

Roselite

$\text{Ca}_2(\text{Co, Mg})(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are elongated along [100], showing {011}, $\{\bar{1}11\}$, {010}, {110}, to 1.3 cm; commonly in spherical aggregates and druses. *Twining:* Very common on {100} with {100} as composition plane, contact twins and fourlings.

Physical Properties: *Cleavage:* On {010}, perfect. Hardness = 3.5 $D(\text{meas.}) = 3.46\text{--}3.74$ $D(\text{calc.}) = 3.65$

Optical Properties: Transparent to translucent. *Color:* Pale rose-pink to dark rose-pink; rose-pink in transmitted light, may be color zoned. *Luster:* Vitreous. *Optical Class:* Biaxial (+). *Pleochroism:* X = pale rose-pink to dark rose-pink; Y = paler rose-pink; Z = palest rose-pink. *Orientation:* $X = b$ to $X \wedge c \sim 0^\circ\text{--}4^\circ$; $Y = b$ to $Y \wedge c = 12^\circ\text{--}20^\circ$; $Z \wedge c = 70^\circ$ to 91° . *Dispersion:* $r < v$, weak to strong. $\alpha = 1.694\text{--}1.725$ $\beta = 1.704\text{--}1.730$ $\gamma = 1.719\text{--}1.735$ $2V(\text{meas.}) = 60^\circ\text{--}75^\circ$

Cell Data: *Space Group:* $P2_1/c$. $a = 5.801(1)$ $b = 12.898(3)$ $c = 5.617(1)$ $\beta = 107.42(2)^\circ$ $Z = 2$

X-ray Powder Pattern: Schneeberg, Germany.
2.993 (100), 3.222 (75), 3.354 (60), 2.763 (50), 3.395 (35), 6.444 (20), 5.089 (20)

Chemistry:

	(1)	(2)
As_2O_5	49.96	52.76
CoO	12.45	8.60
MgO	4.67	4.63
CaO	23.72	25.74
H_2O	9.69	8.27
Total	100.49	100.00

(1) Schneeberg, Germany. (2) $\text{Ca}_2(\text{Co, Mg})(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$ with Co:Mg = 1:1.

Polymorphism & Series: Dimorphous with roselite-beta; forms a series with wendwilsonite.

Mineral Group: Roselite group.

Occurrence: A rare secondary mineral in cobalt-bearing hydrothermal mineral deposits.

Association: Talmessite (Bou Azzer, Morocco).

Distribution: In Germany, from the Rappold and Daniel mines, Schneeberg, Saxony; at the Friedrich Christian mine, Wildschapbachtal, and the Anton mine, Heubachtal, near Schiltach, Black Forest. From Bou Azzer, Morocco. In the Talmessi mine, 35 km west of Anarak, Iran. From Huercal Overa, Almería Province, and at Molvizar, Granada Province, Spain.

Name: To honor Gustav Rose (1798–1873), Professor of Mineralogy, University of Berlin, Berlin, Germany.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 723–725. (2) Hawthorne, F.C. and R.B. Ferguson (1977) The crystal structure of roselite. *Can. Mineral.*, 15, 36–42. (3) Dunn, P.J., B.D. Sturman, and J.A. Nelen (1987) Wendwilsonite, the Mg analogue of roselite, from Morocco, New Jersey, and Mexico, and new data on roselite. *Amer. Mineral.*, 72, 217–221.