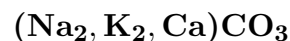


# Gregoryite



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**Crystal Data:** Hexagonal (synthetic). *Point Group:*  $6mm$ . As minute imperfect rounded crystals.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = \text{n.d.}$   $D(\text{calc.}) = 2.27$  Soluble in  $\text{H}_2\text{O}$ .

**Optical Properties:** Transparent to translucent. *Color:* Brown, milky white.  
*Optical Class:* [Uniaxial.]  $\omega = \text{n.d.}$   $\epsilon = \text{n.d.}$

**Cell Data:** *Space Group:*  $P6_3mc$  (synthetic).  $a = 5.215$   $c = 6.584$   $Z = 2$

**X-ray Powder Pattern:** Synthetic. (ICDD 25–815).  
2.66 (100), 2.61 (75), 3.29 (40), 2.137 (40), 1.863 (30), 3.72 (27), 1.707 (8)

<b>Chemistry:</b>	(1)
$\text{SO}_3$	4.28
$\text{P}_2\text{O}_5$	1.92
$\text{CO}_2$	[36.22]
$\text{CaO}$	9.10
$\text{SrO}$	0.66
$\text{BaO}$	0.24
$\text{Na}_2\text{O}$	44.87
$\text{K}_2\text{O}$	3.95
F	0.4
Cl	0.60
$\text{H}_2\text{O}$	n.d.
$-\text{O} = (\text{F}, \text{Cl})_2$	0.31
Total	[101.93]

(1) Oldoinyo Lengai, Tanzania; by electron microprobe,  $\text{CO}_2$  presumably calculated; corresponds to  $(\text{Na}_{1.56}\text{K}_{0.10}\text{Ca}_{0.17})_{\Sigma=1.83}\text{CO}_3$ .

**Occurrence:** As phenocrysts in lengaitite carbonatite lava.

**Association:** Nyerereite, alabandite, halite, sylvite, fluorite, calcite.

**Distribution:** From Oldoinyo Lengai volcano, Tanzania.

**Name:** Honors Professor John Walter Gregory (1864–1932), University of Melbourne, Melbourne, Australia and University of Glasgow, Glasgow, Scotland, who completed early scientific studies of the volcanism and structure of the East African Rift system.

**Type Material:** n.d.

**References:** (1) Gittins, J. and D. McKie (1980) Alkalic carbonatite magmas: Oldoinyo Lengai and its wider applicability. *Lithos*, 13, 213–215. (2) (1981) *Amer. Mineral.*, 66, 879 (abs. ref. 1).