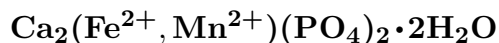


# Messelite



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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$  (by analogy to fairfieldite). As internally radial globular, hemispherical, or sheaflike aggregates of lamellar crystals, to 1.5 cm; may be granular.

**Physical Properties:** *Cleavage:* Perfect on {001}, producing curved irregular surfaces. Hardness = 3.5 D(meas.) = 3.16 D(calc.) = n.d.

**Optical Properties:** Translucent. *Color:* White, pale greenish white, greenish gray, pink. *Luster:* Vitreous.

*Optical Class:* Biaxial (+).  $\alpha = 1.644\text{--}1.654$   $\beta = 1.649\text{--}1.659$   $\gamma = 1.660\text{--}1.680$   
2V(meas.) =  $5^\circ\text{--}30^\circ$

**Cell Data:** *Space Group:*  $[P\bar{1}]$  (by analogy to fairfieldite). Z = n.d.

**X-ray Powder Pattern:** Kings Mountain, North Carolina, USA.  
6.36 (10), 3.17 (10), 3.02 (9), 2.67 (4), 3.58 (3), 2.80 (3), 2.63 (3)

Chemistry:	(1)	(2)	(3)
P <sub>2</sub> O <sub>5</sub>	36.90	38.96	39.26
Fe <sub>2</sub> O <sub>3</sub>	0.83		
FeO	20.92	16.62	9.94
MnO	3.94	7.87	9.81
MgO	1.36	0.09	
CaO	23.19	25.64	31.02
H <sub>2</sub> O	11.30	11.00	9.97
insol.	1.39		
Total	99.83	100.18	100.00

(1) Palermo #1 mine, New Hampshire, USA. (2) Kings Mountain, North Carolina, USA.

(3) Ca<sub>2</sub>(Fe, Mn)(PO<sub>4</sub>)<sub>2</sub>·2H<sub>2</sub>O with Fe:Mn = 1:1.

**Mineral Group:** Fairfieldite group.

**Occurrence:** Principally as a late stage hydrothermal alteration product in zoned complex granite pegmatites.

**Association:** Triphylite, anapaite, vivianite, ludlamite, siderite, goyazite, whitlockite, herderite, amblygonite, eosphorite, brazilianite, graftonite, fairfieldite, phosphoferrite, huréaulite.

**Distribution:** In Germany, from the Prinz Heinrich von Hessen and the Messel oil slate mines, Messel, Hesse; and from Hagendorf, Bavaria. In the Norrö pegmatite, on Rånö Island, Sweden. At Příbyslavice, Czech Republic. In the Salsigne mine, 15 km north of Carcassone, Aude, France. From Kustanai, Kazakhstan. In the USA, at the Foote mine, near Kings Mountain, Cleveland Co., North Carolina; from the Palermo #1 mine, near North Groton, Grafton Co., New Hampshire; at the Tip Top, White Elephant, Linwood, and Bull Moose mines, near Custer, Custer Co., and the Big Chief, Ingersoll, and Dan Patch mines, near Keystone, Pennington Co., South Dakota. Large crystals from Rapid Creek, Yukon Territory, Canada. At the Énio pegmatite mine, northeast of Galiléia, Minas Gerais, Brazil.

**Name:** For the locality that produced the first specimens, Messel, Germany.

**References:** (1) Frondel, C. (1955) Neomesselite [messelite] and beta-roselite: two new members of the fairfieldite group. *Amer. Mineral.*, 40, 828–833. (2) Čech, F. and K. Paděra (1958) Messelit aus den Phosphatnestern im Granit bei Příbyslavice (Böhmen) und das Messelitproblem. *Chem. Erde*, 19, 436–449 (in German). (3) (1959) *Amer. Mineral.*, 44, 469 (abs. ref. 2). (4) Privett, D.R. (1973) Messelite at Kings Mountain, North Carolina. *Southeast Geology*, 15, 71–75.

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