

Chlorartinite

$\text{Mg}_2(\text{CO}_3)\text{Cl}(\text{OH}) \cdot 3\text{H}_2\text{O}$

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$ or $3m$. As granular aggregates, with grains to 0.01 mm.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 1.84$ Slowly soluble in H_2O .

Optical Properties: Semitransparent. *Color:* White. *Streak:* White.

Optical Class: Uniaxial. $n = 1.510$ $\omega = \text{n.d.}$ $\epsilon = \text{n.d.}$

Cell Data: *Space Group:* $R\bar{3}c$ or $R\bar{3}c$. $a = 23.163(4)$ $c = 7.221(2)$ $Z = 18$

X-ray Powder Pattern: Tolbachik fissure volcano, Russia.

11.66 (100), 3.000 (41), 2.657 (22), 3.264 (21), 3.218 (21), 3.396 (17), 3.356 (17)

Chemistry:

	(1)	(2)
SO_3	0.25	
CO_2	15.35	20.46
MgO	26.26	37.47
CaO	3.70	
Na_2O	1.33	
K_2O	0.52	
Cl	13.65	16.48
H_2O^+	19.52	
H_2O^-	8.39	
H_2O		29.31
insol.	14.40	
$-\text{O} = \text{Cl}_2$	3.08	3.72
Total	100.29	100.00

(1) Tolbachik volcano, Russia; $(\text{CO}_3)^{2-}$ and $(\text{OH})^{1-}$ confirmed by IR; after deduction of halite 3.3% and gypsum 0.4%, corresponds to $(\text{Mg}_{1.82}\text{Ca}_{0.18})_{\Sigma=2.00}(\text{CO}_3)_{0.98}\text{Cl}_{1.07}(\text{OH})_{0.98} \cdot 3.05\text{H}_2\text{O}$.

(2) $\text{Mg}_2(\text{CO}_3)\text{Cl}(\text{OH}) \cdot 3\text{H}_2\text{O}$.

Occurrence: In sublimates around a volcanic fissure.

Association: Halite, gypsum, aragonite, nesquehonite.

Distribution: From the Tolbachik fissure volcano, Kamchatka Peninsula, Russia.

Name: For essential *chlorine* and chemical relation to *artinite*.

Type Material: Mining Institute, Saint Petersburg, Russia.

References: (1) Vergasova, L.P., S.K. Filatov, Y.K. Serafimova, and S.V. Sergeyeva (1998) Chlorartinite $\text{Mg}_2(\text{CO}_3)\text{ClOH} \cdot 3\text{H}_2\text{O}$ – a new mineral from exhalations. *Zap. Vses. Mineral. Obshch.*, 127(2), 55–59 (in Russian). (2) (1999) *Amer. Mineral.*, 84, 1195–1196 (abs. ref. 1).