

## DEPOSIT ITEMS

Table 1. Chemical compositions of wadsleyite single crystals

Crystal	Number	Si <sup>*</sup>	Mg <sup>*</sup>	Fe <sup>*</sup>	Ni <sup>*</sup>	Mn <sup>*</sup>	Fe/(Mg + Fe)
of analyses							
1	25	1.020(2)	1.733(5)	0.215(3)	0.008(1)	0.002(1)	0.110(2)
2	35	1.021(8)	1.726(15)	0.221(4)	0.007(1)	0.003(1)	0.114(2)
3	31	1.02(3)	1.72(7)	0.217(5)	0.007(1)	0.003(1)	0.112(3)
4	15	1.019(3)	1.730(6)	0.221(3)	0.007(1)	0.002(1)	0.113(2)
Average		1.021(11)	1.73(2)	0.219(4)	0.007(1)	0.003(1)	0.112(2)

*Notes:* Numbers in parentheses are one standard deviation on the last digit.

The wadsleyite single crystals were synthesized at 16 GPa and 1870 K for 1h (run H4015).

\*: Cations per 4 oxygens.

Table 2. Water contents of wadsleyite single crystals

Orientation of thin section	Number of analyses	Water content (wt% H <sub>2</sub> O)		
		Paterson (1982)*	Libowitzky and Rossman (1997)*	Deon et al. (2010)*
(243)	5	0.15(1)	0.17(1)	0.20(1)
(120)	6	0.22(2)	0.24(2)	0.28(1)
(010)	4	0.25(1)	0.27(1)	0.30(1)
Average		0.21(1)	0.23(1)	0.26(1)

*Notes:* Numbers in parentheses are one standard deviation on the last digit.

The wadsleyite single crystals were synthesized at 16 GPa and 1870 K for 1h (run H4015).

\*: Calibrations used to determine the water contents.

Figure 2

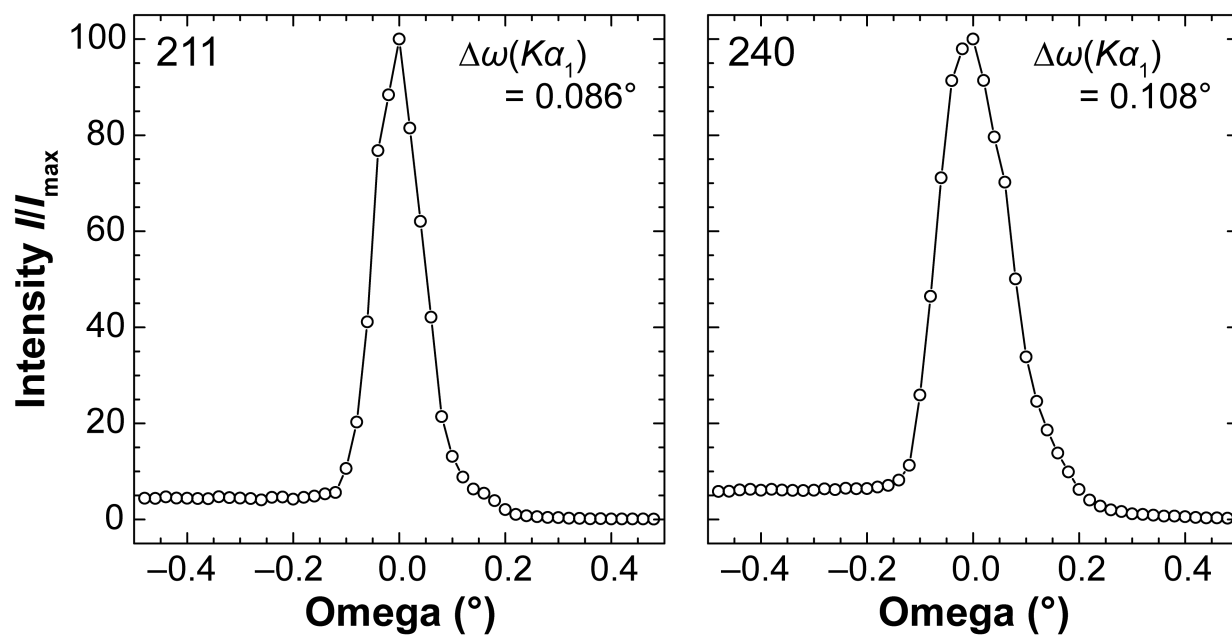


Figure 2. Representative intensity profiles of the final omega scans for the X-ray diffraction spots

211 and 240. The full-widths at half-maximum  $\Delta\omega$  are given for each figure.

Figure 4

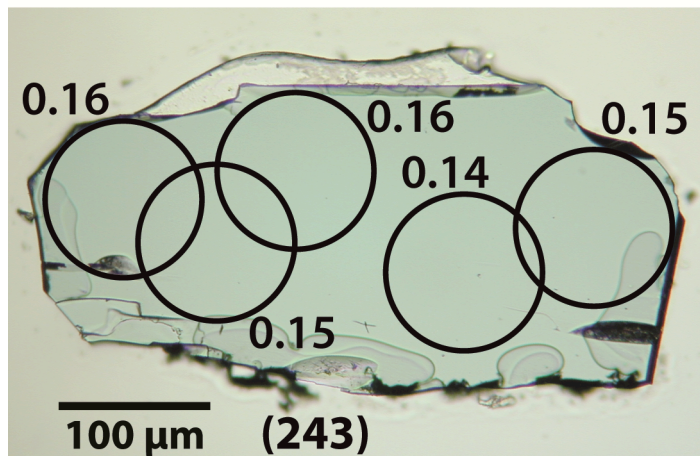


Figure 4. Photomicrograph of a thin section of a  $(\text{Mg}_{0.89}\text{Fe}_{0.11})_2\text{SiO}_4$  wadsleyite single crystal parallel to the (243) plane (run H4015). Circles indicate the spot locations of the IR absorption spectra shown in Figure 3. Numbers near the circles are the water contents in wt%  $\text{H}_2\text{O}$  determined according to the Paterson (1982) calibration.