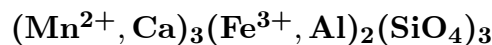


Calderite



©2001 Mineral Data Publishing, version 1.2

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. Granular, massive.

Physical Properties: Hardness = 7 D(meas.) = 4.05 D(calc.) = 4.07

Optical Properties: Semitransparent. *Color:* Dark reddish brown to dark yellowish; yellow to pale greenish yellow in thin section.

Optical Class: Isotropic; shows slight anisotropism. $n = 1.875\text{--}1.934$

Cell Data: *Space Group:* $Ia\bar{3}d$. $a = 11.81$ $Z = 8$

X-ray Powder Pattern: Otjosondu, Namibia.

2.62 (100), 1.574 (100), 2.92 (90), 2.39 (90), 1.632 (90), 0.968 (90), 1.906 (80)

Chemistry:

	(1)	(2)
SiO ₂	35.16	32.4
TiO ₂	0.28	
Al ₂ O ₃	9.04	
Fe ₂ O ₃	16.27	31.4
FeO	0.00	
MnO	27.38	29.0
MgO	0.50	
CaO	12.12	8.5
Total	100.75	101.3

(1) Otjosondu, Namibia; by electron microprobe; corresponds to $(\text{Mn}_{1.96}\text{Ca}_{1.10})_{\Sigma=3.06}(\text{Fe}_{1.04}^{3+}\text{Al}_{0.87}\text{Mg}_{0.06}\text{Ti}_{0.02})_{\Sigma=1.99}(\text{Si}_{2.97}\text{Al}_{0.03})_{\Sigma=3.00}\text{O}_{12}$. (2) Wabush district, Canada; by electron microprobe, corresponds to $(\text{Mn}_{2.20}\text{Ca}_{0.82})_{\Sigma=3.02}\text{Fe}_{2.02}^{3+}(\text{Si}_{2.90}\text{Al}_{0.10})_{\Sigma=3.00}\text{O}_{12}$.

Mineral Group: Garnet group.

Occurrence: In a manganese deposit (Otjosondu, Namibia); in an iron formation (Wabush district, Canada).

Association: Pyrolusite, aegirine, rhodonite, hematite, rhodochrosite, quartz, kutnohorite (Wabush district, Canada).

Distribution: From Katkamsandi, Hazaribagh district, Bihar, and at Netra, Balaghat district, Madhya Pradesh, India. At Otjosondu, Namibia. In the Wabush district, near Labrador City, Labrador, Newfoundland, Canada. From the Fianel mine, Val Ferrera, Graubünden, Switzerland.

Name: For James Calder, an early writer on the geology of India; name first applied to a rock, later transferred to its predominant mineral.

Type Material: n.d.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 443. (2) Vermaas, F.H.S. (1952) Manganese-iron garnet from Otjosondu, South-West Africa. *Mineral. Mag.*, 29, 946–951. (3) Klein, C., Jr. (1966) Mineralogy and petrology of the metamorphosed Wabush Iron Formation, southwestern Labrador. *J. Petrol.*, 7, 246–305. (4) Dunn, P.J. (1979) On the validity of calderite. *Can. Mineral.*, 17, 569–571. (5) Amthauer, G., K. Katz-Lehnert, D. Lattard, M. Okrusch, and E. Woermann (1989) Crystal chemistry of natural Mn^{3+} -bearing calderite-andradite garnets from Otjosondu, SWA/Namibia. *Zeits. Krist.*, 189, 43–56.