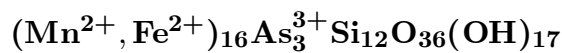


Nelenite

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Coarse granular, to 4.5 cm; massive.**Physical Properties:** *Cleavage:* {0001}, perfect. *Hardness* = ~5 *D*(meas.) = 3.46
D(calc.) = 3.44–3.45**Optical Properties:** Transparent. *Color:* Light to medium brown; in transmitted light, colorless to light brown. *Streak:* Light brown. *Luster:* Vitreous on cleavages, resinous and duller on fractures.*Optical Class:* Uniaxial (-); may appear biaxial. *Pleochroism:* *O* = light brown; *E* = colorless.
 $\omega = 1.718(4)$ $\epsilon = 1.700(4)$ $2V(\text{meas.}) = 0^\circ$ **Cell Data:** *Space Group:* $R\bar{3}m$. $a = 13.418(5)$ $c = 85.48(8)$ $Z = [2]$ **X-ray Powder Pattern:** Franklin, New Jersey, USA.

2.552 (100), 2.878 (70), 3.55 (60), 1.677 (60), 1.723 (50), 7.10 (40), 2.402 (40)

Chemistry:

| | (1) | (2) |
|--------------------------------|--------|---------|
| SiO ₂ | 31.12 | 30.8 |
| As ₂ O ₃ | 12.46 | 13.2 |
| FeO | 17.12 | 17.8 |
| MnO | 29.22 | 28.1 |
| ZnO | 3.63 | 2.6 |
| MgO | 0.12 | 0.5 |
| CaO | | 0.4 |
| H ₂ O | 6.42 | [6.6] |
| Total | 100.00 | [100.0] |

(1) Franklin, New Jersey, USA; corresponds to $(\text{Mn}_{9.54}\text{Fe}_{5.51}\text{Zn}_{1.04}\text{Mg}_{0.07})_{\Sigma=16.16}\text{As}_{2.92}\text{Si}_{12}\text{O}_{36.28}(\text{OH})_{16.52}$. (2) Do.; by electron microprobe, H₂O by difference; corresponds to $(\text{Mn}_{9.27}\text{Fe}_{5.80}\text{Zn}_{0.75}\text{Mg}_{0.29}\text{Ca}_{0.17})_{\Sigma=16.28}\text{As}_{3.12}\text{Si}_{12}\text{O}_{36.39}(\text{OH})_{17.14}$.**Polymorphism & Series:** Dimorphous with schallerite.**Occurrence:** In a metamorphosed stratiform zinc deposit, within pegmatitic textured masses, and as calcite-cemented fragments in a breccia probably derived from the pegmatitic material.**Association:** Actinolite, calcite, willemite, tirodite, rhodonite, apatite, lennilenapeite, stilpnomelane, microcline, talc.**Distribution:** From Franklin, Sussex Co., New Jersey, USA.**Name:** In honor of Joseph A. Nelen, chemist at the Smithsonian Institution, Washington, D.C., USA.**Type Material:** Harvard University, Cambridge, Massachusetts, 92791; National Museum of Natural History, Washington, D.C., USA, R7824, C6219, 145972; The Natural History Museum, London, England, 1983,237.**References:** (1) Dunn, P.J. and D.R. Peacor (1984) Nelenite, a manganese arsenosilicate of the friedelite group, polymorphous with schallerite, from Franklin, New Jersey. *Mineral. Mag.*, 48, 271–275. (2) (1985) *Amer. Mineral.*, 70, 874–875 (abs. ref. 1).