Appendix C – Zircon Textures

Textural descriptions are provided for all zircon grains, both those analysed by LA-ICP-MS and those deemed not suitable for LA-ICP-MS analysis (e.g., because grains are too fractured/altered/small, too many overlapping zones etc). One table is presented per sample. The grain shape (e.g., euhedral, subhedral, anhedral), zoning pattern (e.g., sector or oscillatory zoning) and other textural features including fracturing (e.g., lightly, moderately or heavily fractured) and, where applicable, alteration, recrystallisation and resorption are reported for each grain. For those grains deemed suitable for LA-ICP-MS analysis, the location of the laser spot is provided. The 'Zircon ID' includes the grain number (e.g., sample_9.X) and spot number (e.g., sample_9.1) as outlined in the CL image pdf files **(see Appendix B)** and the excel file containing all unprocessed LA-ICP-MS geochronology data for each sample **(see Appendix D).** For grains not analysed by LA-ICP-MS, only the grain number is noted (e.g., Grain_xxx). Zircon textures were described according to terminology outlined in Corfu et al., (2003). Abbreviations are quoted in several textural tables, where PLA = partial localised alteration, PLR = partial localised recrystallisation, PR = partial resorption, LI = lots of inclusions, FI = few inclusions and MO = magmatic overgrowth. A list of tables is provided below. Textural descriptions are based on initial observations of zircon textures for each sample. Following close investigation of zircon textures at the $^{206}Pb/^{238}U$ weighted mean age calculation stage, the core – rim distinction was reinterpreted for some samples (e.g., CR-08).

List of tables

Table 1: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **BG-01**. See Appendix B_CG22-BG-01_CL images for the interpretation and location of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot...) 4

Table 2: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CH-01**. See Appendix B_CG23-CH-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column refers to grains that were not analysed by LA-ICP-MS. 19

Table 3: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CH-02.** See Appendix B_CG23-CH-02_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 36

Table 4: Textural descriptions of grains analysed by LA-ICP-MS in **SM-01**. All grains obtained after magnetic and heavy mineral separation stage were analysed by LA-ICP-MS as only three grains were obtained. See Appendix B_CG22-SM-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). 50

Table 5: Textural descriptions of grains analysed by LA-ICP-MS in **SM-02**. Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for SM-02. See Appendix B_CG22-SM-02_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. N/A indicates grains not analysed by LA-ICP-MS. 52

Table 6: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **JD-01**. See Appendix B_CG22-JD-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 58

Table 7: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CR-05.** See Appendix B_CG23-CR-05_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot,

emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 69

Table 8: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CR-06.** See Appendix B_CG23-CR-06_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 85

Table 9: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CR-07.** See Appendix B_CG23-CR-07_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 98

Table 10: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for **CR-08.** See Appendix B_CG23-CR-08_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. 120

Table 1: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for BG-01. See Appendix B_CG22-BG-01_CL images for the interpretation and location of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim).

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., fractures, alteration, resorption etc)
b1_9.2	408.7	3.9	405.7	9.9	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core.	N/A
b1_9.3	417.3	4.4	415.0	10.8			
b1_14.1	411.6	6.0	412.7	14.9	Subhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core.	Minor fracturing and alteration.
b1_19.1	410.2	4.6	411.2	11.4	Euhedral	Faint oscillatory zoning in small magmatic overgrowth. Zoning absent in core.	Heavily fractured throughout. Evidence for resorption along core-rim boundary (?).
b1_21.1	410.2	4.8	403.8	10.0	Euhedral	Faint oscillatory and sector zoning in magmatic overgrowth. Prominent oscillatory zoning in core.	N/A
b1_22.1	402.1	5.9	404.7	14.2	Euhedral	Prominent oscillatory zoning in magmatic overgrowth.	Moderately fractured.

						Faint patchy irregular zoning in core.	
b1_26.1	425.5	5.4	433.8	9.4	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint patchy (sector?) zoning in core.	N/A
b1_26.2	416.0	4.9	420.2	11.7			
b1_28.1	410.6	4.7	420.4	10.0	Euhedral	Prominent oscillatory zoning in multiple magmatic overgrowths around a central magmatic core.	N/A
b1_29.1	408.5	6.8	406.7	16.1	Subhedral	Irregular zoning prominent throughout. No distinction between core and rim.	Moderately fractured. Complex internal structure, possibly inclusions.
b1_32.1	414.0	4.5	417.7	9.9	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint oscillatory zoning in core.	Moderately fractured.
b1_32.2	426.4	6.6	426.3	17.0			
b1_45.1	414.0	4.1	419.2	10.7	Subhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core .	N/A
b1_45.2	415.8	4.2	405.9	14.0			
b2_1.2	401.2	4.0	394.5	11.1	Subhedral (broken)	Oscillatory zoning prominent in magmatic	N/A

						overgrowth. Small core absent of zoning.	
b2_3.1	401.8	3.6	403.6	7.7	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core.	N/A
b2_3.2	402.2	3.9	410.6	8.7	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core.	N/A
b2_4.1	423.0	4.4	423.4	14.1	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Sector zoning and faint patchy oscillatory zoning in core.	Moderately fractured. Alteration possibly associated with this fracture.
b2_7.1	414.7	4.3	409.0	12.6	Euhedral	Faint oscillatory zoning in magmatic overgrowth. Core lacks any zoning.	Heavily fractured. Pb-loss/alteration associated with these fractures. Very messy internal structure.
b2_8.2	416.1	4.2	410.1	13.7	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Irregular zoning in core.	Moderately fractured. Alteration associated with fractures.
b2_9.1	411.9	5.0	406.9	13.9	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint sector zoning in core.	Possible deformation (bending of zones?) in core-proximal magmatic overgrowth.

b2_9.3	413.1	3.9	422.1	12.6	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint sector zoning in core.	Possible deformation (bending of zones?) in core-proximal magmatic overgrowth.
b2_9.4	393.0	3.6	395.2	9.5			
b2_10.1	409.4	3.6	412.9	10.2	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Irregular zoning in core.	Messy internal structure.
b2_11.2	411.2	3.7	412.5	10.2	Euhedral	Prominent oscillatory zoning throughout magmatic overgrowth. Sector zoning also present. Faint irregular zoning in core.	Lightly fractured.
b2_11.3	409.1	6.9	412.8	17.9			
b2_12.1	402.5	4.7	405.0	16.3	Euhedral	Faint oscillatory zoning throughout magmatic overgrowth. core absent of any zoning.	Lightly fractured.
b2_13.1	404.3	4.0	408.8	9.4	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. No zoning in core.	Lightly fractured.
b2_13.2	402.6	4.1	404.9	12.0			
b2_14.2	412.1	3.1	416.5	9.4	Euhedral	Prominent oscillatory zoning in magmatic	Lightly fractured.

						overgrowth. Faint sector zoning in inherited (?) core.	
b2_15.1	407.5	3.5	412.0	10.2	Euhedral	Prominent oscillatory zoning throughout magmatic overgrowth. Core absent of any clear zoning.	Heavily fractured.
b2_15.2	383.9	4.7	391.6	11.7		see 15.1	see 15.1
b2_15.3	413.7	5.2	419.5	13.4			
b2_17.1	411.7	4.0	411.7	10.5	Euhedral	No zoning in magmatic overgrowth or core.	Moderately fractured. Messy internal structure. Possible resorption of zircon core.
b2_17.2	410.9	4.1	406.4	12.8	Euhedral	No zoning in magmatic overgrowth or core.	Moderately fractured. Messy internal structure. Possible resorption of zircon core.
b2_18.2	406.9	4.1	410.3	10.4	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. No zoning observed in core.	Moderately fractured. Messy internal structure.
b2_19.1	405.2	3.6	407.1	9.9	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Very faint patchy oscillatory zoning in core.	N/A

b1_1.1	420.4	4.3	443.1	8.2	Euhedral	Prominent oscillatory zoning in smaller magmatic overgrowth around a large central magmatic core which also contains patchy oscillatory zoning.	Heavily fractured. Possible recrystallisation of homogenised core along a fracture.
b1_002	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. No zoning in inherited (?) core.	Heavily fractured.
b1_003	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Very dark (black) core	Heavily fractured.
b1_004	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning absent in core.	Moderately fractured. Possible recrystallisation or alteration in some areas near fractures (i.e., patchy white, unzoned areas).
b1_005	N/A	N/A	N/A	N/A	Subhedral	Prominent complex oscillatory zoning in magmatic overgrowth. Patchy irregular zoning in inherited (?) core.	Heavily fractured. Ragged edges around core indicate possible resorption.

b1_6.1	431.1	5.2	473.5	11.7	Euhedral	Prominent oscillatory zoning in smaller magmatic overgrowth. Larger core contains patchy oscillatory zoning and faint sector zoning which continues into the overgrowth.	Lightly fractured.
b1_6.2	424.3	6.6	435.3	11.9			
b1_7.1	407.1	6.8	430.4	13.1	Euhedral	Faint to prominent oscillatory zoning throughout large magmatic overgrowth. Small core lacks any zoning.	Moderately fractured. Possible alteration/recrystallisation of overgrowth associated with fractures.
b1_008	N/A	N/A	N/A	N/A	Euhedral	Complex oscillatory zoning in magmatic overgrowth. Inherited core contains patchy irregular zoning.	Lightly fractured. Possible alteration/recrystallisation in overgrowth zones closest to core (i.e., loss of zoning structure, pale/patchy areas).
b1_010	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning throughout. Cannot distinguish between core/rim.	Heavily fractured. Very messy internal structure. Alteration/recrystallisation associated with fractures across entire grain.

b1_011	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Patchy irregular zoning in complex inherited (?) core.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., disrupts zoning pattern).
b1_012	N/A	N/A	N/A	N/A	Subhedral	Prominent oscillatory zoning throughout. Cannot fully distinguish between magmatic core and rim.	Heavily fractured.
b1_013	N/A	N/A	N/A	N/A	Subhedral (broken?)	Complex irregular patchy zoning throughout.	Lightly fractured.
b1_015	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Core contains patchy oscillatory zoning.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., 'overprinting' of zoning by bright structureless 'patches').
b1_016	N/A	N/A	N/A	N/A	Euhedral	Prominent to faint oscillatory zoning in magmatic overgrowth. Patchy oscillatory zoning in magmatic core.	Heavily fractured. Irregular core boundaries indicate possible resorption.

b1_017	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning throughout.	Moderately fractured.
b1_018	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth and patchy oscillatory zoning in magmatic core.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., 'overprinting' of zoning by bright structureless 'patches').
b1_020	N/A	N/A	N/A	N/A	Euhedral	Complex oscillatory zoning throughout. Cannot fully distinguish between core and rim.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., 'overprinting' of zoning by bright structureless 'patches').
b1_023	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning throughout.	Lightly fractured.
b1_024	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning in magmatic overgrowth. Patchy sector zoning in inherited (?) core.	Heavily fractured.

b1_025	N/A	N/A	N/A	N/A	Subhedral	Complex irregular patchy zoning throughout.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., 'overprinting' of zoning by bright structureless 'patches').
b1_027	N/A	N/A	N/A	N/A	Subhedral	Patchy faint oscillatory zoning in magmatic overgrowth. More prominent oscillatory zoning in magmatic core.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., dark/bright unzoned spots).
b1_030	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout magmatic overgrowth and magmatic core.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., dark/bright unzoned spots).
b1_031	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning throughout magmatic overgrowth and faint irregular zoning in inherited magmatic core.	Heavily fractured. Alteration/recrystallisation spatially related to fractures. Possible partial resorption around and within core.

b1_33.1	418.8	4.4	437.3	12.9	Subhedral	Prominent oscillatory zoning in smaller magmatic overgrowth. Large core contains faint irregular zoning.	Moderately fractured. Possible partial resorption within core. Alteration/recrystallisation associated with fractures (indicated by bright spots).
b1_034	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Unaltered region of magmatic core contains faint oscillatory zoning.	Heavily fractured. Possible recrystallisation of core along associated fractures (i.e., 'overprinting' of zoning by bright structureless 'patches'). Random alteration throughout grain (bright spots).
b1_035	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration/recrystallisation along fractures (dark/bright spots).
b1_036	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Alteration/recrystallisation associated with fractures (i.e., 'overprinting' of zoning by random bright structureless 'patches').

b1_037	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration associated with fractures.
b1_038	N/A	N/A	N/A	N/A	Euhedral	Faint patchy oscillatory zoning throughout magmatic overgrowth. Inherited (?) core lacks any zoning.	Heavily fractured. Possible alteration associated with fractures (dark and bright spots).
b1_039	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration and recrystallisation associated with fractures.
b1_040	N/A	N/A	N/A	N/A	Subhedral	Complex prominent oscillatory zoning throughout magmatic overgrowth and faint patchy oscillatory zoning in magmatic core.	Heavily fractured. Possible resorption within core and around core (indicated by irregular edges). Possible alteration associated with fractures.
b1_041	N/A	N/A	N/A	N/A	Subhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration associated with fractures (dark and bright patches).

b1_042	N/A	N/A	N/A	N/A	Euhedral	Prominent oscillatory zoning in magmatic overgrowth and faint patchy oscillatory zoning in magmatic core.	Heavily fractured. Possible alteration/recrystallisation associated with fractures.
b1_043	N/A	N/A	N/A	N/A	Subhedral	Prominent oscillatory zoning in magmatic overgrowth. Zoning is absent in the core.	Heavily fractured. Possible alteration/recrystallisation associated with fractures (i.e., partial recrystallisation of core by introduction of fluids through fractures).
b1_044	N/A	N/A	N/A	N/A	Euhedral	Prominent to faint oscillatory zoning in magmatic overgrowth. Magmatic core contains faint oscillatory zoning.	Lightly fractured.
b1_046	N/A	N/A	N/A	N/A	Subhedral	Complex oscillatory zoning throughout magmatic overgrowth. Faint irregular zoning in core.	Heavily fractured. Possible alteration associated with fractures.
b1_047	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration/recrystallisation associated with fractures (lots of bright spots, zoneless patches, disruption to zoning

							pattern).
b1_48.1	390.3	7.3	420.0	12.9	Euhedral	Complex prominent to faint oscillatory zoning in magmatic overgrowth. Magmatic core contains patchy oscillatory zoning. Core and rim are proportionate i.e., equal size	Lightly fractured. Possible alteration associated with fractures (i.e., bright patches, disruption to zoning near fractures).
b1_48.2	414.5	3.8	434.2	9.7			
b1_049	N/A	N/A	N/A	N/A	Euhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration associated with fractures.
b1_050	N/A	N/A	N/A	N/A	Subhedral	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration associated with fractures.
b1_051	N/A	N/A	N/A	N/A	Subhedral	Complex prominent oscillatory zoning in magmatic overgrowth. Poorly defined core lacks any zoning.	Heavily fractured. Possible alteration associated with fractures.

b1_052	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex prominent oscillatory zoning throughout.	Heavily fractured. Possible alteration/recrystallisation associated with fractures.
b2_002	N/A	N/A	N/A	N/A	Subhedral	Oscillatory zoning in magmatic overgrowth. Faint patchy sector zoning in inherited (?) core, extending into overgrowth.	Moderately fractured. Possible alteration/recrystallisation associated with fractures.
b2_005	N/A	N/A	N/A	N/A	Subhedral	Oscillatory zoning in magmatic overgrowth. Irregular patchy zoning in core.	Lightly fractured. Possible alteration/recrystallisation associated with fractures.
b2_006	N/A	N/A	N/A	N/A	Subhedral	Complex zoning throughout. Cannot properly distinguish between core and rim.	Lightly fractured. Possible alteration/recrystallisation associated with fractures.
b2_16.1	391.4	4.9	406.4	10.4	Subhedral (broken)	Complex zoning throughout. Larger core, smaller magmatic overgrowth.	No fractures. Possible Pb-loss in core.
b2_020	N/A	N/A	N/A	N/A	Euhedral	Complex zoning throughout.	Heavily fractured. Possible alteration/recrystallisation associated with fractures.

Table 2: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CH-01. See Appendix B_CG23-CH-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column refers to grains that were not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}$ U age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., fractures, alteration, resorption etc)
1.1	410.0	6.2	410.1	13.2	Subhedral	Faint oscillatory zoning in magmatic overgrowth. No zoning in heterogeneous core.	Lightly fractured.
3.1	402.6	5.8	404.9	7.8	Subhedral	Heterogeneous oscillatory and convolute zoning in magmatic overgrowth. Faint irregular zoning in magmatic core.	Very lightly fractured.
3.2	408.2	7.1	410.0	13.7			
4.1	405.7	6.3	396.3	9.6	Subhedral (broken)	Prominent oscillatory and prominent sector zoning in magmatic overgrowth Prominent oscillatory zoning in core.	Lightly fractured. Possible recrystallisation around inclusions (i.e., pale zoneless patches in overgrowth).
4.2	399.3	8.0	409.4	16.7			
6.1	403.1	5.9	395.1	11.6	Subhedral (broken)	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous partial core i.e., part of core missing.	Lightly fractured. Possible localised recrystallisation (i.e., pale unzoned homogeneous 'patches') in some oscillatory zones.

							Inclusion crosscuts core?
8.1	400.3	6.6	402.5	16.4	Euhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint oscillatory and prominent sector zoning in core.	Potential random localised recrystallisation in some oscillatory zones.
8.2	402.7	5.7	404.8	10.6			
9.1	404.6	7.1	402.4	9.1	Subhedral	Heterogeneous oscillatory zoning throughout overgrowth and core.	Lightly fractured. Possible recrystallisation/ alteration associated with fractures and inclusions.
10.1	401.1	5.4	398.7	9.5	Subhedral (broken)	Heterogeneous oscillatory and sector zoning in magmatic overgrowth. Missing core.	Possible recrystallisation (homogeneous pale patch) at overgrowth margin.
13.3	403.5	5.9	408.5	12.7	Euhedral	Heterogeneous oscillatory zoning throughout. Faint sector zoning from core into overgrowth.	Possible recrystallisation e.g., 60 µm wide homogeneous zoneless patch overprints oscillatory zones in overgrowth around an inclusion.
17.1	398.9	5.5	403.6	8.8	Subhedral	Heterogeneous oscillatory zoning throughout.	A large inclusion (~80 µm length) included in this grain.

21.1	407.5	5.5	405.8	11.1	Subhedral	Heterogeneous oscillatory (and faint convoluted?) zoning in overgrowth. Complex zoning in heterogeneous core.	Possible partial resorption at core-rim boundary. Potential partial recrystallisation of core (i.e., total loss of original zoning, replaced by homogeneous unzoned pale patch).
24.2	399.0	5.9	389.4	11.8	Euhedral	Prominent oscillatory zoning throughout. Faint sector zoning from core into overgrowth.	N/A
24.3	410.3	8.2	410.3	16.0			
26.1	395.8	5.4	395.4	9.4	Subhedral	Heterogeneous oscillatory zoning in core and overgrowth.	Lightly fractured. Possible alteration/recrystallisation associated with these fractures (i.e., loss of zones). Potential onset of resorption at core-rim boundary (i.e., core margin 'spilling' into overgrowth).
28.1	399.3	6.2	404.3	11.9	Euhedral	Heterogeneous oscillatory zoning throughout.	N/A

33.1	401.4	6.8	398.6	15.9	Subhedral (broken)	Prominent oscillatory zoning and faint sector zoning throughout magmatic overgrowth. Faint patchy oscillatory zoning in core.	N/A
33.2	409.0	5.8	402.1	11.1			
33.3	411.5	5.9	413.1	9.5			
34.1	397.0	6.5	395.5	13.1	Subhedral (broken)	Prominent oscillatory zoning and faint sector zoning in magmatic overgrowth. Faint patchy oscillatory zoning in core.	Core deformed around large inclusion (~50 µm length). Possible recrystallisation around inclusion.
34.2	397.6	5.6	398.3	11.4			
35.1	395.2	6.2	392.4	12.3	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Faint patchy oscillatory zoning in core.	Lightly fractured. Potential localised recrystallisation around fractures (i.e., overprinting and disruption of zones).
35.2	403.5	5.8	404.4	9.8			
38.2	409.1	6.2	419.1	12.9	Subhedral	Heterogeneous zoning throughout.	Possible recrystallisation associated with central gap in the grain.
39.1	405.1	7.1	410.7	18.0	Subhedral (broken)	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Homogeneous unzoned core.	Lightly fractured. Potential localised recrystallisation around fractures.
40.1	394.3	5.4	396.2	9.9	Subhedral	Prominent oscillatory zoning in magmatic overgrowth. Faint heterogeneous zoning in core.	Possible localised recrystallisation
40.2	405.5	6.1	406.6	12.5			

							around inclusions.
41.1	402.7	5.5	404.1	8.4	Subhedral	Prominent oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Moderately fractured. Potential alteration and recrystallisation associated with fractures. Possible partial resorption of core.
41.2	408.6	5.5	411.5	7.7			
42.2	395.7	5.8	391.2	13.2	Euhedral	Heterogeneous oscillatory zoning and prominent sector zoning in magmatic overgrowth. Complex unzoned core.	N/A
43.1	402.1	5.5	400.8	11.4	Subhedral (broken)	Heterogeneous oscillatory zoning in magmatic overgrowth. Unzoned semi-homogeneous core.	N/A
44.1	398.5	6.4	400.2	13.5	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Lightly fractured. Possible partially resorbed core (i.e., irregular 'mixed' edges)
45.1	398.5	5.8	403.8	10.6	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Irregular patchy zoning in core.	Lightly fractured. Possible recrystallisation, spatially related to inclusions.
45.3	399.5	6.2	396.7	16.1			
46.1	398.8	6.7	396.9	10.0	Euhedral	Prominent oscillatory and faint sector zoning in magmatic overgrowth.	N/A
46.2	406.0	6.1	401.5	9.4			
46.3	400.9	5.7	400.6	11.1			

						Unzoned semi-homogeneous core.	
49.2	401.0	7.4	407.5	18.6	Anhedral	Heterogeneous zoning throughout.	Possible partial resorption or recrystallisation of inner growth zones.
50.1	401.0	5.9	397.6	11.8	Subhedral	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Heterogeneous unzoned core.	Lightly fractured.
51.2	406.6	6.6	400.2	14.6	Subhedral	Heterogeneous oscillatory and faint sector zoning throughout magmatic overgrowth. Heterogeneous unzoned core.	Lightly fractured. Possible alteration/recrystallisation associated with some fractures.
52.1	397.4	5.9	404.1	11.6	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Cannot determine core texture as it is overlapped by an inclusion.	Moderately fractured. Potential recrystallisation associated with fractures (i.e., homogeneous unzoned 'patches' throughout). Possible partial resorption in outermost overgrowth zone.
52.2	408.2	6.0	418.0	11.2			
53.1	398.2	6.3	408.1	12.6	Euhedral	Heterogeneous oscillatory zoning throughout. Semi-homogeneous core.	Lightly fractured. Possible onset of resorption
53.2	402.4	5.7	403.4	10.7			

							along core – rim boundary (i.e., irregular boundary and homogeneous unzoned 'patch' in overgrowth).
54.1	394.6	6.1	398.0	9.5	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Unzoned inherited (?) core.	Lightly fractured. Possible alteration (fluid ingress?) of core proximal zones (i.e., bright zones) along fractures.
54.2	399.7	5.7	400.5	13.5			
55.1	406.7	6.1	404.9	12.1	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Unzoned semi-homogeneous core.	Lightly fractured. Possible partial resorption or recrystallisation at core – overgrowth boundary, associated with fractures.
57.1	395.6	6.0	398.6	9.9	Subhedral (broken)	Heterogeneous oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. Alteration and/or recrystallisation associated with fractures (i.e., total removal of zones).
57.2	398.4	5.7	403.9	10.5			
57.3	404.6	6.2	410.3	11.5			
59.1	399.5	6.0	402.9	11.6	Subhedral	Heterogeneous oscillatory and faint sector zoning in magmatic overgrowth. Cannot determine core texture as it is overlapped by	Lightly fractured. Potential recrystallisation associated with inclusions and

						an inclusion/another core/hole in the grain (?).	fractures. Inclusion overlaps core.
60.1	400.8	6.1	401.7	11.3	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Homogeneous unzoned core.	Very lightly fractured. Potential recrystallisation (i.e., homogeneous unzoned 'patches') around inclusions and fractures.
60.2	403.5	5.7	410.1	11.7			
61.1	417.7	6.1	422.3	11.9	Subhedral (broken)	Heterogeneous oscillatory zoning around central heterogeneous unzoned core.	Lightly fractured. Possible alteration and/or recrystallisation of core (Pb-loss?) and rim, associated with fractures. Potential partial resorption along core – rim boundary (i.e., homogeneous unzoned white 'patches' overprinting original core).
62.1	403.6	5.7	410.4	8.9	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Faint irregular zoning in homogeneous core.	Very lightly fractured. Possible recrystallisation
62.2	403.1	5.9	412.0	10.9			

							associated with inclusions and fractures.
64.1	402.0	5.7	408.6	12.2	Subhedral (broken)	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Faint patchy oscillatory zoning in core.	Potential onset of resorption along core – rim boundary (?).
66.2	401.7	6.0	398.9	10.9	Euhedral	Heterogeneous oscillatory and faint sector zoning throughout magmatic overgrowth. Small (~ 10 µm) heterogeneous core.	Hole or inclusion in grain?
67.2	401.7	6.3	404.7	12.1	Subhedral	Heterogeneous oscillatory zoning throughout magmatic overgrowth and heterogeneous core.	Heavily fractured. Possible alteration and/or recrystallisation associated with fractures (i.e., overprinting of core with faintly zoned 'patch').
68.1	398.4	7.6	404.7	19.8	Anhedral	Faint patchy zoning throughout.	Lightly fractured.
70.1	404.9	6.4	397.5	16.4	Subhedral (broken)	Heterogeneous zoning throughout.	Lightly fractured.
Grain_2.0	N/A	N/A	N/A	N/A	Subhedral (broken)	Heterogeneous faint oscillatory zoning in magmatic overgrowth. Poorly defined unzoned heterogeneous core.	Heavily fractured. Possible partial resorption and/or recrystallisation of core associated with fractures.
Grain_5.0	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous oscillatory zoning in magmatic	Moderately fractured.

						overgrowth. Unzoned heterogeneous core.	Potential alteration and/or recrystallisation associated with fractures in core and overgrowth.
Grain_7.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Irregular zoning in core.	Moderately fractured. Large mineral inclusion (~20 µm) crosscuts core. Possible alteration associated with fractures.
Grain_11.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint oscillatory zoning in magmatic overgrowth. Poorly defined unzoned heterogeneous core.	Heavily fractured. Potential alteration and/or recrystallisation associated with fractures (i.e., removed any original core structure by fluid ingress?).
Grain_12.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Poorly defined unzoned heterogeneous core.	Heavily fractured. Potential alteration and/or recrystallisation associated with fractures (i.e.,

							removed any original core structure by fluid ingress?).
14.1	394.2	7.3	424.5	21.4	Euhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Lightly fractured. Possible recrystallisation and/or alteration spatially related to fractures (i.e., overprinting of zones by homogeneous dark and pale 'patches').
14.2	406.6	5.9	475.4	10.7			
Grain_15.0	N/A	N/A	N/A	N/A	Subhedral (broken)	Heterogeneous zoning and overall structure throughout.	Moderately fractured. Large heterogeneous (mineral?) inclusion preserved (~95 µm length). Potential alteration and/or recrystallisation associated with fractures and inclusion (i.e., original zoning replaced by heterogeneous dark/bright patches).
16.1	409.3	6.1	437.5	12.2	Subhedral	Heterogeneous oscillatory zoning throughout.	Very lightly fractured.

							Large anhedral mineral (?) inclusion (~50 µm) in centre. Possible alteration and/or recrystallisation associated with fractures and inclusions (i.e., homogeneous patches overprinting zoning).
Grain_18.0	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Poorly defined unzoned heterogeneous core.	Moderately fractured. Potential alteration and/or recrystallisation of core and overgrowth, associated with fractures. Partially resorbed core (?).
19.1	407.0	8.3	420.7	18.3	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core. Core and rim of approximately equal size.	Moderately fractured. Possible alteration and/or recrystallisation associated with fractures.
19.2	404.0	6.7	427.4	12.6			
Grain_20.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic	Moderately fractured.

						overgrowth. Unzoned homogeneous core.	Possible alteration and/or recrystallisation associated with fractures.
Grain_22.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Moderately fractured. Potential alteration and recrystallisation of core and overgrowth, associated with fractures and inclusions.
23.1	406.5	6.3	437.2	10.7	Subhedral	Heterogeneous oscillatory (and convolute?) zoning throughout.	Lightly fractured. Possible alteration and recrystallisation of core and overgrowth.
Grain_25.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. Alteration and/or recrystallisation of core and overgrowth associated with central fracture and inclusions.
27.1	384.3	6.6	486.6	13.1	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Faint patchy oscillatory and sector zoning in large core.	Moderately fractured. Alteration and/or recrystallisation associated with central fracture (i.e., bright

							unzoned areas around fracture in CL).
29.1	402.5	6.6	415.4	14.6	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Complex heterogeneous anhedral core.	Very lightly fractured. Partial resorption of core (faint irregular zoning, irregular core – rim boundary). Potential alteration and/or recrystallisation randomly throughout.
29.2	403.5	5.70	445.9	11.2			
Grain_30.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint zoning throughout.	Moderately fractured. Possible alteration (fluid ingress?) associated with fractures.
Grain_31.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint zoning in magmatic overgrowth. Unzoned heterogeneous core.	Lightly fractured. Possible alteration/recrystallisation (mainly in core) associated with fractures.
Grain_32.0	N/A	N/A	N/A	N/A	Subhedral (broken)	Heterogeneous oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. Possible alteration and/or recrystallisation (bright areas,

							fluid ingress?) associated with fractures.
Grain_36.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous zoning throughout.	Lightly fractured. Alteration (fluid ingress?) and possible recrystallisation associated with fractures (i.e., distortion/overprinting of original structure with bright patches).
Grain_37.0	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous irregular random zoning throughout.	Alteration and/or possible recrystallisation associated with inclusions.
47.1	406.9	5.6	483.9	13.0	Subhedral	Prominent oscillatory and faint sector zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned core.	Very lightly fractured. Possible alteration associated with fractures.
47.2	404.2	5.7	443.4	10.1			
48.1	400.1	7.3	421.9	17.7	Subhedral	Heterogeneous oscillatory zoning in small magmatic overgrowth. Large semi-homogeneous unzoned core.	N/A
56.1	391.7	7.2	497.1	34.8	Subhedral	Heterogeneous oscillatory zoning throughout smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Moderately fractured. Potential alteration and/or recrystallisation associated with fractures randomly

							throughout. Inclusion overlaps core.
58.1	405.4	5.8	418.6	10.9	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned core.	Lightly fractured. Possible alteration and/or recrystallisation associated with fractures and inclusions.
58.2	379.1	11.1	397.7	11.2			
Grain_65.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous patchy oscillatory zoning throughout magmatic overgrowth. Poorly defined unzoned heterogeneous core.	Heavily fractured. Alteration and/or recrystallisation associated with fractures (i.e., original zoning overprinted by homogeneous unzoned patches) throughout.
Grain_69.0	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous prominent oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Heavily fractured. Possible alteration (fluid ingress?) and/or recrystallisation in core, associated with fractures.
Grain_71.0	N/A	N/A	N/A	N/A	Anhedral	Zoning not observed throughout.	Very heavily fractured. Alteration and/or recrystallisation

							associated with extensive fractures.
Grain_72.0	N/A	N/A	N/A	N/A	Subhedral (broken)	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Very heavily fractured. Possible alteration (fluid ingress?) associated with fractures.
73.1	375.4	8.3	388.7	16.8	Subhedral (broken)	Faint patchy oscillatory zoning throughout.	Heavily fractured.

Table 3: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CH-02. See Appendix B_CG23-CH-02_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
1.1	398.6	9.7	401.2	6.9	Subhedral	Heterogeneous oscillatory zoning in small magmatic overgrowth. Large semi-homogeneous faintly zoned core.	PLA/PLR
9.2	407.5	10.5	403.2	13.2	Anhedral (broken)	Heterogeneous patchy oscillatory zoning in small magmatic overgrowth. Faint sector zoning in large heterogeneous core.	Very lightly fractured.
10.1	400.3	9.9	406.0	10.3	Subhedral	Faint oscillatory and prominent sector zoning in large magmatic overgrowth. Inclusion overlaps small core.	PLA/PLR
12.2	399.1	10.0	395.4	10.2	Subhedral	Heterogeneous prominent oscillatory zoning in large magmatic overgrowth. Semi-homogeneous faintly zoned small core.	Very lightly fractured.
12.3	402.4	10.3	403.0	9.8			PLA/PLR
13.1	401.5	10.1	400.4	10.4	Euhedral	Heterogeneous oscillatory zoning in smaller magmatic	PLA/PLR
13.2	400.7	9.8	403.0	9.2			

						overgrowth. Large semi-homogeneous unzoned core.	
14.1	403.5	10.0	407.2	9.1	Subhedral	Heterogeneous prominent oscillatory zoning in smaller magmatic overgrowth. Large homogeneous unzoned core.	Lightly fractured. PLA/PLR
14.2	403.6	9.9	411.0	9.6			
17.1	400.2	9.8	398.2	8.3	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Faint irregular zoning in large semi-homogeneous core.	Very lightly fractured. PLA/PLR
17.2	401.9	10.6	408.7	13.1			
26.1	399.3	9.8	399.0	8.9	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Large anhedral mineral (?) inclusion partially overlaps the core.
28.2	407.3	10.0	417.0	9.5	Subhedral	Heterogeneous prominent oscillatory zoning in smaller magmatic overgrowth. Faint irregular zoning in large heterogeneous core.	Moderately fractured. PLA/PLR
29.1	398.3	9.8	407.8	10.8	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Possible faint sector zoning in	Large euhedral mineral (?) inclusion partially overlaps core. PLA/PLR
29.4	407.6	10.3	415.7	10.8			

						large heterogeneous core?	
35.1	399.0	10.4	398.3	8.8	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Lightly fractured. PLA/PLR
35.3	401.9	9.9	401.7	10.0			
36.1	401.3	9.9	400.7	7.9	Anhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Faint patchy oscillatory zoning in smaller core.	PLA/PLR
36.4	398.4	9.8	404.4	8.4			
43.1	398.2	11.3	395.6	17.2	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
43.2	399.0	9.8	399.6	7.4			
43.3	398.8	9.8	400.9	9.5			
47.1	401.2	10.3	396.3	11.3	Subhedral	Heterogeneous faint oscillatory zoning in magmatic overgrowth. Homogeneous unzoned core.	Very lightly fractured. PLA/PLR
47.2	398.2	10.0	390.7	11.2			
48.1	400.9	10.7	404.7	13.2	Subhedral	Heterogeneous faint oscillatory zoning in large magmatic overgrowth. Semi-homogeneous unzoned small core.	Very lightly fractured.
48.2	413.4	12.1	422.0	9.8			
49.1	408.2	11.0	412.0	20.0	Subhedral	Heterogeneous oscillatory zoning in larger (?) magmatic	Lightly fractured.

						overgrowth. Small homogeneous unzoned core.	PLA
52.1	396.8	10.0	393.9	10.1	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	N/A
52.4	404.6	10.1	405.0	10.8			
53.1	401.6	10.0	408.6	12.7	Subhedral	Heterogeneous faint oscillatory, convolute and sector zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	PLA/PLR
55.1	405.4	10.2	405.8	10.7	Subhedral	Heterogeneous oscillatory and sector zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	PLA/PLR
55.2	414.8	10.9	410.5	10.9			
58.2	401.6	9.9	396.8	9.9	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large heterogeneous core with complex zoning.	PLA/PLR
59.1	412.0	10.7	402.5	11.1	Euhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Faint irregular zoning in semi-homogeneous core.	Lightly fractured. PLA/PLR

63.1	402.4	11.3	399.7	15.5	Subhedral	Heterogeneous faint zoning in large magmatic overgrowth. Small semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
66.1	400.6	13.3	400.4	20.7	Subhedral	Heterogeneous faint patchy oscillatory zoning in magmatic overgrowth. Heterogeneous core.	Very lightly fractured. PLA/PLR PR of core.
67.1	414.2	12.5	410.8	11.5	Euhedral	Faint oscillatory zoning in small magmatic overgrowth. Large homogeneous unzoned core.	N/A
77.1	390.1	9.8	395.1	8.7	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Smaller heterogeneous core.	Moderately fractured. PLA/PLR
78.1	394.9	9.8	398.2	9.2	Euhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Moderately fractured. PLA/PLR
79.1	396.4	9.9	394.2	9.8	Euhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large heterogeneous unzoned core.	Lightly fractured. PLA/PLR

80.1	393.1	9.9	396.8	11.5	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
81.1	398.1	9.9	388.5	8.4	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Faint patchy zoning in semi-homogeneous core.	PLA throughout?
81.2	397.3	9.9	400.0	11.0			
81.3	396.7	9.8	388.3	8.9			
81.4	403.3	9.9	400.4	10.7			
86.1	400.8	10.2	396.9	12.9	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Lightly fractured. PLA/PLR
90.1	402.5	10.3	398.0	9.0	Subhedral	Prominent oscillatory and sector zoning in magmatic overgrowth. Heterogeneous core.	PLA/PLR
90.2	397.6	10.0	389.7	14.2			
92.2	402.8	10.0	403.7	8.5	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small homogeneous core.	PLA/PLR
92.3	398.1	9.8	398.9	10.1			
97.1	399.6	10.4	397.6	12.2	Subhedral	Heterogeneous oscillatory and sector zoning in magmatic overgrowth. Heterogeneous poorly defined core.	Lightly fractured. PLA/PLR
100.1	382.7	9.7	385.6	8.2	Subhedral		

100.3	393.7	10.2	401.9	8.9		Heterogeneous oscillatory zoning in magmatic overgrowth. Faint patchy zoning in semi-homogeneous core.	Very lightly fractured. PLA/PLR
100.4	388.0	9.8	393.2	9.8			
101.2	394.0	9.8	392.2	9.1	Subhedral	Heterogeneous oscillatory and convolute (?) zoning in smaller magmatic overgrowth. Heterogeneous large partially resorbed (?) core.	Very lightly fractured. PLA/PLR
Grain_002	N/A	N/A	N/A	N/A	N/A	N/A	Apatite?
3.1	440.9	15.2	999.3	69.4	Anhedral	Heterogeneous structure throughout.	Lightly fractured. LI
Grain_004	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous structure throughout.	Lightly fractured. LI
5.1	437.5	11.9	1149.3	20.5	Euhedral	Heterogeneous faint oscillatory zoning throughout.	N/A
5.2	452.1	13.6	1214.7	21.8			
Grain_006	N/A	N/A	N/A	N/A	Subhedral	Large unzoned magmatic overgrowth. Small semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
7.1	395.8	10.6	432.1	16.1	Subhedral	Small heterogeneous faintly zoned magmatic overgrowth. Large heterogeneous core with faint oscillatory zoning.	Very lightly fractured. PLA/PLR
7.2	426.7	11.2	645.7	28.4			
7.3	561.9	16.3	1545.7	40.0			

8.1	420.4	14.7	563.7	75.5	Subhedral	Smaller heterogeneous variably zoned magmatic overgrowth. Large heterogeneous core with faint oscillatory zoning.	LI PLA/PLR
11.1	396.5	10.1	383.1	9.2	Subhedral	Heterogeneous prominent oscillatory zoning in smaller magmatic overgrowth. Faint oscillatory zoning in large semi-homogeneous core.	Very lightly fractured. PLA/PLR
30.1	404.8	10.5	391.3	11.6	Subhedral	Heterogeneous faint oscillatory zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
Grain_031	N/A	N/A	N/A	N/A	Subhedral	Faint oscillatory zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned core.	Lightly fractured.
32.1	685.9	32.1	2112.8	76.0	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous core.	Moderately fractured. PLA/PLR LI
Grain_033	N/A	N/A	N/A	N/A	Subhedral	Faint oscillatory zoning in magmatic	Lightly fractured. PLA

						overgrowth. Semi-homogeneous core?	
Grain_034	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small heterogeneous core.	Very lightly fractured. PLA/PLR LI
37.1	411.3	10.1	576.3	36.7	Subhedral (broken)	Heterogeneous faint oscillatory zoning throughout smaller magmatic overgrowth. Faint patchy oscillatory zoning in large heterogeneous core.	PLA/PLR
37.2	400.7	10.4	449.3	12.8			
Grain_038	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint zoning in magmatic overgrowth. Faint oscillatory zoning in semi-homogeneous core.	Very lightly fractured. PLA/PLR
Grain_039	N/A	N/A	N/A	N/A	Subhedral	No zoning throughout. Semi-homogeneous grain. No core observed.	Lightly fractured.
Grain_040	N/A	N/A	N/A	N/A	Subhedral (broken)	Heterogeneous structure throughout. Cannot distinguish between core and rim.	Moderately fractured.
Grain_041	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Lightly fractured. PLA/PLR

Grain_042	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Irregular patchy zoning in heterogeneous core.	PLA/PLR
44.1	403.2	10.3	438.7	16.1	Subhedral	Faint oscillatory and prominent sector zoning in magmatic overgrowth. Heterogeneous core.	PLA/PLR
45.1	399.9	9.8	425.3	11.5	Subhedral	Heterogeneous faint oscillatory zoning in larger magmatic overgrowth. Semi-homogeneous unzoned core.	Very lightly fractured. PLA/PLR
Grain_046	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous very faintly zoned grain.	Uncertain if zircon or apatite?
Grain_050	N/A	N/A	N/A	N/A	Subhedral	Small homogeneous unzoned magmatic overgrowth. Large semi-homogeneous unzoned core.	Moderately fractured.
Grain_051	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous throughout. Cannot distinguish between core and rim.	Lightly fractured.
Grain_054	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous faint zoning throughout small magmatic overgrowth. Faint irregular zoning in large semi-homogeneous core.	Lightly fractured. PLA/PLR

Grain_056	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous faintly zoned grain. Cannot distinguish between a core and rim.	Moderately fractured. PLA/PLR
Grain_057	N/A	N/A	N/A	N/A	Subhedral	Very small (< 100 µm) heterogeneous grain.	Very lightly fractured.
Grain_060	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in small magmatic overgrowth. Faint patchy irregular zoning in large heterogeneous core.	Lightly fractured. PLA/PLR
Grain_061	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous very faintly zoned grain.	Very lightly fractured. Unsure if zircon or apatite?
Grain_062	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint oscillatory zoning in small magmatic overgrowth. Faint sector zoning in large heterogeneous core.	PLA/PLR PR – partial resorption of core and outer growth zones
Grain_064	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous structure throughout.	N/A
Grain_065	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in larger magmatic overgrowth. Small unzoned semi-homogeneous (inherited?) core.	Lightly fractured. PLA/PLR PR – partial resorption in magmatic overgrowth
68.2	401.3	9.9	427.4	14.8	Subhedral	Heterogeneous oscillatory and faint	PLA/PLR

						sector zoning throughout.	
69.1	408.2	10.1	473.4	11.1	Euhedral	Heterogeneous oscillatory zoning in smaller magmatic overgrowth. Large homogeneous unzoned core.	Very lightly fractured. PLA/PLR
69.2	398.4	10.4	461.7	18.4			
Grain_070	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous faint oscillatory zoning in smaller magmatic overgrowth. Large heterogeneous unzoned core.	LI
Grain_071	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous and faint sector (?) zoning in larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Heavily fractured. PLA/PLR
72.2	408.7	10.0	444.3	14.4	Subhedral	Heterogeneous oscillatory zoning throughout.	Very lightly fractured. PLA/PLR
Grain_075	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous structure throughout	Heavily fractured. PLA/PLR
Grain_076	N/A	N/A	N/A	N/A	Subhedral	Faint oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Heavily fractured.
Grain_082	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth and core.	Moderately fractured. PLA/PLR

Grain_083	N/A	N/A	N/A	N/A	Subhedral	Faint oscillatory zoning in magmatic overgrowth. Faint patchy irregular zoning in heterogeneous core.	Very heavily fractured. PLA/PLR LI
Grain_084	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning throughout.	Moderately fractured. PLA/PLR
85.1	399.0	10.1	411.1	12.2	Subhedral	Heterogeneous oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core.	Heavily fractured. PLA/PLR
Grain_087	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning throughout.	Very heavily fractured. PLA/PLR
88.1	408.6	10.2	436.4	14.2	Subhedral	Heterogeneous oscillatory and prominent sector zoning throughout magmatic overgrowth. Prominent irregular zoning in heterogeneous core.	Lightly fractured. PLA/PLR
Grain_089	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning throughout larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Heavily fractured. PLA/PLR
Grain_091	N/A	N/A	N/A	N/A	Anhedral	Cannot determine grain textures.	Very lightly fractured.

Grain_093	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous texture throughout.	Very heavily fractured. PLA/PLR
Grain_094	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous irregular zoning throughout smaller magmatic overgrowth. Heterogeneous oscillatory zoning in large core.	Moderately fractured. PLA/PLR LI
95.1	625.3	25.7	1724.0	62.6	Subhedral	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Homogeneous unzoned core.	Moderately fractured. PLA/PLR
95.2	378.3	23.2	1422.2	97.3			
Grain_096	N/A	N/A	N/A	N/A	Subhedral	Faint oscillatory zoning throughout smaller magmatic overgrowth. Faint irregular patchy zoning in large semi-homogeneous core.	Lightly fractured.
Grain_103	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory and faint sector zoning throughout large magmatic overgrowth. Small heterogeneous unzoned core.	Heavily fractured. PLA/PLR
Grain_104	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory zoning throughout smaller magmatic	Heavily fractured. PLA/PLR

						overgrowth. Patchy oscillatory zoning in large heterogeneous core.	

Table 4: Textural descriptions of grains analysed by LA-ICP-MS in SM-01. All grains obtained after magnetic and heavy mineral separation stage were analysed by LA-ICP-MS as only three grains were obtained. See Appendix B_CG22-SM-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim).

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
1.3	404.1	4.1	408.5	10.4	Euhedral	Heterogeneous oscillatory zoning throughout larger magmatic overgrowth. Small semi-homogeneous core.	PLA/PLR
2.2	412.6	3.2	409.0	8.1	Euhedral	Heterogeneous prominent oscillatory zoning in larger magmatic overgrowth. Patchy chaotic irregular zoning in smaller heterogeneous core.	Lightly fractured. PLA/PLR PR – partial resorption in magmatic overgrowth (or may just be alt associated with fracture) LI
2.5	886.0	12.1	888.8	17.7			
3.1	418.1	3.5	419.2	7.1	Subhedral	Heterogeneous prominent oscillatory zoning throughout larger magmatic overgrowth. Faint oscillatory zoning in small semi-homogeneous core.	Very lightly fractured. PLA/PLR associated with fractures.

Table 5: Textural descriptions of grains analysed by LA-ICP-MS in SM-02. Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for SM-02. See Appendix B_CG22-SM-02_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS. N/A indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
3.1	416.7	3.9	412.9	11.5	Subhedral	Heterogeneous faint patchy oscillatory and sector zoning throughout. Cannot distinguish between core and rim.	Lightly fractured. PLA/PLR associated with fractures.
3.2	411.9	3.9	410.9	11.3			
4.2	403.7	4.3	407.4	12.7	Subhedral	Heterogeneous faint patchy irregular zoning throughout. Cannot distinguish between core and rim.	Lightly fractured. PLA/PLR associated with fractures.
7.2	413.1	4.5	423.1	12.5	Subhedral	Heterogeneous faint patchy oscillatory and sector zoning throughout. Cannot distinguish between core and rim.	Lightly fractured. PLA/PLR associated with fractures. PR – partial resorption in magmatic overgrowth (or may just be alt associated with fracture)
7.3	402.4	4.4	409.9	11.3			
9.1	409.8	5.6	403.5	14.8	Subhedral	Heterogeneous prominent patchy oscillatory and sector (?) zoning throughout	PLA/PLR associated with fractures.
9.2	406.8	4.7	409.5	13.9			
9.3	415.3	4.8	413.2	11.4			

						smaller magmatic overgrowth. Larger unzoned semi-homogeneous core.	
15.1	391.9	5.6	392.6	11.4	Subhedral	Faint patchy oscillatory zoning in smaller magmatic overgrowth. Prominent sector zoning in large semi-homogeneous core.	N/A
16.1	410.4	4.0	411.1	11.8	Subhedral	Heterogeneous faintly zoned magmatic overgrowth. Semi-homogeneous unzoned core (?).	Lightly fractured. PLA/PLR associated with fractures.
16.2	407.1	4.7	402.2	12.1			
22.3	407.4	4.1	402.4	14.2	Subhedral	Heterogeneous faint patchy oscillatory and prominent sector (?) zoning in smaller magmatic overgrowth. Faint irregular zoning in large heterogeneous core.	PLA/PLR
27.2	415.9	4.8	422.5	14.3	Subhedral	Heterogeneous oscillatory and sector zoning throughout magmatic overgrowth. Heterogeneous core? Cannot fully	Heavily fractured. PLA/PLR associated with fractures. If present, very complex (shape, structure etc) core.

						distinguish between core and rim.	
30.1	414.8	4.7	419.0	15.8	Subhedral	Heterogeneous structure throughout. Cannot fully distinguish between core and rim.	PLA/PLR
32.1	411.6	4.9	417.7	11.3	Subhedral	Heterogeneous patchy oscillatory and sector zoning throughout. Cannot distinguish between core and rim.	N/A
34.1	401.3	4.5	401.8	13.9	Subhedral	Faint oscillatory and sector zoning throughout larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Lightly fractured. PLA/PLR associated with fractures.
37.1	409.8	4.5	417.4	13.1	Subhedral	Heterogeneous patchy oscillatory and prominent sector zoning throughout. Cannot distinguish between core and rim.	N/A
37.2	412.5	4.6	405.4	12.0			
38.3	411.5	4.6	417.2	11.7	Subhedral	Heterogeneous patchy oscillatory and sector (?) zoning throughout larger magmatic overgrowth. Small unzoned heterogeneous core.	PLA/PLR associated with fractures.
38.4	412.5	4.8	410.1	14.9			
38.5	409.5	4.2	405.1	14.3			

						Poorly defined core – rim boundary.	
Grain_001	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Heavily fractured. PLA/PLR. Lots of inclusions.
Grain_002	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Very heavily fractured. Broken grain. PLA/PLR.
5.1	1740.8	90.9	3469.4	59.6	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Lightly fractured. PLA/PLR associated with fractures.
5.2	1568.9	34.2	3330.1	27.7			
5.3	1692.1	49.8	3443.1	37.4			
Grain_006	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure.	Very lightly fractured. PLA/PLR. Very small grain.
8.1	401.0	5.5	415.7	13.7	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Lightly fractured. PLA/PLR.
Grain_010	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous oscillatory and sector zoning throughout. Narrow zones.	Lightly fractured. Broken grain. PLA/PLR.
Grain_011	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	PLA/PLR?
12.1	391.9	5.8	417.6	17.5	Subhedral	Complex internal structure.	Moderately fractured. PLA/PLR.
13.1	369.6	7.9	444.7	36.8	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Lightly fractured. Large inclusion in core (?). PLA/PLR.

Grain_014	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex internal structure.	Very heavily fractured. PLA/PLR.
Grain_017	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex internal structure.	Very heavily fractured. PLA/PLR.
Grain_018	N/A	N/A	N/A	N/A	Euhedral	Semi-homogeneous internal structure. Unzoned.	Lightly fractured. Apatite?
Grain_019	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Moderately fractured. PLA/PLR.
Grain_020	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Very heavily fractured. PLA/PLR.
Grain_021	N/A	N/A	N/A	N/A	Subhedral	Prominent oscillatory zoning throughout. Narrow zones.	PLA/PLR.
Grain_023	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure.	Large central inclusion. Very small grain.
Grain_024	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous internal structure. Unzoned.	Apatite?
Grain_025	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow cross-cutting zones.	PLA/PLR.
Grain_026	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure, heterogeneous zoning throughout.	Lightly fractured. Very small grain.
Grain_028	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure,	Very lightly fractured. PLA/PLR.

						heterogeneous zoning throughout. Narrow zones.	
29.1	422.6	10.5	439.4	13.1	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Heavily fractured. PLA/PLR.
31.1	427.8	5.2	503.6	18.2	Subhedral	Complex internal structure.	N/A
31.2	410.3	5.0	421.6	15.1			
33.1	408.6	5.4	441.8	23.5	Euhedral	Complex internal structure, heterogeneous zoning throughout. Narrow cross-cutting zones.	Very lightly fractured. PLA/PLR.
Grain_035	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Lightly fractured. PLA/PLR.
Grain_036	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex internal structure.	Very heavily fractured. PLA/PLR.
Grain_039	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure.	Very heavily fractured. PLA/PLR.
Grain_040	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Large mineral inclusion in zircon core (?). PLA/PLR.
41.1	403.2	10.4	424.5	27.3	Subhedral	Complex internal structure, heterogeneous zoning throughout.	Heavily fractured. PLA/PLR.

Table 6: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for JD-01. See Appendix B_CG22-JD-01_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
JD01m1_5.1	406.7	9.9	412.6	7.5	Subhedral	Heterogeneous prominent oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	PLA/PLR within core.
JD01m1_5.2	422.8	10.6	420.6	8.2			
JD01m1_6.2	407.7	10.3	414.0	11.2	Subhedral	Heterogeneous oscillatory zoning throughout magmatic overgrowth. Semi-homogeneous unzoned core.	Moderately fractured. PLA/PLR in core and overgrowth, associated with fractures.
JD01m1_8.1	418.5	11.0	414.6	14.4	Subhedral	Heterogeneous patchy irregular zoning in magmatic overgrowth. Faint oscillatory zoning in heterogeneous core.	Lightly fractured. PLA/PLR in core. Fracture related.
JD01m1_13.1	423.5	10.6	425.3	9.9	Subhedral	Heterogeneous faint oscillatory zoning in smaller magmatic overgrowth. Large heterogeneous unzoned core.	Heavily fractured. PLA/PLR in core and overgrowth, fracture related. PR – slight resorption along core – rim boundary.
JD01m1_18.1	421.2	10.7	420.6	15.1	Subhedral	Complex structure throughout. Faint patchy oscillatory zoning within smaller magmatic overgrowth	Large inclusion overlaps core. PLA/PLR in core and overgrowth, inclusion related.

						(?). Larger heterogeneous unzoned core (?).	
JD01m1_19.1	418.6	10.7	427.0	10.3	Subhedral	Heterogeneous prominent oscillatory and faint sector (?) zoning throughout larger magmatic overgrowth. Smaller faintly zoned semi-homogeneous core.	PLA/PLR in magmatic overgrowth.
JD01-m2_22.1	422.4	11.0	423.2	9.1	Subhedral	Complex internal structure. Prominent oscillatory zoning within margins. Patchy irregular zoning within central portion of grain.	Very lightly fractured. PLA/PLR throughout.
JD01-m2_22.2	399.6	10.4	399.4	16.8			
JD01-m2_24.1	421.8	10.6	414.8	9.4	Subhedral	Complex internal structure.	Very lightly fractured. PLA/PLR throughout.
JD01-m2_38.1	417.4	11.1	419.7	12.4	Subhedral	Heterogeneous oscillatory zoning throughout smaller magmatic overgrowth. Faint patchy oscillatory zoning in larger semi-homogeneous core.	PLA/PLR in overgrowth.
JD01-m2_54.1	417.1	10.7	422.8	7.9	Subhedral	Heterogeneous oscillatory zoning throughout. Core – rim boundary unclear.	Lightly fractured. PLA/PLR in core and overgrowth.

JD01-m2_60.1	417.3	12.0	419.2	14.3	Subhedral	Complex internal structure. Heterogeneous irregular zoning throughout. Cannot distinguish between core and rim.	Heavily fractured. PLA/PLR throughout.
m1_001	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Lightly fractured. PLA in core (?). Grain too small for 30 µm laser spot.
m1_002	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure, heterogeneous zoning throughout. Narrow zones.	Heavily fractured. PLA/PLR in core (?). Grain too small for 30 µm laser spot.
m1_003	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous unzoned internal structure.	Very lightly fractured. Tabular shaped. Apatite?
m1_004	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure.	PR of core (?) and PLR and/or PLA of overgrowth. Grain and individual zones too small for 30 µm laser spot.
m1_7.1	1052.0	36.8	2780.2	40.5	Subhedral	Unzoned semi-homogeneous structure throughout. Faint core – rim boundary.	Poorly developed zircon or apatite?
m1_7.2	1171.5	40.2	2930.1	37.3			
m1_009	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous faintly zoned (sector pattern) grain.	Lightly fractured. Grain too small for 30 µm laser spot.
m1_10.1	1100.9	39.0	2839.0	34.7	Euhedral	Faint patchy zoning (oscillatory?)	Zircon or apatite?

m1_10.2	1144.6	47.7	2866.7	44.4		throughout smaller magmatic overgrowth (?). Large homogeneous unzoned core (?).	
m1_011	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous zoning throughout. Narrow zones.	Very heavily fractured. PLA in magmatic overgrowth and core.
m1_12.1	1422.4	54.2	3169.0	34.9	Subhedral (broken)	Faint patchy irregular zoning throughout smaller magmatic overgrowth (?). Large semi-homogeneous unzoned core.	Very lightly fractured. Uncertain if grain is a zircon.
m1_14.1	414.3	10.6	693.0	11.5	Subhedral	Faint patchy zoning (oscillatory?) throughout smaller magmatic overgrowth. Large heterogeneous unzoned core.	Very small grain (~70 µm). Moderately fractured. PLA/PLR of core – associated with fractures.
m1_15.1	977.2	32.1	2644.7	31.8	Subhedral	Unzoned semi-homogeneous structure throughout. Faint core – rim boundary.	Poorly developed zircon or apatite?
m1_15.2	1328.1	54.0	3092.4	42.4			
m1_15.3	982.2	32.8	2670.4	28.3			
m1_017	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous zoning throughout.	Grain too small for 30 µm laser spot.
m1_020	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure.	Heavily fractured. PLA in core. Grain too small for 30 µm laser spot.

m1_21.1	382.6	9.9	393.1	8.1	Subhedral	Heterogeneous faint oscillatory zoning throughout large magmatic overgrowth. Faint irregular zoning in small *elongated* heterogeneous core.	PLA/PLR – in overgrowth and core. Associated with inclusions.
m1_022	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous zoning in magmatic overgrowth. Complex core.	PR in core. Grain and individual zones too small for 30 µm laser spot.
m1_23.1	385.0	9.9	396.0	9.5	Subhedral	Semi-homogeneous faintly zoned (oscillatory?) smaller magmatic overgrowth. Large unzoned heterogeneous core. Poorly defined core – rim boundary.	PLA/PLR –possibly in core, associated with large inclusion.
m2_001	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Apatite?
m2_002	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Faint core – rim boundary.	Apatite?
m2_003	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Faint core – rim boundary.	Very lightly fractured. Apatite?
m2_004	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Unzoned.	Very lightly fractured. Zircon shaped. Poorly developed zircon or an apatite?
m2_005	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Very lightly fractured. Apatite?

m2_006	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and very faintly zoned throughout.	Lightly fractured. Apatite?
m2_7.1	1095.7	38.3	2816.1	41.6	Subhedral	Faint patchy zoning (oscillatory?) throughout larger magmatic overgrowth (?). Faint irregular zoning in smaller semi-homogeneous core.	Poorly developed zircon or apatite?
m2_7.2	1081.3	37.0	2801.1	37.7			
m2_008	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Complex structure throughout.	Moderately fractured. Apatite?
m2_009	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Complex structure throughout.	Very lightly fractured. Apatite?
m2_010	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Complex structure throughout.	Moderately fractured. Apatite?
m2_011	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Very lightly fractured. Apatite?
m2_12.1	392.6	13.8	421.7	22.6	Subhedral	Prominent oscillatory zoning in very narrow magmatic overgrowth. Large heterogeneous core. Irregular core – rim boundary.	Very lightly fractured. PLA/PLR within core. PR along core-rim boundary.
m2_013	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout. Well defined core-rim boundary.	Very lightly fractured. Apatite?

m2_014	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Complex structure throughout. Unzoned.	Moderately fractured. Apatite?
m2_015	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Complex texture throughout.	Lightly fractured. Apatite?
m2_016	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Lightly fractured. Contains very small oscillatory zoned zircon inclusion. Apatite?
m2_017	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Lightly fractured. Apatite?
m2_18.1	1187.3	43.3	2932.5	38.4	Subhedral	Faint patchy zoning (oscillatory?) throughout smaller magmatic overgrowth (?). Large semi-homogeneous unzoned core (?).	Very lightly fractured. Semi-developed zircon or apatite?
m2_18.2	1399.1	56.0	3095.9	41.1			
m2_019	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous and very faintly zoned throughout.	Very lightly fractured. Apatite?
m2_020	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous and very faintly zoned throughout.	Very lightly fractured. Apatite?
m2_021	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Apatite?
m2_023	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Faint core – rim boundary.	Zircon or an apatite?
m2_025	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Faint core – rim boundary.	Zircon or an apatite?

m2_026	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Apatite?
m2_027	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Apatite?
m2_028	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Very lightly fractured. Zircon or apatite?
m2_029	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Apatite?
m2_030	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure.	Very heavily fractured. PR and or PLR/PLA throughout grain.
m2_031	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and very faintly zoned at grain margin.	Very lightly fractured. Very small partial grain.
m2_032	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Zircon or apatite?
m2_033	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and very faintly zoned throughout.	Zircon or apatite?
m2_34.1	402.0	11.2	432.3	7.0	Subhedral	Heterogeneous prominent oscillatory zoning throughout smaller magmatic overgrowth. Faint patchy oscillatory zoning in very large dark heterogeneous core. Irregular core – rim boundary.	Heavily fractured. PLA/PLR at core – rim boundary, associated with fractures. PR within core and along core-rim boundary.
m2_34.2	395.8	12.0	431.2	7.4			

m2_035	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout. Well defined core – rim boundary.	Apatite?
m2_036	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous oscillatory zoning throughout.	Moderately fractured. Very small grain. Grain and individual zones too small for 30 µm laser spot.
m2_037	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous zoning throughout.	Individual zones too small for 30 µm laser spot.
m2_039	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout. Faint core – rim boundary.	Apatite?
m2_040	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Unzoned.	Apatite?
m2_041	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Unzoned.	Apatite?
m2_042	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Very faintly zoned at grain margin.	Lightly fractured. Apatite?
m2_043	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous throughout. Unzoned.	Very lightly fractured. Apatite?
m2_044	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned. Well-developed core – rim boundary.	Very lightly fractured. Apatite?
m2_045	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous and very faintly zoned throughout.	Very lightly fractured. Apatite?

m2_046	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Very faintly zoned throughout.	Zircon or apatite?
m2_047	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and very faintly zoned at grain margin.	Apatite?
m2_048	N/A	N/A	N/A	N/A	Euhedral	Semi-homogeneous. Faintly zoned throughout. Faint core – rim boundary.	Zircon or apatite?
m2_049	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Apatite?
m2_050	N/A	N/A	N/A	N/A	Anhedral	Semi-homogeneous. Unzoned.	Unsure what mineral this grain is?
m2_051	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Apatite?
m2_052	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Apatite?
m2_053	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Apatite?
m2_055	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Apatite?
m2_056	N/A	N/A	N/A	N/A	Euhedral	Semi-homogeneous and very faintly zoned throughout. Poorly developed core – rim boundary.	Poorly developed zircon? (zircon habit)
m2_057	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and faintly zoned throughout.	Apatite?
m2_058	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Apatite?

m2_059	N/A	N/A	N/A	N/A	Subhedral	Prominent oscillatory zoning throughout magmatic overgrowth. Narrow zones. Complex core with irregular patchy zoning.	Very lightly fractured. PLR and/or PLA in core and overgrowth.
m2_061	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and very faintly zoned throughout.	Apatite?
m2_062	N/A	N/A	N/A	N/A	Anhedral	Semi-homogeneous and very faintly zoned throughout. Well-defined core – rim boundary.	Apatite?

Table 7: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CR-05. See Appendix B_CG23-CR-05_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age (Ma)	2σ	$^{207}Pb/^{235}U$ age (Ma)	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
1.1	364.7	8.0	362.7	23.1	Subhedral	Heterogeneous faint patchy oscillatory zoning throughout larger magmatic overgrowth. Smaller unzoned semi-homogeneous core (?).	Very heavily fractured. PLA in individual MO zones associated with fractures. PR of core or large (~70 µm) complexly shaped inclusion overlapping core (?). Very narrow dark rim around MO. LI
2.1	409.4	7.0	406.3	14.0	Subhedral	Heterogeneous faint patchy oscillatory and faint sector zoning throughout smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Heavily fractured. PLA in MO and core associated with fractures. Very narrow dark rim around MO.
2.2	408.5	6.4	414.3	11.7			
7.1	411.5	6.2	411.9	12.6	Subhedral	Heterogeneous oscillatory and faint sector zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Heavily fractured. PLA in MO and core associated with fractures. Narrow dark rim around MO.
7.2	405.6	6.7	408.0	15.4			
8.1	414.0	5.9	407.7	10.1	Subhedral	Heterogeneous very faint patchy oscillatory zoning in	Moderately fractured. PLA in MO and core associated with fractures.
8.3	417.9	6.4	412.2	17.6			

						very small magmatic overgrowth. Very large (> 100 µm width) semi-homogeneous unzoned core.	Narrow partial dark rim around MO.
10.1	406.1	6.6	405.3	17.9	Subhedral	Faint oscillatory zoning in magmatic overgrowth. Very faint patchy oscillatory zoning in heterogeneous core.	Very heavily fractured. PLA in MO and core associated with fractures. Narrow dark rim around MO. FI
10.2	418.3	7.1	421.5	13.6			
11.1	419.2	6.6	422.7	12.9	Subhedral	Heterogeneous structure throughout. Faint sector zoning observed. Very large core with narrow black unzoned magmatic overgrowth (?).	Lightly fractured. PLA and/or PLR in core (?) associated with fractures.
12.1	413.8	6.2	420.5	13.3	Subhedral	Unzoned to very faint heterogeneous oscillatory zoning in the smaller magmatic overgrowth. Faint sector and patchy oscillatory zoning in large heterogeneous core.	Lightly fractured. PLA in core associated with fractures. Narrow – broad dark rim around MO.
15.1	410.6	7.6	416.0	14.1	Subhedral	Heterogeneous faint patchy oscillatory zoning in very small magmatic overgrowth. Very large (> 100 µm width) semi-	Heavily fractured. PLA in core and mainly in MO, associated with fractures. Narrow dark rim around MO.
15.2	419.8	6.2	418.7	12.2			

						homogeneous faintly zoned core.	
16.1	414.3	6.0	407.5	12.9	Euhedral	Complex structure throughout. Very large heterogeneous faintly zoned (oscillatory/sector) core with narrow black unzoned magmatic overgrowth (?).	Very heavily fractured. PLA and/or PLR of core, associated with fractures.
17.1	421.9	6.4	427.7	12.6	Anhedral	Heterogeneous structure throughout. Cannot identify well defined boundary between core and rim.	Very heavily fractured. PLA and/or PLR (loss/overprinting of zoning) throughout grain, associated with fractures. Narrow to broad dark rim around MO.
18.1	412.0	6.1	413.2	11.1	Subhedral	Heterogeneous faint patchy oscillatory zoning and sector zoning throughout larger magmatic overgrowth. Poorly defined core – rim boundary. Smaller semi-homogeneous unzoned core.	Lightly fractured. PLA in core and MO, spatially related to fractures and inclusions. Very narrow to narrow dark rim round MO.
18.2	408.1	6.0	412.9	12.2			
19.1	408.0	5.7	414.3	12.0	Euhedral	Complex structure throughout. Narrow to very narrow dark unzoned magmatic overgrowth (?). Very large (> 200 µm) heterogeneous core	Very heavily fractured. PLA and/or PLR throughout, spatially related to fractures and inclusions. Uncertain if central semi-homogeneous dark patch is a mineral inclusion or inherited

						with faint patchy oscillatory zoning and prominent sector zoning throughout (?). Poorly defined core – rim boundary. Large semi-homogeneous mineral inclusion (*c.* 80 µm) overlaps centre of grain.	core.
23.1	426.7	6.8	426.6	16.8	Subhedral	Complex structure throughout. Narrow – broad dark unzoned magmatic overgrowth. Faint patchy oscillatory and sector zoning throughout very large heterogeneous core.	Heavily fractured. PLA and PLR throughout core, spatially related to fractures.
24.1	385.4	8.1	391.3	14.3	Subhedral	Heterogeneous oscillatory zoning and faint sector zoning throughout magmatic overgrowth. Semi-homogeneous unzoned core.	Very lightly fractured. PLA throughout MO, associated with fractures and inclusions. Narrow to very narrow dark rim around MO.
24.2	412.6	6.0	419.9	14.0			
24.3	409.7	6.0	410.2	14.4			
25.1	410.4	6.3	413.8	11.5	Subhedral (broken)	Heterogeneous structure throughout magmatic overgrowth. Faint sector zoning in MO. Semi-homogeneous unzoned core.	Moderately fractured. PLA throughout, spatially related to fractures. Narrow to very narrow dark rim around MO.
26.1	414.1	6.0	412.1	14.5	Subhedral	Complex structure throughout. Cannot	Very heavily fractured. PLA throughout, PLR of core
26.2	413.6	6.1	416.8	13.4			

						distinguish between core and rim. Faint patchy oscillatory zoning throughout.	(?) spatially related to fractures. Narrow to very narrow dark rim around MO. FI
27.1	415.3	6.3	410.0	13.5	Subhedral	Faintly zoned throughout (oscillatory?). Cannot distinguish between core and rim.	Lightly fractured. PLA throughout, spatially related to fractures. Very narrow partial black rim around grain edge.
27.2	394.6	7.7	395.2	16.1			
30.1	411.3	6.9	408.2	17.0	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout smaller magmatic overgrowth. Large heterogeneous core.	Moderately fractured. PLA and PLR throughout core, spatially related to fractures. Very narrow to narrow partial black rim around grain edge. FI
33.2	406.0	7.6	403.0	18.3	Subhedral	Complex structure throughout. Heterogeneous oscillatory and faint sector zoning throughout larger magmatic overgrowth. Small heterogeneous unzoned core.	Heavily fractured. PLA and PLR throughout core and MO, associated with fractures. Very narrow to narrow dark overgrowth around grain edge.
34.1	410.9	6.3	409.4	13.6	Subhedral	Complex structure throughout. Heterogeneous oscillatory and faint sector zoning throughout smaller magmatic	Very heavily fractured. PLA and PLR throughout core and MO, associated with fractures. Narrow dark overgrowth around grain edge.

						overgrowth. Larger heterogeneous core with sector zoning. Continuous sector zoning from core to MO.	
35.1	409.5	6.1	410.4	12.4	Subhedral (broken)	Complex structure throughout. Heterogeneous faint oscillatory and sector zoning in magmatic overgrowth. Only partial core present due to broken grain.	Heavily fractured. PLA and PLR throughout core and MO, associated with fractures. Very narrow to narrow dark overgrowth around grain edge. FI
36.1	413.6	6.8	408.7	13.7	Subhedral	Complex structure throughout. Narrow – broad partial dark unzoned magmatic overgrowth. Faint patchy oscillatory and sector zoning throughout very large heterogeneous core.	Moderately fractured. PLA and/or PLR (?) throughout core, associated with fractures. FI
37.1	397.9	5.6	402.5	11.1	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning in magmatic overgrowth. Prominent sector zoning in semi-homogeneous core. Poorly defined core – rim boundary.	Lightly fractured. PLA of MO associated with fractures. Very narrow to broad dark overgrowth around grain edge.
37.2	409.4	6.3	418.1	14.1			
38.2	412.8	6.4	423.3	13.6	Subhedral	Complex structure throughout.	Very heavily fractured. PLA and PLR throughout

						Heterogeneous faint patchy oscillatory zoning throughout smaller magmatic overgrowth. Large heterogeneous core with faint sector zoning.	core and MO, associated with fractures. Very narrow to broad dark overgrowth around grain edge.
40.1	421.0	6.3	423.7	16.7	Subhedral	Complex structure throughout. Smaller heterogeneous faintly zoned magmatic overgrowth. Larger semi-homogeneous faintly zoned core.	Lightly fractured. PLA of MO associated with fractures. Narrow partial dark overgrowth around grain edge.
40.2	413.7	6.0	416.0	12.1			
44.1	413.7	6.2	420.0	14.1	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout larger magmatic overgrowth. Smaller heterogeneous unzoned core.	Moderately fractured. PLA and PLR throughout core and MO, associated with fractures. Very narrow - narrow dark overgrowth around grain edge. FI
44.2	421.3	6.7	430.6	13.8			
45.1	419.5	11.3	419.2	14.7	Subhedral	Complex structure throughout. Larger heterogeneous unzoned magmatic overgrowth. Smaller semi-homogeneous unzoned core.	Very lightly fractured. FI (apatite shaped).

46.1	414.4	5.9	412.1	11.3	Subhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic overgrowth. Faint patchy zoning (oscillatory?) throughout very large heterogeneous core	Moderately fractured. PLA of core associated with fractures.
47.1	417.4	7.9	418.2	16.9	Subhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic overgrowth. Faint patchy oscillatory (and sector?) zoning throughout very large heterogeneous core.	Moderately fractured. PLA and PLR throughout core, associated with fractures.
47.2	408.3	6.5	413.4	10.4			
47.3	410.6	6.4	418.0	12.1			
48.1	397.6	8.7	404.9	18.7	Subhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic overgrowth. Very large heterogeneous faintly zoned core.	Very heavily fractured. PLA of core associated with fractures.
51.1	413.5	7.2	407.2	15.9	Subhedral (broken)	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning in magmatic overgrowth. Heterogeneous unzoned core. Difficult to distinguish	Lightly fractured. PLA and PLR throughout core, associated with fractures. PR of core, associated with outer very narrow – broad dark outer MO. FI

						between core and rim.	
52.1	415.0	7.8	415.4	11.8	Subhedral	Complex structure throughout. Smaller heterogeneous unzoned magmatic overgrowth. Large heterogeneous faintly zoned (oscillatory?) core.	Lightly fractured. PLA of core and MO associated with fractures. Very narrow - narrow dark overgrowth around grain edge. FI
56.1	426.1	11.1	427.7	10.1	Subhedral	Complex structure throughout. Narrow – broad dark unzoned magmatic overgrowth. Faint patchy zoning (sector?) throughout very large heterogeneous core.	Very heavily fractured. PLA of core associated with fractures.
57.1	407.1	6.2	415.2	9.2	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning in magmatic overgrowth. Heterogeneous core.	Moderately fractured. PLA of MO associated with fractures. Very narrow - narrow dark overgrowth around grain edge. FI
59.2	413.5	6.0	414.0	13.0	Subhedral	Complex structure throughout. Very narrow – narrow dark unzoned magmatic overgrowth. Very large heterogeneous core with faint patchy	Very lightly fractured. PLA of core associated with fractures.
59.3	414.2	6.2	413.9	11.8			

						oscillatory and sector zoning.	
60.1	406.9	10.9	408.9	9.1	Subhedral	Complex structure throughout. Large heterogeneous magmatic overgrowth. Small semi-homogeneous unzoned core.	Zircon or apatite? Tabular shaped.
60.2	391.9	11.3	399.6	12.7			
62.1	408.3	7.3	398.6	13.8	Subhedral	Complex structure throughout. Very narrow – narrow dark unzoned magmatic overgrowth. Heterogeneous faint patchy oscillatory zoning in large heterogeneous magmatic core.	Lightly fractured. PLA of core associated with fractures.
66.1	411.3	6.2	401.9	11.6	Anhedral	Complex structure throughout. Very narrow – narrow dark partial unzoned magmatic overgrowth. Very large heterogeneous core.	Lightly fractured. PLA of core associated with fractures. FI
66.2	413.3	5.8	414.0	11.7			
3.1	411.3	8.2	424.5	22.5	Subhedral	Heterogeneous faint patchy oscillatory and faint sector zoning throughout larger magmatic overgrowth. Small heterogeneous unzoned core.	Moderately fractured. PLA in MO and core, related to fractures. Narrow dark partial rim around MO.

4.1	412.5	5.9	401.8	11.5	Subhedral	Very faint patchy oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Moderately fractured. PLA in MO and core, related to fractures. Narrow dark partial rim around MO.
4.2	420.2	6.1	407.7	13.8			
5.1	382.8	12.3	408.4	12.3	Subhedral	Very faint patchy oscillatory zoning in smaller magmatic overgrowth. Poorly defined core – rim boundary. Larger semi-homogeneous unzoned core.	Moderately fractured. PLA in MO and core (?), related to fractures. Narrow dark partial rim around MO.
Grain_006	N/A	NA	N/A	N/A	Subhedral	Heterogeneous and complex structure throughout. No clear core – rim boundary.	Heavily fractured. PLA associated with fractures.
9.1	395.0	7.1	469.8	11.9	Subhedral	Smaller complex dark magmatic overgrowth. Large heterogeneous faintly zoned (oscillatory?) core (?). Poorly defined core – rim boundary.	Heavily fractured. PLA throughout grain, associated with fractures. Loss of internal structure/zoning = total resorption of core and/or PLR across grain? FI
13.1	411.5	5.7	423.0	12.2	Subhedral	Heterogeneous faint patchy oscillatory zoning and prominent sector zoning throughout larger magmatic overgrowth. Smaller heterogeneous unzoned core.	Moderately fractured. PLA and/or PLR throughout core and MO, associated with fractures (i.e., loss/overprinting of original zoning). PR of core. Fractures as conduit for this.

							Very narrow to broad dark rim around MO.
Grain_014	N/A	NA	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned too faintly zoned. Poorly developed core – rim boundary.	Very heavily fractured. PLA associated with fractures.
20.1	376.6	13.2	393.0	11.5	Subhedral	Heterogeneous structure throughout. Unzoned magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. PLA of core and MO associated with fractures. Broad to very narrow dark rim around edge of grain.
Grain_021	N/A	NA	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned. No clear core - rim boundary.	Very heavily fractured. PLA associated with fractures.
Grain_022	N/A	NA	N/A	N/A	Subhedral	Semi-homogeneous. Faintly zoned. Somewhat defined core – rim boundary. Small grain.	Heavily fractured. PLA associated with fractures.
28.1	400.3	7.0	449.9	12.5	Subhedral	Complex structure throughout. Broad dark unzoned magmatic overgrowth. Very faint patchy oscillatory zoning throughout very large heterogeneous core (?).	Heavily fractured. PLA and PLR throughout core, spatially related to fractures and inclusions. LI
Grain_029	N/A	NA	N/A	N/A	Anhedral	Heterogeneous. Complex internal structure. Very small grain.	Heavily fractured. Broken grain. Only small fragment preserved. PLA associated with

							fractures.
Grain_031	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Complex internal structure. Unzoned. Cannot distinguish between core and rim. Poorly defined core – rim boundary.	Very heavily fractured. PLA associated with fractures. FI
Grain_032	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Complex internal structure. Variable faint patchy zoning. Faint core – rim boundary.	Heavily fractured. PLA associated with fractures. LI
39.1	413.5	12.1	539.8	24.9	Subhedral	Heterogeneous faintly zoned smaller magmatic overgrowth. Larger semi-homogeneous unzoned core.	Heavily fractured. PLA of core and MO associated with fractures. Very narrow to broad dark overgrowth around grain edge.
39.2	414.0	7.3	441.4	10.0			
Grain_041	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Faint patchy oscillatory zoning throughout magmatic overgrowth. Semi-homogeneous unzoned core. Narrow zones.	Heavily fractured. PLA associated with fractures.
42.1	410.0	6.1	423.0	12.1	Anhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic overgrowth. Large	Moderately fractured. PLA of core associated with fractures.

						heterogeneous unzoned core.	
Grain_043	N/A	NA	N/A	N/A	Anhedral	Complex structure throughout. Unzoned. Small grain. Cannot identify core – rim boundary.	Moderately fractured. PLA associated with fractures.
49.1	413.1	5.5	431.0	8.1	Subhedral	Complex structure throughout. Very narrow to broad unzoned dark magmatic overgrowth. Very large heterogeneous core with faint patchy sector zoning.	Very lightly fractured. PLA of core associated with fractures and inclusions. LI
50.1	398.8	6.6	412.2	15.7	Euhedral	Complex structure throughout. Cannot distinguish between core and rim, no boundary present.	Heavily fractured. PLA and PLR throughout grain, associated with fractures and large mineral inclusion. Very narrow to narrow dark overgrowth around grain edge. FI
Grain_053	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Complex structure throughout. Faint patchy zoning. Narrow discontinuous zones. Small grain. Complex core – rim boundary.	Heavily fractured. PLA associated with fractures.
Grain_054	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Complex structure throughout. Faint	Moderately fractured. PLA associated with fractures.

						patchy oscillatory zoning. Very narrow zones. Complex core – rim boundary.	
Grain_055	N/A	NA	N/A	N/A	Subhedral	Heterogeneous. Complex structure throughout. Unzoned. Small grain. Cannot identify core – rim boundary.	Lightly fractured. PLA associated with fractures. Large inclusion in central portion of grain.
58.1	367.0	6.1	623.9	16.1	Subhedral	Complex structure throughout. Smaller heterogeneous unzoned magmatic overgrowth. Large heterogeneous unzoned core.	Heavily fractured. PLA and PLR throughout core and MO, spatially related to fractures. Very narrow – broad partial dark overgrowth around grain edge.
Grain_061	N/A	NA	N/A	N/A	Subhedral	Homogeneous throughout. Unzoned.	Zircon or apatite?
63.1	404.4	7.1	436.6	17.1	Subhedral (broken)	Complex structure throughout. Heterogeneous faint oscillatory zoning in larger magmatic overgrowth. Large semi-homogeneous unzoned core.	Part of grain spot was on is lightly fractured. Grain broken in half.
64.1	402.4	6.5	419.6	12.7	Anhedral	Complex structure throughout. Heterogeneous faint oscillatory zoning in smaller magmatic overgrowth. Very large semi-homogeneous unzoned core.	Moderately fractured. PLA of core associated with fractures. Very narrow - broad dark overgrowth around grain edge.

65.1	330.4	12.4	448.4	16.6	Subhedral	Complex structure throughout. Very narrow to broad unzoned dark magmatic overgrowth. Large heterogeneous unzoned core.	Very lightly fractured. PLA of core associated with fractures. Complex shaped core – PR of core related to outermost dark MO?

Table 8: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CR-06. See Appendix B_CG23-CR-06_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age	2σ	$^{207}Pb/^{235}U$ age	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
1.1	426.1	10.7	428.1	10.0	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning in smaller magmatic overgrowth. Faint patchy sector and convolute (?) zoning in very large heterogeneous core.	Heavily fractured. PLA of core associated with fractures. PR of inner portion of core (?). Very narrow - narrow dark overgrowth around grain edge.
1.2	406.5	10.1	414.5	10.9			
3.1	411.3	10.9	419.3	5.1	Subhedral	Complex structure throughout. Heterogeneous faint patchy zoning (oscillatory and sector?) throughout. Cannot distinguish between core and rim.	Heavily fractured. PLA throughout associated with fractures. Very narrow to broad dark overgrowth around grain edge. Overgrowth 'spilling' into central portion of grain. PR or late-stage magma movement through fractures?
5.1	408.7	10.2	415.5	9.8	Subhedral	Complex structure throughout. Narrow – broad dark unzoned speckly magmatic overgrowth. Very large semi-homogeneous core	Moderately fractured. PLA in core, associated with fractures.

						with faint patchy oscillatory zoning.	
6.1	411.9	10.3	409.8	10.0	Euhedral	Complex structure throughout. Narrow – broad dark unzoned speckly magmatic overgrowth. Very faint patchy oscillatory zoning in very large heterogeneous core.	Moderately fractured. PLA in core, associated with fractures. FI
7.1	415.5	10.2	416.8	7.9	Euhedral	Complex structure throughout. Very faint patchy oscillatory zoning in smaller magmatic overgrowth. Very large heterogeneous core.	Lightly fractured. PLA in core, associated with fractures. Very narrow to broad dark speckly overgrowth around grain edge. Complex shaped texturally very variable core = PR or total resorption of core?
10.2	440.0	12.2	450.2	11.2	Subhedral	Complex structure throughout. Heterogeneous oscillatory (?) zoning throughout. No clear core – rim boundary. Cannot distinguish between core and rim.	Heavily fractured. Very large grain. PLA throughout associated with fractures. Very narrow to broad dark speckly overgrowth around grain edge.
11.1	415.4	10.5	423.1	10.9	Subhedral	Heterogeneous unzoned smaller magmatic overgrowth. Very large semi-	Lightly fractured. PLA in core and overgrowth, associated with fractures. Very narrow to broad partial dark overgrowth around grain

						homogeneous unzoned core.	edge. FI
12.1	404.1	10.4	412.6	12.3	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. PLA in core and overgrowth, associated with fractures. Very narrow to broad partial dark overgrowth around grain edge. Loss of original zoning, in places a heterogeneous unzoned MO = PR or PLR in MO?
14.1	414.5	11.0	421.8	13.6	Subhedral	Narrow – broad dark unzoned magmatic overgrowth. Heterogeneous faint patchy oscillatory (?) zoning throughout large heterogeneous core.	Moderately fractured. PLA in core and MO, associated with fractures.
15.1	407.1	10.2	405.3	11.5	Subhedral (broken)	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning and prominent sector throughout larger magmatic overgrowth. Small partial semi-homogeneous unzoned core.	Moderately fractured. PLA in MO, associated with fractures. Very narrow partial dark overgrowth around grain edge. FI
15.2	410.9	10.2	406.6	9.7			
16.1	391.8	10.0	399.7	10.8	Subhedral	Heterogeneous patchy oscillatory zoning and prominent sector	Moderately fractured. PLA in MO, associated with fractures. Very narrow to narrow partial
16.2	407.3	10.4	417.5	10.9			
16.3	408.8	10.1	410.5	10.8			

						zoning throughout very large magmatic overgrowth. Very small semi-homogeneous unzoned core.	dark overgrowth around grain edge.
17.1	411.7	10.4	412.3	8.8	Subhedral	Heterogeneous faint patchy oscillatory and sector zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. PLA in MO and core, associated with fractures. Very narrow to narrow dark overgrowth around grain edge.
17.2	409.6	10.4	418.2	10.0			
18.1	412.3	10.0	405.1	9.1	Subhedral	Complex structure throughout. Heterogeneous patchy oscillatory zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	PLA in core, associated with an inclusion (?). Very narrow to broad dark overgrowth around grain edge.
18.2	408.6	9.9	416.7	6.8			
19.1	409.9	10.3	414.1	10.2	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout large magmatic overgrowth(s). Small semi-homogeneous unzoned core.	Very lightly fractured. PLA in MO, associated with fractures and inclusions (?). Very narrow to broad dark overgrowth around grain edge. FI
19.2	421.6	10.7	416.6	11.2			
19.3	408.1	10.6	411.1	13.6			
22.1	499.6	16.8	500.9	12.6	Subhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic	Very lightly fractured. PLA in MO, associated with fractures.

						overgrowth. Very large heterogeneous unzoned inherited core.	FI
24.1	401.2	10.9	404.8	8.6	Subhedral	Complex structure throughout. Heterogeneous faint patchy zoning in smaller magmatic overgrowth (?). Larger heterogeneous core. Core may contain faint patchy sector zoning.	Heavily fractured. PLA in core and MO, associated with fractures. Very narrow to broad dark overgrowth around grain edge. FI
24.2	416.4	10.3	417.5	8.9			
26.2	1451.4	34.0	1473.6	18.3	Subhedral	Complex structure throughout. Heterogeneous prominent oscillatory zoning throughout larger magmatic overgrowth. Smaller heterogeneous unzoned inherited (?) core.	Lightly fractured. PLA in MO and core, associated with fractures. PLR within core (?). Very narrow to broad dark partial overgrowth around grain edge. Outermost overgrowth ‘spilling’ onto central portion of overgrowth.
26.3	1447.1	32.6	1474.6	10.7			
27.1	413.1	10.3	410.2	12.6	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory (and sector?) zoning throughout larger magmatic overgrowth. Small semi-homogeneous unzoned core.	Very lightly fractured. Very narrow to broad dark overgrowth around grain edge. FI
27.2	411.7	10.2	412.5	8.3			
30.1	415.7	10.6	415.7	15.5	Subhedral		

30.2	413.2	10.6	414.7	13.9		Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout magmatic overgrowth and heterogeneous core.	Moderately fractured. PLA in MO, associated with fractures and inclusions. Narrow to broad dark speckly overgrowth around grain edge. FI
30.3	412.0	10.8	412.6	17.5			
31.2	447.0	11.4	444.4	8.1	Anhedral	Larger semi-homogeneous faintly zoned magmatic overgrowth. Small heterogeneous unzoned core.	Very lightly fractured. PLA in core, associated with fractures. Very narrow dark overgrowth around grain edge.
37.1	491.9	14.7	492.8	8.7	Subhedral	Complex structure throughout. Very narrow – broad dark unzoned magmatic overgrowth. Very large inherited (?) heterogeneous core with chaotic/irregular zoning.	Heavily fractured. PLA in core, associated with fractures. FI
37.2	408.9	10.2	405.8	11.5			
39.1	418.5	10.8	426.6	10.8	Subhedral	Complex structure throughout. Narrow dark unzoned smaller magmatic overgrowth. Larger heterogeneous core with faint patchy oscillatory zoning.	Heavily fractured. PLA and PLR (?) in core, associated with fractures. FI
40.1	415.6	11.4	413.5	16.9	Subhedral	Complex structure throughout. Narrow partial dark unzoned smaller magmatic overgrowth. Very	Lightly fractured.

						large faintly zoned heterogeneous core.	
42.1	409.9	10.7	417.5	15.0	Anhedral	Complex structure throughout. Heterogeneous oscillatory zoning throughout larger magmatic overgrowth. Small homogeneous unzoned core.	Lightly fractured. PLA in MO, associated with fractures. Very narrow to broad dark overgrowth around grain edge.
42.2	419.7	11.0	425.6	17.7			
42.3	411.4	10.6	403.2	13.2			
43.1	413.0	10.2	417.1	9.6	Subhedral	Complex structure throughout. Very narrow to broad partial dark unzoned small magmatic overgrowth. Very large heterogeneous unzoned core.	Moderately fractured. PLA in core, associated with fractures.
44.1	414.2	10.7	411.6	12.2	Euhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout magmatic overgrowth and heterogeneous core.	Lightly fractured. PLA in core and MO, associated with fractures. Narrow to very narrow partial dark overgrowth around grain edge.
44.2	413.4	10.4	413.0	12.5			
47.1	410.6	10.4	407.3	10.8	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout larger magmatic overgrowth. Smaller	Lightly fractured. PLA in MO, associated with fractures. Very narrow to broad dark overgrowth around grain edge.

						unzoned homogeneous core.	
49.1	410.4	10.4	415.8	13.6	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout. Poorly defined core – rim boundary.	Lightly fractured. PLA associated with inclusions and fractures. Very narrow to broad dark overgrowth around grain edge. FI
50.1	408.5	10.6	415.5	12.6	Anhedral	Complex structure throughout. Very narrow to narrow partial dark unzoned smaller magmatic overgrowth. Very large faintly zoned heterogeneous core.	Lightly fractured. PLA in core, associated with fractures.
50.2	414.5	10.6	415.5	10.7			
57.1	416.8	14.5	418.4	9.5	Subhedral	Faint patchy sector zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Very lightly fractured. Very narrow to broad dark overgrowth around grain edge.
59.1	418.9	10.5	421.7	7.9	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory and sector zoning throughout smaller magmatic overgrowth. Larger semi-homogeneous unzoned core. Poorly	Moderately fractured. PLA of MO associated with inclusions and fractures. Very narrow to narrow dark overgrowth around grain edge.
59.2	418.3	10.5	408.2	10.5			

						defined core – rim boundary.	
61.1	424.8	12.4	429.4	31.9	Subhedral	Complex structure throughout. Very narrow to broad dark unzoned smaller magmatic overgrowth. Very large heterogeneous chaotically zoned core.	PLA? Outermost dark overgrowth 'spilling' into core.
63.1	424.0	10.9	433.0	14.1	Subhedral (broken)	Complex structure throughout.	Very heavily fractured. Very narrow to narrow dark overgrowth around grain edge.
65.1	413.3	10.5	411.5	9.2	Subhedral	Complex structure throughout. Very narrow to broad partial dark unzoned smaller magmatic overgrowth. Very large heterogeneous unzoned core.	Heavily fractured. PLA in core, associated with fractures.
2.1	412.2	10.6	423.3	15.4	Euhedral	Complex structure throughout. Smaller unzoned magmatic overgrowth (?). Faint broad zoning throughout large core. Poorly defined core – rim boundary.	Very narrow dark overgrowth around grain edge.
Grain_004	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous irregular zoning. Narrow zones. Overlapping zones.	Very lightly fractured. PLA associated with fractures. Dark unzoned outermost overgrowth. FI

8.1	429.4	12.2	444.3	22.8	Subhedral	Complex structure throughout. Heterogeneous faint oscillatory zoning throughout larger magmatic overgrowth. Smaller semi-homogeneous unzoned core.	Moderately fractured. Very narrow to narrow dark overgrowth around grain edge. PLA in MO and core, associated with fractures.
8.2	413.4	10.6	439.6	12.2			
Grain_009	N/A	N/A	N/A	N/A	Euhedral	Complex structure throughout. Heterogeneous irregular zoning throughout magmatic overgrowth. Zones too narrow for 30 µm laser spot.	Heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth. FI
13.1	399.1	10.0	443.9	11.9	Subhedral	Complex structure throughout. Heterogeneous faint patchy oscillatory zoning throughout smaller magmatic overgrowth. Larger heterogeneous unzoned core.	Heavily fractured. Very narrow to narrow dark overgrowth around grain edge. PLA in MO and core, associated with fractures. PR of core (?). FI
13.2	410.9	10.3	426.0	12.3			
Grain_020	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex structure throughout. Zones too narrow for 30 µm laser spot.	Heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
Grain_021	N/A	N/A	N/A	N/A	Euhedral	Complex structure throughout. Zones too narrow for 30 µm laser spot.	Heavily fractured. PLA associated with fractures. Dark unzoned outermost

							overgrowth. FI
Grain_023	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones too narrow for 30 µm laser spot.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
Grain_025	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones too narrow for 30 µm laser spot. Lots of overlapping and cross-cutting zones.	Moderately fractured. PLA associated with fractures and inclusions. Dark unzoned outermost overgrowth. FI
Grain_028	N/A	N/A	N/A	N/A	Subhedral	Grain too small for analysis.	Very heavily fractured. Dark unzoned outermost overgrowth.
Grain_029	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. Dark unzoned outermost overgrowth.
Grain_032	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. Dark unzoned outermost overgrowth. Messy internal texture, too altered for analysis.
Grain_034	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous unzoned structure throughout.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
35.1	347.6	12.3	432.9	11.0	Subhedral	Complex structure throughout. Heterogeneous patchy oscillatory zoning throughout smaller magmatic overgrowth. Irregular	Heavily fractured. PLA in core and MO, associated with fractures and inclusions. PR of core or just complex texture? Very narrow to narrow partial

						patchy zoning in large heterogeneous core.	dark overgrowth around grain edge. FI
Grain_036	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous irregular zoning.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
38.1	423.2	17.5	440.0	27.4	Subhedral	Small semi-homogeneous broad dark speckly unzoned magmatic overgrowth. Large heterogeneous unzoned core.	Moderately fractured. PLA in core associated with fractures and inclusions. LI
Grain_041	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex structure throughout.	Very lightly fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
45.1	396.8	11.9	410.1	7.3	Subhedral	Heterogeneous patchy oscillatory and sector zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Moderately fractured. PLA in core and MO associated with fractures. Very narrow to narrow dark overgrowth around grain edge.
46.1	404.6	11.3	426.7	9.2	Subhedral	Small semi-homogeneous broad dark faintly zoned magmatic overgrowth. Faint patchy zoning in large heterogeneous core.	Lightly fractured. PLA in core associated with fractures.
46.2	420.2	12.9	464.9	12.4			

Grain_048	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
Grain_051	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth.
Grain_052	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA associated with fractures. Grain too small for 30 µm laser spot. Dark unzoned outermost overgrowth.
Grain_053	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous irregular patchy zoning. Very narrow zones.	Very heavily fractured. PLA associated with fractures. Dark unzoned outermost overgrowth. FI
Grain_054	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones too narrow for 30 µm laser spot. Zoning is irregular/messy.	Moderately fractured. PLA? Dark unzoned outermost overgrowth. FI
Grain_055	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones too narrow for 30 µm laser spot.	Heavily fractured. Partially altered. Dark unzoned outermost overgrowth. FI
Grain_056	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones	Lightly fractured. PLA? Dark unzoned outermost

						too narrow for 30 µm laser spot.	overgrowth. FI
Grain_058	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zoning is irregular. Zones too narrow for 30 µm laser spot.	Very heavily fractured. Very altered, associated with fractures. Complex shaped dark core = PR or holes in grain? Dark unzoned outermost overgrowth. FI
60.1	408.9	10.2	709.2	37.4	Subhedral	Small semi-homogeneous very narrow to broad dark magmatic overgrowth. Very large heterogeneous core.	Heavily fractured. PLA in core associated with fractures and inclusions. FI
Grain_062	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. Partial grain, too small for 30 µm laser spot. Dark unzoned outermost overgrowth. FI
Grain_064	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Zones too small for 30 µm laser spot.	Very lightly fractured. Dark unzoned outermost overgrowth. FI

Table 9: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CR-07. See Appendix B_CG23-CR-07_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, emplacement rim spot vs antecrystic core spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age	2σ	$^{207}Pb/^{235}U$ age	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
2.2	407.1	5.1	405.1	12.0	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Large heterogeneous faintly zoned rounded core.	Moderately fractured. PLA in core associated with fractures and inclusions. LI
2.3	445.2	7.1	444.9	10.7			
6.1	415.3	5.2	417.1	12.4	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous unzoned rounded core.	Very heavily fractured. PLA in MO associated with fractures. FI
7.1	419.5	6.1	417.7	14.1	Anhedral (broken)	Smaller semi-homogeneous unzoned magmatic overgrowth. Very large semi-homogeneous unzoned partial rounded core.	Heavily fractured. PLA in core associated with fractures. FI
8.1	433.2	6.9	434.0	12.4	Subhedral	Smaller homogeneous unzoned magmatic overgrowth. Very faint patchy oscillatory zoning in larger heterogeneous subangular core.	Moderately fractured. PLA in core associated with fractures. FI
12.1	406.8	4.8	411.2	12.4			

12.2	405.9	4.4	407.3	11.0	Subhedral (broken)	Very faint oscillatory and sector zoning in magmatic overgrowth. Very faint zoning in semi-homogeneous rounded core.	Unfractured. FI
13.1	415.6	5.0	419.6	13.5	Subhedral	Very faint patchy oscillatory zoning throughout smaller magmatic overgrowth. Larger semi-homogeneous unzoned rounded core.	Heavily fractured. PLA in MO associated with fractures. FI
16.1	418.2	5.0	411.3	12.5	Subhedral (broken)	Very faint patchy oscillatory zoning throughout larger magmatic overgrowth. Smaller semi-homogeneous unzoned rounded core.	Lightly fractured. PLA in MO associated with fractures.
17.1	414.6	5.9	409.3	12.2	Subhedral	Faint oscillatory zoning throughout smaller magmatic overgrowth. Larger heterogeneous unzoned core.	Lightly fractured. PLA in core and MO associated with fractures.
17.2	402.2	5.4	411.5	10.2			
18.2	434.6	6.5	433.6	11.9	Subhedral	Semi-homogeneous smaller unzoned magmatic overgrowth. Very faint patchy zoning in larger heterogeneous subrounded core.	Heavily fractured. PLA in core associated with fractures. FI

19.1	417.6	5.4	417.5	11.2	Subhedral (broken)	Very faint patchy oscillatory (and sector?) zoning in smaller magmatic overgrowth. Larger homogeneous unzoned rounded core.	Lightly fractured. PLA in core associated with fractures. FI
19.2	412.3	6.1	414.3	11.0			
20.1	419.5	5.2	414.5	12.1	Subhedral	Faint patchy oscillatory zoning throughout smaller partial magmatic overgrowth. Faint patchy oscillatory zoning in larger heterogeneous core.	Moderately fractured. PLA in core and MO associated with fractures. PR of core or overlap by mineral inclusion? FI
22.1	404.9	4.8	408.0	11.4	Euhedral	Small semi-homogeneous unzoned magmatic overgrowth. Large semi-homogeneous unzoned subrounded core.	Moderately fractured. PLA in core and MO associated with fractures. FI
25.1	413.4	6.1	415.3	10.9	Subhedral	Very faint oscillatory zoning in small magmatic overgrowth. Larger homogeneous unzoned subrounded core.	Very lightly fractures. PLA in MO associated with fractures.
27.1	416.4	4.8	408.4	11.7	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger heterogeneous	Moderately fractured. PLA in core and MO associated with fractures. LI

						unzoned subangular core.	
28.2	432.4	6.0	429.9	10.9	Subhedral	Semi-homogeneous small partial unzoned magmatic overgrowth. Large subrounded heterogeneous core with faint zoning.	Very lightly fractured. PLA throughout, sometimes associated with fractures. FI
30.1	416.7	5.1	410.1	11.5	Subhedral	Faint oscillatory zoning throughout smaller magmatic overgrowth. Large semi-homogeneous unzoned subrounded core.	Moderately fractured. PLA in MO and core associated with fractures. LI
30.2	445.1	8.3	439.7	11.4			
32.1	412.8	5.5	413.7	10.9	Subhedral	Very faint patchy oscillatory zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned subrounded core.	Moderately fractured. PLA in MO associated with fractures.
33.2	424.7	6.6	433.3	10.6	Subhedral	Faint patchy oscillatory zoning in larger semi-homogeneous magmatic overgrowth. Semi-homogeneous unzoned subrounded partial core.	Moderately fractured. PLA in MO and core associated with fractures. FI
40.1	412.9	4.9	419.9	11.7	Subhedral	Smaller semi-homogeneous unzoned partial magmatic	Heavily fractured. PLA in core and MO associated with fractures. FI

						overgrowth. Larger unzoned heterogeneous subrounded core.	
41.1	418.6	5.3	421.9	10.9	Subhedral	Smaller semi-homogeneous unzoned partial magmatic overgrowth. Larger unzoned semi-homogeneous euhedral partial core.	Moderately fractured. PLA in core associated with fractures. FI
43.1	416.0	5.9	416.1	13.0	Subhedral	Smaller semi-homogeneous very faintly zoned partial (i.e., doesn't wrap around entire core) magmatic overgrowth. Faint zoning (oscillatory?) in larger heterogeneous subrounded core.	Moderately fractured. PLA in MO and core associated with fractures.
46.1	410.2	5.2	412.0	13.6	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger very faintly zoned (oscillatory?) heterogeneous core.	Lightly fractured. PLA in core associated with fractures.
46.2	395.3	6.0	404.2	15.1			
46.3	413.9	7.6	415.8	10.8			
47.1	417.8	5.1	416.3	11.8	Anhedral	Complex structure throughout. Very narrow to broad unzoned outermost magmatic overgrowth. Very faint	Very lightly fractured. PLA throughout related to fractures. FI

						patchy oscillatory zoning throughout inner grain. No core – rim boundary observed (missing core?).	
50.1	414.5	4.7	420.9	11.1	Subhedral	Complex structure throughout. Very faint patchy oscillatory zoning throughout smaller magmatic overgrowth. Large heterogeneous unzoned subrounded core.	Very lightly fractured.
54.1	431.6	6.9	425.8	11.5	Subhedral	Complex structure throughout. Smaller semi-homogeneous unzoned magmatic overgrowth. Faint patchy oscillatory zoning in larger heterogeneous subrounded core.	Moderately fractured. PLA throughout core, related to fractures.
59.1	404.6	4.8	404.7	10.9	Subhedral	Semi-homogeneous magmatic overgrowth with faint patchy oscillatory zoning. Faint patchy oscillatory zoning in heterogeneous subrounded core.	Heavily fractured. PLA throughout core and magmatic overgrowth, related to fractures. Very large grain (>300 µm). Magmatic overgrowth is very large, varying from very broad to very narrow in width. LI
59.3	426.7	6.7	430.5	10.6			
60.1	420.9	4.9	421.6	12.3	Subhedral	Larger semi-homogeneous magmatic overgrowth	Heavily fractured. PLA throughout, associated

						with faint patchy oscillatory zoning. Small semi-homogeneous unzoned subrounded core.	with fractures. FI
61.1	421.3	5.7	425.0	11.6	Euhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Faint patchy oscillatory zoning in large unzoned euhedral core.	Very lightly fractured. FI
66.1	430.0	5.5	422.3	14.3	Subhedral	Small partial magmatic overgrowth with very faint patchy oscillatory zoning. Larger semi-homogeneous unzoned subangular core.	Moderately fractured. PLA throughout core, associated with fractures.
67.1	420.0	6.9	414.8	15.0	Subhedral	Larger magmatic overgrowth with very faint patchy oscillatory zoning. Smaller unzoned subrounded semi-homogeneous core.	Moderately fractured. PLA throughout MO, associated with fractures. Very dark semi-homogeneous core. SE image suggests a possible mineral inclusion. May also be PR/TR of core? FI
69.1	418.5	5.0	413.2	13.8	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Large	Heavily fractured. PLA throughout core, associated with fractures. PR of core? FI

						unzoned heterogeneous core.	
70.1	424.0	7.7	420.4	11.3	Subhedral	Smaller semi-homogeneous magmatic overgrowth with faint patchy zoning. Large heterogeneous subrounded core with faint (narrow to broad) patchy oscillatory zoning.	Heavily fractured. PLA in core and MO, associated with fractures. FI (elongated).
71.1	421.7	5.0	420.8	12.3	Subhedral	Very faint patchy oscillatory (and sector?) zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned subrounded core.	Very lightly fractured. PLA randomly throughout, associated with fractures.
72.1	424.6	5.0	419.1	11.5	Subhedral	Faint patchy oscillatory and sector zoning throughout smaller magmatic overgrowth. Large semi-homogeneous subrounded core with prominent sector zoning.	Very lightly fractured. Partial grain i.e., part of grain has been broken and subsequently removed. FI
72.2	415.0	4.6	411.5	11.6			
79.1	415.5	4.8	413.4	11.2	Euhedral	Faint patchy oscillatory and prominent sector zoning throughout larger magmatic overgrowth. Smaller heterogeneous	Very lightly fractured. PLA of core, associated with fractures. FI

						unzoned subrounded core.	
80.1	420.0	5.2	426.8	13.1	Subhedral	Very faint patchy oscillatory zoning in smaller semi-homogeneous magmatic overgrowth. Larger semi-homogeneous subrounded core with faint patchy oscillatory zoning.	Heavily fractured. PLA of core and overgrowth, associated with fractures. PR of core or just significant fracture-related alteration?
80.2	411.0	6.2	413.3	10.8			
81.1	417.5	5.7	424.6	12.6	Subhedral	Larger magmatic overgrowth with faint patchy oscillatory and sector zoning. Smaller semi-homogeneous unzoned rounded core.	Moderately fractured. PLA of core, associated with inclusions (?). LI
81.2	414.8	5.2	412.3	11.6			
82.1	422.3	5.4	421.9	13.5	Subhedral	Smaller semi-homogeneous magmatic overgrowth with faint oscillatory zoning. Large heterogeneous unzoned subrounded core.	Moderately fractured. PLA of core, associated with fractures.
84.1	417.3	5.9	417.2	15.4	Subhedral	Very faint patchy oscillatory and sector zoning in smaller magmatic overgrowth. Larger semi-homogeneous rounded core with	Very lightly fractured.

						faint patchy sector zoning.	
85.1	453.6	9.0	452.9	11.6	Subhedral	Larger semi-homogeneous unzoned magmatic overgrowth. Small rounded semi-homogeneous unzoned core.	Lightly fractured. PLA in MO, associated with fractures. FI
86.1	425.1	8.2	425.0	12.0	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger subrounded semi-homogeneous unzoned core.	Moderately fractured. PLA of core and MO, associated with fractures. FI
88.1	424.4	5.3	431.9	11.7	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger heterogeneous subangular core with complex (oscillatory?) zoning.	Heavily fractured. PLA of core and MO, associated with fractures. FI
89.1	430.1	6.2	425.8	11.5	Subhedral	Very faint oscillatory (and sector?) zoning in larger semi-homogeneous partial magmatic overgrowth. Small semi-homogeneous unzoned subrounded partial core.	Very lightly fractured. PLA of core associated with fractures?
91.1	421.2	5.0	424.0	10.8	Subhedral	Very faint patchy oscillatory (and sector?) zoning in	Very lightly fractured.
91.2	412.7	5.9	417.3	12.3			

						smaller partial magmatic overgrowth. Larger semi-homogeneous unzoned subrounded partial core.	
93.1	399.6	5.5	404.6	10.6	Subhedral	Semi-homogeneous unzoned larger partial magmatic overgrowth. Small semi-homogeneous unzoned subrounded core.	Heavily fractured. PLA of core and MO, associated with fractures.
95.1	425.8	5.3	429.1	10.8	Subhedral	Very faint patchy oscillatory zoning in smaller semi-homogeneous magmatic overgrowth. Large euhedral semi-homogeneous core with patchy (narrow-broad) oscillatory zoning.	Very heavily fractured. PLA of core, associated with fractures and inclusions. FI
95.2	428.5	7.0	439.3	10.6			
96.1	416.9	4.8	415.9	13.3	Subhedral	Very faint patchy oscillatory zoning in small semi-homogeneous magmatic overgrowth. Larger semi-homogeneous unzoned rounded core.	Moderately fractured. PLA of core, associated with inclusions. FI
98.1	416.6	4.9	421.1	11.6	Subhedral	Very faint patchy oscillatory and sector zoning throughout	Moderately fractured. PLA of core and MO, associated with inclusions

						smaller heterogeneous magmatic overgrowth. Larger semi-homogeneous unzoned rounded core.	and fractures. LI
99.1	414.3	5.2	421.6	12.2	Subhedral	Very faint patchy oscillatory and sector zoning throughout semi-homogeneous magmatic overgrowth. Unzoned semi-homogeneous rounded core.	Moderately fractured. PLA of core and MO, associated with fractures.
99.2	436.4	6.9	434.7	11.4			
100.1	419.7	5.4	424.1	12.4	Subhedral	Very faint patchy oscillatory zoning throughout larger heterogeneous magmatic overgrowth. Small unzoned semi-homogeneous subangular core.	Moderately fractured. PLA of MO, associated with fractures and inclusions. FI
Grain_001	N/A	N/A	N/A	N/A	Subhedral	Zones too small for 30 µm laser spot.	Very heavily fractured. PLA throughout associated with fractures. Partial grain (i.e., grain previously broken so only part of core and MO preserved).
3.1	329.7	4.6	405.5	11.4	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Large heterogeneous	Lightly fractured. PLA of core associated with fractures and inclusions. FI

						unzoned rounded core.	
4.1	421.0	7.8	520.5	17.3	Anhedral (broken)	Very faint patchy oscillatory zoning in smaller magmatic overgrowth. Larger semi-homogeneous unzoned core of a complex shape.	Heavily fractured. PLA of MO associated with fractures and inclusions. PR of core. FI
4.2	454.0	13.3	699.3	34.0			
Grain_005	N/A	N/A	N/A	N/A	Euhedral	Zones too small for 30 µm laser spot.	Heavily fractured. PLA throughout associated with fractures.
9.1	412.1	6.5	542.2	34.3	Subhedral	Very faint patchy oscillatory and sector zoning in magmatic overgrowth. Semi-homogeneous unzoned rounded core.	Very heavily fractured. PLA in MO and core associated with fractures. FI
Grain_010	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned.	Very heavily fractured. PLA throughout associated with fractures. Grain too small for 30 µm laser spot.
Grain_011	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous. Unzoned. No clear core -rim boundary.	Moderately fractured. PLA throughout associated with fractures. Very tabular shaped – apatite?
Grain_014	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous. Irregular core-rim boundary.	Moderately fractured. PLA throughout associated with fractures. Altered or PR of core?

Grain_015	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure. Heterogeneous. Core zones too small and irregular for 30 µm laser spot.	Very lightly fractured. PLA throughout associated with fractures and inclusions. MO is only partially preserved and too small for 30 µm laser spot.
Grain_021	N/A	N/A	N/A	N/A	Subhedral (broken)	Semi-homogeneous. Core zones too small and irregular for 30 µm laser spot.	Lightly fractured. PLA throughout associated with fractures. MO is too small for 30 µm laser spot.
Grain_023	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous. MO zones too small for 30 µm laser spot.	Heavily fractured. PLA throughout associated with fractures. Individually, partial MO and core are too small for 30 µm laser spot.
24.2	450.3	7.3	598.7	15.1	Subhedral	Complex internal structure. Smaller semi-homogeneous unzoned magmatic overgrowth. Larger subangular semi-homogeneous core with oscillatory (very narrow – broad) zoning.	Heavily fractured. PLA of core associated with fractures.
Grain_026	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous. MO zones too small for 30 µm laser spot.	Heavily fractured. PLA of core and overgrowth associated with fractures. Core too altered and contains inclusions, could not fit 30 µm laser spot.
29.1	414.2	4.5	427.5	13.1	Subhedral	Broad heterogeneous oscillatory zoning throughout.	Lightly fractured. PLA throughout associated with fractures and inclusions.

							LI (very large, span entire length of grain).
Grain_031	N/A	N/A	N/A	N/A		Complex internal structure. Heterogeneous. Unzoned.	Very heavily fractured. PLA throughout associated with fractures. Core too small and altered, could not fit 30 µm laser spot. MO too small for 30 µm laser spot.
Grain_034	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous. Faint patchy oscillatory irregular zoning in core.	Moderately fractured. PLA throughout associated with fractures. Core too small and altered, could not fit 30 µm laser spot. MO too small for 30 µm laser spot.
Grain_035	N/A	N/A	N/A	N/A	Subhedral	Complex internal structure. Heterogeneous. Chaotic patchy zoning throughout.	Heavily fractured. PLA throughout associated with fractures. Zones too small for 30 µm laser spot.
Grain_036	N/A	N/A	N/A	N/A		Complex internal structure. Heterogeneous. Chaotic patchy zoning throughout.	Very heavily fractured. PLA throughout associated with fractures. Core too altered and contains inclusions, could not fit 30 µm laser spot.
37.1	257.9	20.6	335.6	15.8	Anhedral	Faint patchy oscillatory zoning in partial magmatic overgrowth. Semi-homogeneous unzoned core.	Lightly fractured. PLA in core and MO, associated with fractures.
37.2	369.4	7.2	392.3	11.2			
38.1	401.4	5.0	422.1	12.6	Anhedral	Complex structure throughout. Faint sector zoning in	Heavily fractured. PLA throughout, associated with fractures and inclusions.

						magmatic overgrowth. Semi-homogeneous unzoned core.	Large anhedral mineral inclusion (?) overlaps part of MO and core.
Grain_039	N/A	N/A	N/A	N/A	Anhedral	Complex internal structure. Heterogeneous.	Lightly fractured. PLA throughout associated with fractures. Zones in MO and core too small and patchy for 30 µm laser spot.
42.1	331.1	12.3	378.6	11.5	Subhedral	Very faint patchy oscillatory zoning throughout smaller partial magmatic overgrowth. Large semi-homogeneous unzoned subrounded core.	Moderately fractured. PLA in MO, associated with fractures and inclusions. FI (elongated).
42.2	415.9	5.4	431.1	12.6			
Grain_044	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Oscillatory (very narrow to broad) in core.	Heavily fractured. PLA throughout associated with fractures. Zones in core too small and patchy for 30 µm laser spot.
Grain_045	N/A	N/A	N/A	N/A	Euhedral	Complex structure throughout. Heterogeneous.	Heavily fractured. PLA throughout associated with fractures. PR of core or some late-stage alteration of core by outermost dark MO?
Grain_048	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Very faintly zoned MO.	Heavily fractured. PLA throughout associated with fractures. Individually core and MO too small for 30 µm laser spot.

Grain_049	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Faint oscillatory zoning throughout MO.	Heavily fractured. PLA throughout associated with fractures. Zones too small for 30 µm laser spot.
51.1	420.9	6.1	410.6	11.6	Subhedral	Small semi-homogeneous unzoned magmatic overgrowth. Larger homogeneous rounded unzoned core.	Moderately fractured. FI
52.1	420.9	4.9	409.7	11.9	Subhedral	Very faint patchy oscillatory zoning in partial magmatic overgrowth. Homogeneous unzoned subrounded core.	Moderately fractured. PLA in MO, associated with fractures.
53.1	591.2	17.6	1450.2	76.7	Anhedral	Complex structure throughout. Very faint patchy oscillatory zoning throughout partial magmatic overgrowth. Semi-homogeneous unzoned rounded core.	Moderately fractured. PLA in MO, associated with fractures. FI
Grain_055	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Semi-homogeneous. Unzoned. No core – rim boundary.	Heavily fractured. PLA throughout associated with fractures. Grain structure too complex for laser spot.
Grain_056	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous.	Heavily fractured. PLA throughout associated with fractures.

							Individually core and MO too small and altered for 30 µm laser spot.
57.1	452.6	15.0	580.3	28.9	Subhedral	Very faint patchy zoning in smaller magmatic overgrowth. Large semi-homogeneous unzoned partial subrounded core.	Heavily fractured. PLA in core and MO, associated with fractures. FI
58.1	10351.8	1039.7	6478.8	14.4	Subhedral	Very faint patchy oscillatory (and sector?) zoning in smaller magmatic overgrowth. Larger semi-homogeneous subrounded core with faint sector zoning (?).	Lightly fractured. PLA in core and MO, associated with fractures and inclusions. FI (large inclusion in middle of core).
Grain_062	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous.	Very heavily fractured. PLA throughout associated with fractures. Grain too small for 30 µm laser spot.
63.1	414.4	6.6	546.3	21.9	Subhedral	Very narrow unzoned partial magmatic overgrowth. Large unzoned semi-homogeneous core.	Heavily fractured. PLA in core, associated with fractures. FI
64.1	392.8	6.8	407.2	10.1	Subhedral	Complex structure throughout. Smaller semi-homogeneous faintly zoned magmatic overgrowth. Large heterogeneous	Heavily fractured. PLA in core, associated with fractures. FI.

						subrounded core with patchy broad oscillatory zoning.	
65.1	360.9	11.1	549.0	29.7	Subhedral	Smaller (?) magmatic overgrowth with very faint patchy zoning. Larger semi-homogeneous unzoned subrounded core. Poorly defined core – rim boundary.	Heavily fractured. PLA throughout, associated with fractures.
65.2	416.5	4.5	449.9	11.7			
68.1	431.4	11.7	555.0	43.0	Subhedral	Semi-homogeneous magmatic overgrowth with very faint patchy oscillatory zoning. Subrounded semi-homogeneous unzoned core.	Very heavily fractured. PLA of MO, associated with fractures. FI
Grain_073	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Patchy irregular zoning in core.	Heavily fractured. PLA throughout associated with fractures. Individually core is too altered, and MO is too small and altered for 30 µm laser spot.
Grain_074	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous.	Very heavily fractured. PLA throughout associated with fractures. Core zones too small for 30 µm laser spot. PR of core or overprinting by mineral inclusion?
Grain_075	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous.	Lightly fractured. PLA throughout associated with fractures.

							Grain too complex for laser analysis.
Grain_076	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous.	Heavily fractured. PLA throughout associated with fractures. MO too small, core too altered for laser analysis.
Grain_077	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous oscillatory (very narrow to broad) zoning throughout core.	Very heavily fractured. PLA throughout associated with fractures. Very long inclusions throughout core and zones too narrow for 30 µm laser spot.
78.1	416.4	5.7	427.2	12.5	Subhedral	Smaller semi-homogeneous unzoned partial magmatic overgrowth. Larger heterogeneous partial core with patchy oscillatory zoning.	Very lightly fractured. PLA of core, associated with fractures. FI
Grain_083	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous.	Very heavily fractured. PLA throughout associated with fractures. Grain too altered, zoning too patchy and narrow and MO too small for 30 µm laser spot.
87.1	369.7	12.2	394.6	17.8	Subhedral	Small semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous core with (narrow to broad) oscillatory	Moderately fractured. PLA of core and MO, associated with fractures. FI

						zoning. Very poorly defined core – rim boundary.	
Grain_090	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Faint patchy oscillatory zoning throughout magmatic overgrowth.	Heavily fractured. PLA throughout associated with fractures. Grain too small overall for laser analysis.
92.1	414.2	6.8	446.3	10.5	Subhedral	Complex structure throughout. Smaller semi-homogeneous unzoned magmatic overgrowth. Larger complex subrounded core with faint patchy oscillatory zoning.	Very heavily fractured. PLA of core and MO, associated with fractures. LI
Grain_094	N/A	N/A	N/A	N/A	Anhedral	Heterogeneous. Very faintly zoned magmatic overgrowth.	Heavily fractured. PLA throughout associated with fractures. Partial grain (i.e., previously broken). Core and MO too small for 30 µm laser spot.
Grain_097	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Faint oscillatory zoning in core.	Heavily fractured. PLA throughout associated with fractures. Core, MO and individual zones too small for 30 µm laser spot.
Grain_101	N/A	N/A	N/A	N/A	Euhedral	Heterogeneous. Faint patchy oscillatory zoning in core.	Heavily fractured. PLA throughout associated with fractures. Core, MO and individual zones too small for 30 µm laser spot.
Grain_102	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous. Faint patchy oscillatory and	Heavily fractured. PLA throughout associated

						sector zoning in MO. Complex core.	with fractures. Core too complex and individual zones too small for 30 µm laser spot.

Table 10: Textural descriptions of grains analysed by LA-ICP-MS and grains not analysed by LA-ICP-MS for CR-08. See Appendix B_CG23-CR-08_CL images for the location and interpretation of analysed spots (e.g., core vs rim spot, spots rejected due to common Pb, Pb loss or incorrect age relations (e.g., core younger than rim). N/A within the age column indicates grains not analysed by LA-ICP-MS.

Zircon ID	$^{206}Pb/^{238}U$ age	2σ	$^{207}Pb/^{235}U$ age	2σ	Grain shape	Zoning pattern	Other (e.g., surface fractures, alteration, resorption etc)
3.1	386.7	9.8	384.7	13.2	Subhedral	Larger semi-homogeneous unzoned magmatic overgrowth. Smaller homogeneous unzoned subrounded core.	Very heavily fractured. PLA in MO associated with fractures and inclusions. PR of core or inclusion wrapping around core? FI
6.1	412.5	4.9	411.2	13.0	Euhedral	Very small narrow dark unzoned partial semi-homogeneous magmatic overgrowth. Very faint patchy oscillatory (?) zoning in larger semi-homogeneous core.	Unfractured. Difficult to distinguish between core and rim. No clear core – rim boundary.
7.1	408.1	5.4	412.6	14.1	Subhedral	Complex internal structure. Very small narrow dark unzoned partial semi-homogeneous magmatic overgrowth. Very faint patchy sector zoning in larger semi-homogeneous core.	Unfractured. Difficult to distinguish between core and rim. No clear core – rim boundary.
7.2	428.5	5.6	430.6	13.2			
9.1	402.6	6.6	408.2	13.5	Subhedral	Smaller very narrow to broad dark very faintly zoned (oscillatory) semi-homogeneous magmatic overgrowth. Larger unzoned semi-homogeneous core.	Unfractured.

11.1	412.1	4.7	414.8	10.5	Subhedral	Smaller very narrow to broad dark unzoned semi-homogeneous magmatic overgrowth. Faint patchy oscillatory zoning in large heterogeneous core. Difficult to distinguish between core and rim. No clear core – rim boundary.	Moderately fractured. PLA throughout core, associated with fractures.
24.1	410.1	5.6	415.7	15.7	Subhedral	Complex structure throughout. Very faint patchy oscillatory zoning throughout smaller magmatic overgrowth. Large semi-homogeneous unzoned core.	Heavily fractured. PLA throughout core and MO associated with fractures.
26.1	400.0	10.7	407.3	12.9	Subhedral	Complex structure throughout. Smaller very narrow to narrow dark homogeneous partial overgrowth. Prominent sector zoning throughout larger semi-homogeneous core. Difficult to distinguish between core and rim. No clear core – rim boundary.	Very lightly fractured. FI
26.2	414.6	5.2	404.6	12.9			
31.1	421.6	9.5	421.5	13.7	Subhedral	Semi-homogeneous and dark throughout. Larger unzoned core.	Heavily fractured. PLA throughout MO associated with fractures.

						Smaller unzoned magmatic overgrowth.	
34.1	413.2	4.7	408.6	10.8	Subhedral	Smaller narrow dark unzoned semi-homogeneous magmatic overgrowth. Very large semi-homogeneous core with very faint equally spaced oscillatory zoning.	Very lightly fractured. Large portion of grain missing (i.e., popped out during grinding/polishing?). PLA associated with large gap and associated fractures in centre of grain. FI
34.2	416.8	4.9	416.9	12.1			
36.1	413.9	5.1	417.7	13.2	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth, bordered by very narrow outermost dark rim. Larger heterogeneous core with complex irregular patchy zoning.	Heavily fractured. PLA throughout core and MO associated with fractures. FI (very large, core based)
39.1	418.3	4.6	410.9	11.0	Subhedral	Smaller broad partial semi-homogeneous magmatic overgrowth with faint oscillatory zoning. Larger semi-homogeneous core with very faint (broad oscillatory?) zoning.	Unfractured.
46.1	411.9	4.9	406.3	14.1	Subhedral	Smaller semi-homogeneous very narrow to broad dark partial unzoned magmatic overgrowth. Larger semi-homogeneous core	Unfractured.

						with very faint (oscillatory?) zoning.	
49.1	408.3	4.7	406.1	11.1	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous unzoned core.	Heavily fractured. PLA throughout MO and core associated with fractures. FI
50.1	407.8	5.5	415.6	13.4	Subhedral	Complex structure throughout. Faint patchy oscillatory zoning throughout. Cannot distinguish between core and rim.	Heavily fractured. PLA throughout entire grain associated with many large anhedral inclusions throughout grain. LI
55.1	429.5	6.4	426.2	11.0	Subhedral	Complex structure throughout. Faint patchy oscillatory and sector zoning throughout larger heterogeneous magmatic overgrowth. Smaller rounded heterogeneous core with patchy oscillatory zoning.	Heavily fractured. PLA throughout MO and core associated with fractures. PR of core associated with outermost dark unzoned portion of magmatic overgrowth i.e., overprinting of core by very dark semi-homogeneous patch **or** overprinting of core by very large anhedral mineral inclusion **or** inherited core. FI
55.2	415.4	4.8	425.7	12.4			
55.3	413.4	5.4	419.3	15.7			
57.1	411.8	5.1	421.2	15.3	Subhedral	Complex structure throughout. Smaller heterogeneous unzoned magmatic overgrowth. Larger unzoned heterogeneous core.	Moderately fractured. PLA throughout MO and core associated with fractures. PR or PLA of outermost magmatic overgrowth (?). LI

58.1	418.6	5.8	420.3	11.3	Subhedral	Complex structure throughout. Smaller heterogeneous very narrow to broad partial magmatic overgrowth with very faint patchy oscillatory zoning. Larger heterogeneous core with faint patchy oscillatory zoning.	Heavily fractured. PLA throughout MO and core associated with fractures.
62.1	394.9	7.2	400.9	19.0	Subhedral	Complex structure throughout. Faint patchy oscillatory zoning throughout. Cannot distinguish between core and rim.	Lightly fractured. PLA throughout associated with fractures.
64.1	419.7	4.8	423.6	13.0	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger heterogeneous core with faint patchy oscillatory zoning.	Very lightly fractured. PLA throughout core and MO associated with fractures.
75.1	417.3	4.9	422.2	11.6	Subhedral	Complex structure throughout. Semi-homogeneous throughout with very faint patchy oscillatory zoning. No well-defined core -rim boundary.	Moderately fractured. PLA throughout associated with fractures. FI
78.1	420.4	5.5	415.2	13.8	Subhedral	Complex structure throughout. Heterogeneous throughout with faint patchy oscillatory zoning. No well-defined core -rim boundary.	Heavily fractured. PLA throughout associated with fractures. FI

88.1	409.2	5.3	411.0	12.5	Subhedral	Complex structure throughout. Very faint oscillatory zoning throughout semi-homogeneous grain. Poorly defined core – rim boundary.	Lightly fractured. PLA throughout associated with fractures and inclusions. FI
90.1	427.2	4.9	424.8	11.4	Subhedral	Complex structure throughout. Smaller very narrow to narrow semi-homogeneous very faintly zoned (oscillatory) magmatic overgrowth. Larger heterogeneous core with very faint patchy oscillatory (and sector?) zoning.	Very heavily fractured. PLA throughout associated with fractures and inclusions. LI (lots of small rounded inclusions in core)
91.1	412.1	6.5	421.8	21.1	Subhedral	Complex structure throughout. Very faint oscillatory zoning throughout heterogeneous grain. Poorly defined core – rim boundary.	Very heavily fractured. PLA throughout associated with fractures and inclusions. FI
92.1	417.7	6.3	419.9	15.6	Subhedral	Complex structure throughout. Smaller complex semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous unzoned core.	Heavily fractured. PLA throughout core associated with fractures and inclusions. FI
96.1	408.7	4.5	412.0	12.3	Subhedral	Complex structure throughout. Heterogeneous texture.	Heavily fractured. PLA throughout core

						Poorly defined core – rim boundary.	associated with fractures.
101.1	418.4	5.5	417.9	15.7	Subhedral	Complex structure throughout. Heterogeneous magmatic overgrowth with very faint patchy oscillatory and sector zoning. Semi-homogeneous core with very faint patchy oscillatory zoning.	Very heavily fractured. PLA throughout core and MO associated with fractures. FI
102.1	407.8	6.8	409.0	20.8	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous unzoned core.	Moderately fractured. PLA throughout core and MO associated with fractures.
103.1	414.8	4.9	414.9	11.9	Subhedral	Smaller very narrow to narrow semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous core with very faint patchy oscillatory and sector zoning.	Moderately fractured. PLA throughout core and MO associated with fractures.
105.1	414.2	6.0	417.8	15.5	Subhedral	Smaller semi-homogeneous magmatic overgrowth with very faint patchy oscillatory zoning. Larger semi-homogeneous core with very faint patchy oscillatory zoning.	Lightly fractured. PLA throughout core and MO associated with fractures. FI

Grain_001	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous throughout. Faint patchy oscillatory zoning in core.	Very heavily fractured. PLA throughout associated with fractures. Grain too small and fractured for laser analysis.
Grain_002	N/A	N/A	N/A	N/A	Subhedral	Heterogeneous throughout. Unzoned MO and core.	Heavily fractured. PLA throughout associated with fractures. Grain too small (i.e., MO and core individually too small for 30 µm laser spot) and fractured for laser analysis. FI
4.1	341.0	6.5	427.8	12.1	Subhedral	Very faint patchy oscillatory zoning throughout. Faint patchy sector zoning also. Cannot determine boundary between core and rim.	Heavily fractured. PLA throughout associated with fractures. Grain is 1 large core with poorly developed zoning?
4.2	412.4	5.4	424.5	16.1			
Grain_005	N/A	N/A	N/A	N/A	Anhedral	Semi-homogeneous core (?) and MO.	Heavily fractured. Grain too small and fractured for 30 µm laser spot.
Grain_008	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Moderately fractured. Grain too small for 30 µm laser spot and too many inclusions for analysis.
Grain_010	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous unzoned elongated core and MO.	Moderately fractured. Grain too small for 30 µm laser spot.
Grain_012	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous magmatic overgrowth and core. Very faint patchy oscillatory zoning in core.	Moderately fractured. PLA throughout, associated with fractures. Core and MO individually too small for 30 µm laser spot

							and grain is too fractured for laser analysis.
13.1	433.0	5.0	495.7	13.0	Subhedral	Complex structure throughout. Smaller very narrow to broad dark partial unzoned semi-homogeneous magmatic overgrowth. Prominent sector zoning throughout larger heterogeneous core (?).	Heavily fractured. PLA throughout core and MO, associated with fractures. Difficult to distinguish between core and rim. No clear core – rim boundary.
14.1	382.5	10.7	412.8	13.6	Euhedral	Complex structure throughout. Smaller very narrow to narrow dark partial unzoned semi-homogeneous magmatic overgrowth. Larger heterogeneous core with faint patchy zoning.	Heavily fractured. PLA throughout core, associated with fractures. Difficult to distinguish between core and rim. No clear core – rim boundary. FI (2 x very large)
Grain_015	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous. Cannot distinguish between core and rim.	Very heavily fractured. PLA throughout, associated with fractures. Grain too fractured and complex for 30 µm laser spot.
Grain_016	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Semi-homogeneous unzoned magmatic overgrowth. Heterogeneous core	Heavily fractured. PLA throughout, associated with fractures. Grain too fractured and complex for 30 µm laser spot.

						with faint patchy sector (?) zoning.	
Grain_017	N/A	N/A	N/A	N/A	Anhedral (broken)	Complex structure throughout.	Partial grain, broken in half with section missing. Both fragments are heavily fractured. PLA throughout both, associated with fractures. Fragments too small and complex for 30 µm laser spot.
Grain_018	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Chaotic / indistinguishable zoning throughout. Cannot distinguish between core and rim.	Heavily fractured. PLA throughout, associated with fractures. Grain too altered, fractured and texturally complex for 30 µm laser spot.
19.1	359.0	4.9	421.5	15.2	Subhedral	Complex structure throughout. Almost absent outermost magmatic overgrowth around very large semi-homogeneous core with faint patchy (broad oscillatory?) zoning.	Very lightly fractured. No magmatic overgrowth around large core?
20.1	417.7	5.2	446.2	15.7	Subhedral	Complex structure throughout. Heterogeneous texture. No well-developed identifiable zoning pattern. Cannot distinguish	Very heavily fractured. PLA throughout, associated with fractures.

						between core and rim.	
Grain_021	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Very faint patchy oscillatory zoning in magmatic overgrowth. Semi-homogeneous unzoned core.	Heavily fractured. PLA throughout, associated with fractures. Grain too altered, fractured, zones too small and inclusions too large for 30 µm laser spot.
Grain_022	N/A	N/A	N/A	N/A	Anhedral	Complex structure throughout.	Lightly fractured. PLA throughout, associated with fractures. Grain too small, fractured and texturally complex for 30 µm laser spot.
Grain_023	N/A	N/A	N/A	N/A	Anhedral	Semi-homogeneous and unzoned throughout.	Lightly fractured. Unsure if zircon or apatite?
Grain_025	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA throughout, associated with fractures. PR of core or very large mineral inclusion? FI (very large) Grain too fractured and altered for 30 µm laser spot.
27.1	399.7	4.9	420.5	11.7	Anhedral	Complex structure throughout. Semi-homogeneous. No core – rim boundary.	Very lightly fractured. FI
Grain_028	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous.	Very heavily fractured. PLA throughout, associated with fractures. FI Grain too fractured and altered for 30 µm laser spot.

Grain_029	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous broad patchy oscillatory zoning throughout.	Heavily fractured. PLA throughout, associated with fractures. FI (large) Grain too fractured, altered and zones too irregular for 30 µm laser spot.
Grain_030	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous zoning.	Moderately fractured. PLA throughout, associated with fractures. FI (large) Grain too fractured and zones too irregular and small for 30 µm laser spot.
32.1	429.7	5.3	599.6	30.3	Subhedral	Complex structure throughout. Semi-homogeneous smaller dark magmatic overgrowth with very faint oscillatory zoning. Large heterogeneous core with faint patchy sector zoning.	Very heavily fractured. PLA throughout core, associated with fractures. FI
Grain_033	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. Very tabular shaped. Likely apatite and not zircon, thus not analysed.
Grain_035	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous zoning. Cannot distinguish between core and rim.	Heavily fractured. PLA throughout, associated with fractures. Large anhedral mineral inclusion or TR of core? Grain too fractured, zones too narrow and irregular and

							core (?) too complex for analysis.
Grain_037	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous zoning. Cannot identify core – rim boundary.	Very heavily fractured. PLA throughout, associated with fractures. FI (both small and very large, elongated inclusions) Grain too fractured, zones too narrow and irregular and grain too complex for analysis.
38.1	372.2	6.0	442.3	18.1	Subhedral	Smaller narrow to very narrow semi-homogeneous unzoned magmatic overgrowth (bordered by very narrow dark outermost rim. Larger core with prominent oscillatory zoning.	Very lightly fractured.
40.1	420.1	6.1	435.3	10.5	Subhedral	Complex structure throughout. Unzoned throughout magmatic overgrowth and core.	Heavily fractured. PR of core (?). PLA throughout, associated with fractures. FI (some of which are large)
Grain_041	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous zoning. Difficult to distinguish between core and rim.	Very heavily fractured. PLA throughout, associated with fractures. PR of core or very large anhedral elongated mineral inclusion? Grain too fractured for laser analysis.
Grain_042	N/A	N/A	N/A	N/A	Subhedral	Smaller very narrow to narrow semi-homogeneous	Lightly fractured. PLA throughout, associated with fractures.

						unzoned magmatic overgrowth. Broad oscillatory zoning in larger semi-homogeneous core.	Zones too narrow for 30 µm laser spot.
43.1	384.9	6.2	505.5	20.6	Subhedral	Complex structure throughout. Semi-homogeneous smaller narrow to very narrow unzoned dark magmatic overgrowth. Large heterogeneous core with faint patchy sector and oscillatory zoning.	Moderately fractured. PLA throughout core, associated with fractures and inclusions. FI
43.2	404.8	5.9	455.8	13.2			
44.1	406.8	6.4	443.9	22.9	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger semi-homogeneous core with very faint oscillatory zoning.	Heavily fractured. PLA throughout core and MO, associated with fractures. FI
Grain_045	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Lightly fractured. A poorly developed zircon or an apatite, thus not analysed.
Grain_047	N/A	N/A	N/A	N/A	Anhedral	Complex structure throughout.	Very heavily fractured. Grain too small for 30 µm laser spot.
Grain_048	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy oscillatory and sector zoning.	Heavily fractured. Grain too fractured and zones too irregular for 30 µm laser spot.

Grain_051	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Moderately fractured. A poorly developed zircon or an apatite, thus not analysed.
52.1	393.5	7.6	444.5	14.7	Subhedral	Smaller semi-homogeneous unzoned magmatic overgrowth. Larger heterogeneous core with faint patchy oscillatory and sector zoning.	Heavily fractured. PLA throughout core, associated with fractures and inclusions. FI
Grain_053	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy oscillatory zoning throughout.	Very heavily fractured. PLA throughout, associated with fractures. Grain too fractured and zones too small and irregular for 30 µm laser spot. FI (anhedral inclusion in central portion of grain)
Grain_054	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy oscillatory zoning throughout.	Heavily fractured. PLA throughout, associated with fractures. Grain too fractured, altered and zones too small and irregular for 30 µm laser spot. FI (large anhedral homogeneous inclusion in central portion of grain)
Grain_056	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy zoning.	Very lightly fractured. Very tabular. Potentially apatite? Zones too narrow and irregular for 30 µm laser spot.

Grain_059	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Very heavily fractured. PLA throughout, associated with fractures. Grain too fractured for laser analysis.
60.1	375.3	5.2	490.2	16.2	Subhedral	Smaller very narrow to broad unzoned semi-homogeneous magmatic overgrowth. Larger heterogeneous core with faint patchy oscillatory zoning.	Lightly fractured. Large subrounded semi-homogeneous dark mineral inclusion (?) overlapping portion of core and MO. FI (small and large).
Grain_061	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy zoning.	Heavily fractured. Zones too narrow and irregular for 30 µm laser spot. FI
Grain_063	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy zoning.	Heavily fractured. Zones too narrow and irregular and grain too fractured for 30 µm laser spot. FI
Grain_064	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Heterogeneous patchy zoning.	Very heavily fractured. Zones too narrow and irregular and grain too fractured for 30 µm laser spot. FI (narrow and elongated)
66.1	389.8	5.8	414.2	11.8	Subhedral	Complex structure throughout. Unzoned heterogeneous magmatic overgrowth. Semi-homogeneous	Heavily fractured. PLA throughout MO, associated with fractures. Large subrounded inclusion overlaps core. FI
66.2	432.6	6.9	458.1	12.7			

						unzoned tabular core.	
67.1	335.8	6.1	622.6	27.4	Subhedral	Complex structure throughout. Larger heterogeneous magmatic overgrowth with very faint patchy oscillatory zoning. Smaller subrounded semi-homogeneous unzoned core.	Heavily fractured. PLA throughout MO, associated with fractures. LI
67.2	301.8	11.3	484.3	20.5			
68.1	411.3	8.3	468.8	22.1	Euhedral	Complex structure throughout. Heterogeneous very faint patchy oscillatory zoning throughout. Cannot define core – rim boundary.	Very heavily fractured. PLA throughout, associated with fractures. FI (both small and large)
69.1	451.3	11.3	567.2	37.6	Subhedral	Complex structure throughout. Smaller magmatic overgrowth with heterogeneous zoning. Larger semi-homogeneous unzoned inherited subrounded core.	Very heavily fractured. PLA throughout MO, associated with fractures. FI
70.1	380.3	5.4	416.2	12.9	Subhedral	Complex structure throughout. Larger heterogeneous magmatic overgrowth with very faint patchy oscillatory zoning. Smaller semi-homogeneous	Very heavily fractured. PLA throughout MO, associated with fractures and inclusions. FI (large, anhedral and small)
70.2	457.3	10.0	541.9	18.4			

						unzoned inherited core.	
Grain_071	N/A	N/A	N/A	N/A	Subhedral (broken)	Complex structure throughout.	Heavily fractured. Broken grain, each portion too small for 30 µm laser spot.
72.1	371.8	9.9	498.6	14.8	Subhedral	Complex structure throughout. Faint patchy sector zoning and very faint patchy oscillatory throughout. Poorly defined core – rim boundary so cannot distinguish between core and rim.	Very heavily fractured. FI (very large, overlaps original core of grain?)
72.2	412.2	5.4	578.7	16.6			
73.1	1227.7	158.9	2887.4	119.2	Subhedral	Complex structure throughout. Larger heterogeneous magmatic overgrowth. Smaller semi-homogeneous unzoned subrounded inherited core.	Very heavily fractured. PLA throughout MO, associated with fractures. FI
Grain_074	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA throughout associated with fractures. FI Grain is too altered, contains a very large inclusion and is too fractured for a 30 µm laser spot.
Grain_076	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA throughout associated with fractures. FI (very large)

							Grain is too altered, contains a very large inclusion and is too fractured for a 30 µm laser spot.
Grain_077	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA throughout associated with fractures. FI Grain is too fractured for a 30 µm laser spot.
79.1	427.0	6.3	485.8	19.7	Subhedral	Complex structure throughout. Very faint patchy sector zoning throughout (?). Poorly defined core – rim boundary.	Lightly fractured. PLA throughout, associated with fractures. FI
Grain_080	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA throughout associated with fractures. LI Grain is too altered, contains a very large inclusion and is too fractured for a 30 µm laser spot.
Grain_081	N/A	N/A	N/A	N/A	Subhedral	Semi-homogeneous and unzoned throughout.	Lightly fractured. Grain is tabular shaped and lacks any well-developed internal structure. May be apatite instead of zircon, thus was not analysed.
Grain_082	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA throughout associated with fractures. FI Grain is too altered and is

							too fractured for a 30 µm laser spot.
Grain_084	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. PLA throughout associated with fractures. FI Grain is too altered, is too fractured and the core/MO is too small for a 30 µm laser spot.
85.1	394.2	6.4	551.1	21.1	Subhedral	Complex structure throughout. Faint patchy oscillatory zoning throughout. Poorly defined core – rim boundary.	Moderately fractured. PLA throughout associated with fractures. FI
Grain_086	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Lightly fractured. PLA throughout associated with fractures. FI Grain and zones are too narrow for a 30 µm laser spot.
Grain_087	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA throughout associated with fractures. FI Grain is too altered, contains a very large inclusion and is too fractured for a 30 µm laser spot.
Grain_089	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Lightly fractured. Grain is too complex and zones too small for a 30 µm laser spot.

Grain_093	N/A	N/A	N/A	N/A	Subhedral	Homogeneous and unzoned throughout.	Apatite or dust rather than zircon so not analysed.
Grain_095	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. PLA throughout associated with fractures. Grain is too altered, fractured and zones too small and irregular for a 30 µm laser spot. FI
97.1	450.1	5.6	553.1	16.4	Subhedral	Smaller broad to very narrow semi-homogeneous magmatic overgrowth with very faint patchy oscillatory zoning. Larger heterogeneous core with faint patchy sector zoning.	Heavily fractured. PLA throughout core associated with fractures. FI
97.2	428.6	4.9	476.0	15.6			
98.1	379.7	6.9	435.4	14.0	Subhedral	Smaller broad to very narrow unzoned partial semi-homogeneous magmatic overgrowth. Larger heterogeneous core with faint patchy oscillatory and sector zoning.	Heavily fractured. PLA throughout core associated with fractures. FI (large, elongated).
99.1	391.9	5.8	501.4	18.1	Subhedral	Smaller very narrow to narrow partial unzoned homogeneous magmatic overgrowth. Larger	Very heavily fractured. PLA throughout core associated with fractures and inclusions. FI
99.2	399.1	9.8	452.7	15.4			

						heterogeneous core with faint patchy oscillatory and sector zoning.	
Grain_100	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout. Semi-homogeneous.	Moderately fractured. PLA throughout associated with fractures. Grain is too small and fractured for a 30 µm laser spot. FI
Grain_104	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Very heavily fractured. Individual zones too small and grain too fractured for 30 µm laser spot. FI
Grain_106	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Heavily fractured. Individual zones too small and grain too fractured for 30 µm laser spot. FI
Grain_107	N/A	N/A	N/A	N/A	Subhedral	Complex structure throughout.	Lightly fractured. Individual zones too for 30 µm laser spot. FI