

Petrographic constraints on the formation of silica-rich igneous rims around chondrules in CR chondrites

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Supporting Information, Appendix A: Analysis conditions for EPMA analyses.

Table A1. Standards used for EPMA analyses.

Element	Silica grains	Silicates and glass
	<i>Standard</i>	<i>Standard</i>
Si	Quartz	Wollastonite
Mg	Periclase	Periclase
Ca	Wollastonite	Wollastonite
Ti	Rutile	Rutile
Al	Anorthite	Anorthite
Na	Jadeite	Jadeite
P	Apatite	Apatite
Fe	Fayalite	Fayalite
Cr	Cr ₂ O ₃	Cr ₂ O ₃
Mn	Tephroite	Tephroite
K	Orthoclase	Orthoclase
Ni	NiO	NiO

Table A2. Conditions for EPMA map analyses.

	Map Name	Accelerating voltage (kV)	Beam current (nA)	Dwell time (ms)	Pixel step size (μm)	Map resolution	Area mapped* (μm)
SIR maps	QUE 99177 Ch 7_002	15	30	100	0.2	256x256	51.2x51.2
	QUE 99177 Ch 7_012	15	30	100	0.2	256x256	51.2x51.2
	QUE 99177 Ch 6_004	15	30	100	0.2	256x256	51.2x51.2
	QUE 99177 Ch 5_007	15	30	100	0.2	256x256	51.2x51.2
	EET 92042 Ch 11_001	15	50	200	0.1	1000x1000	100x100
	EET 92042 Ch 14_002	15	30	100	0.3	256x256	76.8x76.8
	EET 92062 Ch 2_003	15	30	100	0.2	256x256	51.2x51.2
	EET 92062 Ch 2_024	15	30	100	0.2	256x256	51.2x51.2
	MET 00426 Ch 3_001	15	30	100	0.3	256x256	76.8x76.8
Chondrule maps	QUE 99177 Ch 7	15	30	80	3	512x512	1536x1536
	QUE 99177 Ch 6	15	30	80	2	512x512	1024x1024
	QUE 99177 Ch 5	15	10	100	2	256x256	512x512
	EET 92042 Ch 2	15	30	100	2	256x256	512x512
	MET 00426 Ch 3	15	30	100	2	256x256	512x512

*The total area mapped but some of the results will have been trimmed as part of alignment step in the processing of the raw data

Table A3. Spectrometer set-up for EPMA analyses.

	Map Name	No. of passes	Order of elements analysed	Crystals
SIR maps	QUE 99177 Ch 7_002	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	QUE 99177 Ch 7_012	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	QUE 99177 Ch 6_004	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	QUE 99177 Ch 5_007	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	EET 92042 Ch 11_001	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	EET 92042 Ch 14_002	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	EET 92062 Ch 2_003	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	EET 92062 Ch 2_024	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	MET 00426 Ch 3_001	5	Na, Fe, K- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
Chondrule maps	QUE 99177 Ch 7	8 (4xTDI)	Na, Fe, K (TDIx4)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	QUE 99177 Ch 6	8 (4xTDI)	Na, Fe, K (TDIx4)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	QUE 99177 Ch 5	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	EET 92042 Ch 2	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL
	MET 00426 Ch 3	9 (5xTDI)	Na, Fe, K (TDIx5)- Si, Mn, P- Al, Ni, Ca- Mg, Ti- Cr	TAP, LIFL, PETL

TDI= Time dependent intensity correction.