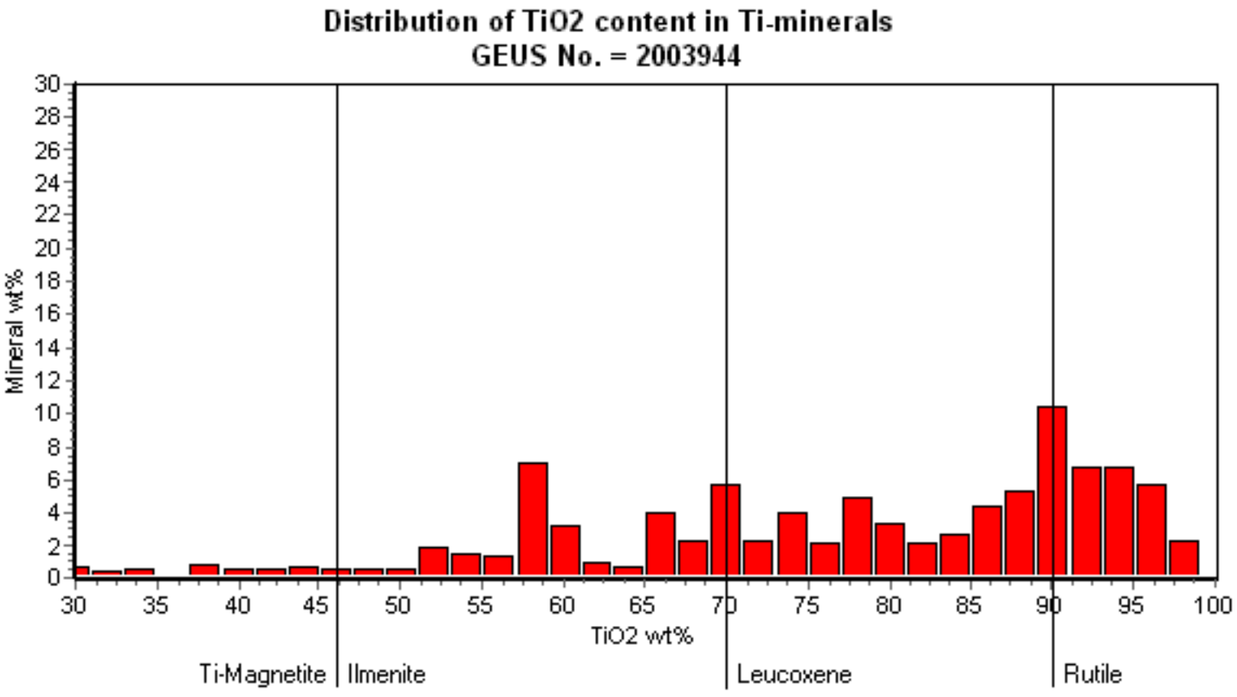
Average Content

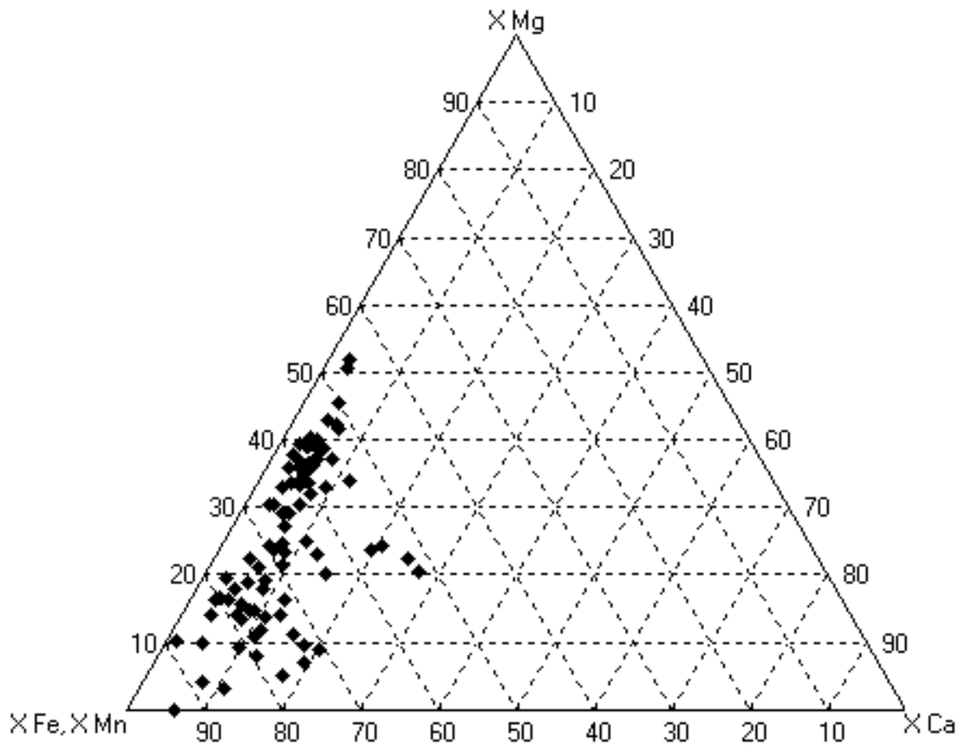
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.2	0.95	3.3	16.0	0.05	0.12	0.24	58.32	0.05	0.3	13.66	0.14	0.09	5.13	0.59	0.14	0.07	0.49	0.16	14
leucoxene	0.14	0.49	4.39	9.32	0.16	0.47	0.18	80.67	0.07	0.09	2.52	0.11	0.09	0.27	0.31	0.21	0.03	0.35	0.12	55
rutile	0.02	0.12	0.86	1.12	0.1	0.06	0.09	94.86	0.1	0.08	1.67	0.09	0.09	0.14	0.24	0.07	0.01	0.23	0.06	474
Ti magnetite	0.0	2.4	14.61	25.19	0.12	0.0	0.93	30.74	0.19	1.71	23.18	0.21	0.0	0.15	0.07	0.17	0.0	0.34	0.0	1
magnetite	1.58	1.0	1.83	4.39	0.51	0.01	0.32	1.24	0.06	0.43	87.56	0.1	0.16	0.04	0.34	0.22	0.0	0.12	0.08	3
chromite	0.65	7.48	18.73	1.13	0.08	0.06	0.06	2.19	35.24	0.16	33.88	0.1	0.08	0.02	0.04	0.04	0.0	0.0	0.07	7
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.18	0.1	0.42	30.46	0.09	0.05	0.26	0.73	0.06	0.07	0.6	0.09	0.02	66.41	0.0	0.15	0.03	0.15	0.13	120
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.01	2.31	28.76	0.0	0.05	28.08	38.48	0.0	0.21	0.84	0.09	0.0	0.0	0.16	0.13	0.41	0.23	0.26	2
garnet	0.01	6.22	22.32	38.48	0.03	0.04	2.25	0.41	0.06	1.13	28.54	0.08	0.1	0.06	0.0	0.06	0.0	0.08	0.13	142
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	5.51	0.03	23.52	61.63	0.12	4.41	2.62	0.47	0.12	0.07	0.58	0.1	0.15	0.14	0.0	0.13	0.0	0.11	0.29	8
silicate-other	1.91	4.22	26.37	55.57	0.04	0.04	1.18	0.76	0.08	0.25	9.01	0.1	0.15	0.02	0.0	0.1	0.0	0.09	0.11	30
quartz	0.11	0.14	0.68	96.03	0.09	0.04	0.09	0.36	0.09	0.1	0.77	0.13	0.16	0.45	0.0	0.4	0.0	0.21	0.16	80
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.75	0.31	4.31	3.84	1.36	0.32	1.36	5.62	0.0	0.0	0.59	0.11	0.27	8.84	0.0	44.68	0.24	27.23	0.17	13
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.21	1.03	2.5	4.26	0.0	1.41	0.0	0.0	0.0	0.25	0.99	0.07	13.28	0.0	51.73	0.0	24.31	0.0	2
carbonate	1.48	14.23	0.38	1.08	0.64	0.13	78.25	0.57	0.01	0.31	0.51	0.35	0.2	0.05	0.67	0.03	0.14	0.28	0.7	3
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.0	0.0	25.34	37.79	0.0	0.15	24.34	0.06	0.0	0.33	11.98	0.0	0.01	0.0	0.0	0.0	0.0	0.0	0.0	1
dark mica	3.31	10.23	32.12	40.28	0.03	1.79	0.63	1.78	0.05	0.08	9.28	0.19	0.07	0.0	0.0	0.07	0.0	0.0	0.06	5
white mica	1.17	0.56	24.83	56.91	0.08	13.06	0.32	0.85	0.1	0.06	1.19	0.11	0.07	0.02	0.0	0.05	0.0	0.28	0.33	15
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.03	7.68	21.27	41.65	0.03	0.02	1.83	0.3	0.06	0.63	25.95	0.08	0.11	0.07	0.0	0.09	0.0	0.11	0.1	36
clino-amphibole/clino-pyroxene	3.79	8.67	21.47	36.26	0.03	0.04	2.06	0.41	0.05	0.74	25.89	0.08	0.08	0.12	0.05	0.05	0.02	0.08	0.11	143
chlorite	0.83	4.67	22.48	29.63	0.18	0.02	0.42	2.94	0.02	0.72	36.68	0.16	0.3	0.22	0.37	0.04	0.15	0.11	0.08	3
unclassified	1.32	2.37	10.22	39.01	1.59	0.45	1.39	23.15	0.56	0.62	10.35	0.08	0.13	7.48	0.46	0.28	0.0	0.36	0.19	43

DONG sample Report - Page 1/3
Sample GEUS #: 2003944
Description: Upernivik Næs, 39 m, Upernivik Næs formation, 453172, outcrop
This document was created on: Mon Nov 09 11:53:55 CET 2009









Sample GEUS #: 2003944

Description: Upernivik Næs, 39 m, Upernivik Næs formation, 453172, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.2	0.98	10.26	20.2	0.07	1.13	0.24	57.81	0.09	0.17	7.75	0.06	0.04	0.19	0.29	0.09	0.08	0.25	0.09	31
leucoxene	0.09	0.42	6.05	9.14	0.13	0.69	0.2	78.25	0.1	0.07	3.61	0.08	0.08	0.31	0.28	0.15	0.03	0.22	0.12	123
rutile	0.03	0.12	1.43	1.74	0.11	0.11	0.09	92.76	0.12	0.06	2.4	0.1	0.1	0.22	0.27	0.09	0.01	0.16	0.07	119
Ti magnetite	1.59	1.02	3.45	9.16	0.11	0.57	0.03	20.07	0.0	1.12	61.68	0.0	0.0	0.0	0.16	0.27	0.06	0.15	0.56	1
magnetite	1.44	0.64	3.64	8.17	3.12	0.46	0.17	0.59	0.06	0.28	80.48	0.1	0.11	0.17	0.09	0.13	0.05	0.12	0.17	95
chromite	0.0	4.86	12.57	3.86	0.2	0.21	0.08	1.21	38.01	0.29	38.04	0.15	0.13	0.0	0.16	0.09	0.0	0.0	0.15	4
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.2	0.09	0.67	30.58	0.05	0.07	0.19	0.29	0.07	0.09	0.88	0.13	0.03	66.19	0.0	0.15	0.04	0.17	0.12	213
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.0	2.89	28.82	0.06	0.0	27.48	36.46	0.0	0.0	3.3	0.0	0.0	0.24	0.29	0.0	0.35	0.11	0.0	1
garnet	0.07	6.11	22.5	38.46	0.04	0.04	2.43	0.17	0.06	1.36	28.26	0.08	0.09	0.04	0.01	0.07	0.0	0.07	0.12	93
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0.0	2.93	49.29	25.73	0.0	0.95	0.37	0.11	1.07	0.0	6.83	0.0	1.65	0.0	4.81	3.26	0.0	0.0	2.99	1
feldspar	5.29	0.05	22.66	62.23	0.11	4.72	2.4	0.35	0.06	0.04	1.25	0.11	0.05	0.06	0.0	0.12	0.0	0.21	0.31	8
silicate-other	1.6	4.22	26.48	53.81	0.05	0.34	1.82	0.77	0.08	0.3	9.97	0.1	0.11	0.03	0.0	0.05	0.0	0.09	0.17	58
quartz	0.15	0.15	1.38	95.45	0.06	0.21	0.09	0.25	0.09	0.13	0.99	0.1	0.15	0.1	0.0	0.29	0.0	0.16	0.26	99
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.25	0.43	2.54	1.81	1.95	0.01	2.14	0.0	0.0	0.0	1.2	0.1	0.0	10.35	0.0	50.36	0.19	28.36	0.33	6
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.55	0.21	13.76	4.49	3.43	0.35	2.04	0.0	0.0	0.0	1.66	0.02	0.26	12.07	0.0	39.82	0.4	20.86	0.08	9
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.74	0.04	3.05	5.96	62.86	0.3	0.04	0.03	0.05	0.02	26.3	0.04	0.0	0.1	0.21	0.04	0.11	0.05	0.05	7
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	2.11	4.58	22.69	38.96	0.03	3.32	0.41	1.92	0.07	0.11	24.25	0.13	0.06	0.17	0.04	0.31	0.0	0.46	0.37	11
white mica	0.73	0.34	23.35	58.15	0.05	13.69	0.39	0.47	0.06	0.12	1.77	0.06	0.15	0.04	0.0	0.07	0.0	0.17	0.4	20
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.08	7.25	20.63	41.16	0.02	0.06	2.05	0.34	0.06	0.7	27.2	0.09	0.11	0.04	0.0	0.02	0.0	0.07	0.12	57
clino-amphibole/clino-pyroxene	3.38	9.1	19.82	38.33	0.04	0.23	3.88	0.47	0.07	0.73	23.32	0.08	0.09	0.08	0.06	0.06	0.02	0.08	0.17	165
chlorite	0.82	5.45	16.81	30.06	0.04	2.08	0.37	1.57	0.07	0.43	41.36	0.01	0.17	0.09	0.23	0.15	0.14	0.12	0.02	5
unclassified	0.54	2.87	15.02	38.37	1.21	1.71	1.2	19.01	0.08	0.24	11.08	0.12	0.15	6.65	0.49	0.6	0.03	0.41	0.23	74

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Sample GEUS #: 2003945

Description: Kuuk, 6 m, Kome formation, 453174, outcrop

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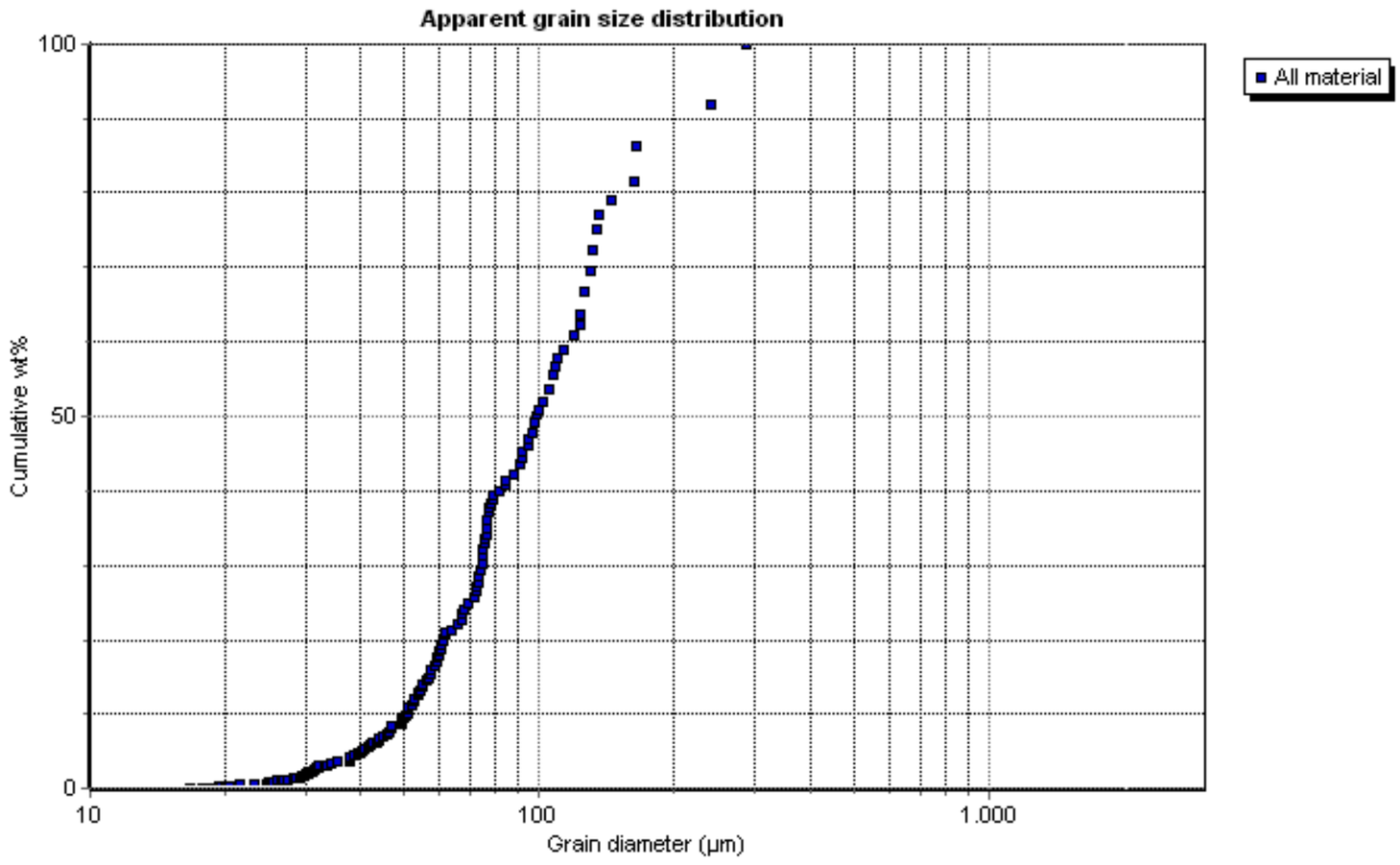

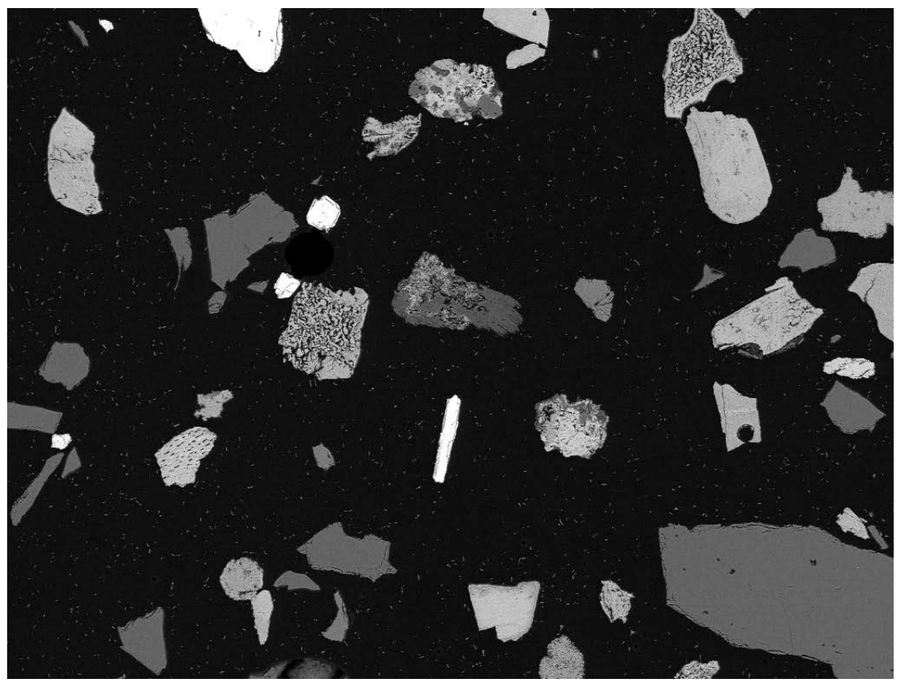

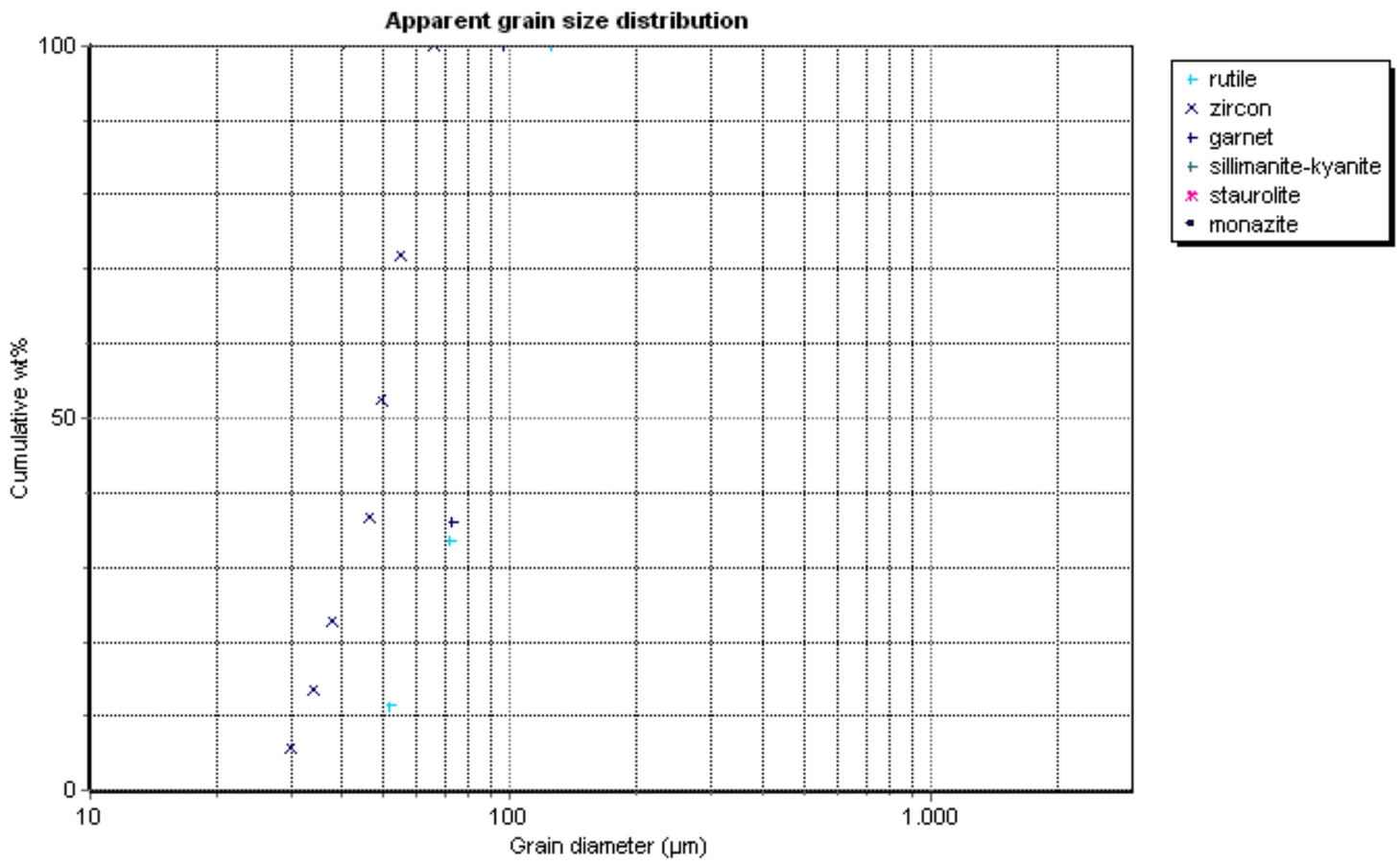

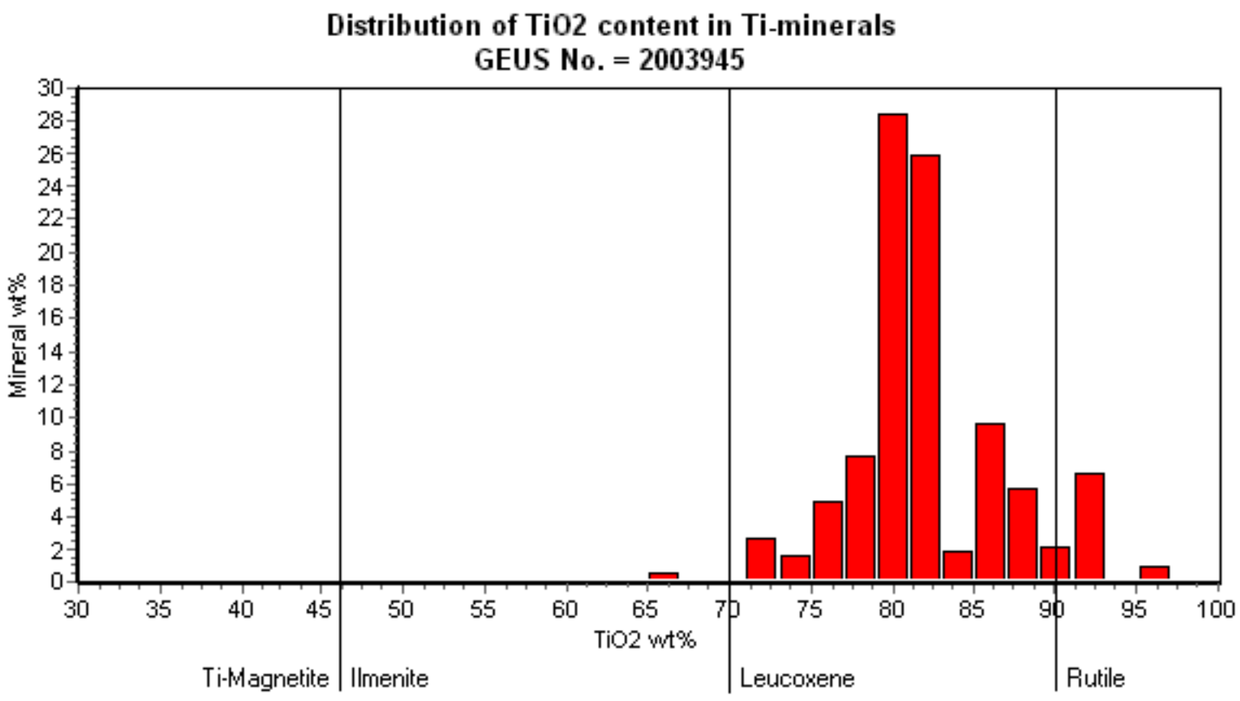

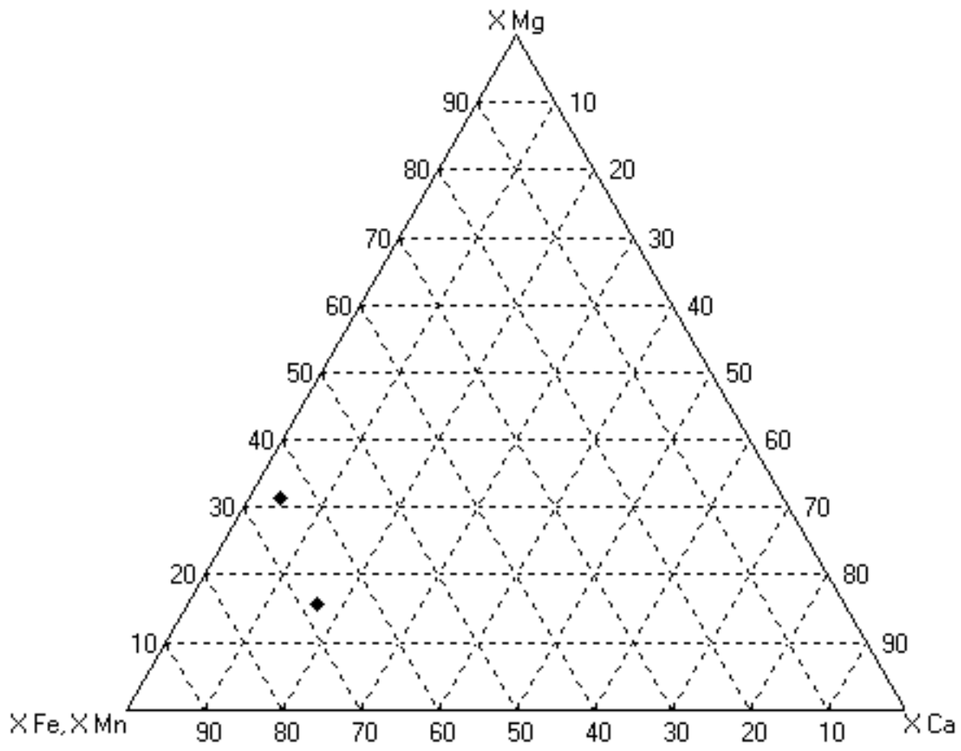

Sample GEUS #: 2003945

Description: Kuuk, 6 m, Kome formation, 453174, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	0.21	0.62	1.42	0.25	0.0	0.02	66.8	0.06	0.98	28.55	0.4	0.0	0.0	0.37	0.33	0.0	0.0	0.0	1
leucoxene	0.02	0.16	1.94	2.55	0.25	0.03	0.44	79.82	0.21	0.15	13.39	0.1	0.09	0.3	0.11	0.23	0.01	0.11	0.07	44
rutile	0.0	0.22	1.34	1.09	0.34	0.01	0.24	92.75	0.35	0.09	2.35	0.0	0.14	0.28	0.3	0.1	0.0	0.32	0.1	3
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0.38	0.44	5.25	9.7	15.11	1.33	0.41	0.5	0.08	0.88	63.74	0.16	0.41	0.33	0.48	0.3	0.2	0.11	0.17	5
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.04	0.07	0.3	30.51	0.09	0.0	0.58	0.35	0.0	0.11	0.44	0.12	0.0	67.18	0.0	0.0	0.01	0.15	0.05	7
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	5.49	22.71	37.63	0.0	0.01	3.37	0.2	0.0	1.88	28.43	0.0	0.17	0.0	0.0	0.0	0.0	0.05	0.09	2
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0.58	0.0	19.79	60.57	0.0	14.93	0.04	0.35	0.02	0.1	0.28	0.13	0.06	0.0	0.0	0.08	0.0	0.19	2.88	3
silicate-other	0.05	0.13	42.94	55.06	0.0	0.0	0.03	0.0	0.1	0.02	0.96	0.05	0.1	0.0	0.0	0.0	0.0	0.0	0.55	1
quartz	0.06	0.07	0.24	97.71	0.07	0.04	0.06	0.19	0.09	0.11	0.19	0.12	0.21	0.08	0.0	0.38	0.0	0.19	0.19	61
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	1.78	0.03	0.92	3.02	1.85	0.0	2.09	0.0	0.0	0.0	0.48	0.0	0.81	7.81	0.0	52.56	0.0	28.65	0.0	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	0.54	0.05	19.6	60.96	0.03	16.62	0.23	0.51	0.04	0.07	0.28	0.1	0.13	0.06	0.0	0.0	0.0	0.04	0.75	7
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	10.46	23.44	37.89	0.08	0.35	4.21	3.65	0.0	0.33	18.41	0.0	0.0	0.0	0.0	0.45	0.0	0.19	0.56	2
clino-amphibole/clino-pyroxene	4.18	8.7	21.74	34.9	0.06	0.03	1.27	0.17	0.07	0.39	27.43	0.04	0.0	0.0	0.27	0.0	0.54	0.21	0.01	1
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	3.17	0.15	6.61	12.6	30.79	3.33	0.26	1.6	0.07	0.15	40.22	0.08	0.11	0.2	0.14	0.11	0.02	0.24	0.14	19

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Sample GEUS #: 2003946

Description: Itilli, 208 m, Itilli formation, Anariartorfik member, 453175, outcrop

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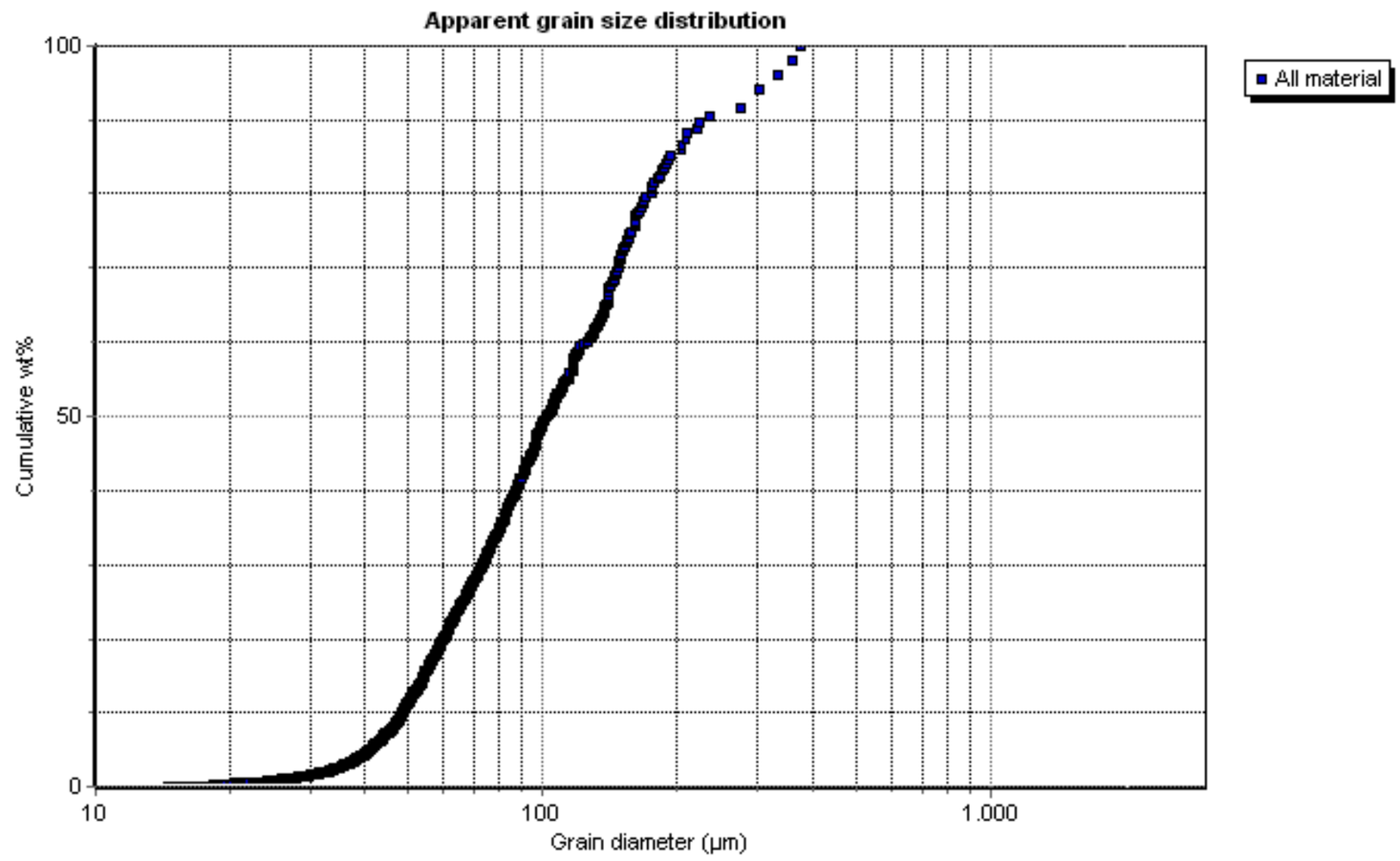

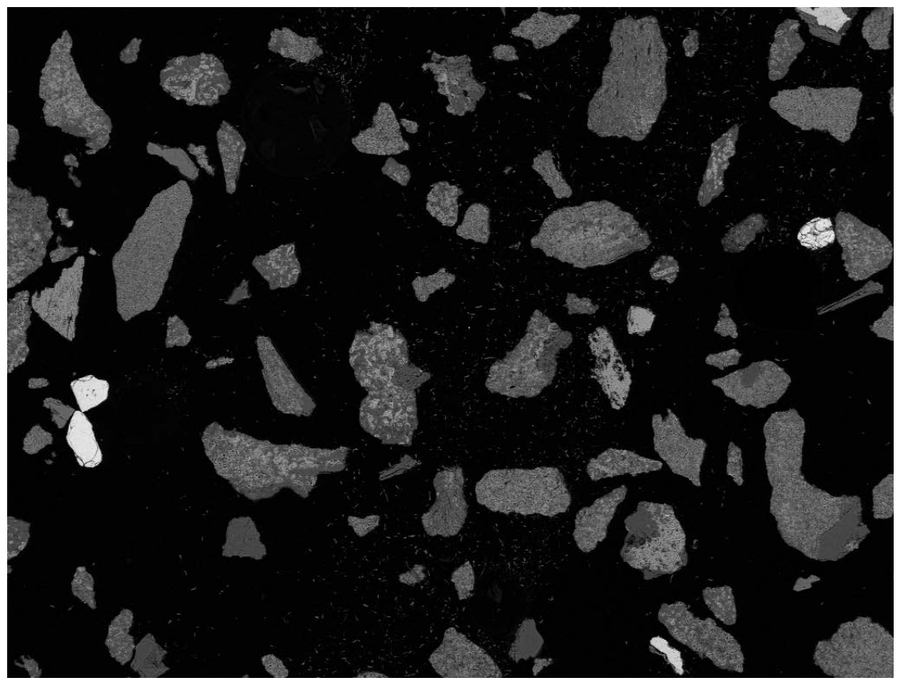

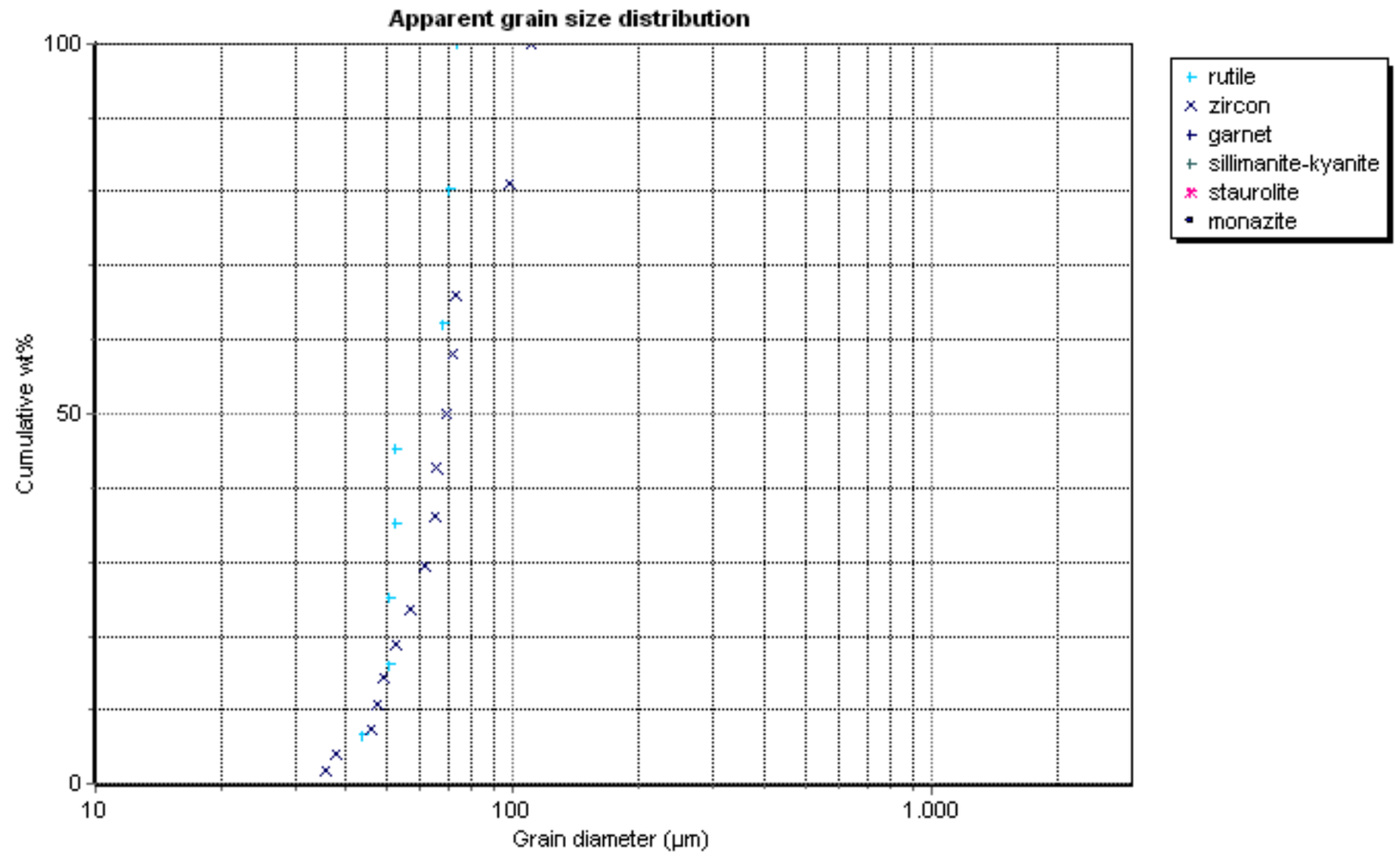

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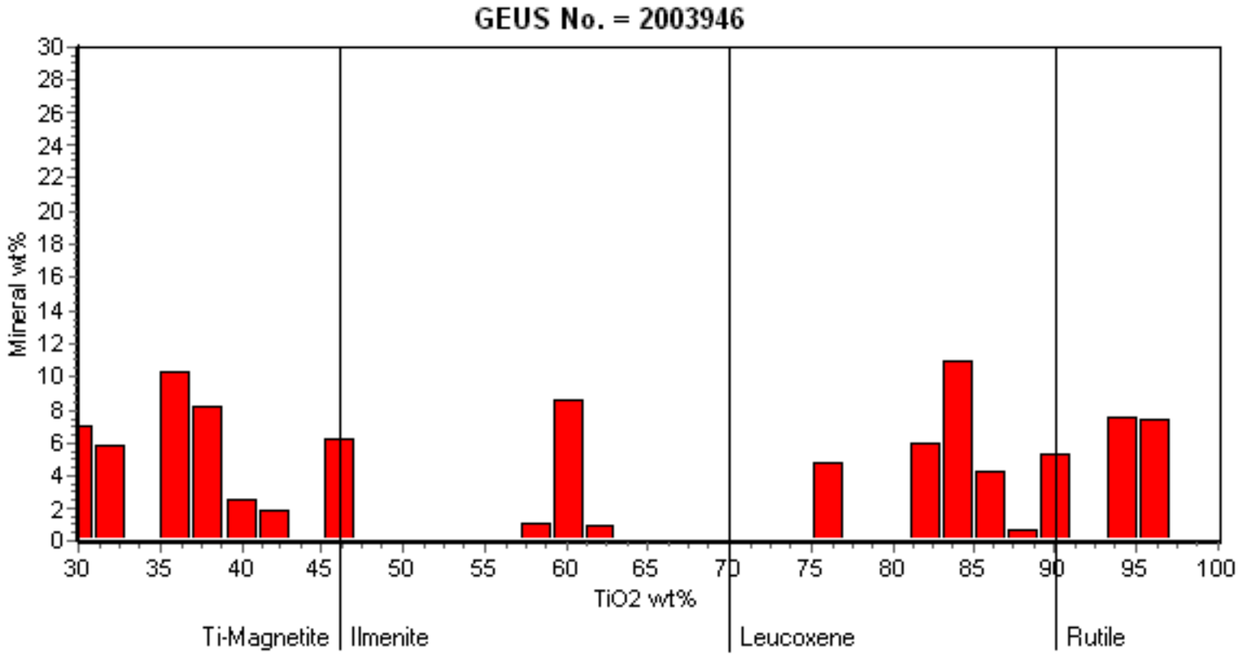

Sample GEUS #: 2003946

Description: Itilli, 208 m, Itilli formation, Anariartorfik member, 453175, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.08	0.28	12.3	18.78	0.09	2.18	0.18	57.3	0.14	0.17	7.4	0.12	0.09	0.26	0.29	0.04	0.21	0.03	0.05	5
leucoxene	0.23	0.12	3.25	11.03	0.22	0.54	0.09	82.5	0.1	0.09	0.74	0.15	0.08	0.24	0.22	0.09	0.09	0.11	0.12	8
rutile	0.06	0.06	1.03	2.54	0.13	0.14	0.09	93.64	0.31	0.05	1.23	0.04	0.04	0.07	0.28	0.07	0.0	0.19	0.03	8
Ti magnetite	0.0	4.7	2.13	14.43	0.14	0.0	1.5	21.26	0.08	0.24	55.05	0.26	0.09	0.11	0.0	0.0	0.0	0.0	0.04	2
magnetite	1.67	1.75	11.54	20.4	0.47	1.86	0.36	0.35	0.11	0.42	59.16	0.08	0.13	0.41	0.22	0.72	0.14	0.09	0.11	82
chromite	0.0	6.33	16.77	0.69	0.0	0.0	0.01	1.31	34.54	0.0	39.57	0.22	0.25	0.0	0.0	0.0	0.0	0.0	0.31	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.29	0.08	0.39	32.22	0.11	0.07	0.01	0.18	0.04	0.06	1.05	0.15	0.01	65.14	0.0	0.0	0.0	0.09	0.12	15
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	2.01	2.54	23.22	53.93	0.1	3.33	0.33	0.49	0.06	0.14	12.94	0.05	0.11	0.11	0.0	0.25	0.0	0.14	0.27	47
quartz	0.15	0.1	1.31	94.94	0.16	0.16	0.06	0.11	0.1	0.12	1.15	0.19	0.19	0.43	0.0	0.43	0.0	0.14	0.25	65
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.04	0.37	2.78	65.87	0.09	0.04	0.06	0.03	0.17	29.63	0.18	0.12	0.07	0.2	0.1	0.01	0.17	0.05	19
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.23	1.19	25.59	36.16	0.13	4.58	0.33	1.27	0.09	0.17	28.02	0.09	0.13	0.19	0.13	0.33	0.07	0.1	0.21	411
white mica	0.73	0.89	32.33	49.93	0.1	8.66	0.33	0.81	0.07	0.05	5.18	0.09	0.09	0.13	0.0	0.06	0.0	0.15	0.4	38
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	32.5	2.12	44.74	0.18	0.21	0.23	0.45	0.11	0.25	18.47	0.04	0.28	0.1	0.0	0.14	0.0	0.15	0.06	6
clino-amphibole/clino-pyroxene	2.09	4.91	15.04	37.42	0.11	2.06	5.5	0.77	0.09	0.24	30.31	0.11	0.14	0.17	0.18	0.48	0.11	0.07	0.18	108
chlorite	1.8	1.59	18.42	27.38	0.19	3.04	0.3	0.45	0.1	0.31	44.6	0.09	0.14	0.3	0.31	0.56	0.17	0.1	0.16	272
unclassified	1.94	1.59	19.18	30.82	0.84	3.5	0.73	8.81	0.4	0.22	28.92	0.09	0.11	1.75	0.28	0.38	0.16	0.1	0.18	113

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Sample GEUS #: 2003947

Description: Itilli, 305 m, Itilli formation, Anariartorfik member, 453177, outcrop

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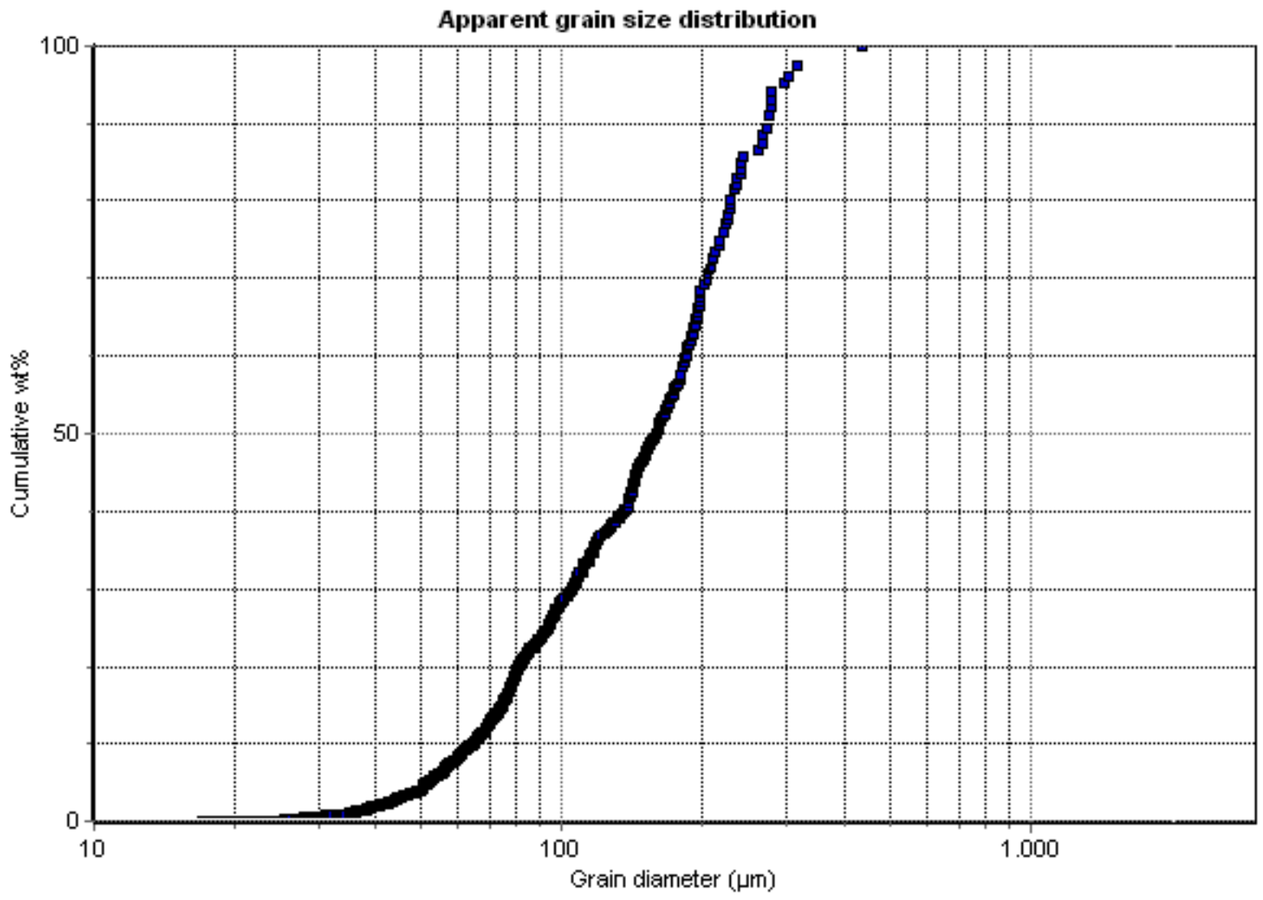

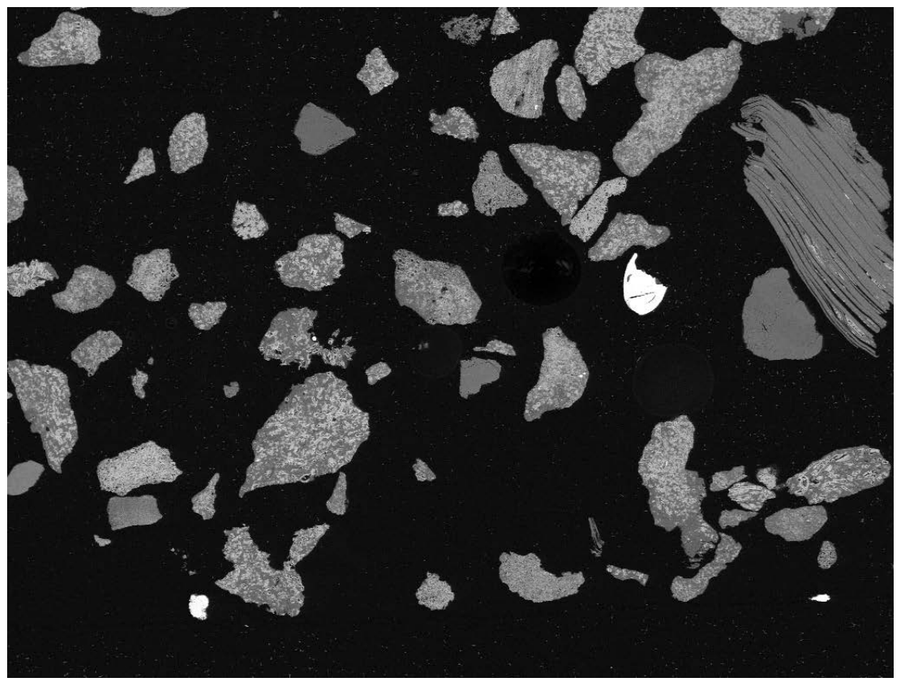

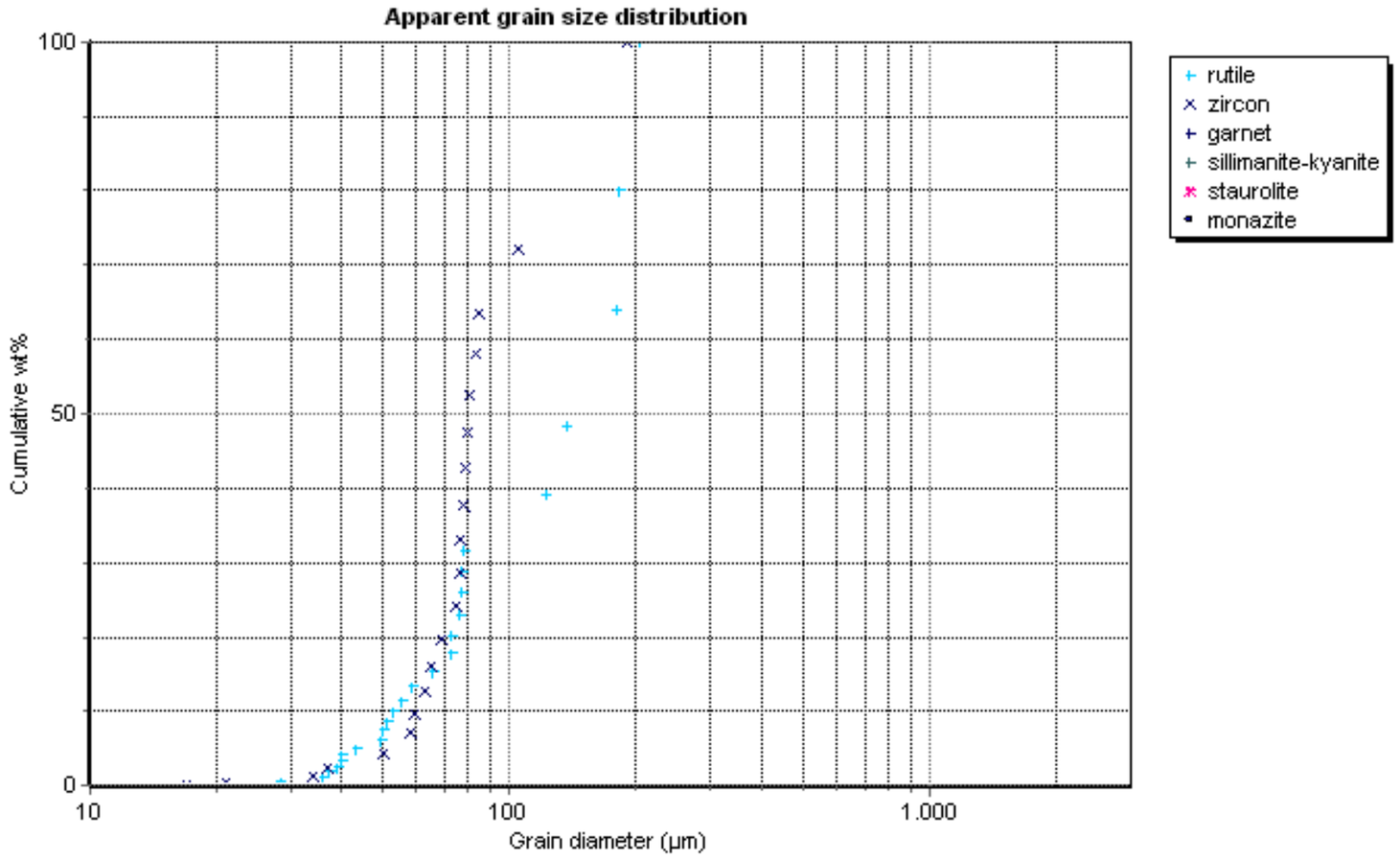

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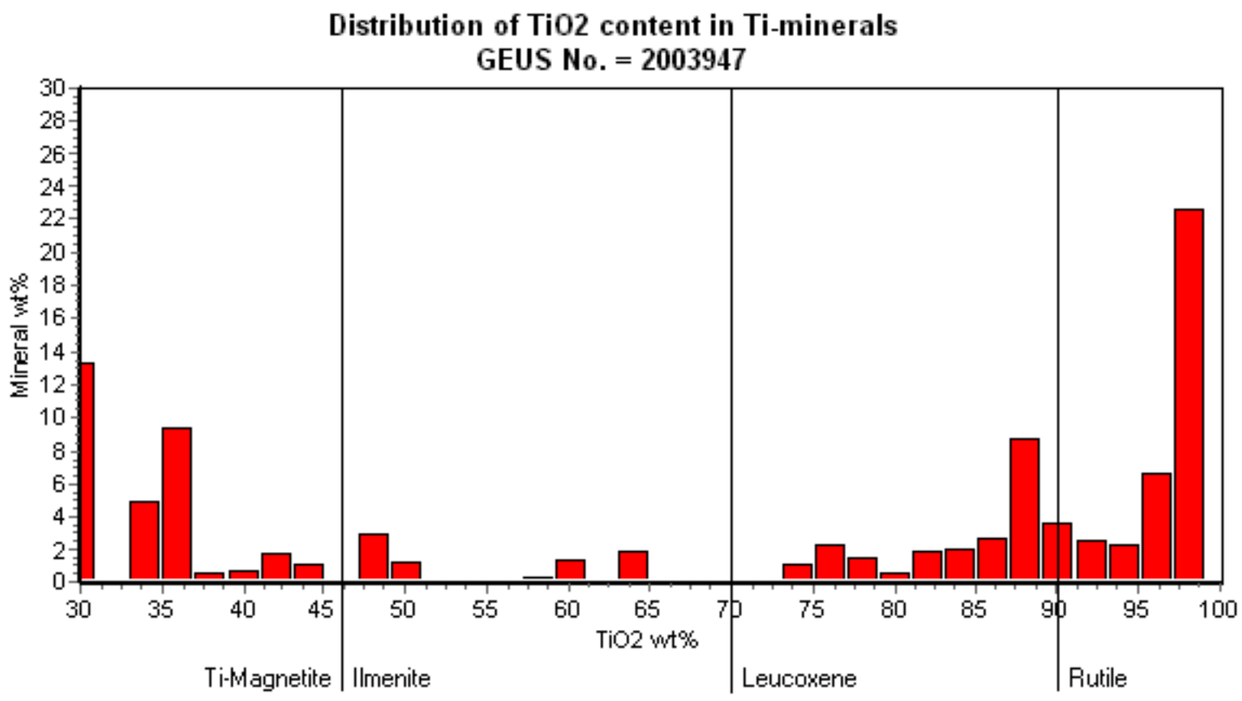

Sample GEUS #: 2003947

Description: Itilli, 305 m, Itilli formation, Anariartorfik member, 453177, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.38	0.2	9.8	20.84	4.45	1.6	0.1	56.7	0.1	0.05	4.92	0.08	0.05	0.2	0.19	0.04	0.12	0.0	0.17	5
leucoxene	0.1	0.16	6.48	10.69	0.2	1.0	0.1	78.46	0.11	0.07	1.24	0.07	0.09	0.37	0.34	0.17	0.05	0.12	0.19	24
rutile	0.03	0.08	1.28	2.22	0.16	0.18	0.05	93.68	0.2	0.07	1.2	0.09	0.07	0.11	0.23	0.09	0.01	0.17	0.07	26
Ti magnetite	0.0	1.09	13.65	18.15	0.67	2.16	0.26	28.78	0.07	0.3	33.8	0.26	0.0	0.3	0.19	0.14	0.14	0.0	0.08	2
magnetite	1.37	1.76	12.22	18.09	0.8	1.87	0.27	0.59	0.11	0.44	60.55	0.09	0.13	0.35	0.26	0.72	0.12	0.08	0.18	72
chromite	0.14	4.79	16.31	3.43	0.17	0.32	0.06	1.07	35.49	0.37	36.99	0.1	0.13	0.06	0.32	0.13	0.0	0.0	0.16	4
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.13	0.05	0.4	30.95	0.06	0.1	0.04	0.11	0.08	0.08	0.55	0.08	0.05	66.87	0.0	0.13	0.03	0.22	0.08	21
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	9.07	0.0	22.34	67.11	0.18	0.0	0.12	0.22	0.0	0.0	0.46	0.0	0.29	0.0	0.0	0.0	0.0	0.14	0.07	1
silicate-other	1.29	2.81	26.82	50.3	0.36	2.48	0.63	0.53	0.09	0.14	13.93	0.03	0.1	0.03	0.0	0.21	0.0	0.13	0.13	21
quartz	0.38	0.12	1.44	95.26	0.11	0.1	0.12	0.27	0.11	0.14	0.81	0.1	0.16	0.31	0.0	0.22	0.0	0.09	0.28	17
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.11	2.21	3.12	61.82	0.42	0.02	0.0	0.0	0.2	31.57	0.07	0.04	0.0	0.03	0.18	0.0	0.09	0.11	5
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.7	0.97	26.24	34.62	0.24	4.46	0.3	1.35	0.06	0.21	29.77	0.08	0.11	0.1	0.14	0.26	0.06	0.09	0.23	263
white mica	0.64	0.64	33.69	49.16	0.2	8.09	0.37	1.72	0.09	0.05	4.58	0.09	0.11	0.09	0.0	0.06	0.0	0.1	0.3	17
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	36.17	0.0	44.8	0.0	0.08	0.05	0.22	0.3	0.06	17.93	0.0	0.0	0.0	0.0	0.0	0.0	0.15	0.24	1
clino-amphibole/clino-pyroxene	2.94	1.76	21.26	32.15	0.11	2.81	0.85	0.74	0.05	0.21	35.87	0.11	0.1	0.19	0.19	0.4	0.1	0.06	0.1	26
chlorite	0.83	1.31	20.28	27.28	0.32	3.17	0.28	0.73	0.09	0.31	44.05	0.09	0.14	0.16	0.2	0.38	0.07	0.1	0.21	199
unclassified	1.8	1.8	17.67	27.9	2.98	3.76	1.58	13.11	0.14	0.23	23.64	0.26	0.27	2.36	0.87	0.72	0.2	0.27	0.44	116

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Sample GEUS #: 2003948

Description: Itilli, 325 m, Itilli formation, Anariartorfik member, 453179, outcrop

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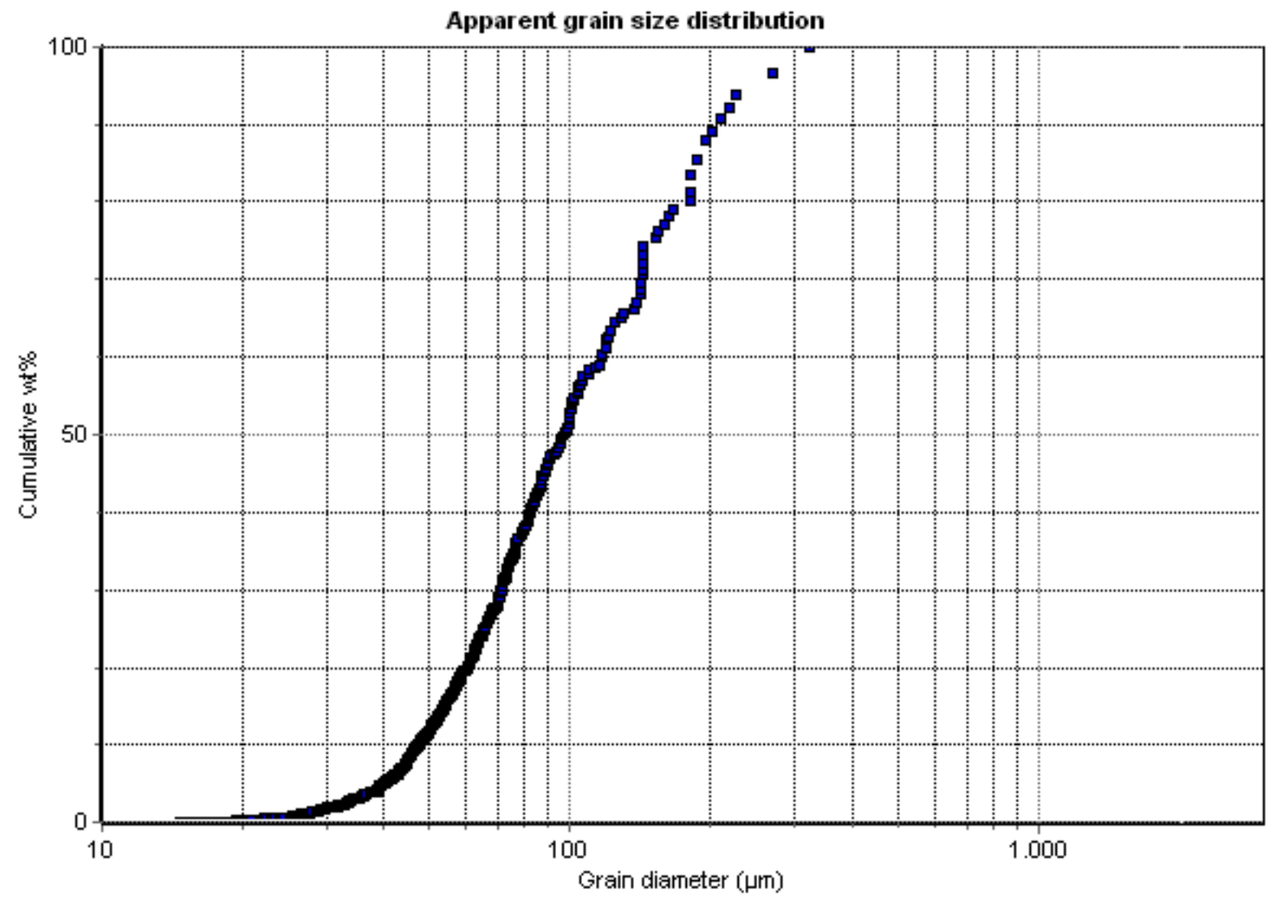

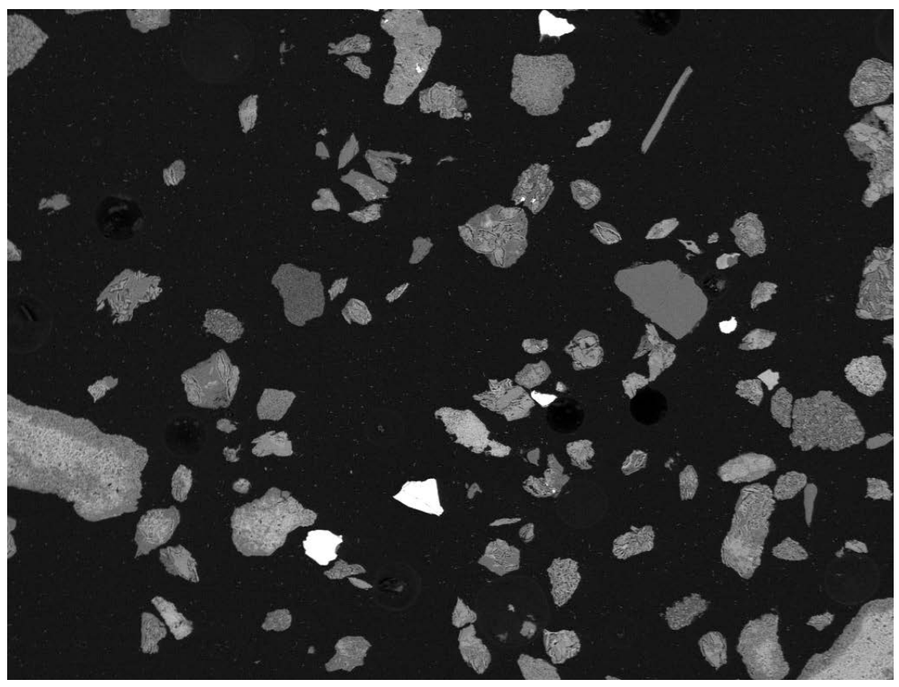

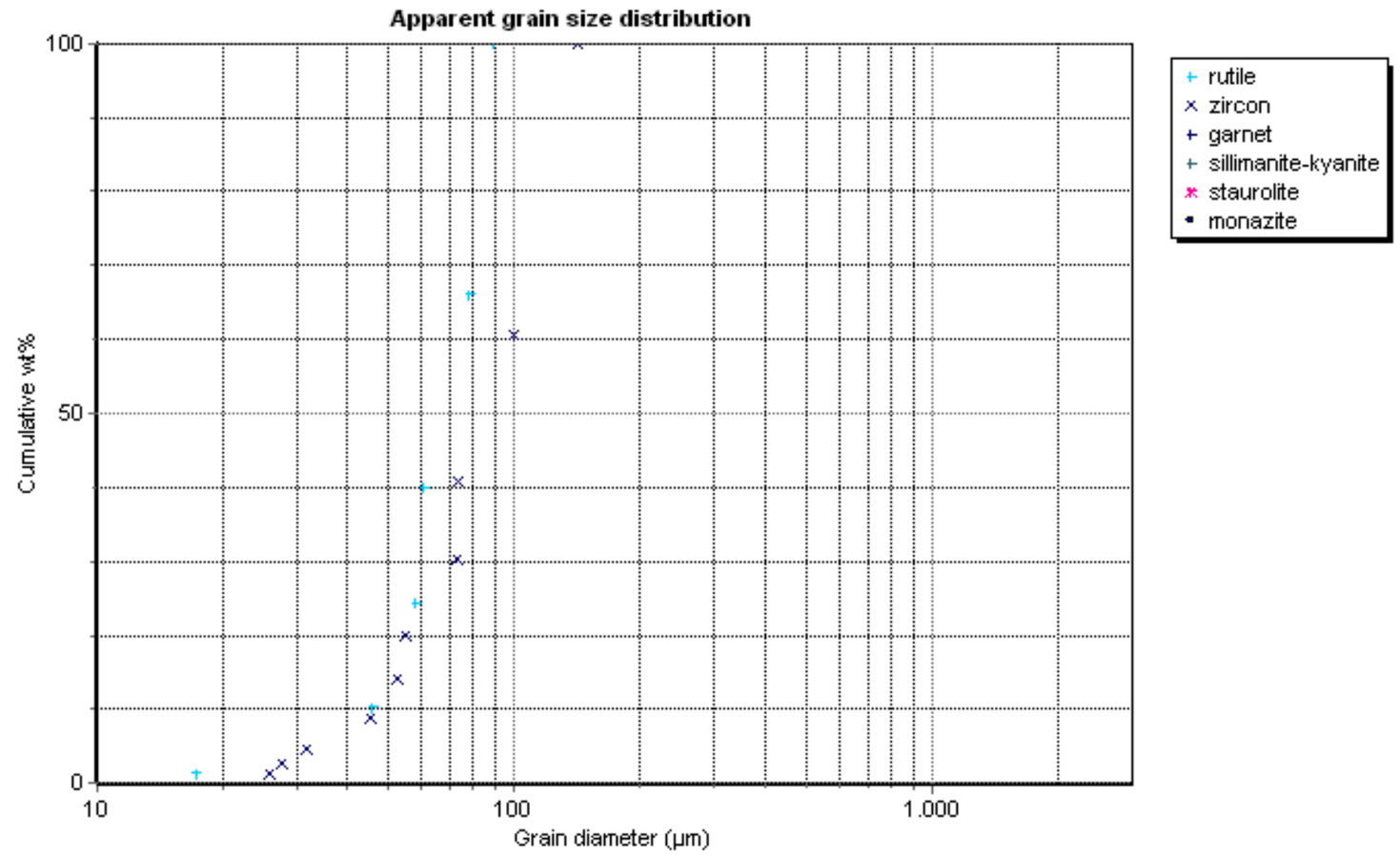

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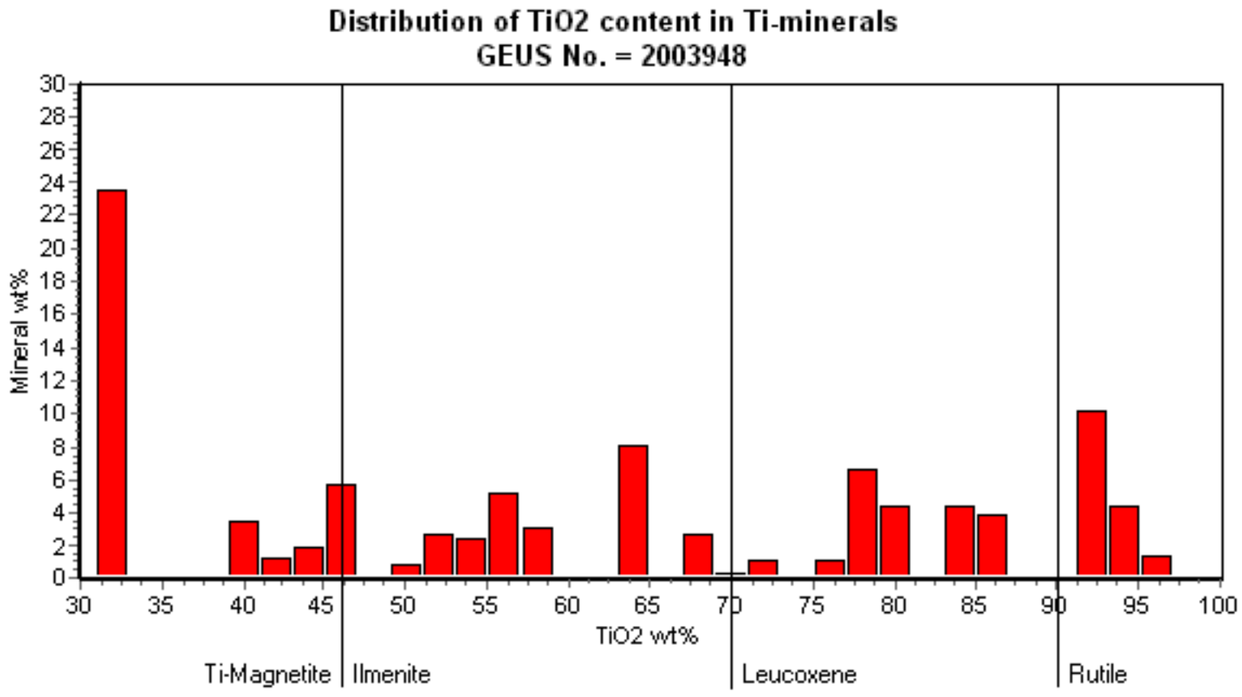

Sample GEUS #: 2003948

Description: Itilli, 325 m, Itilli formation, Anariartorfik member, 453179, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.1	0.35	16.39	21.61	0.14	2.66	0.19	56.48	0.25	0.1	0.48	0.07	0.09	0.13	0.4	0.19	0.12	0.16	0.08	5
leucoxene	0.09	0.21	9.03	11.88	0.19	1.33	0.09	74.84	0.24	0.08	0.88	0.07	0.06	0.17	0.26	0.16	0.05	0.27	0.12	11
rutile	0.0	0.12	1.34	2.09	0.23	0.18	0.11	93.31	0.37	0.09	1.07	0.07	0.11	0.11	0.42	0.18	0.0	0.15	0.07	6
Ti magnetite	1.25	3.3	13.1	17.14	0.0	1.9	0.24	31.54	0.08	0.02	29.97	0.0	0.0	0.0	0.68	0.77	0.0	0.0	0.0	1
magnetite	3.64	12.07	5.65	9.04	1.85	0.66	0.78	0.33	0.1	0.84	63.47	0.23	0.16	0.23	0.42	0.18	0.09	0.1	0.15	90
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.18	0.04	0.62	31.07	0.0	0.04	0.01	0.15	0.06	0.09	1.07	0.09	0.03	66.49	0.0	0.0	0.0	0.06	0.02	10
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	1.04	2.19	19.84	63.25	0.13	2.58	0.29	0.41	0.05	0.08	8.94	0.09	0.22	0.25	0.0	0.02	0.0	0.12	0.49	7
quartz	0.03	0.11	0.53	96.35	0.09	0.09	0.03	0.12	0.15	0.07	1.26	0.15	0.16	0.14	0.0	0.24	0.0	0.18	0.31	12
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.62	0.66	38.14	8.55	0.0	0.64	3.84	0.42	0.0	0.0	1.64	0.09	0.11	1.62	0.0	34.53	4.31	4.83	0.0	2
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.21	0.82	1.38	64.19	0.2	0.0	0.03	0.05	0.15	32.28	0.09	0.05	0.0	0.18	0.14	0.0	0.13	0.09	7
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.48	5.29	25.47	35.49	0.15	3.94	0.56	0.61	0.08	0.24	23.64	0.11	0.07	0.12	0.23	0.12	0.12	0.11	0.15	42
white mica	0.58	0.95	34.2	49.4	0.14	8.87	0.29	0.57	0.06	0.1	3.94	0.1	0.07	0.12	0.0	0.04	0.0	0.15	0.42	29
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	28.23	2.89	52.73	0.38	0.0	0.83	0.26	0.14	0.42	13.17	0.09	0.06	0.03	0.0	0.36	0.0	0.0	0.38	1
clino-amphibole/clino-pyroxene	4.9	7.84	21.27	31.84	0.39	2.55	1.53	0.54	0.09	0.25	27.77	0.11	0.08	0.09	0.3	0.04	0.18	0.05	0.18	18
chlorite	0.55	4.72	19.55	27.14	0.47	2.89	0.45	0.32	0.06	0.4	41.93	0.18	0.23	0.31	0.22	0.16	0.18	0.13	0.14	10
unclassified	7.31	16.84	11.53	14.85	0.9	1.4	1.17	2.4	0.07	0.38	41.91	0.14	0.15	0.15	0.28	0.12	0.1	0.13	0.17	264

DONG sample Report - Page 1/3

Sample GEUS #: 2003949

Description: Tuapaat Qqaqaat, 580 m, Atanikerluk formation, Assoq member, 453182, outcrop

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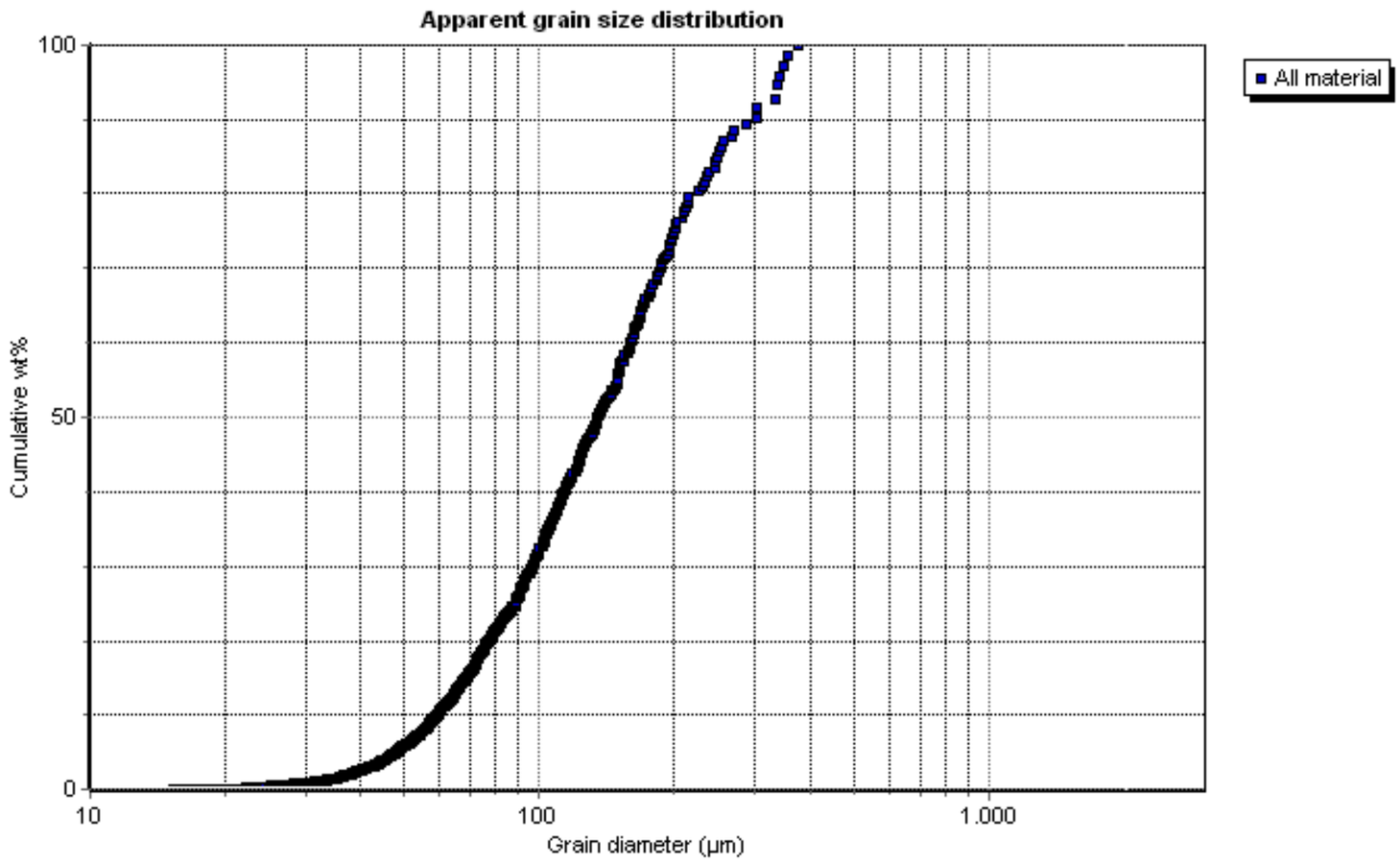

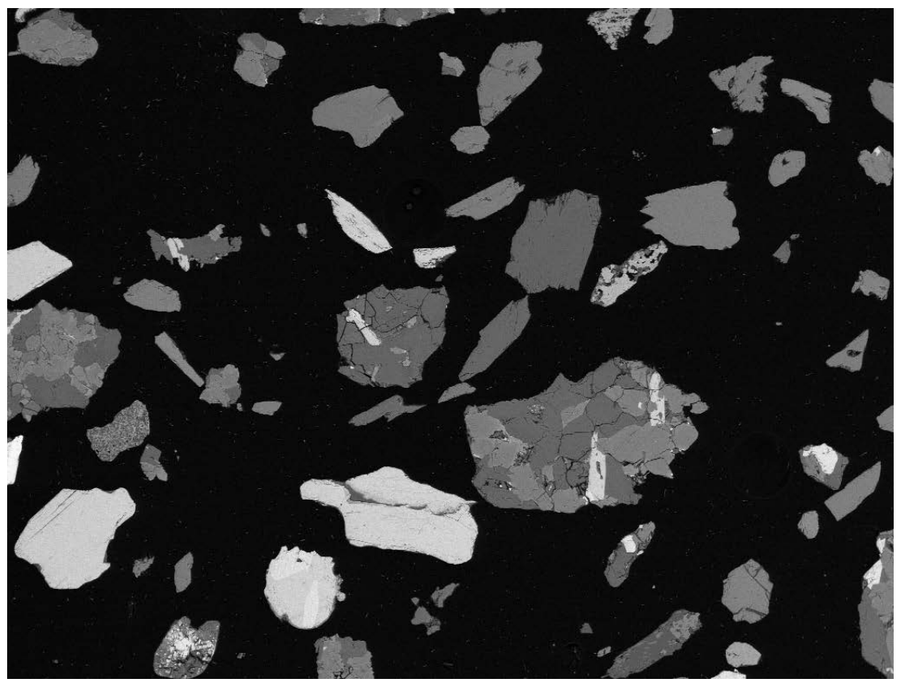

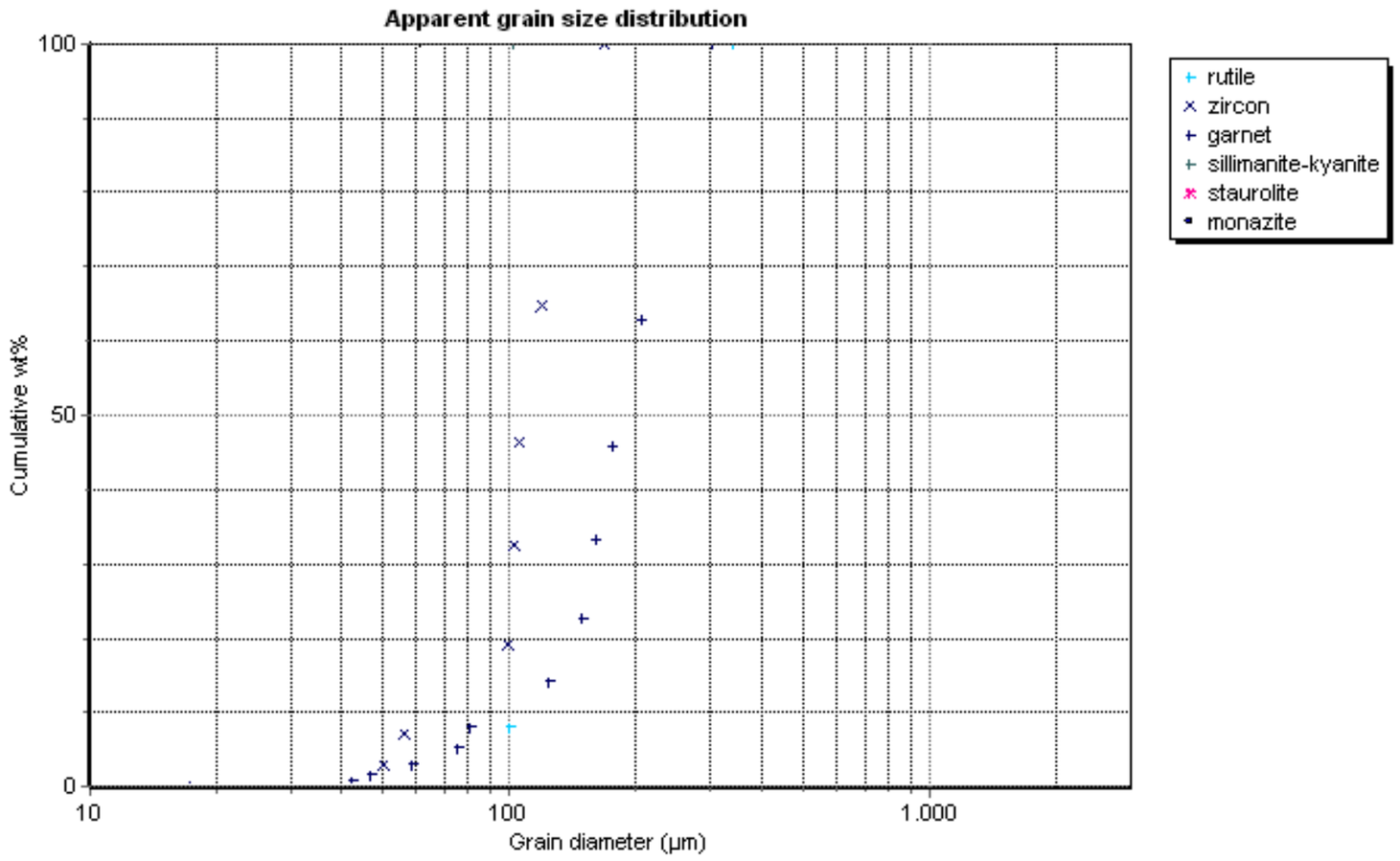

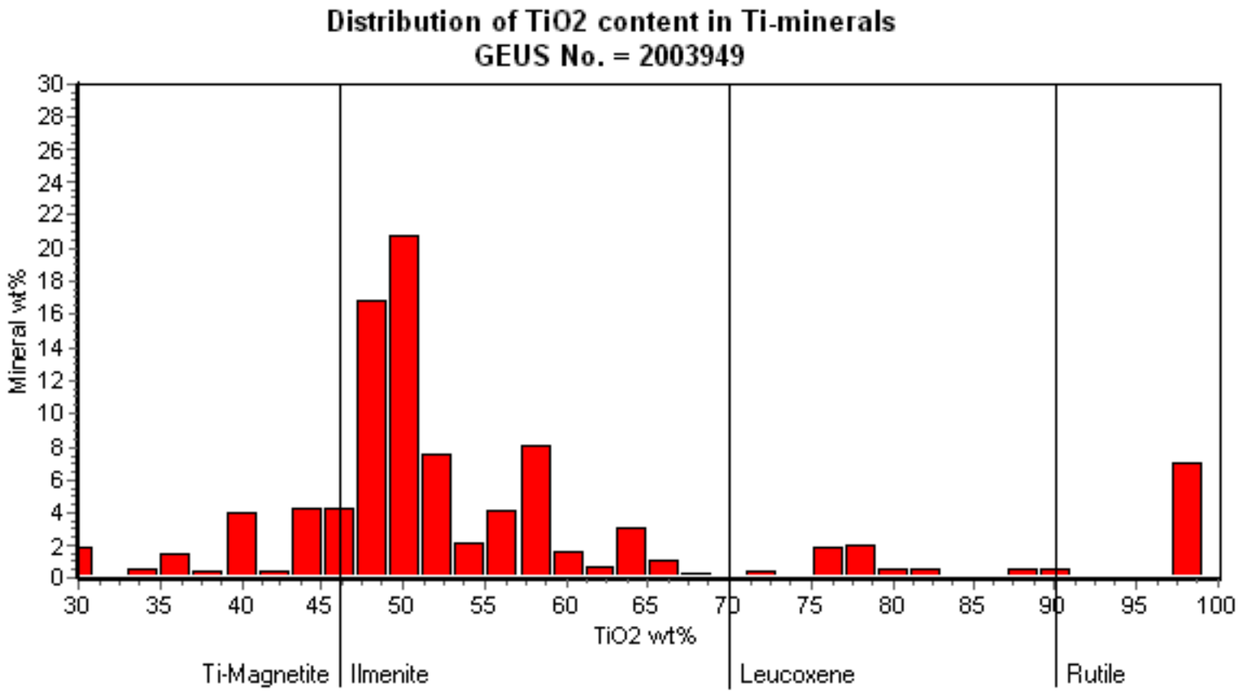

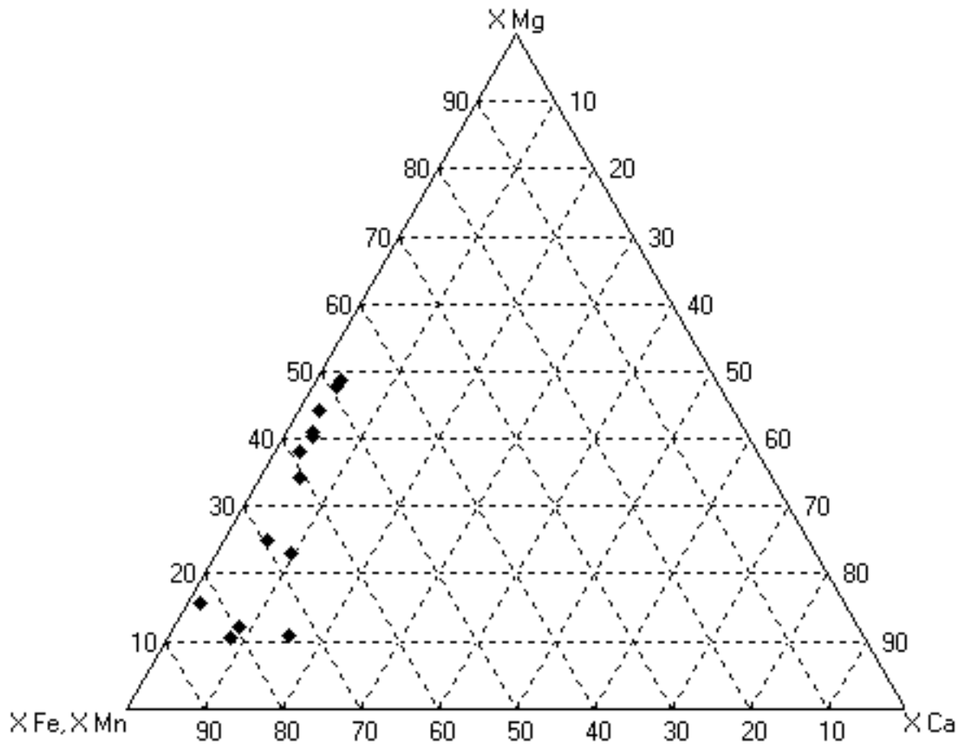

Sample GEUS #: 2003949

Description: Tuapaat Qqaqaat, 580 m, Atanikerluk formation, Assoq member, 453182, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.26	0.48	1.82	2.95	0.13	0.05	0.24	51.69	0.08	1.58	39.88	0.07	0.1	0.13	0.15	0.12	0.03	0.15	0.08	121
leucoxene	0.11	0.43	4.05	6.36	0.18	0.22	0.29	75.9	0.12	0.61	10.33	0.06	0.15	0.26	0.34	0.24	0.06	0.2	0.08	21
rutile	0.54	0.13	0.73	1.35	0.15	0.0	0.11	93.6	0.13	0.29	2.66	0.0	0.0	0.08	0.0	0.06	0.0	0.23	0.0	2
Ti magnetite	1.29	2.08	3.56	8.63	0.14	0.13	1.1	30.67	0.12	0.84	50.52	0.09	0.12	0.18	0.19	0.14	0.04	0.07	0.09	84
magnetite	1.92	0.97	10.99	15.17	0.52	0.21	0.46	2.18	0.12	0.29	65.05	0.09	0.15	0.5	0.31	0.79	0.09	0.07	0.1	27
chromite	1.92	7.38	9.03	3.22	0.22	0.02	0.18	2.51	39.0	0.34	34.57	0.35	0.24	0.29	0.16	0.03	0.14	0.42	0.0	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.21	0.07	0.63	30.0	0.0	0.09	0.25	0.26	0.03	0.09	1.31	0.04	0.0	66.66	0.0	0.0	0.0	0.24	0.1	7
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.19	0.11	1.89	27.63	0.03	0.05	26.01	41.36	0.07	0.07	0.8	0.22	0.11	0.12	0.28	0.24	0.25	0.52	0.07	4
garnet	0.0	7.16	22.49	37.73	0.09	0.06	1.81	0.1	0.03	0.97	28.59	0.08	0.16	0.17	0.12	0.1	0.09	0.12	0.14	13
sillimanite-kyanite	0.0	0.12	58.42	39.35	0.0	0.02	0.02	0.38	0.55	0.07	0.98	0.0	0.0	0.0	0.0	0.04	0.0	0.0	0.05	1
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	4.42	0.34	25.68	53.01	0.07	0.64	10.96	0.4	0.09	0.1	3.39	0.1	0.11	0.17	0.0	0.19	0.0	0.11	0.21	64
silicate-other	1.29	4.6	19.86	51.54	0.11	0.58	6.77	1.48	0.06	0.21	12.73	0.07	0.08	0.11	0.0	0.27	0.0	0.08	0.16	29
quartz	0.09	0.16	0.56	95.89	0.28	0.14	0.13	0.18	0.13	0.09	0.74	0.13	0.24	0.44	0.0	0.36	0.0	0.18	0.26	23
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	4.22	0.52	3.2	4.3	1.58	0.0	0.62	0.0	0.0	0.0	5.7	0.7	0.0	6.51	0.0	35.38	0.0	36.5	0.78	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.84	1.88	0.18	0.73	2.48	0.06	91.01	0.14	0.2	0.12	0.79	0.35	0.18	0.14	0.17	0.0	0.0	0.49	0.25	5
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0.42	0.21	24.86	38.44	0.02	0.07	22.97	0.41	0.09	0.21	11.56	0.07	0.14	0.05	0.0	0.08	0.0	0.13	0.27	54
dark mica	0.92	5.26	16.82	37.52	0.03	5.92	0.47	4.87	0.1	0.14	26.84	0.04	0.13	0.22	0.13	0.26	0.0	0.16	0.17	7
white mica	1.12	1.23	30.41	50.33	0.11	9.65	0.35	0.85	0.05	0.08	5.08	0.05	0.09	0.22	0.0	0.08	0.0	0.13	0.16	13
olivine	0.95	21.33	1.1	37.14	0.07	0.05	0.44	0.41	0.01	0.51	37.21	0.06	0.05	0.19	0.0	0.15	0.0	0.22	0.11	3
ortho-amphibole/ortho-pyroxene	0.06	15.21	6.09	53.93	0.09	0.14	3.16	0.71	0.26	0.38	18.97	0.1	0.1	0.24	0.0	0.32	0.0	0.1	0.14	24
clino-amphibole/clino-pyroxene	1.92	8.93	10.62	46.69	0.06	0.55	12.72	1.41	0.06	0.32	15.81	0.08	0.11	0.17	0.01	0.24	0.0	0.09	0.22	640
chlorite	1.08	1.38	19.34	27.75	0.21	0.19	0.59	1.94	0.09	0.22	45.28	0.14	0.08	0.68	0.28	0.31	0.21	0.1	0.14	8
unclassified	3.32	5.05	10.35	32.7	0.75	2.09	4.01	10.31	0.39	0.33	27.43	0.11	0.16	1.49	0.57	0.46	0.22	0.12	0.14	47

DONG sample Report - Page 1/3

Sample GEUS #: 2003950

Description: Ataata Kuua, 562,7-564,7 m, Atane formation, Qilakitsoq member, 247801-254,255,257,257, well

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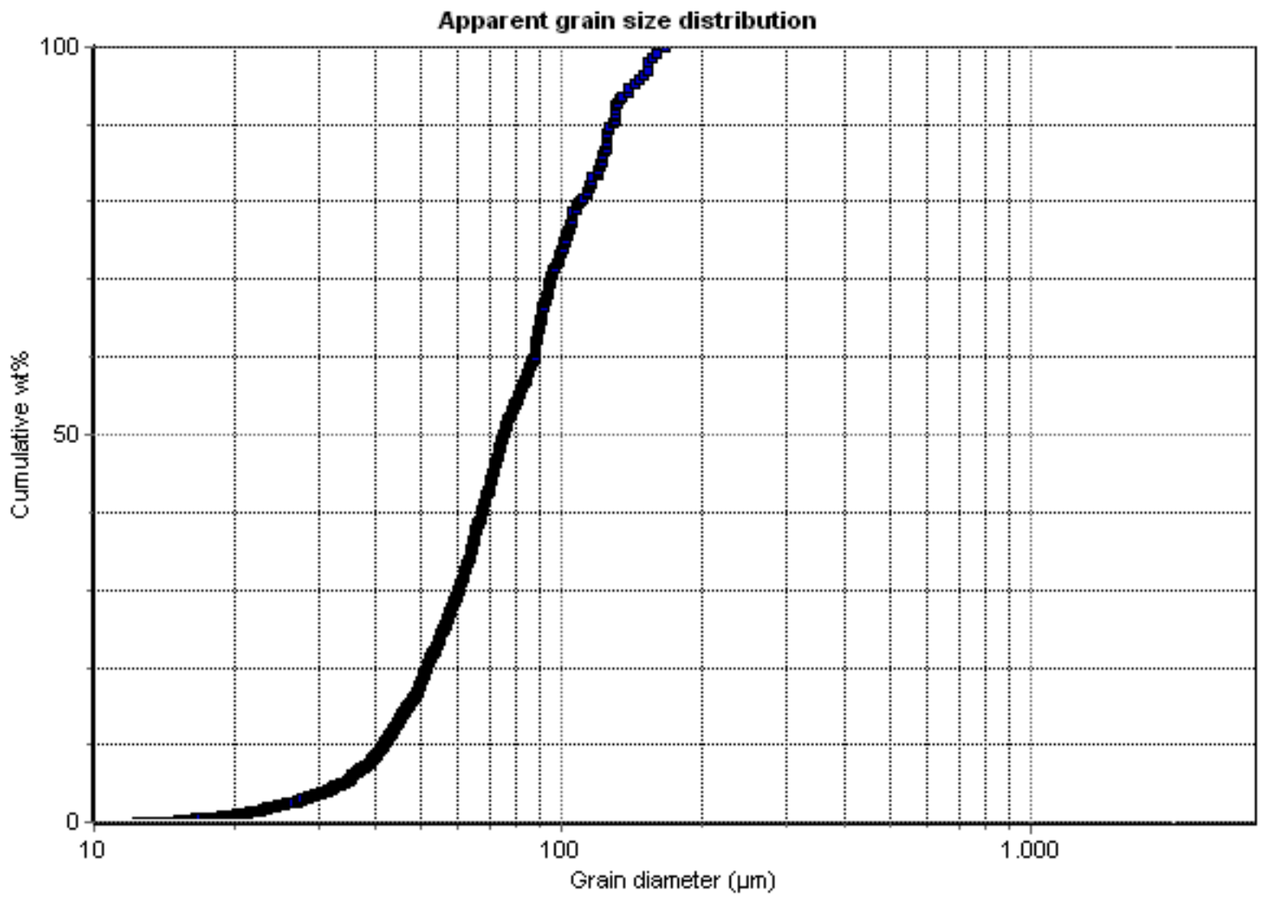

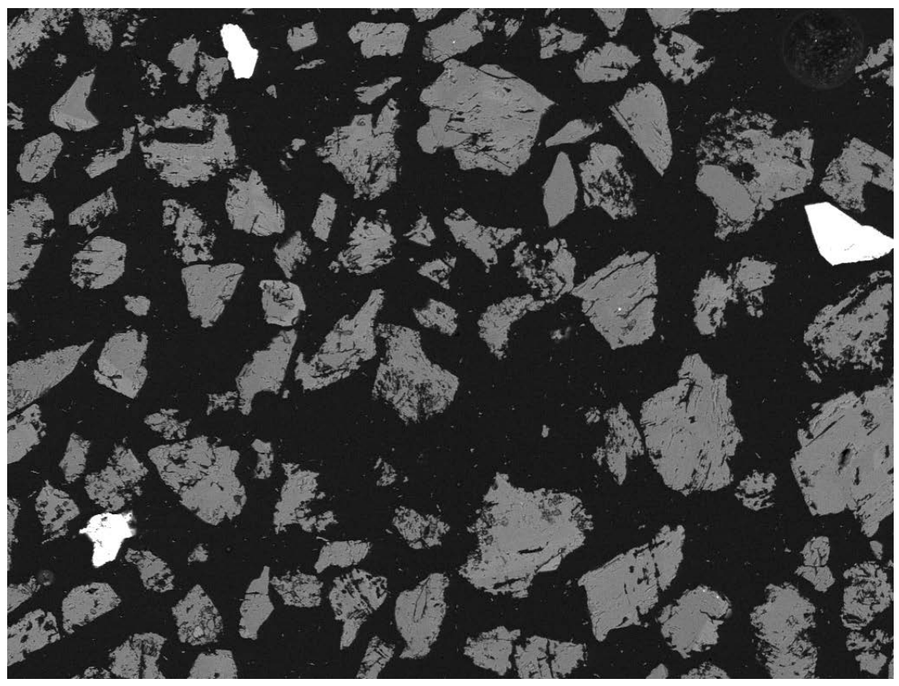

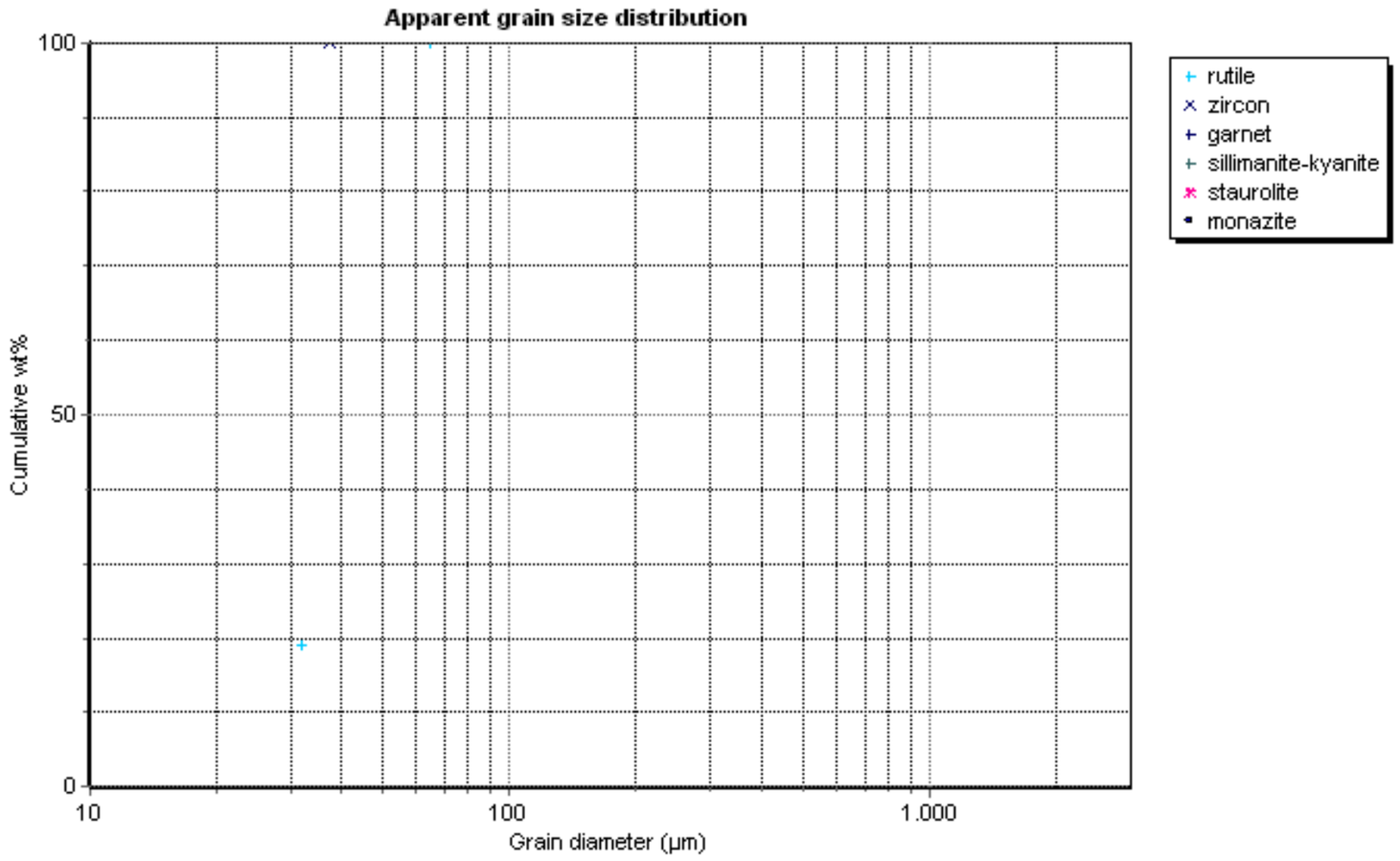

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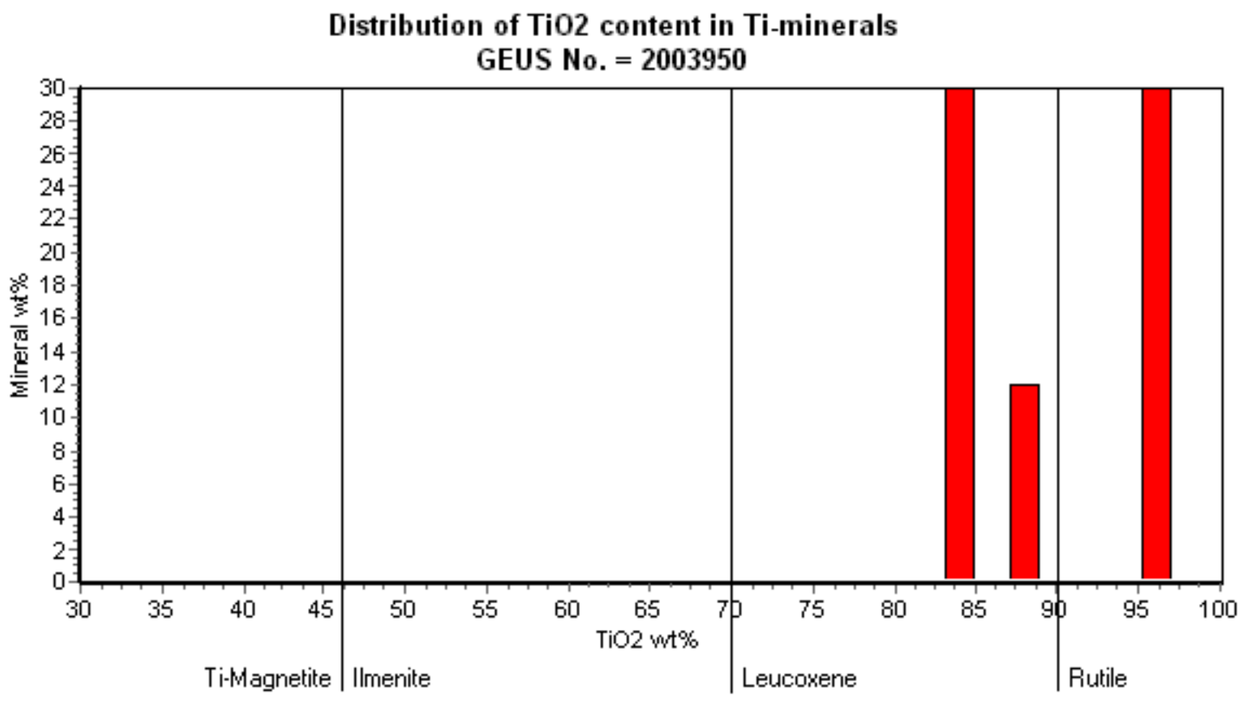

Sample GEUS #: 2003950

Description: Ataata Kuua, 562,7-564,7 m, Atane formation, Qilakitsoq member, 247801-254,255,257,257, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.52	0.37	4.09	6.32	0.18	0.86	0.39	84.69	0.0	0.24	0.26	0.0	0.0	0.29	0.63	0.0	0.0	1.16	0.0	1
rutile	0.24	0.0	1.81	2.15	0.29	0.05	0.57	91.89	0.49	0.1	1.04	0.09	0.14	0.15	0.19	0.54	0.0	0.31	0.0	2
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.1	0.1	30.84	0.0	0.28	0.06	0.08	0.0	0.06	0.0	0.47	0.0	67.79	0.0	0.0	0.0	0.24	0.0	1
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	0.47	2.67	26.22	62.12	0.4	0.49	3.29	0.33	0.21	0.21	2.76	0.15	0.08	0.04	0.0	0.09	0.0	0.2	0.25	9
quartz	0.24	0.08	0.29	96.88	0.15	0.02	0.17	0.15	0.08	0.1	0.18	0.05	0.2	0.53	0.0	0.49	0.0	0.24	0.17	11
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.28	31.02	2.13	2.23	0.3	0.14	55.62	0.09	0.1	0.25	6.47	0.12	0.15	0.05	0.29	0.16	0.07	0.19	0.33	855
pyrite	0.0	0.02	1.08	2.01	67.17	0.1	0.27	0.03	0.06	0.13	28.51	0.08	0.07	0.06	0.16	0.08	0.01	0.07	0.11	6
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	0.93	0.72	27.66	53.63	0.38	11.95	0.44	0.51	0.18	0.03	2.64	0.16	0.13	0.29	0.0	0.2	0.0	0.14	0.01	5
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	1.14	18.28	3.65	52.12	0.0	0.23	5.95	0.62	0.29	0.31	16.43	0.0	0.15	0.0	0.0	0.63	0.0	0.0	0.22	1
clino-amphibole/clino-pyroxene	0.0	15.71	5.02	42.54	0.35	0.0	33.05	0.21	0.0	0.0	2.38	0.0	0.0	0.0	0.0	0.6	0.0	0.14	0.0	1
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	1.58	25.58	6.1	10.62	0.76	0.42	45.94	0.25	0.12	0.23	5.97	0.23	0.19	0.3	0.46	0.22	0.23	0.26	0.53	308

DONG sample Report - Page 1/3

Sample GEUS #: 2003951

Description: Ataata Kuua, 535,1-539,79 m, Atane formation, Qilakitsoq member, 247801-258,259,260,261, well

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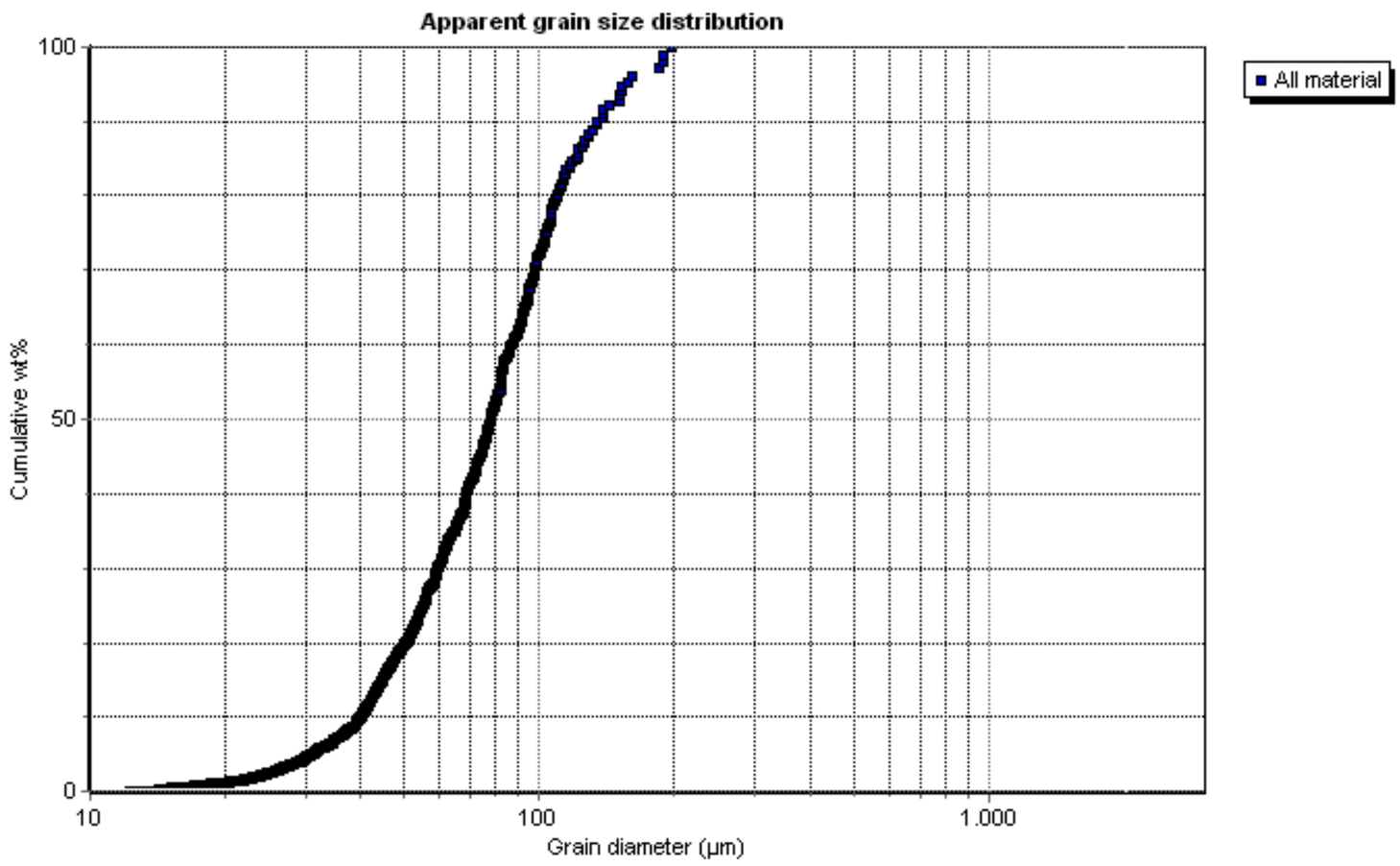

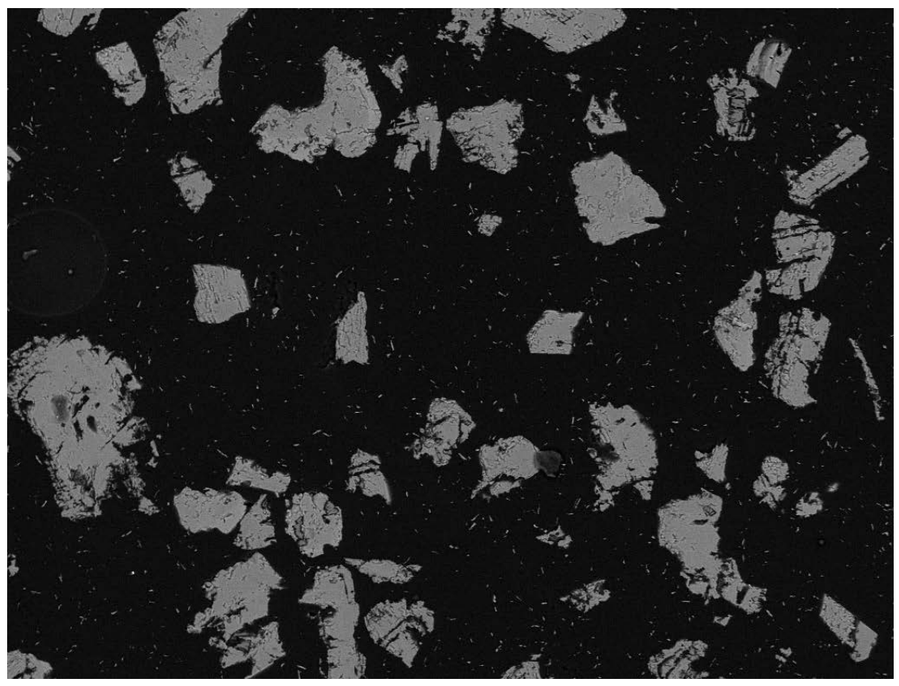

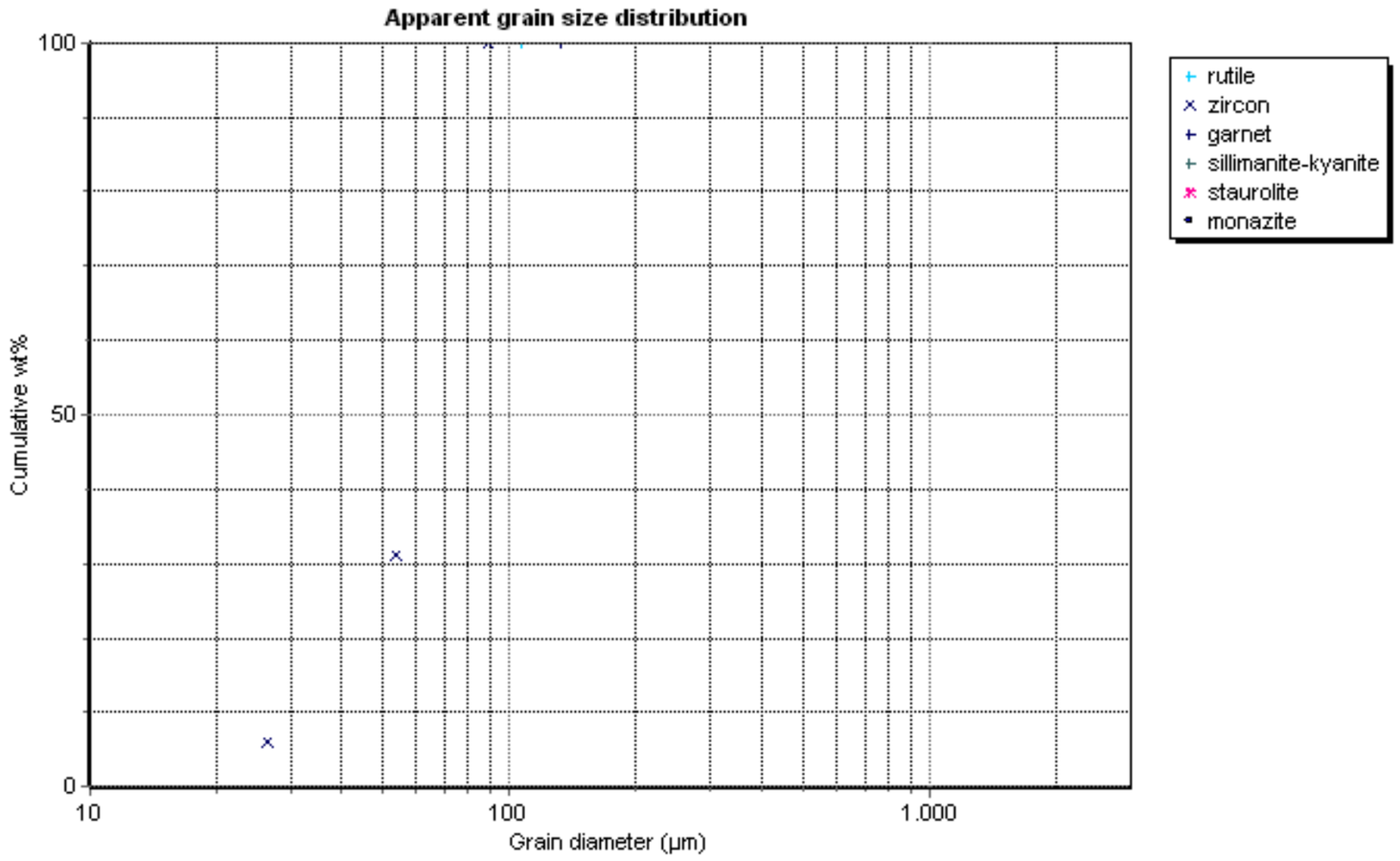

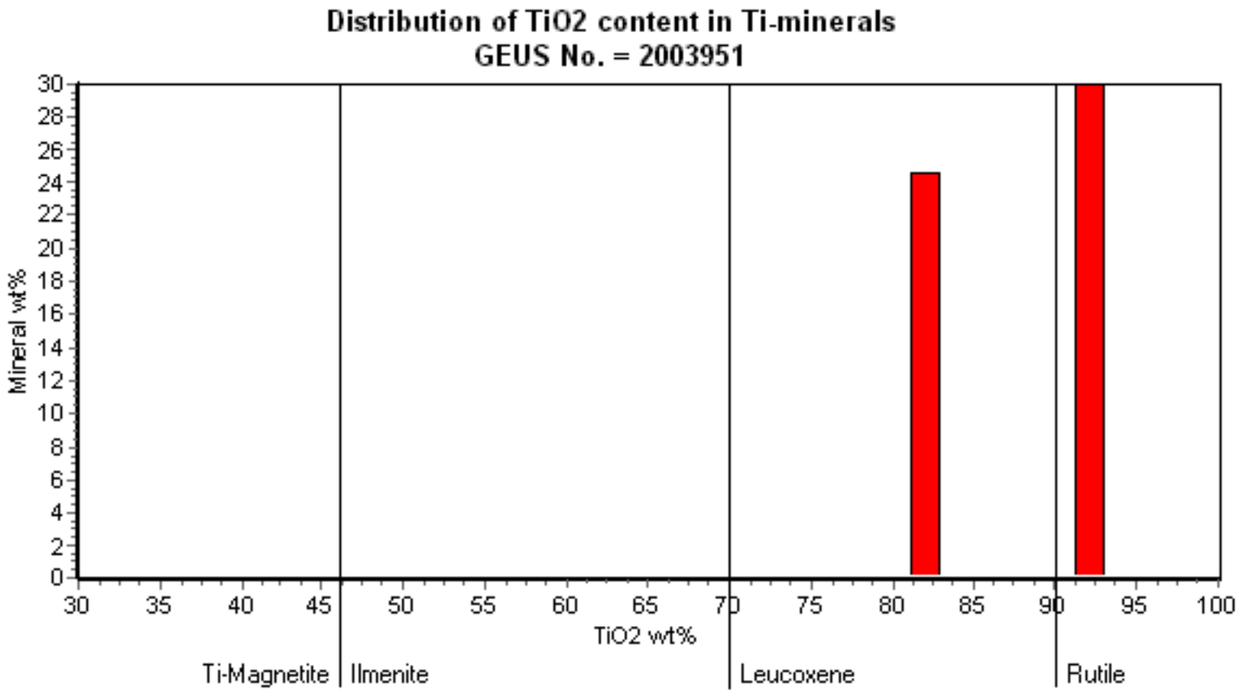

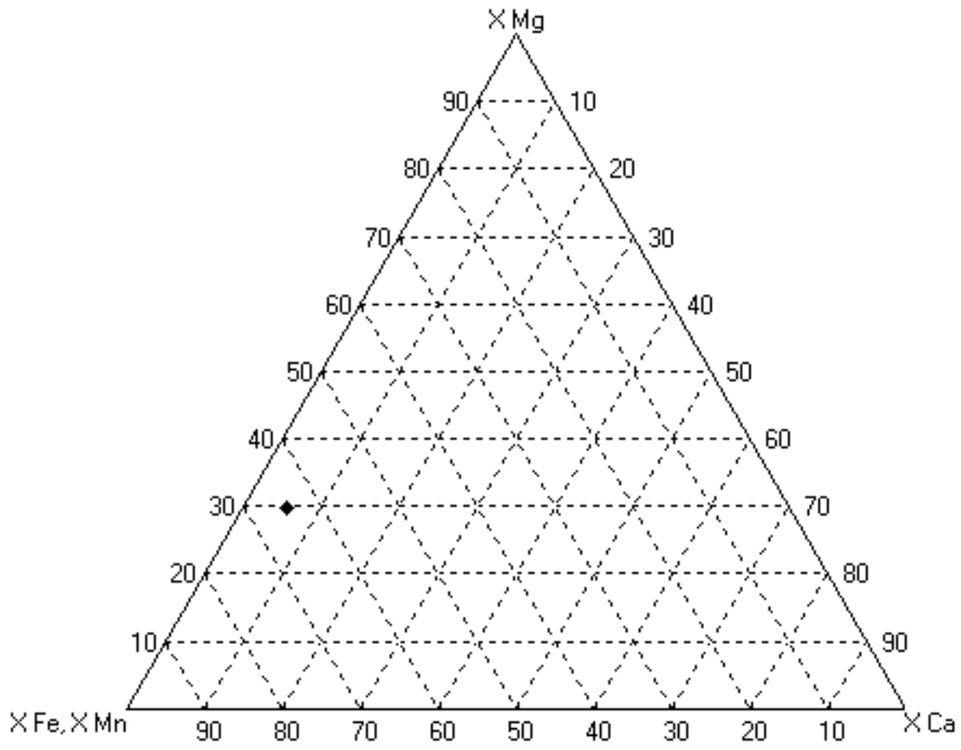

Sample GEUS #: 2003951

Description: Ataata Kuua, 535,1-539,79 m, Atane formation, Qilakitsoq member, 247801-258,259,260,261, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.18	0.05	7.11	8.71	0.23	0.1	0.33	81.04	0.13	0.0	0.08	0.0	0.0	0.29	0.34	0.0	0.0	1.4	0.0	1
rutile	0.0	0.0	2.71	1.38	0.0	0.0	0.64	92.94	0.07	0.22	0.61	0.2	0.15	0.0	0.18	0.7	0.0	0.0	0.2	1
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.16	0.14	0.52	31.74	0.0	0.0	0.62	0.13	0.07	0.19	0.33	0.12	0.0	65.59	0.0	0.0	0.0	0.26	0.12	3
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	7.17	21.85	38.13	0.0	0.04	1.85	0.14	0.09	0.75	29.82	0.0	0.06	0.0	0.0	0.0	0.0	0.04	0.07	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	0.55	3.75	36.31	49.85	0.0	1.38	5.6	0.62	0.11	0.07	1.19	0.08	0.04	0.04	0.0	0.03	0.0	0.09	0.29	8
quartz	0.01	0.11	0.33	97.0	0.09	0.12	0.15	0.09	0.08	0.14	0.25	0.19	0.15	0.34	0.0	0.54	0.0	0.22	0.18	15
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	8.29	12.94	0.95	2.27	1.37	0.0	15.79	0.0	0.0	0.0	0.44	0.0	0.0	7.35	0.0	36.59	0.0	14.0	0.0	1
carbonate	0.33	32.41	2.22	2.3	0.23	0.13	58.23	0.06	0.09	0.15	2.5	0.15	0.17	0.04	0.26	0.15	0.06	0.17	0.35	816
pyrite	0.0	1.53	0.3	0.47	64.72	0.01	3.53	0.05	0.0	0.2	28.41	0.02	0.09	0.24	0.28	0.03	0.07	0.0	0.09	2
epidote	0.0	13.15	27.8	31.25	0.06	0.13	25.37	0.08	0.1	0.04	0.55	0.08	0.06	0.08	0.21	0.13	0.2	0.21	0.51	3
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	0.77	0.78	30.33	52.93	0.04	10.69	0.36	0.53	0.08	0.05	2.56	0.08	0.13	0.02	0.0	0.17	0.0	0.02	0.47	9
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
clino-amphibole/clino-pyroxene	1.73	8.87	21.81	30.71	0.0	1.62	14.11	0.13	0.06	0.02	19.95	0.02	0.0	0.16	0.22	0.06	0.0	0.2	0.35	2
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	1.73	27.22	6.78	10.0	0.47	0.49	48.31	0.15	0.1	0.16	2.48	0.14	0.16	0.31	0.39	0.21	0.21	0.26	0.41	338

DONG sample Report - Page 1/3

Sample GEUS #: 2003952

Description: Ataata Kuua, 413,51-425,91 m, Atane formation, Qilakitsoq member, 247801-262,263,264,265, well

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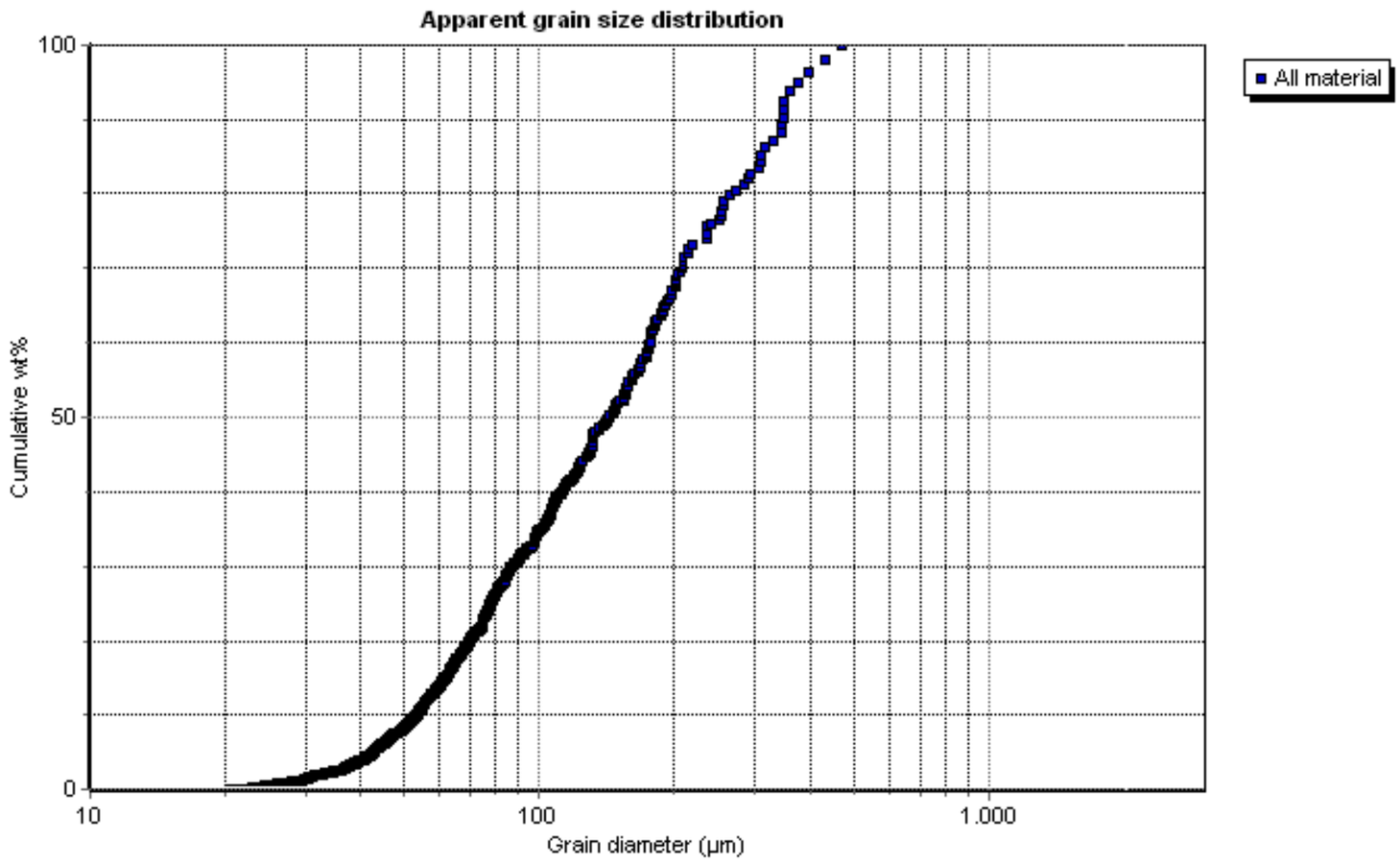

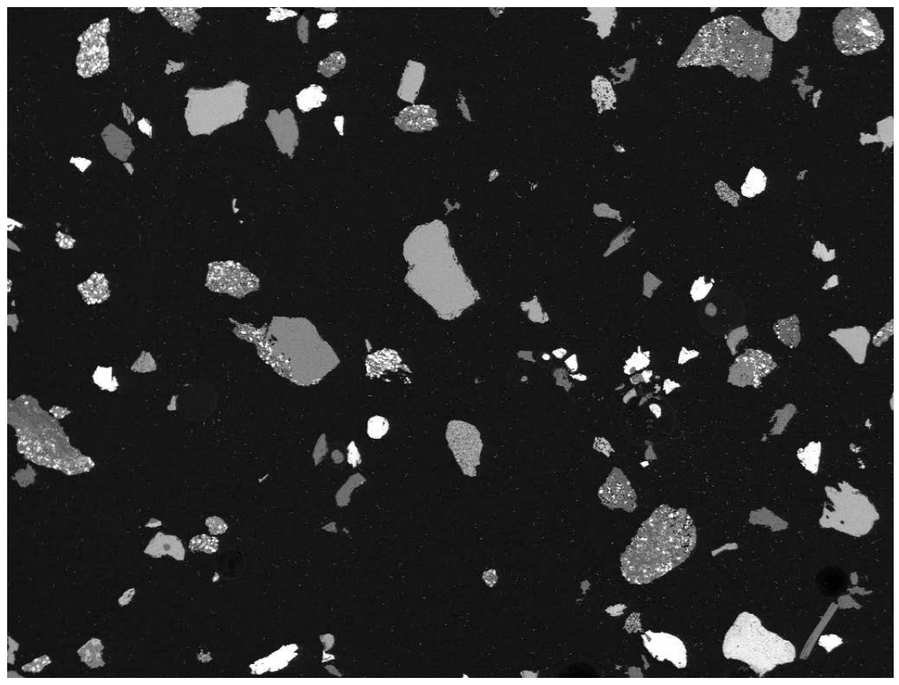

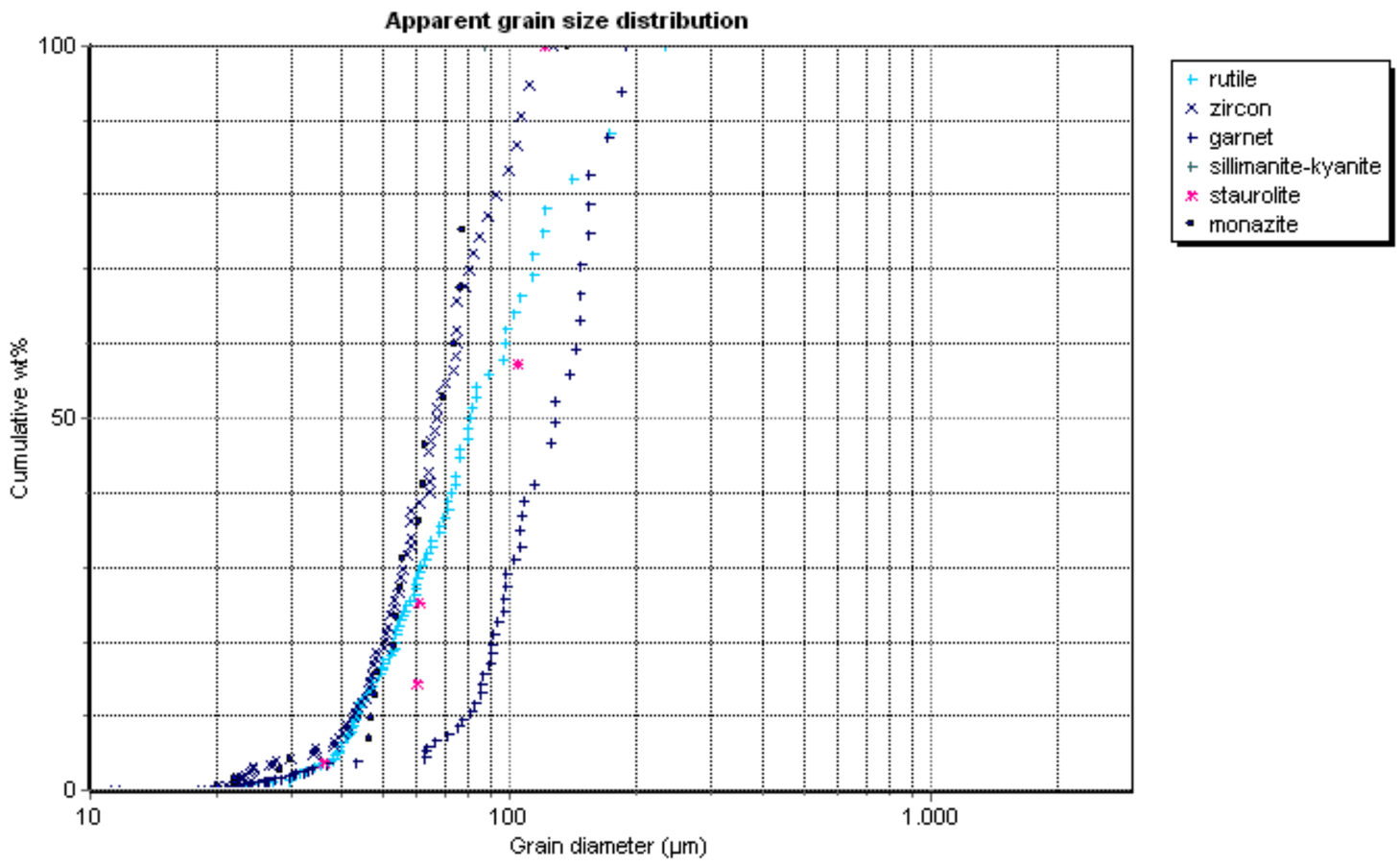

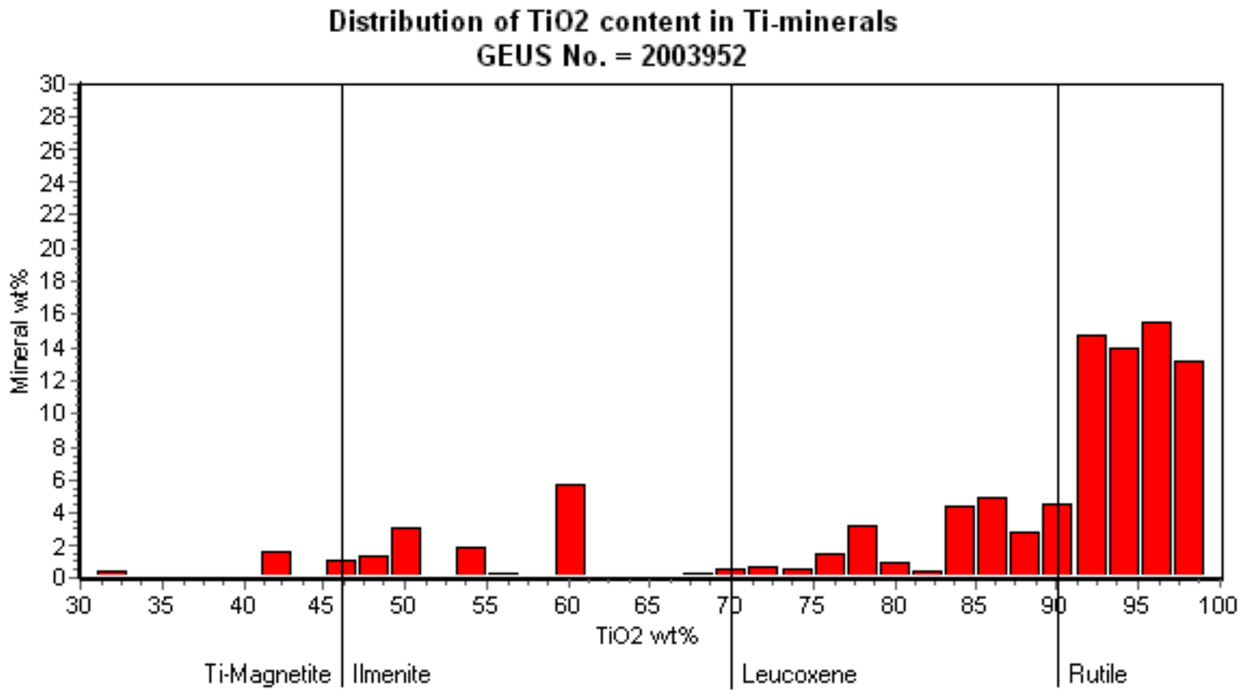

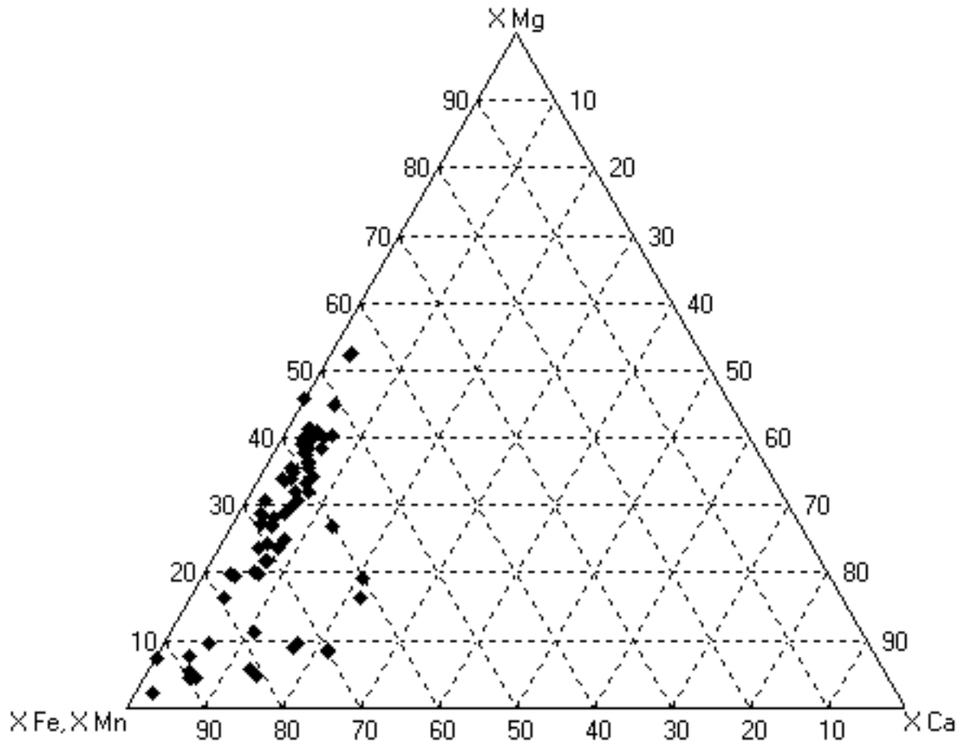

Sample GEUS #: 2003952

Description: Ataata Kuua, 413,51-425,91 m, Atane formation, Qilakitsoq member, 247801-262,263,264,265, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.14	0.48	6.06	23.76	5.01	0.33	0.12	57.06	0.05	0.06	6.1	0.07	0.08	0.02	0.24	0.19	0.0	0.13	0.11	7
leucoxene	0.28	0.19	4.28	13.09	0.73	0.16	0.19	78.18	0.17	0.07	1.3	0.11	0.11	0.45	0.28	0.24	0.03	0.04	0.1	30
rutile	0.05	0.1	1.31	2.23	0.28	0.05	0.13	93.62	0.17	0.08	1.06	0.1	0.07	0.12	0.28	0.19	0.01	0.06	0.09	110
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0.73	2.09	3.33	7.81	23.6	0.11	0.75	0.32	0.09	0.8	58.93	0.14	0.18	0.4	0.2	0.18	0.09	0.15	0.12	46
chromite	1.31	1.91	13.2	2.24	0.44	0.08	0.11	1.05	33.72	0.4	44.74	0.17	0.29	0.05	0.15	0.02	0.0	0.06	0.07	5
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.18	0.09	0.33	30.43	0.04	0.04	0.47	0.23	0.07	0.07	0.55	0.11	0.05	66.87	0.0	0.1	0.01	0.21	0.14	96
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.08	6.52	22.26	37.99	0.05	0.02	2.07	0.08	0.06	1.59	28.79	0.08	0.11	0.02	0.02	0.05	0.02	0.07	0.13	71
sillimanite-kyanite	0.0	0.07	59.02	39.64	0.0	0.0	0.0	0.0	0.17	0.0	0.37	0.0	0.0	0.0	0.0	0.0	0.0	0.72	0.0	1
staurolite	0.86	2.05	51.48	29.24	0.04	0.03	0.07	0.41	0.53	0.14	13.93	0.06	0.14	0.0	0.54	0.07	0.09	0.18	0.14	5
feldspar	0.25	0.03	19.97	61.21	0.1	15.33	0.09	0.29	0.21	0.06	0.07	0.07	0.0	0.2	0.0	0.0	0.0	0.24	1.91	2
silicate-other	1.02	2.48	36.09	49.95	1.46	0.25	0.43	0.47	0.15	0.15	7.11	0.07	0.09	0.03	0.0	0.05	0.0	0.06	0.13	22
quartz	0.16	0.1	0.49	96.94	0.08	0.03	0.08	0.21	0.1	0.09	0.82	0.16	0.15	0.1	0.0	0.18	0.0	0.19	0.12	57
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.98	0.29	1.94	7.5	4.87	0.13	2.01	0.0	0.0	0.0	1.2	0.19	0.44	8.66	0.0	42.91	0.6	28.03	0.26	21
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	1.2	0.25	1.4	2.85	3.19	0.0	2.05	0.0	0.0	0.0	0.25	0.24	0.35	13.05	0.0	46.8	1.33	26.7	0.34	5
carbonate	0.43	30.88	1.4	3.32	0.43	0.11	57.53	0.16	0.11	0.17	4.06	0.13	0.14	0.08	0.26	0.14	0.06	0.18	0.39	140
pyrite	0.0	0.06	1.48	3.06	65.42	0.14	0.04	0.28	0.05	0.1	28.76	0.08	0.11	0.06	0.12	0.06	0.01	0.11	0.07	156
epidote	0.0	16.53	16.26	28.88	0.4	1.0	31.94	0.5	0.06	0.05	2.05	0.21	0.0	0.28	0.55	0.3	0.54	0.19	0.33	2
dark mica	2.22	4.39	24.08	34.39	12.8	3.18	0.62	0.39	0.08	0.31	16.88	0.17	0.11	0.02	0.09	0.08	0.04	0.06	0.1	5
white mica	0.8	1.07	31.43	50.09	0.09	11.22	0.17	0.69	0.13	0.08	3.21	0.1	0.11	0.04	0.0	0.03	0.0	0.18	0.56	52
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.09	6.99	23.19	39.33	0.02	0.04	1.94	0.24	0.05	0.73	26.82	0.06	0.23	0.01	0.0	0.04	0.0	0.07	0.16	8
clino-amphibole/clino-pyroxene	3.61	8.69	24.0	36.63	0.66	0.04	2.15	0.3	0.07	0.76	22.53	0.07	0.12	0.02	0.06	0.05	0.03	0.07	0.13	109
chlorite	0.35	4.16	20.47	25.81	8.41	0.04	0.7	0.22	0.09	0.75	38.35	0.07	0.12	0.04	0.15	0.18	0.01	0.07	0.01	14
unclassified	1.22	6.24	8.52	20.78	22.09	0.45	8.81	3.37	0.09	0.39	25.01	0.11	0.13	1.51	0.32	0.43	0.1	0.24	0.19	236

DONG sample Report - Page 1/3

Sample GEUS #: 2003953

Description: Ataata Kuua, 270,85-274,5 m, Atane formation, Qilakitsoq member, 247801-266,267,268, well

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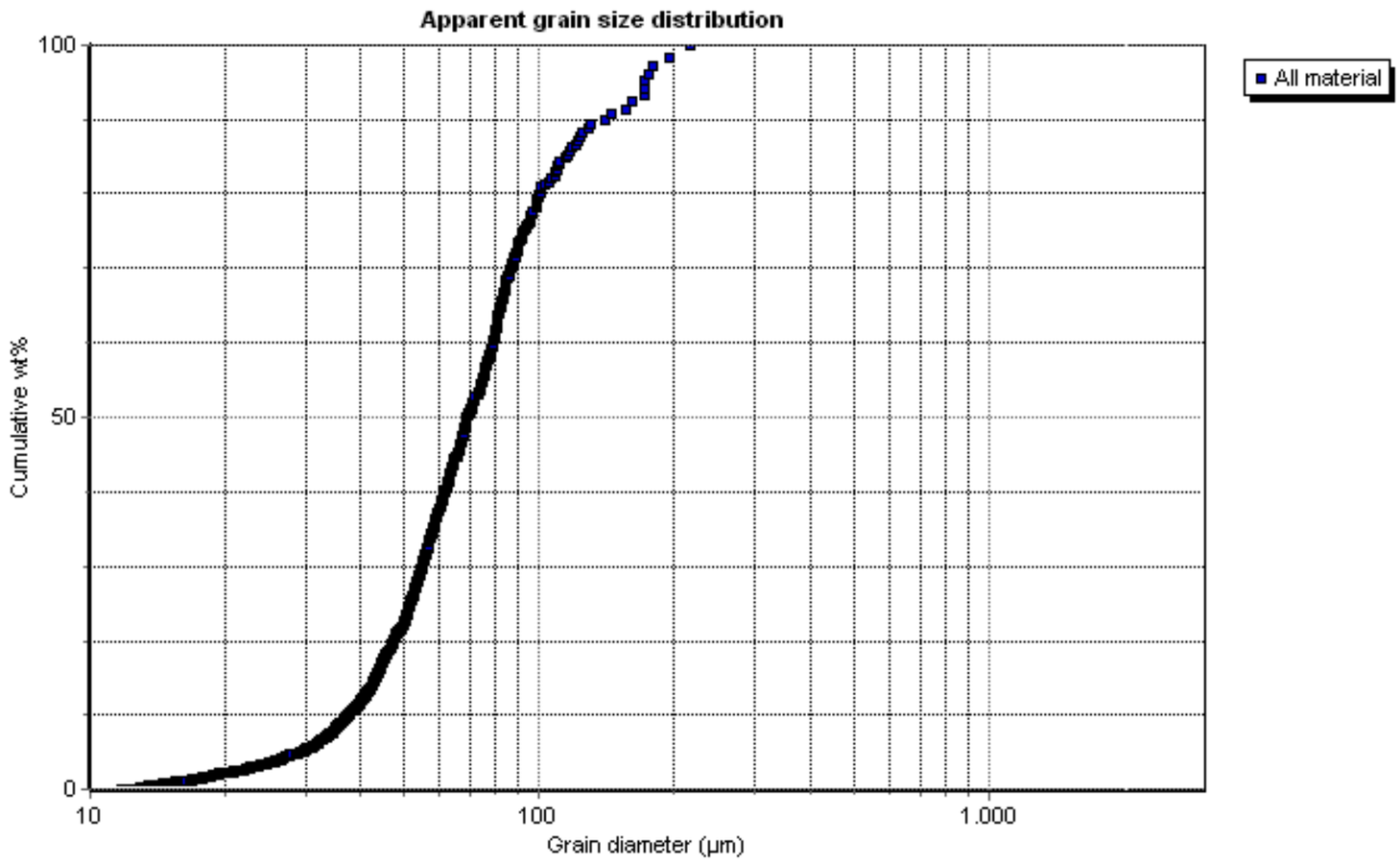

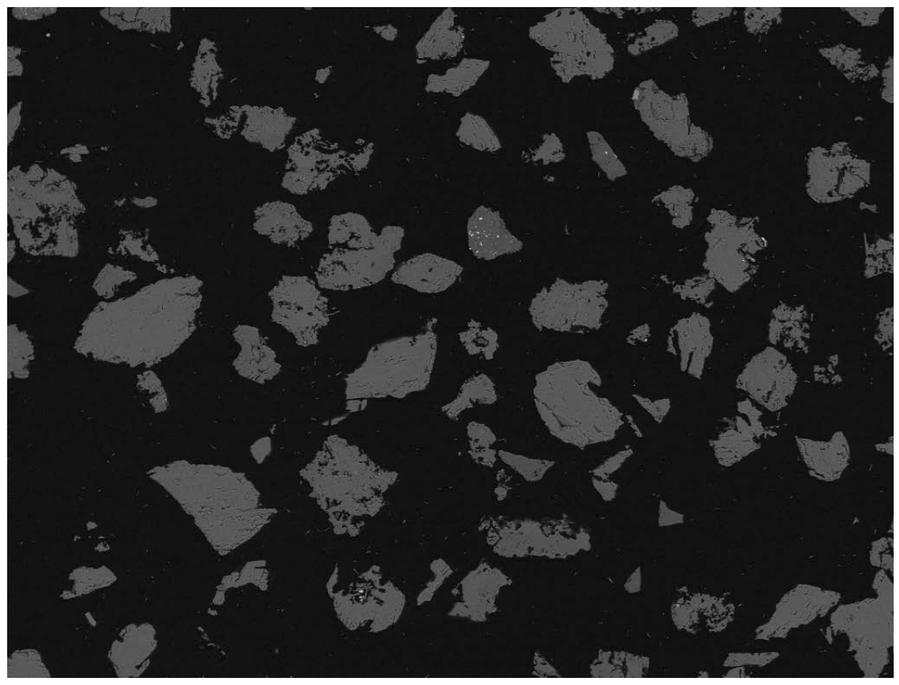

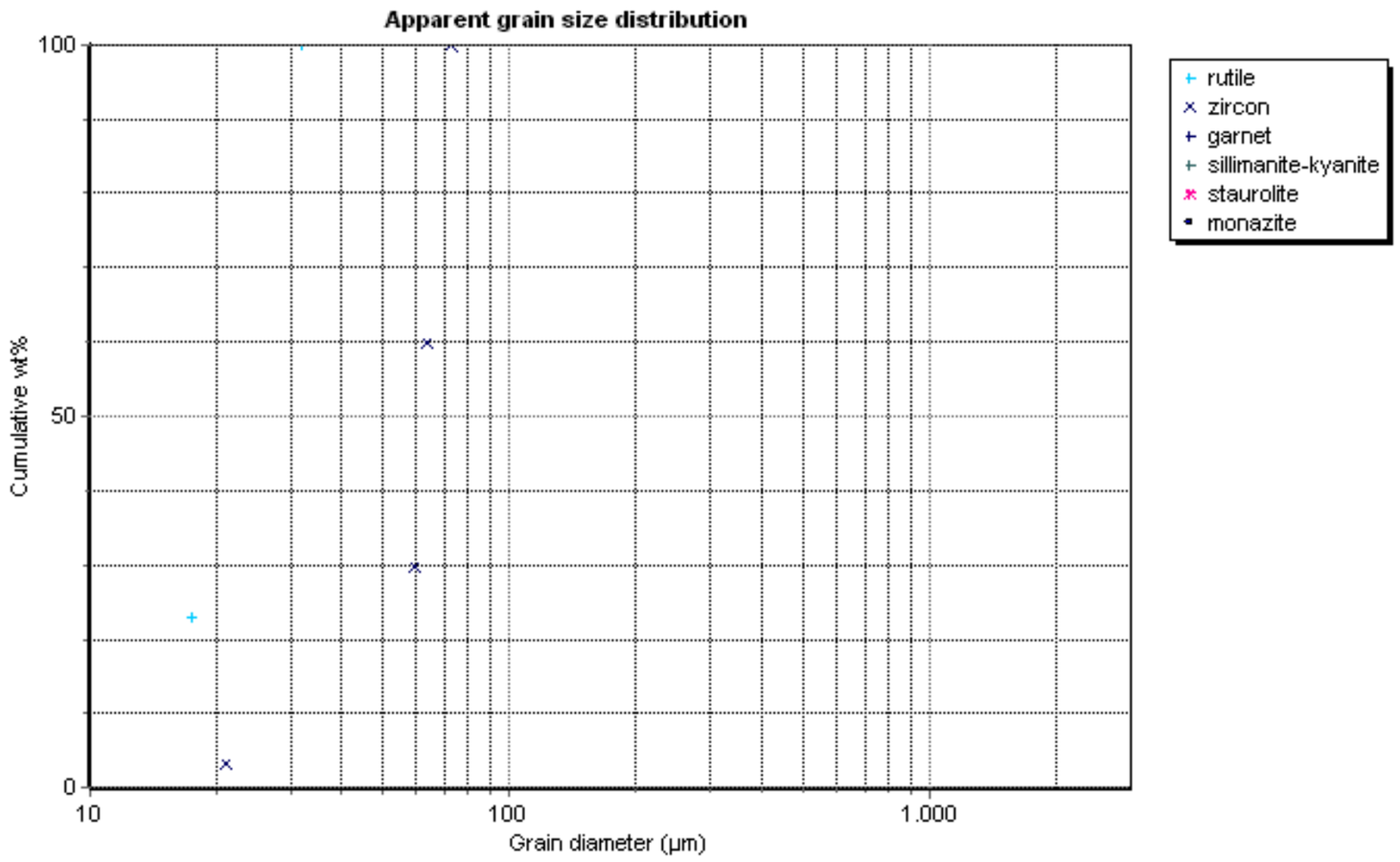

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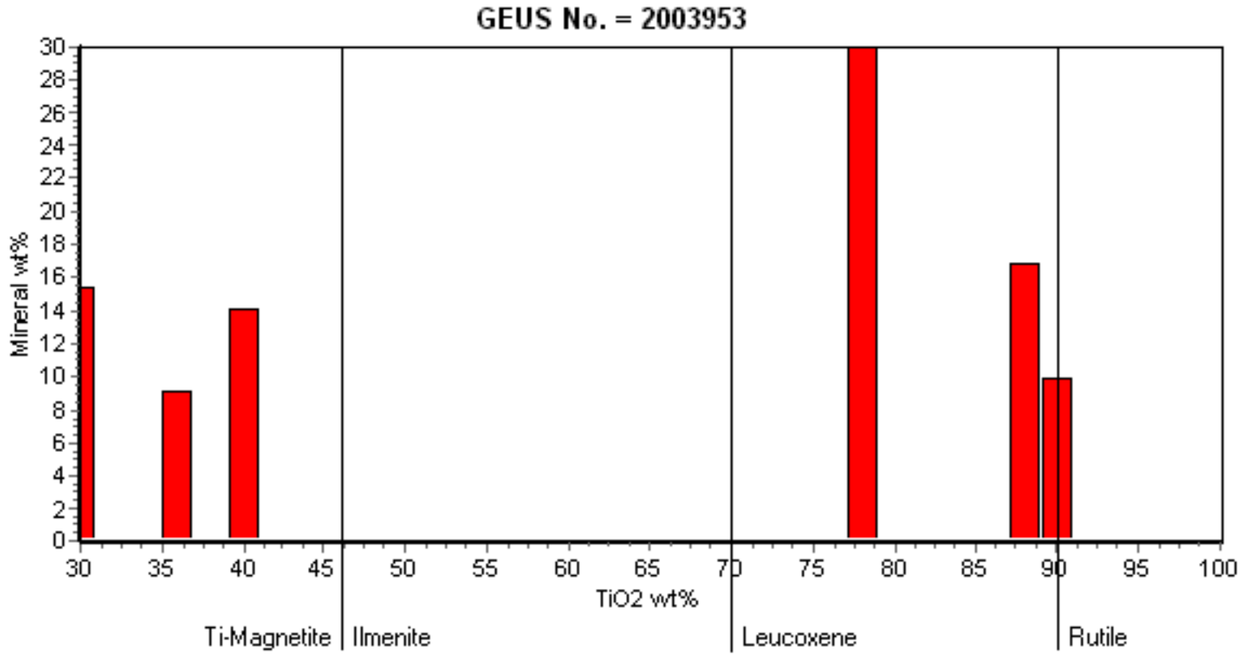

Sample GEUS #: 2003953

Description: Ataata Kuua, 270,85-274,5 m, Atane formation, Qilakitsoq member, 247801-266,267,268, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.0	0.08	1.32	2.15	1.2	0.12	0.41	82.36	0.55	0.16	10.89	0.06	0.0	0.0	0.0	0.23	0.0	0.38	0.15	2
rutile	0.4	0.11	2.18	1.41	0.54	0.09	0.63	89.98	0.26	0.26	2.32	0.29	0.0	0.26	0.42	0.59	0.0	0.23	0.07	2
Ti magnetite	0.0	0.41	0.78	1.5	26.07	0.16	0.43	39.41	0.05	0.32	29.76	0.04	0.16	0.0	0.34	0.07	0.0	0.34	0.17	1
magnetite	0.0	18.27	6.45	7.88	0.0	0.55	6.33	0.0	0.0	1.02	58.42	0.3	0.14	0.29	0.0	0.0	0.0	0.37	0.0	1
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.2	0.08	0.37	30.6	0.06	0.06	0.4	0.18	0.15	0.02	0.7	0.12	0.0	66.04	0.0	0.39	0.39	0.17	0.09	4
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.1	4.36	29.7	0.0	0.04	28.7	36.24	0.14	0.0	0.16	0.05	0.21	0.15	0.0	0.0	0.0	0.0	0.15	1
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	9.83	0.08	21.1	65.59	0.11	0.08	0.73	0.08	0.0	0.07	1.66	0.06	0.1	0.02	0.0	0.03	0.0	0.3	0.16	5
silicate-other	2.59	2.98	22.76	57.0	0.22	3.44	4.92	0.48	0.08	0.15	4.6	0.07	0.17	0.09	0.0	0.26	0.0	0.18	0.03	16
quartz	0.1	0.07	1.1	96.06	0.11	0.12	0.11	0.13	0.07	0.09	0.39	0.17	0.17	0.39	0.0	0.51	0.0	0.13	0.27	64
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.75	25.75	1.57	2.07	0.25	0.18	50.55	0.09	0.09	0.3	17.31	0.09	0.13	0.03	0.2	0.12	0.05	0.17	0.3	769
pyrite	0.0	0.12	8.3	10.47	53.08	1.93	0.12	0.04	0.02	0.04	25.06	0.11	0.07	0.0	0.33	0.17	0.0	0.05	0.08	3
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.57	0.76	26.92	35.93	13.43	5.7	0.38	0.23	0.03	0.25	15.12	0.09	0.16	0.0	0.0	0.18	0.0	0.0	0.29	2
white mica	0.56	0.75	34.73	50.58	0.16	8.44	0.39	1.13	0.06	0.07	1.9	0.1	0.14	0.07	0.0	0.08	0.0	0.12	0.7	40
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
clino-amphibole/clino-pyroxene	4.36	8.26	17.2	39.6	0.09	0.44	9.03	0.07	0.06	0.29	18.42	0.05	0.13	0.46	0.12	1.09	0.04	0.18	0.11	5
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	3.43	21.33	5.71	9.76	0.98	0.77	40.26	0.74	0.07	0.24	15.02	0.14	0.14	0.13	0.22	0.37	0.12	0.2	0.35	285

Sample GEUS #: 2003954

Description: Ataata Kuua, 99,34-100,30 m, Atane formation, Qilakitsoq member, 247801-269,270,271, well

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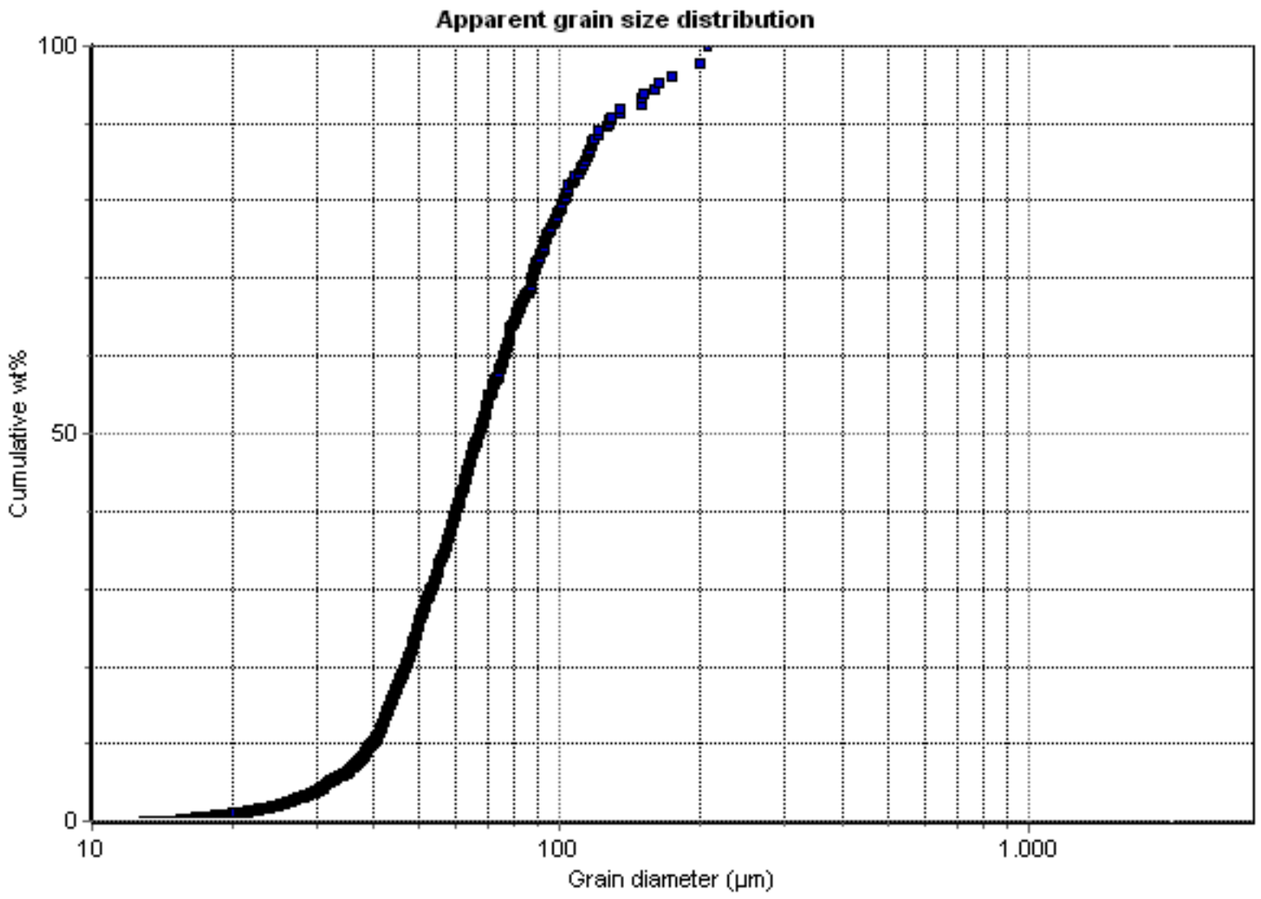

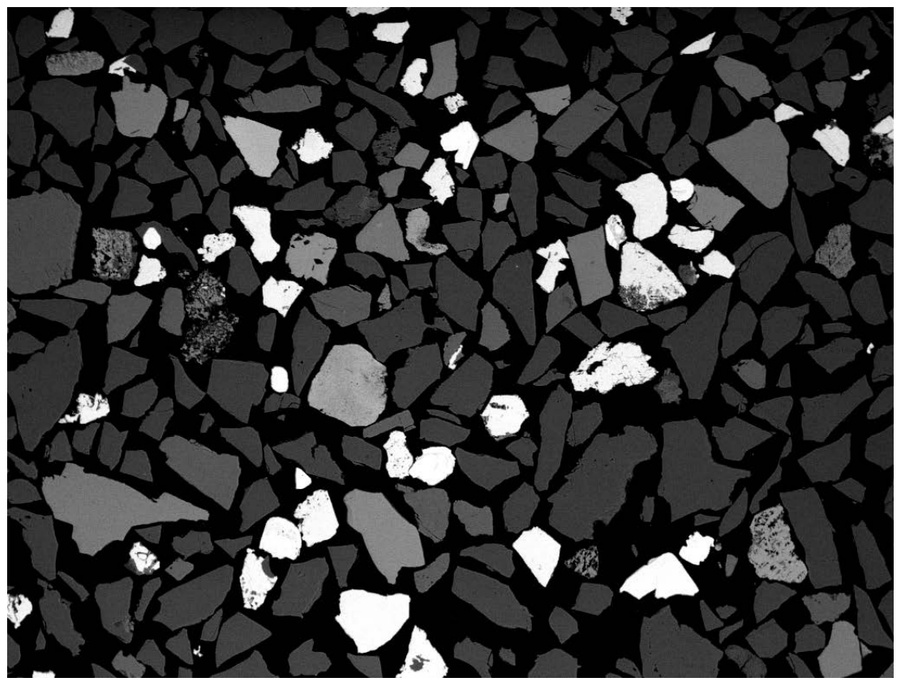

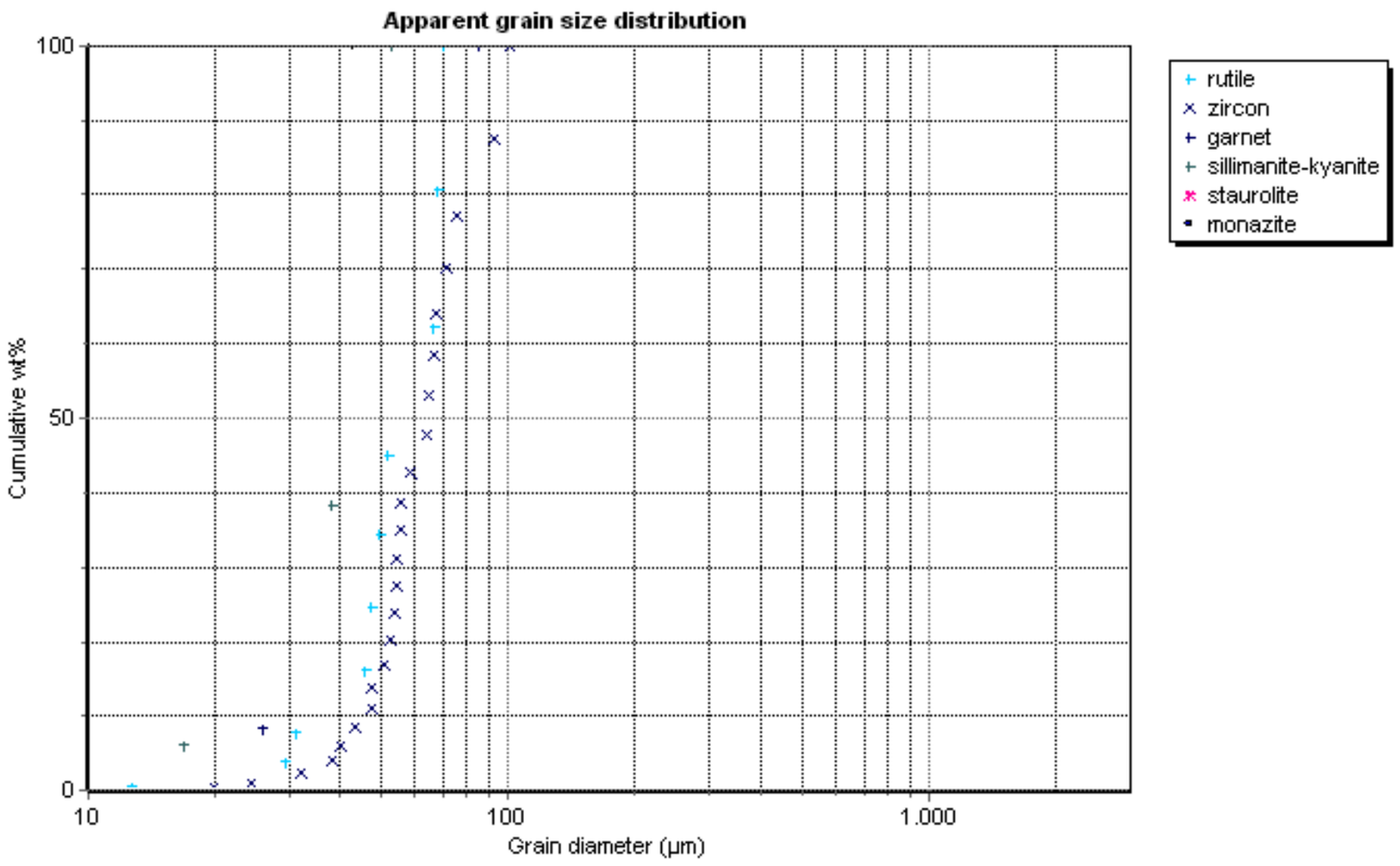

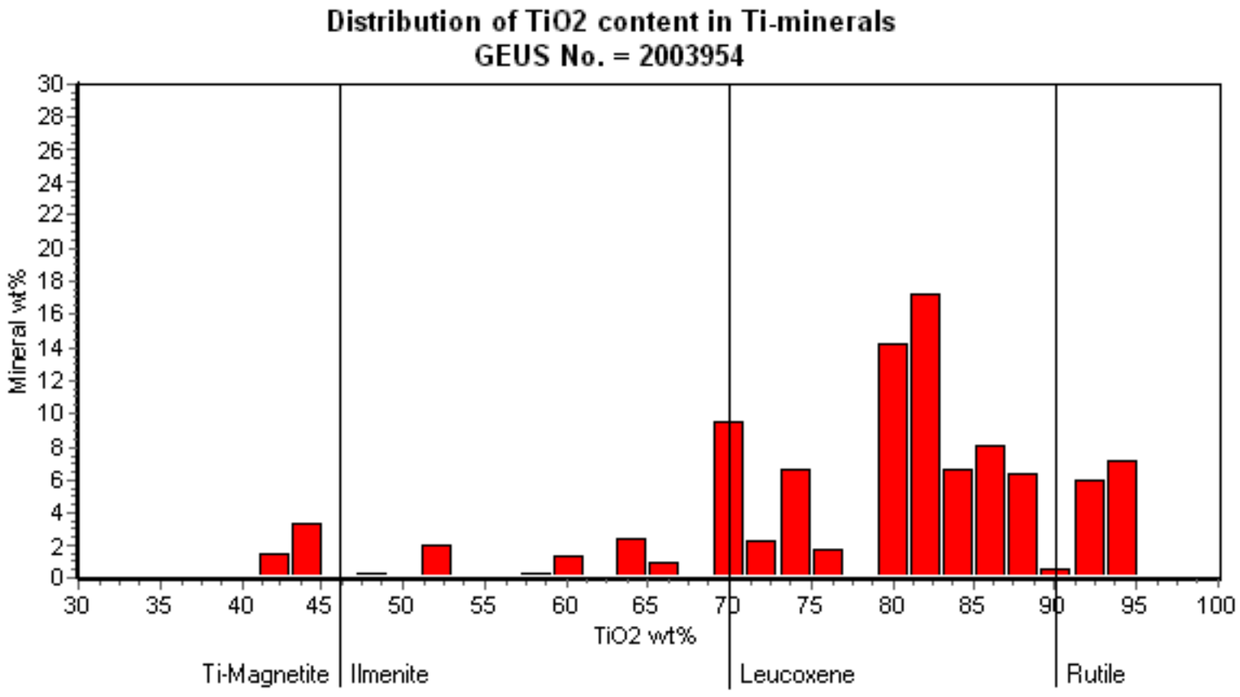

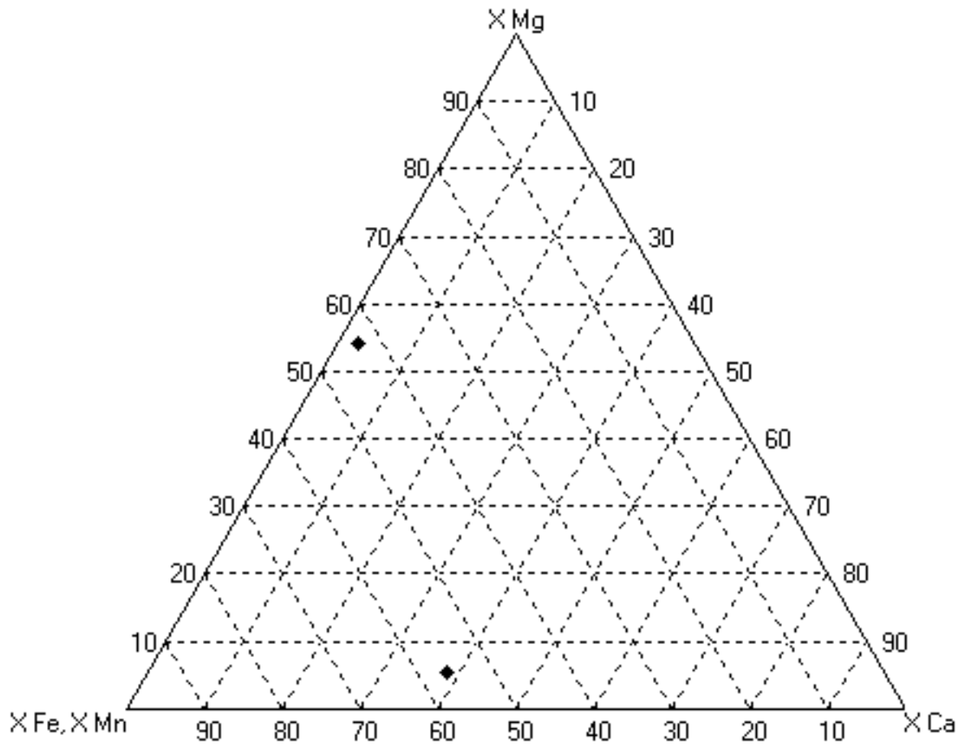

Sample GEUS #: 2003954

Description: Ataata Kuua, 99,34-100,30 m, Atane formation, Qilakitsoq member, 247801-269,270,271, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.25	0.3	8.77	18.88	1.13	0.94	0.56	60.45	0.58	0.16	3.8	0.48	0.86	1.07	0.56	0.73	0.23	0.1	0.16	6
leucoxene	0.29	0.47	4.58	5.09	0.63	0.15	0.52	80.73	0.3	0.15	4.48	0.14	0.23	0.52	0.31	1.14	0.04	0.06	0.18	30
rutile	0.07	0.24	2.8	1.72	0.61	0.11	0.36	90.85	0.19	0.09	1.31	0.07	0.13	0.42	0.19	0.58	0.0	0.09	0.18	10
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.16	0.2	0.61	31.08	0.31	0.05	0.24	0.14	0.07	0.07	0.3	0.11	0.1	66.24	0.0	0.0	0.0	0.22	0.1	24
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	5.67	25.01	44.94	0.63	0.1	4.74	0.19	0.0	1.38	15.78	0.0	0.21	0.0	0.0	0.0	0.0	0.88	0.5	2
sillimanite-kyanite	0.13	0.66	57.51	37.91	2.25	0.06	0.35	0.11	0.08	0.02	0.58	0.0	0.17	0.0	0.0	0.0	0.0	0.16	0.02	3
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	2.79	0.21	21.06	62.66	0.71	10.38	0.21	0.23	0.1	0.06	0.46	0.09	0.12	0.02	0.0	0.02	0.0	0.2	0.69	89
silicate-other	1.06	3.6	30.1	54.17	0.8	0.77	1.29	0.33	0.29	0.29	6.15	0.15	0.13	0.22	0.0	0.31	0.0	0.16	0.19	48
quartz	0.67	0.18	0.48	96.81	0.21	0.08	0.08	0.13	0.1	0.11	0.22	0.12	0.13	0.13	0.0	0.12	0.0	0.21	0.21	702
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.27	1.49	41.45	3.14	0.0	0.19	0.0	0.0	0.0	0.92	0.0	0.29	7.88	0.0	26.56	0.0	17.81	0.0	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	5.85	0.73	29.53	10.47	3.37	0.03	4.81	0.36	0.11	0.0	0.54	0.21	0.34	2.54	0.0	34.03	0.0	7.02	0.06	3
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.0	0.09	1.01	3.4	73.69	0.16	0.07	0.06	0.06	0.08	20.46	0.08	0.1	0.12	0.22	0.08	0.01	0.16	0.13	104
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	1.31	1.22	30.84	54.69	0.14	8.71	0.15	0.35	0.05	0.03	1.77	0.13	0.07	0.02	0.0	0.01	0.0	0.09	0.41	13
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.06	9.15	26.83	44.65	0.65	0.06	1.11	0.06	0.13	0.43	16.39	0.01	0.07	0.03	0.0	0.1	0.0	0.11	0.14	13
clino-amphibole/clino-pyroxene	4.56	11.5	24.1	42.29	0.43	0.16	2.36	0.11	0.06	0.46	13.35	0.07	0.07	0.2	0.0	0.08	0.0	0.08	0.13	46
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	0.55	2.2	6.97	51.63	16.09	1.52	0.87	3.63	0.82	0.64	6.24	0.76	0.79	3.23	1.06	1.25	0.09	0.96	0.7	106

DONG sample Report - Page 1/3

Sample GEUS #: 2003955

Description: Ataata Kuua, 35,37-36,43 m, Atane Formation, Qilakitsoq member, 247801-272,273,274, well

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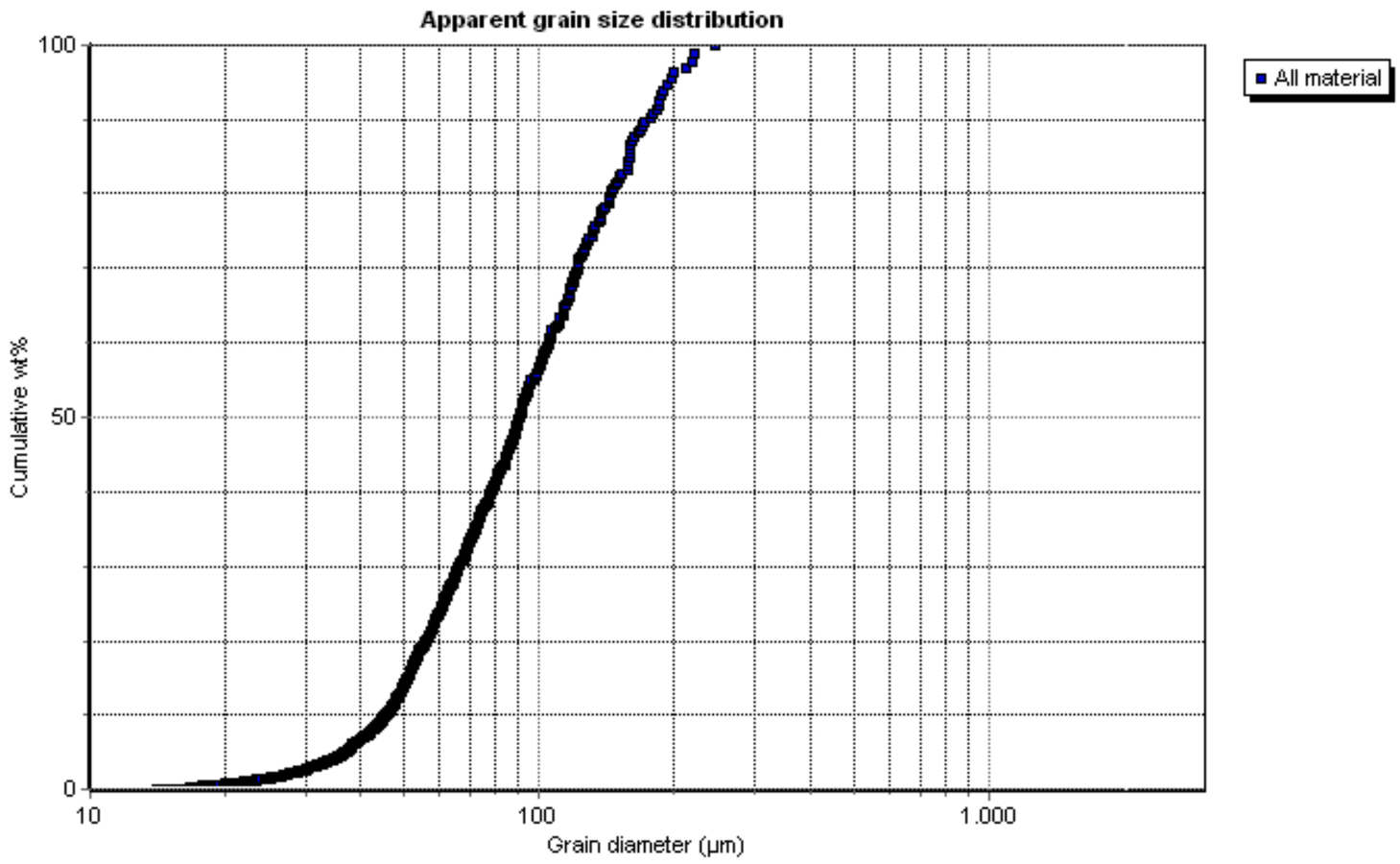

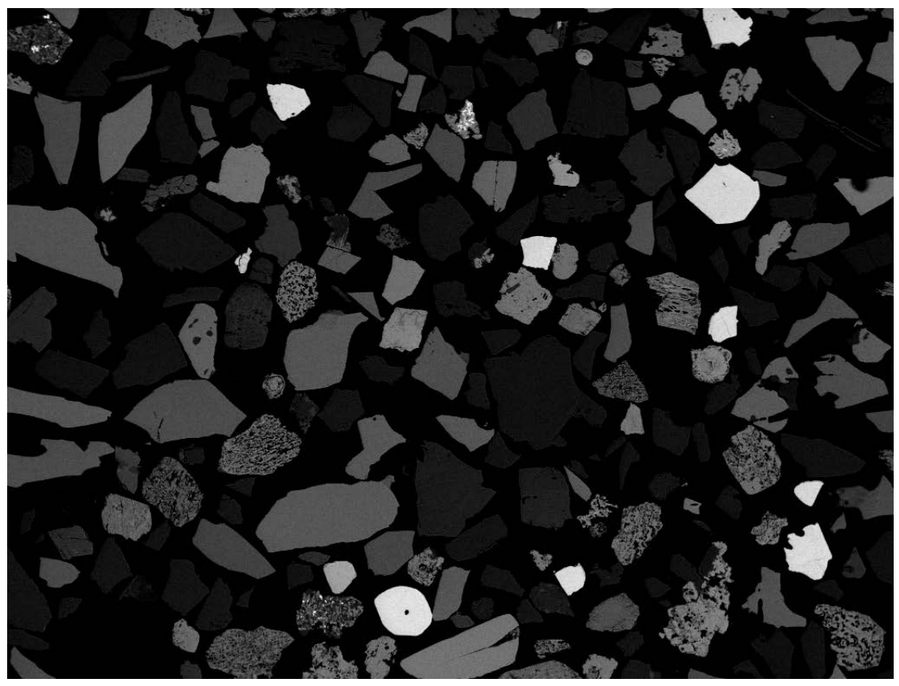

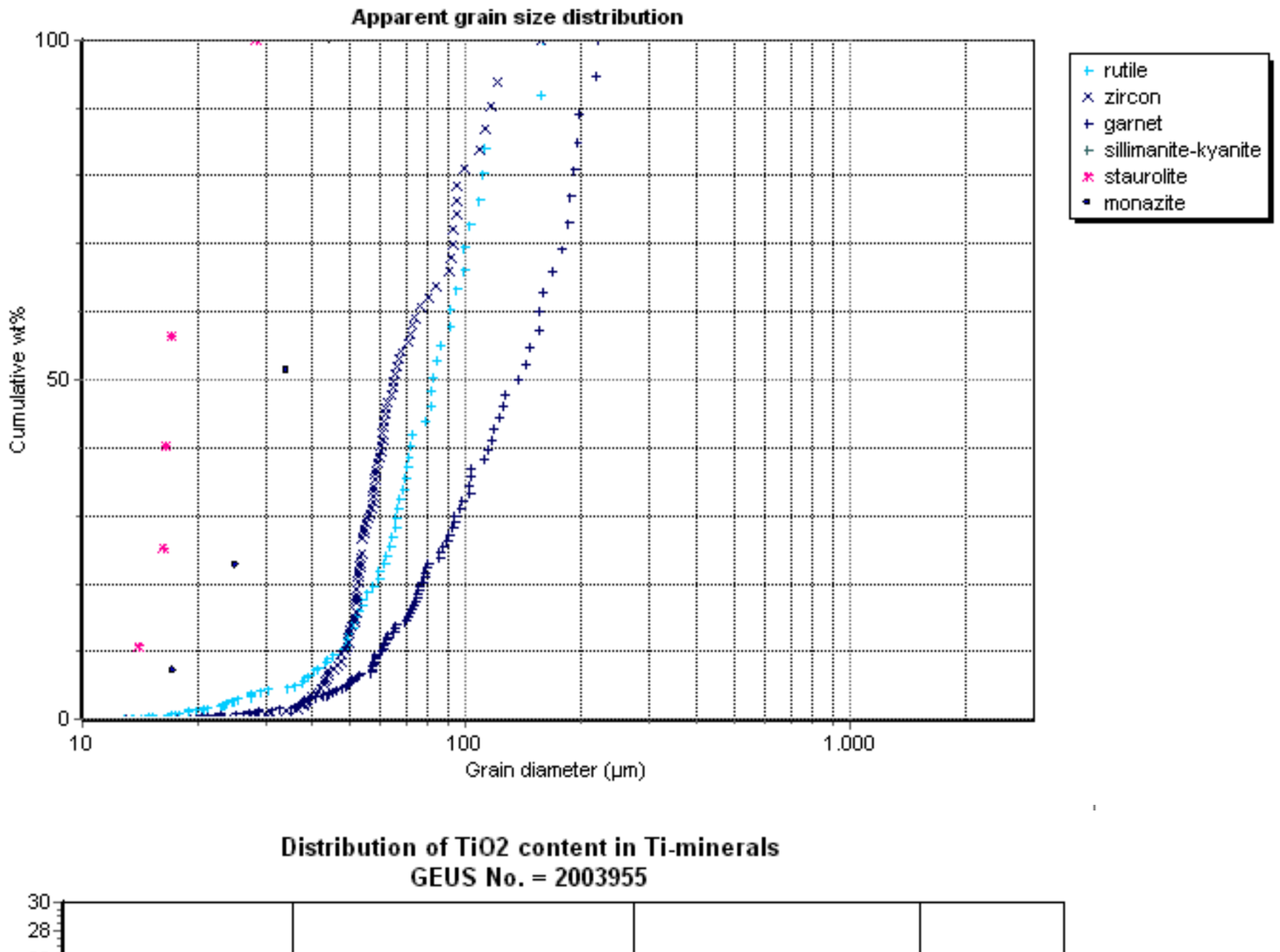

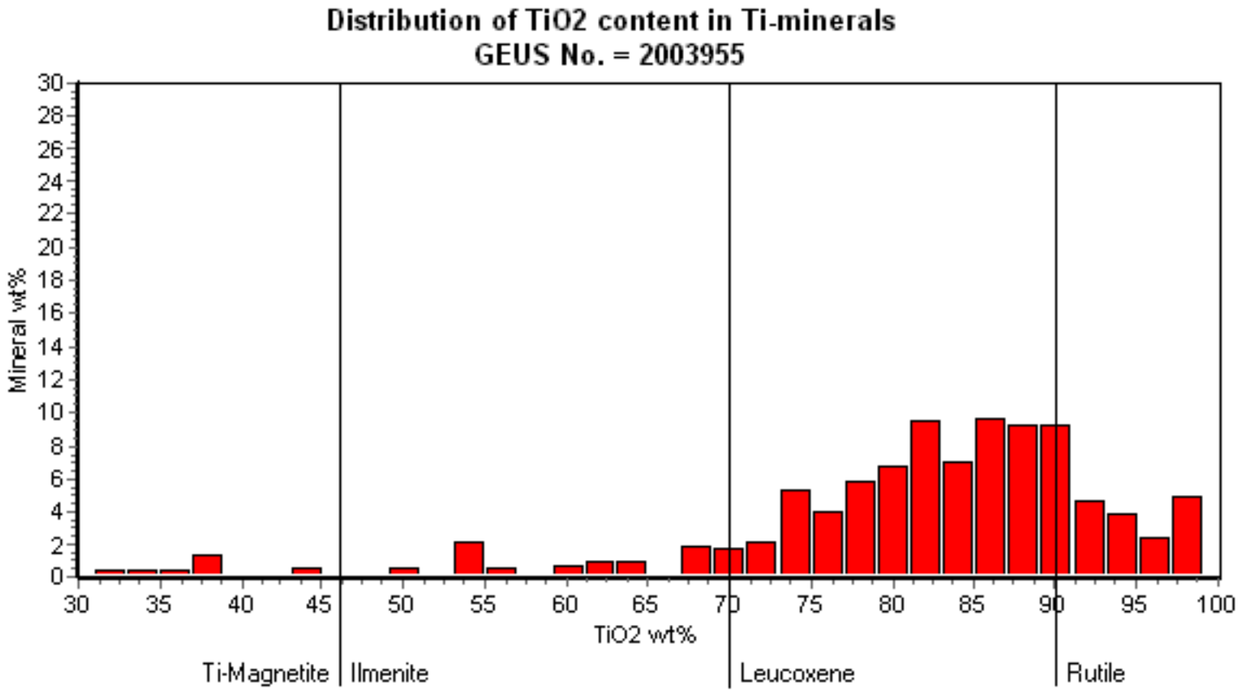

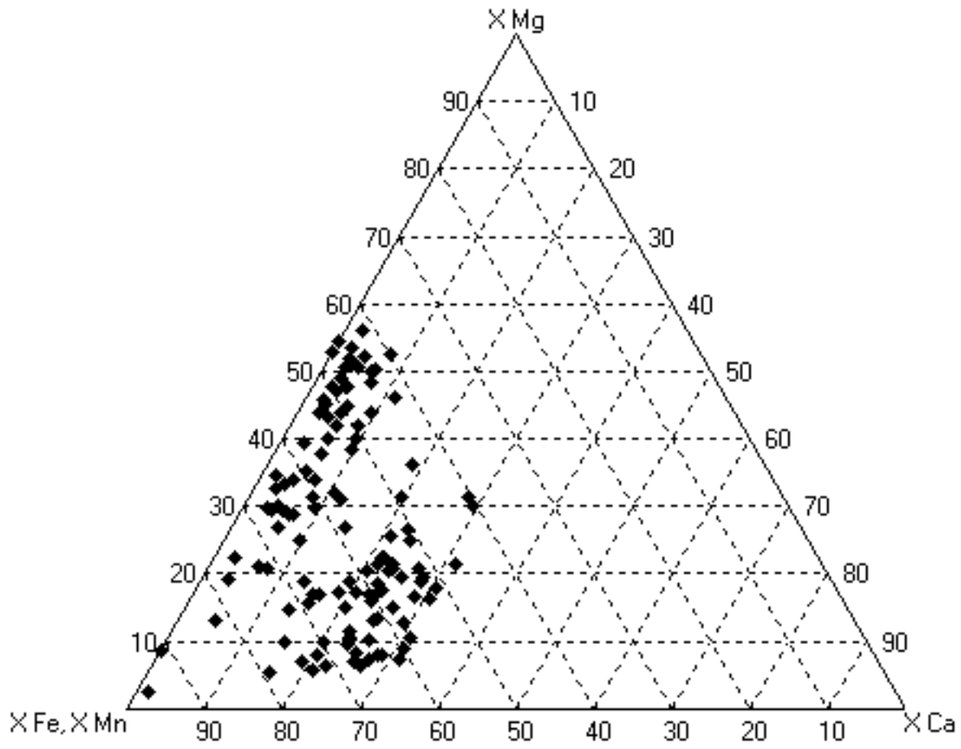

Sample GEUS #: 2003955

Description: Ataata Kuua, 35,37-36,43 m, Atane Formation, Qilakitsoq member, 247801-272,273,274, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.36	0.43	5.21	14.64	0.5	0.22	0.42	58.05	0.21	0.21	17.3	0.13	0.19	0.39	0.33	0.74	0.06	0.44	0.18	39
leucoxene	0.2	0.23	3.46	5.23	0.36	0.08	0.4	80.36	0.29	0.12	7.26	0.11	0.12	0.43	0.31	0.71	0.02	0.23	0.09	223
rutile	0.16	0.15	2.27	1.33	0.2	0.06	0.26	91.66	0.24	0.07	2.08	0.06	0.12	0.28	0.26	0.49	0.01	0.23	0.1	87
Ti magnetite	1.79	0.82	6.35	10.09	0.55	0.12	0.61	31.76	0.21	0.12	45.27	0.15	0.27	0.49	0.18	0.81	0.06	0.25	0.1	14
magnetite	2.21	0.92	9.49	14.18	2.07	0.19	0.79	0.94	0.08	0.19	66.97	0.14	0.21	0.45	0.25	0.51	0.08	0.2	0.13	99
chromite	0.28	0.81	15.44	1.06	0.38	0.07	0.01	1.91	29.15	0.64	47.23	2.46	0.24	0.0	0.04	0.05	0.0	0.06	0.2	6
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.17	0.1	0.31	30.57	0.04	0.04	0.18	0.25	0.07	0.07	0.51	0.12	0.03	67.26	0.0	0.0	0.02	0.15	0.11	104
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.12	5.71	24.22	41.43	0.05	0.04	4.1	0.15	0.06	0.97	22.6	0.06	0.1	0.03	0.0	0.06	0.0	0.14	0.17	121
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0.76	1.93	54.02	30.56	0.09	0.04	0.04	0.52	0.14	0.13	11.13	0.02	0.2	0.0	0.32	0.02	0.0	0.08	0.0	5
feldspar	1.11	0.08	20.64	62.04	0.15	13.03	0.29	0.42	0.11	0.09	0.52	0.1	0.07	0.1	0.0	0.05	0.0	0.16	1.03	35
silicate-other	0.17	2.83	36.79	41.84	0.34	0.2	2.54	0.53	0.11	1.48	12.36	0.13	0.22	0.01	0.0	0.09	0.0	0.15	0.22	17
quartz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.23	5.75	6.12	2.59	0.05	1.6	0.0	0.0	0.0	0.24	0.33	0.45	9.84	0.0	47.93	0.0	24.28	0.6	4
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.91	0.45	9.09	3.5	3.42	0.06	2.32	0.0	0.0	0.0	1.13	0.23	0.29	13.34	0.0	44.72	1.06	19.11	0.33	11
carbonate	0.0	1.84	0.0	0.03	4.12	0.05	91.02	0.64	0.07	0.0	1.15	0.28	0.01	0.0	0.0	0.21	0.0	0.4	0.17	1
pyrite	0.0	0.08	0.7	0.99	70.96	0.05	0.16	0.02	0.08	0.09	26.3	0.05	0.04	0.2	0.05	0.02	0.03	0.13	0.08	15
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	6.4	35.39	1.09	41.7	0.0	0.0	0.05	0.1	0.09	0.11	14.24	0.24	0.13	0.3	0.0	0.08	0.0	0.0	0.08	1
white mica	0.54	0.54	25.52	58.05	0.05	12.65	0.2	0.29	0.07	0.04	1.1	0.08	0.13	0.06	0.0	0.06	0.0	0.11	0.5	12
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.04	9.9	25.0	41.34	0.12	0.02	1.48	0.16	0.1	0.55	20.81	0.07	0.12	0.01	0.0	0.08	0.0	0.1	0.1	97
clino-amphibole/clino-pyroxene	3.79	9.5	22.37	39.6	0.05	0.04	3.64	0.26	0.07	0.76	19.37	0.06	0.1	0.1	0.01	0.03	0.0	0.09	0.15	243
chlorite	1.23	0.79	20.15	27.81	0.28	0.59	0.62	0.31	0.09	0.03	46.66	0.11	0.16	0.31	0.14	0.3	0.1	0.07	0.27	10
unclassified	0.79	0.82	17.64	33.94	5.68	1.84	1.78	14.4	0.71	0.17	14.96	0.13	0.24	4.6	0.59	0.86	0.04	0.57	0.22	56

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Sample GEUS #: 2003956

Description: GRO#3, 510-525 m, 439401, well

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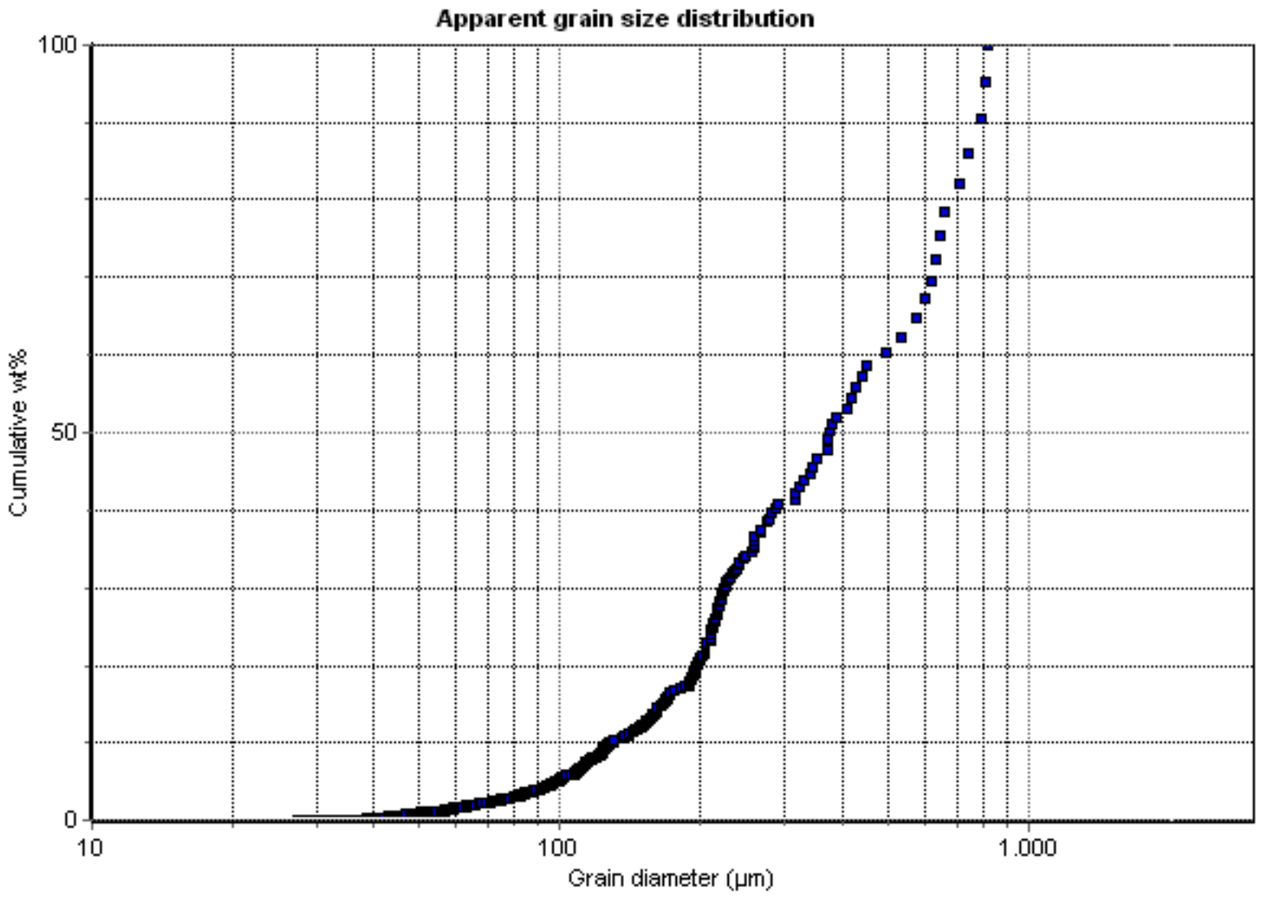

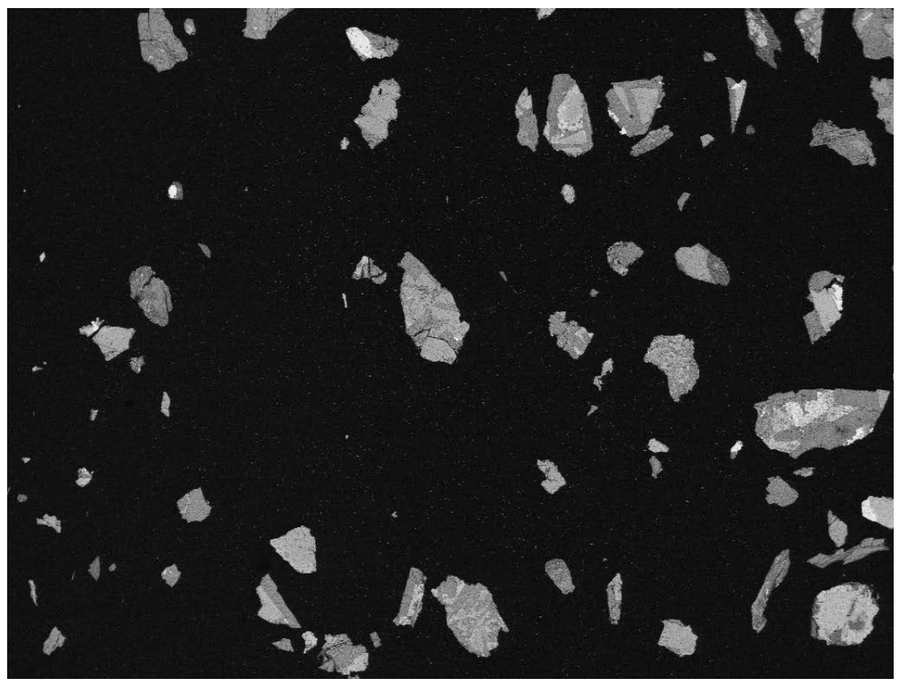

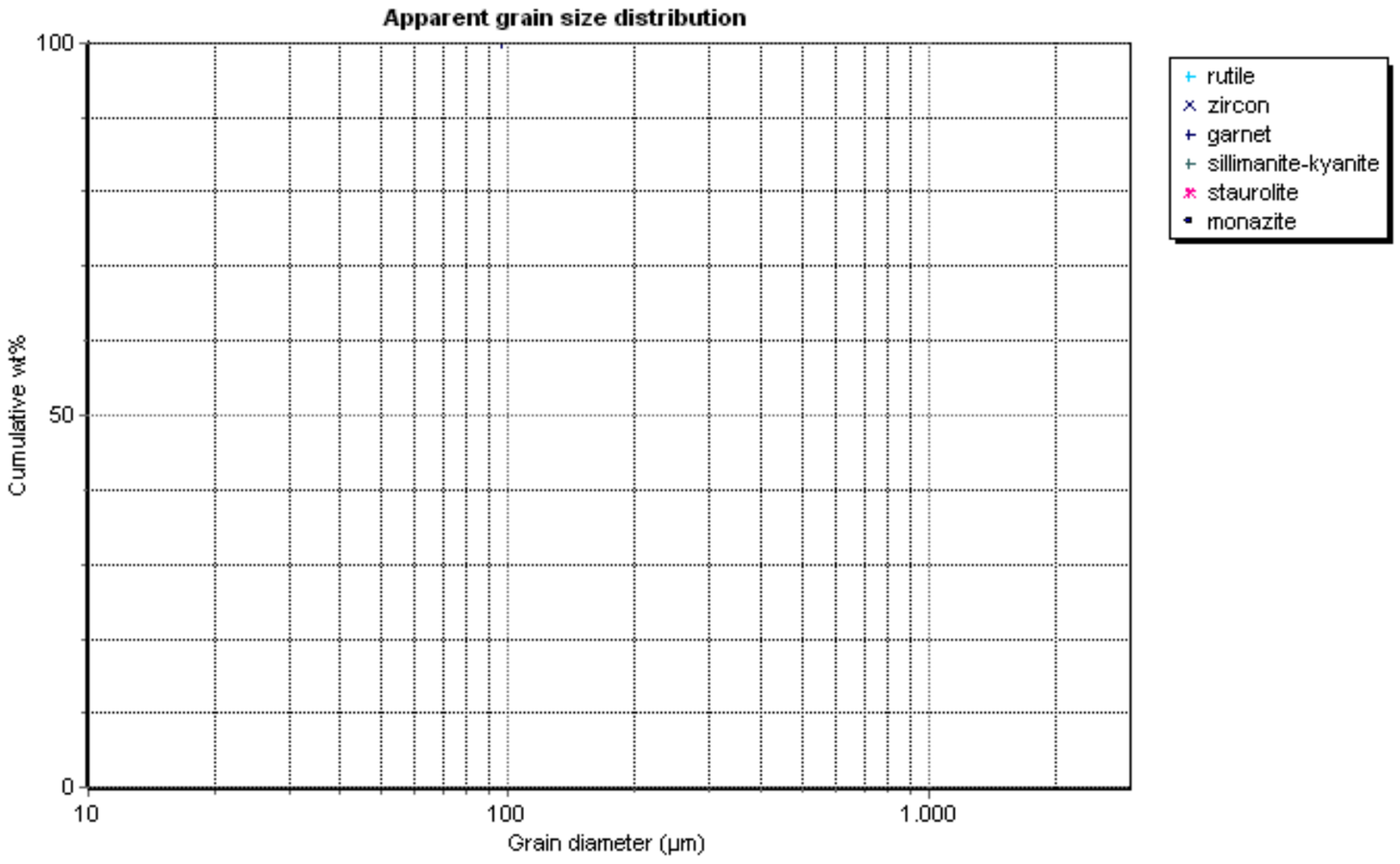

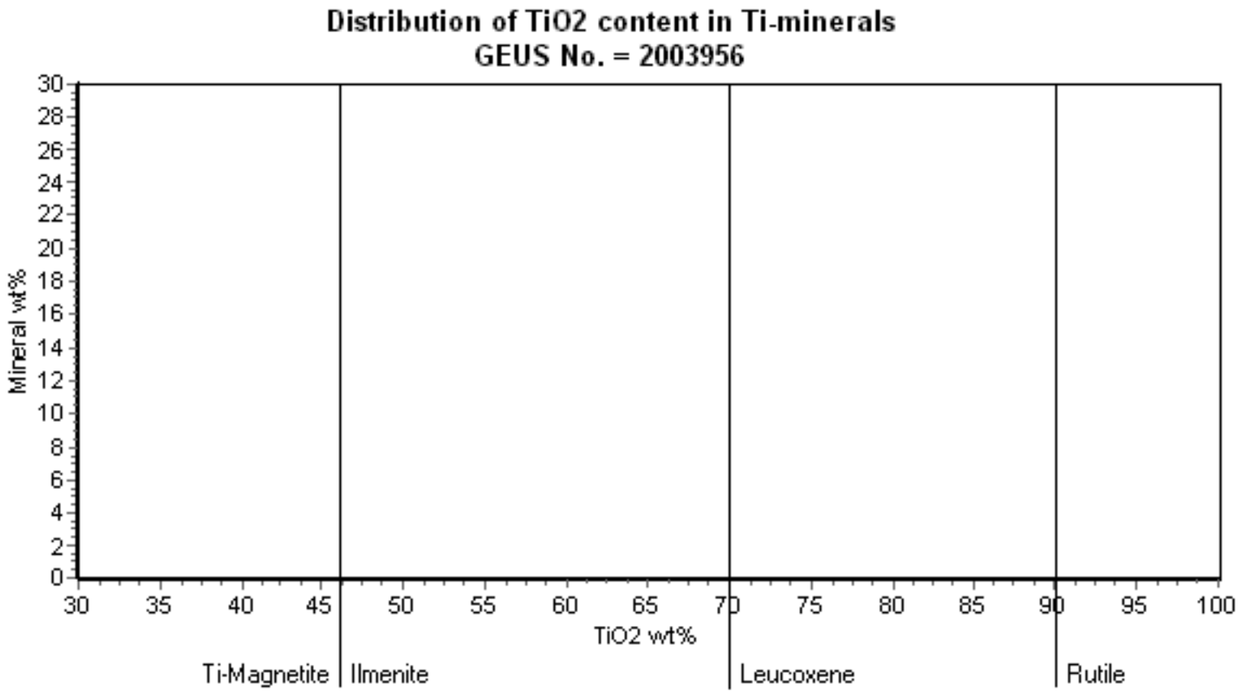

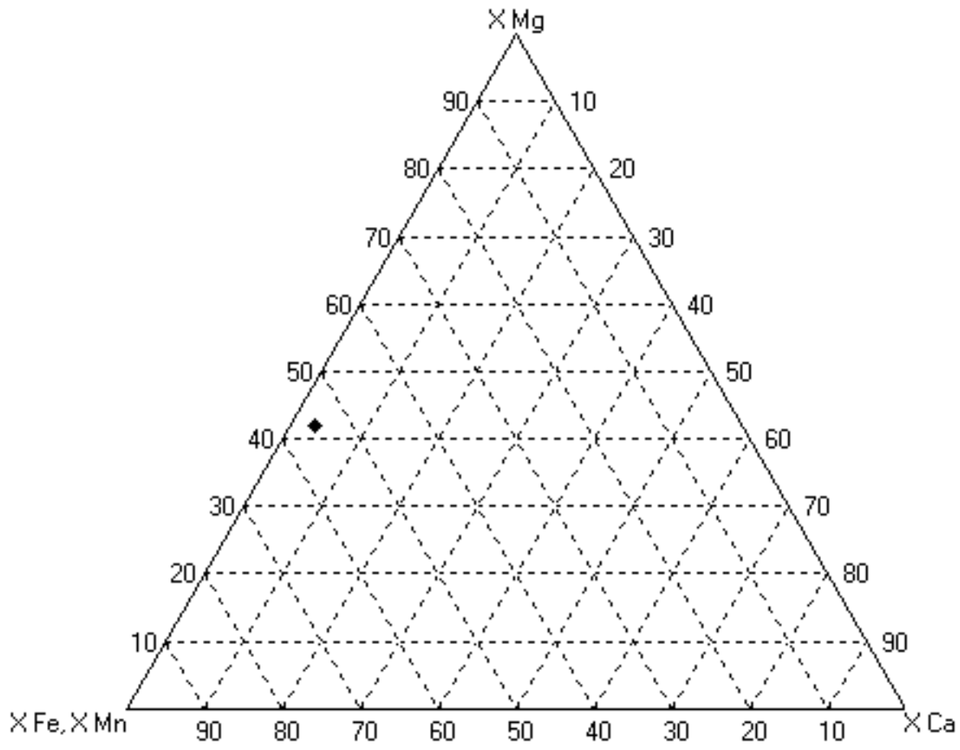

Sample GEUS #: 2003956

Description: GRO#3, 510-525 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	3.09	2.27	6.77	17.98	0.2	0.16	1.26	23.51	0.0	0.31	44.1	0.0	0.14	0.22	0.0	0.0	0.0	0.0	0.0	1
magnetite	2.66	13.94	3.67	9.23	3.62	0.31	2.62	0.22	0.05	0.29	62.7	0.04	0.11	0.11	0.06	0.09	0.02	0.13	0.15	18
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	10.28	22.98	38.21	0.0	0.07	1.09	0.24	0.01	0.41	26.2	0.0	0.29	0.0	0.0	0.0	0.0	0.01	0.22	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.14	0.85	27.33	50.62	0.14	0.09	13.82	0.24	0.08	0.06	2.74	0.11	0.14	0.09	0.0	0.08	0.0	0.15	0.32	43
silicate-other	1.49	3.78	20.94	52.81	0.34	1.91	3.37	1.98	0.05	0.13	12.47	0.1	0.15	0.07	0.0	0.16	0.0	0.08	0.17	25
quartz	0.39	0.17	2.4	93.92	0.41	0.39	0.21	0.08	0.08	0.06	0.89	0.15	0.01	0.2	0.0	0.07	0.0	0.26	0.29	5
corundum	0.0	0.0	92.82	0.29	0.95	0.03	0.17	0.15	0.0	0.0	0.32	0.0	0.0	0.34	2.23	0.8	1.48	0.28	0.12	1
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.0	22.77	0.68	9.13	0.46	0.0	48.92	0.0	0.0	1.99	14.2	0.0	0.26	0.0	0.73	0.39	0.0	0.0	0.46	1
pyrite	0.84	0.09	4.08	8.29	58.21	0.27	0.38	0.06	0.06	0.07	26.59	0.18	0.23	0.13	0.28	0.0	0.02	0.06	0.18	4
epidote	0.0	0.31	23.15	37.73	0.42	0.08	22.83	0.29	0.0	0.02	14.29	0.0	0.0	0.34	0.0	0.0	0.0	0.14	0.38	1
dark mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
white mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
olivine	0.0	8.84	6.56	32.45	0.0	0.38	2.75	0.14	0.03	0.44	47.9	0.08	0.0	0.0	0.35	0.01	0.0	0.06	0.0	1
ortho-amphibole/ortho-pyroxene	0.12	14.67	6.73	49.27	0.21	0.28	3.62	0.59	0.1	0.29	23.24	0.12	0.12	0.09	0.0	0.14	0.0	0.13	0.27	26
clino-amphibole/clino-pyroxene	1.92	8.79	13.36	47.45	0.09	0.24	14.02	1.13	0.06	0.23	11.93	0.08	0.1	0.07	0.01	0.11	0.0	0.09	0.31	261
chlorite	0.0	6.01	18.94	32.66	0.42	1.72	2.38	0.8	0.0	0.08	34.52	0.04	0.06	0.57	0.96	0.0	0.0	0.0	0.85	1
unclassified	4.28	13.72	9.66	22.69	4.13	0.75	7.03	0.84	0.37	0.34	34.61	0.14	0.15	0.3	0.18	0.39	0.04	0.09	0.28	67

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Sample GEUS #: 2003957

Description: GRO#3, 590-600 m, 439401, well

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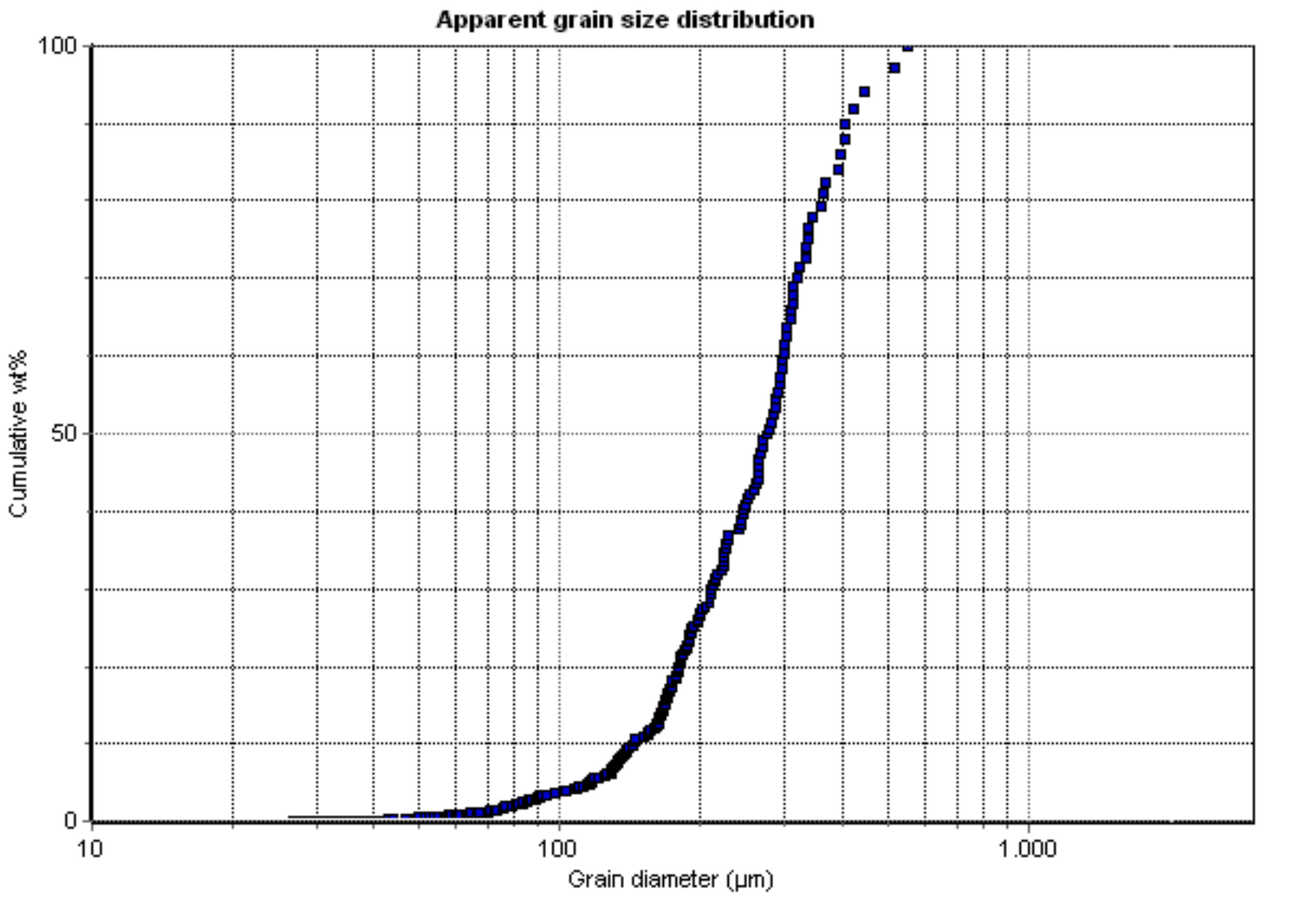

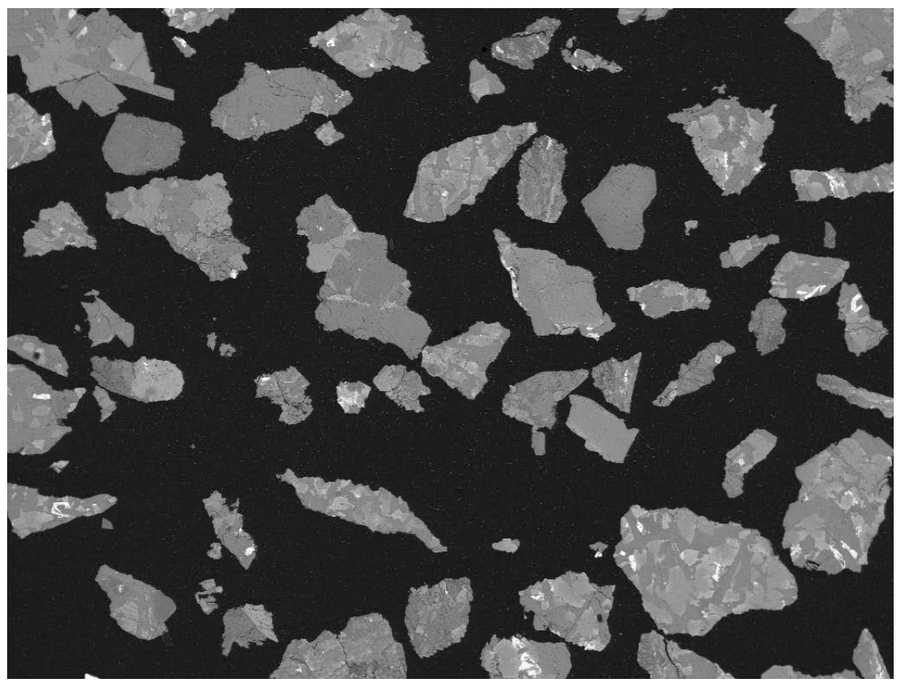

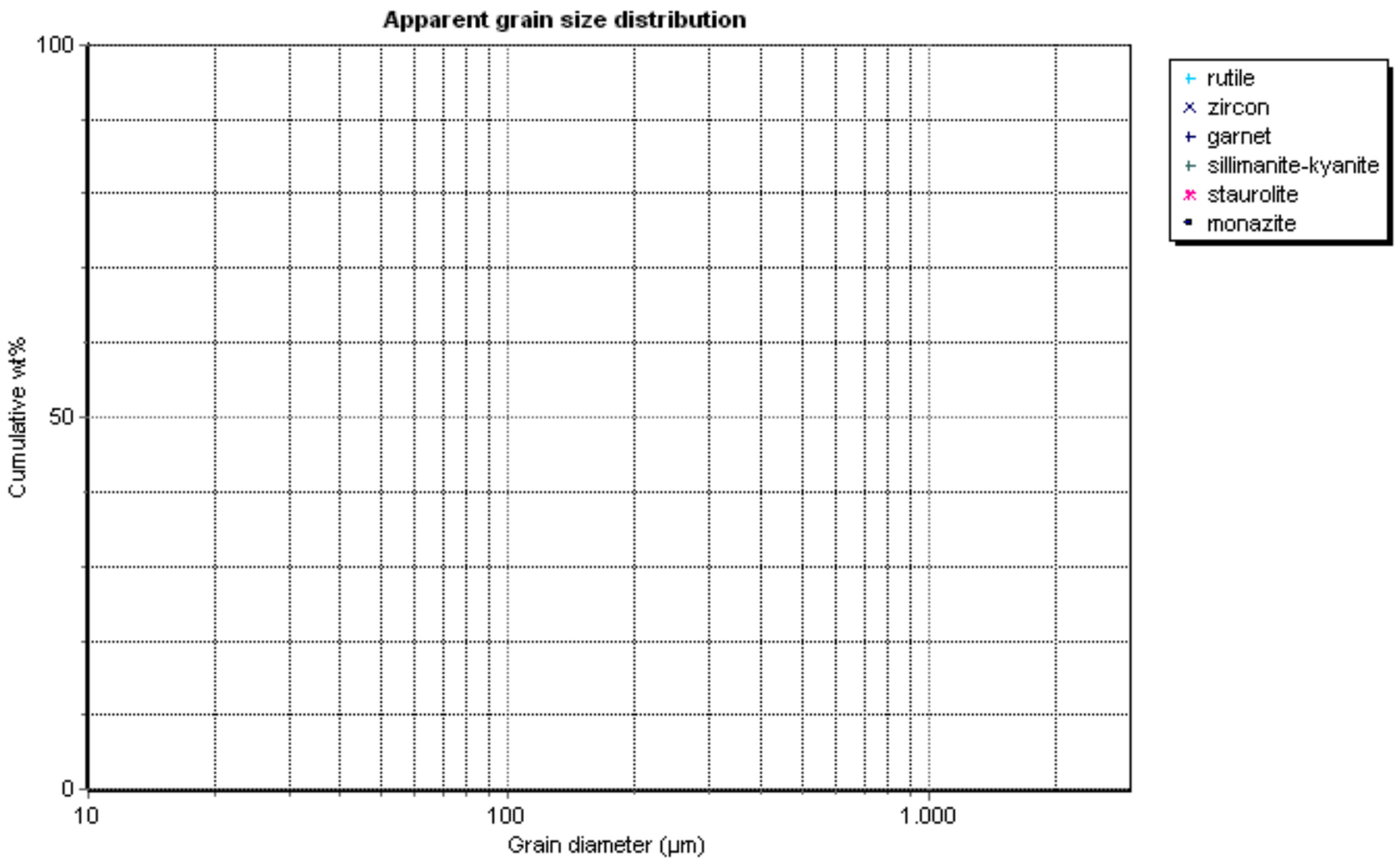

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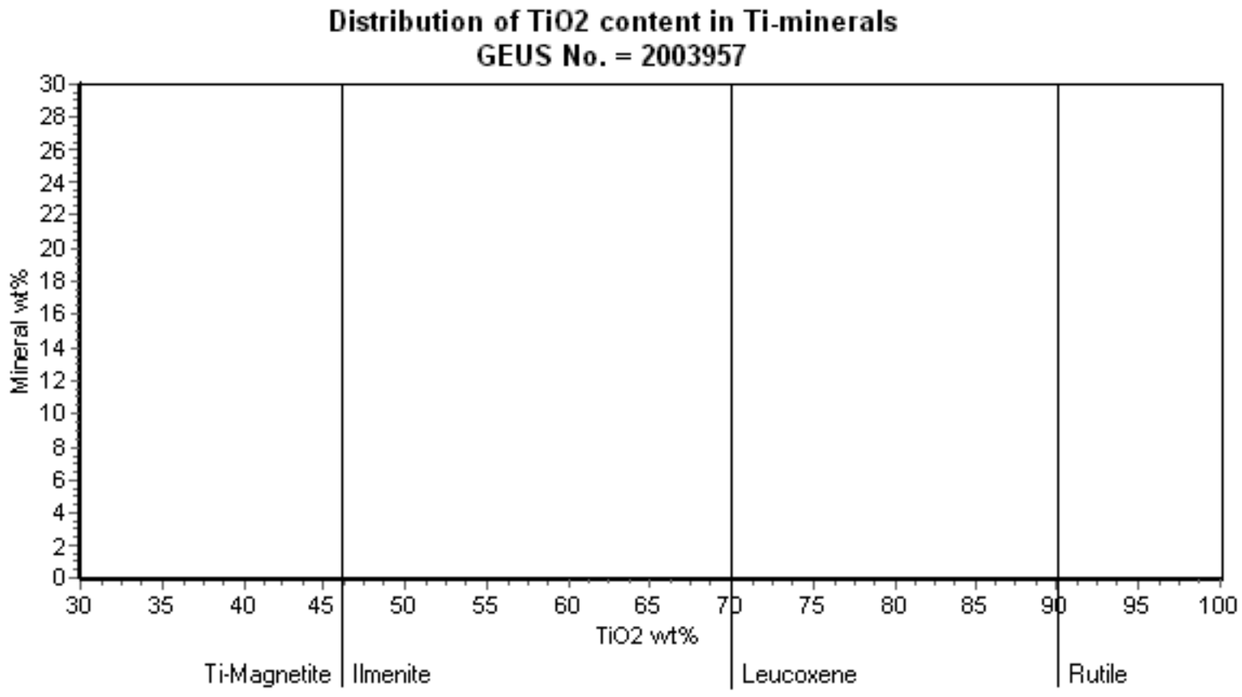

Sample GEUS #: 2003957

Description: GRO#3, 590-600 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	2.29	16.86	2.91	4.71	0.29	0.33	2.56	0.17	0.12	0.55	67.81	0.01	0.15	0.17	0.56	0.1	0.0	0.0	0.4	3
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	2.94	0.56	28.65	49.19	0.14	0.14	15.21	0.16	0.04	0.09	2.14	0.08	0.1	0.06	0.0	0.04	0.0	0.13	0.32	29
silicate-other	1.87	11.72	7.81	51.17	0.01	0.3	6.23	1.16	0.01	0.41	18.24	0.06	0.24	0.12	0.0	0.37	0.0	0.07	0.22	3
quartz	0.16	0.26	0.79	94.6	0.44	0.06	0.02	0.48	0.05	0.1	1.56	0.04	0.1	0.31	0.0	0.23	0.0	0.25	0.58	4
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.0	27.76	0.99	3.71	0.19	0.16	52.77	0.06	0.05	0.43	12.38	0.09	0.31	0.11	0.23	0.09	0.04	0.1	0.51	9
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	4.01	36.49	0.55	41.74	0.1	0.06	0.28	0.06	0.12	0.28	16.01	0.1	0.08	0.04	0.0	0.13	0.0	0.0	0.0	2
white mica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
olivine	0.0	36.37	0.0	41.17	0.0	0.0	0.78	0.12	0.2	0.36	20.78	0.21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
ortho-amphibole/ortho-pyroxene	0.25	25.57	4.38	48.39	0.07	0.11	2.53	0.2	0.22	0.24	17.31	0.14	0.24	0.05	0.0	0.04	0.0	0.15	0.1	16
clino-amphibole/clino-pyroxene	2.23	7.88	15.64	47.67	0.07	0.26	13.0	1.19	0.07	0.19	11.06	0.09	0.11	0.06	0.0	0.1	0.0	0.1	0.29	192
chlorite	0.0	10.17	11.56	29.54	0.07	1.39	1.93	0.07	0.16	0.14	43.29	0.28	0.07	0.0	0.52	0.42	0.3	0.0	0.11	1
unclassified	2.92	22.32	6.41	21.99	0.79	0.5	19.44	1.31	0.12	0.26	21.92	0.13	0.2	0.27	0.35	0.15	0.18	0.2	0.53	25

DONG sample Report - Page 1/3

Sample GEUS #: 2003958

Description: GRO#3, 660-680 m, 439401, well

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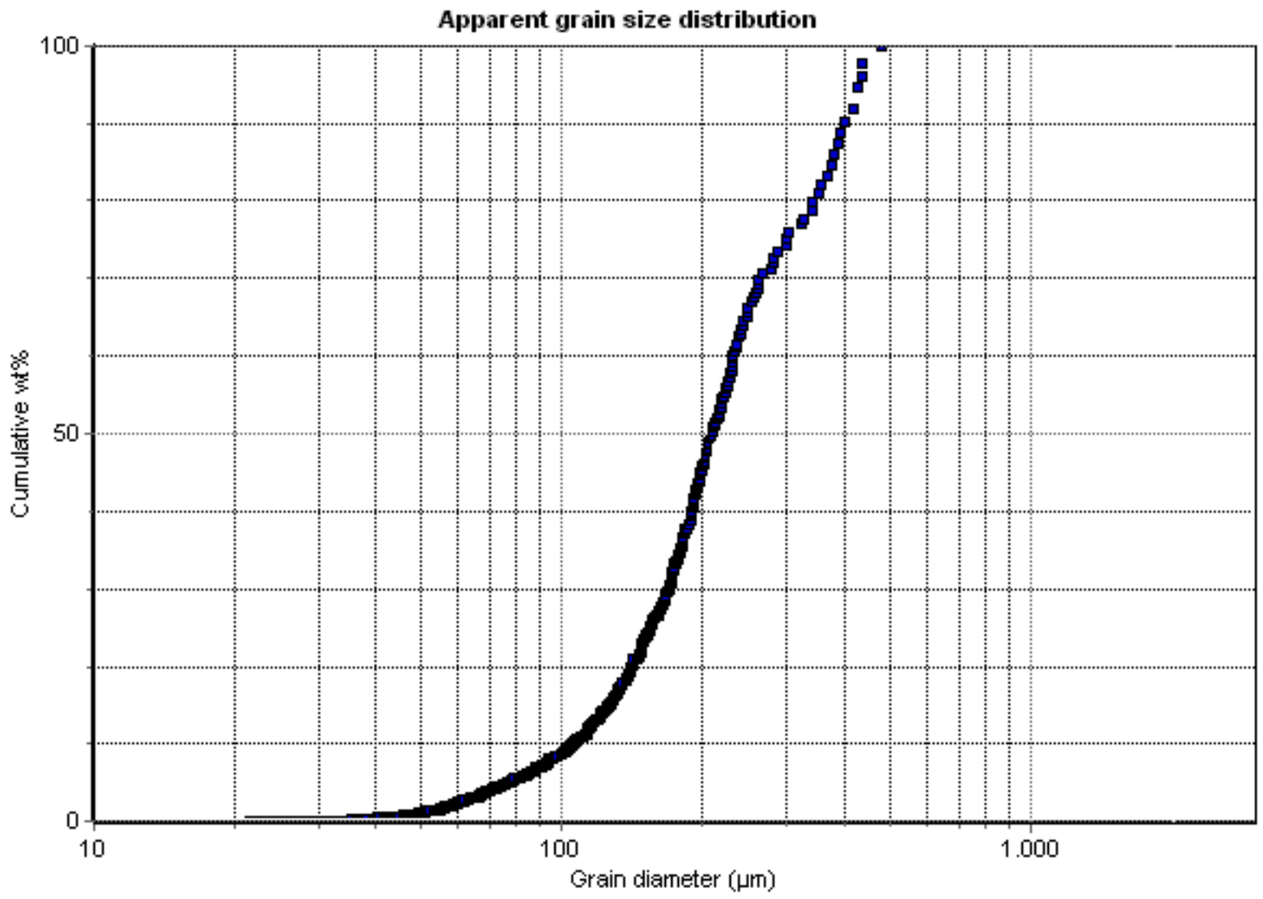

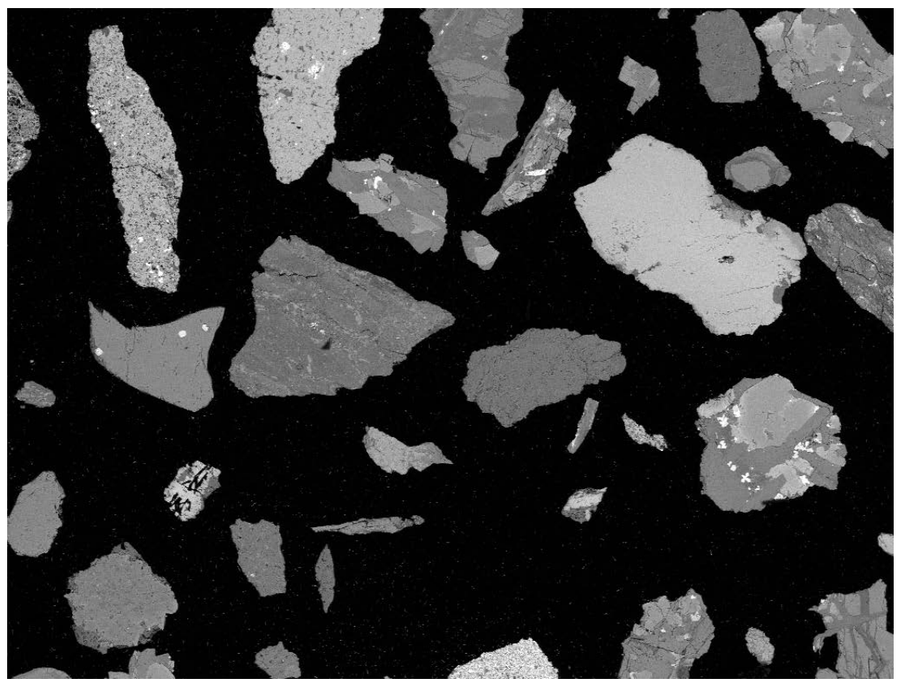

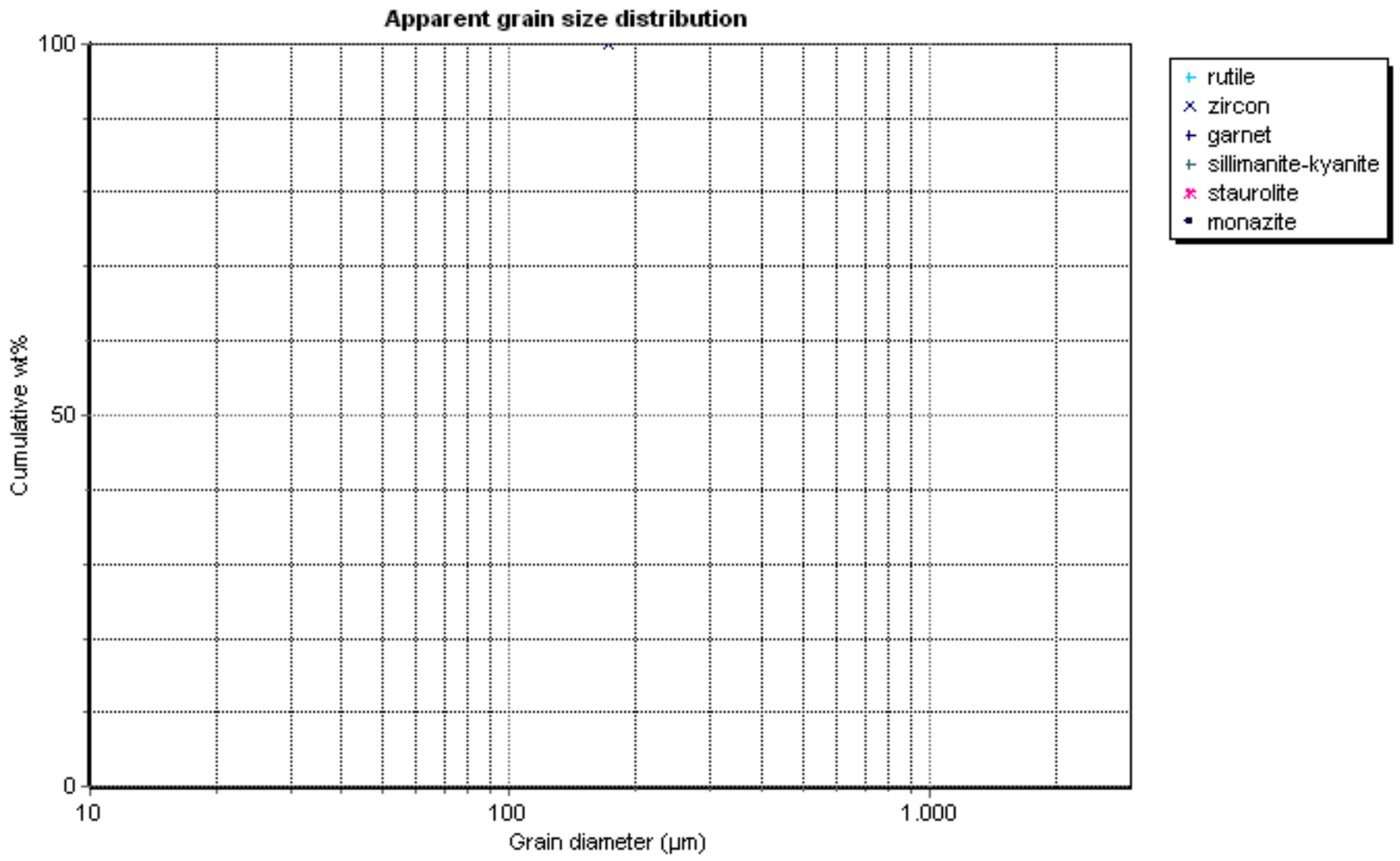

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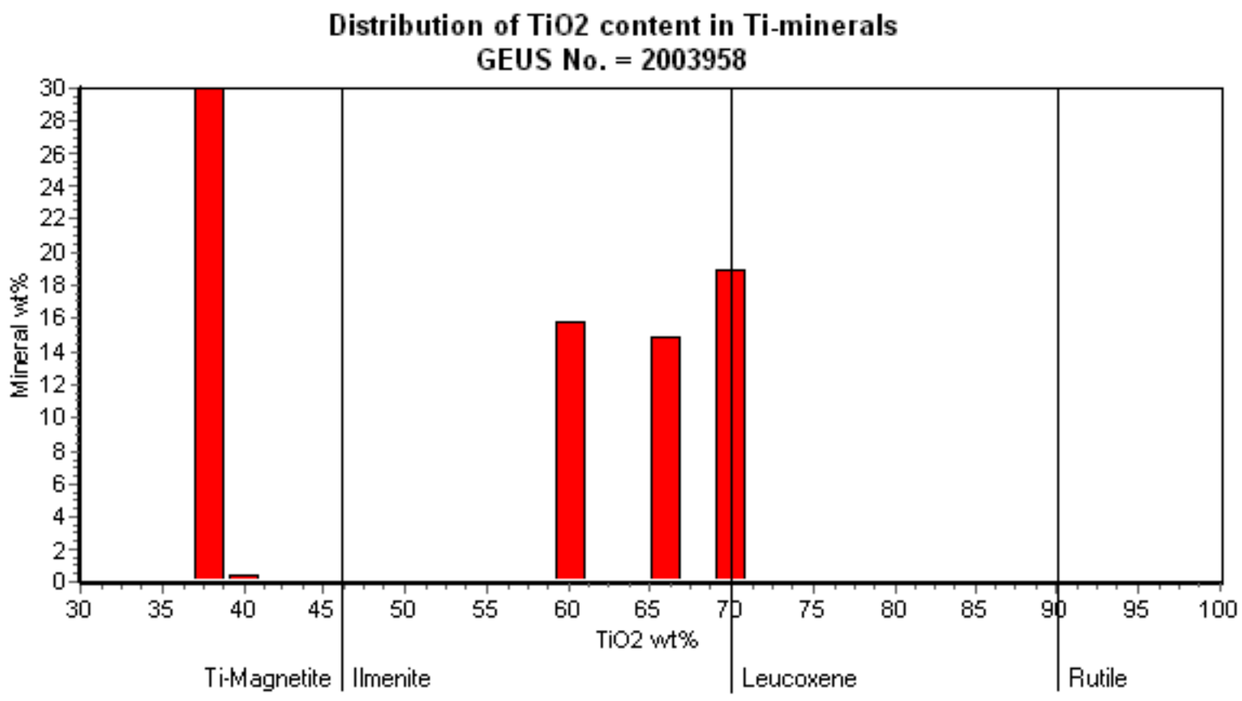

Sample GEUS #: 2003958
Description: GRO#3, 660-680 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.57	0.41	15.12	18.26	0.26	2.51	0.79	59.82	0.0	0.14	0.48	0.04	0.09	0.5	0.29	0.42	0.0	0.31	0.0	1
leucoxene	0.34	1.45	8.48	13.34	0.15	0.81	0.27	67.51	0.17	0.11	6.82	0.0	0.1	0.2	0.08	0.11	0.0	0.0	0.07	2
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	1.6	4.98	5.79	27.18	1.49	0.98	1.57	27.59	0.19	0.42	27.23	0.16	0.0	0.06	0.27	0.43	0.0	0.0	0.11	2
magnetite	2.03	7.09	3.88	9.65	1.44	0.41	4.32	0.18	0.43	0.76	68.71	0.06	0.14	0.14	0.19	0.22	0.07	0.07	0.23	25
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.01	0.12	30.87	0.0	0.0	0.0	0.01	0.1	0.0	0.41	0.19	0.0	67.63	0.0	0.0	0.0	0.0	0.66	1
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	2.88	1.25	26.61	50.63	0.05	1.82	12.87	0.34	0.1	0.1	2.63	0.03	0.07	0.05	0.0	0.12	0.0	0.12	0.34	20
silicate-other	1.25	6.3	20.22	49.39	0.04	2.68	3.32	0.73	0.08	0.18	15.05	0.04	0.07	0.1	0.0	0.14	0.0	0.15	0.28	22
quartz	0.08	0.37	1.54	93.83	0.04	0.2	0.36	0.04	0.03	0.13	2.42	0.17	0.23	0.09	0.0	0.13	0.0	0.07	0.28	8
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.49	0.16	0.7	1.63	1.21	0.15	53.19	0.05	0.01	0.08	0.78	0.08	0.15	8.45	0.0	32.22	0.0	0.43	0.27	2
carbonate	0.37	26.33	1.93	3.04	0.38	0.29	55.67	0.09	0.12	0.3	10.05	0.11	0.17	0.04	0.18	0.19	0.04	0.19	0.52	59
pyrite	0.0	0.06	0.87	1.78	65.16	0.34	0.19	0.06	0.0	0.0	31.0	0.11	0.0	0.0	0.0	0.43	0.0	0.0	0.0	1
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	4.91	27.57	5.39	37.82	2.19	0.75	0.71	0.33	0.62	0.28	18.76	0.05	0.1	0.12	0.06	0.06	0.0	0.1	0.18	12
white mica	1.77	0.32	33.79	56.29	0.15	4.78	0.79	0.17	0.03	0.0	1.2	0.0	0.05	0.16	0.0	0.1	0.0	0.39	0.07	2
olivine	0.0	36.91	0.0	42.32	0.0	0.13	0.1	0.12	0.03	0.44	19.59	0.3	0.0	0.0	0.0	0.0	0.0	0.04	0.0	1
ortho-amphibole/ortho-pyroxene	0.06	27.86	2.88	48.82	0.06	0.13	1.94	0.31	0.16	0.25	16.86	0.13	0.1	0.07	0.0	0.09	0.0	0.12	0.16	69
clino-amphibole/clino-pyroxene	2.11	10.97	13.04	46.43	0.13	0.34	12.83	1.05	0.06	0.21	11.98	0.08	0.1	0.07	0.01	0.16	0.0	0.09	0.32	168
chlorite	0.0	6.39	19.18	30.03	0.03	2.46	2.15	0.76	0.01	0.25	38.18	0.1	0.15	0.0	0.13	0.02	0.0	0.05	0.14	6
unclassified	3.06	18.25	7.96	15.56	2.1	1.0	27.68	0.83	0.12	0.33	20.93	0.12	0.41	0.18	0.23	0.45	0.11	0.14	0.53	195

DONG sample Report - Page 1/3

Sample GEUS #: 2003959

Description: GRO#3, 725-740 m, 439401, well

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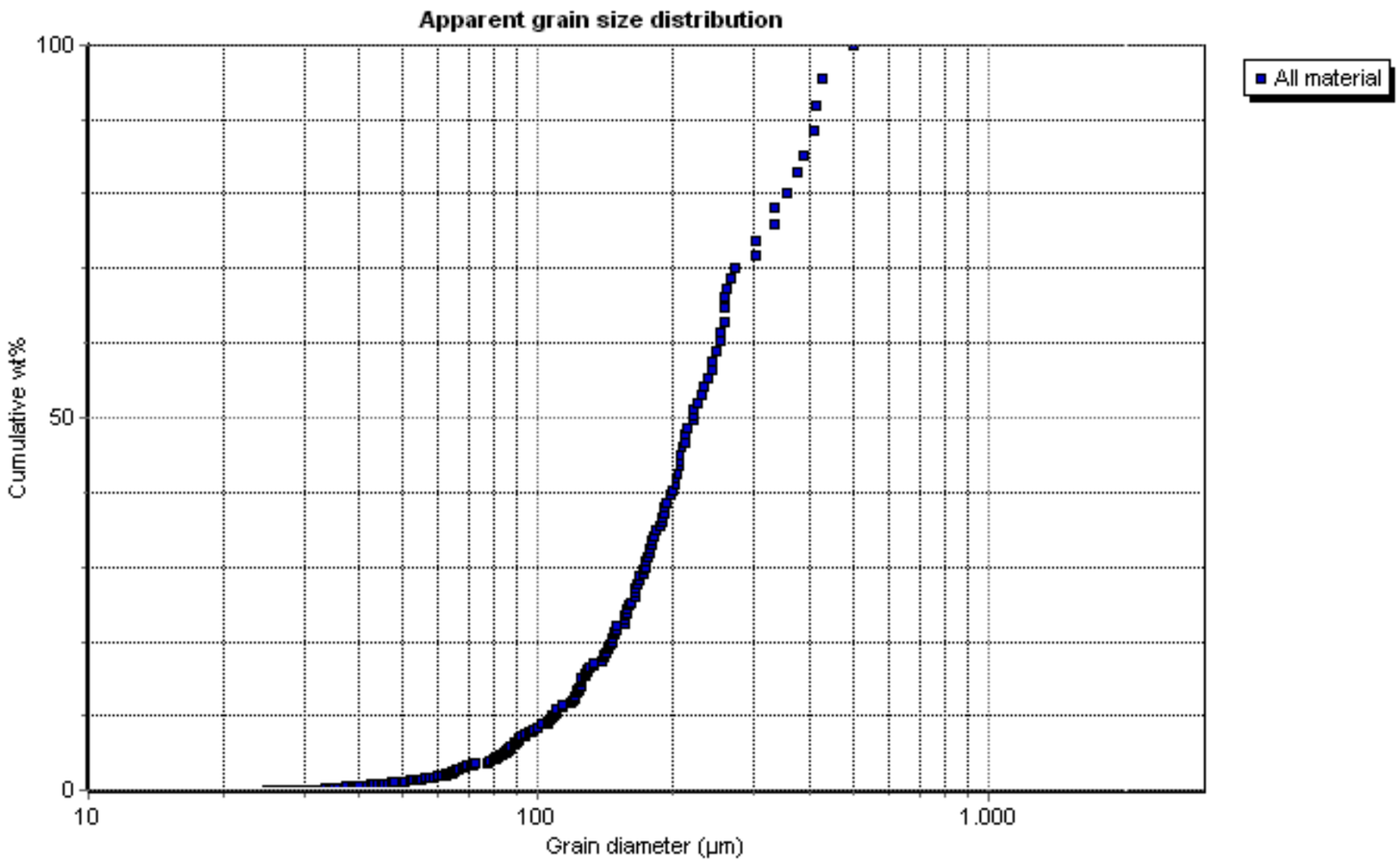

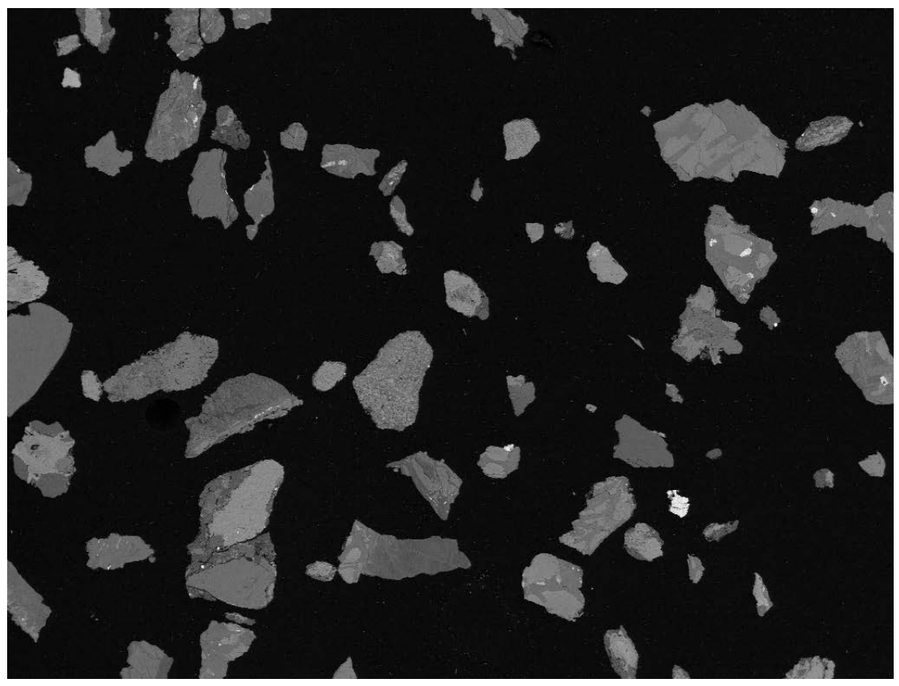

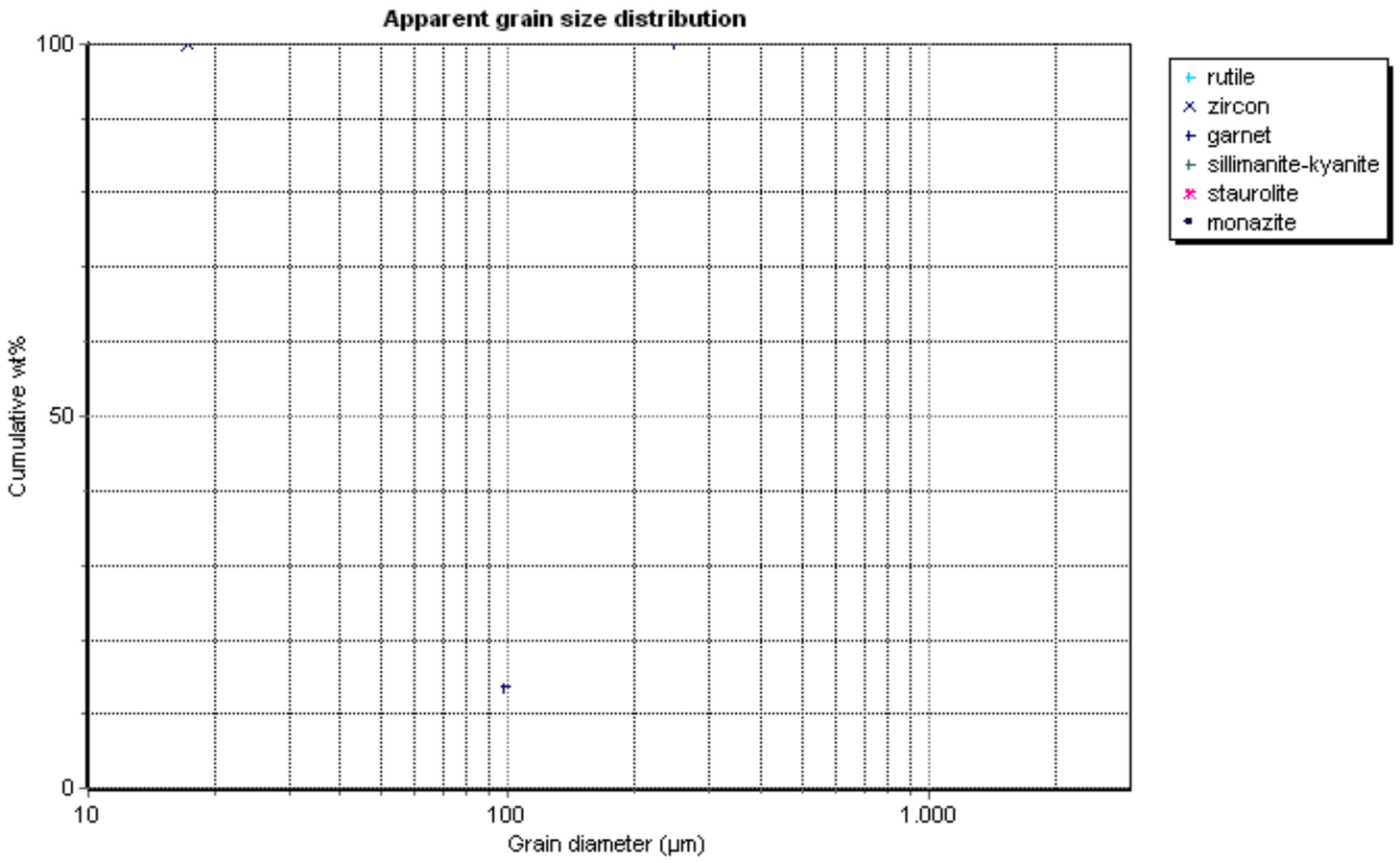

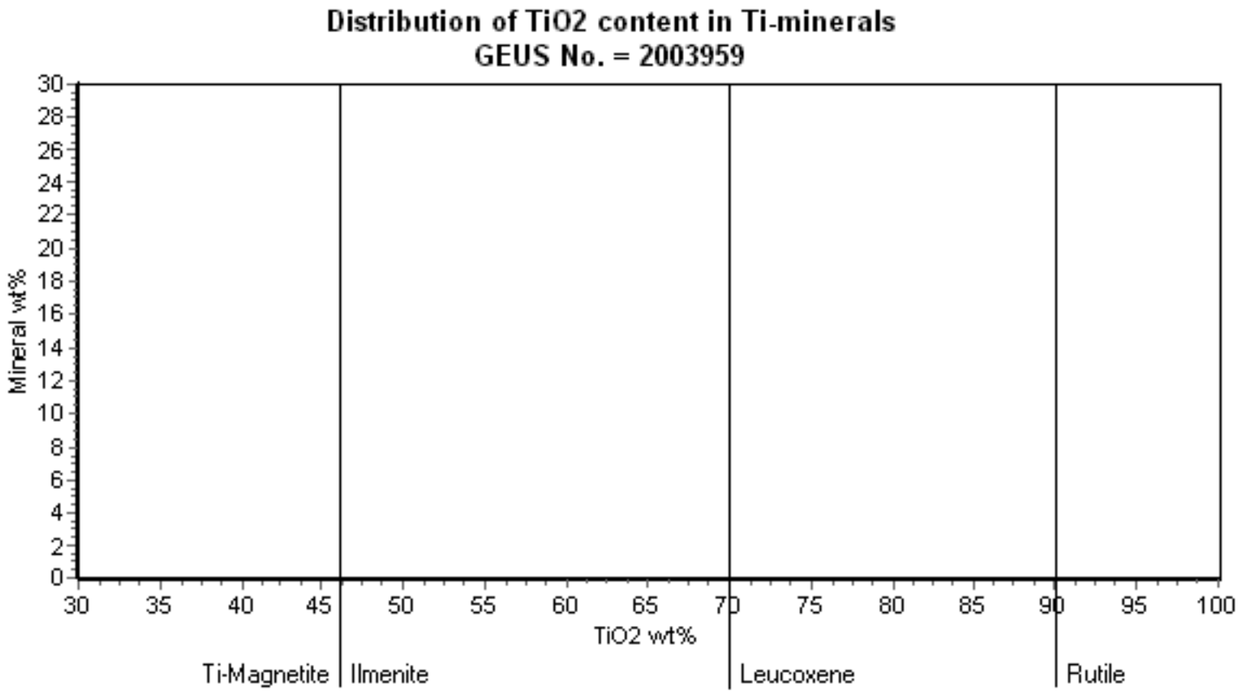

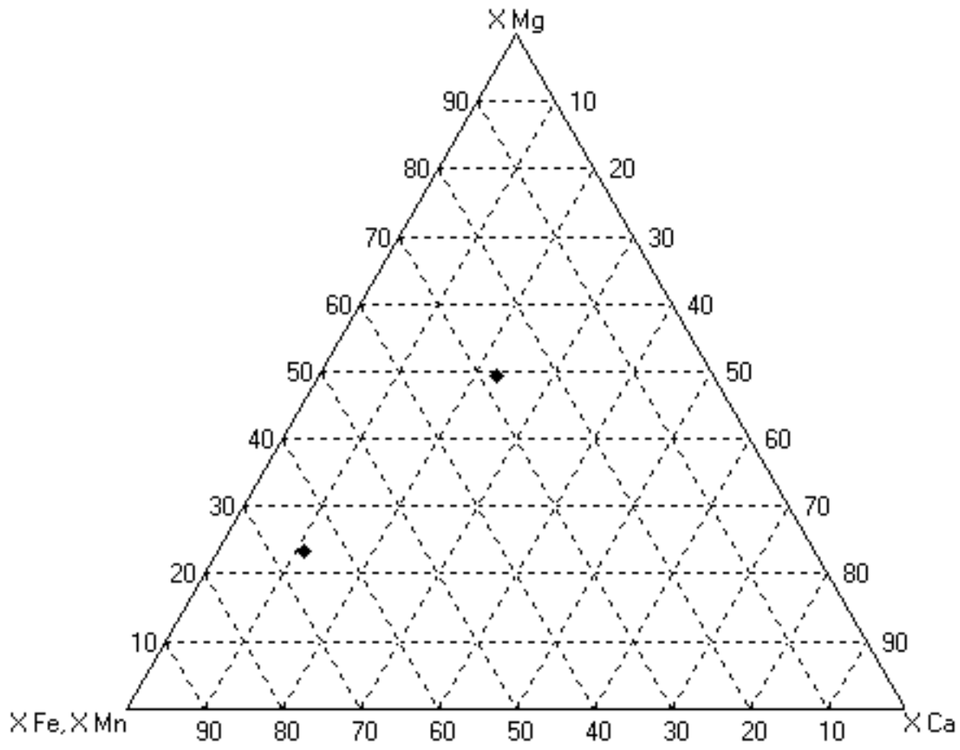

Sample GEUS #: 2003959
Description: GRO#3, 725-740 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	4.12	7.57	1.96	9.34	0.16	0.16	1.55	26.38	0.19	0.29	47.59	0.07	0.14	0.24	0.16	0.0	0.0	0.0	0.12	2
magnetite	3.03	5.75	4.75	10.29	1.58	0.35	3.77	0.11	0.28	0.5	68.27	0.07	0.1	0.27	0.29	0.12	0.17	0.06	0.26	13
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.13	0.66	29.82	0.0	0.07	0.0	0.29	0.0	0.25	0.0	0.0	0.15	68.24	0.0	0.0	0.0	0.4	0.0	1
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	9.73	16.72	39.37	0.0	0.35	6.36	1.27	0.08	0.34	24.92	0.11	0.19	0.0	0.25	0.18	0.0	0.04	0.12	2
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.63	1.55	27.16	51.27	0.15	0.28	12.08	0.21	0.05	0.14	2.55	0.22	0.07	0.13	0.0	0.01	0.0	0.15	0.35	5
silicate-other	0.85	3.97	30.55	48.23	0.55	2.23	1.62	0.64	0.1	0.13	10.31	0.08	0.08	0.18	0.0	0.13	0.0	0.14	0.22	18
quartz	0.0	0.13	0.2	97.49	0.0	0.0	0.04	0.01	0.0	0.0	1.31	0.6	0.0	0.0	0.0	0.22	0.0	0.0	0.0	1
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	5.26	33.3	0.39	1.11	0.1	0.21	51.6	0.0	0.06	0.18	7.39	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.15	1
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	4.97	37.42	1.18	40.49	0.19	0.06	0.35	0.08	0.06	0.14	14.15	0.06	0.2	0.21	0.0	0.0	0.0	0.17	0.31	2
white mica	1.29	0.62	28.7	56.25	0.08	9.83	0.6	0.6	0.13	0.11	0.9	0.11	0.18	0.04	0.0	0.06	0.0	0.37	0.14	4
olivine	0.0	37.88	0.28	41.85	0.0	0.03	0.41	0.13	0.07	0.42	18.63	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.25	1
ortho-amphibole/ortho-pyroxene	0.13	27.05	4.32	47.55	0.09	0.22	2.37	0.37	0.14	0.23	16.89	0.12	0.13	0.08	0.0	0.1	0.0	0.09	0.12	35
clino-amphibole/clino-pyroxene	2.63	10.85	15.75	45.55	0.12	0.36	10.82	0.97	0.09	0.18	11.88	0.07	0.09	0.07	0.03	0.11	0.02	0.12	0.29	107
chlorite	0.0	5.31	18.12	29.39	0.54	1.94	1.88	0.49	0.06	0.36	40.69	0.1	0.36	0.14	0.25	0.15	0.18	0.04	0.01	4
unclassified	3.48	10.82	14.67	23.23	5.39	1.06	7.46	0.75	0.1	0.32	31.43	0.07	0.14	0.12	0.19	0.17	0.11	0.12	0.38	63

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Sample GEUS #: 2003960

Description: GRO#3, 815-835 m, 439401, well

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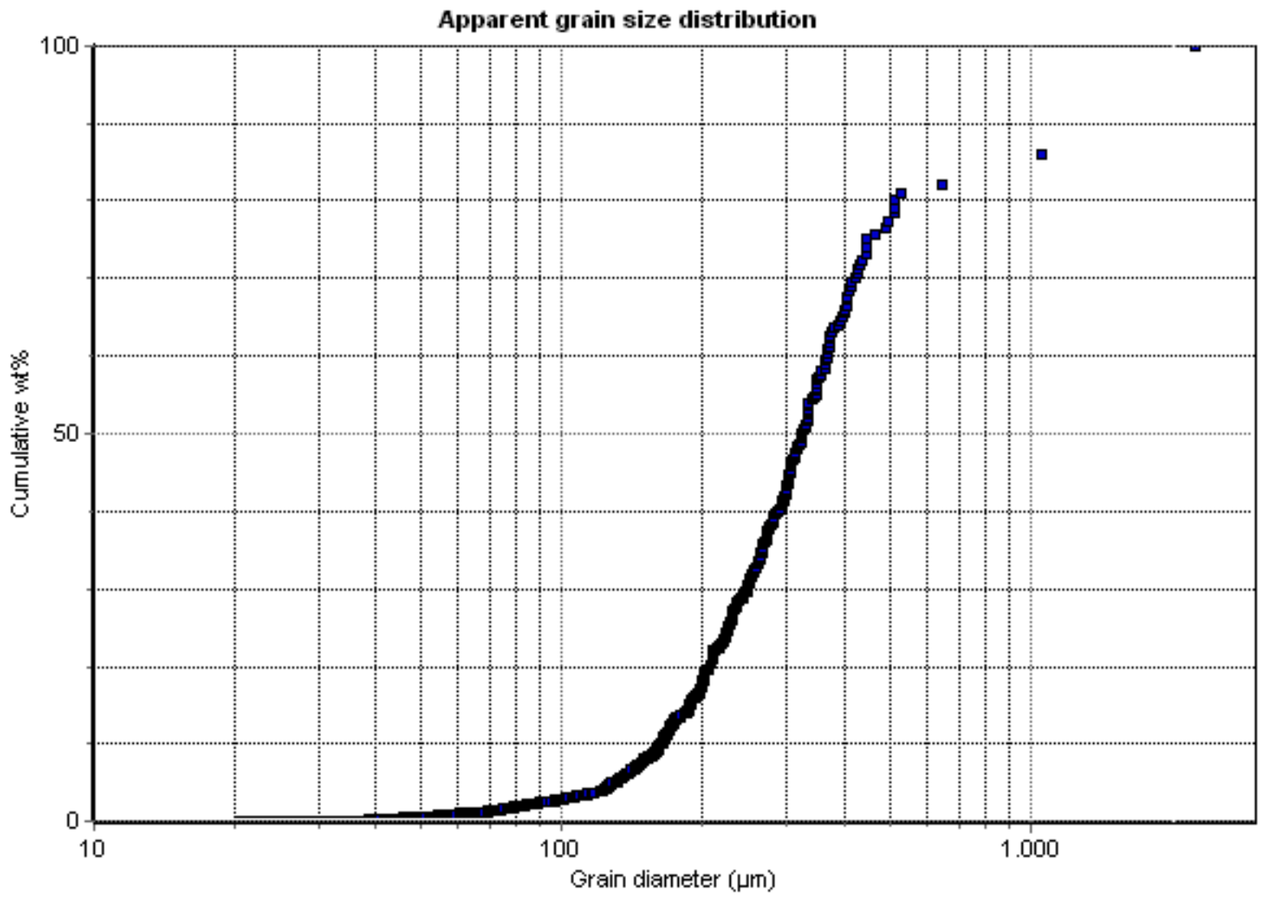

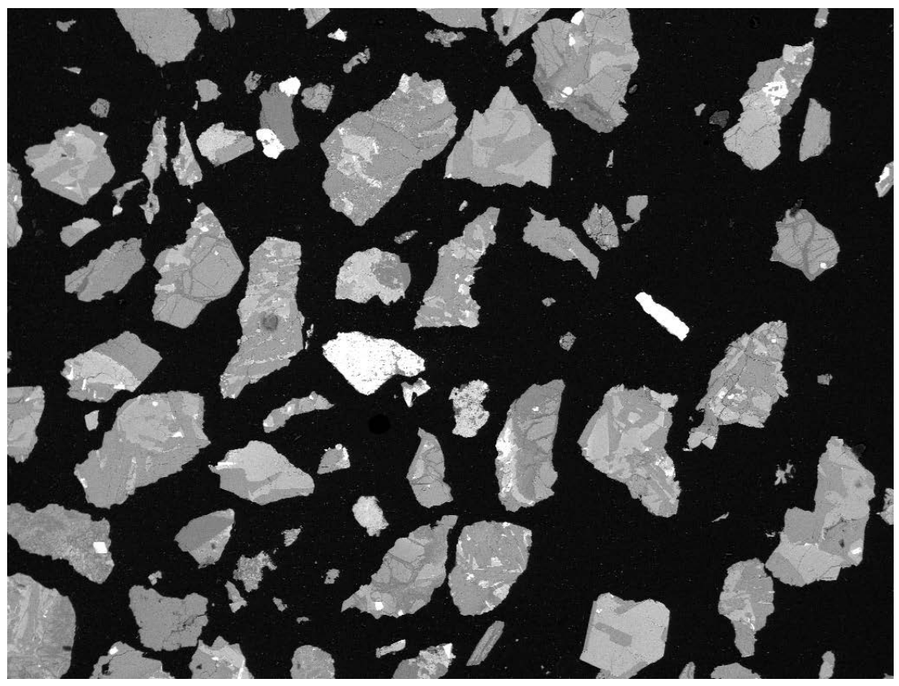

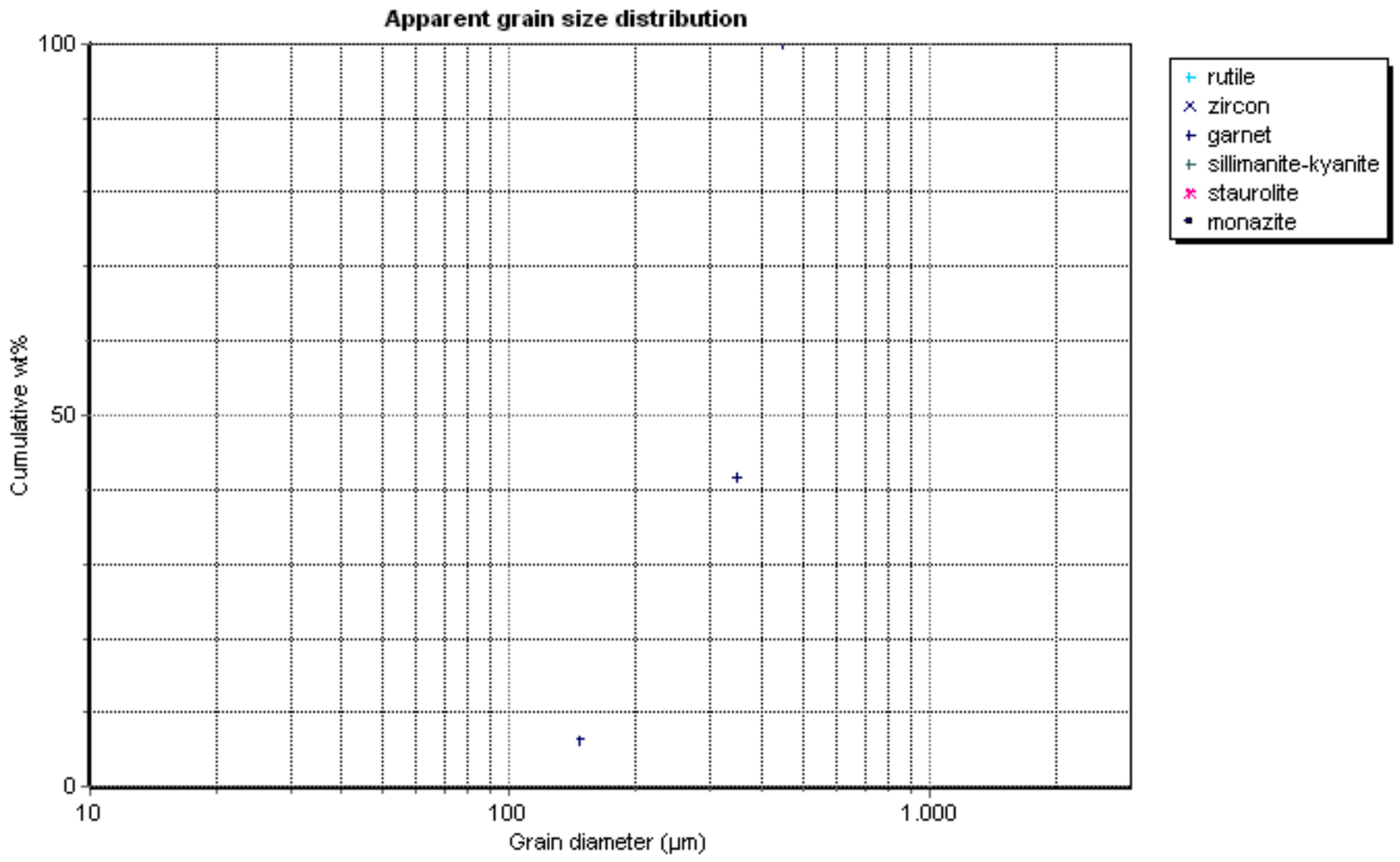

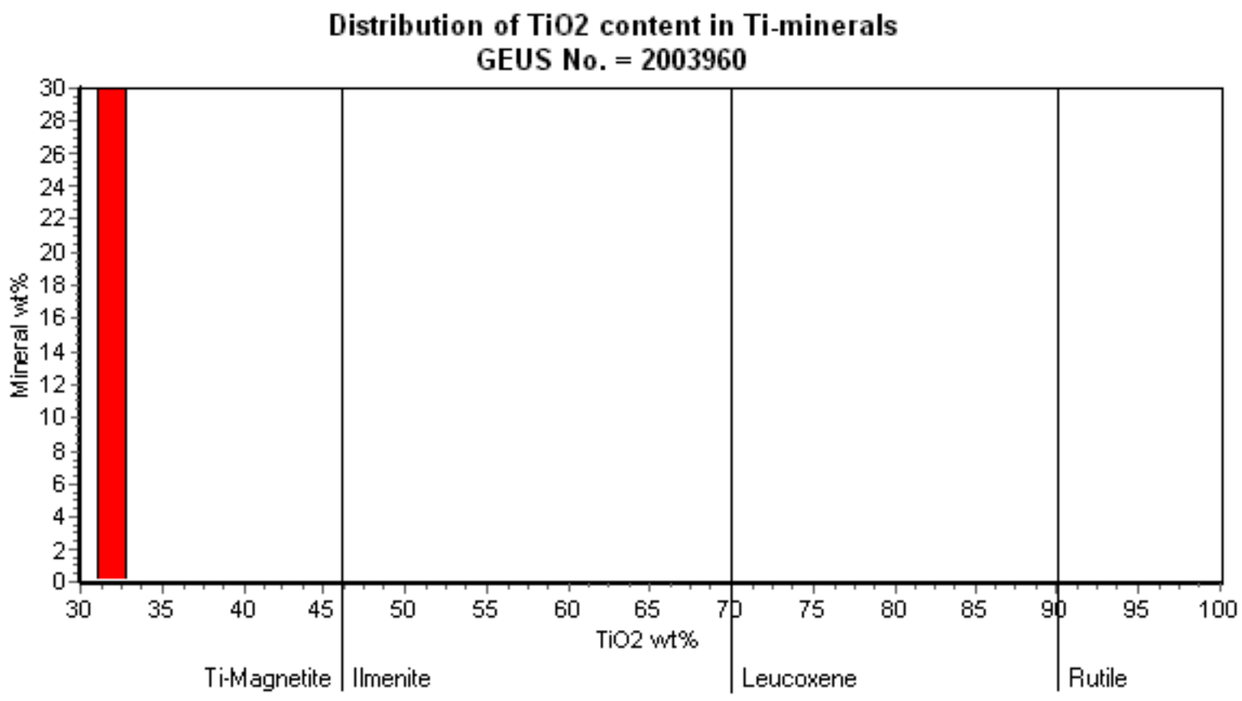

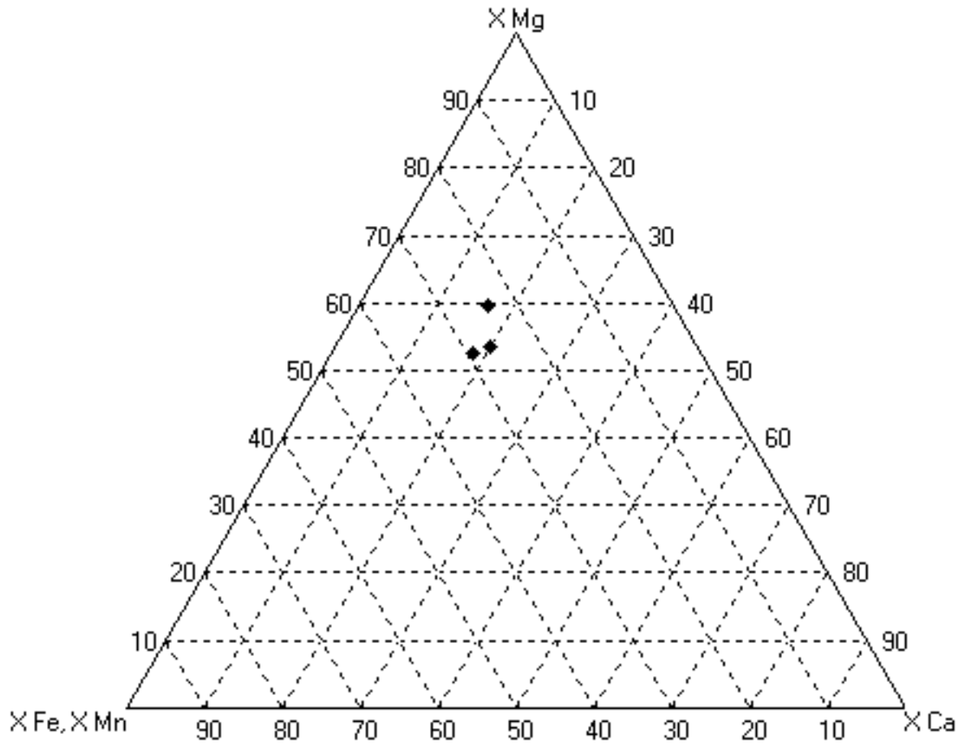

Sample GEUS #: 2003960
Description: GRO#3, 815-835 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ti magnetite	1.77	5.54	10.08	20.87	0.11	0.37	3.13	17.17	0.0	0.5	39.09	0.02	0.5	0.56	0.17	0.13	0.0	0.0	0.0	1
magnetite	0.61	2.84	2.68	6.51	1.9	0.3	1.79	0.13	0.18	0.96	80.35	0.29	0.27	0.18	0.29	0.19	0.11	0.19	0.24	51
chromite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.49	15.8	16.37	43.63	0.0	0.07	7.28	0.47	0.03	0.13	14.76	0.05	0.44	0.02	0.0	0.16	0.0	0.09	0.23	3
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.7	1.06	27.16	50.4	0.39	0.21	12.75	0.23	0.09	0.13	2.76	0.12	0.13	0.16	0.0	0.17	0.0	0.15	0.4	44
silicate-other	2.09	5.8	17.21	54.09	0.08	1.46	4.11	0.95	0.11	0.28	12.44	0.16	0.33	0.19	0.0	0.27	0.0	0.16	0.27	18
quartz	0.1	0.18	0.68	93.04	1.94	0.22	0.19	0.23	0.2	0.22	0.73	0.24	0.52	0.33	0.0	0.36	0.0	0.31	0.52	47
corundum	0.38	0.95	89.52	4.65	0.72	0.22	0.24	0.17	0.34	0.19	0.52	0.38	0.28	0.36	0.24	0.1	0.36	0.33	0.07	4
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	6.42	4.79	2.71	2.6	5.08	2.37	30.46	0.0	0.28	1.11	1.14	0.43	0.0	7.22	2.73	32.65	0.0	0.0	0.0	1
carbonate	0.16	27.72	1.01	2.27	0.55	0.24	51.84	0.17	0.16	0.45	13.29	0.2	0.31	0.15	0.45	0.25	0.07	0.26	0.44	103
pyrite	0.0	0.13	5.78	6.51	59.65	0.38	0.15	0.06	0.09	0.03	26.79	0.15	0.11	0.0	0.0	0.13	0.0	0.0	0.06	2
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.48	10.73	13.9	40.42	13.26	1.5	1.12	0.19	0.21	0.1	14.49	0.09	0.18	0.0	0.0	0.0	0.0	0.09	0.23	3
white mica	0.92	0.9	32.56	50.7	0.61	8.96	0.53	0.31	0.09	0.1	2.36	0.0	0.22	0.09	0.0	0.63	0.0	0.27	0.78	4
olivine	0.0	38.43	0.6	34.95	0.31	0.07	1.91	0.49	0.2	0.1	21.74	0.0	0.11	0.0	0.29	0.28	0.39	0.04	0.09	3
ortho-amphibole/ortho-pyroxene	0.15	26.54	4.77	46.53	0.14	0.21	2.62	0.33	0.26	0.25	17.23	0.11	0.18	0.14	0.0	0.2	0.0	0.12	0.22	85
clino-amphibole/clino-pyroxene	2.05	8.83	15.6	47.37	0.15	0.24	12.79	1.13	0.1	0.19	10.49	0.11	0.13	0.15	0.02	0.17	0.01	0.15	0.31	297
chlorite	0.0	5.28	18.59	25.47	0.46	2.34	2.02	2.92	0.0	0.42	38.48	0.23	0.39	0.74	1.01	0.0	0.0	0.39	1.28	2
unclassified	5.27	7.24	4.42	31.46	11.01	5.41	9.86	1.16	0.69	0.82	8.97	0.72	1.38	2.02	4.03	2.04	0.54	1.31	1.65	279

DONG sample Report - Page 1/3
Sample GEUS #: 2003961
Description: GRO#3, 890-915 m, 439401, well
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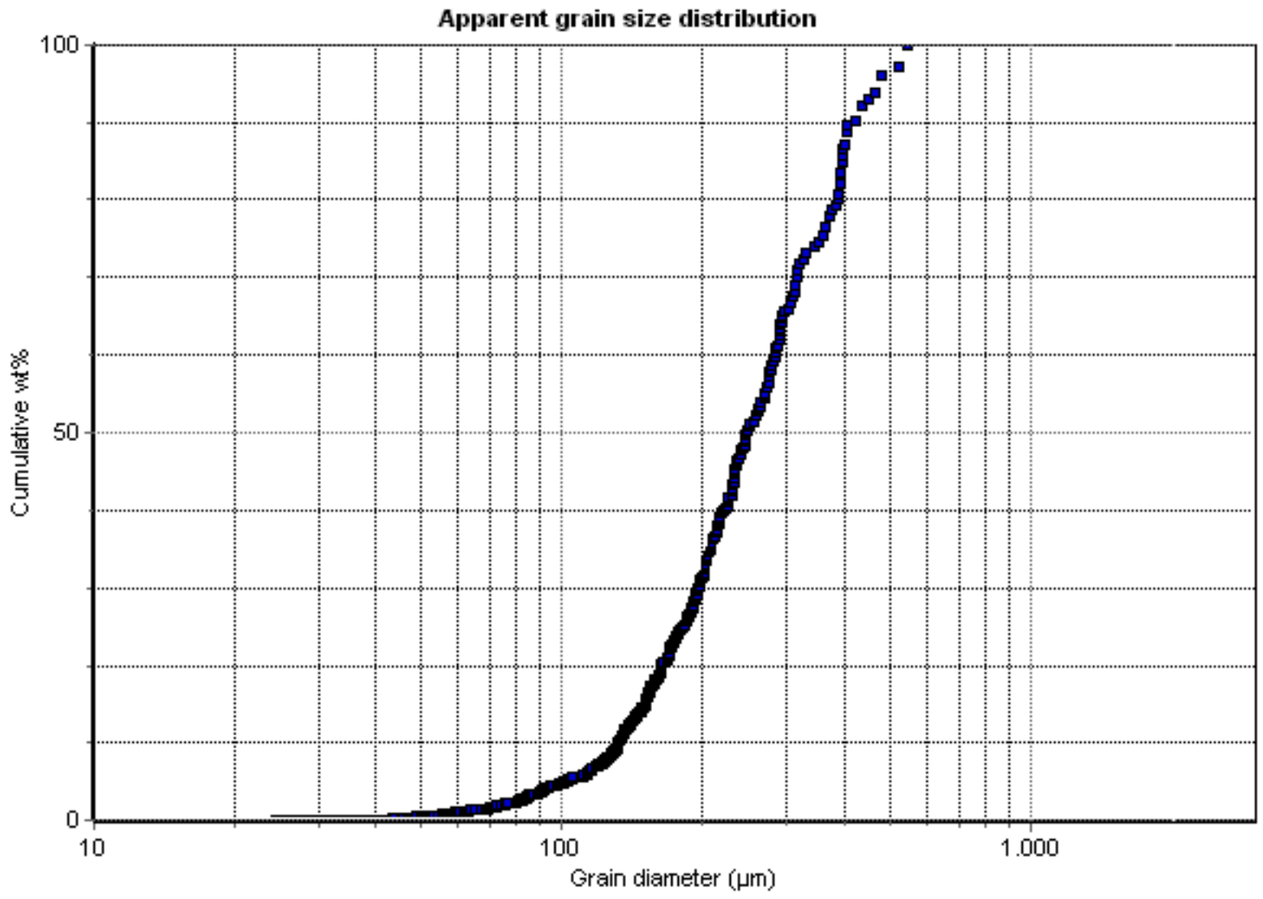

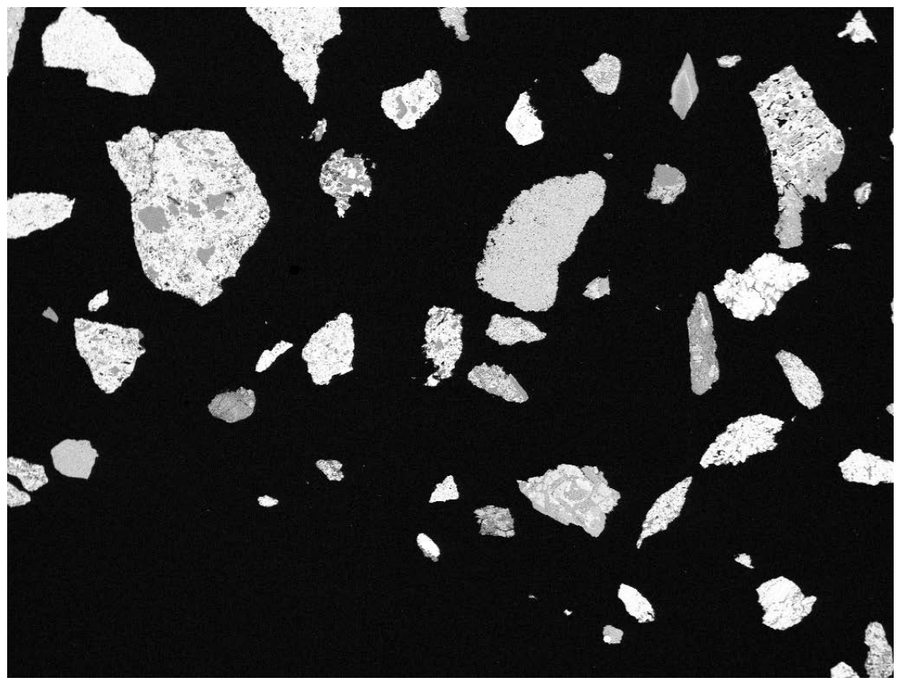

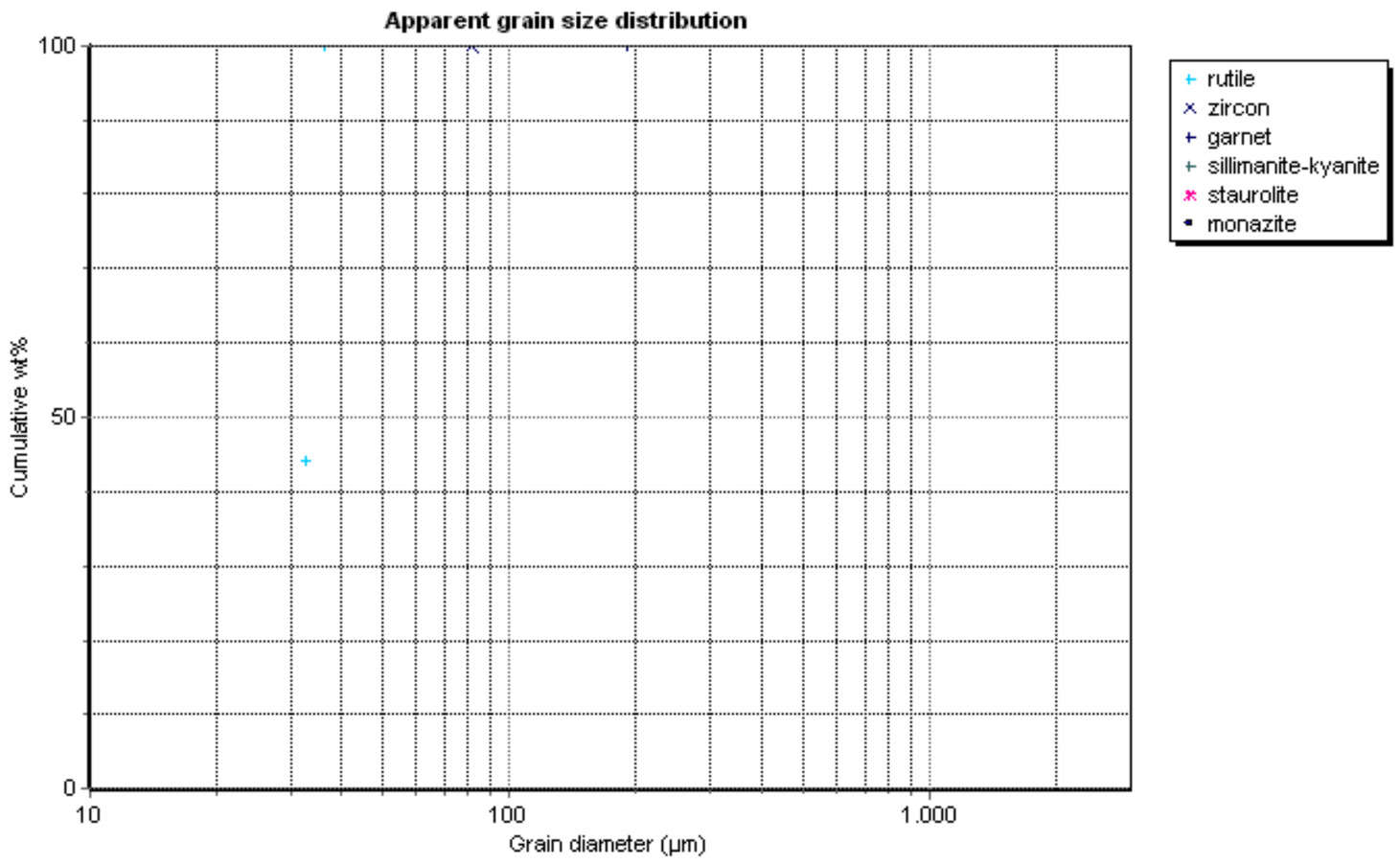

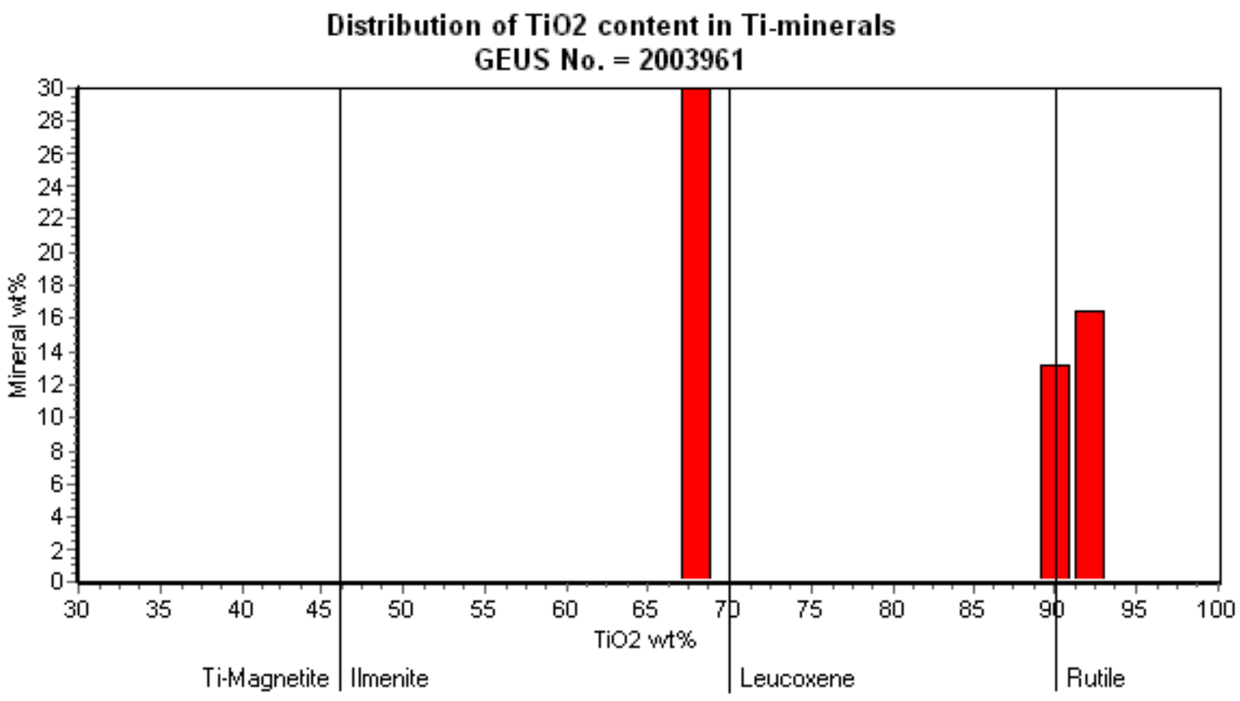

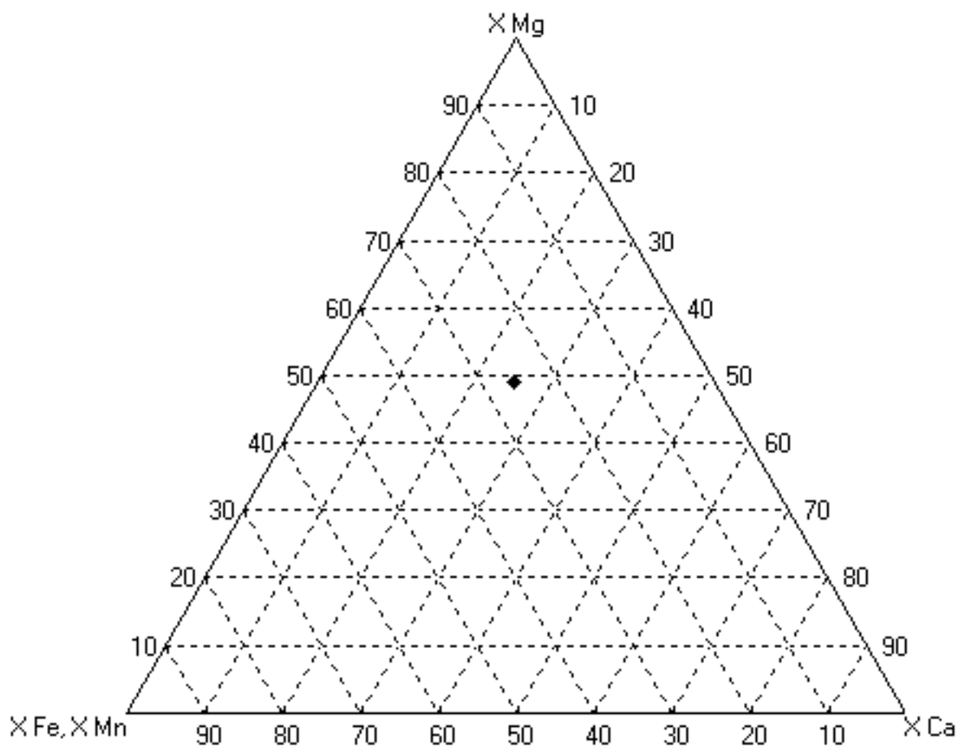

Sample GEUS #: 2003961
Description: GRO#3, 890-915 m, 439401, well

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.79	5.04	2.84	2.28	0.34	0.26	13.28	67.98	0.0	0.41	6.18	0.39	0.0	0.0	0.0	0.08	0.0	0.12	0.0	1
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	1.02	0.28	1.56	1.51	0.16	0.11	0.19	91.01	0.77	0.0	1.77	0.47	0.29	0.0	0.43	0.37	0.0	0.0	0.12	2
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.37	5.28	5.36	9.88	4.13	0.78	4.69	0.25	0.14	0.54	65.67	0.16	0.28	0.24	0.36	0.25	0.08	0.26	0.29	231
chromite	0.0	2.09	1.07	5.81	11.34	0.0	3.68	0.09	15.32	1.17	58.44	0.0	0.0	0.0	0.0	0.61	0.0	0.0	0.39	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.65	0.25	0.0	32.38	0.0	0.07	0.12	0.22	0.05	0.1	0.71	0.0	0.19	64.83	0.0	0.0	0.0	0.0	0.44	1
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	1.38	11.71	16.28	47.14	0.0	0.14	8.35	1.75	0.0	0.0	12.12	0.0	0.43	0.23	0.0	0.35	0.0	0.0	0.12	1
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	3.25	0.91	27.06	50.01	0.0	0.13	12.9	0.69	0.18	0.19	2.95	0.35	0.6	0.19	0.0	0.23	0.0	0.2	0.17	3
silicate-other	0.44	2.46	10.8	61.56	0.36	1.79	4.87	0.3	0.05	0.23	15.45	0.1	0.14	0.43	0.0	0.23	0.0	0.22	0.58	23
quartz	0.11	0.21	1.4	92.49	0.26	0.46	0.93	0.03	0.19	0.1	2.23	0.1	0.26	0.3	0.0	0.22	0.0	0.6	0.1	6
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.18	23.81	1.71	3.59	0.46	0.15	56.51	0.03	0.14	0.68	11.02	0.09	0.33	0.0	0.34	0.34	0.0	0.38	0.24	8
pyrite	0.0	0.44	3.44	5.02	57.67	0.87	0.77	0.15	0.04	0.13	30.1	0.11	0.0	0.19	0.36	0.08	0.06	0.24	0.32	7
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.4	1.49	28.18	41.42	1.4	5.5	1.15	0.54	0.08	0.5	16.96	0.09	0.09	0.2	0.0	0.01	0.0	0.33	0.68	4
white mica	0.0	0.6	33.94	48.18	0.0	10.51	0.47	0.13	0.0	0.0	5.16	0.09	0.05	0.0	0.0	0.0	0.0	0.0	0.88	1
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.13	24.29	2.24	48.28	0.15	0.24	1.87	0.14	0.5	0.32	20.91	0.11	0.12	0.28	0.0	0.14	0.0	0.1	0.16	13
clino-amphibole/clino-pyroxene	1.91	9.28	11.85	48.38	0.16	0.32	13.24	0.86	0.09	0.21	12.37	0.15	0.17	0.3	0.01	0.29	0.0	0.13	0.3	43
chlorite	0.18	4.63	19.14	30.42	1.31	2.87	2.76	0.39	0.12	0.46	36.75	0.0	0.14	0.0	0.0	0.23	0.06	0.14	0.4	3
unclassified	5.34	6.41	7.8	18.51	8.4	5.74	12.67	0.84	0.31	0.61	25.34	0.7	0.73	1.21	2.37	0.91	0.45	0.76	0.9	213

DONG sample Report - Page 1/3

Sample GEUS #: 2003962

Description: Itilli, 125 m, 486805, outcrop

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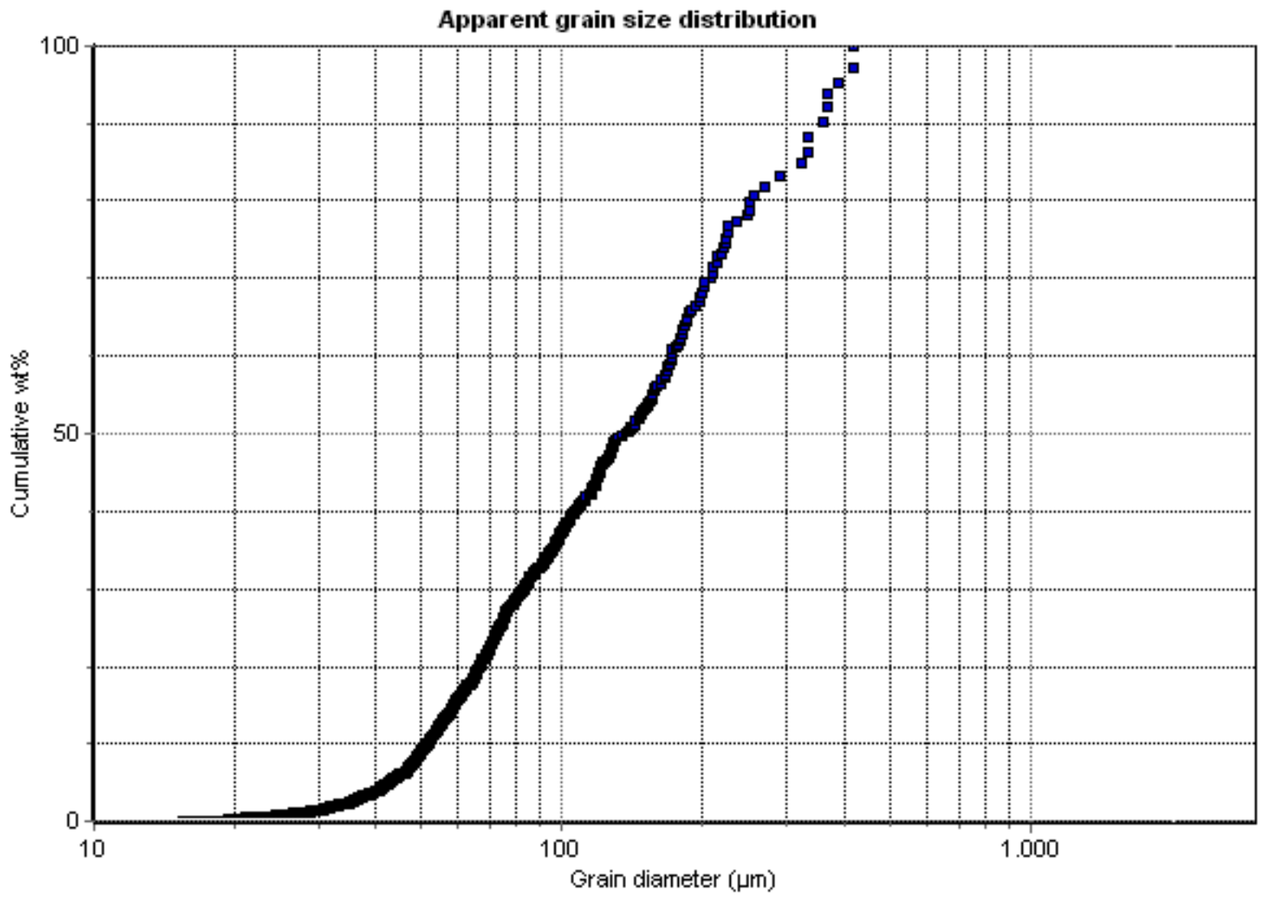

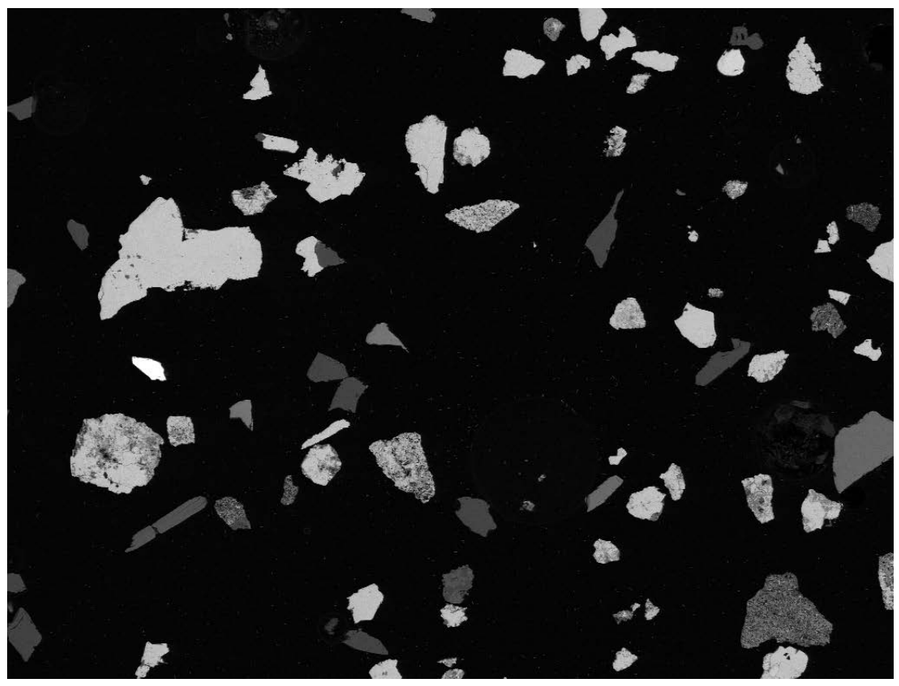

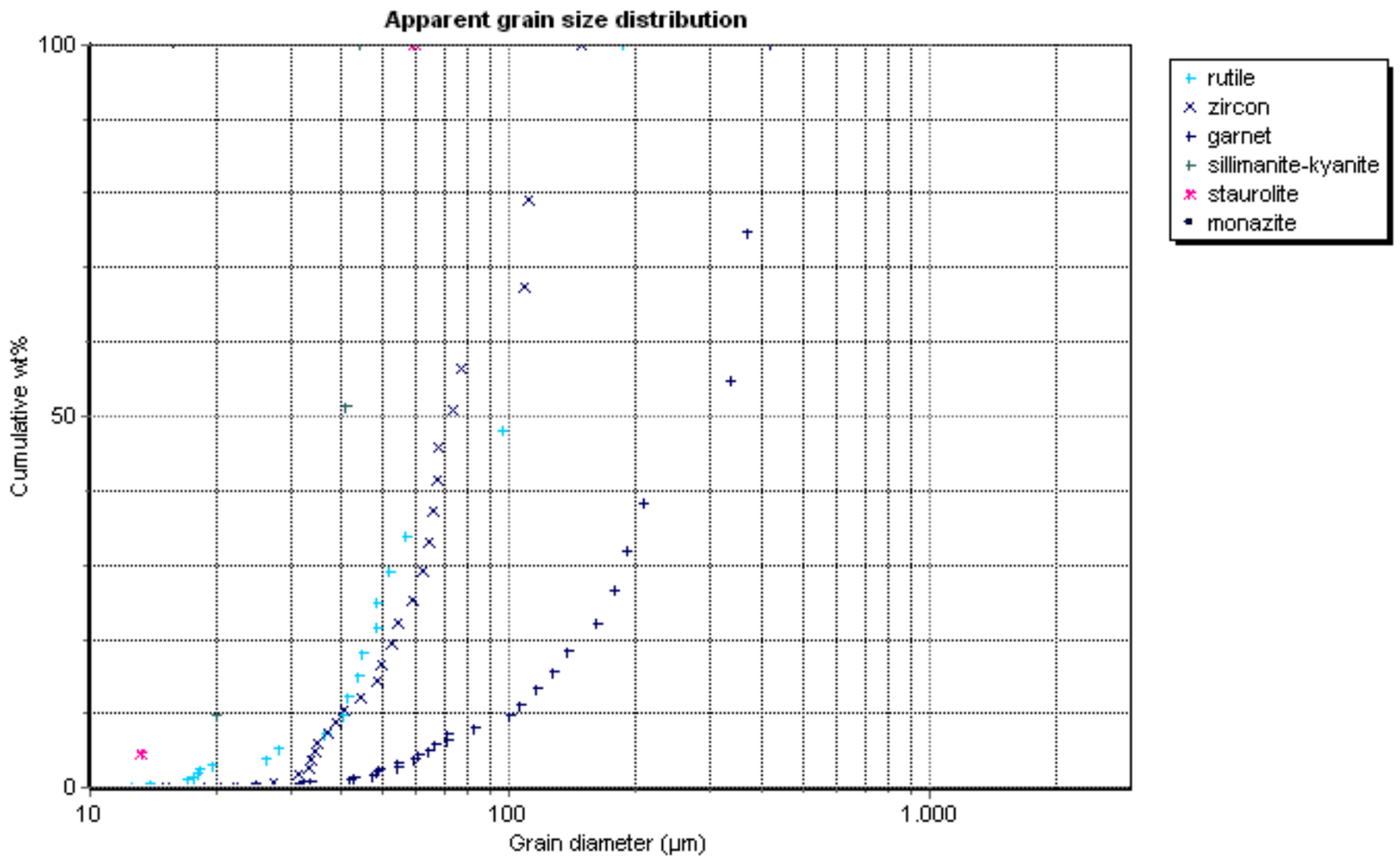

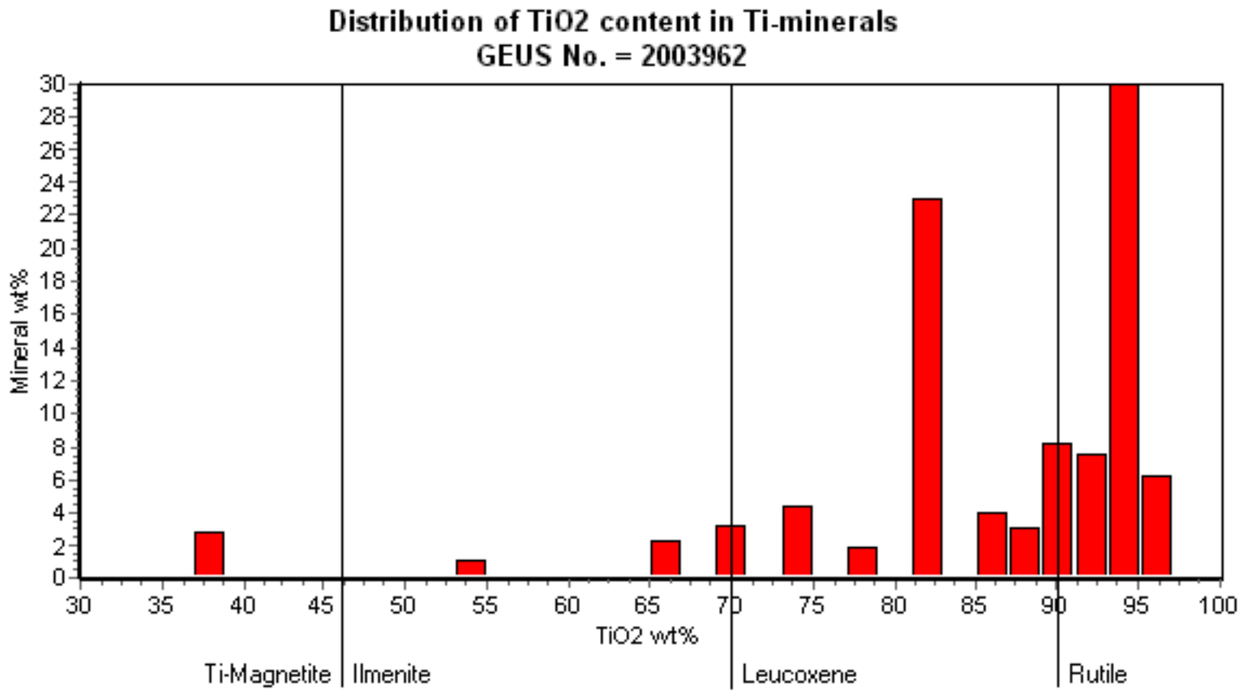

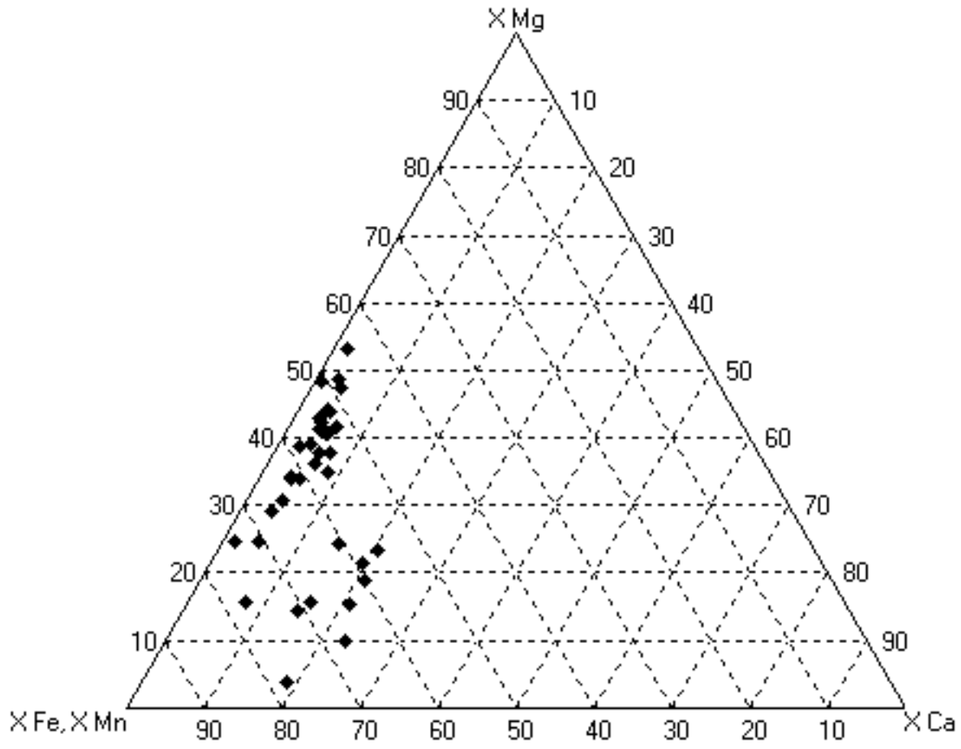

Sample GEUS #: 2003962
Description: Itilli, 125 m, 486805, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0.21	0.16	5.68	12.05	0.22	0.44	0.21	78.72	0.13	0.06	0.94	0.12	0.08	0.23	0.28	0.11	0.02	0.23	0.12	11
rutile	0.03	0.12	1.26	2.05	0.34	0.08	0.15	93.42	0.19	0.06	1.5	0.1	0.08	0.09	0.21	0.21	0.01	0.04	0.06	20
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	1.25	5.21	1.86	5.13	19.82	0.12	0.83	0.16	0.09	0.68	63.77	0.12	0.18	0.25	0.18	0.1	0.03	0.12	0.11	187
chromite	0.0	1.23	1.12	1.33	0.34	0.07	0.1	2.23	32.18	0.17	60.93	0.1	0.15	0.0	0.0	0.05	0.0	0.0	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.14	0.1	0.29	30.65	0.07	0.02	0.27	0.15	0.08	0.06	0.87	0.15	0.03	66.26	0.0	0.65	0.0	0.11	0.1	26
cassiterite	0.0	0.24	0.84	4.22	0.63	0.0	1.66	0.0	0.28	0.7	6.53	0.66	0.0	0.0	0.0	0.08	0.0	0.26	83.9	1
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.06	7.83	22.55	38.84	0.07	0.04	2.54	0.14	0.07	0.8	26.56	0.08	0.12	0.04	0.0	0.07	0.0	0.07	0.11	37
sillimanite-kyanite	0.0	0.22	58.3	39.34	0.0	0.08	0.07	0.26	0.19	0.13	0.68	0.33	0.03	0.0	0.0	0.0	0.0	0.31	0.05	3
staurolite	0.34	2.18	51.25	28.69	2.32	0.03	0.01	0.67	0.1	0.22	13.75	0.42	0.0	0.0	0.0	0.0	0.0	0.05	0.01	2
feldspar	3.39	0.17	20.49	62.73	0.09	10.11	0.37	0.22	0.09	0.05	0.91	0.1	0.08	0.04	0.0	0.06	0.0	0.21	0.92	12
silicate-other	0.81	4.65	39.52	46.8	0.07	0.24	1.03	1.03	0.2	0.02	5.12	0.11	0.03	0.06	0.0	0.12	0.0	0.06	0.14	16
quartz	0.19	0.12	0.48	96.23	0.15	0.08	0.26	0.13	0.09	0.11	1.07	0.15	0.15	0.09	0.0	0.27	0.0	0.19	0.24	124
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.12	0.0	0.55	8.48	2.29	0.0	4.27	0.0	0.0	0.0	1.13	0.0	0.0	12.17	0.0	39.12	4.09	27.77	0.0	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.33	0.18	0.87	2.28	3.38	0.0	1.77	0.0	0.0	0.0	0.17	0.05	0.18	12.96	0.0	53.06	0.0	24.79	0.0	2
carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
pyrite	0.01	0.07	0.37	1.14	65.3	0.09	0.06	0.04	0.04	0.06	32.25	0.06	0.09	0.06	0.11	0.05	0.01	0.11	0.08	615
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.82	10.31	38.12	39.38	0.0	0.01	0.95	0.86	0.18	0.14	5.96	0.1	0.0	0.0	0.0	0.0	0.0	0.08	0.08	1
white mica	0.6	0.64	25.87	55.64	0.04	13.07	0.24	0.53	0.05	0.1	2.26	0.09	0.1	0.04	0.0	0.03	0.0	0.14	0.57	23
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	8.59	23.62	37.88	0.06	0.0	1.38	0.08	0.13	0.76	27.13	0.12	0.05	0.0	0.0	0.0	0.0	0.01	0.23	2
clino-amphibole/clino-pyroxene	3.99	9.72	21.27	36.63	0.19	0.1	2.42	0.18	0.06	0.79	24.09	0.08	0.09	0.06	0.08	0.05	0.02	0.06	0.12	27
chlorite	0.0	6.88	15.83	27.71	1.66	0.08	2.16	0.0	0.19	1.3	42.98	0.0	0.29	0.16	0.21	0.0	0.31	0.27	0.0	2
unclassified	1.01	1.54	3.5	17.0	34.5	0.74	1.21	2.62	0.38	0.71	33.95	0.44	0.27	0.84	0.27	0.13	0.02	0.55	0.31	87

DONG sample Report - Page 1/3

Sample GEUS #: 2003963

Description: Iterlaap Qaqqai, 185 m, 486806, outcrop

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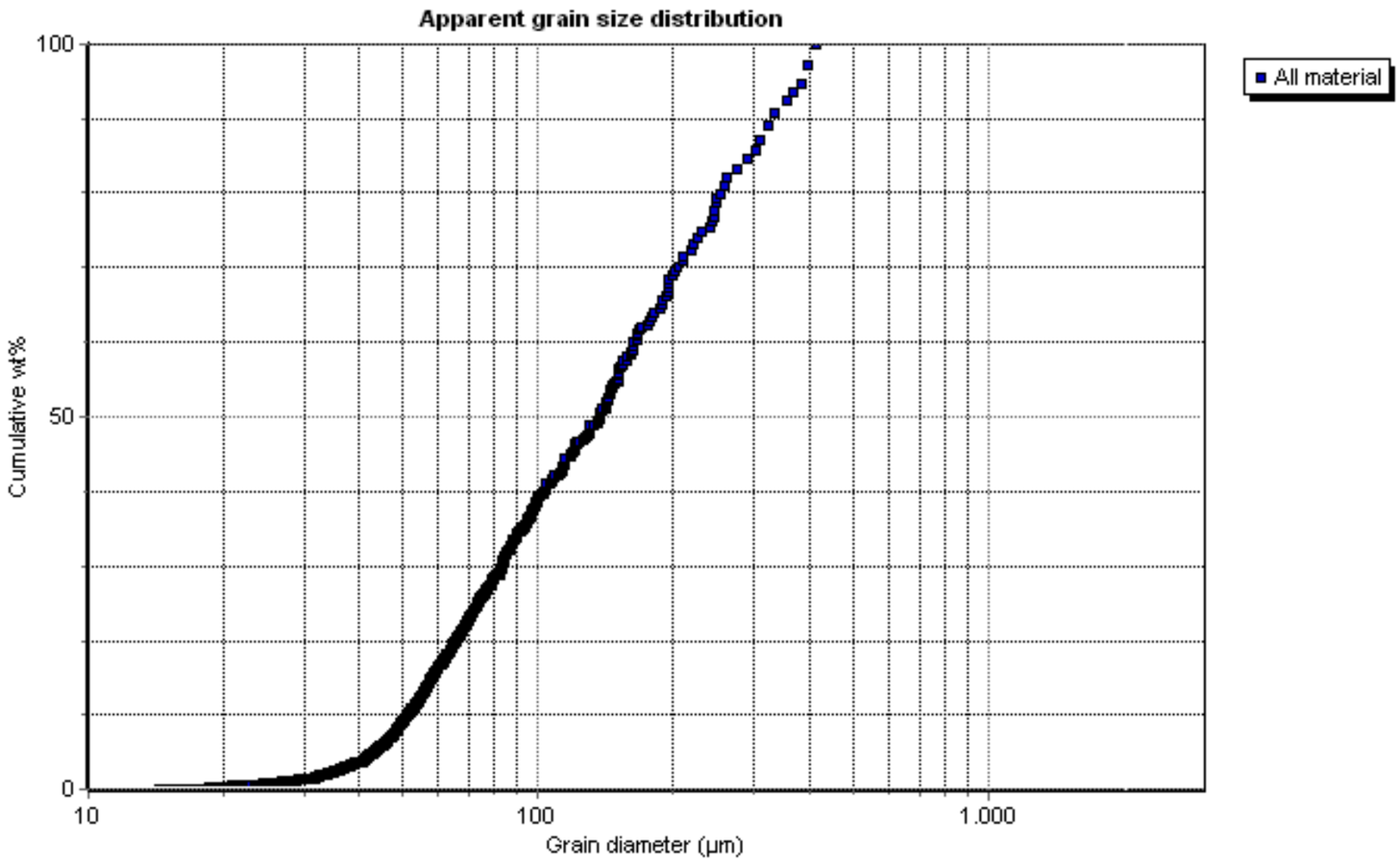
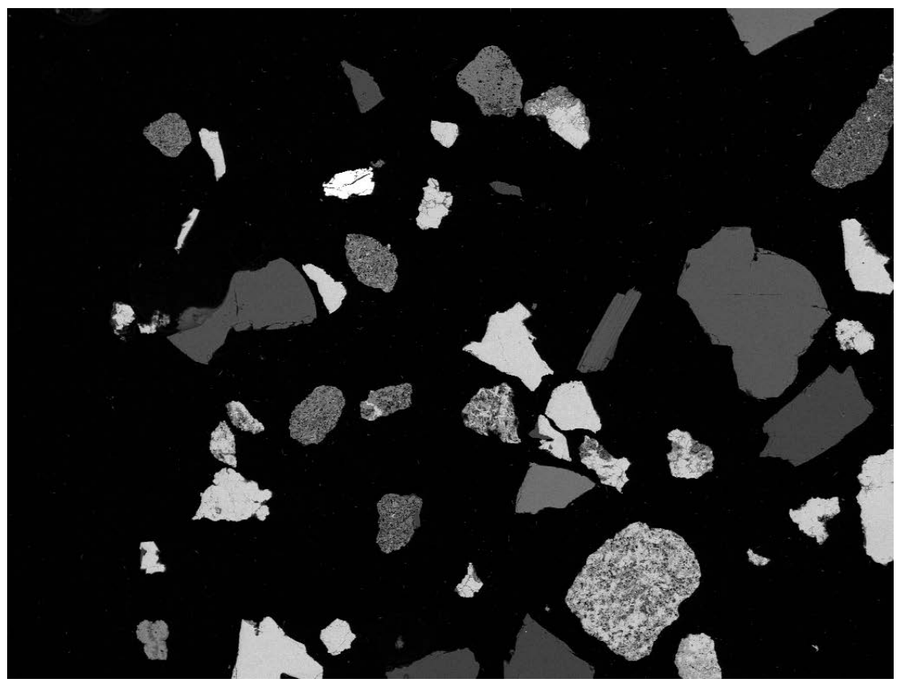
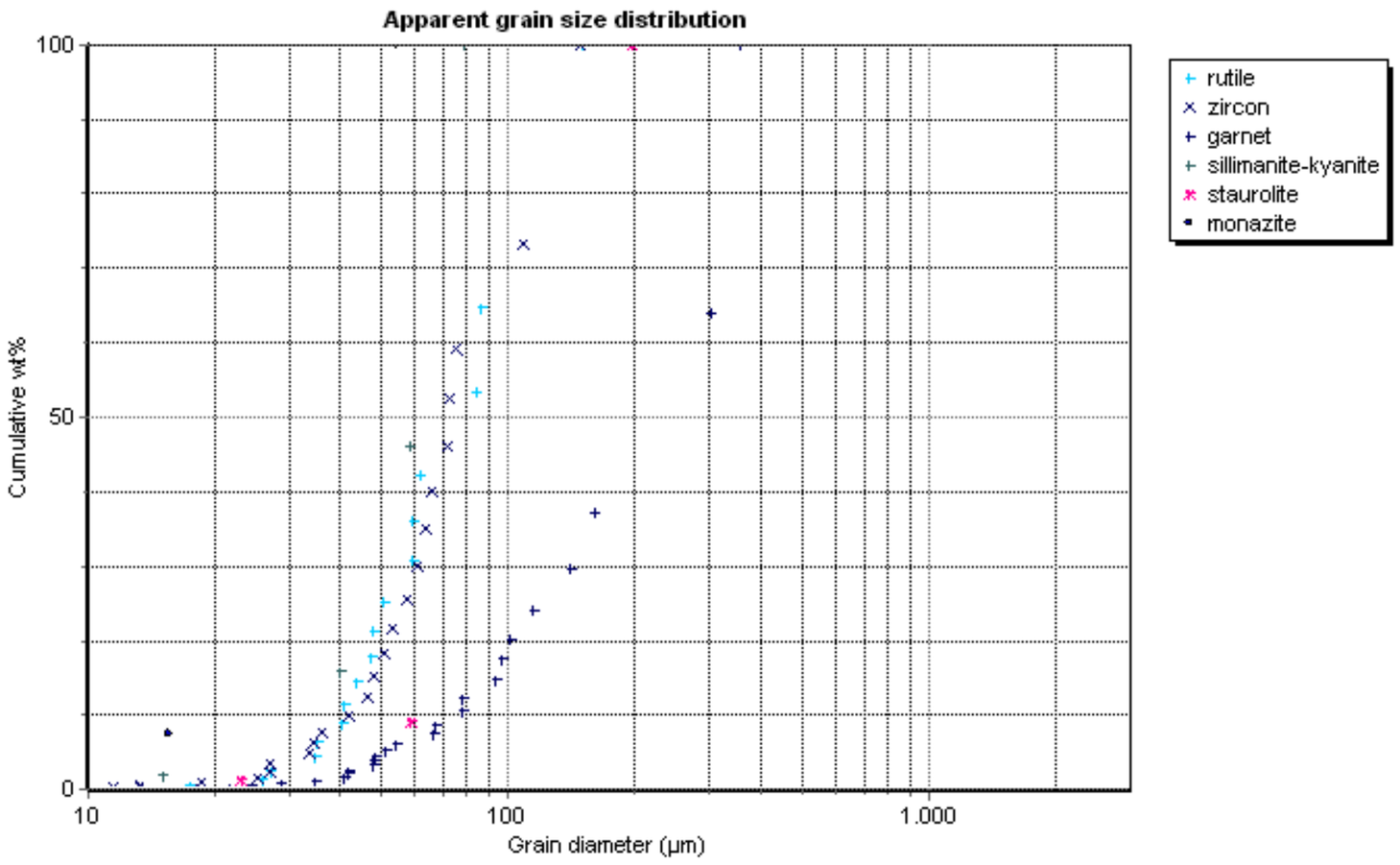
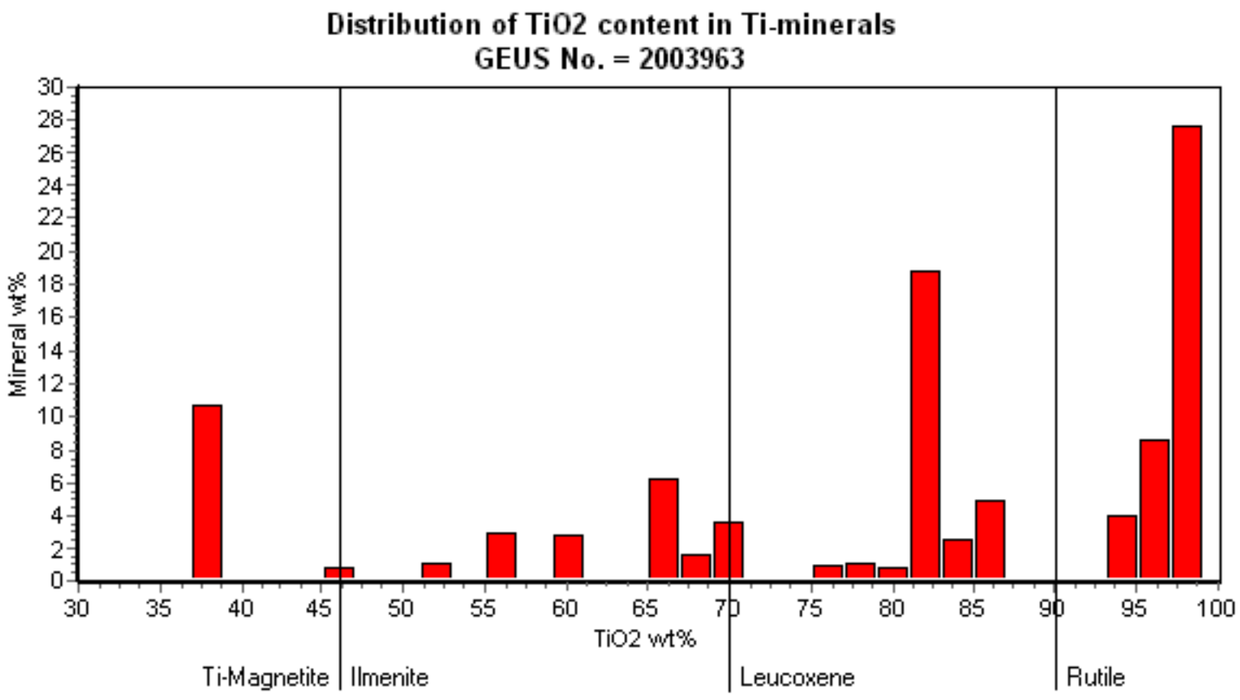
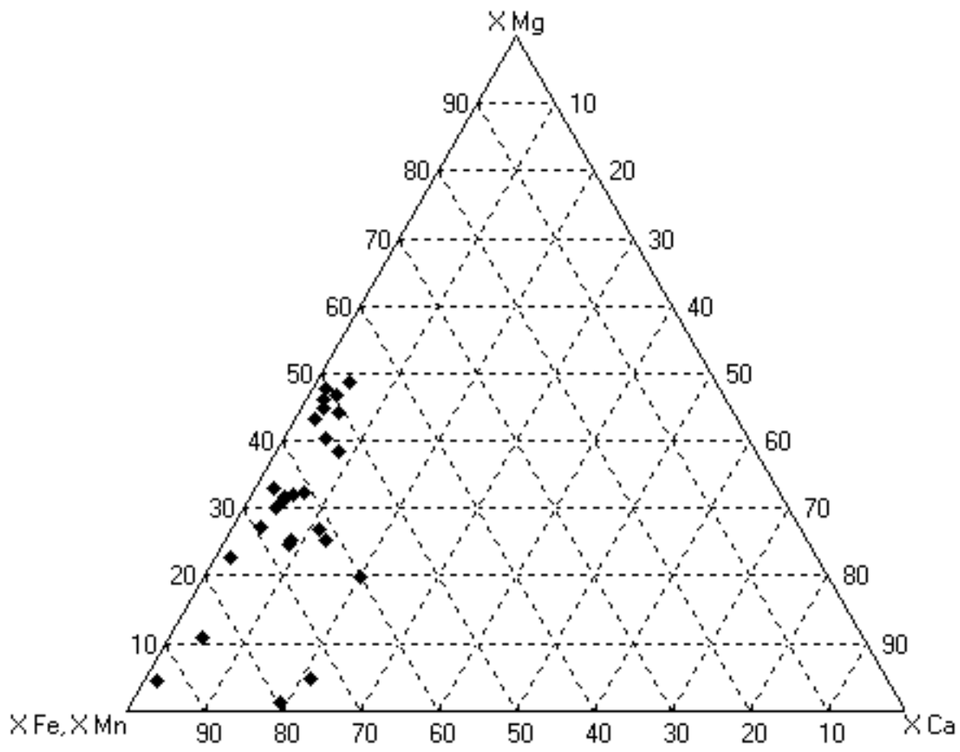










Sample GEUS #: 2003963

Description: Iterlaap Qaqqai, 185 m, 486806, outcrop

Average Content

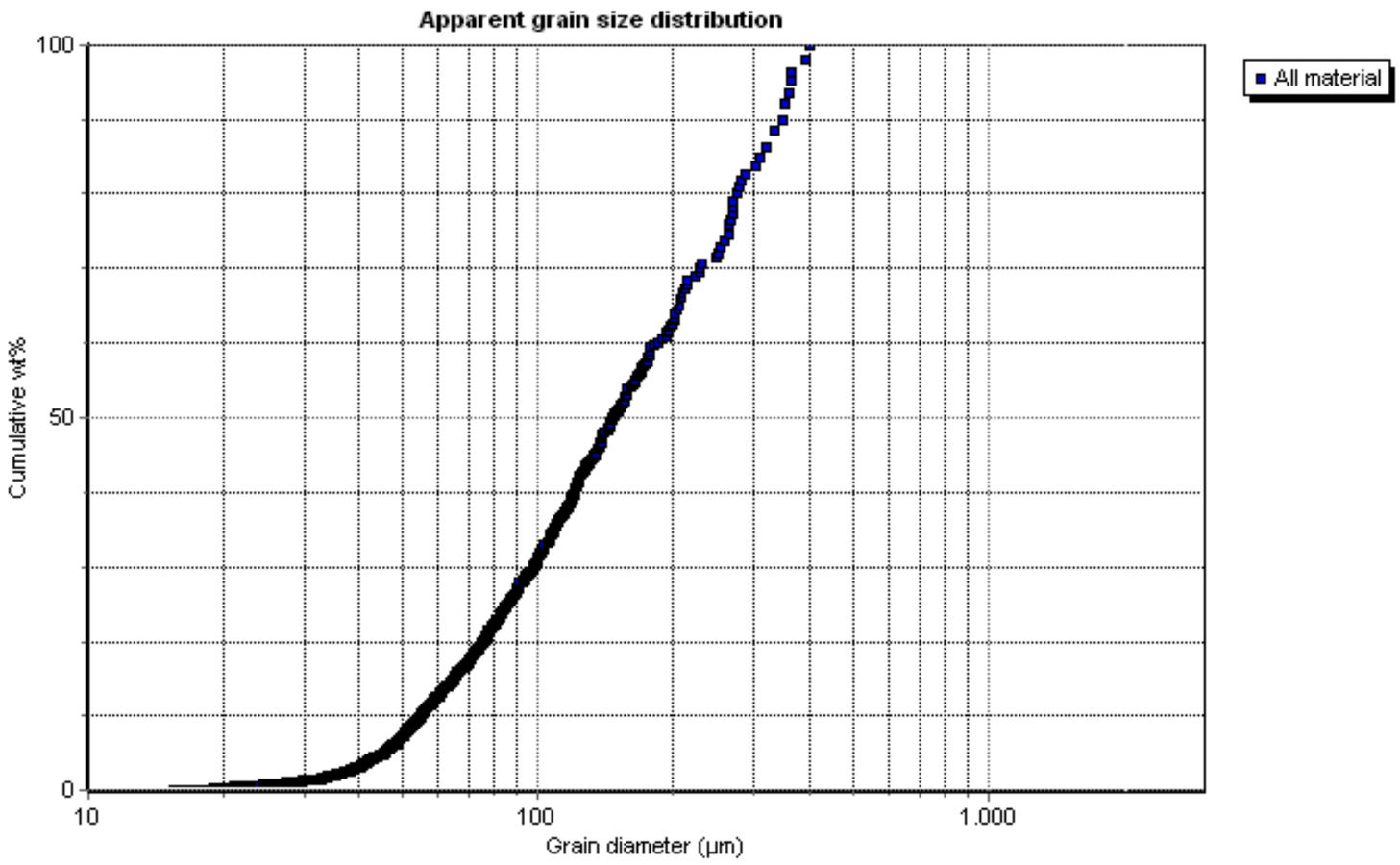
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.0	2.53	9.44	14.99	0.17	1.39	0.24	48.55	0.06	0.21	8.79	0.0	0.0	0.2	0.12	0.0	0.0	0.0	0.05	2
leucoxene	0.2	0.13	5.46	12.21	0.23	0.73	0.19	71.15	0.08	0.08	0.35	0.02	0.09	0.33	0.33	0.1	0.04	0.22	0.1	10
rutile	0.04	0.06	0.52	0.81	0.24	0.03	0.05	91.22	0.17	0.05	1.06	0.09	0.11	0.1	0.32	0.11	0.0	0.16	0.08	17
Ti magnetite	1.37	0.47	2.99	5.68	36.36	0.49	0.18	16.13	0.12	0.0	35.56	0.0	0.07	0.0	0.2	0.18	0.0	0.05	0.16	1
magnetite	1.41	4.91	1.2	4.06	18.27	0.11	0.76	0.08	0.08	0.67	56.93	0.11	0.17	0.17	0.11	0.08	0.03	0.13	0.11	156
chromite	0.0	0.26	13.87	0.58	0.0	0.12	0.05	0.26	31.0	1.01	43.13	0.08	0.0	0.0	0.0	0.03	0.0	0.0	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.16	0.07	0.1	28.25	0.17	0.04	0.22	0.12	0.06	0.1	0.75	0.19	0.03	62.53	0.0	0.0	0.02	0.16	0.06	24
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0.0	6.62	21.13	36.22	0.07	0.03	2.0	0.06	0.08	1.09	25.59	0.07	0.11	0.01	0.0	0.08	0.0	0.09	0.08	26
sillimanite-kyanite	0.0	0.1	53.85	36.09	0.0	0.03	0.16	0.05	0.07	0.04	0.88	0.05	0.08	0.0	0.0	0.0	0.0	0.07	0.18	4
staurolite	0.76	2.28	45.94	27.72	0.08	0.03	0.0	0.67	0.07	0.13	12.01	0.03	0.08	0.0	0.0	0.0	0.0	0.04	0.0	3
feldspar	3.21	0.07	19.53	55.66	0.41	7.37	1.23	0.48	0.08	0.05	1.1	0.07	0.08	0.04	0.0	0.06	0.0	0.14	0.34	12
silicate-other	0.35	3.35	33.24	43.74	0.12	0.05	1.21	0.41	0.07	0.12	6.8	0.09	0.1	0.02	0.0	0.06	0.0	0.06	0.12	25
quartz	0.15	0.1	0.31	89.02	0.07	0.06	0.08	0.12	0.07	0.09	0.66	0.12	0.12	0.15	0.0	0.28	0.0	0.17	0.22	102
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.53	0.37	1.03	5.69	0.0	0.0	2.73	0.0	0.0	0.0	0.82	0.0	0.0	6.7	0.0	49.09	0.0	31.52	0.0	2
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.0	0.02	0.47	0.0	1.48	0.0	0.16	0.08	0.04	0.0	0.16	0.31	0.0	7.31	0.0	24.47	35.32	0.18	0.0	1
carbonate	1.47	1.66	0.1	0.0	2.27	0.0	66.63	0.0	0.0	0.0	0.74	0.42	0.34	0.0	0.0	0.0	0.0	0.0	0.29	1
pyrite	0.02	0.07	0.31	0.98	60.15	0.07	0.05	0.04	0.04	0.06	29.86	0.05	0.08	0.05	0.1	0.05	0.01	0.11	0.07	665
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	4.73	4.24	21.34	30.63	16.09	0.02	0.41	0.57	0.08	0.06	10.34	0.07	0.04	0.0	0.0	0.0	0.0	0.09	0.06	2
white mica	0.45	0.56	22.5	50.86	0.24	11.9	0.22	0.46	0.05	0.05	2.11	0.09	0.06	0.04	0.0	0.08	0.0	0.11	0.59	19
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	8.15	22.6	36.47	0.06	0.04	1.13	0.07	0.09	0.42	26.69	0.05	0.12	0.0	0.0	0.03	0.0	0.11	0.13	4
clino-amphibole/clino-pyroxene	3.05	8.21	21.52	33.98	0.04	0.08	3.63	0.18	0.05	0.66	20.32	0.05	0.1	0.04	0.06	0.09	0.03	0.09	0.12	30
chlorite	0.0	4.86	12.26	22.63	0.16	0.0	2.24	0.28	0.19	0.65	37.7	0.46	0.0	0.04	0.48	0.0	0.24	0.0	0.0	1
unclassified	0.85	1.43	2.67	14.32	33.49	0.83	1.66	1.21	0.06	0.31	32.02	0.06	0.12	1.15	0.19	0.19	0.02	0.14	0.13	92

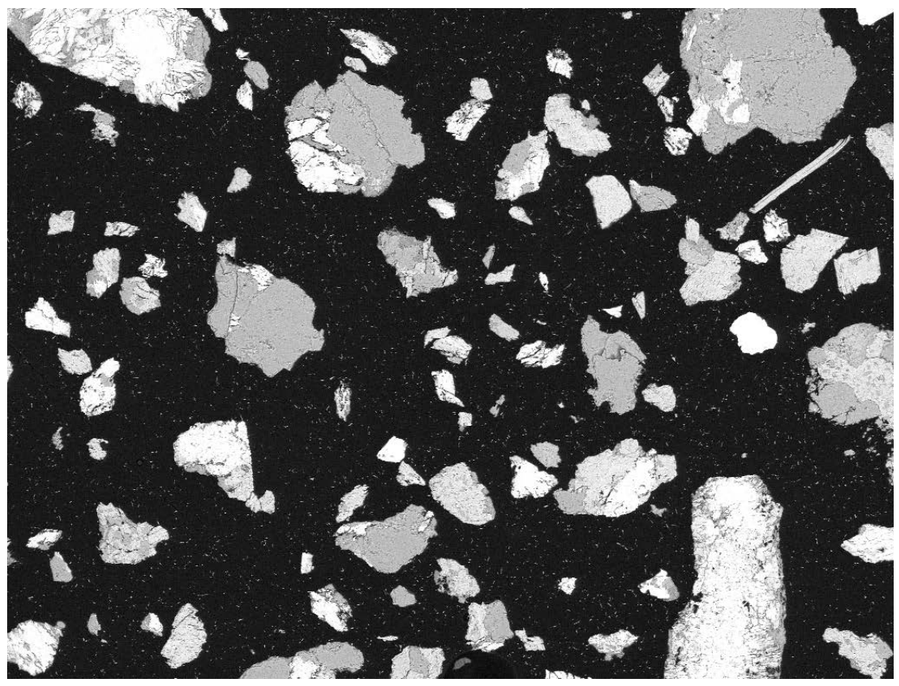
DONG sample Report - Page 1/3

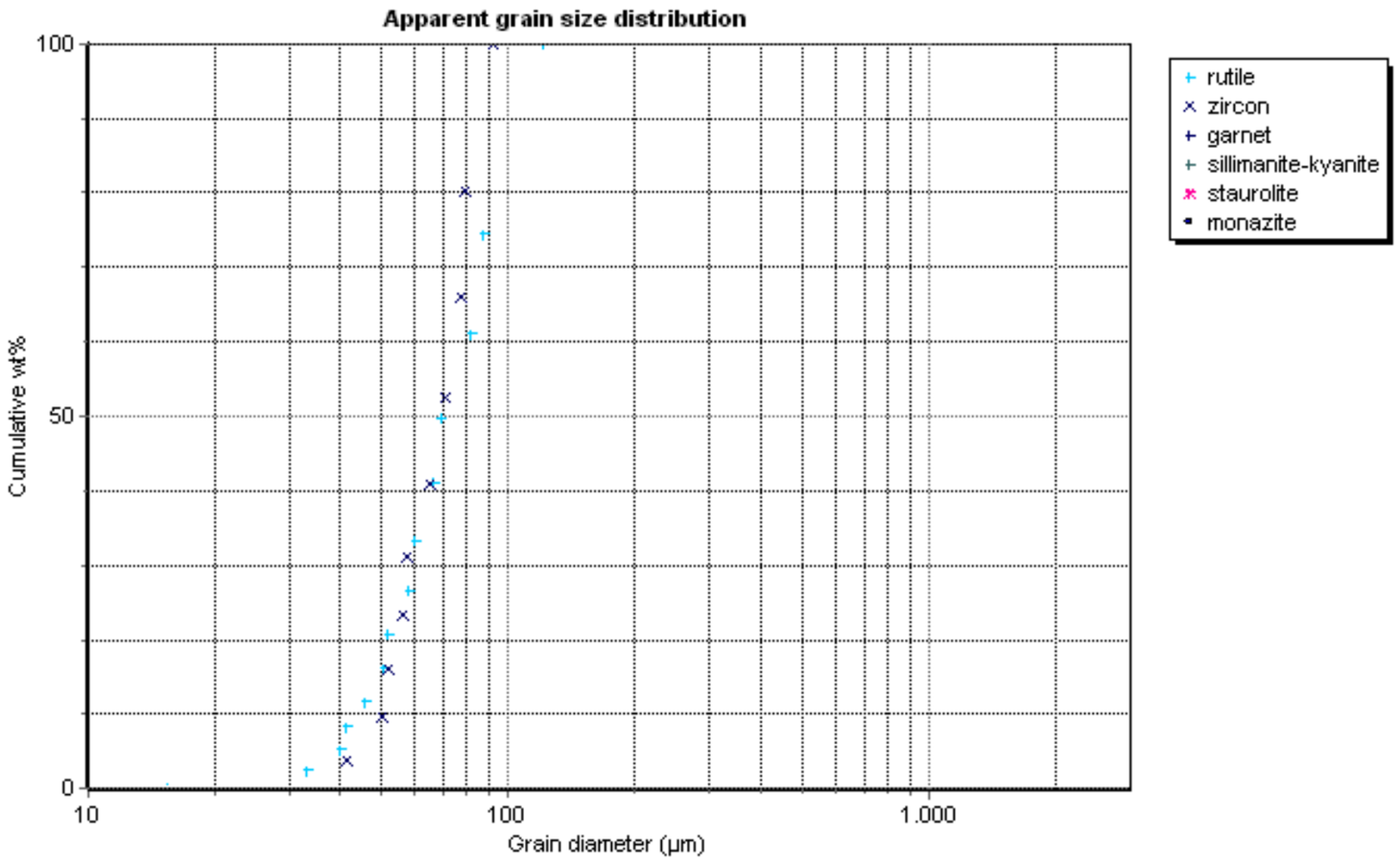
Sample GEUS #: 2003964

Description: Iterlaap Qaqqai, 275 m, 486807, outcrop

This document was created on: Mon Nov 09 13:11:51 CET 2009







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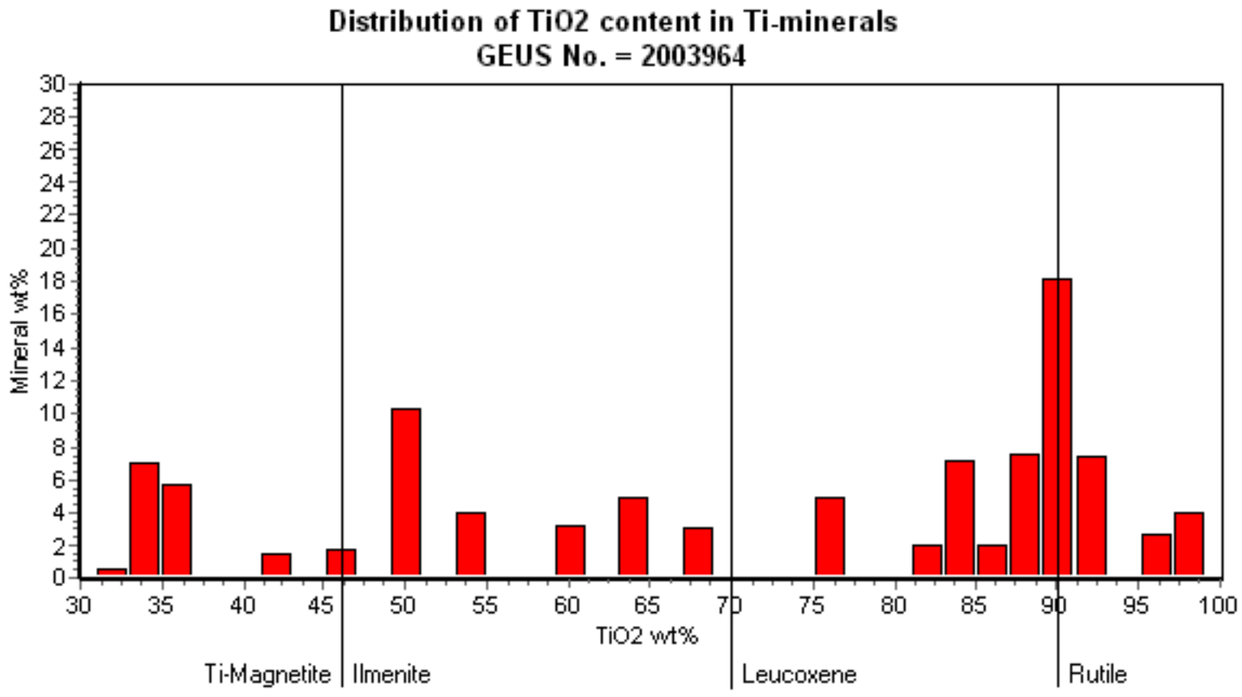


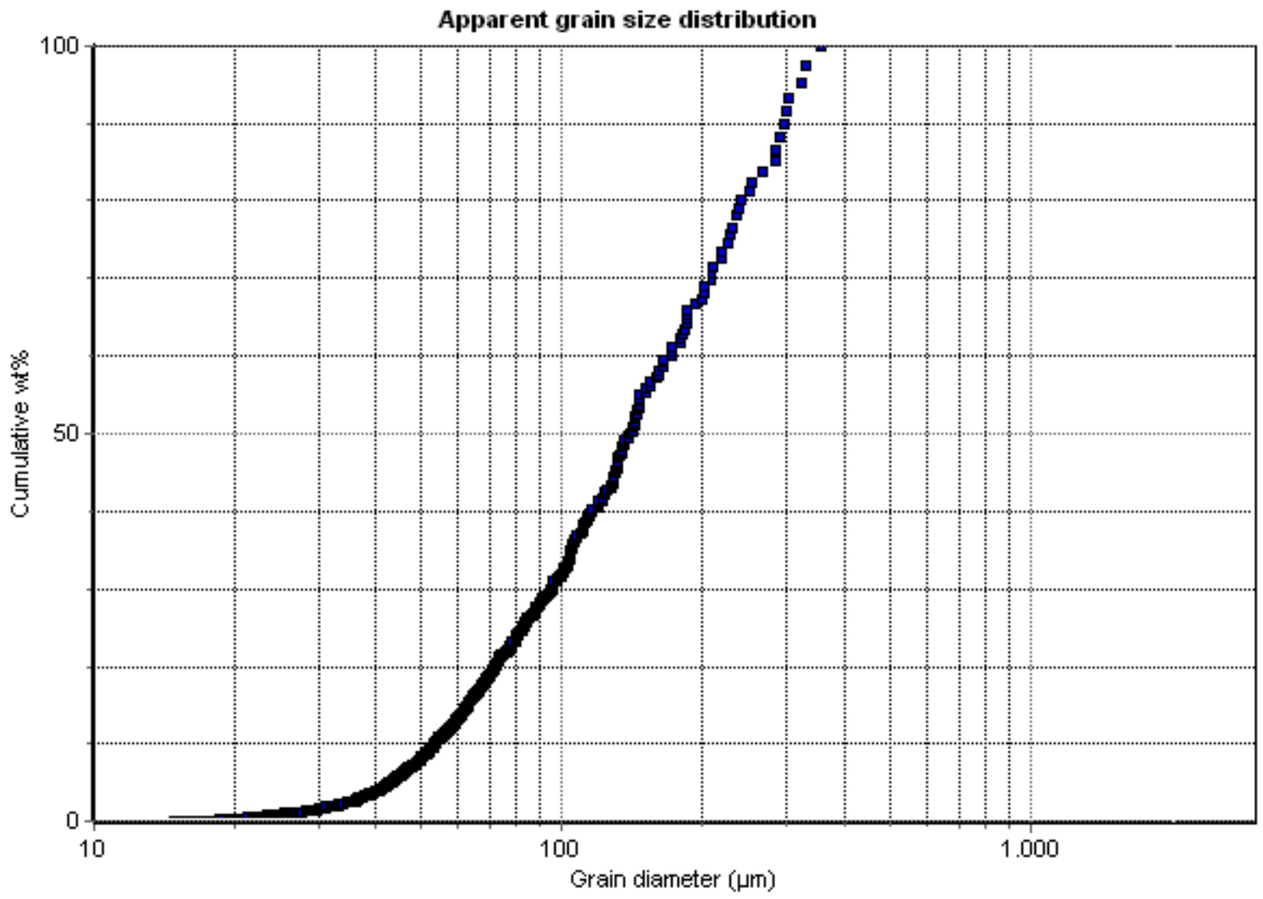
DONG sample Report - Page 2/3
Sample GEUS #: 2003964
Description: Iterlaap Qaqqai, 275 m, 486807, outcrop

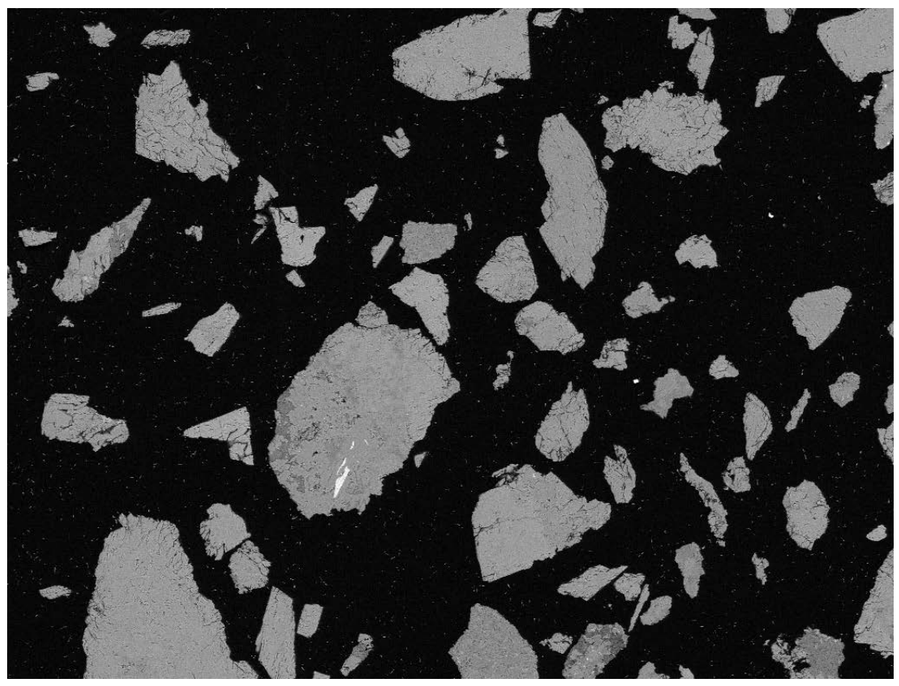
Average Content																			
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.64	0.27	14.61	21.39	0.0	2.12	0.26	59.56	0.1	0.23	0.12	0.0	0.16	0.0	0.13	0.26	0.0			

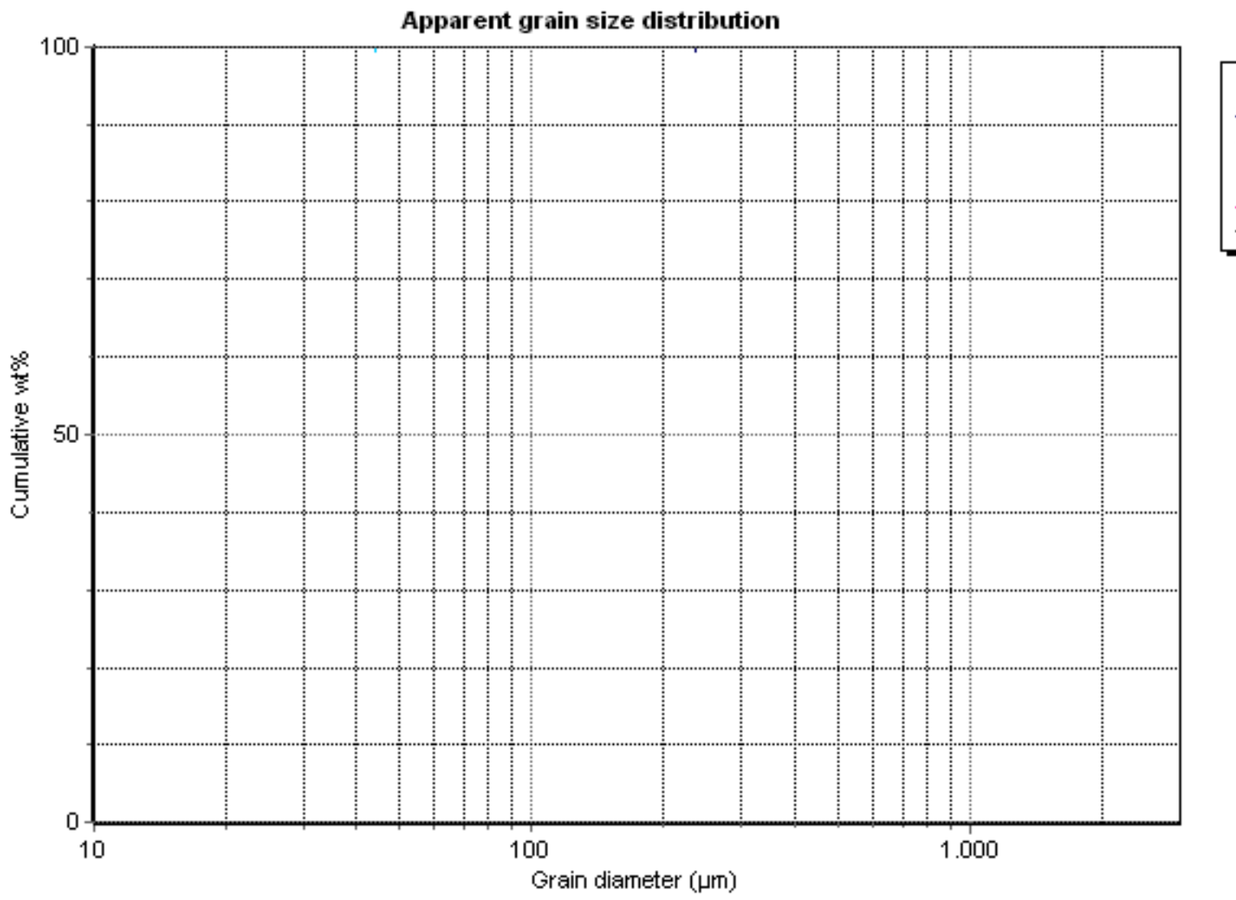
Sample GEUS #: 2003965

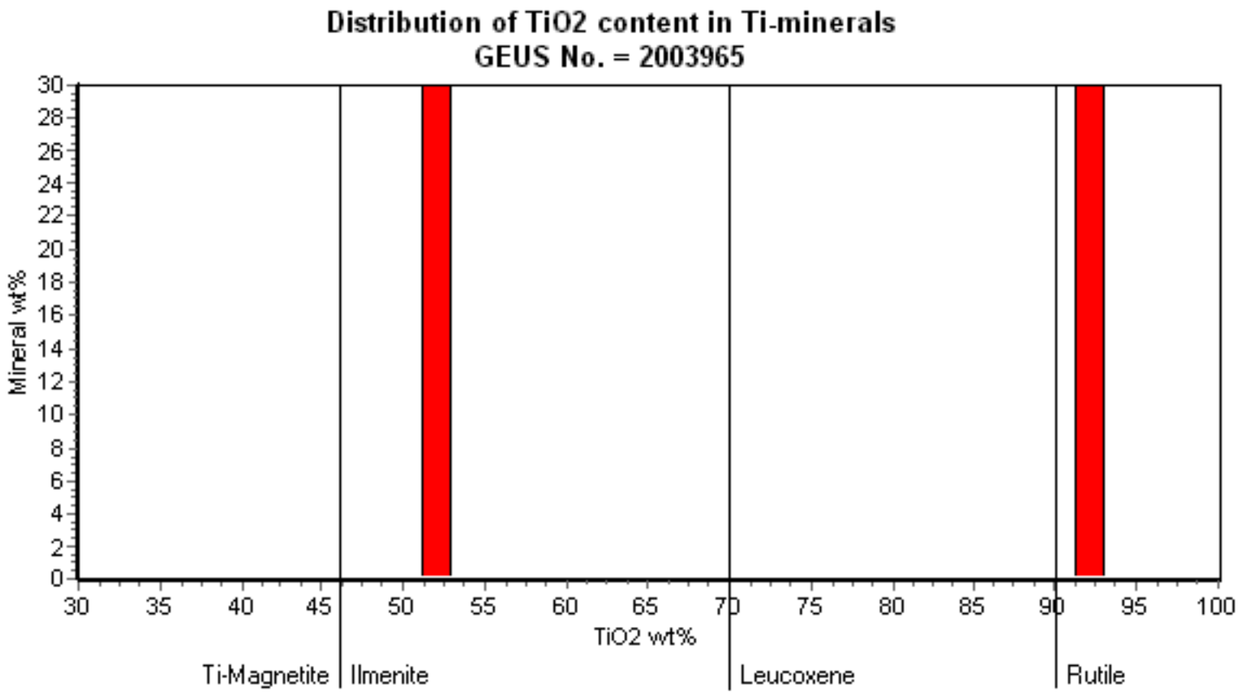
Description: Tupersuartaa, 3 m, 486808, outcrop

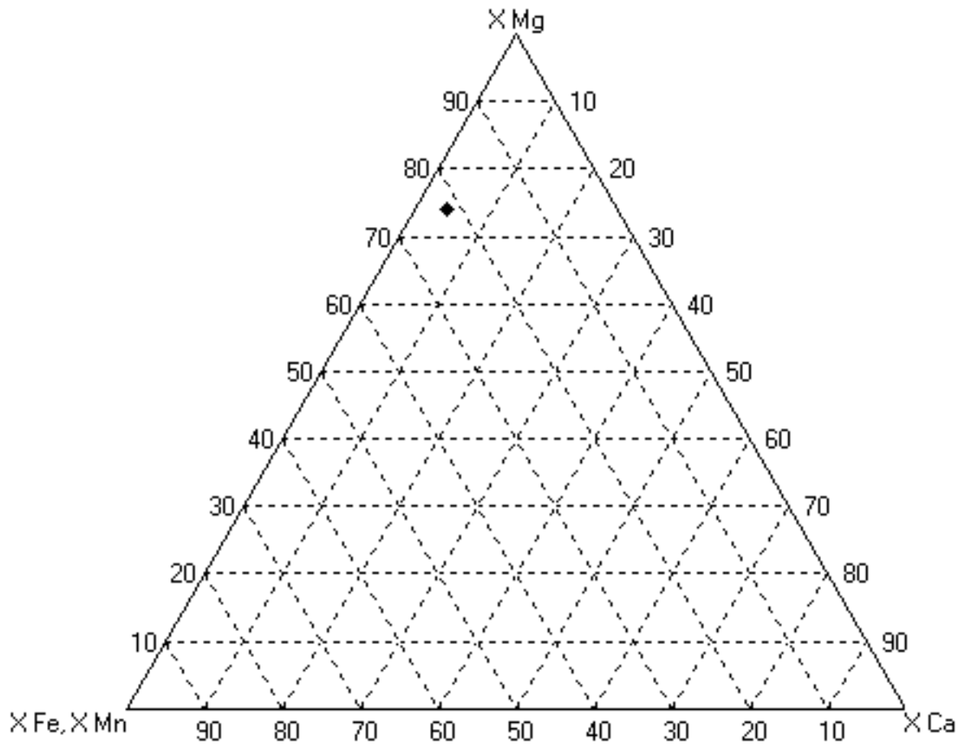
This document was created on: Mon Nov 09 13:12:41 CET 2009











DONG sample Report - Page 2/3
Sample GEUS #: 2003965
Description: Tupersuartaa, 3 m, 486808, outcrop

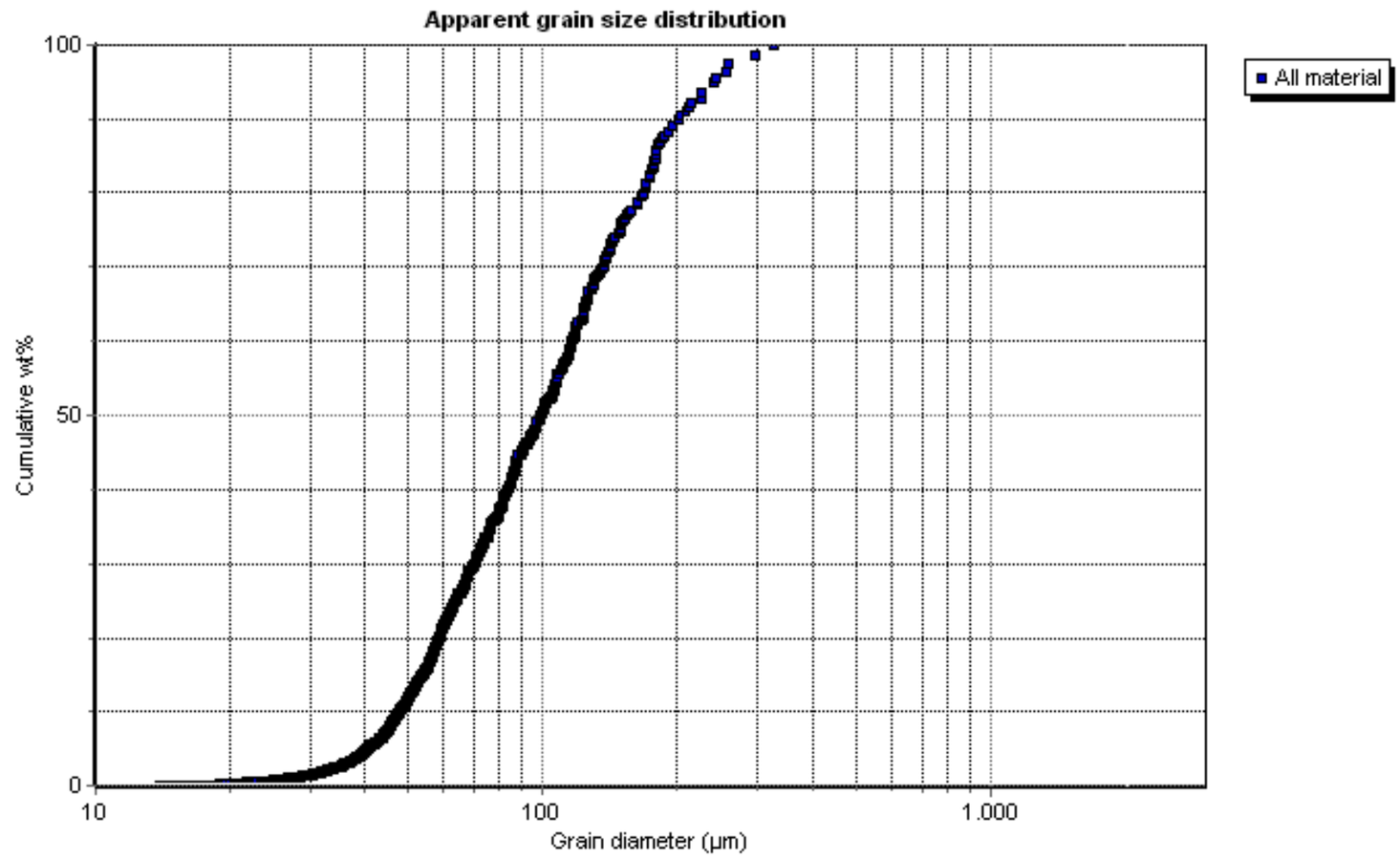
Average Content																			
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0.0	0.0	0.46	4.52	0.21	0.02	0.54	92.26	0.31	0.1	0.0	0.0	0.19	0.08	0.79	0.5	0.0			

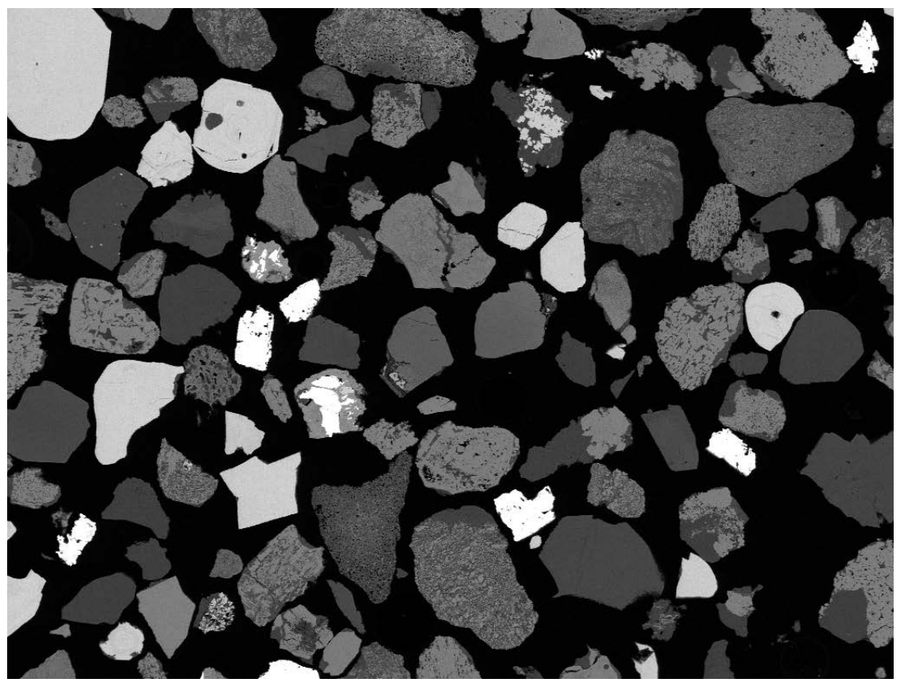
DONG sample Report - Page 1/3

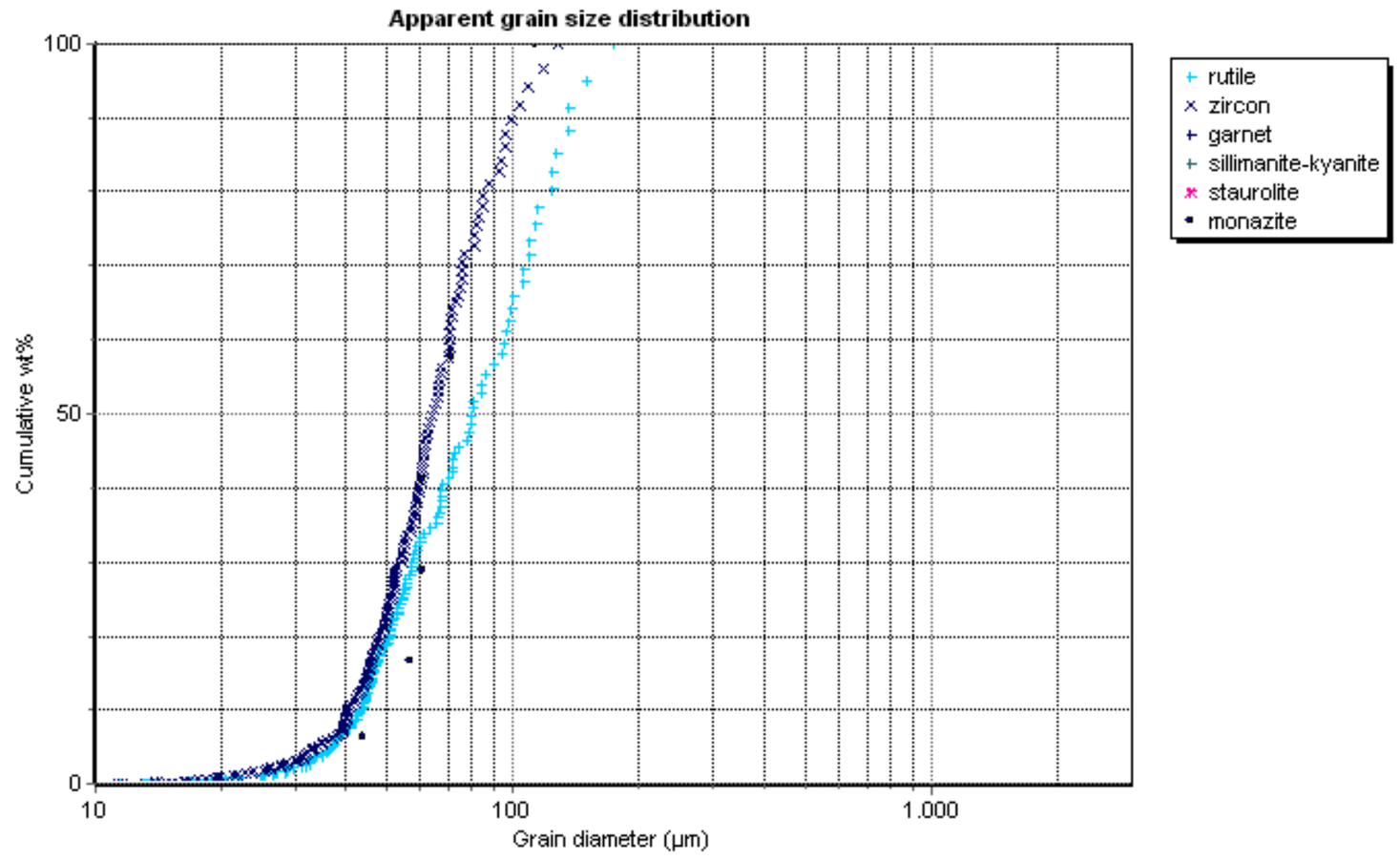
Sample GEUS #: 2003966

Description: Tupersuartaa, 35 m, 486809, outcrop

This document was created on: Mon Nov 09 13:13:26 CET 2009







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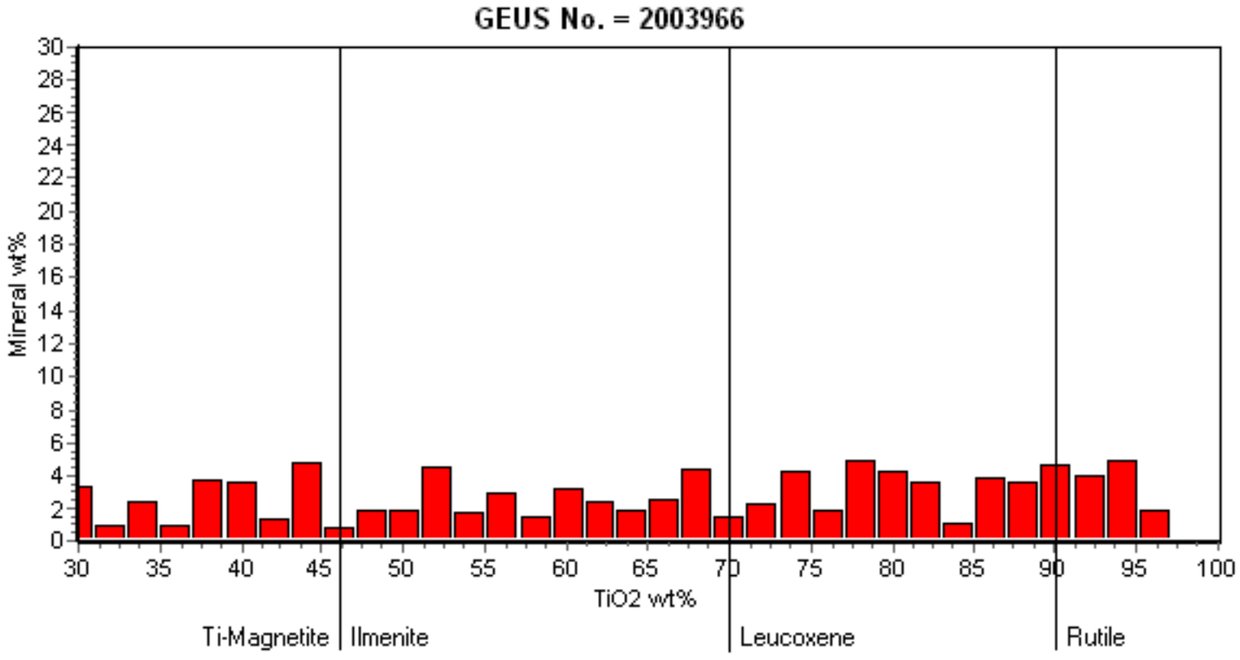

Sample GEUS #: 2003966

Description: Tupersuartaa, 35 m, 486809, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.26	0.19	12.24	22.95	0.06	1.7	0.16	59.16	0.15	0.07	0.86	0.06	0.06	1.29	0.22	0.15	0.06	0.26	0.09	51
leucoxene	0.14	0.1	7.66	12.48	0.11	0.85	0.1	76.48	0.23	0.06	0.26	0.08	0.1	0.4	0.3	0.17	0.04	0.33	0.12	228
rutile	0.08	0.08	2.42	2.99	0.1	0.23	0.08	92.12	0.33	0.06	0.56	0.09	0.09	0.09	0.24	0.18	0.01	0.16	0.07	167
Ti magnetite	0.87	2.25	1.11	17.07	0.0	0.06	1.2	23.14	0.23	0.25	53.31	0.0	0.0	0.13	0.0	0.0	0.0	0.34	0.04	1
magnetite	1.07	1.32	11.86	18.43	8.46	1.67	0.18	0.48	0.04	0.31	53.66	0.31	0.13	0.27	0.59	0.66	0.12	0.2	0.3	2
chromite	0.74	7.56	13.67	0.53	0.1	0.06	0.02	1.23	39.64	0.21	35.81	0.09	0.1	0.02	0.06	0.08	0.0	0.06	0.04	9
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.17	0.08	0.68	30.45	0.08	0.1	0.18	0.49	0.07	0.07	0.29	0.14	0.04	66.66	0.0	0.16	0.05	0.15	0.15	181
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0.0	0.67	24.53	61.53	0.0	8.74	0.0	0.47	0.0	0.0	2.89	0.0	0.0	0.0	0.0	0.32	0.0	0.22	0.63	1
silicate-other	0.39	6.51	32.77	47.11	0.14	0.44	1.32	1.15	0.15	0.1	9.29	0.1	0.1	0.07	0.0	0.09	0.0	0.09	0.18	57
quartz	0.06	0.08	2.31	94.44	0.12	0.29	0.06	0.4	0.09	0.1	0.2	0.13	0.16	0.41	0.0	0.66	0.0	0.23	0.27	92
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.15	0.3	24.41	3.5	0.69	0.02	1.13	0.0	0.0	0.0	1.45	0.07	0.38	6.46	0.0	40.73	0.0	20.42	0.31	6
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.24	0.21	27.73	9.47	1.31	0.12	0.78	0.83	0.0	0.0	1.45	0.1	0.14	9.46	0.0	34.24	0.71	13.15	0.08	16
carbonate	0.0	31.46	1.76	2.77	0.15	0.14	55.59	0.74	0.31	0.12	5.89	0.09	0.25	0.06	0.19	0.11	0.03	0.13	0.21	5
pyrite	0.09	0.07	0.74	1.95	64.53	0.18	0.05	0.06	0.09	0.08	31.59	0.1	0.09	0.03	0.09	0.01	0.0	0.16	0.07	10
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	0.83	1.65	26.42	34.75	0.1	3.7	0.38	2.28	0.08	0.14	28.57	0.11	0.06	0.18	0.22	0.19	0.09	0.07	0.19	10
white mica	0.68	0.65	34.36	50.83	0.09	8.75	0.31	1.61	0.07	0.05	1.86	0.09	0.06	0.07	0.0	0.06	0.0	0.15	0.32	45
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	36.94	0.68	46.3	0.07	0.15	0.12	0.39	0.15	0.12	14.39	0.03	0.15	0.0	0.0	0.16	0.0	0.28	0.1	2
clino-amphibole/clino-pyroxene	1.74	8.47	14.3	44.47	0.1	0.76	10.1	1.55	0.08	0.23	17.26	0.09	0.12	0.11	0.04	0.27	0.01	0.12	0.16	27
chlorite	1.09	1.13	18.85	27.62	0.07	2.84	0.27	0.9	0.1	0.26	45.14	0.12	0.11	0.22	0.43	0.61	0.1	0.02	0.12	7
unclassified	0.4	0.59	13.86	32.8	5.15	2.29	0.36	32.46	0.42	0.15	2.51	0.09	0.09	5.28	0.34	0.38	0.03	2.63	0.16	214

DONG sample Report - Page 1/3

Sample GEUS #: 2003967

Description: Tupersuartaa, 40 m, 486810, outcrop

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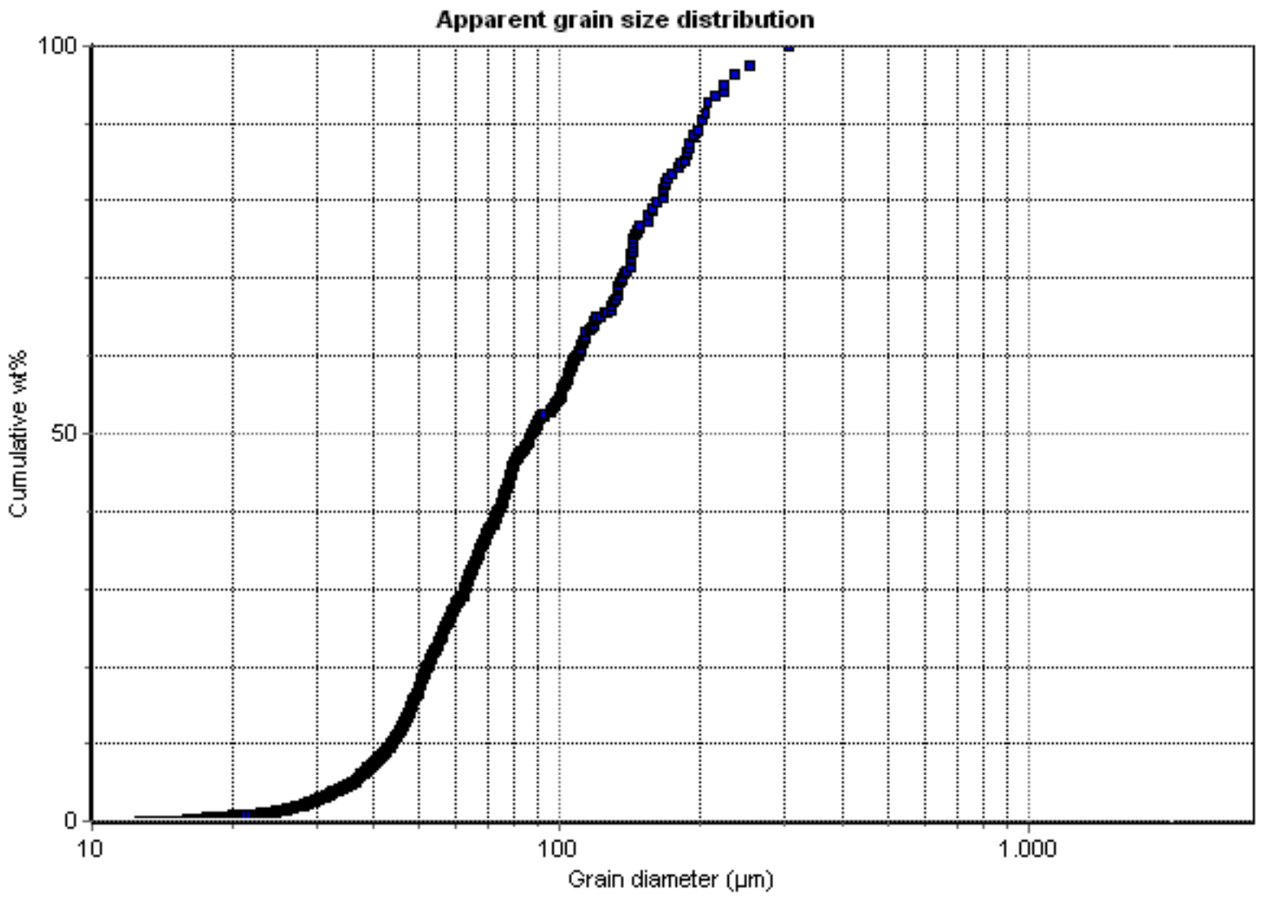

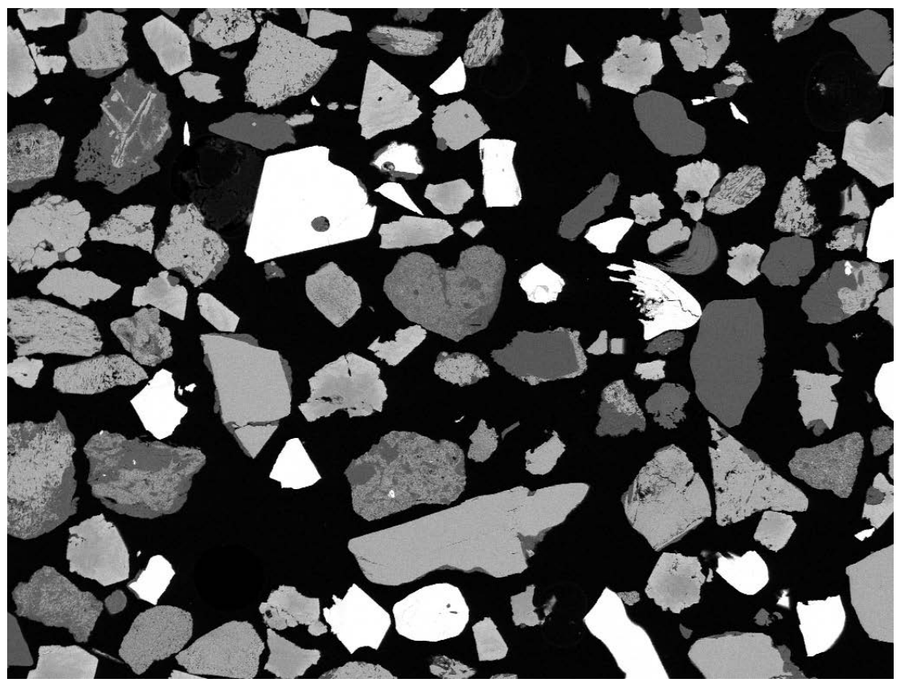

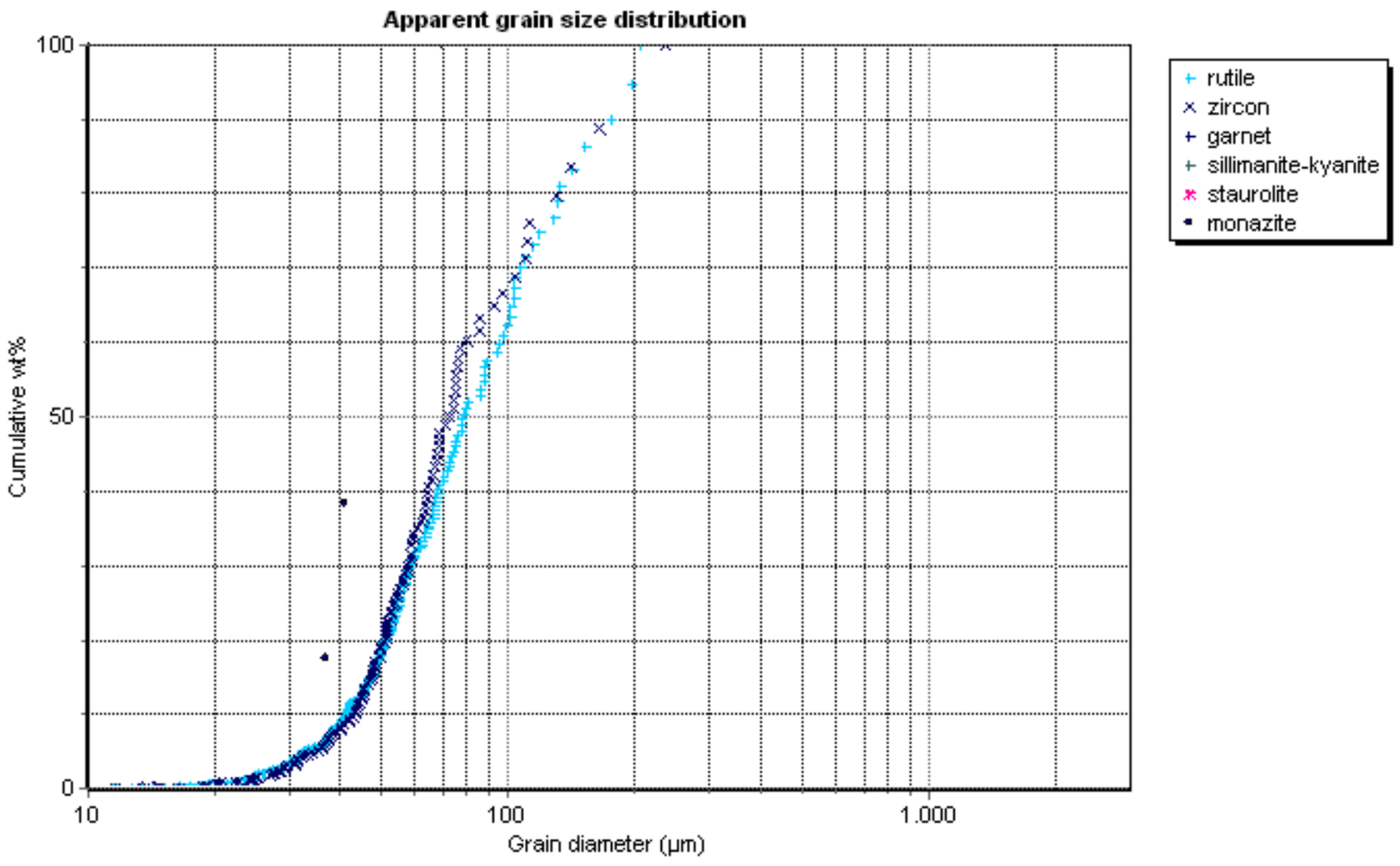

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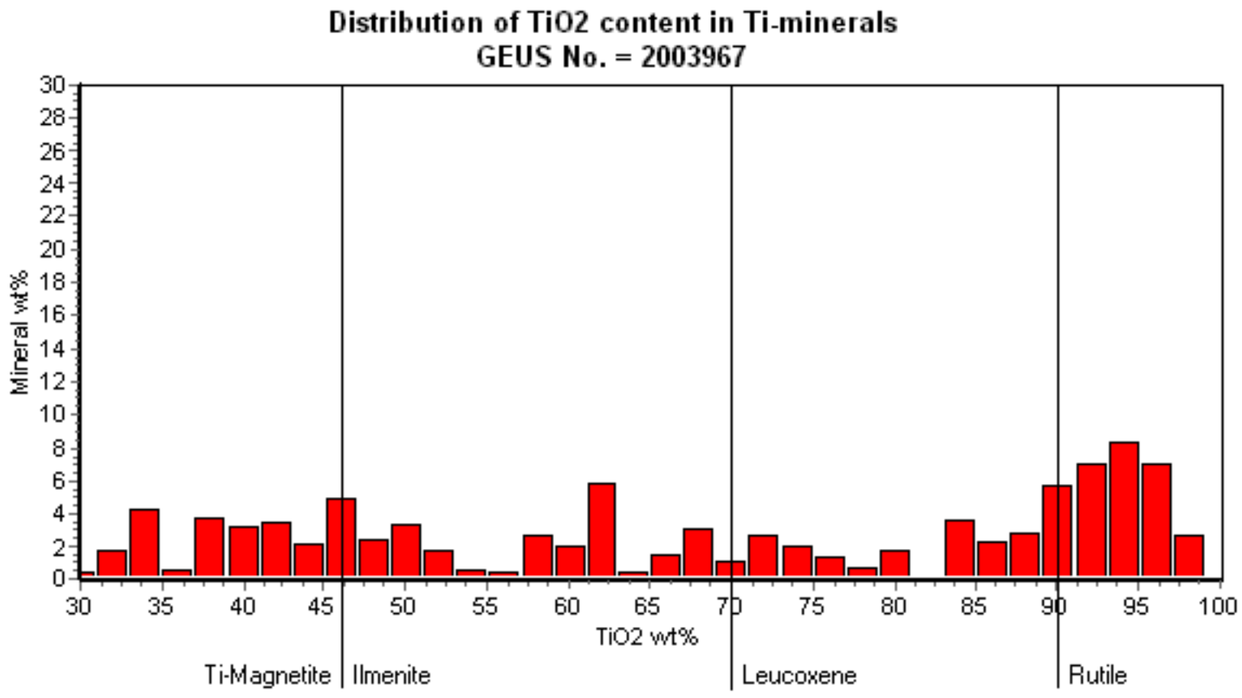


Sample GEUS #: 2003967

Description: Tupersuartaa, 40 m, 486810, outcrop

Average Content

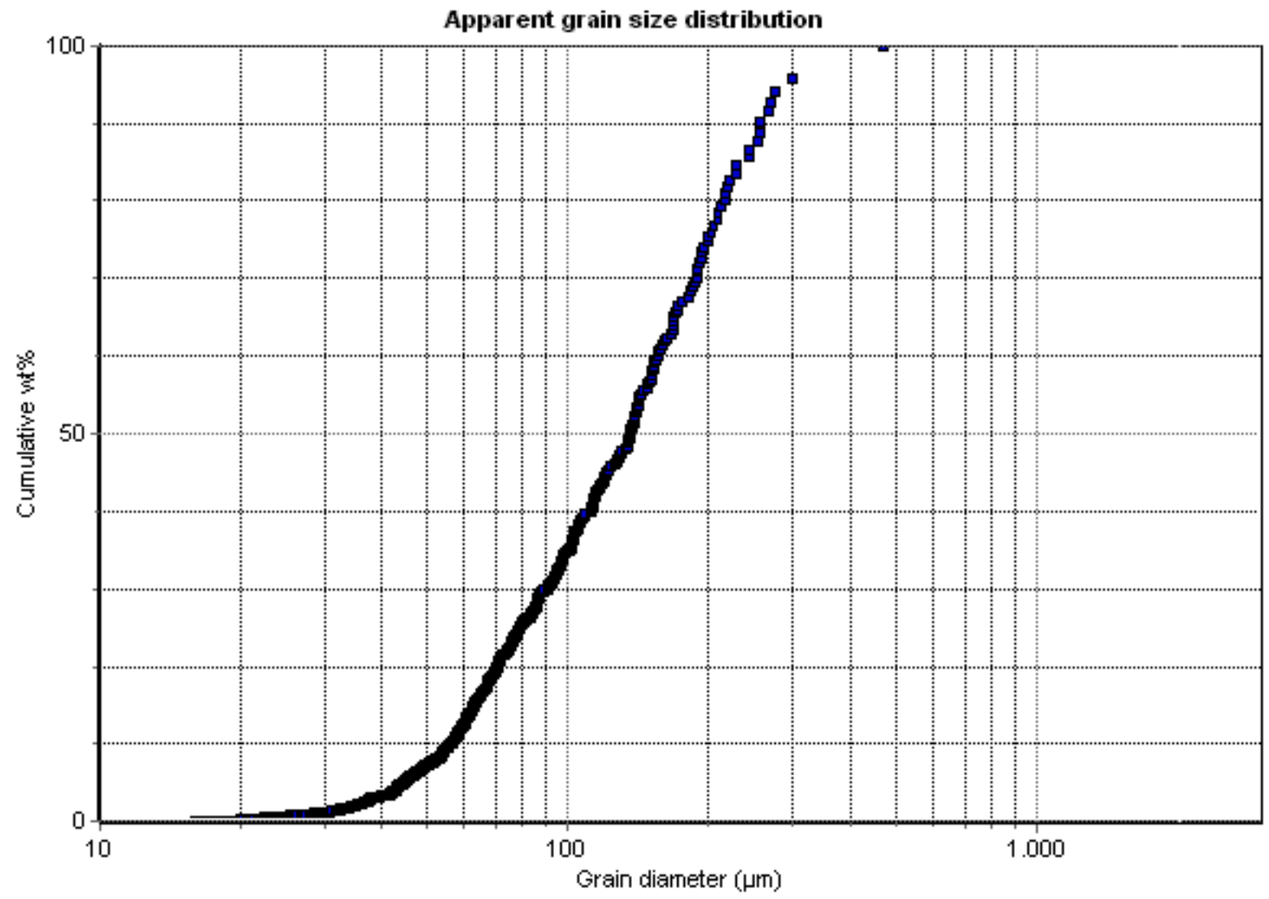
Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.12	0.27	14.16	18.9	0.08	2.02	0.13	59.39	0.15	0.04	0.52	0.22	0.06	1.49	0.3	1.2	0.05	0.77	0.12	37
leucoxene	0.07	0.15	8.06	11.02	0.17	1.18	0.1	76.83	0.26	0.07	0.23	0.1	0.12	0.44	0.25	0.45	0.03	0.35	0.13	125
rutile	0.05	0.08	1.83	1.99	0.11	0.2	0.07	93.9	0.31	0.07	0.4	0.09	0.09	0.09	0.25	0.17	0.0	0.23	0.07	234
Ti magnetite	0.0	1.52	1.04	2.77	0.0	0.0	0.02	42.27	0.36	0.44	50.43	0.0	0.0	0.0	0.23	0.0	0.13	0.79	0.0	1
magnetite	0.0	0.05	0.56	0.53	14.52	0.0	0.05	0.3	0.15	0.07	83.21	0.07	0.15	0.0	0.07	0.21	0.0	0.07	0.02	2
chromite	1.06	3.65	14.38	1.23	0.14	0.18	0.1	1.08	39.57	0.15	37.27	0.13	0.12	0.16	0.19	0.54	0.02	0.0	0.05	6
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.18	0.09	0.6	30.53	0.11	0.09	0.19	0.44	0.07	0.06	0.21	0.12	0.03	66.73	0.0	0.22	0.01	0.18	0.12	144
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	0.84	5.45	33.59	49.98	0.06	0.67	0.76	1.14	0.1	0.08	6.89	0.09	0.08	0.03	0.0	0.03	0.0	0.09	0.12	33
quartz	0.16	0.12	2.04	94.34	0.08	0.3	0.05	0.79	0.1	0.09	0.17	0.16	0.13	0.29	0.0	0.64	0.0	0.24	0.3	38
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.14	0.42	23.6	3.89	0.83	0.0	1.12	0.0	0.0	0.0	0.15	0.23	0.05	10.64	0.0	39.17	0.0	19.6	0.17	3
xenotime	0.3	0.22	36.04	7.74	0.15	0.12	0.03	7.47	0.39	0.11	0.12	0.12	0.12	3.23	0.02	30.35	8.78	4.64	0.06	25
phosphate	0.3	0.32	35.18	2.41	0.16	0.07	0.41	14.06	0.72	0.09	0.11	0.09	0.12	3.48	0.0	30.95	2.45	8.97	0.11	205
carbonate	0.18	26.42	1.8	1.42	0.25	0.17	51.28	0.45	0.14	0.31	16.13	0.07	0.12	0.05	0.22	0.21	0.03	0.2	0.53	29
pyrite	0.0	0.06	1.57	1.47	65.79	0.2	0.04	1.65	0.04	0.05	27.64	0.13	0.14	0.14	0.14	0.45	0.01	0.35	0.12	15
epidote	0.0	12.24	27.1	32.02	0.0	0.18	19.99	2.3	0.13	0.09	5.14	0.54	0.0	0.0	0.0	0.0	0.0	0.0	0.28	1
dark mica	2.71	5.33	31.17	37.82	6.32	2.07	0.5	0.42	0.01	0.0	13.29	0.0	0.27	0.0	0.0	0.01	0.0	0.12	0.0	2
white mica	0.24	0.75	34.04	49.03	0.18	9.02	0.33	2.76	0.05	0.1	2.16	0.12	0.1	0.2	0.0	0.27	0.0	0.16	0.53	41
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	26.2	3.94	56.16	0.0	0.04	0.25	0.12	0.02	0.0	12.95	0.0	0.0	0.0	0.0	0.21	0.0	0.01	0.08	1
clino-amphibole/clino-pyroxene	3.48	20.68	8.1	44.11	0.13	0.08	11.39	0.95	0.06	0.16	10.29	0.02	0.15	0.05	0.0	0.05	0.0	0.12	0.21	4
chlorite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
unclassified	0.47	1.41	21.41	22.13	1.21	1.6	2.41	24.3	0.43	0.14	1.32	0.16	0.17	7.89	0.27	9.45	0.48	4.53	0.23	254

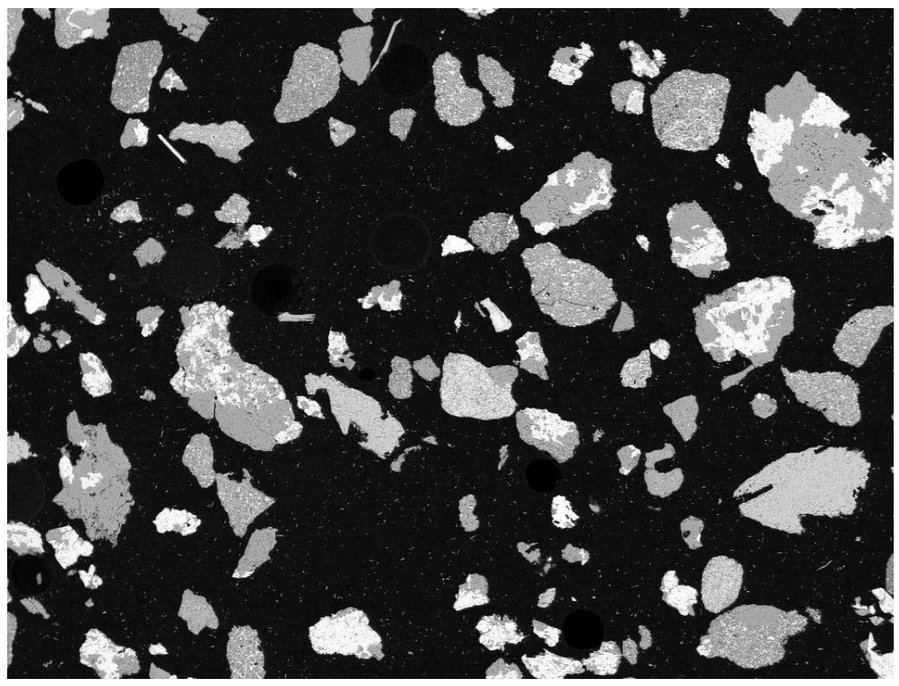
DONG sample Report - Page 1/3

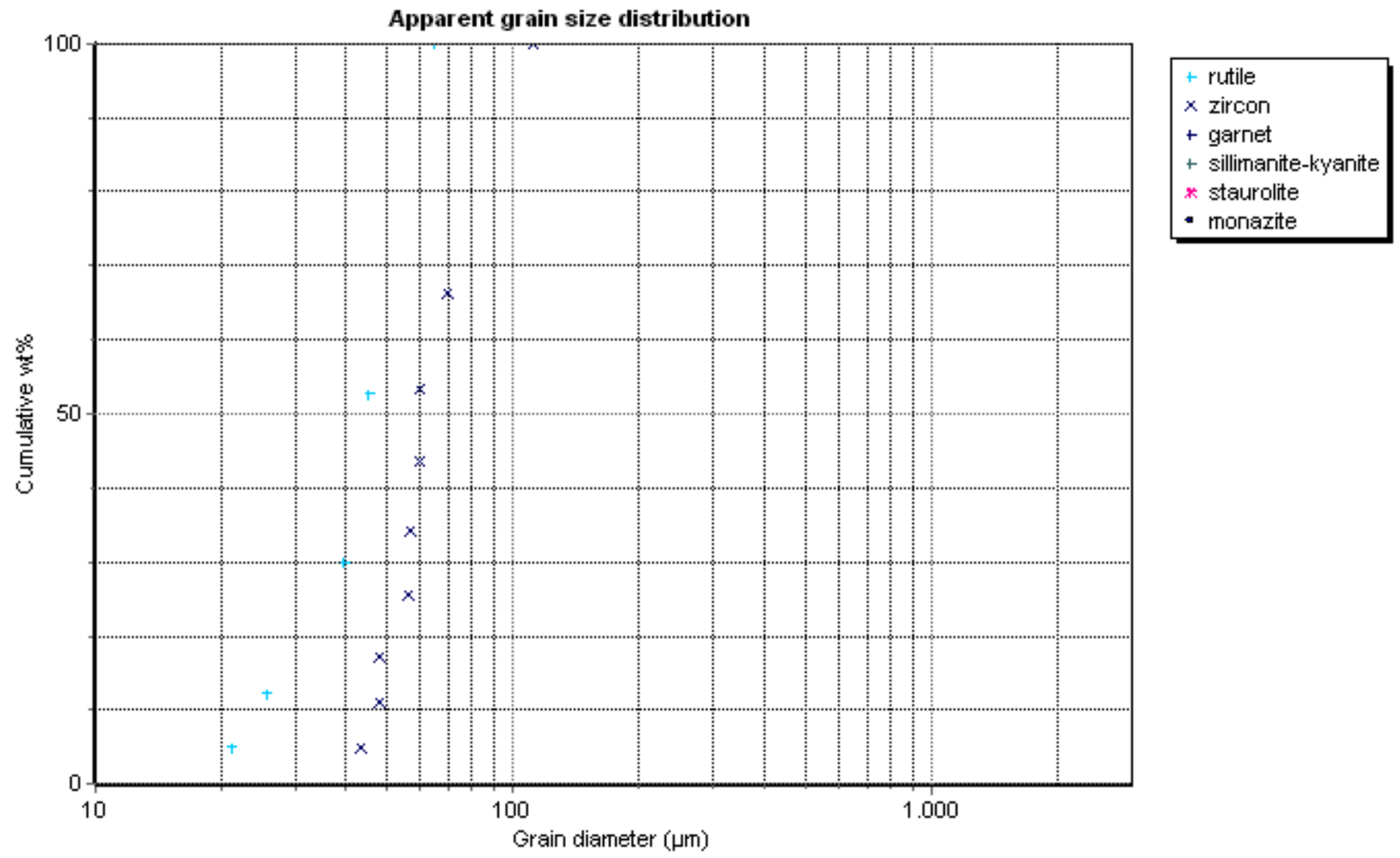
Sample GEUS #: 2003968

Description: Tunorsuaq, 100 m, 486811, outcrop

This document was created on: Mon Nov 09 13:15:47 CET 2009







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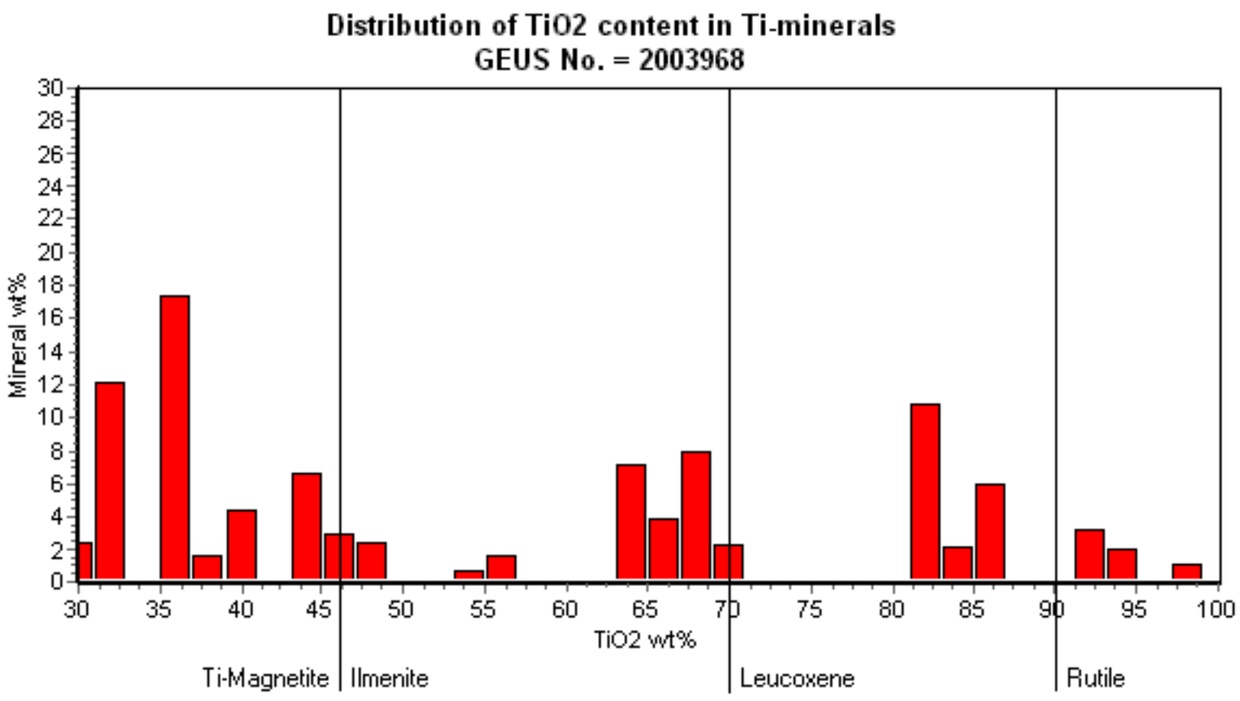

Sample GEUS #: 2003968

Description: Tunorsuaq, 100 m, 486811, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.41	0.8	14.87	20.42	0.24	2.58	0.38	51.67	0.12	0.1	7.71	0.04	0.12	0.16	0.13	0.12	0.0	0.09	0.07	3
leucoxene	0.25	0.16	7.16	11.19	0.22	1.02	0.15	77.08	0.22	0.0	0.91	0.11	0.1	0.49	0.36	0.13	0.05	0.23	0.16	10
rutile	0.0	0.05	1.52	2.18	0.1	0.17	0.08	93.61	0.17	0.17	0.88	0.14	0.08	0.09	0.27	0.22	0.0	0.19	0.08	5
Ti magnetite	0.0	2.33	12.27	15.7	11.95	1.98	0.43	33.37	0.02	0.35	20.55	0.03	0.05	0.05	0.39	0.22	0.16	0.03	0.15	2
magnetite	4.48	19.14	3.13	7.63	0.28	0.24	1.15	0.11	0.07	0.47	62.29	0.08	0.13	0.1	0.22	0.18	0.06	0.12	0.13	59
chromite	0.85	4.17	12.52	7.86	0.14	0.08	0.14	1.2	39.06	0.42	33.02	0.02	0.11	0.0	0.13	0.12	0.0	0.12	0.05	4
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.0	0.03	0.21	30.34	0.1	0.04	0.15	0.11	0.08	0.09	0.72	0.13	0.03	67.86	0.0	0.0	0.0	0.11	0.0	9
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	8.67	0.1	22.76	63.53	0.12	0.65	0.68	0.26	0.1	0.05	2.4	0.09	0.15	0.05	0.0	0.04	0.0	0.21	0.14	20
silicate-other	4.89	0.86	20.81	64.12	0.24	1.55	0.29	0.19	0.06	0.07	6.26	0.07	0.13	0.03	0.0	0.09	0.0	0.15	0.19	54
quartz	0.24	0.14	1.76	94.95	0.13	0.17	0.09	0.12	0.11	0.13	1.16	0.13	0.13	0.07	0.0	0.17	0.0	0.23	0.29	69
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.03	22.55	0.67	1.94	0.27	0.18	50.27	0.09	0.1	0.31	22.58	0.06	0.21	0.04	0.21	0.05	0.01	0.16	0.29	30
pyrite	0.0	0.08	1.51	3.04	64.62	0.32	0.06	0.38	0.03	0.09	28.94	0.27	0.09	0.07	0.14	0.08	0.05	0.13	0.1	15
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.04	5.73	24.99	35.85	0.42	4.41	0.91	0.58	0.09	0.23	22.87	0.09	0.13	0.08	0.13	0.16	0.06	0.1	0.13	133
white mica	1.43	0.97	32.04	50.17	0.19	8.17	0.29	1.12	0.07	0.06	4.64	0.07	0.11	0.04	0.0	0.04	0.0	0.2	0.4	54
olivine	0.0	11.1	4.89	35.42	0.0	0.07	0.91	0.05	0.1	0.44	46.01	0.01	0.21	0.27	0.16	0.0	0.0	0.0	0.41	2
ortho-amphibole/ortho-pyroxene	0.0	4.96	4.34	60.39	0.08	0.08	0.3	0.13	0.09	0.24	28.83	0.1	0.02	0.02	0.0	0.01	0.0	0.26	0.17	5
clino-amphibole/clino-pyroxene	8.04	4.74	15.83	45.49	0.07	0.84	0.59	0.17	0.05	0.22	23.35	0.05	0.11	0.07	0.05	0.07	0.02	0.12	0.12	162
chlorite	0.66	5.49	20.26	28.68	0.16	3.19	0.77	0.49	0.05	0.46	38.29	0.11	0.15	0.25	0.29	0.35	0.22	0.05	0.09	13
unclassified	5.46	11.64	11.71	22.99	2.15	1.87	4.65	4.63	0.07	0.31	33.24	0.09	0.12	0.35	0.24	0.11	0.1	0.09	0.17	170

DONG sample Report - Page 1/3

Sample GEUS #: 2003970

Description: Tunorsaq, 486813, outcrop

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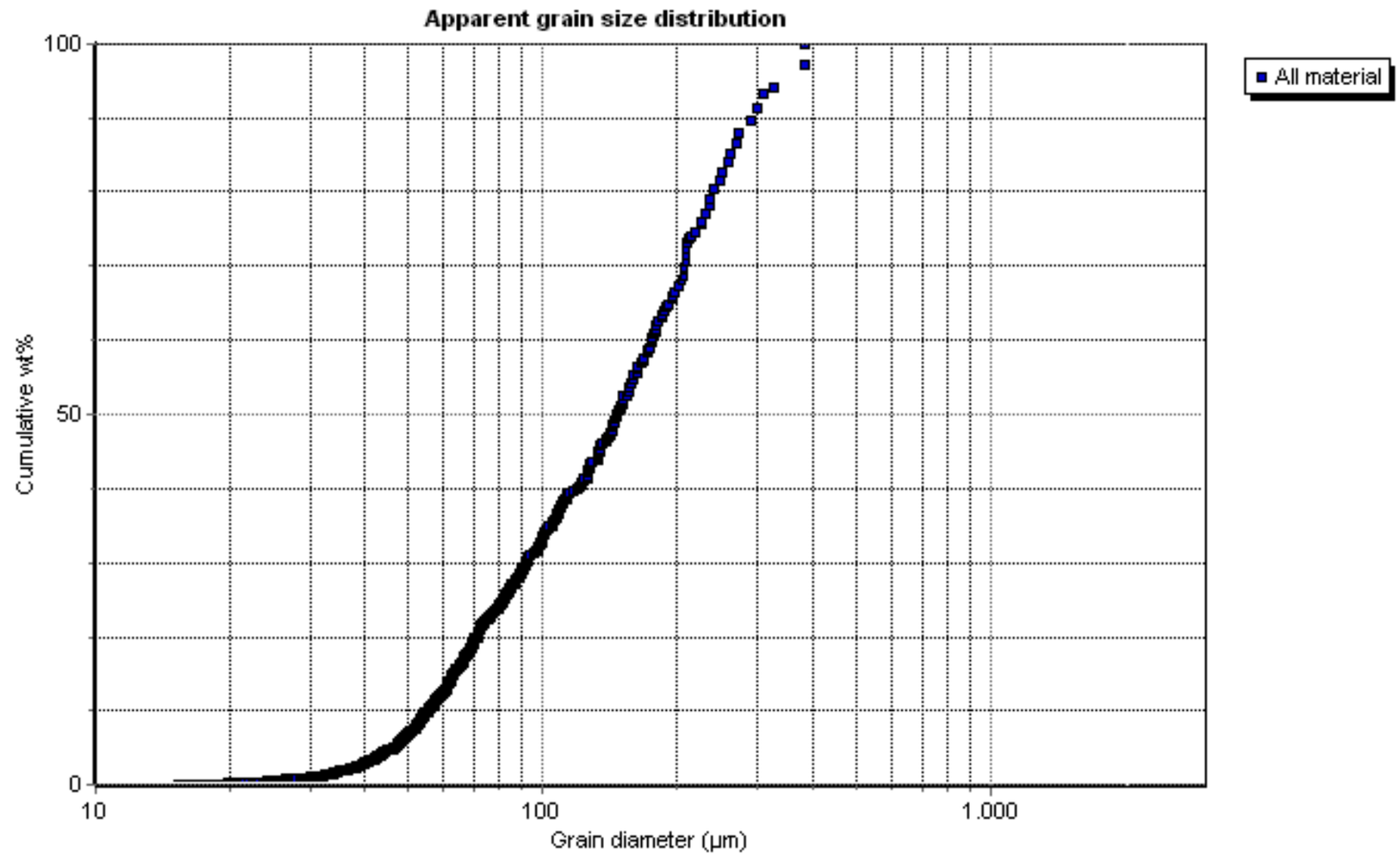

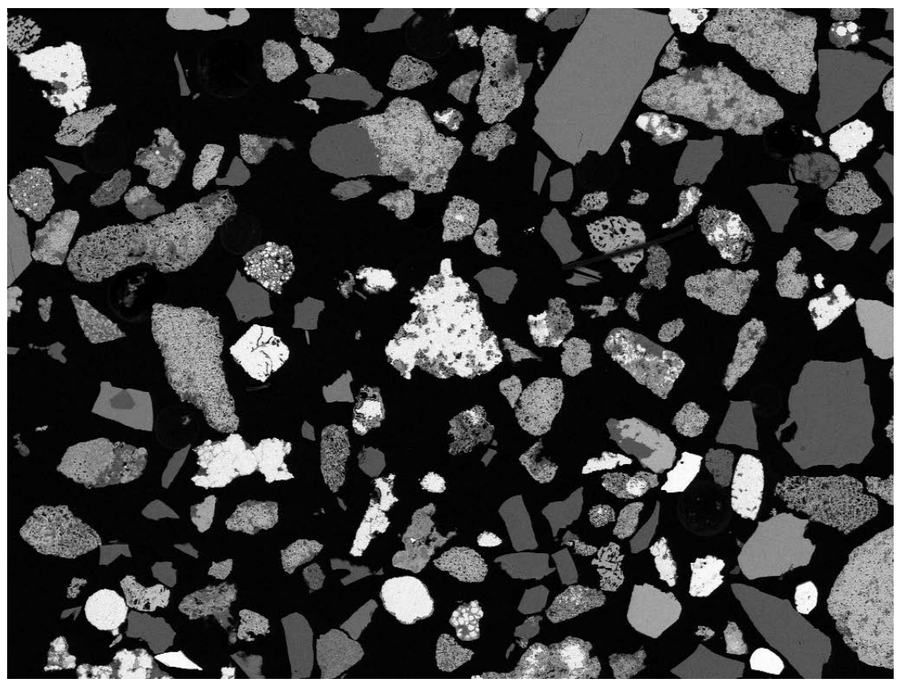

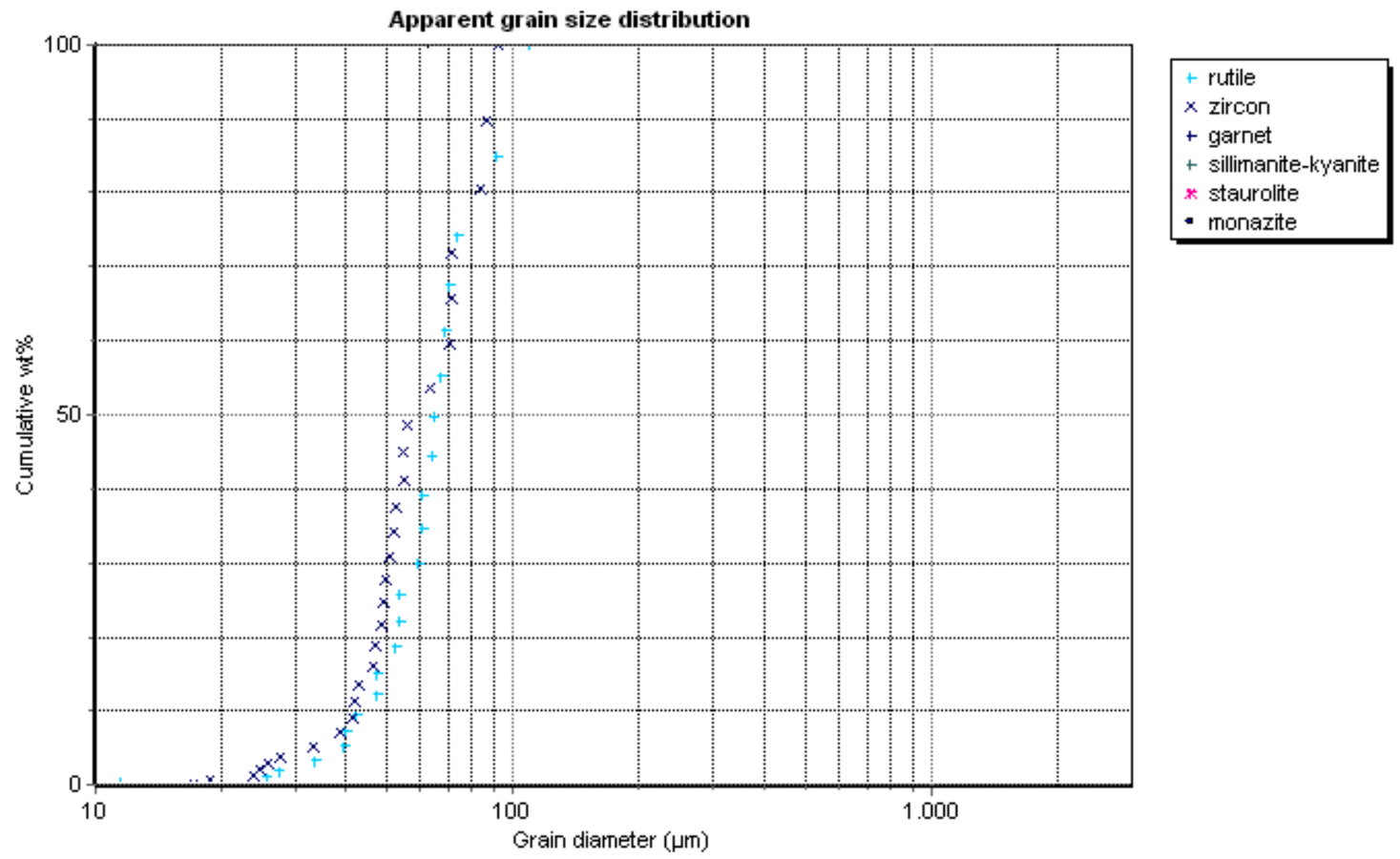

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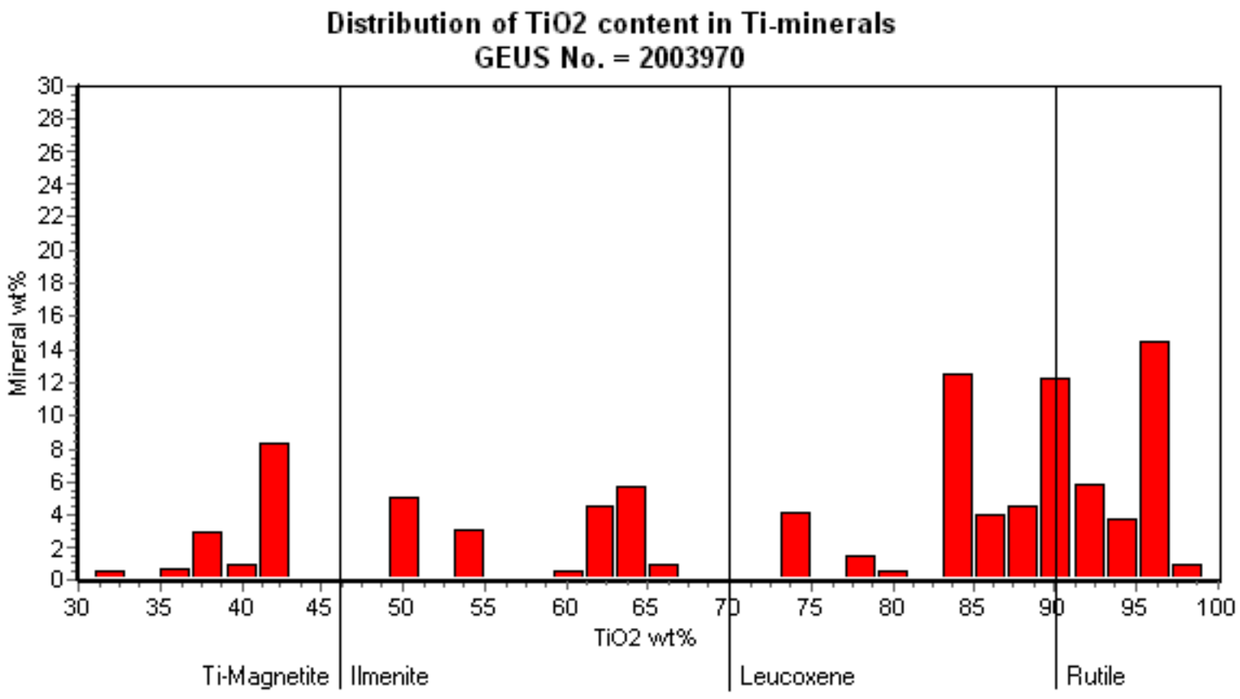

Sample GEUS #: 2003970
Description: Tunorsaq, 486813, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0.22	0.46	6.28	13.99	4.59	0.83	0.25	57.18	0.29	0.14	14.65	0.05	0.03	0.21	0.29	0.35	0.03	0.06	0.12	6
leucoxene	0.15	0.15	5.49	9.17	0.33	0.86	0.12	79.82	0.16	0.08	2.52	0.09	0.07	0.1	0.4	0.17	0.05	0.12	0.14	27
rutile	0.04	0.14	1.66	1.84	0.26	0.19	0.08	93.19	0.21	0.08	1.24	0.1	0.1	0.12	0.32	0.11	0.02	0.23	0.08	23
Ti magnetite	2.66	1.47	2.86	4.7	1.59	0.33	0.21	42.04	0.18	1.27	42.23	0.06	0.0	0.0	0.16	0.0	0.0	0.07	0.17	1
magnetite	2.45	1.89	8.5	12.72	3.26	1.08	0.46	0.36	0.09	0.79	66.95	0.16	0.17	0.31	0.21	0.2	0.1	0.11	0.19	268
chromite	0.0	0.31	0.4	0.88	0.7	0.08	0.06	0.08	18.65	1.36	68.88	8.07	0.18	0.34	0.0	0.0	0.0	0.0	0.0	1
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.19	0.08	0.42	30.25	0.07	0.05	0.25	0.17	0.07	0.05	0.9	0.1	0.04	66.98	0.0	0.07	0.0	0.15	0.15	29
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0.0	0.25	1.54	30.45	0.0	0.11	26.87	39.2	0.0	0.0	0.06	0.23	0.3	0.0	0.0	0.28	0.0	0.52	0.17	1
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0.68	0.28	20.66	60.4	1.42	12.07	0.17	0.17	0.21	0.11	2.53	0.17	0.11	0.19	0.0	0.23	0.0	0.32	0.29	4
silicate-other	0.62	4.47	29.43	49.04	0.23	0.98	1.54	0.59	0.1	0.14	12.21	0.05	0.08	0.15	0.0	0.1	0.0	0.05	0.2	30
quartz	0.28	0.11	0.61	95.89	0.15	0.07	0.1	0.11	0.08	0.13	0.75	0.13	0.14	0.5	0.0	0.56	0.0	0.18	0.19	158
corundum	0.0	1.39	93.14	1.02	0.48	0.0	0.33	0.0	0.0	0.12	1.03	0.0	0.0	0.44	0.73	0.0	0.82	0.5	0.0	1
monazite	0.0	0.0	1.32	2.5	0.0	0.0	1.45	0.0	0.0	0.0	0.22	0.51	0.04	11.05	0.0	48.9	0.0	34.01	0.0	1
xenotime	1.31	0.0	0.75	3.26	0.0	0.17	0.61	0.48	0.3	0.0	3.64	0.0	0.0	2.84	0.29	47.09	38.43	0.73	0.09	1
phosphate	1.37	0.0	30.06	4.11	0.36	0.11	0.35	18.7	1.0	0.03	1.1	0.05	0.0	4.75	0.0	28.34	0.0	9.54	0.16	2
carbonate	0.0	30.54	1.45	0.98	0.41	0.26	51.78	0.13	0.16	0.27	12.55	0.03	0.17	0.18	0.07	0.05	0.08	0.37	0.56	6
pyrite	0.19	0.07	1.29	1.66	65.13	0.57	0.08	0.04	0.05	0.09	29.89	0.09	0.1	0.05	0.31	0.09	0.02	0.16	0.12	159
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	1.24	4.45	24.31	35.79	0.35	4.3	0.35	0.58	0.06	0.25	27.22	0.16	0.17	0.19	0.15	0.12	0.03	0.12	0.16	31
white mica	1.29	1.09	31.97	49.63	0.08	10.46	0.26	0.56	0.08	0.07	3.8	0.05	0.1	0.07	0.0	0.1	0.0	0.13	0.28	24
olivine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ortho-amphibole/ortho-pyroxene	0.0	25.46	2.84	51.96	0.0	0.24	0.14	0.1	0.02	0.18	18.0	0.29	0.23	0.0	0.0	0.37	0.0	0.1	0.1	4
clino-amphibole/clino-pyroxene	3.54	8.77	17.99	41.05	0.2	1.03	6.1	0.75	0.04	0.21	19.45	0.07	0.16	0.14	0.08	0.15	0.05	0.09	0.12	27
chlorite	1.01	1.04	19.44	26.5	1.57	2.9	0.4	0.58	0.1	0.44	44.26	0.18	0.21	0.28	0.37	0.2	0.21	0.2	0.11	40
unclassified	2.35	2.92	10.63	23.71	15.08	1.88	1.0	3.75	0.19	0.35	33.72	0.21	0.22	1.12	0.82	0.41	0.28	0.93	0.43	139

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Sample GEUS #: 2003971

Description: Tunorsuaq, 40 m, 486814, outcrop

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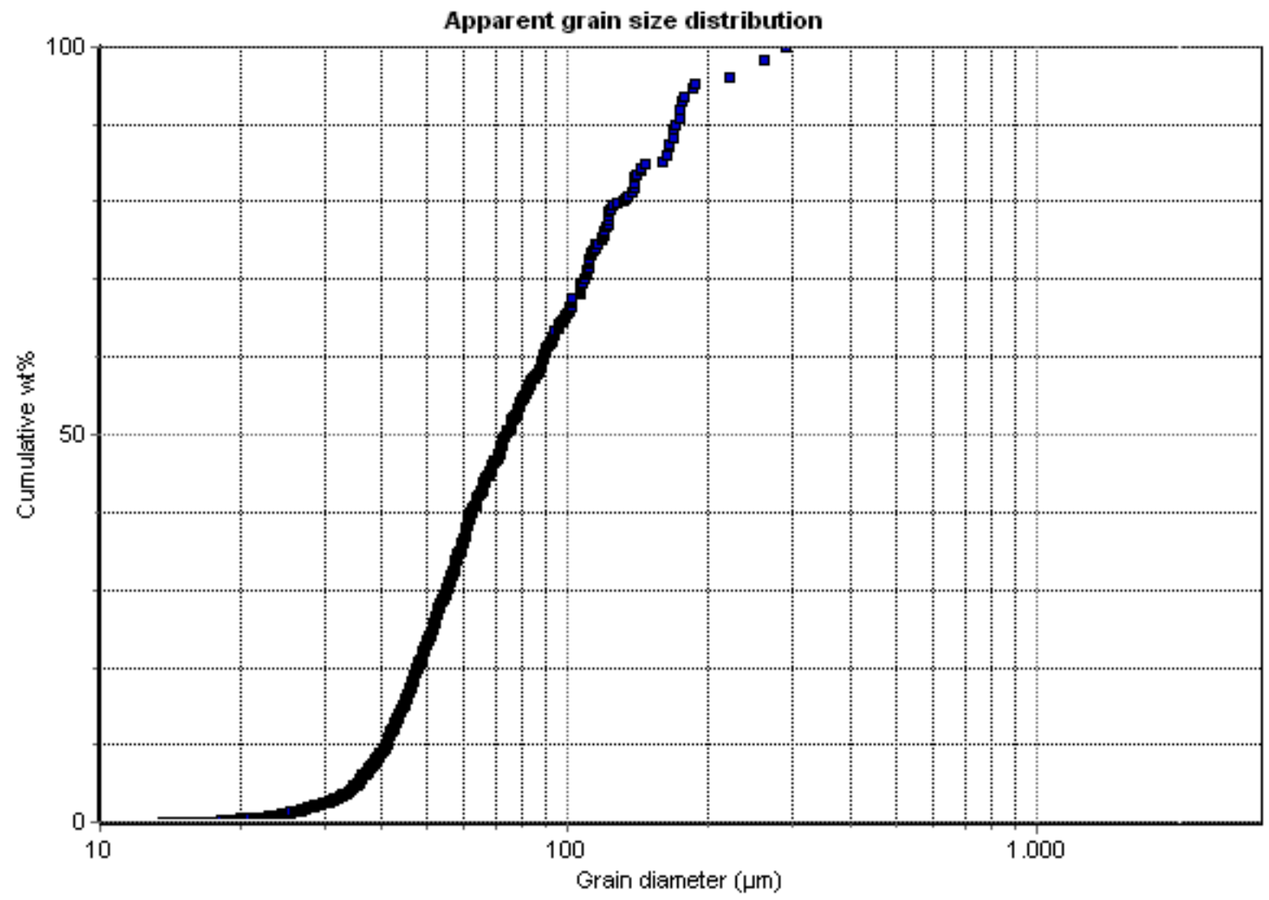

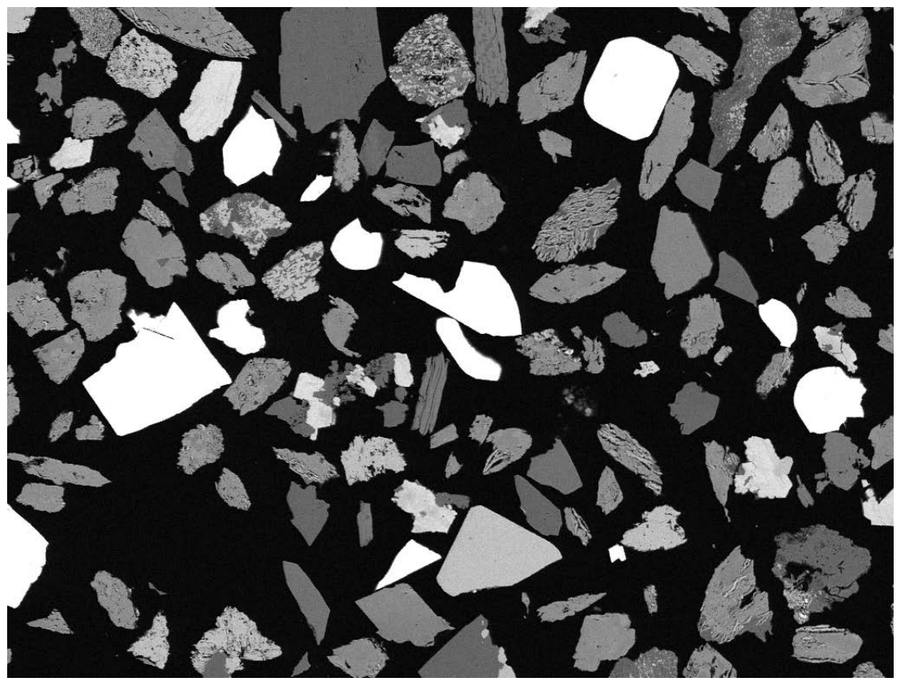

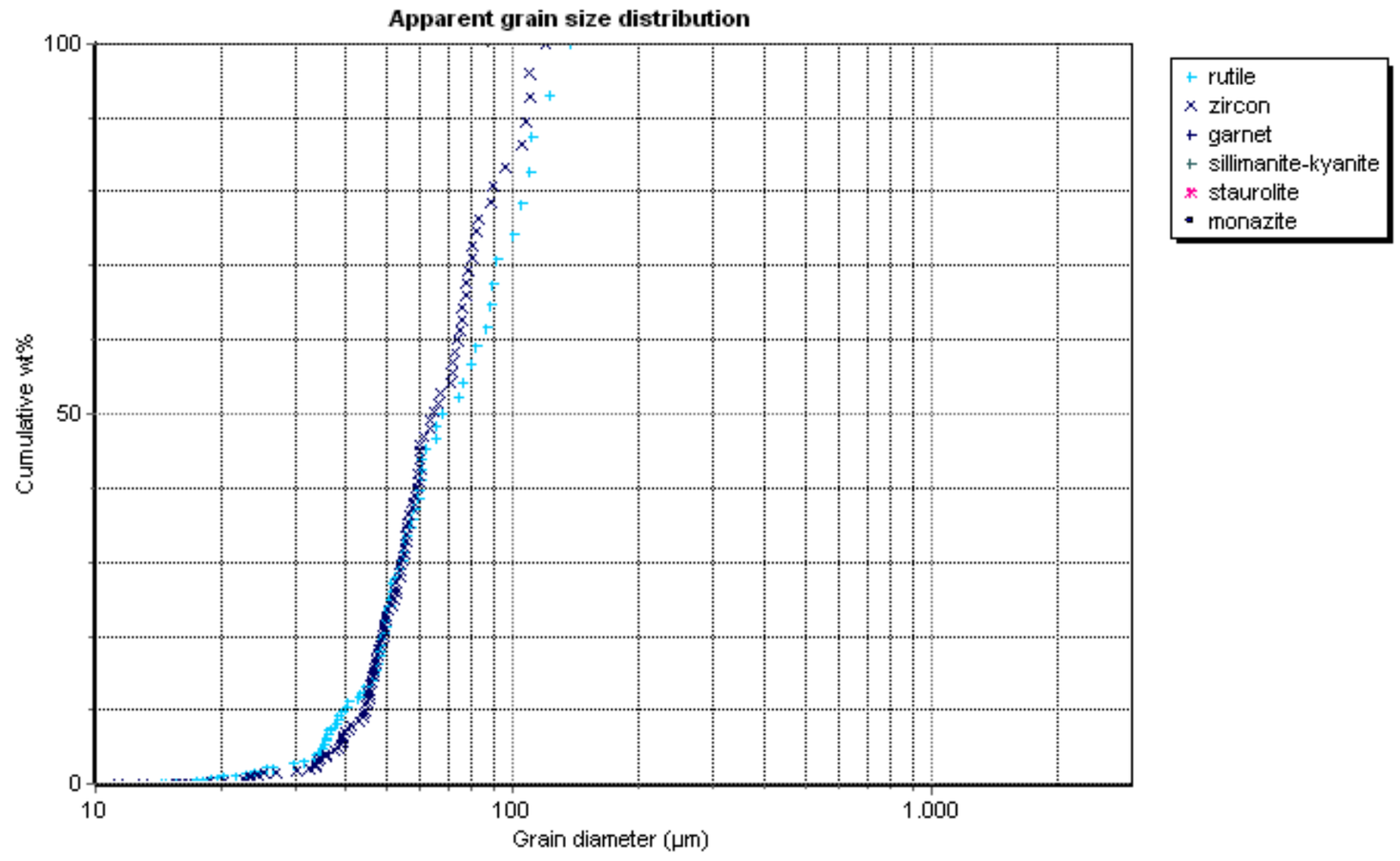

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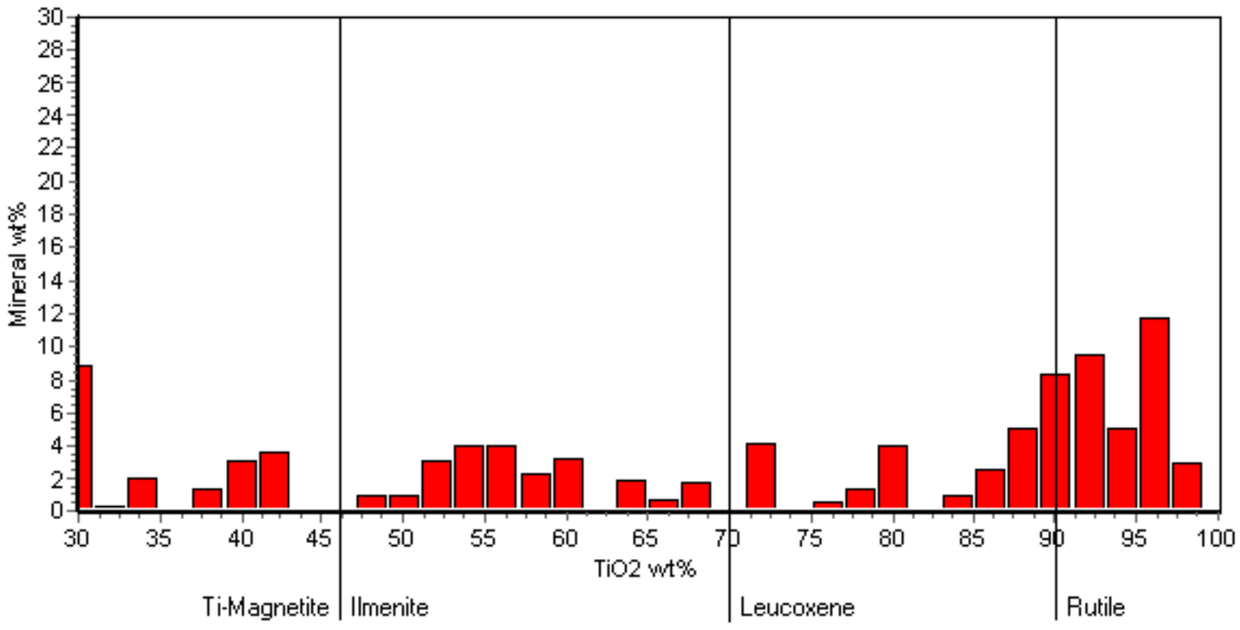

Sample GEUS #: 2003971

Description: Tunorsuaq, 40 m, 486814, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	3.68	5.94	6.8	12.32	0.11	1.02	0.32	56.53	0.18	0.06	11.33	0.1	0.05	0.65	0.24	0.17	0.02	0.39	0.08	13
leucoxene	1.07	0.51	5.09	10.81	0.26	0.54	0.11	78.14	0.3	0.05	1.26	0.09	0.08	0.59	0.4	0.32	0.03	0.22	0.12	39
rutile	0.2	0.1	1.4	1.74	0.15	0.1	0.09	93.77	0.27	0.07	1.06	0.09	0.1	0.11	0.33	0.11	0.0	0.22	0.09	85
Ti magnetite	4.65	12.39	5.57	10.44	1.51	0.51	0.54	31.92	0.12	0.22	31.05	0.08	0.08	0.08	0.27	0.18	0.04	0.27	0.09	8
magnetite	0.37	29.51	2.61	3.07	0.33	0.22	1.28	0.58	0.09	0.43	60.24	0.13	0.19	0.14	0.25	0.22	0.04	0.14	0.14	226
chromite	2.13	4.16	16.94	1.09	0.26	0.23	0.21	0.39	37.29	0.2	36.73	0.1	0.06	0.12	0.0	0.0	0.0	0.0	0.13	2
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0.16	0.17	0.63	30.4	0.04	0.09	0.12	0.17	0.07	0.07	0.9	0.11	0.03	66.69	0.0	0.03	0.02	0.16	0.16	114
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	9.66	0.0	21.92	66.88	0.01	0.01	0.07	0.12	0.08	0.08	0.53	0.04	0.06	0.16	0.0	0.13	0.0	0.18	0.08	11
silicate-other	3.11	5.15	30.44	52.39	0.03	0.11	1.16	0.79	0.11	0.07	5.93	0.09	0.08	0.1	0.0	0.16	0.0	0.08	0.21	31
quartz	0.19	0.12	0.91	95.72	0.14	0.07	0.05	0.33	0.09	0.06	0.6	0.11	0.12	0.36	0.0	0.72	0.0	0.22	0.17	81
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0.0	0.0	29.94	6.68	2.09	0.0	0.0	3.83	0.0	0.0	0.73	0.32	0.21	6.65	0.0	36.18	0.0	13.36	0.0	1
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0.54	0.22	33.35	3.61	0.2	0.12	0.11	16.54	0.8	0.04	0.41	0.08	0.11	5.67	0.0	28.36	0.0	9.74	0.08	42
carbonate	1.49	33.49	1.1	1.22	0.23	0.13	51.78	0.24	0.12	0.4	8.59	0.11	0.15	0.07	0.12	0.06	0.08	0.29	0.34	14
pyrite	0.3	0.11	1.26	1.71	65.71	0.36	0.07	0.03	0.04	0.05	27.61	0.09	2.12	0.04	0.22	0.09	0.01	0.16	0.04	8
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	3.14	4.87	25.84	35.21	1.36	3.81	0.26	2.08	0.15	0.11	22.13	0.13	0.14	0.36	0.12	0.11	0.02	0.04	0.13	7
white mica	1.96	1.16	31.69	49.85	0.15	8.49	0.14	1.12	0.07	0.06	3.31	0.06	0.08	0.28	0.0	0.73	0.0	0.35	0.48	21
olivine	0.0	26.8	0.56	36.59	0.0	0.05	0.13	0.23	0.01	0.32	33.43	0.06	0.07	0.0	0.75	0.75	0.0	0.0	0.25	1
ortho-amphibole/ortho-pyroxene	0.0	11.65	10.39	52.53	0.12	0.16	0.34	1.08	0.0	0.15	22.48	0.02	0.15	0.22	0.0	0.32	0.0	0.19	0.2	5
clino-amphibole/clino-pyroxene	7.58	7.99	15.23	43.15	0.15	1.0	1.11	0.41	0.07	0.15	22.09	0.05	0.1	0.34	0.05	0.32	0.01	0.1	0.09	17
chlorite	3.59	1.8	19.99	24.52	2.15	2.86	0.13	0.89	0.0	0.69	42.56	0.1	0.2	0.31	0.0	0.0	0.0	0.22	0.0	1
unclassified	8.07	22.87	6.26	10.86	1.27	0.58	1.16	3.62	0.1	0.29	39.7	0.11	0.17	2.64	0.28	1.26	0.1	0.52	0.14	473

DONG sample Report - Page 1/3

Sample GEUS #: 2003972

Description: Tunorsuaq, 770 m, 486815, outcrop

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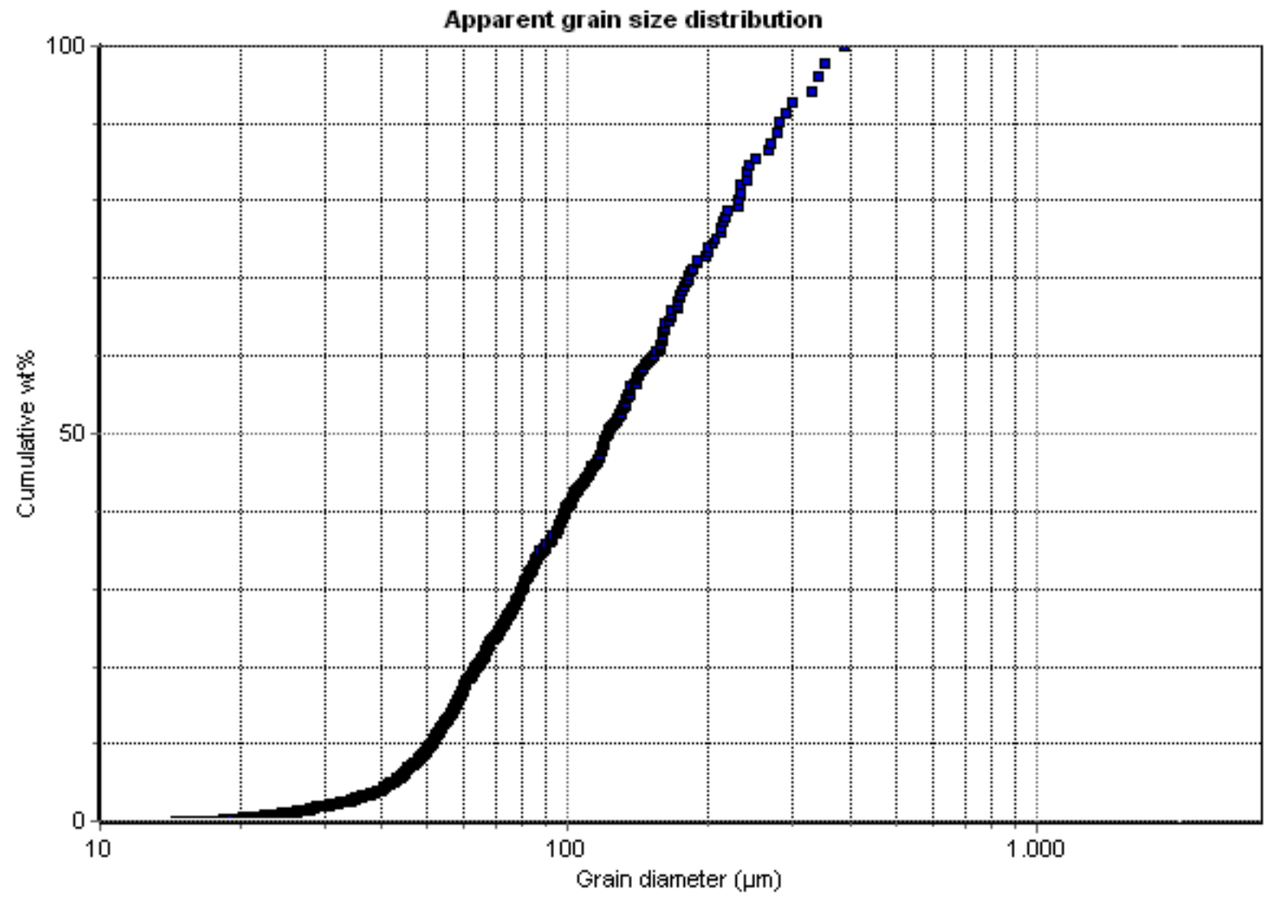

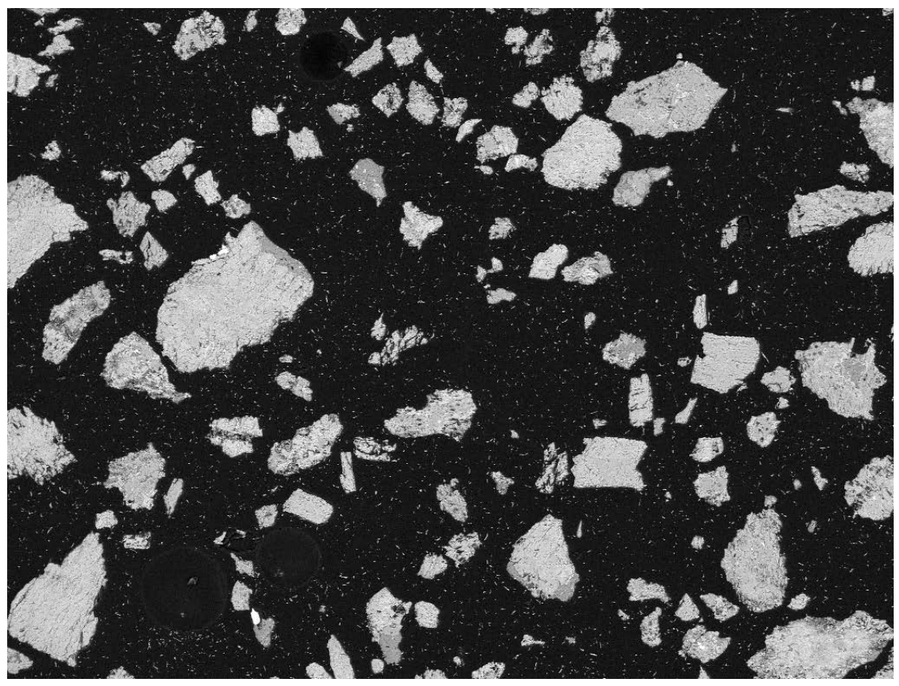

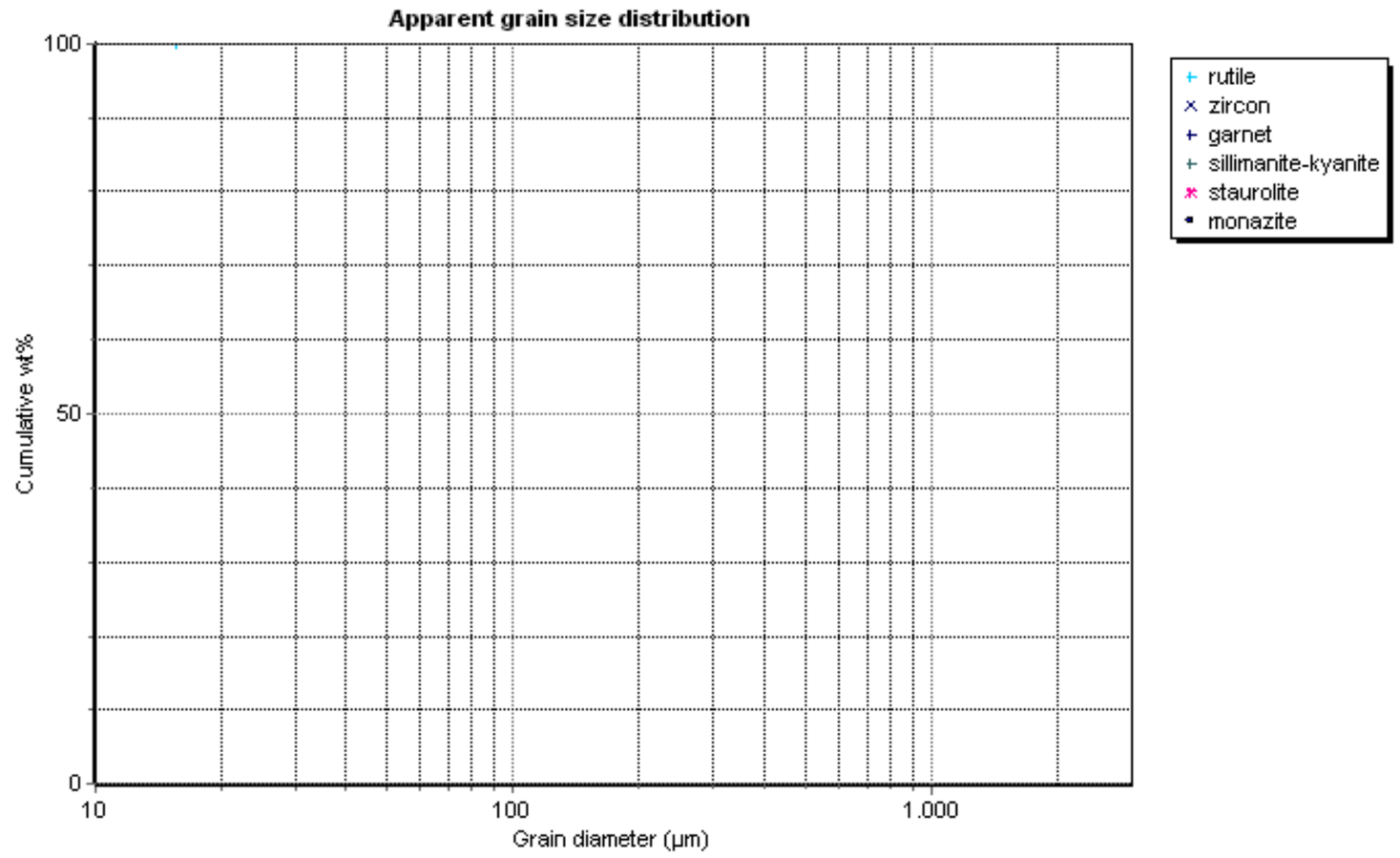

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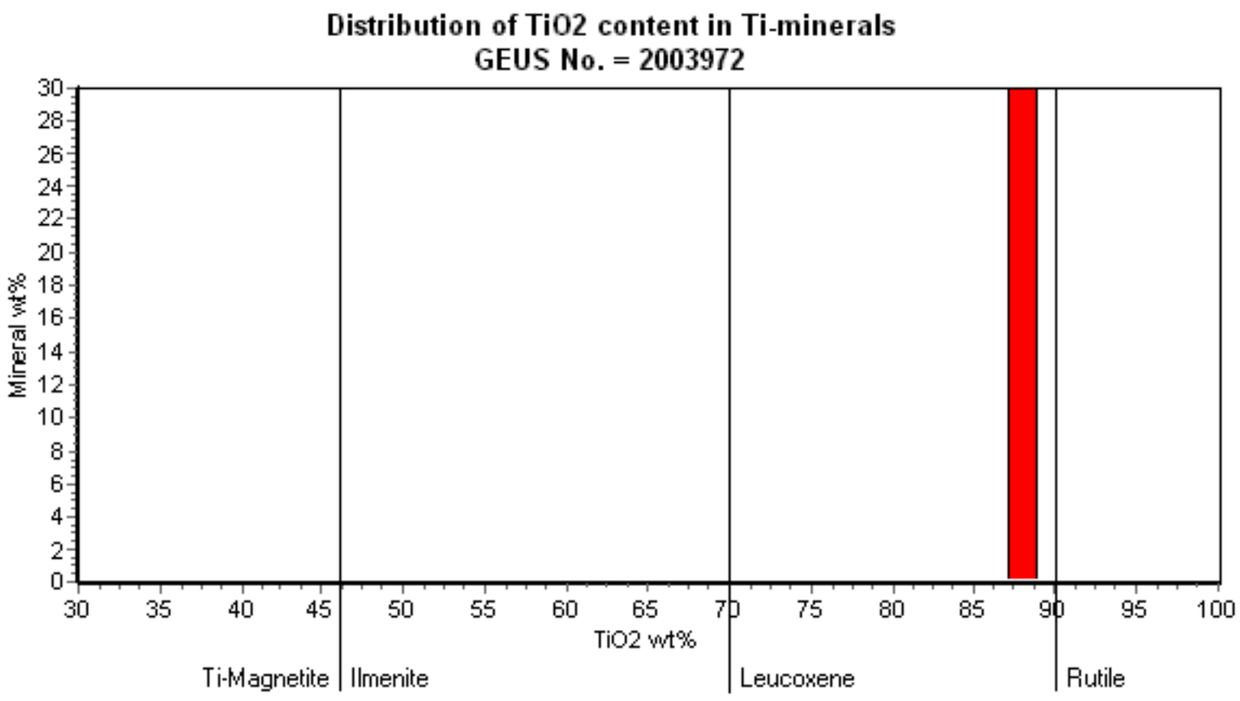

Sample GEUS #: 2003972

Description: Tunorsuaq, 770 m, 486815, outcrop

Average Content

Mineral	Na2O	MgO	Al2O3	SiO2	SO3	K2O	CaO	TiO2	Cr2O3	MnO	Fe2O3	NiO	CuO	ZrO2	Nb2O5	P2O5	Y2O3	Ce2O3	SnO	Particles
ilmenite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
leucoxene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rutile	0.0	0.54	0.84	9.76	0.0	0.0	0.3	87.92	0.08	0.0	0.03	0.14	0.0	0.0	0.27	0.12	0.0	0.0	0.0	1
Ti magnetite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
magnetite	0.65	14.63	2.21	7.38	5.99	0.25	2.22	0.34	0.25	0.3	61.85	1.2	1.1	0.17	0.43	0.32	0.12	0.43	0.16	5
chromite	0.0	14.46	24.49	0.81	0.09	0.0	0.13	0.7	35.32	0.0	23.58	0.12	0.02	0.0	0.19	0.1	0.0	0.0	0.0	3
spinel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
zircon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
cassiterite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sphene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
garnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sillimanite-kyanite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
staurolite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
feldspar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
silicate-other	1.8	8.93	8.74	64.82	0.15	0.05	3.12	0.6	0.11	0.13	10.7	0.15	0.12	0.17	0.0	0.11	0.0	0.1	0.2	61
quartz	0.4	0.85	5.66	88.63	0.24	0.1	0.22	0.25	0.1	0.13	2.4	0.15	0.15	0.19	0.0	0.05	0.0	0.3	0.19	13
corundum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
monazite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
xenotime	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
carbonate	0.22	28.34	0.53	3.23	0.29	0.12	53.13	0.06	0.1	0.7	11.9	0.13	0.15	0.05	0.3	0.15	0.08	0.2	0.34	300
pyrite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
epidote	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dark mica	7.26	27.82	2.27	36.04	0.23	0.06	0.82	0.14	0.07	0.16	24.11	0.05	0.14	0.19	0.17	0.11	0.16	0.11	0.12	25
white mica	0.58	0.88	36.63	51.21	0.14	6.32	0.13	0.33	0.16	0.07	2.94	0.08	0.14	0.07	0.0	0.02	0.0	0.28	0.03	3
olivine	0.65	30.15	2.62	24.42	0.14	0.08	1.43	0.14	0.09	0.3	38.04	0.19	0.2	0.28	0.62	0.15	0.23	0.18	0.07	9
ortho-amphibole/ortho-pyroxene	0.17	15.59	3.39	54.08	0.31	0.02	2.1	0.21	0.12	0.2	22.52	0.09	0.25	0.24	0.0	0.18	0.0	0.3	0.23	24
clino-amphibole/clino-pyroxene	5.04	16.37	6.46	49.3	0.09	0.05	5.02	0.4	0.19	0.14	16.17	0.11	0.12	0.11	0.03	0.13	0.01	0.11	0.15	135
chlorite	0.78	24.34	18.8	23.41	0.0	0.0	1.85	0.13	0.11	0.4	28.31	0.04	0.6	0.0	0.75	0.48	0.0	0.0	0.0	1
unclassified	6.54	35.3	3.15	11.59	0.47	0.15	12.21	0.4	0.62	0.27	27.59	0.16	0.19	0.18	0.33	0.17	0.12	0.14	0.42	620