



**REPORT NO:** AMGC/230/23/3363

**Date:** 07 December 2022

## **MINERALOGICAL ANALYSIS REPORT**

**CLIENT: VAISAM ENTERPRISES (T) LIMITED**

Dar es Salaam

ATTN: Dr Samwel Apollo Odiero

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**TYPE OF SAMPLE:** Rocks

**NUMBER OF SAMPLE:** Four (04)

**JOB REQUESTED:** Mineralogical Analysis & Determination of Lithium Content.

*Please see results in the attached page*

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Page 1 of 5

N.B. Only the original physical document, verified with AMGC constitutes an authentic record of the test results. The Original document is secured with strong security features. Also, please refer to the disclaimer note (s) in the attached page



## RESULTS

The samples was analyzed by X-Ray Diffraction method as well as determination of Lithium (Li<sub>2</sub>O) Content and the result is as shown below:

S/n	Sample Name	Major Components	Minor Components
1	MASAI	Elbaite $\text{Na}(\text{Li}_{1.5}\text{Al}_{1.5})\text{Al}_6\text{Si}_6\text{O}_{18}(\text{BO}_3)_3(\text{OH})_4$ 35.0% Calcite $\text{CaCO}_3$ 26.0% Enstatite $\text{Mg}_2\text{Si}_2\text{O}_6$ 9.0%	Alarsite $\text{Al}(\text{AsO}_4)$ 6.1% Spodumene $\text{LiAlSi}_2\text{O}_6$ 6.0% Lepidolite $\text{K}(\text{LiAl})_3(\text{AlSiRb})_4\text{O}_{10}(\text{FOH})_2$ 6.0% Quartz $\text{SiO}_2$ 5.8% Titanite $\text{CaTiSiO}_5$ 2.3% Sanidine $\text{K}(\text{AlSi}_3\text{O}_8)$ 2.0% Datolite $\text{CaBSiO}_4(\text{OH})$ 1.0% Magnetite $(\text{Fe}_3\text{O}_4)$ 0.8%

The Lithium (Li<sub>2</sub>O) Content is as follows:

Li = 0.51%

Li<sub>2</sub>O = 1.73%

**Matokeo Simba**

**Acting Manager: Mineralogy, Petrology & Gemmology Services**

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## RESULTS

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S/n	Sample Name	Major Components	Minor Components
2.	MWARABU	Digenite Cu <sub>9</sub> S <sub>5</sub> 38.2%	Montmorillonite Al <sub>2</sub> H <sub>2</sub> O <sub>12</sub> Si <sub>4</sub> 5.8%
		Quartz SiO <sub>2</sub> 18.5%	Pretulite ScPO <sub>4</sub> 4.7%
		Spodumene LiAlSi <sub>2</sub> O <sub>6</sub> 9.7%	Helvine (MnFeZn) <sub>8</sub> [Be <sub>6</sub> Si <sub>6</sub> O <sub>24</sub> ]S <sub>2</sub> 4.4%
		Anorthite CaAl <sub>2</sub> Si <sub>2</sub> O <sub>8</sub> 7.5%	Pyroxene (MgFe)SiO <sub>3</sub> 4.0%
			Blossite Cu <sub>2</sub> V <sub>2</sub> O <sub>7</sub> 2.8%
			Silver (Ag) 2.5%
			Lithiophorite (AlLi)MnO <sub>2</sub> (OH) <sub>2</sub> 1.9%

The Lithium (Li<sub>2</sub>O) Content is as follows:

Li = 0.44%

Li<sub>2</sub>O = 1.56%

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## RESULTS

The samples was analyzed by X-Ray Diffraction method as well as determination of Lithium (Li<sub>2</sub>O) Content and the result is as shown below:

S/n	Sample Name	Major Components	Minor Components
3.	JOY MASAI	Spinel LiTi (MgAl <sub>2</sub> O <sub>4</sub> ) 22.0%	Talc Mg <sub>3</sub> Si <sub>4</sub> O <sub>10</sub> (OH) <sub>2</sub> 6.6%
		Anorthite CaAl <sub>2</sub> Si <sub>2</sub> O <sub>8</sub> 13.0%	Enstatite Mg <sub>2</sub> Si <sub>2</sub> O <sub>6</sub> 5.5%
		Amblygonite (LiNa)Al(PO <sub>4</sub> )(FOH) 9.4%	Muscovite KAl <sub>2</sub> (AlSi <sub>3</sub> O <sub>10</sub> )(FOH) <sub>2</sub> 5.0%
		Albite NaAlSi <sub>3</sub> O <sub>8</sub> 9.2%	Pyrolusite MnO <sub>2</sub> 5.0%
		Quartz SiO <sub>2</sub> 8.9%	Rhombochase H <sub>5</sub> FeO <sub>2</sub> (SO <sub>4</sub> ) <sub>2</sub> 4.7%
		Nitratine NaNO <sub>3</sub> 7.5%	Titanite CaTiSiO <sub>5</sub> 3.2%

The Lithium (Li<sub>2</sub>O) Content is as follows:

Li = 1.08%

Li<sub>2</sub>O = 2.94%

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S/n	Sample Name	Major Components	Minor Components
4.	JOY 1	Albite NaAlSi <sub>3</sub> O <sub>8</sub> 37.0%	Berlinite AlPO <sub>4</sub> 5.2%
		Quartz SiO <sub>2</sub> 26.4%	Labradolite (CaNa)(AlSi) <sub>4</sub> O <sub>8</sub> 5.0%
		Blossite Cu <sub>2</sub> V <sub>2</sub> O <sub>7</sub> 17.0%	Barite BaSO <sub>4</sub> 2.7%
			Pectolite NaCa <sub>2</sub> Si <sub>3</sub> O <sub>8</sub> (OH) 2.2%
			Enstatite Mg <sub>2</sub> Si <sub>2</sub> O <sub>6</sub> 1.8%
			Anorthite CaAl <sub>2</sub> Si <sub>2</sub> O <sub>8</sub> 1.7%
			Pyroxene (MgFe)SiO <sub>3</sub> 1.0%

The Lithium (Li<sub>2</sub>O) Content is as follows:

Li < 0.01%

Li<sub>2</sub>O < 0.01%

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