



## TEST REPORT

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### MINERALOGICAL REPORT: 25-4416 rev 1

<b>Work requested by:</b>	Narmin Nasibbeyli
<b>On behalf of:</b>	SGS Azerbaijan
<b>Quote number</b>	25-4416 rev 1
<b>Reference:</b>	Basalt Dust
<b>Date issued:</b>	17-02-2026
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### Quantitative XRD Results for One (1) Sample

  
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Sample ID: Basalt Dust

XRD results		
Mineral Name	Ideal Chemical Formula	Basalt Dust
Plagioclase Feldspar	(Ca,Na)(Si,Al) <sub>4</sub> O <sub>8</sub>	64.8
Orthopyroxene	Mg <sub>2</sub> Si <sub>2</sub> O <sub>6</sub>	5.5
Clinopyroxene	(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al) <sub>2</sub> O <sub>6</sub>	11.8
Vermiculite	Mg(Mg,Fe,Al) <sub>3</sub> (Si,Al) <sub>8</sub> O <sub>20</sub> (OH) <sub>4</sub> ·8H <sub>2</sub> O	11.5
Magnetite	Fe <sub>3</sub> O <sub>4</sub>	*TR
Quartz	SiO <sub>2</sub>	*TR
Calcite	CaCO <sub>3</sub>	*TR
Olivine	FeMg <sub>2</sub> SiO <sub>4</sub>	*TR
<b>Total</b>		<b>100.00</b>

\*TR - Mineral is present however, it is below the limit of detection (<3%)

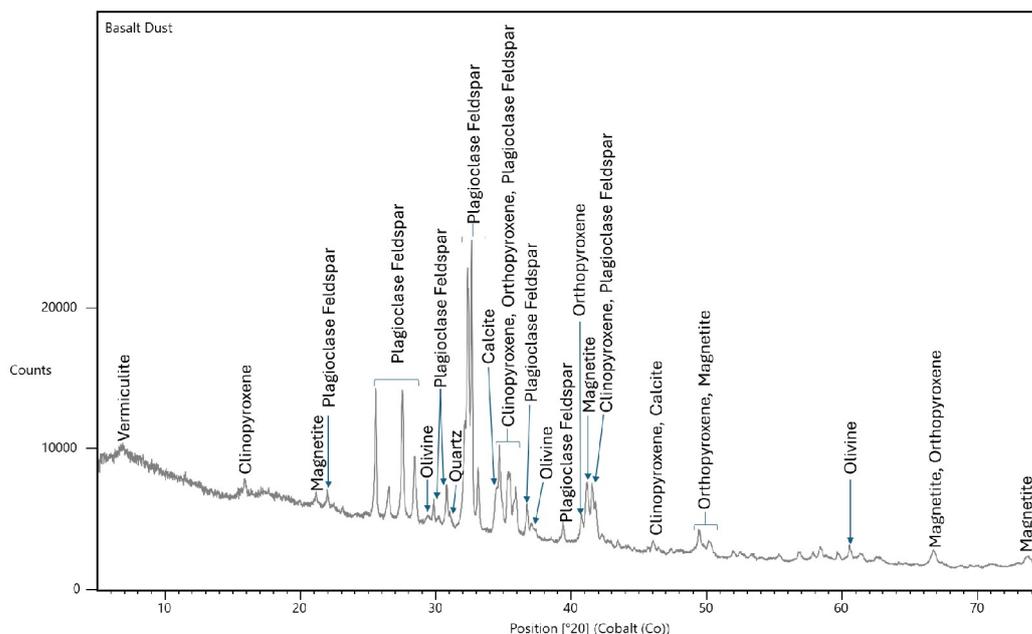


Figure 1: XRD Diffractogram with major mineral peaks annotated.

**Method Description**

The pulverized material was analysed by XRD using a Panalytical X'pert Pro diffractometer employing Fe-filtered Co-K $\alpha$  radiation. The resulting data was processed in the Panalytical High Score Plus software with Pan-ICSD database. The relative abundance of each mineral phase identified was determined by the Rietveld refinement method and verified by chemical analysis.

Note that some minerals diffract X-rays better than others, which in turn creates an inflated mass abundance. Peak overlaps may also hamper the identification of certain mineral phases and their reported abundances. Amorphous phases have not been identified.

**Observations**

Crystalline phases detected by QXRD are predominantly plagioclase feldspar (64.8 %) accompanied by lesser orthopyroxene (5.5 %), clinopyroxene (11.8 %) and vermiculite (11.5 %). Trace abundances of magnetite, quartz, calcite and olivine have also been detected. Note that the abundances reported were validated using the available chemical assays.

Note that plagioclase feldspars and clinopyroxene in this sample may not have a fixed composition. They tend to form a solid solution series where elements can substitute for one another and consequently their composition can vary.



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