

Data used in

Deformation of post-spinel under the lower mantle conditions

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Table 1 Conditions and results of the deformation experiments.

Run No.	Pressure (GPa) ^a	Temperature (K)	Strain (%)		strain rate (10^{-5} s^{-1})		<i>M</i> -index of Br	
			PS	Br	PS	Br	PS	Br
DT16-034	~25	1773	12(5)	12(1)	2.1(9)	3.5(7)	0.15(0)	0.11(2)
DT16-037			25(5)	21(4)	2.1(1)	2.9(6)	0.14(3)	0.10(0)

Note. Number in parenthesis represents the uncertainties in the last digit. Abbreviations: PS = post-spinel; Br = bridgmanite.

^a: The pressure of DT-Cup runs was estimated by akimotoite-bridgmanite phase transition.

Table S1 Summary of experimental studies on two-phase mixtures, being an analogue of post-spinel assembly (bridgmanite (Br) and ferropericlas (Fp)).

Study	Starting sample					Deformation experiment				After deformation	
	Fp phase	Br phase	Fp (vol.%)	$\frac{\eta_{Br}}{\eta_{Fp}}$	Interconnectivity	Apparatus	P (GPa)	T (K)	Strain, strain rate (s ⁻¹)	Interconnectivity	Br/Fp ^c
Wang et al. (2013)	MgO	CaGeO ₃	28	2-3	No	D-DIA	4-10	600-1200	~0.2, 1.3-2.9 × 10 ⁻⁵	No	Br
Kaercher et al. (2016)	NaCl	NaMgF ₃	15	~ 10	Yes	D-DIA	1.7-4.8	373-1073	0.23-0.51, 1.3-3.4 × 10 ⁻³	Yes	Fp
Girard et al. (2016)	(Mg,Fe)O	(Mg,Fe)SiO ₃	~30	~10-1000	No	RDA	24-27.5	2000-2150	0.23-1.0, 3.0-4.3 × 10 ⁻⁵	No	Fp
Current	MgO	MgSiO ₃			No	DT-Cup	~ 25 ^b	1773	0.10-0.25, 2.0-3.5 × 10 ⁻⁵	No	Br

^a: Values are from the literature refers here except for Mg(Fe)-O and Mg(Fe)-SiO₃, which we refer to Yamazaki et al. (2001).

^b: The pressure of DT-Cup runs was estimated by akimotoite-bridgmanite phase transition.

^c: The rheological dominant phase which controls the bulk viscosity.