Stavelotite-(La) $La_3Mn^{2+}_3Cu^{2+}(Mn^{3+},Fe^{3+},Mn^{4+})_{26}[Si_2O_7]_6O_{30}$

Crystal Data: Hexagonal. *Point Group*: 3. As rounded to rectangular masses to 160 μm.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. Hardness = n.d.
D(meas.) = n.d. D(calc.) = 4.489

Optical Properties: Opaque. *Color:* Black, reddish brown in transmitted light, gray in reflected light. *Streak:* n.d. *Luster:* Metallic.
Optical Class: n.d. *Pleochroism:* Weak.
R_1-R_2: (470) 13.6-14.4 (3.0-3.7) $_{oil}$, (546) 13.2-13.9 (2.9-3.5) $_{oil}$, (589) 13.0-13.7 (2.8-3.4) $_{oil}$, (650) 12.8-13.4 (2.7-3.2) $_{oil}$

Cell Data: *Space Group: P*3_1. a = 11.525(2) c = 33.347(9) Z = 3

X-ray Powder Pattern: Le Coreux, Belgium.
2.7232 (100), 2.7789 (40), 1.6635 (40), 5.446 (31), 2.3702 (29), 1.6887 (28), 3.1873 (19)

Chemistry:

	(1)
SiO_2	20.17
TiO_2	0.44
MnO_2	[4.83]
Mn_2O_3	[31.67]
MnO	[5.99]
Al_2O_3	3.30
Fe_2O_3	13.08
Sc_2O_3	1.47
La_2O_3	8.39
Nd_2O_3	3.39
Ce_2O_3	0.44
CaO	0.33
MgO	1.06
CuO	2.11
CoO	0.18
Total	96.86

(1) Le Coreux, Belgium; average of 65 electron microprobe analyses, Mn allocations calculated; corresponds to $(La_{1.828}Nd_{0.715}Ce_{0.095}Ca_{0.209}Sc_{0.153})_{\Sigma=3.00}Mn^{2+}_{2.998}(Cu_{0.941}Mn^{3+}_{0.058})_{\Sigma=0.999}(Mn^{3+}_{14.183}Fe^{3+}_{5.814}Al_{2.298}Mn^{4+}_{1.973}Mg_{0.933}Sc_{0.604}Ti_{0.195}Co_{0.085})_{\Sigma=26.085}Si_{11.915}O_{72}$.

Occurrence: A minor late-stage, accessory phase in a quartz vein cross-cutting highly oxidized manganiferous phyllites.

Association: Albite, braunite, hematite, hollandite-strontiomelane, kanonaite, Mn-oxides, muscovite.

Distribution: At Le Coreux, 1 km north of Salmchâteau, Belgium.

Name: For the *Stavelot* Massif in the Belgian Ardennes Mountains, and *Stavelo*t, a historical town in eastern Belgium. The suffix indicates the dominant rare earth element, *La*nthanum.

Type Material: Mineralogical Collection, Institut für Geologie, Mineralogie und Geophysik, Ruhr-Universität Bochum, Germany (#25169).

References: (1) Bernhardt, H.-J., T. Armbruster, A.-M. Fransolet, and W. Schreyer (2005) Stavelotite-(La), a new lanthanum-manganese-sorosilicate mineral from the Stavelot Massif, Belgium. Eur. J. Mineral., 17, 703-714. (2) (2006) Amer. Mineral., 91, 1206-1207 (abs. ref. 1).