Neotocite $(Mn^{2+},Fe^{2+})SiO_3 \cdot H_2O(?)$

Crystal Data: Amorphous to poorly crystalline. *Point Group:* n.d. Massive, compact.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 3–4
D(meas.) = 2.1–2.7 D(calc.) = n.d.

Optical Properties: Opaque, translucent in thin fragments. *Color:* Black, dark brown to dark olive-green. *Streak:* Dark brown to black. *Luster:* Dull to resinous or vitreous, may be feebly metallic.
Optical Class: Isotropic essentially. n = 1.50–1.65

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Montreal mine, Wisconsin, USA; indistinguishable from hisingerite.
4.36 (w), 3.59 (w), 1.54 (w), 2.59 (vw)

Chemistry:

	(1)	(2)
SiO_2	40.1	40.19
Al_2O_3	1.3	
Fe_2O_3	0.3	
Mn_2O_3	7.7	
FeO		24.03
MnO	33.7	23.73
MgO	1.5	
CaO	1.3	
Na_2O	0.1	
K_2O	0.1	
H_2O^+	11.6	12.05
CO_2	2.2	
Total	99.9	100.00

(1) Geevor mine, England. (2) $(Mn,Fe)SiO_3 \cdot H_2O$ with Fe:Mn = 1:1.

Occurrence: An alteration product of manganese-bearing silicate minerals.

Association: Rhodonite, calcite, quartz.

Distribution: In Sweden, from Gestrikland; at Långban, Jakobsberg, and the Harstigen mine, near Persberg, Värmland; and in the Brunsjö mine, near Grythyttan, Örebro. In Wheal Owles, Penwith, and the Geevor mine, St. Just, Cornwall, England. In the USA, from the Aravaipa district, Graham Co., Arizona; in California, in the Charles Mountain deposit, Humboldt Co., in the Elsinor area, Riverside Co., and at the Johe Ranch mine, San Louis Obispo Co.; from the Montreal mine, Gogebic Range, Iron Co., Wisconsin; and at the Foote mine, Kings Mountain, Cleveland Co., North Carolina. From Bueycito, Oriente Province, Cuba. In Japan, from Shidara, Aichi Prefecture; in the Kawazu mine, Shidzuoka Prefecture; and at Tamaga, Iwate Prefecture. Probably additional localities are not yet recognized.

Name: From the Greek, meaning *of recent origin*, as it is an alteration product.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 704–705.
(2) Whelan, J.A. and S.S. Goldich (1961) New data for hisingerite and neotocite. Amer. Mineral., 46, 1412–1423. (3) Clark, A.M., A.J. Easton, and M. Mount (1978) A study of the neotocite group. Mineral. Mag., 42, 279–280, M26–M27. (4) Eggleton, R.A., J.H. Pennington, R.S. Freeman, and I.M. Threadgold (1983) Structural aspects of the hisingerite-neotocite series. Clay Minerals, 18, 21–31.