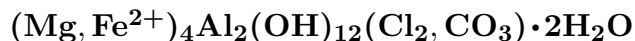


# Chlormagaluminite



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**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ ,  $6mm$ , or  $\bar{6}m2$ . As hexagonal dipyramidal crystals, in aggregates,  $> 1$  mm.

**Physical Properties:** *Cleavage:* {0001}, perfect. Hardness = Very soft.  $D(\text{meas.}) = 1.98\text{--}2.09$   $D(\text{calc.}) = 2.06$

**Optical Properties:** Semitransparent. *Color:* Colorless to yellow-brown; colorless in transmitted light. *Luster:* Vitreous to pearly on cleavage surfaces.

*Optical Class:* Uniaxial (+).  $\omega = 1.540(3)$   $\epsilon = 1.560(3)$

**Cell Data:** *Space Group:*  $P6_3/mcm$ ,  $P6_3cm$ , or  $P\bar{6}c2$ .  $a = 5.29$   $c = 15.46$   $Z = [1]$

**X-ray Powder Pattern:** Kapaevskaya pipe, Russia.

7.67 (10), 1.839 (10), 2.34 (9), 2.17 (9), 1.526 (9), 1.496 (9), 3.86 (8)

## Chemistry:

	(1)
TiO <sub>2</sub>	0.20
Al <sub>2</sub> O <sub>3</sub>	21.20
Fe <sub>2</sub> O <sub>3</sub>	1.15
FeO	4.10
MnO	0.05
MgO	30.84
Na <sub>2</sub> O	0.36
Cl	11.31
H <sub>2</sub> O <sup>+</sup>	27.19
H <sub>2</sub> O <sup>-</sup>	5.20
CO <sub>2</sub>	1.10
-O = Cl <sub>2</sub>	2.55
<hr/> Total	<hr/> 100.15

(1) Kapaevskaya pipe, Russia; corresponds to  $(\text{Mg}_{3.55}\text{Fe}_{0.27}^{2+}\text{Na}_{0.05})_{\Sigma=3.87}(\text{Al}_{1.93}\text{Fe}_{0.07}^{3+}\text{Ti}_{0.01})_{\Sigma=2.01}(\text{OH})_{12}[\text{Cl}_{1.48}(\frac{1}{2}\text{CO}_3)_{0.24}]_{\Sigma=1.72} \cdot 2.42\text{H}_2\text{O}$ .

**Mineral Group:** Manasseite group.

**Occurrence:** In iron-ore skarns in an explosion pipe.

**Association:** Magnetite, magnesian chlorite.

**Distribution:** In the Kapaevskaya pipe, middle Angara River, Irkutsk district, southern Siberia, Russia.

**Name:** For its principal components, CHLORine, MAGnesium, and ALUMINum.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82771.

**References:** (1) Kashaev, A.A., G.D. Feoktistov, and S.V. Petrova (1982) Chlormagaluminite,  $(\text{Mg, Fe}^{2+})_4\text{Al}_2(\text{OH})_{12}(\text{Cl}, \frac{1}{2}\text{CO}_3)_2 \cdot 2\text{H}_2\text{O}$  – a new mineral of the manasseite-sjögrenite group. *Zap. Vses. Mineral. Obshch.*, 11, 121–127 (in Russian). (2) (1983) *Amer. Mineral.*, 68, 849 (abs. ref. 1). (3) Feoktistov, G.D., S.I. Ivanov, A.A. Kashaev, L.N. Klyuchanskii, N.G. Taskina, and Z.F. Ushchapovskaya (1978) The occurrence of chlormanasseite [= chlormagaluminite] in the USSR. *Zap. Vses. Mineral. Obshch.*, 107, 321–325. (in Russian). (4) (1980) *Mineral. Abs.*, 31, 226 (abs. ref. 3).