Buseckite (Fe,Zn,Mn)S

Crystal Data: Hexagonal. *Point Group: 6mm.* As iregular grains to 20 μm.

Physical Properties: *Cleavage:* n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = n.d.
D(meas.) = n.d. D(calc.) = 3.697

Optical Properties: Nearly opaque. *Color:* Black; grayish brown in transmitted light.
Streak: n.d. *Luster*: n.d.
Optical Class: n.d.

Cell Data: *Space Group: P6$_3$mc.* a = 3.8357 c = 6.3002 Z = 2

X-ray Powder Pattern: Calculated pattern.
3.322 (100), 2.938 (90), 1.918 (76), 1.775 (76), 3.150 (62), 1.638 (48), 2.286 (36)

Chemistry:	(1)
S	35.84
Fe	28.68
Zn	23.54
Mn	10.04
Mg	1.18
Total	99.28

(1) Zakłodzie meteorite; average of 14 electron microprobe analyses supplemented by micro-Raman spectroscopy; corresponds to $(Fe_{0.46}Zn_{0.32}Mn_{0.16}Mg_{0.04})_{\Sigma=0.99}S_{1.01}$.

Mineral Group: Wurtzite group.

Occurrence: In an enstatite-rich achondrite meteorite, likely derived from the breakdown of high-temperature pyrrhotite to form troilite and buseckite after the solidification of sulfide-rich liquids produced by impact melting of an enstatite-rich rock.

Association: Enstatite, plagioclase, troilite, tridymite, quartz, sinoite, low-Ni iron, martensitic iron, schreibersite, keilite, cristobalite, graphite.

Distribution: From the Zakłodzie meteorite.

Name: Honors Peter R. Buseck (b. 1935) for his contributions to mineralogy, meteorite research, and transmission electron microscopy.

Type Material: National Museum of Natural History, Washington, D.C., USA (USNM 7607).

References: (1) Chi Ma, J.R. Beckett, and G.R. Rossman (2012) Buseckite, (Fe,Zn,Mn)S, a new mineral from the Zakłodzie meteorite. Amer. Mineral., 97, 1226-1233.