Wadsleyite \(\beta-(\text{Mg},\text{Fe}^{2+})_2\text{SiO}_4\)

Crystal Data: Orthorhombic. Point Group: 2/m 2/m 2/m (probable).
As microcrystalline aggregates with grain sizes to 5.0 µm.


Optical Class: Biaxial. \(n = 1.76\) 2V(meas.) = n.d.

Cell Data: Space Group: Imma (probable). \(a = 5.70(2)\) \(b = 11.71(7)\) \(c = 8.24(4)\)
\(Z = 8\)

2.452 (100), 2.038 (80), 1.442 (80), 2.886 (50), 2.691 (40), 2.637 (30), 1.567 (30)

Chemistry:

\[
\begin{array}{ll}
\text{SiO}_2 & 38.70 \\
\text{Cr}_2\text{O}_3 & 0.01 \\
\text{FeO} & 22.37 \\
\text{MnO} & 0.43 \\
\text{NiO} & 0.11 \\
\text{MgO} & 38.21 \\
\text{CaO} & 0.07 \\
\text{ZnO} & 0.10 \\
\hline
\text{Total} & 100.00 \\
\end{array}
\]

(1) Peace River meteorite; by electron microprobe, corresponding to 
\((\text{Mg}_{1.48}\text{Fe}_{0.49}\text{Mn}_{0.01})\text{Si}_{1.01}\text{O}_4\).

Polymorphism & Series: Trimorphous with forsterite and ringwoodite.

Occurrence: In fragments within a vein in a “hypersthen”-olivine chondritic meteorite, believed to have formed during an extraterrestrial shock event.

Association: Majorite, ringwoodite, olivine, orthopyroxene, plagioclase, Fe–Ni alloys, troilite.

Distribution: In the Peace River meteorite.

Name: For Dr. A.D. Wadsley.

Type Material: Department of Geology, University of Alberta, Edmonton, Canada.