

APPENDIX: FIEGE ET AL. AMERICAN MINERALOGIST

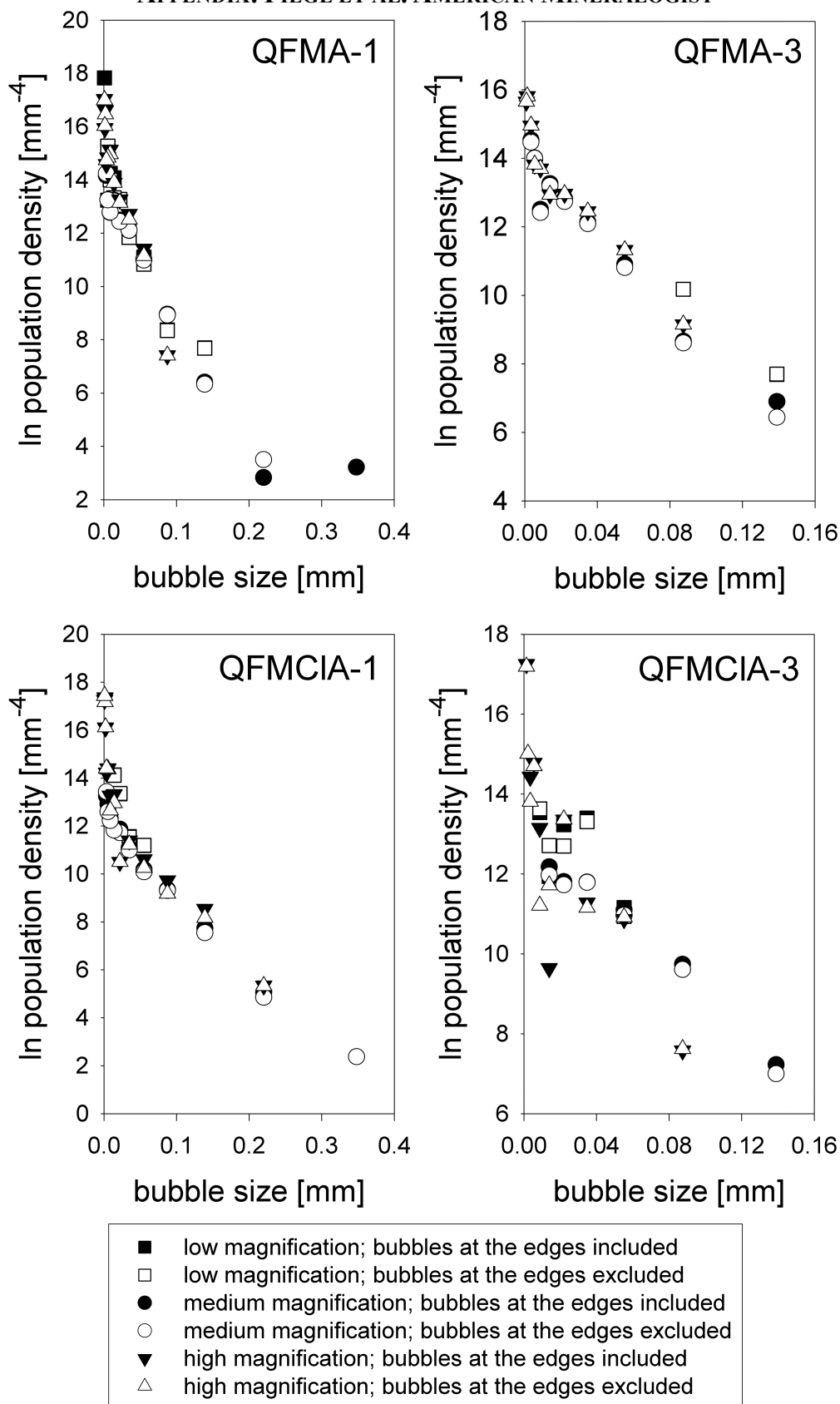


Figure A.1. Bubble size distribution of selected samples (QFMA-1; -3; QFMCIA-1; -3). Image sizes range between $\sim 300 \times \sim 220 \mu\text{m}$ (at high magnification) and $\sim 2500 \times \sim 1850 \mu\text{m}$ (at low magnification). Bubbles at the edges of the images were either excluded or included for image analyses.

Table A.1. Near infrared (NIR) results, density of the glass (ρ_{glass}) and the melt (ρ_{melt}), P_{SAT} , and C_{SAT} of the four starting glasses.

<i>Sample ID</i>	<i>c(OH)</i> [wt%]	<i>c(H₂O)</i> [wt%]	ρ_{glass} [g/cm ³] (a)	P_{SAT} [MPa] (b)	ρ_{melt} [g/cm ³] (c)	C_{SAT} [m ⁻³] (d)
GYCIA	2.28	4.29	2.429	329	2.226	4.88×10^{27}
GYMCIA	2.28	4.01	2.425	304	2.222	4.67×10^{27}
QFMA	2.31	4.16	2.429	320	2.225	4.81×10^{27}
QFMCIA	2.30	4.28	2.422	331	2.227	4.90×10^{27}

Notes: NIR spectra were collected with a Bruker IFS 88 FTIR spectrometer equipped with a Bruker IRscope II IR microscope (*setup*: tungsten light source, CaF₂ beamsplitter, mercury-cadmium-tellur (MCT) narrow range detector; *spot size*: $\sim 60 \mu\text{m} \times \sim 60 \mu\text{m}$). See Fiege et al (2014) for further details.

(a) Estimated from the glass composition using the Gladstone-Dale rule (Gladstone and Dale, 1863; see also Mandeville et al., 2002); (b) Estimated from the glass composition using the model of Burnham (1979); (c) Estimated from the glass composition for P_{SAT} and 1030°C using the model of Ochs and Lange (1999); (d) Calculated by using

ρ_{melt} .

REFERENCES USED IN THE APPENDIX

- Burnham, C.W. (1979) Magmas and hydrothermal fluids. In H. L. Barnes, Ed., Geochemistry of hydrothermal ore deposits, p. 71-136. John Willey and Sons, New York.
- Gladstone, and Dale (1863) Researches on the Refraction, Dispersion, and Sensitiveness of Liquids. Philosophical Transactions of the Royal Society of London, 153, 317-343.
- Ochs, F.A., and Lange, R.A. (1999) The Density of Hydrous Magmatic Liquids. Science, 283, 1314-1317.