Elgoresyite $(Mg_5Si_2)O_9$

Crystal Data: Monoclinic. *Point Group*: 2/m. As micron-size grains in ringwoodite. Almost indistinguishable from ringwoodite in SEM-back-scattered electron images.

Physical Properties: *Cleavage*: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.315

Optical Properties: *Color*: n.d. *Streak*: n.d. *Luster*: n.d. *Optical Class*: n.d. *n*(calc.) = 1.95

Cell Data: *Space Group: C*2/*m*. $a = 9.397(2)$ $b = 2.763(1)$ $c = 11.088(3)$ $\beta = 94.25(2)°$ Z = 2

X-Ray Diffraction Pattern: Calculated pattern.
2.801 (100), 2.460 (70), 1.968 (65), 1.845 (60), 2.017 (55), 2.308 (40), 2.563 (35)

Chemistry: Suizhou meteorite; electron microprobe analysis; corresponds to $(Mg_{3.38}Si_{1.95}Fe^{2+}_{1.60}Al_{0.05}Na_{0.03}Ca_{0.02})_{\Sigma = 7.03}O_9$.

Polymorphism & Series: $((Mg, Fe)O)_{m+n}(SiO_2)_n$ series at high pressure suggested.

Occurrence: In a shock-induced melt vein in a chondrite meteorite. Suggested to be a potential constituent mineral in rocky planets with relatively high MgO + FeO content.

Association: Ringwoodite, olivine, tetragonal ringwoodite, taenite, $MgSiO_3$-rich glass.

Distribution: From the Suizhou meteorite (L6 chondrite), Xihe, Zengdu District, Suizhou, Hubei, China.

Name: Honors Dr. Ahmed *El Goresy* for his discoveries of shock-induced high-pressure phases in meteorites at terrestrial impact sites and contributions to our understanding of cosmochemical processes in the early parts of our solar system.

Type Material: Natural History Museum, University of Florence, Italy (3238/I).

References: (1) Bindi, L., R. Sinmyo, E. Bykova, S.V. Ovsyannikov, C. McCammon, I. Kupenko, L. Ismailova, L. Dubrovinsky, and X. Xie (2021) Discovery of elgoresyite, $(Mg,Fe)_5Si_2O_9$: Implications for novel iron-magnesium silicates in rocky planetary interiors. Earth and Space Chemistry, 5, 2124-2130. (2) (2022) Amer. Mineral., 107, 778 (abs. ref. 1).