

Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m or *mm*2. As lamellae to 0.2 mm.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness =* n.d.
D(meas.) = n.d. D(calc.) = 4.294

Optical Properties: Transparent. *Color:* n.d. *Streak:* n.d. *Luster:* n.d.
Optical Class: n.d.

Cell Data: *Space Group:* *Pbcn* or *Pb2n*. *a* = 4.097(1) *b* = 5.0462(9) *c* = 4.4946(8) *Z* = 4

X-ray Powder Pattern: Shergotty meteorite. (Quickly amorphizes under electron, laser or ion beams) 2.596 (100), 3.181 (72), 1.938 (64), 1.4199 (44), 1.514 (31), 1.970 (25), 1.288 (19)

Chemistry: Electron-microprobe analyses with a defocused beam showed almost pure SiO₂ with minor concentrations in Na₂O (0.2 to 0.50 wt.%) and Al₂O₃ (0.8 to 1.60 wt.%).

Occurrence: Formed by shock-induced solid-state transformation (> 35 GPa) of either tridymite or cristobalite in basaltic achondrite meteorites, presumably of Martian origin.

Association: Stishovite, silica glass, unnamed monoclinic silica polymorph.

Distribution: In the Martian meteorite Shergotty that fell on August 25, 1865 in Bihar State, India and the Zagami meteorite that fell in Katsina Province, Nigeria on October 3, 1962.

Name: Honors Friedrich A. Seifert (b. 1941), founding Director of the Bayerisches Geoinstitut, Universität Bayreuth, Germany, for his important contributions to high-pressure geoscience.

Type Material: Museum of the Geological Survey in Calcutta, India.

References: (1) El Goresy, A., P. Dera, T.G. Sharp, C.T. Prewitt, M. Chen, L. Dubrovinsky, B. Wopenka, N.Z. Boctor, and R.J. Hemley (2008) Seifertite, a dense orthorhombic polymorph of silica from the Martian meteorites Shergotty and Zagami. *Eur. J. Mineral.*, 20, 523–528. (2) (2009) *Amer. Mineral.*, 94, 403 (abs. ref. 1). (3) Dera, P., C.T. Prewitt, N.Z. Boctor, and R.J. Hemley (2002) Characterization of a high-pressure phase of silica from the Martian meteorite Shergotty. *Amer. Mineral.*, 87, 1018-1023.