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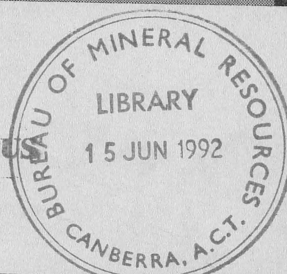
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Mineral Provinces

**Sample, Fluid Inclusion, Stable Isotope, and
Geochronological Data for Epithermal Gold Prospects
in the Northern Drummond Basin.
Record 1992/21**



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G R Ewers and C F Hoffman

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BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

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DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Minister: The Hon. Alan Griffiths

Secretary: G.L. Miller

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

Executive Director: R.W.R. Rutland AO

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INTRODUCTION

This record summarizes data collected by BMR between 1987 and 1990 under a collaborative research project involving BMR and BHP; it forms the basis for interpretive reports and papers arising from that project.

The data come from epithermal gold prospects in the northern Drummond Basin held by BHP over the project period. This work was part of a larger integrated regional and prospect scale study conducted in the northern Drummond Basin which involved BMR, the Queensland Department of Resource Industries (QDRI; formerly the Queensland Department of Mines), and various companies active in the region. The project was designed to establish the regional geological setting and origin of gold deposits in the area.

The data reported in this record are divided into four parts. The first section provides sample details of material collected from various BHP prospects (SAMPLE DATA). This information consists of the registered BMR sample number, whether the sample is from outcrop or drillcore (if the latter, then the BHP drillhole and depth sampled is indicated), the AMG grid reference based on the 1:100 000 topographic map series, and a brief description of the rock-type sampled and the dominant alteration features.

The second section contains details of fluid inclusion measurements on quartz and calcite veins occurring in outcrop and drillcore. These data include homogenisation temperatures for suitable two phase liquid + vapour inclusions determined during heating, and where possible, ice melting temperatures for inclusion fluids measured during freezing runs. These last melting temperatures of ice were recorded as freezing point depressions and were used to calculate the weight percent equivalent NaCl in the liquid phase, assuming a simple NaCl-H₂O system. The tabulation for each sample indicates where both homogenisation and ice melting temperatures were recorded on the same inclusion. Comments on the nature of the vein material and the fluid inclusions measured have been summarized for each sample. A histogram of homogenisation temperatures for each sample is provided also.

The third section contains oxygen, carbon, sulphur, and hydrogen isotope data from the BHP prospects. These data consist of oxygen isotope values for quartz veins, sinters, and whole rock samples; oxygen and carbon isotopes on calcite; oxygen and hydrogen isotopes on sericite; and sulphur isotopes on sulphides (mainly pyrite).

The final section summarizes the details and results of K-Ar dating for fracture-related sericite sampled from three BHP prospects. These data were obtained under contract from AMDEL in three batches from November, 1987 through to December, 1988.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the cooperation of BHP staff who have worked on these prospects and provided assistance in sampling drillcore. We have valued the support of colleagues within BMR, in particular Hashem Etminan for his advice in acquiring fluid inclusion data. Isotopic data for sulphides and carbonates were obtained through BMR's facilities with the assistance of Robert Drew and Zarko Roksandic. The oxygen and hydrogen isotope data for silicates were obtained under contract from facilities at CSIRO's Division of Exploration Geoscience in North Ryde through Dr Anita Andrew.

SAMPLE DATA FOR DETAILED STUDIES ON BHP PROSPECTS

BMR NO.	DRILLHOLE, DEPTH (m)	AMG GRID REFERENCE	ROCK TYPE, DESCRIPTION
8750 0001	C1, 6.3	8356-378781	andesite; mod. propylitic alt.
0002	C1, 22.2	8356-378781	andesite; bx, int. sericitic/argillic alt.
0003	C1, 26.2	8356-378781	andesite; mod. propylitic & weak sericitic/argillic alt.
0004	C1, 32.8	8356-378781	breccia; andesitic, mod. propylitic & sericitic/argillic alt.
0005	C1, 41.7	8356-378781	breccia; andesitic, mod. propylitic & sericitic/argillic alt.
0006	C1, 48.0	8356-378781	breccia; weak propylitic & sericitic/argillic alt.
0007	C1, 75.2	8356-378781	breccia; mod. propylitic & sericitic/argillic alt., cal. veins
0008	C1, 86.7	8356-378781	andesite; bx, mod. propylitic & weak sericitic/argillic alt., cal. veins
0009	C1, 96.1	8356-378781	andesite; bx, int. propylitic & weak sericitic/argillic alt., cal. veins
0010	C1, 113.2	8356-378781	andesite; bx, mod. propylitic & weak sericitic/argillic alt., cal./analcime veins
0011	C1, 121.9	8356-378781	andesite; bx, mod. propylitic & weak sericitic/argillic alt., cal./analcime veins
0012	C1, 134.9	8356-378781	andesite; bx, mod. propylitic & sericitic/argillic alt., cal./laumontite veins
0013	C1, 143.4	8356-378781	andesite; bx, mod. propylitic & sericitic/argillic alt., cal. veins
0014	C1, 152.3	8356-378781	andesite; mod. propylitic & weak sericitic/argillic alt., cal. veins
0015	C1, 166.8	8356-378781	pyroxene andesite; weak propylitic alt.
0016	C2, 14.3	8356-382783	breccia; int. silicification
0017	C2, 22.6	8356-382783	trachyandesite?; int. argillic alt.
0018	C2, 34.3	8356-382783	breccia; int. silicification, cal. veins
0019	C2, 38.4	8356-382783	breccia; int. silicification, mod. sericitic/argillic alt., cal. veins
0020	C2, 47.0	8356-382783	breccia; int. silicification, mod. sericitic/argillic alt.
0021	C2, 60.4	8356-382783	breccia; int. silicification, mod. sericitic/argillic alt.
0022	C2, 71.3	8356-382783	breccia; mod. propylitic & sericitic/argillic alt.
0023	C2, 77.9	8356-382783	breccia; int. propylitic & sericitic/argillic alt., qtz. veins
0024	C2, 84.3	8356-382783	breccia; int. propylitic & sericitic/argillic alt., qtz. veins
0025	C2, 100.2	8356-382783	breccia; int. propylitic & sericitic/argillic alt.
0026	C2, 100.7	8356-382783	massive sericite in matrix to breccia
0027	C2, 112.4	8356-382783	breccia; int. propylitic & sericitic/argillic alt., cal. veins
0028	C2, 116.0	8356-382783	breccia; int. propylitic & sericitic/argillic alt.
0029	C2, 124.0	8356-382783	breccia; int. propylitic & sericitic/argillic alt., cal. veins
0030	C2, 138.0	8356-382783	andesite?; int. propylitic & sericitic/argillic alt., cal. veins
0031	C2, 153.5	8356-382783	trachyandesite?; mod. propylitic & sericitic/argillic alt., cal./laumontite/analcime veins
0032	C2, 163.6	8356-382783	breccia; mod. propylitic & sericitic/argillic alt.
0033	C2, 170.9	8356-382783	breccia; int. propylitic & sericitic/argillic alt., qtz/cal. veins
0034	C2, 196.4	8356-382783	breccia; int. propylitic & sericitic/argillic alt., qtz/cal. veins
0035	surface	8356-380901	quartz vein; Mojo area
0036	surface	8356-381949	siliceous volcanic? mudstone; weathered, Battery Hill
0037	surface	8356-381949	finely laminated mudstone; completely silicified, Battery Hill
0038	surface	8356-378778	siliceous sinter; Wobegong area
0039	surface	8356-379779	siliceous sinter; Wobegong area

0040	surface	8356-382783	quartz vein; Wobegong area
0041	surface	8356-382785	breccia; int. silicification, qtz veins, Wobegong area
0042	surface	8356-383786	breccia; int. silicification, qtz veins, Wobegong area
0043	surface	8356-384786	quartz vein; Wobegong area
0044	surface	8356-382785	quartz vein; Wobegong area
0045	surface	8356-383784	quartz vein; Wobegong area
0046	surface	8356-385787	trachyandesite?; int. hydrothermal alt. & weathering
0047	surface	8356-403788	quartz vein; Quartz Reef Hill area
0048	surface	8356-403787	quartz vein; Quartz Reef Hill area
0049	surface	8356-403787	quartz vein; Quartz Reef Hill area
0050	surface	8356-402788	quartz vein; Quartz Reef Hill area
0051	surface	8356-402788	quartz vein; Quartz Reef Hill area
0052	surface	8356-400782	quartz vein; Split Hill area
0053	surface	8356-399782	quartz vein; Split Hill area
0054	surface	8356-399782	quartz vein; Split Hill area
0055	surface	8356-399783	quartz vein; Split Hill area
0056	surface	8356-393779	quartz vein; costean, Bustard Egg Hill area
0057	surface	8355-387771	quartz vein; Big Sinter Hill area
0058	surface	8355-388771	quartz vein; Big Sinter Hill area
0059	surface	8355-385772	breccia; int. silicification, qtz veins, Big Sinter Hill area
0060	C3A, 24.9	8355-387774	trachyte; bx, mod. silicification, int. sericitic/argillic alt., qtz veins
0061	C3A, 40.5	8355-387774	trachyte; mod. silicification, int. sericitic/argillic alt., cal. veins
0062	C3A, 61.6	8355-387774	trachyte?; bx, int. silicification, mod. sericitic/argillic alt., cal. veins
0063	C3A, 91.4	8355-387774	trachyte?; bx, int. silicification, mod. sericitic/argillic alt., cal. veins
0064	C3A, 96.6	8355-387774	breccia; int. silicification & sericitic/argillic alt.
0065	C3A, 108.8	8355-387774	massive sericite in matrix to breccia
0066	C3A, 125.8	8355-387774	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0067	C3A, 129.1	8355-387774	massive sericite in matrix to breccia
0068	C3A, 138.0	8355-387774	andesite; mod. sericitic/argillic & weak propylitic alt., cal. veins
0069	C3A, 155.5	8355-387774	breccia; int. silicification & sericitic/argillic alt.
0070	C3A, 181.4	8355-387774	breccia; int. silicification & sericitic/argillic alt., cal. veins
0071	C3A, 190.8	8355-387774	massive sericite in matrix to breccia
0072	C3A, 205.8	8355-387774	breccia; mod. silicification & int. sericitic/argillic alt.
0073	C3A, 211.8	8355-387774	breccia; mod. silicification & int. sericitic/argillic alt.
0074	C3A, 217.6	8355-387774	breccia; int. sericitic/argillic alt., cal. veins
0075	C3A, 228.3	8355-387774	andesite; weak propylitic & sericitic/argillic alt.
0076	B1, 45.8	8355-391694	breccia; rhyolitic, mod. silicification & sericitic/argillic alt., qtz veins
0077	B1, 47.6	8355-391694	breccia; rhyolitic, mod. silicification & sericitic/argillic alt., qtz veins
0078	B1, 48.7	8355-391694	breccia; rhyolitic, int. silicification & mod. sericitic/argillic alt., qtz veins
0079	B1, 53.5	8355-391694	breccia; rhyolitic, int. sericitic/argillic alt.
0080	B1, 115.2	8355-391694	rhyolite; bx, mod. silicification & sericitic/argillic alt.
0081	B1, 130.2	8355-391694	rhyolite; bx, mod. silicification & int. sericitic/argillic alt.
0082	surface	8356-370903	ignimbrite; rhyolitic, weak sericitic/argillic alt. & weathering
0083	surface	8356-369907	ignimbrite; rhyolitic, weak sericitic/argillic alt. & weathering

0084	surface	8356-374913	ignimbrite; rhyolitic, weak sericitic/argillic alt. & weathering
0085	surface	8356-375916	ignimbrite; rhyolitic, weak sericitic/argillic alt. & weathering
0086	surface	8356-376916	volcanic sandstone; rhyolitic, weak sericitic/argillic alt. & weathering
0087	surface	8356-381949	breccia; rhyolitic fragments with weak sericitic/argillic alt. in a chalcedonic matrix
0088	surface	8356-378905	quartz vein; Bluegum
0089	surface	8356-376905	quartz vein; Bluegum
0090	surface	8356-380901	quartz vein; Mojo area
0091	BG1, 56.9	8356-377905	massive sericite in fractures in lithic tuff
0092	BG1, 85.0	8356-377905	laumontite veins
0093	BG2, 71.2	8356-376906	breccia; int. silicification & weak sericitic/argillic alt., qtz veins cut by cal. veins
0094	BG2, 84.1	8356-376906	breccia; int. silicification & weak sericitic/argillic alt., cal. veins
0095	BG2, 92.0	8356-376906	breccia; mod. silicification & sericitic/argillic alt., cal. veins
0096	BG2, 99.7	8356-376906	breccia; mod. silicification & sericitic/argillic alt., cal. veins
0097	BG3, 39.7	8356-376904	breccia; int. silicification & mod. sericitic/argillic alt.
0098	BG3, 42.7	8356-376904	breccia; int. silicification & mod. sericitic/argillic alt., cal./chlorite veins
0099	BG3, 98.5	8356-376904	breccia; int. silicification & mod. sericitic/argillic alt., cal. veins
0100	BG3, 100.9	8356-376904	breccia; int. silicification & mod. sericitic/argillic alt., cal. veins
0101	surface	8355-387777	quartz vein; Bustard Egg Hill area
0102	surface	8355-387776	quartz vein; Bustard Egg Hill area
0103	surface	8355-409767	quartz vein; Red Flag Hill area
0104	surface	8355-413770	quartz vein; Red Flag Hill area
0105	surface	8355-410770	quartz vein; Red Flag Hill area
0106	surface	8355-400736	rhyolite, flow-banded & altered; Durah Creek
0107	surface	8355-388741	rhyolite, flow-banded & mod. weathered, Durah Creek
0108	surface	8356-379779	siliceous sinter; Wobegong area
0109	surface	8356-379779	siliceous sinter; Wobegong area
8850 0001	surface	8356-379780	siliceous sinter; Wobegong area
0002	surface	8356-379780	siliceous sinter; Wobegong area
0003	surface	8356-378778	siliceous sinter; Wobegong area
0004	surface	8356-378778	siliceous sinter; Wobegong area
0005	surface	8355-390770	siliceous sinter; Big Sinter Hill area
0006	surface	8355-390770	plant fossils in silicified volcanic rock
0007	surface	8355-389770	quartz vein; Big Sinter Hill area
0008	C80, 68.0	8355-410769	rhyolite?; weak silicification & sericitic/argillic alt., py on fracture surfaces
0009	C80, 72.2	8355-410769	rhyolite?; weak silicification & sericitic/argillic alt., montmorillonite on fracture surfaces
0010	C81, 65.5	8355-411771	trachyte?; py on fracture surfaces
0011	C81, 81.7	8355-411771	crystal-rich lava; trachytic?, flow-banded, weak sericitic/argillic alt.
0012	C82, 76.6	8355-410770	andesite; vesicular; weak propylitic & sericitic/argillic alt.
0013	C130, 33.0	8355-387772	massive sericite in matrix to breccia
0014	C131, 31.5	8355-385771	massive sericitic/argillic alt. in fractures cutting int. silicified breccia

0015	C131, 66.9	8355-385771	massive sericitic/argillic alt. in fractures cutting mod. silicified tuff
0016	C131, 78.7	8355-385771	massive sericite in fractures cutting mod. silicified tuff
0017	surface	8356-377894	calcic marble; skarn-veined
0018	surface	8356-377894	calcic marble; skarn-veined
0019	surface	8356-377894	calcic marble; skarn-veined
0020	C132, 43.8	8355-387775	breccia; mod. silicification, qtz & later cal. veining
0021	C132, 63.0	8355-387775	trachyte?; mod. silicification & sericitic/argillic alt., py on fracture surfaces
0022	C151, 21.8	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., qtz veins
0023	C151, 23.0	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., qtz veins
0024	C151, 34.4	8355-389770	trachyte?; bx, mod. silicification & sericitic/argillic alt., qtz veins cut by cal. veins
0025	C151, 36.9	8355-389770	massive sericitic/argillic alt. in fractures cutting trachyte?
0026	C151, 45.9	8355-389770	massive sericitic/argillic alt. in fractures cutting trachyte?
0027	C151, 50.8	8355-389770	massive sericitic/argillic alt. in fractures cutting trachyte?
0028	C151, 57.4	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0029	C151, 63.0	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0030	C151, 71.7	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., py veins
0031	C151, 74.9	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0032	C151, 80.0	8355-389770	sericitic/argillic alt. & cal. in fractures cutting trachyte?
0033	C151, 125.0	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0034	C151, 127.5	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0035	C151, 136.0	8355-389770	massive sericite in fractures cutting trachyte?
0036	C151, 137.0	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., cal. veins
0037	C151, 140.9	8355-389770	trachyte?; mod. silicification & sericitic/argillic alt., qtz & later cal. veins
0038	C151, 145.2	8355-389770	trachyte?; weak silicification & mod. sericitic/argillic alt., laumontite veins
0039	I10, 6.7	8356-373927	laminated quartz vein
0040	I10, 10.0	8356-373927	laminated quartz vein
0041	I10, 15.2	8356-373927	crystal-lithic tuff; mod. silicification, py in fractures
0042	I10, 21.3	8356-373927	crystal-lithic tuff; mod. silicification, qtz veins
0043	I10, 32.9	8356-373927	crystal-lithic tuff; mod. silicification, qtz veins
0044	I10, 38.7	8356-373927	crystal-lithic tuff; bx, mod. silicification, cal. & later qtz veins
0045	I10, 47.8	8356-373927	ash tuff; weak silicification, qtz veins
0046	I10, 57.9	8356-373927	rhyolite; weak silicification & mod. sericitic/argillic alt.
0047	surface	8355-395758	siliceous sinter; 1400m SSE of Big Sinter Hill
0048	surface	8355-395758	plant fossils in silicified volcanic rock
0049	surface	8355-388771	breccia; int. silicification & qtz veins
0050	BG1, 55.5	8356-377905	crystal tuff; mod. silicification & sericitic/argillic alt, qtz veins
0051	BG1, 89.5	8356-377905	lithic tuff; bx, py on fracture surfaces

0052	BG2, 52.3	8356-376906	ignimbrite; bx, mod. sericitic/argillic alt. & weak silicification, qtz veins
0053	BG33, 86.7	8356-376906	volcaniclastic rock; int. sericitic/argillic alt., late epidote/chlorite/calcite veins
0054	BG34, 36.7	8356-376907	massive sericite in completely silicified rock
0055	BG34, 36.9	8356-376907	completely silicified rock; qtz veins
0056	BG34, 65.3	8356-376907	breccia; int. silicification, qtz veins
0057	BG34, 71.1	8356-376907	breccia; int. silicification & sericitic/argillic alt., qtz, cal., py veins
0058	BG34, 74.3	8356-376907	breccia; int. silicification & sericitic/argillic alt., qtz, cal., sulphide veins
0059	BG35, 48.7	8356-376906	completely silicified rock; qtz veins
0060	BG35, 49.0	8356-376906	massive sericite in completely silicified rock
0061	BG35, 63.6	8356-376906	ignimbrite?; int. silicification, sulphide veins
0062	BG36, 96.4	8356-376907	massive sericite on fractures in mod. alt. lithic tuff?
0063	BG36, 118.8	8356-376907	late laumontite/montmorillonite veins in alt. crystal tuff
0064	BG36, 104.3	8356-376907	massive sericite on fractures in mod. alt. crystal tuff
0065	surface	8356-381729	siliceous sinter; Durah Creek area
0066	surface	8356-391694	siliceous sinter?; Bimurra
0067	surface	8356-393687	breccia; int. silicification, laminated qtz veins
0068	surface	8356-391692	breccia; int. silicification, laminated qtz veins
0069	BG37, 19.3	8356-377908	ash tuff; mod. silicification, py veins
0070	BG37, 53.3	8356-377908	ash tuff; mod. silicification, py-po veins
0071	BG37, 57.1	8356-377908	crystal-lithic tuff; mod. silicification, ga-sph veins
0072	BG37, 58.9	8356-377908	crystal-lithic tuff; mod. silicification, cal. veins
0073	BG39, 44.3	8356-378904	lithic tuff?; bx, int. silicification & sericitic/argillic alt., late cal. veins cut by laumontite veins
0074	BG39, 48.3	8356-378904	sericitic/argillic alt. on fractures in lithic tuff
0075	BG39, 52.6	8356-378904	lithic tuff?; bx, int. silicification & mod. sericitic/argillic alt., qtz veins
0076	BG39, 58.5	8356-378904	lithic tuff; bx, weak silicification, cal. veins
0077	BG39, 59.3	8356-378904	crystal-lithic tuff; weak silicification & sericitic/argillic alt., py veins
0078	BG39, 66.5	8356-378904	breccia; int. silicification & sericitic/argillic alt., py veins
0079	BG39, 89.3	8356-378904	sericite on fractures in alt. crystal tuff
0080	BG39, 89.6	8356-378904	breccia; int. silicification & sericitic/argillic alt., qtz/chlorite/cal./py veins
0081	BG39, 116.8	8356-378904	andesite; weak propylitic & sericitic/argillic alt., qtz/chlorite/sulphide veins cut by laumontite veins
0082	P3, 41.0	8356-385951	crystal-lithic tuff?; mod. silicification, propylitic & sericitic/argillic alt., qtz veins
0083	P3, 45.6	8356-385951	volcaniclastic rock; mod. silicification, propylitic & sericitic/argillic alt., epidote/cal./chlorite veins
0084	P3, 48.7	8356-385951	volcaniclastic rock; mod. silicification, propylitic & sericitic/argillic alt., epidote/cal. veins
0085	P3, 55.0	8356-385951	volcaniclastic rock; mod. silicification, propylitic & sericitic/argillic alt., qtz veins
0086	P3, 58.0	8356-385951	breccia; mod. silicification, propylitic & sericitic/argillic alt., qtz/chlorite/py veins
0087	P3, 83.8	8356-385951	volcaniclastic rock; mod. silicification, propylitic & sericitic/argillic alt., qtz/sulphide veins
0088	P3, 99.1	8356-385951	crystal tuff?; mod. silicification, propylitic & sericitic/argillic alt., chlorite veins
0089	P4, 89.2	8356-384950	crystal tuff?; mod. silicification, propylitic & sericitic/argillic alt., qtz/py veins

0090	P4, 99.0	8356-384950	crystal tuff?; mod. silicification, propylitic & sericitic/argillic alt., qtz/py veins
0091	P5, 53.9	8356-385950	crystal-lithic tuff; mod. sericitic/argillic alt., qtz veins cut by late chlorite/epidote veins
0092	C1, 180.2	8356-378781	andesite; weak propylitic alt., cal./epidote veins
0093	B39, 42.7	8356-392694	rhyolite; bx, mod. silicification & int. sericitic/argillic alt., qtz/py veins
0094	B39, 43.3	8356-392694	sericitic/argillic alt. on fractures in alt. rhyolite?
0095	B39, 46.0	8356-392694	sericitic/argillic alt. on fractures in alt. rhyolite?
0096	surface	8355-460300	siliceous sinter, Hill 273 Prospect

Drillhole abbreviations: C = Conway prospect; B = Bimurra prospect; I = Isabella prospect;
BG = Bluegum prospect; P = Peak John/Battery Hill prospect.

Abbreviations: bx = brecciated; alt. = altered/alteration; mod. = moderate; int. = intense; qtz = quartz;
cal. = calcite; py = pyrite; po = pyrrhotite; ga = galena; sph = sphalerite

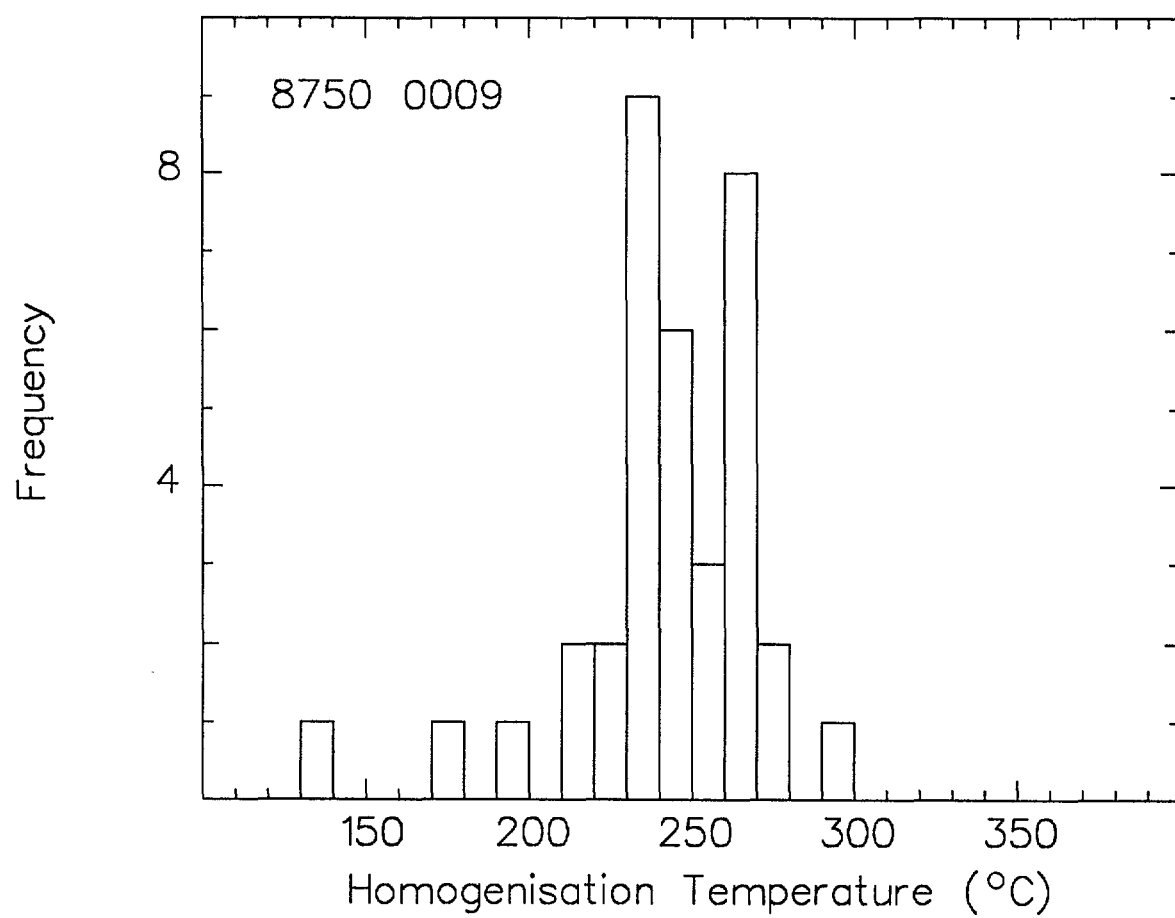
**FLUID INCLUSION DATA AND HOMOGENISATION TEMPERATURE
HISTOGRAMS FOR CONWAY AND BLUEGUM QUARTZ AND
CALCITE SAMPLES**

SAMPLE No. 8750 0009
SAMPLE DDH C1, 96.1 m
MINERAL calcite
PROSPECT Conway
AREA Wobegong

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	137		
	175		
	191		
	212		
	216		
	227		
	229		
	230		
	233		
	233		
	234		
	235		
	235		
	236		
	237		
	239	-0.1	0.2
	244	-0.2	0.4
	245	-0.2	0.4
	246	-0.3	0.5
	247	-0.3	0.5
	249	-0.3	0.5
	249	-0.3	0.5
	250	-0.3	0.5
	257		
	257	-0.4	0.7
	260	-0.9	1.6
	260		
	264		
	264	0.0	0
	264		
	266		
	269	-0.1	0.2
	269		
	273	-0.1	0.2
	273		
	290		
mean	242		0.8
std. dev.	29		0.6
no. samples	36		22

REMARKS: Coarsely crystalline calcite veins in andesitic breccia; abundant regular fluid inclusions, 5-10 microns, 10% vapour.

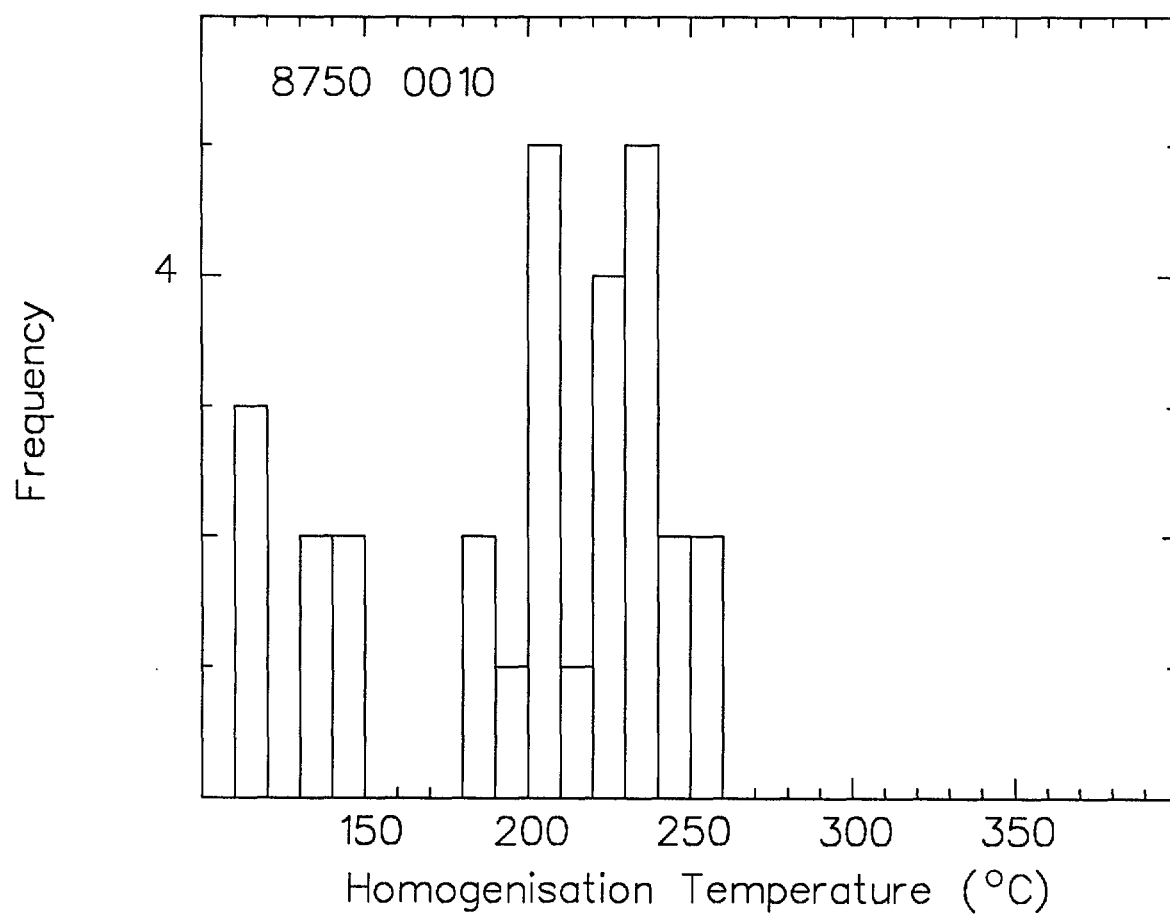
Further salinity measurements (Wt % NaCl equiv.): -0.3 (0.5), -0.3 (0.5), -0.6 (1.0), -0.7 (1.2), -0.7 (1.2), -0.7 (1.2), -0.8 (1.4), -0.8 (1.4), -1.6 (2.7).



SAMPLE No. 8750 0010
SAMPLE DDH C1, 113.2 m
MINERAL calcite
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	112		
	113		
	115		
	139		
	139		
	148	-0.3	0.5
	148		
	180		
	185		
	199	-0.1	0.2
	201	-0.1	0.2
	203	-0.3	0.5
	204	-0.1	0.2
	205	-0.1	0.2
	208		
	210	-0.2	0.4
	227		
	227		
	227		
	228		
	231		
	234		
	236	-0.1	0.2
	237	-0.4	0.7
	239		
	244	-0.1	0.2
	247	-0.2	0.4
	250	-0.1	0.2
	250	-0.1	0.2
mean	200		0.6
std. dev.	44		0.2
no. samples	29		18

REMARKS: Coarsely crystalline calcite veins in brecciated andesite; abundant regular fluid inclusions, 5-10 microns, 10% vapour.
 Further salinity measurements (Wt % NaCl equiv.): -0.4 (0.7), -0.4 (0.7), -0.5 (0.9), -0.5 (0.9), -0.5 (0.9).

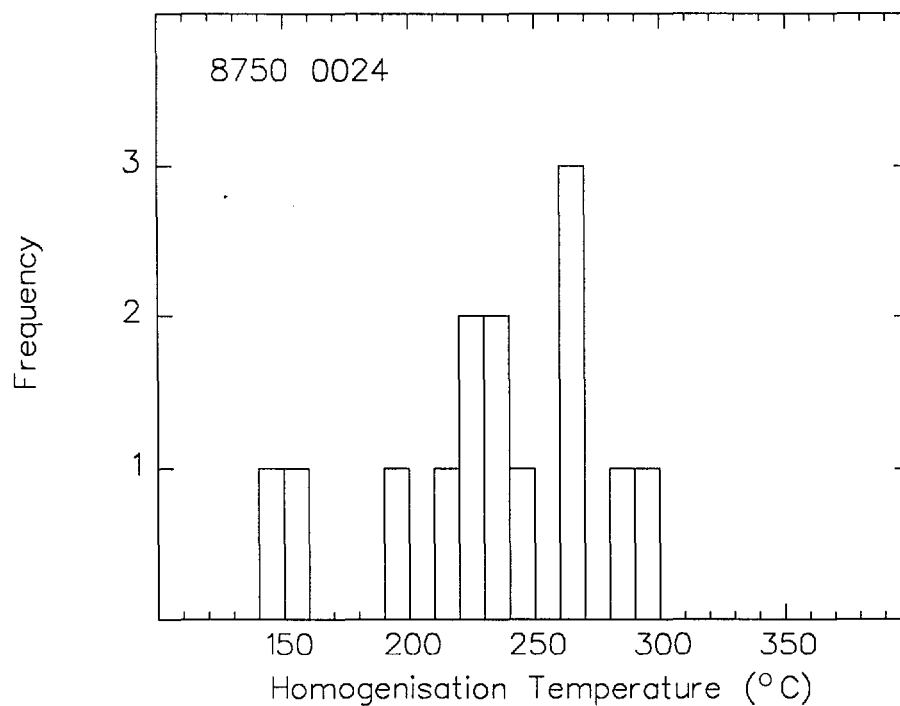


SAMPLE No. 8750 0024
SAMPLE DDH C2, 84.3 m
MINERAL quartz
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	149		
	153		
	190	-0.4	0.7
	219		
	225	-0.1	0.2
	226		
	235		
	237	-0.4	0.7
	241		
	263	-0.3	0.5
	265	-0.3	0.5
	269	-0.3	0.5
	285		
	290		
mean	232		0.5
std. dev.	44		0.2
no. samples	14		8

REMARKS:

Milky quartz with rare inclusions. Small group of regular, 5-10 micron, 5-10% vapour inclusions.
 Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -0.4 (0.7)

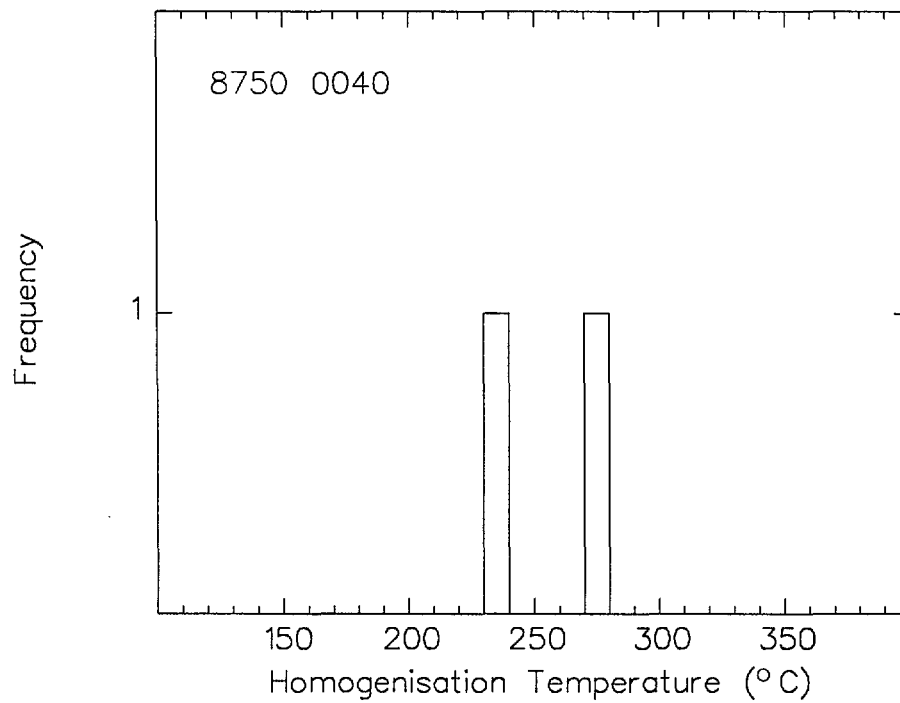


SAMPLE No. 8750 0040
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	238		
	274		
mean	256	-	
std. dev.	26	-	
no. samples	2	-	

REMARKS:

Milky quartz vein with numerous small cavities containing very fine dog-tooth quartz. Rare inclusions.

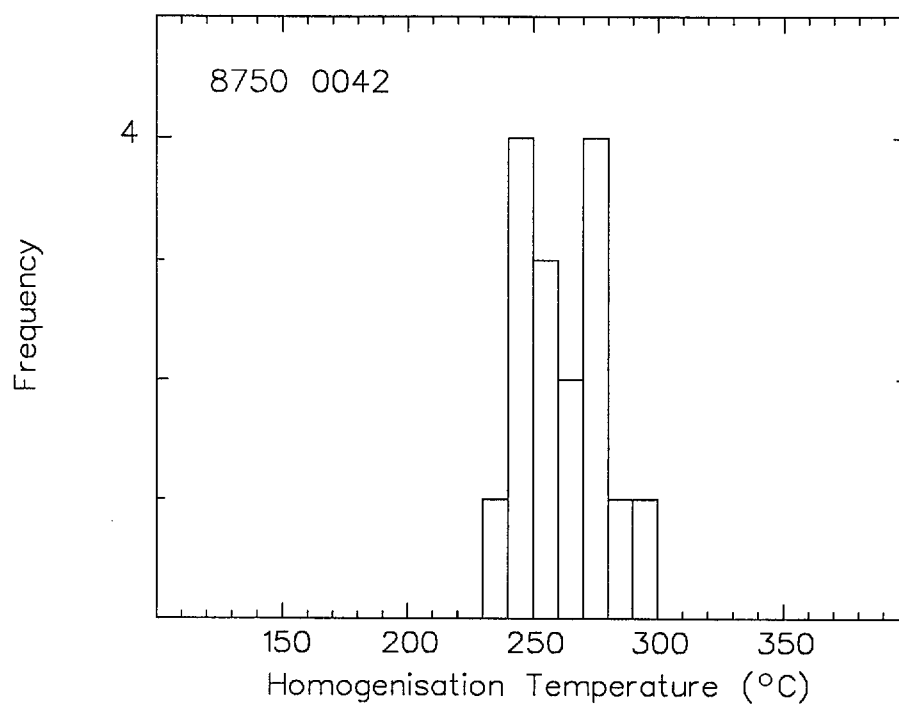


SAMPLE No. 8750 0042
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	239		
	241		
	244		
	246		
	247		
	251		
	252		
	258	-3.2	5.2
	265		
	267	-3.3	5.4
	270		
	273	-3.3	5.4
	273	-3.3	5.4
	273	-3.3	5.4
	280		
	290		
mean	261		5.4
std. dev.	15		0.1
no. samples	16		5

REMARKS:

Milky quartz vein with numerous cavities containing very fine, euhedral, dog-tooth quartz. Abundant regular fluid inclusions along growth zones, 5-10 microns, 10% vapour.



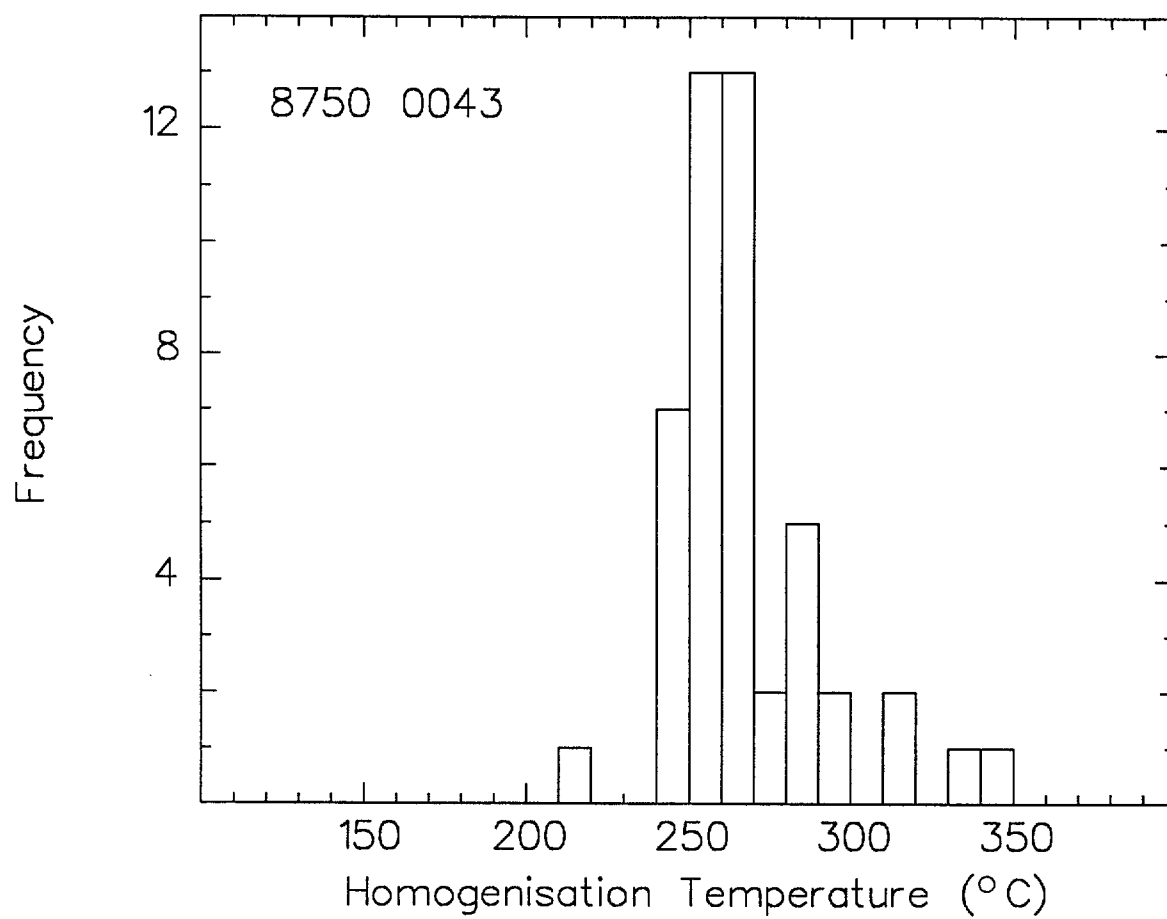
SAMPLE No. 8750 0043
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Wobegong

Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
211		
241		
241		
244		
245		
246		
248		
249		
251		
253		
253		
254		
255		
256		
256	-0.1	0.2
256		
257	-0.1	0.2
257		
257		
259		
259		
260	-0.3	0.5
260		
262	-0.2	0.3
263		
263		
264		
266		
266		
267		
267		
267		
269		
269		
270		
275		
282		
286		
287		
287		
287		
290		
293		
311		
314		
331		
341		

mean	267	0.3
std. dev.	23	0.1
no. samples	47	4

REMARKS:

Milky quartz vein with cavities containing fine dog-tooth quartz. Abundant irregular and necked down inclusions. Some regular, 5-10 microns, 10% vapour.

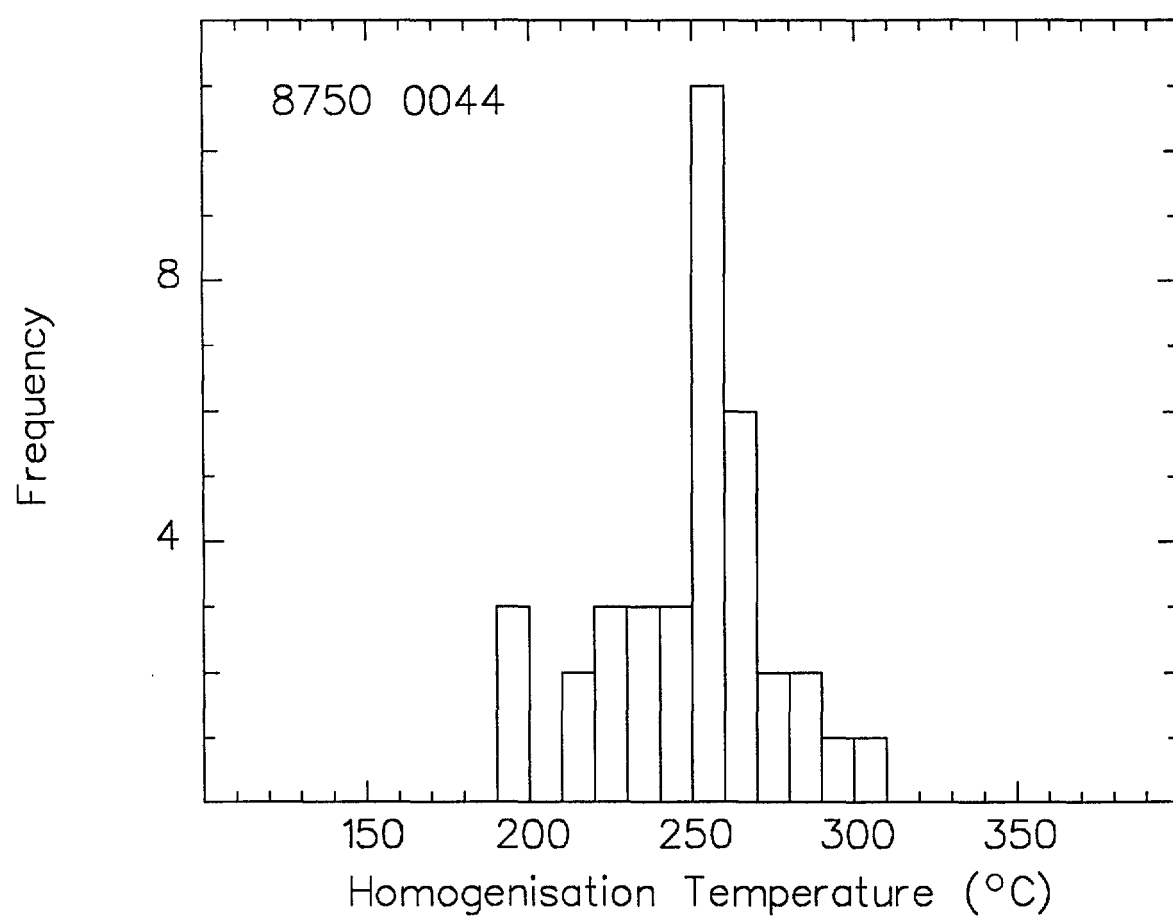


SAMPLE No. 8750 0044
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	195	-0.2	0.4
	197	-0.3	0.5
	199		
	217		
	218	-0.2	0.4
	224	-0.2	0.4
	226		
	229		
	234		
	236		
	237	-0.4	0.7
	243		
	244		
	247		
	251		
	252		
	253		
	254		
	255		
	255		
	256		
	257	-0.4	0.7
	258		
	258		
	259		
	260		
	262		
	263		
	265		
	267		
	269		
	271		
	277	-0.3	0.5
	284		
	285		
	296		
	309		
mean	250		0.5
std. dev.	26		0.1
no. samples	37		7

REMARKS:

Quartz vein with cavities containing coarse (5-10 mm long) dog-tooth quartz. Euhedral quartz contains abundant fluid inclusions in growth zones. They are regular, 5-10 microns, 10% vapour. Rare inclusions contain >75% vapour.

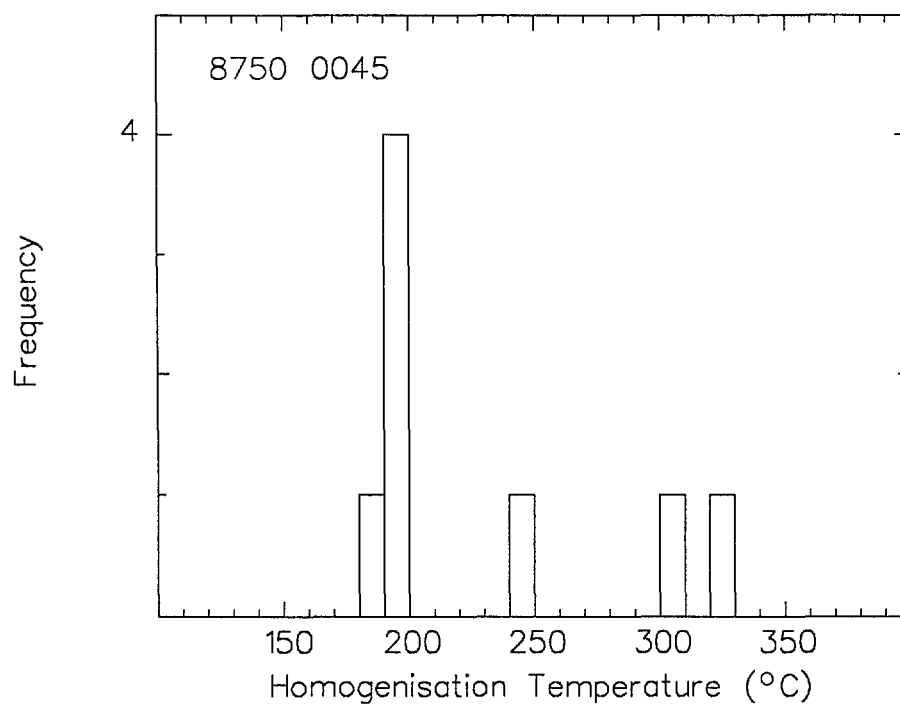


SAMPLE No. 8750 0045
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Wobegong

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	184		
	191		
	197		
	198		
	198		
	243		
	302		
	328		
mean	230	-	-
std. dev.	56	-	-
no. samples	8	-	-

REMARKS:

Milky quartz vein with a sugary texture and containing small cavities with very fine dog-tooth quartz.
 Fluid inclusions are regular, 5-10 microns, 10% vapour. Some areas contain 100% vapour and 100% liquid inclusions.
 Further salinity measurements (Wt % NaCl equiv.): -0.3 (0.5)



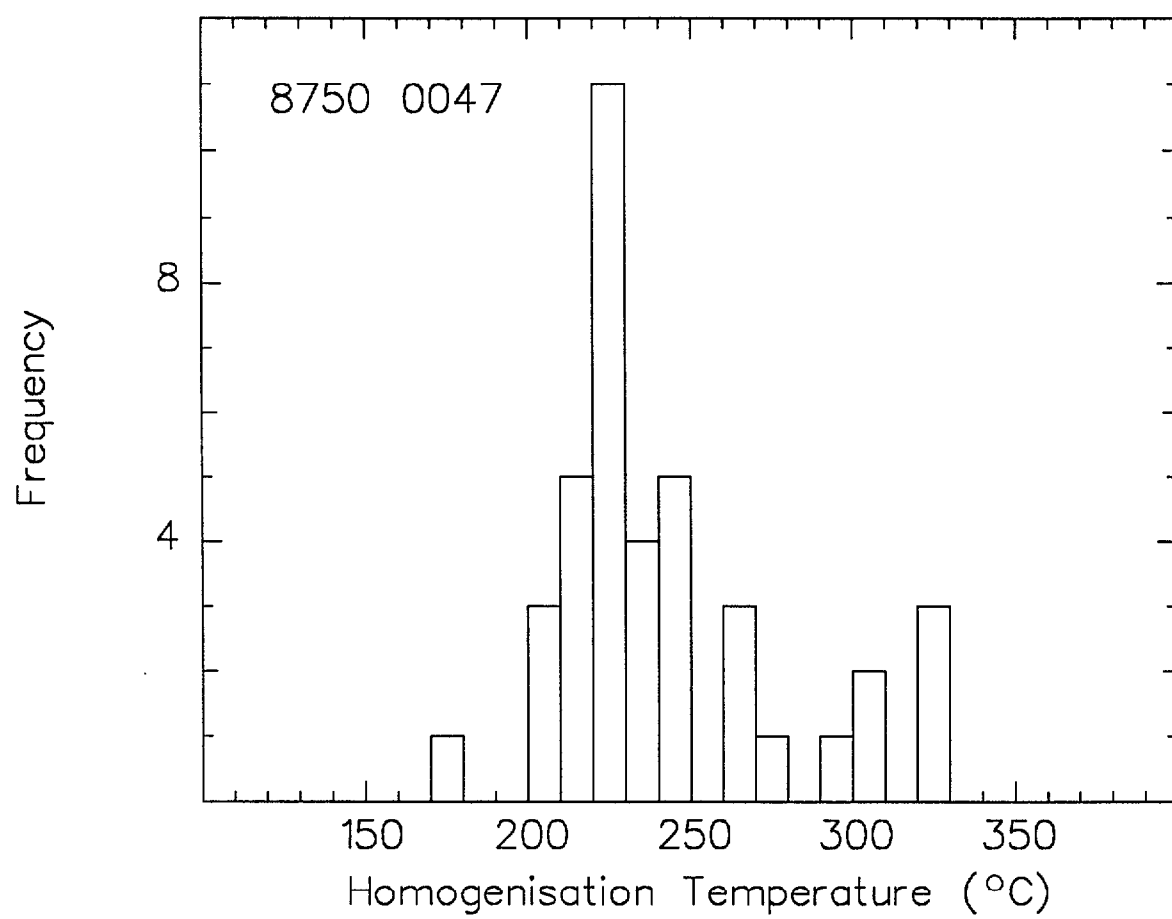
SAMPLE No. 8750 0047
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Quartz Reef Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	170		
	204		
	208		
	208		
	215		
	216		
	217		
	218		
	218		
	220		
	220		
	220		
	221		
	222		
	224		
	225		
	225		
	226		
	228		
	229		
	230		
	234		
	235		
	239		
	240		
	242		
	242		
	246		
	248		
	262		
	264		
	268		
	270		
	295		
	302		
	304		
	321		
	322		
	323		
mean	242		0.5
std. dev.	36		0.6
no. samples	39		9

REMARKS:

Coarse grained milky quartz vein with large cavities lined with coarse quartz crystals up to 5 mm across. Abundant fluid inclusions in growth zones, regular, 5-10 microns (some 20 microns), 10% vapour. Rare vapour-rich (50-75%) inclusions.

Further salinity measurements (Wt % NaCl equiv.): 0 (0), 0 (0), 0 (0), 0 (0), -0.1 (0.2), -0.1 (0.2), -0.8 (1.4), -0.8 (1.4), -0.8 (1.4)



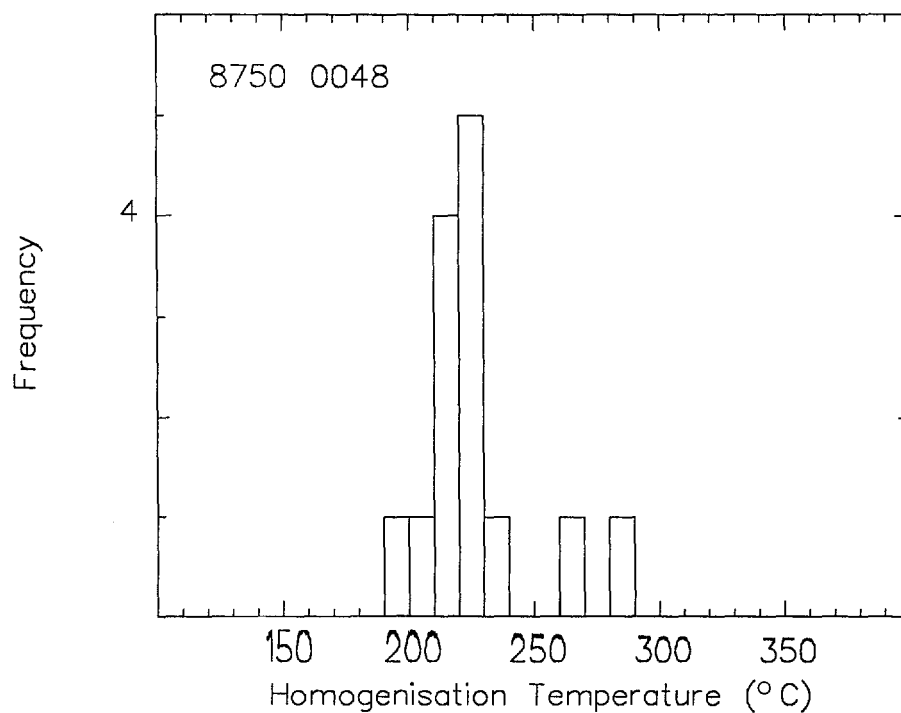
SAMPLE No. 8750 0048
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Quartz Reef Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	195	-3.3	5.4
	208		
	211		
	216		
	218		
	219		
	220		
	222		
	223		
	227		
	229		
	234		
	268	-3.7	6.0
	282		
mean	227		4.2
std. dev.	23		1.1
no. samples	14		8

REMARKS:

Coarsely crystalline milky quartz vein with individual quartz crystals 5-10 mm across and up to 5 cm long. Some regular fluid inclusions along growth zones, 5-20 microns, 10% vapour. Some inclusions irregular and 100% liquid inclusion trails common.

Further salinity measurements (Wt % NaCl equiv.): -1.3 (2.2), -2.3 (3.9), -2.3 (3.9), -2.3 (3.9), -2.4 (4.0), -2.6 (4.3)



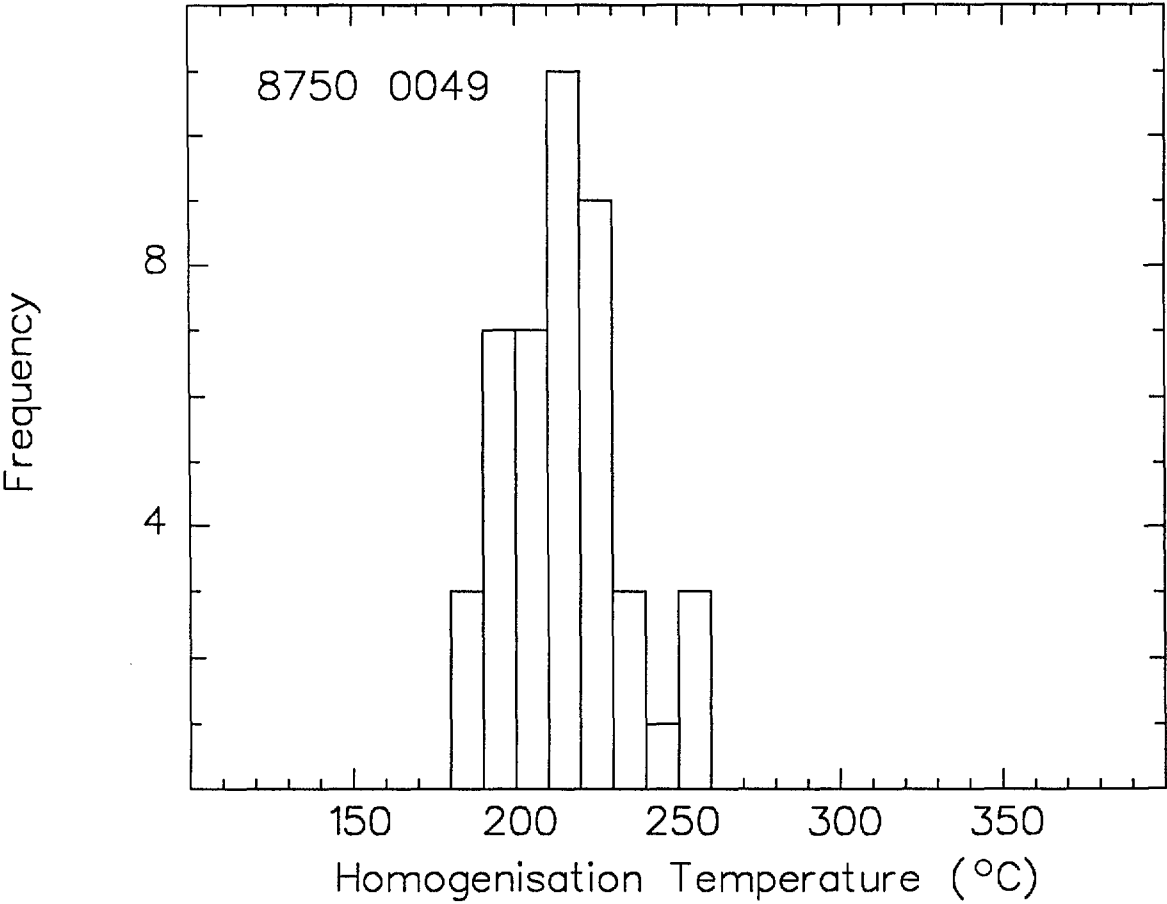
SAMPLE No. 8750 0049
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Quartz Reef Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	186		
	187		
	188		
	190		
	193		
	195		
	196		
	197		
	198		
	199	-1.3	2.2
	201		
	201		
	204		
	204		
	206		
	207		
	207		
	210		
	210		
	211		
	212		
	212		
	212		
	213		
	214		
	215		
	216		
	219		
	220		
	220		
	220		
	221		
	223		
	224		
	224		
	225		
	229		
	232		
	232		
	236		
	240		
	254		
	257		
	258		
mean	214		0.7
std. dev.	18		1.1
no. samples	44		15

REMARKS:

Coarsely crystalline milky quartz vein with individual quartz crystals 5-10 mm across and up to 5 cm long. Abundant, regular inclusions, <3-20 microns, 10% vapour. Many irregular necked down inclusions present.

Further salinity measurements (Wt % NaCl equiv.): 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), 0 (0), -1.4 (2.4), -1.5 (2.6), -1.7 (2.9)



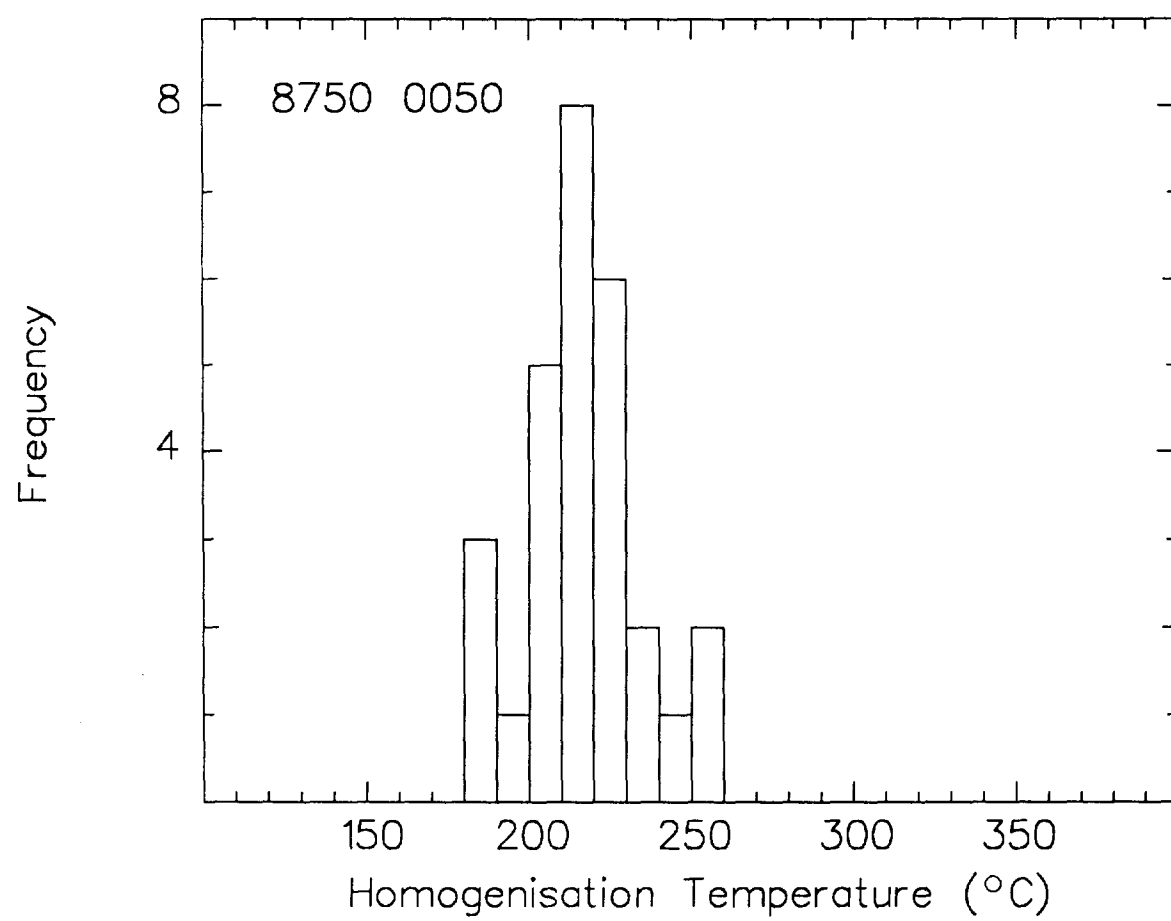
SAMPLE No. 8750 0050
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Quartz Reef Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	182		
	183		
	184		
	192	-1.6	2.7
	200		
	203		
	205	-1.8	3.1
	207	-1.6	2.7
	209	-1.4	2.4
	210	-1.7	2.9
	212		
	212		
	212		
	213		
	215		
	218		
	219	-1.4	2.4
	220	-1.5	2.6
	224		
	227		
	227		
	228		
	228		
	231		
	235		
	245		
	251		
	255		
mean	216		2.9
std. dev.	19		0.5
no. samples	28		9

REMARKS:

Milky quartz vein with individual quartz crystals up to 5 mm across. Inclusions are regular, <3-10 microns across, 10% vapour.

Further salinity measurements (Wt % NaCl equiv.): -2.2 (3.7), -2.3 (3.9)



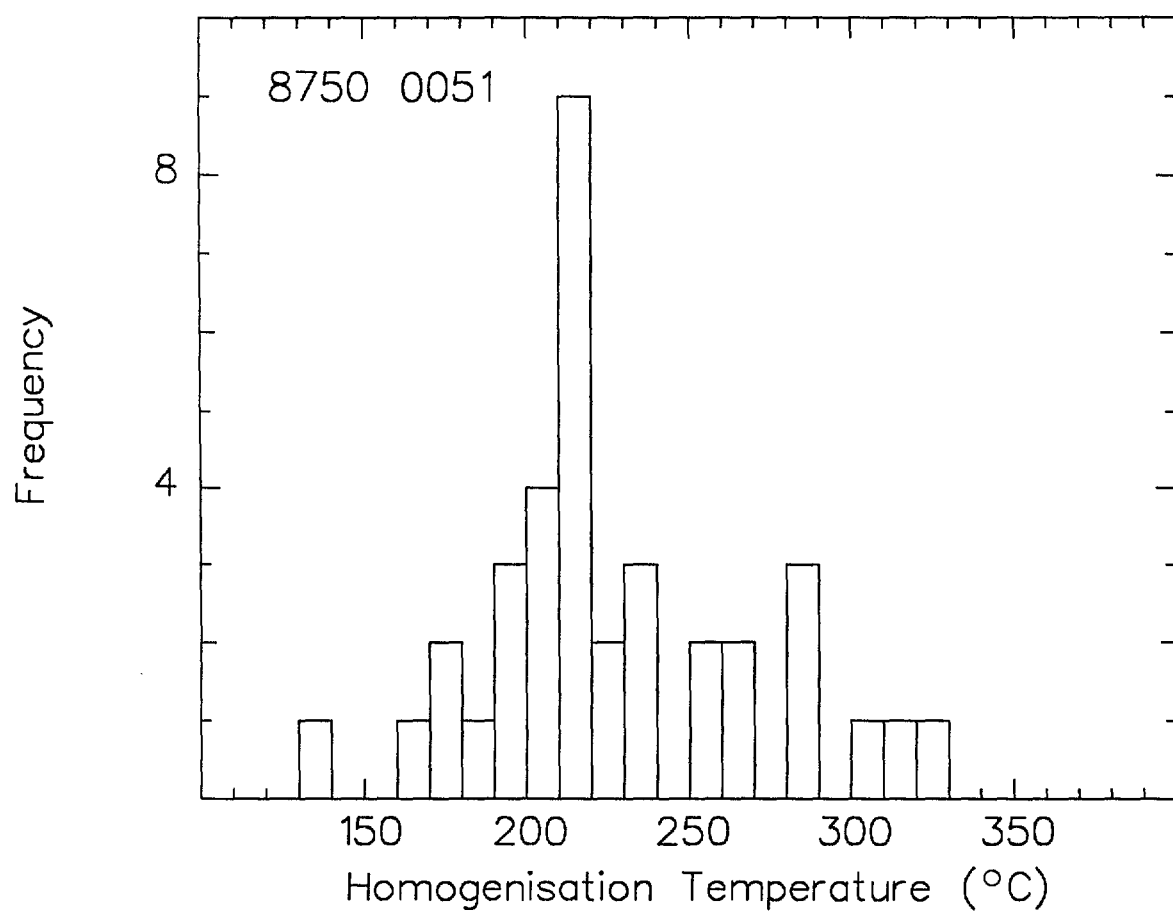
SAMPLE No. 8750 0051
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Quartz Reef Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	131	-1.0	1.7
	169		
	175		
	178		
	187		
	191		
	192		
	198		
	203		
	204		
	205		
	207		
	211		
	213		
	213		
	213		
	213		
	214		
	217		
	218		
	219		
	221		
	228		
	230		
	237		
	238		
	250		
	258		
	261		
	262		
	280		
	280		
	281		
	305		
	312		
	322		
mean	226		0.7
std. dev.	42		0.4
no. samples	36		10

REMARKS:

Coarsely crystalline milky quartz vein with individual quartz crystals up to 2 mm across. Some regular fluid inclusions along growth zones, 5-20 microns, 10% vapour. Some inclusions irregular and 100% liquid inclusion trails common.

Further salinity measurements (Wt % NaCl equiv.): -0.2 (0.4), -0.3 (0.5), -0.3 (0.5), -0.3 (0.5), -0.3 (0.5), -0.4 (0.7), -0.4 (0.7), -0.4 (0.7), -0.5 (0.9)



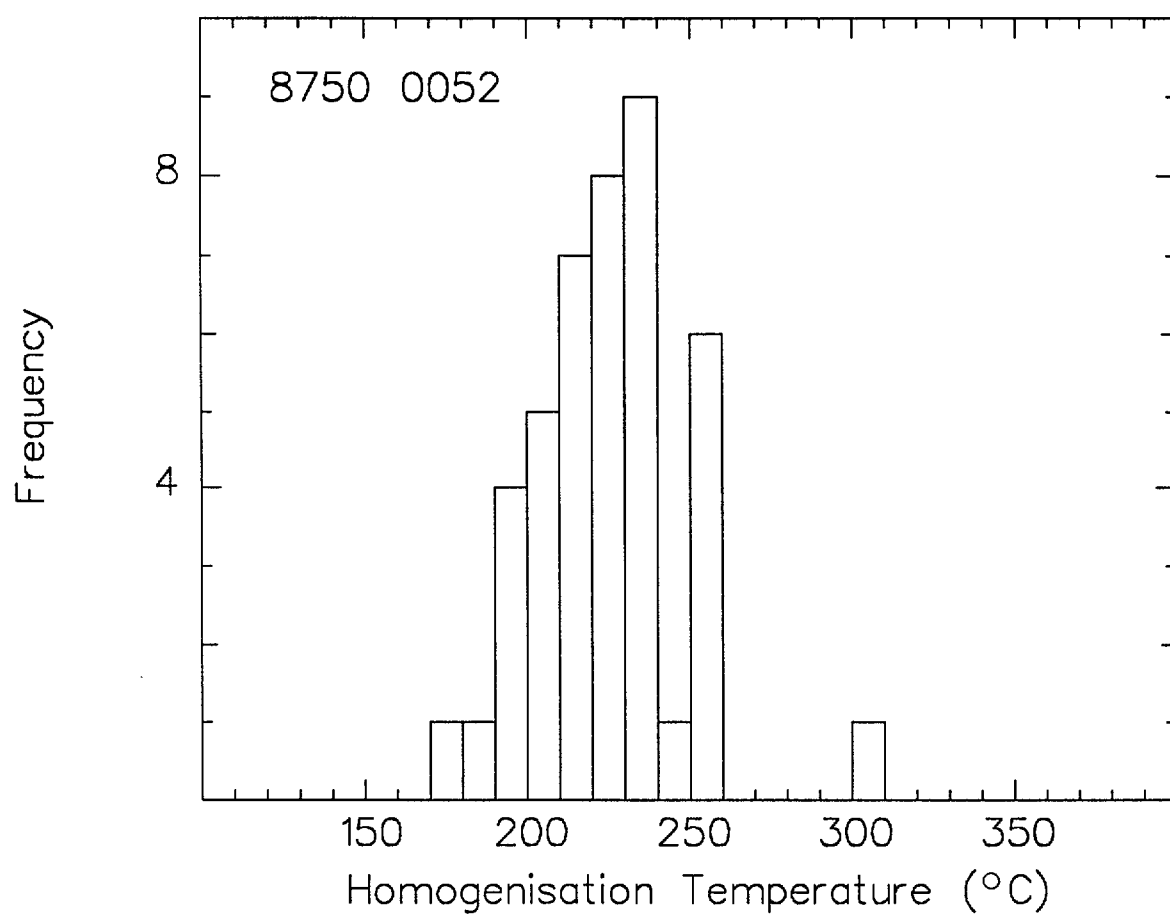
SAMPLE No. 8750 0052
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Split Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	159		
	186		
	198		
	199		
	204		
	206		
	210		
	210		
	211		
	212		
	218	-0.4	0.7
	221		
	221		
	222		
	224		
	225		
	231	-0.4	0.7
	232		
	235	-0.4	0.7
	242		
	243	-0.4	0.7
	246		
	248		
	249		
	249		
	250		
	263		
	265		
	275		
	281		
	282	-0.5	0.9
	285		
mean	231		0.8
std. dev.	29		0.3
no. samples	32		6

REMARKS:

Massive milky quartz with few cavities. Small quartz veins contain irregular, up to 5 micron, 10% vapour inclusions.

Further salinity measurements (Wt % NaCl equiv.): -0.8 (1.4)

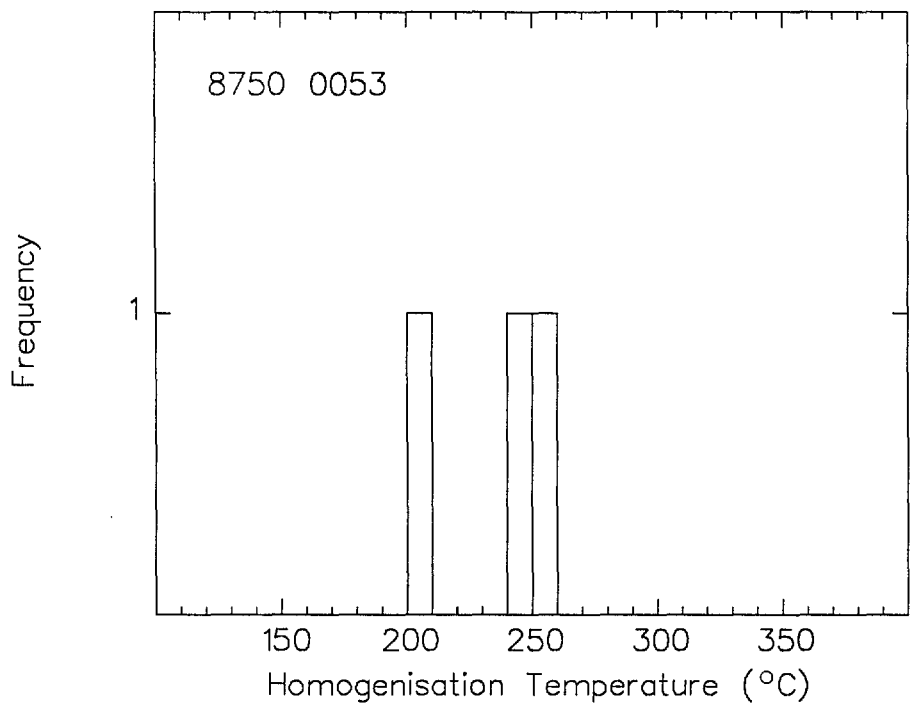


SAMPLE No. 8750 0053
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Split Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	200		
	245		
	250		
mean	232		-
std. dev.	28		-
no. samples	3		-

REMARKS:

Massive milky quartz with few cavities and rare irregular fluid inclusions.

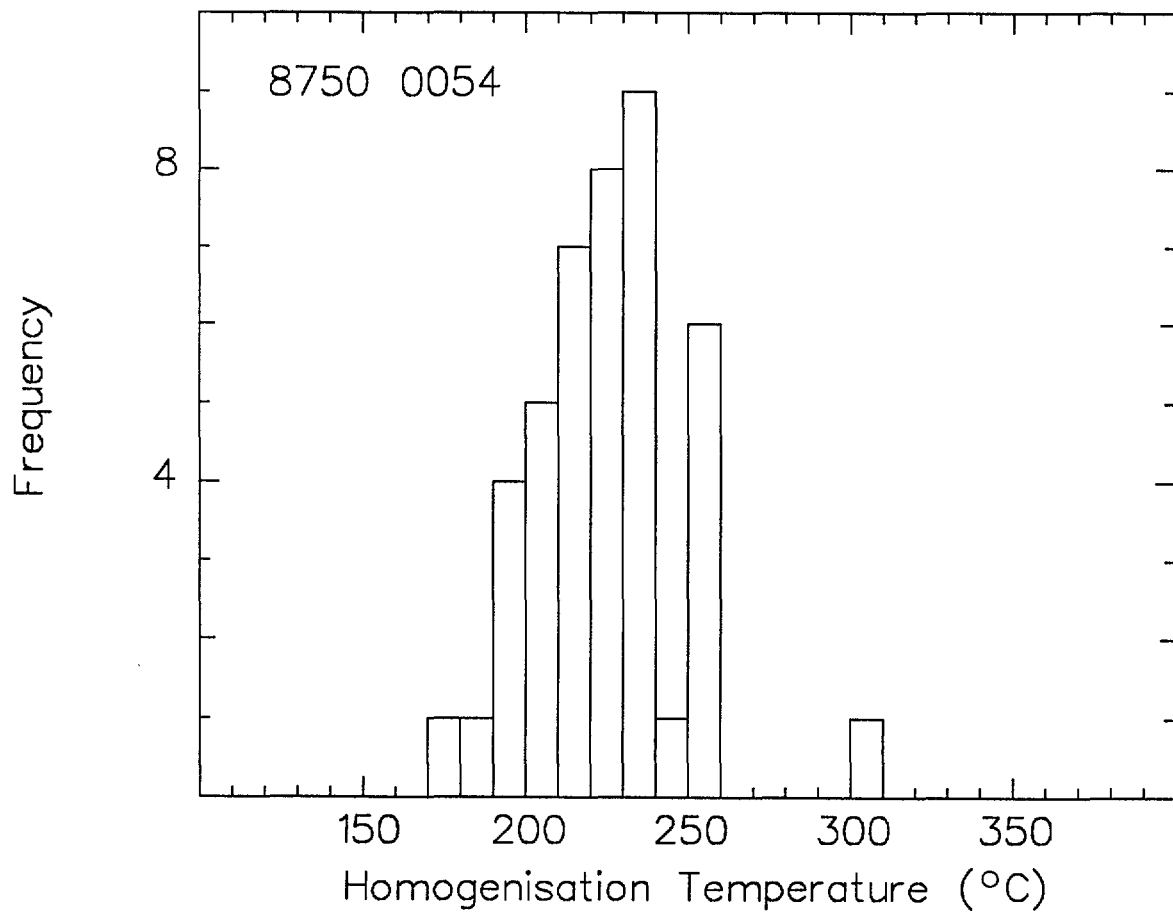


SAMPLE No. 8750 0054
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Split Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	176		
	184		
	191		
	195	-2.4	4.0
	196	-1.2	2.1
	196		
	201		
	201		
	204		
	204		
	206	-0.1	0.2
	211		
	214		
	215		
	216		
	218		
	219		
	219		
	221		
	222	-0.8	1.4
	224		
	224	-0.7	1.2
	226		
	226	-2.7	4.5
	227		
	227	-2.6	4.3
	230		
	231		
	232		
	232	-2.5	4.2
	233		
	233	-1.0	1.7
	234	-1.1	1.9
	236	-1.0	1.7
	237	-0.8	1.4
	240	-0.9	1.6
	250		
	252	-1.2	2.1
	252		
	254		
	254		
	255		
	302		
mean	224		2.1
std. dev.	23		1.4
no. samples	43		16

REMARKS:

Milky to translucent quartz with a sugary texture containing quartz crystals up to 2 mm across lining cavities. Fluid inclusions are regular, <3-20 microns across, 10% vapour.
Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -0.7 (1.2)

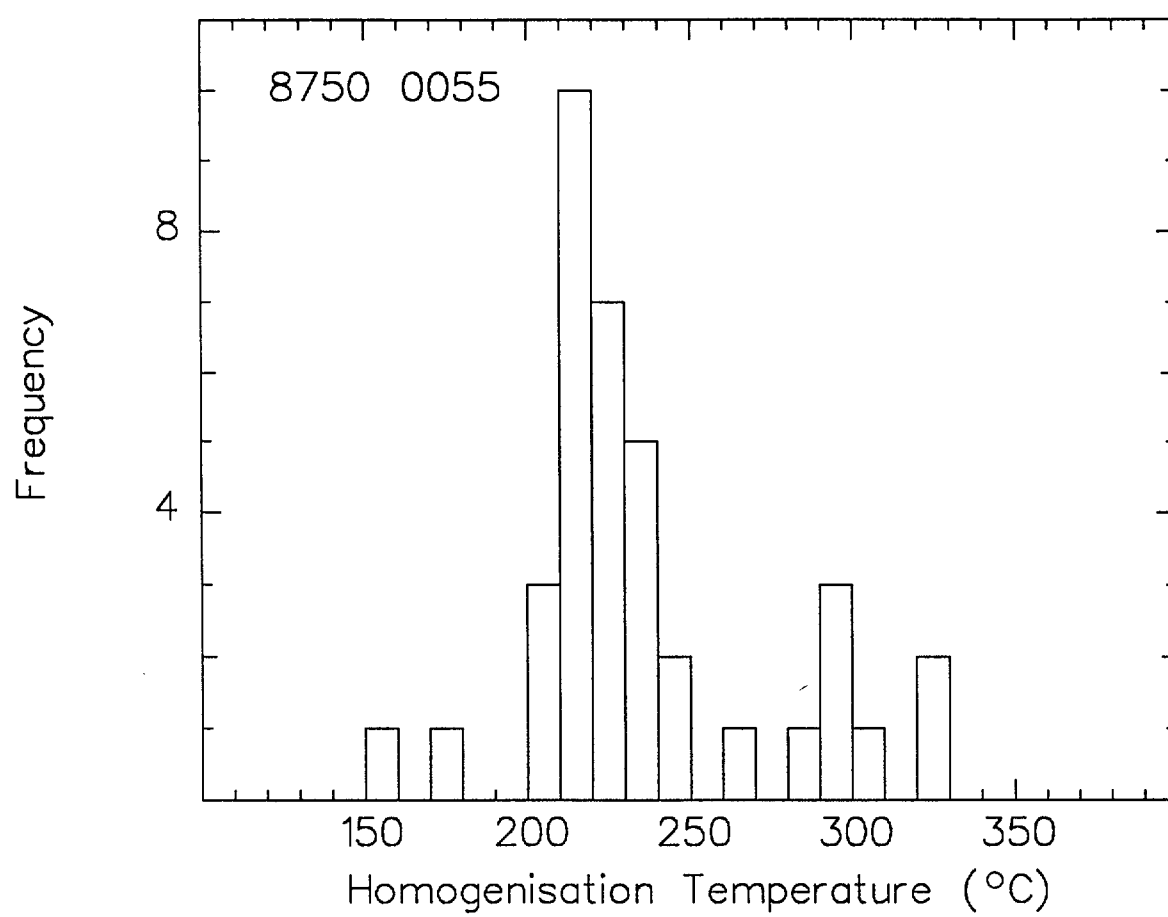


SAMPLE No. 8750 0055
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Split Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	156	-2.1	3.5
	177	-2.1	3.5
	208		
	208		
	209		
	210		
	212		
	212	-0.2	0.4
	214		
	214	-0.5	0.9
	214		
	217	-0.1	0.2
	217		
	217		
	218		
	220		
	222		
	223		
	224		
	226	-0.1	0.2
	227		
	227		
	232		
	232		
	233	-0.1	0.2
	234		
	238	-0.4	0.7
	241	-0.3	0.5
	249		
	260	-0.4	0.7
	283		
	290		
	292		
	298		
	308		
	324		
	329		
mean	236		1.3
std. dev.	38		1.4
no. samples	37		12

REMARKS:

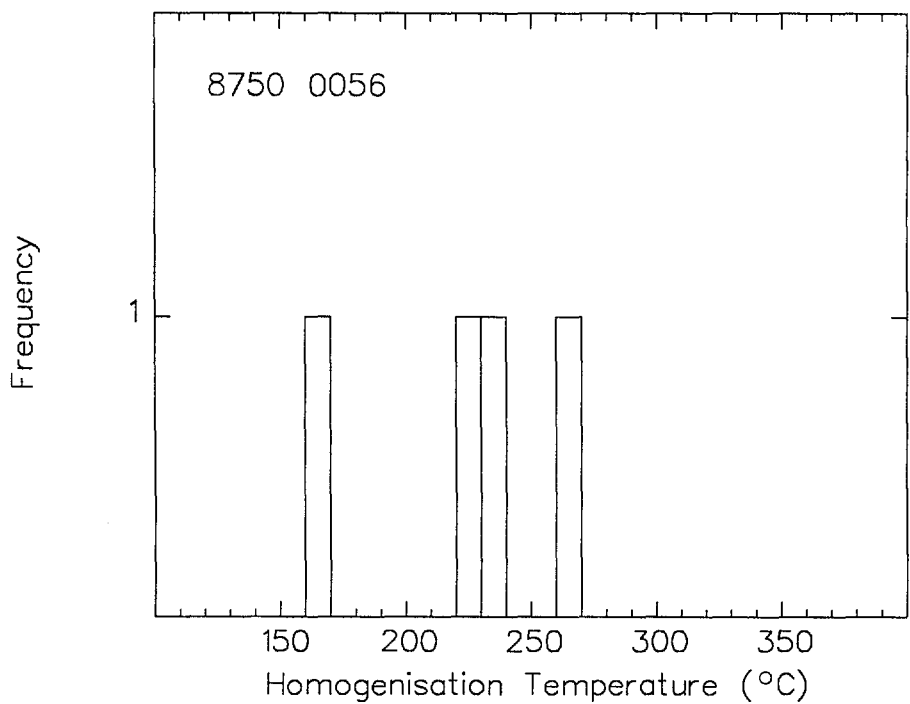
Very coarse grained milky quartz with individual crystals up to 5 mm across and 3-5 cm long. Regular, 5-10 micron (some 50 micron), 10% vapour inclusions occur along growth zones.
 Further salinity measurements (Wt % NaCl equiv.): -0.3 (0.5), -2.3 (3.9)



SAMPLE No.	8750 0056
SAMPLE	surface
MINERAL	quartz
PROSPECT	Conway
AREA	Bustard Egg Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	169		
	221	-1.5	2.6
	234		
	265		
mean	222		-
std. dev.	40		-
no. samples	4		-

REMARKS:
 Massive milky quartz vein with no cavities and rare fluid inclusions. Inclusions are regular, 5 microns, 10-20% vapour.



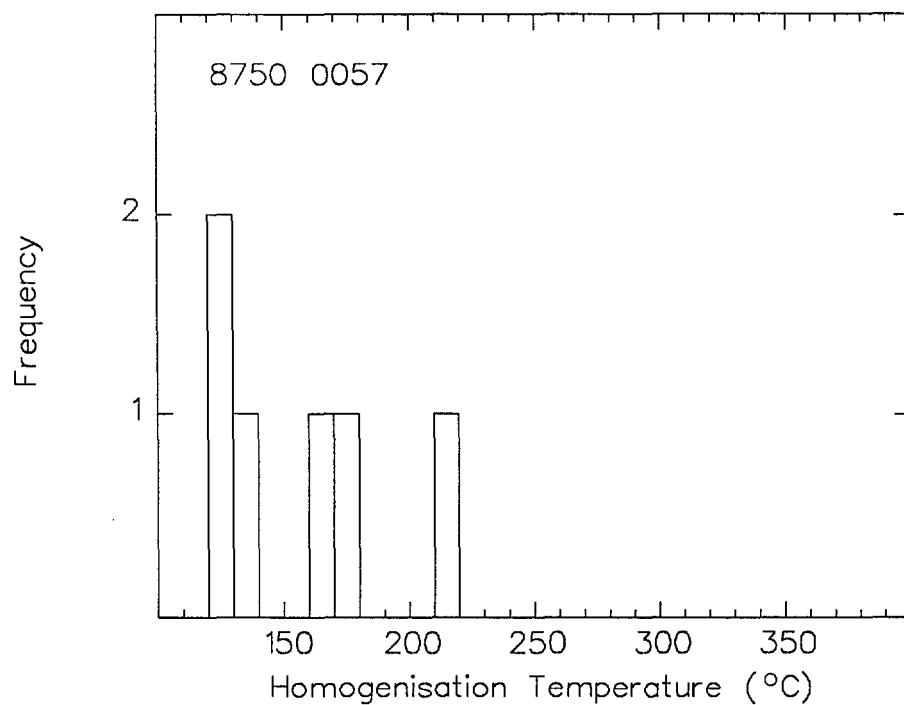
SAMPLE No. 8750 0057
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Big Sinter Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	122		
	123		
	130		
	161		
	172	-0.1	0.2
	214	-0.1	0.2
mean	154		0.6
std. dev.	36		0.7
no. samples	6		4

REMARKS:

Massive milky quartz vein with rare cavities. Some regular, 5 micron, 10% vapour fluid inclusions.
 Inclusions may be secondary?

Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -1.1 (1.9)

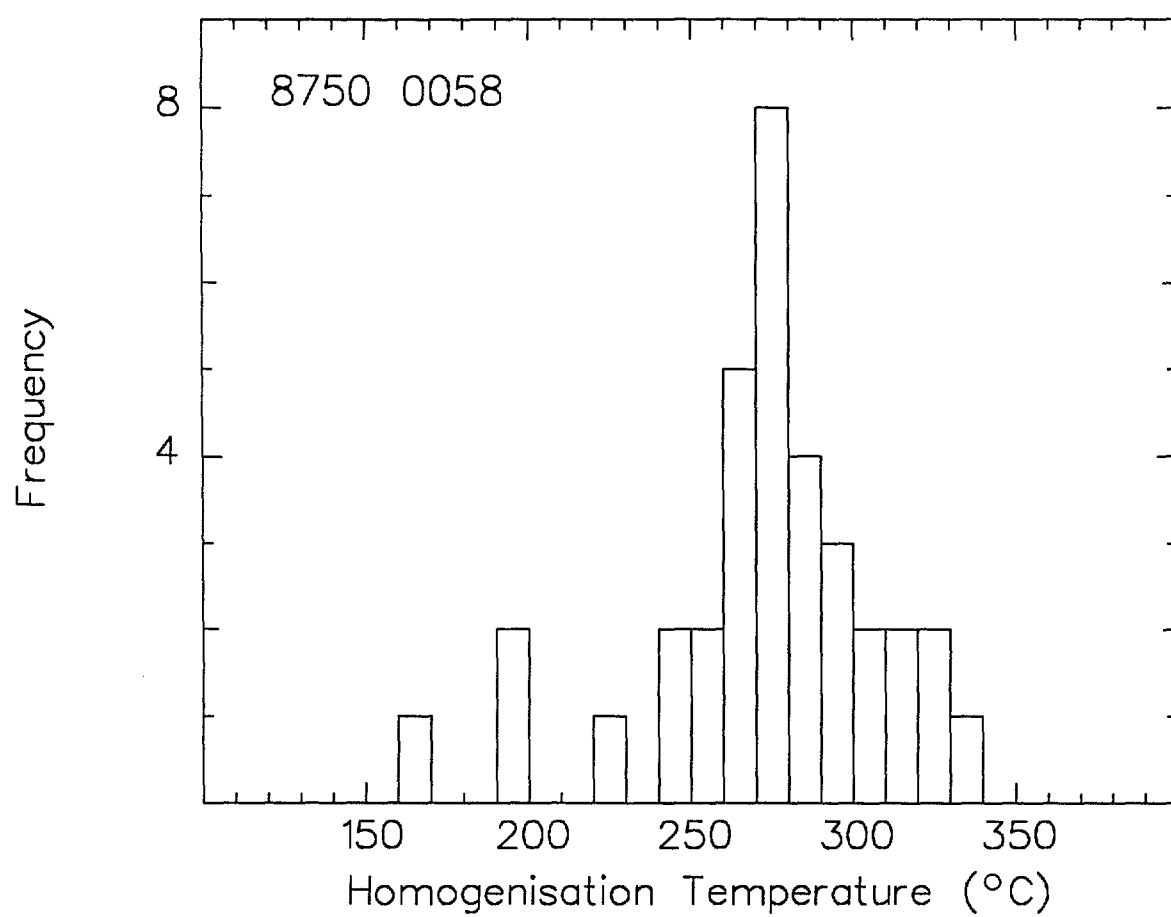


SAMPLE No. 8750 0058
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Big Sinter Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	161		
	196		
	196		
	229		
	242		
	248		
	250	-0.1	0.2
	256		
	262		
	262		
	263		
	267		
	269		
	270		
	270		
	272		
	274	-0.1	0.2
	277	-0.1	0.2
	277		
	277		
	278	-0.1	0.2
	280		
	285		
	286		
	289		
	292		
	293	-0.4	0.7
	295	-0.2	0.4
	302		
	307		
	313		
	319		
	324		
	325		
	331		
mean	273		0.3
std. dev.	37		0.2
no. samples	35		8

REMARKS:

Coarse milky quartz veins with crystals up to 5 mm across lining cavities. Abundant, regular, 5-10 micron, 10% vapour fluid inclusions. Rare vapour-rich (>75%) inclusions.
 Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -0.2 (0.4)



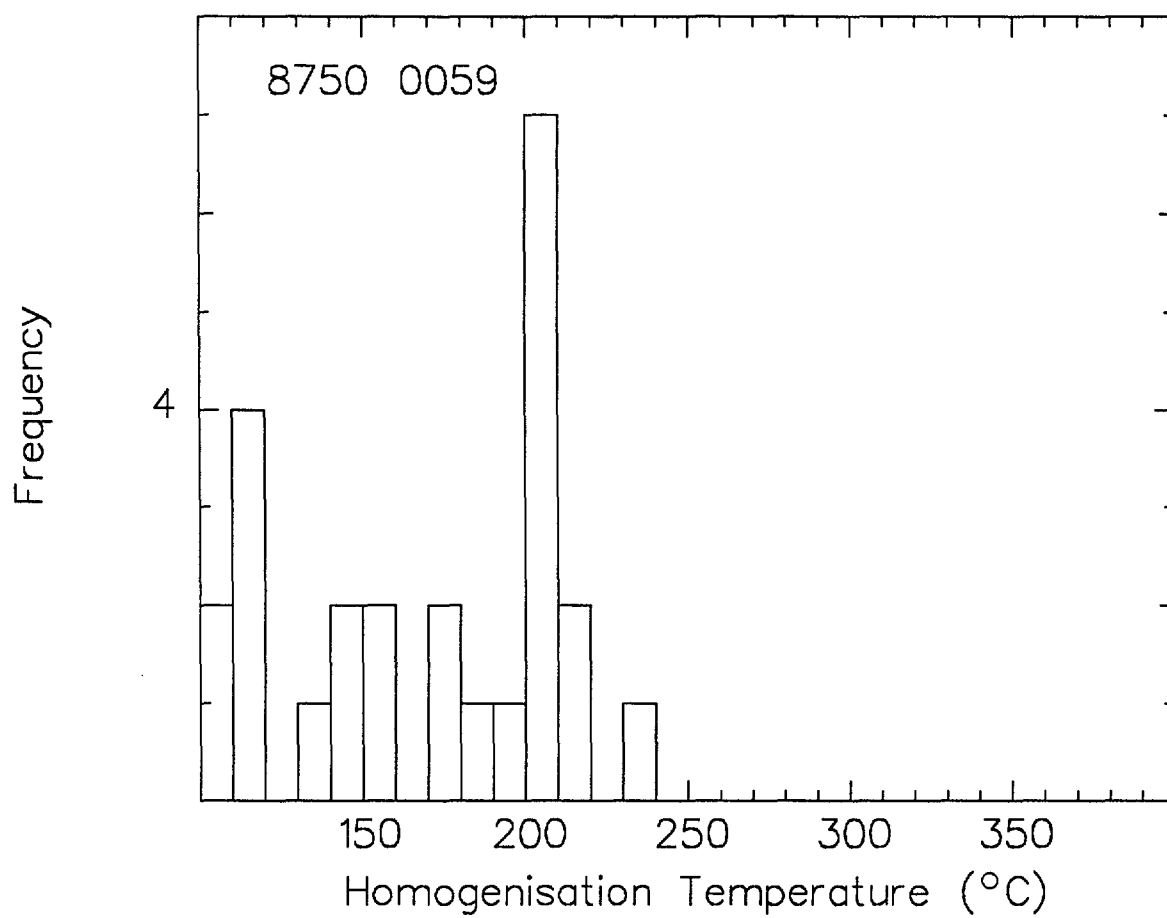
SAMPLE No. 8750 0059
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Big Sinter Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	105		
	107		
	111		
	113		
	116		
	117		
	132	-1.9	3.2
	141		
	147		
	153	0.0	0
	158		
	172		
	174		
	184	-0.1	0.2
	192		
	200		
	203		
	203		
	204	-0.1	0.2
	205	-0.1	0.2
	205		
	207		
	211	-1.5	2.6
	212		
	235	-1.1	1.9
mean	168		1.7
std. dev.	41		1.3
no. samples	25		13

REMARKS:

Milky quartz vein with cavities lined by quartz crystals up to 2 mm across. Inclusions are regular, 5-10 microns (some up to 25 microns), 10% vapour.

Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -0.8 (1.4), -1.1 (1.9), -1.6 (2.7), -2.1 (3.5), -2.1 (3.5)

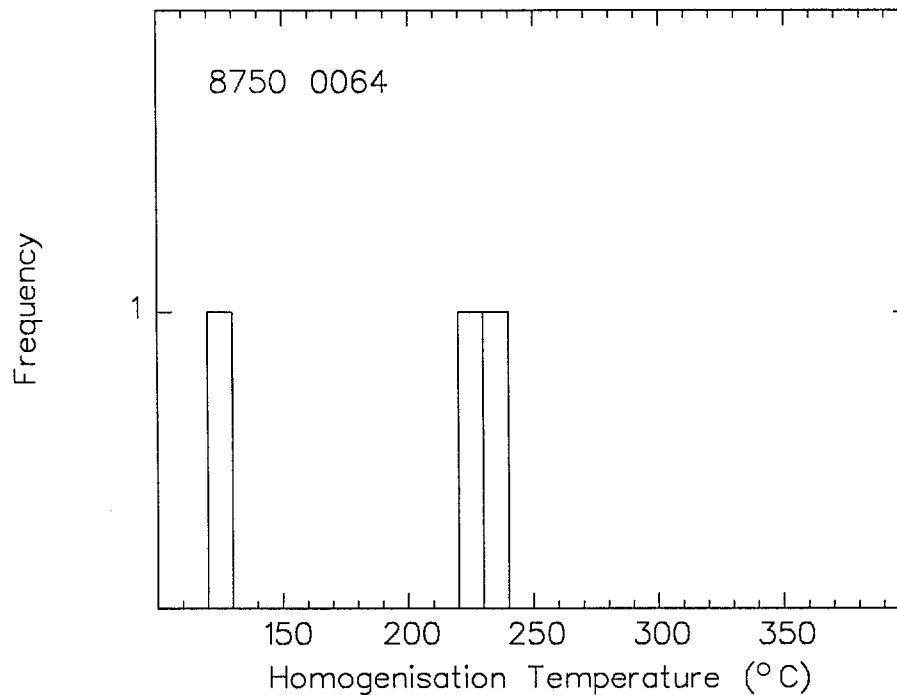


SAMPLE No. 8750 0064
SAMPLE DDH C3A, 96.6 m
MINERAL quartz
PROSPECT Conway
AREA Bustard Egg Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	120		
	228		
	237		
mean	195		-
std. dev.	53		-
no. samples	3		-

REMARKS:

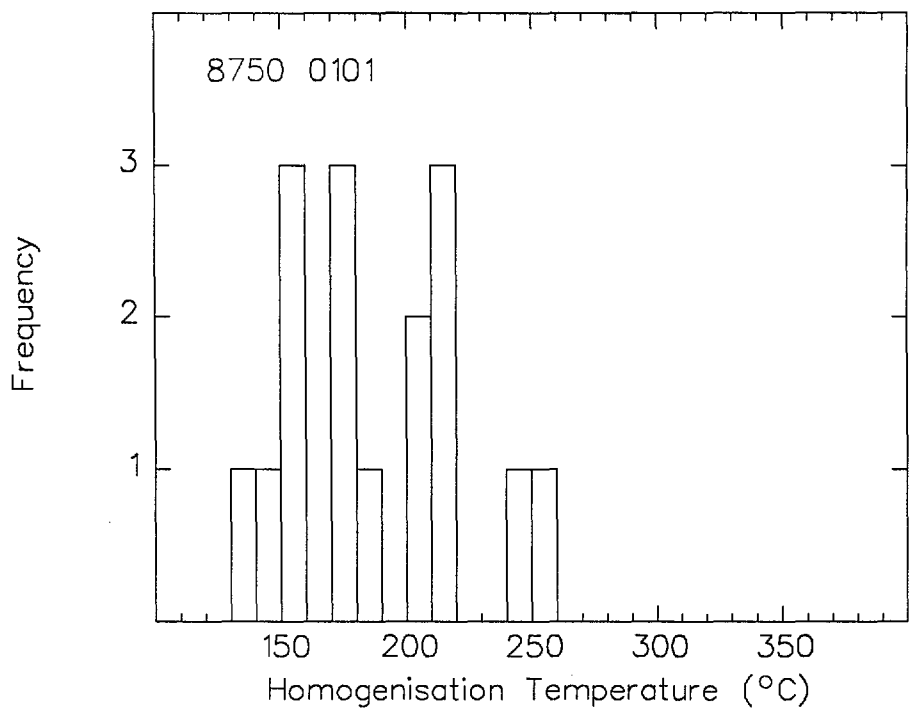
Rare fluid inclusions (<3 microns) in quartz cemented breccia.



SAMPLE No.	8750 0101
SAMPLE	surface
MINERAL	quartz
PROSPECT	Conway
AREA	Bustard Egg Hill

	Th (oC)	Tm ice (oC)	Wt % NaCl equiv.
	131		
	149		
	150		
	155		
	155		
	174		
	176		
	178	-0.2	0.4
	188		
	205		
	207	-3.7	6.0
	215		
	216	-2.5	4.2
	218		
	244	-2.4	4.0
	255		
mean	189		3.2
std. dev.	36		2.0
no. samples	16		5

REMARKS:
 Milky lattice quatrz (replacement of calcite) with rare fluid inclusions. Inclusions are regular, up to 5 microns, 10% vapour.
 Further salinity measurements (Wt % NaCl equiv.): -0.8 (1.4)



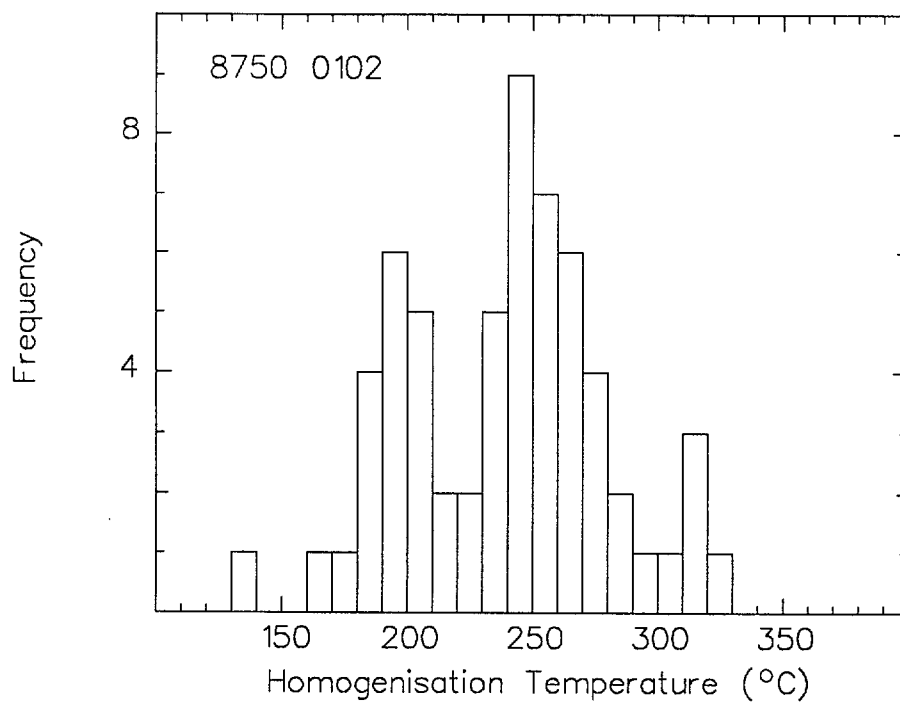
SAMPLE No. 8750 0102
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Bustard Egg Hill

Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
138		
168		
177		
181		
185	-2.0	3.4
186		
188		
190		
193	-0.2	0.4
195		
197		
198	-0.2	0.4
198		
202		
205		
205		
206		
207		
210		
212		
225		
227		
231		
235	-0.1	0.2
236		
237		
238	-0.1	0.2
240		
241		
241		
242		
242		
242	-0.1	0.2
243		
246		
246	-0.2	0.4
251		
251	-0.2	0.4
253		
255		
256		
257		
259		
260		
261		
261		
262		
263		
267		
271		

271		
277		
278		
282	-0.2	0.4
284		
290		
305		
312		
315		
317		
329		
mean	238	0.6
std. dev.	40	0.9
no. samples	61	10

REMARKS:

Massive milky quartz-veined breccia with quartz crystals up to 2mm across lining cavities. Inclusions are regular, 5-10 microns, 10% vapour. Very irregular necked down inclusions are abundant. Further salinity measurements (Wt % NaCl equiv.): -0.2 (0.4)



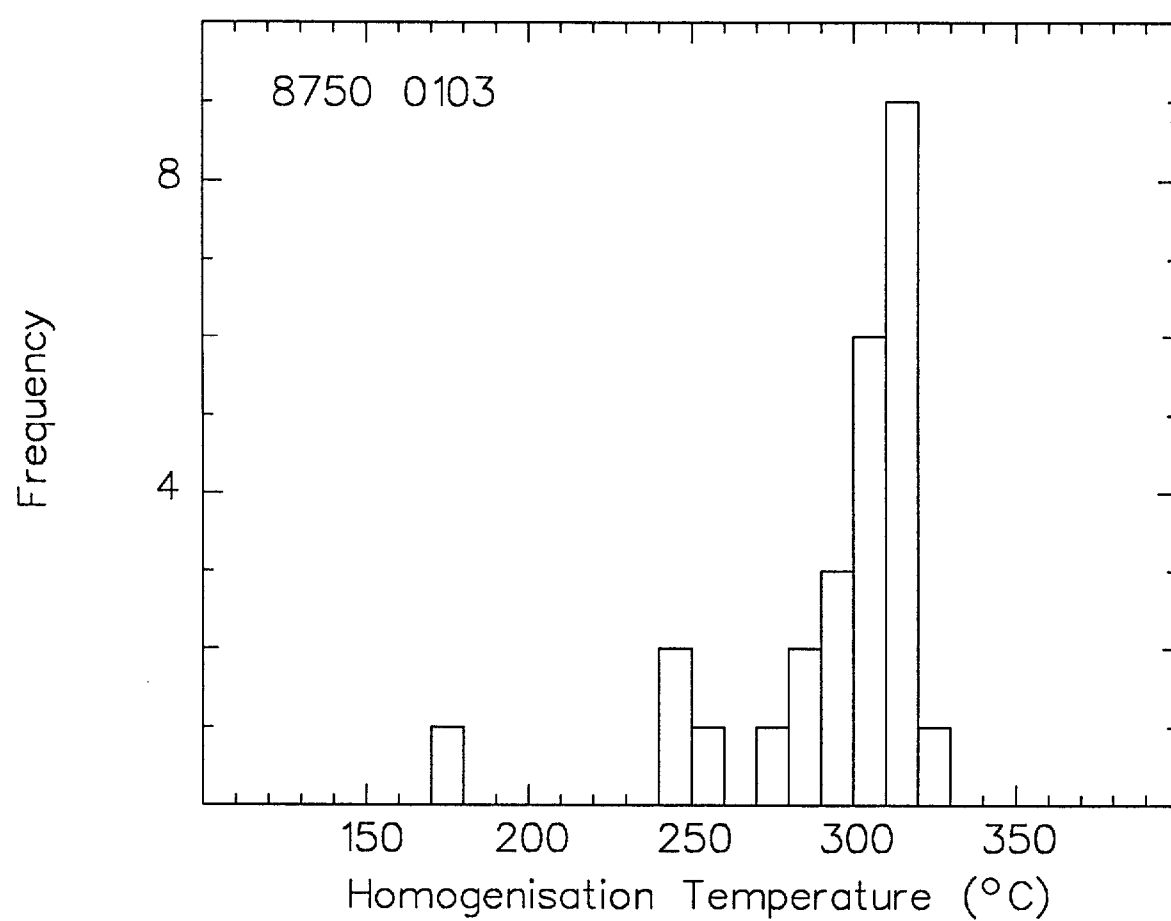
SAMPLE No. 8750 0103
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Red Flag Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	176		
	243		
	243	-0.2	0.4
	257		
	274		
	282	-0.8	1.4
	284		
	293		
	294		
	297	-0.8	1.4
	305		
	305		
	305	-0.4	0.7
	305		
	306	-0.3	0.5
	306	-0.7	1.2
	310	-0.4	0.7
	310		
	310	-0.2	0.4
	312	-0.2	0.4
	312		
	314		
	315		
	316		
	316		
	329		
mean	293		0.7
std. dev.	32		0.4
no. samples	26		15

REMARKS:

Massive milky quartz with lattice quartz (after bladed calcite) and few cavities. Inclusions in quartz lining cavities are regular, up to 5 microns, 10% vapour.

Further salinity measurements (Wt % NaCl equiv.): -0.2 (0.4), -0.2 (0.4), -0.2 (0.4), -0.2 (0.4), -0.3 (0.5), -0.7 (1.2)

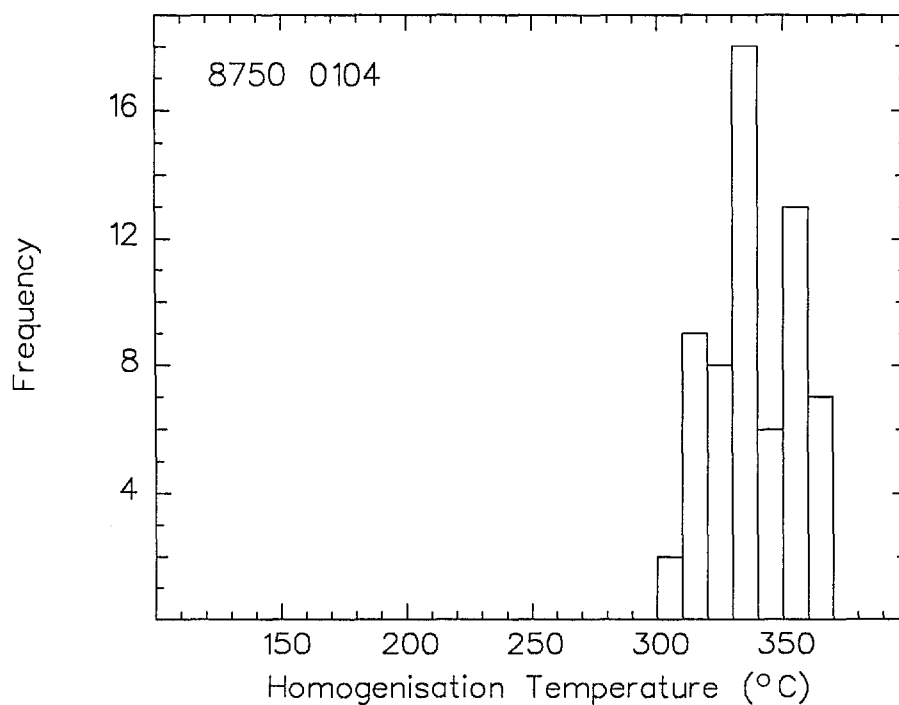


SAMPLE No. 8750 0104
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Red Flag Hill

Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
301		
307		
311		
311		
311		
314	-0.2	0.4
315		
316	-0.3	0.5
317	-0.5	0.9
317	-0.5	0.9
319		
320		
320		
321		
324		
325	-0.6	1.0
327		
328		
328		
330		
331		
331		
332		
333		
334		
335		
336		
337		
338		
338		
338		
338		
338		
338		
339		
339		
339		
340		
340		
340		
343		
347		
349		
350		
350		
351	-0.1	0.2
353		
354		
354		
355		

	355		
	357		
	357		
	357		
	357		
	359		
	361		
	361		
	362		
	362	-1.3	2.2
	364		
	368		
	369		
mean	338		0.7
std. dev.	17		0.6
no. samples	63		10

REMARKS:
 Milky quartz with minor lattice quartz and cavities lined by fine quartz crystals. Inclusions are regular, 5-10 microns, 25% vapour.
 Further salinity measurements (Wt % NaCl equiv.): -0.1 (0.2), -0.1 (0.2), -0.2 (0.4)

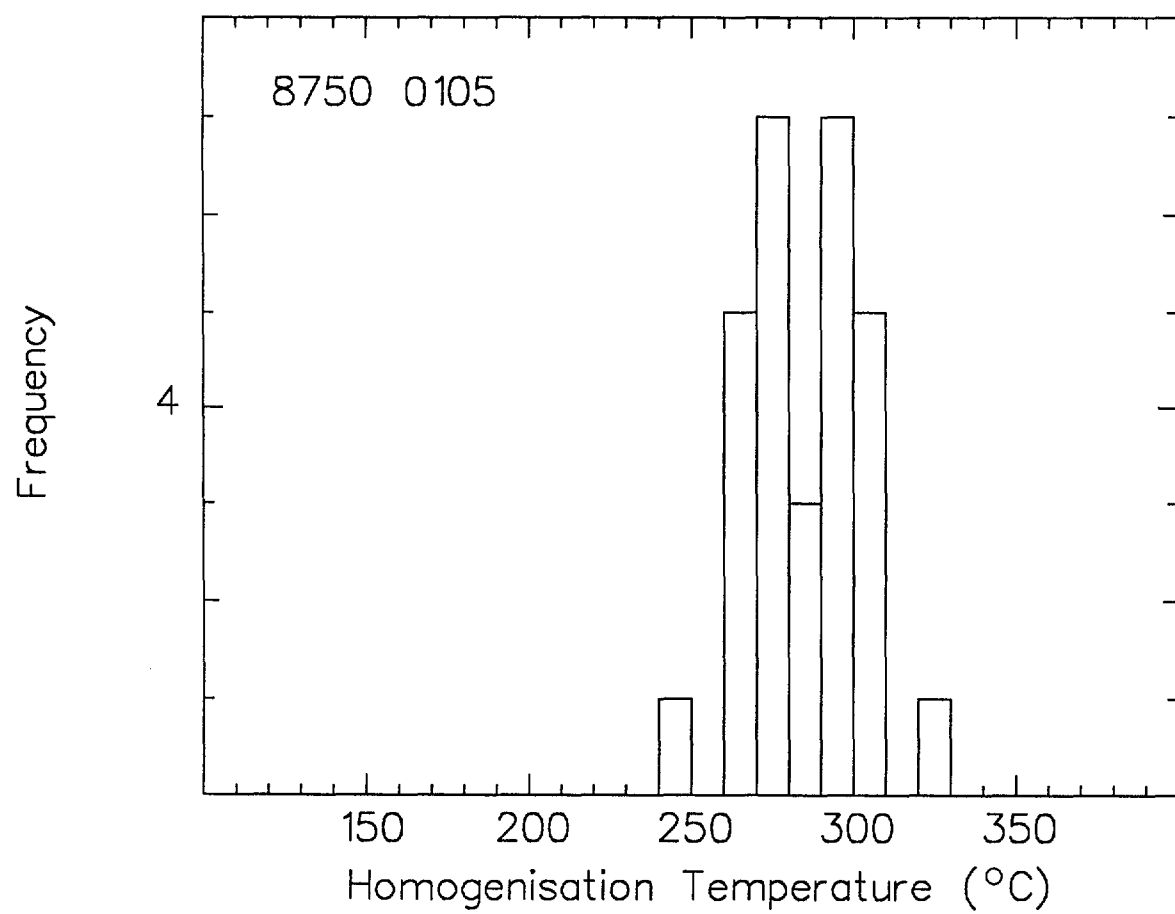


SAMPLE No. 8750 0105
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Red Flag Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	245		
	261		
	267		
	268		
	269		
	269		
	270	-1.6	2.7
	271	-1.9	3.2
	271	-1.7	2.9
	272		
	272		
	273		
	278	-2.3	3.9
	281		
	286		
	289		
	291		
	291	-0.9	1.6
	293		
	295		
	295	-0.9	1.6
	295		
	299		
	300		
	301	-0.9	1.6
	301	-0.6	1.0
	306		
	308		
	328		
mean	284		2.1
std. dev.	18		1.0
no. samples	29		9

REMARKS:

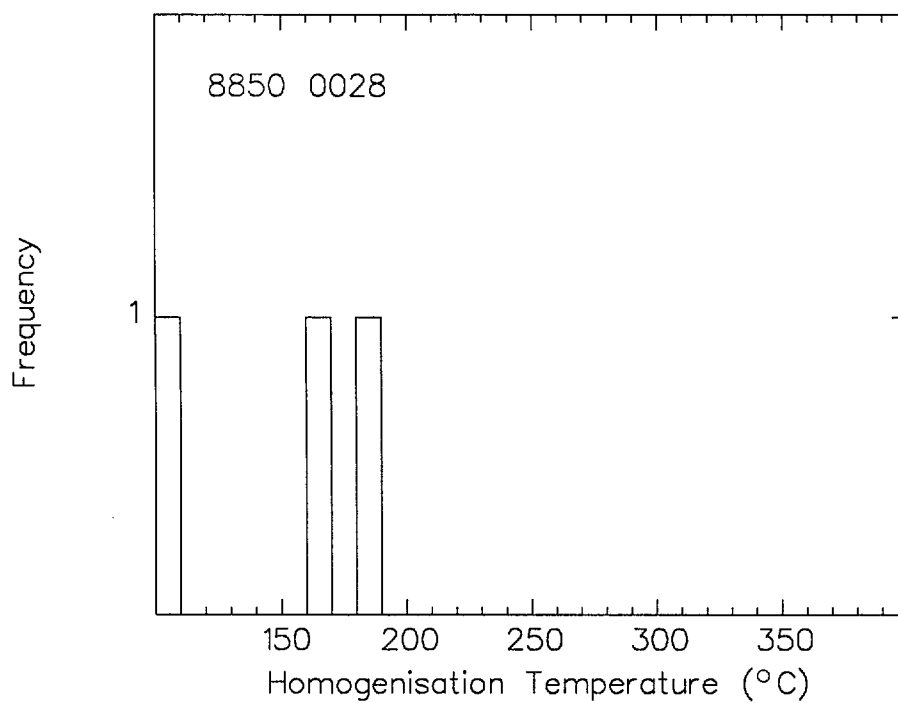
Massive milky quartz with few cavities. Inclusions are regular, 5-10 microns, 10% vapour
 Further salinity measurements (Wt % NaCl equiv.): -0.4 (0.7)



SAMPLE No. 8850 0028
SAMPLE DDH C151, 57.4 m
MINERAL calcite
PROSPECT Conway
AREA Big Sinter Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	105		
	169		
	180		
mean	151		-
std. dev.	40		-
no. samples	3		-

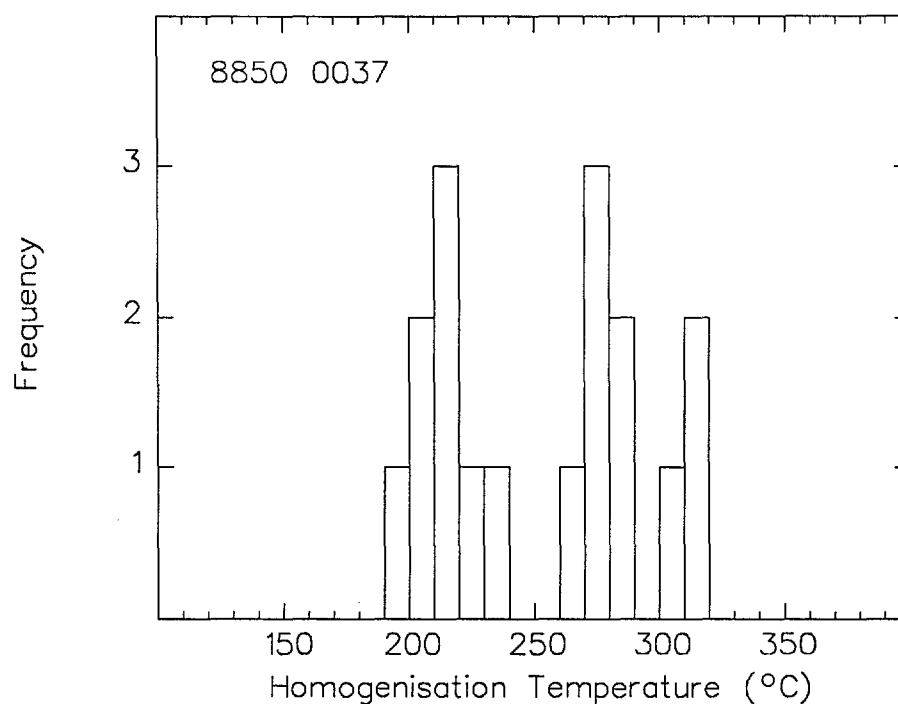
REMARKS: Coarsely crystalline calcite veins in completely altered lava?, rare irregular fluid inclusions.



SAMPLE No. 8850 0037
SAMPLE DDH C151, 140.9 m
MINERAL quartz
PROSPECT Conway
AREA Big Sinter Hill

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	193		
	202		
	207		
	216	-0.6	1.0
	219		
	219	-0.6	1.0
	224	-0.6	1.0
	235		
	260	-0.4	0.7
	271	-0.6	1.0
	272	-0.4	0.7
	274	-0.6	1.0
	281		
	283		
	308		
	311		
	318		
mean	253		0.9
std. dev.	41		0.1
no. samples	17		7

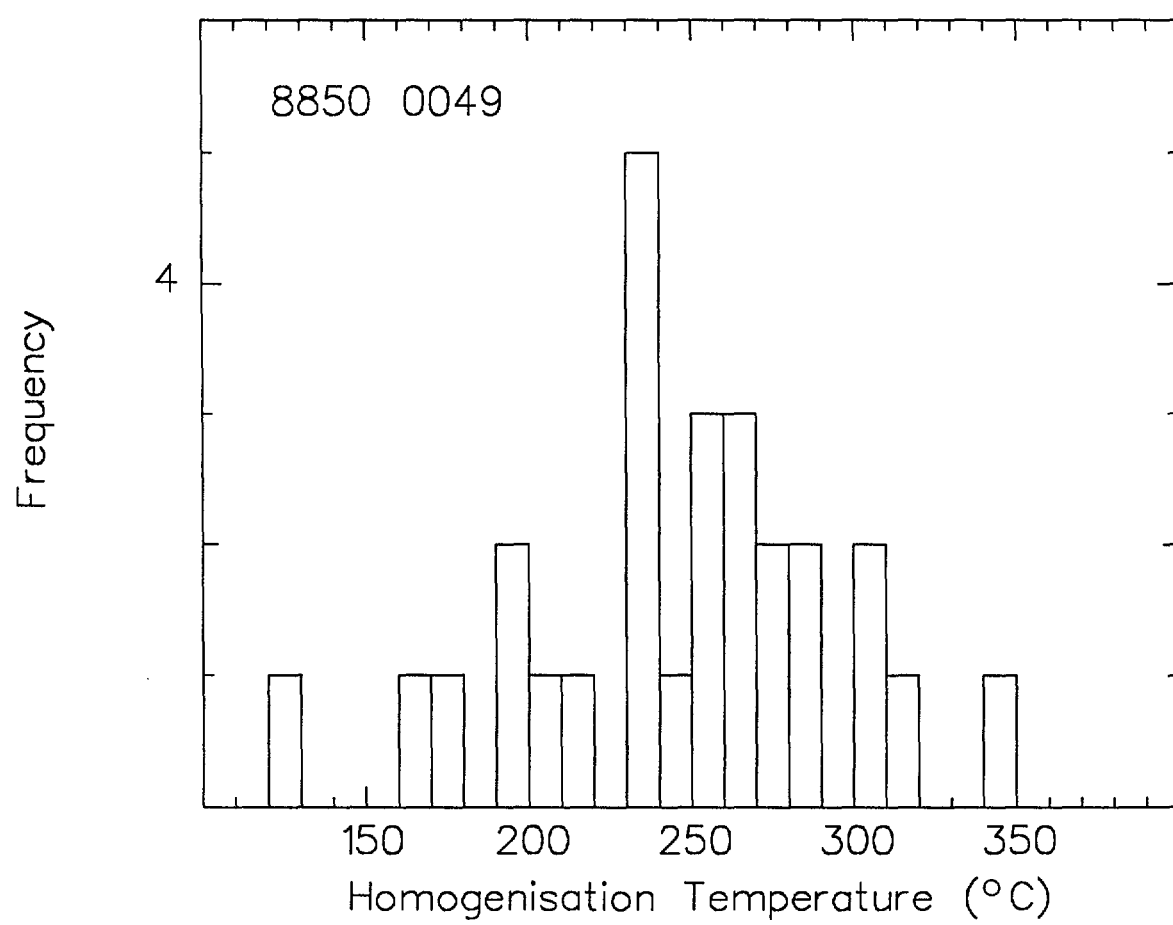
REMARKS: Coarse euhedral quartz crystals with growth zoning set in a fine grained matrix of quartz which veins a heavily altered lava? Regular fluid inclusions, 5-10 microns, 10% vapour.



SAMPLE No. 8850 0049
SAMPLE surface
MINERAL quartz
PROSPECT Conway
AREA Big Sinter Hill

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	125		
	163	-0.3	0.5
	173		
	190		
	195	-0.4	0.7
	207		
	219		
	230		
	233		
	234		
	235		
	239		
	248		
	255		
	256		
	256		
	262		
	262		
	269		
	270	-0.4	0.7
	270		
	282		
	283		
	300		
	302		
	313		
	347	-0.4	0.7
mean	245		0.7
std. dev.	49		0.1
no. samples	27		4

REMARKS: Quartz veins in pervasively silicified volcanic rock. Regular fluid inclusions, 5-10 microns, 10% vapour.

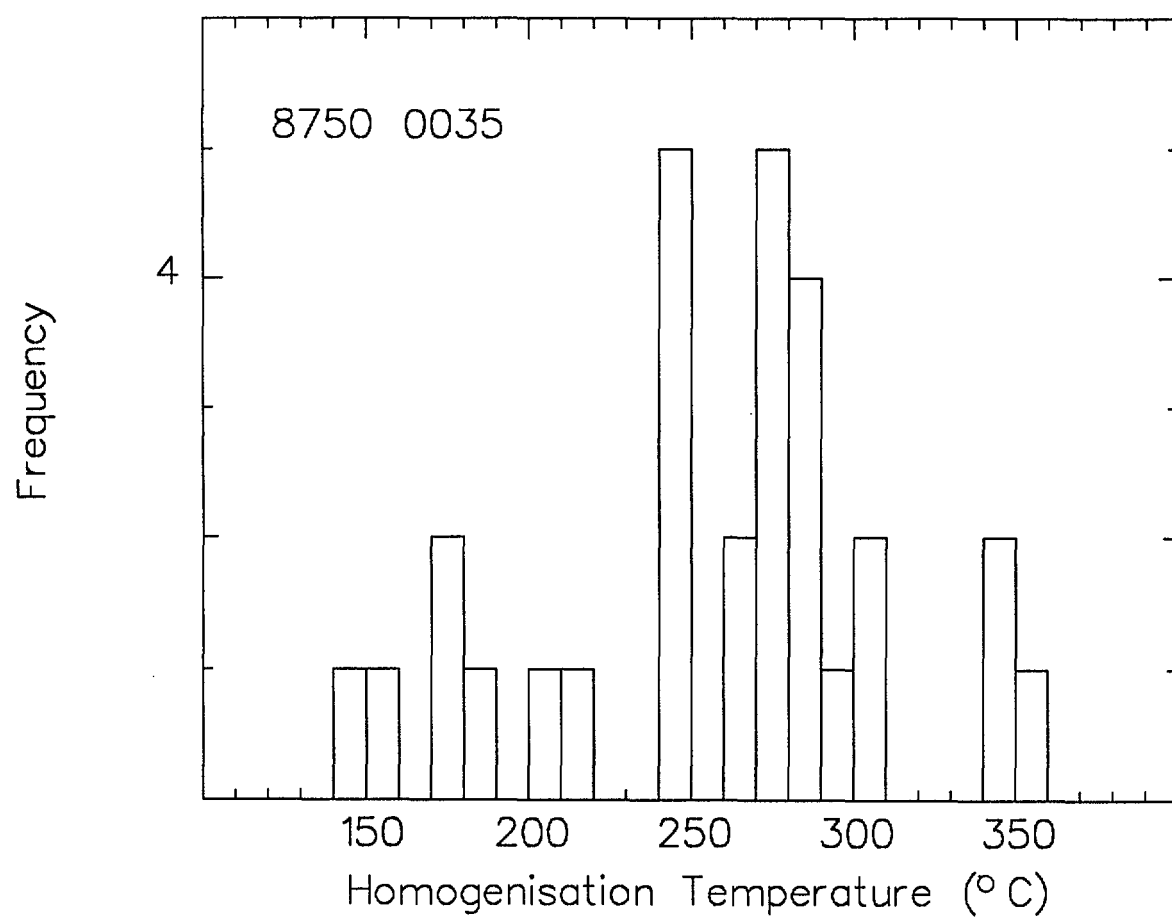


SAMPLE No. 8750 0035
SAMPLE surface
MINERAL quartz
PROSPECT Bluegum
AREA Mojo

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	143		
	155		
	173		
	178		
	180		
	209	-0.8	1.4
	214		
	240	-2.6	4.3
	244		
	245		
	246	-0.9	1.6
	247	-0.6	1.0
	261	-0.7	1.2
	264	-0.7	1.2
	271		
	274	-0.8	1.4
	274		
	275		
	276	-0.5	0.9
	282		
	282		
	283	-3.0	4.9
	289		
	293		
	302		
	308		
	347		
	349		
	352		
mean	257		2.0
std. dev.	55		1.5
no. samples	29		9

REMARKS:

Massive milky quartz with few cavities lined with fine quartz crystals up to 1 mm across. Inclusions in growth zones are regular, 5-10 microns, 10% vapour. Other inclusions are up to 10 microns, 5% vapour and contain up to 5 solid phases (including halite and anhydrite). CO₂-rich inclusions are 5-10 microns, ≥ 75% vapour and contain up to 5% liquid CO₂.

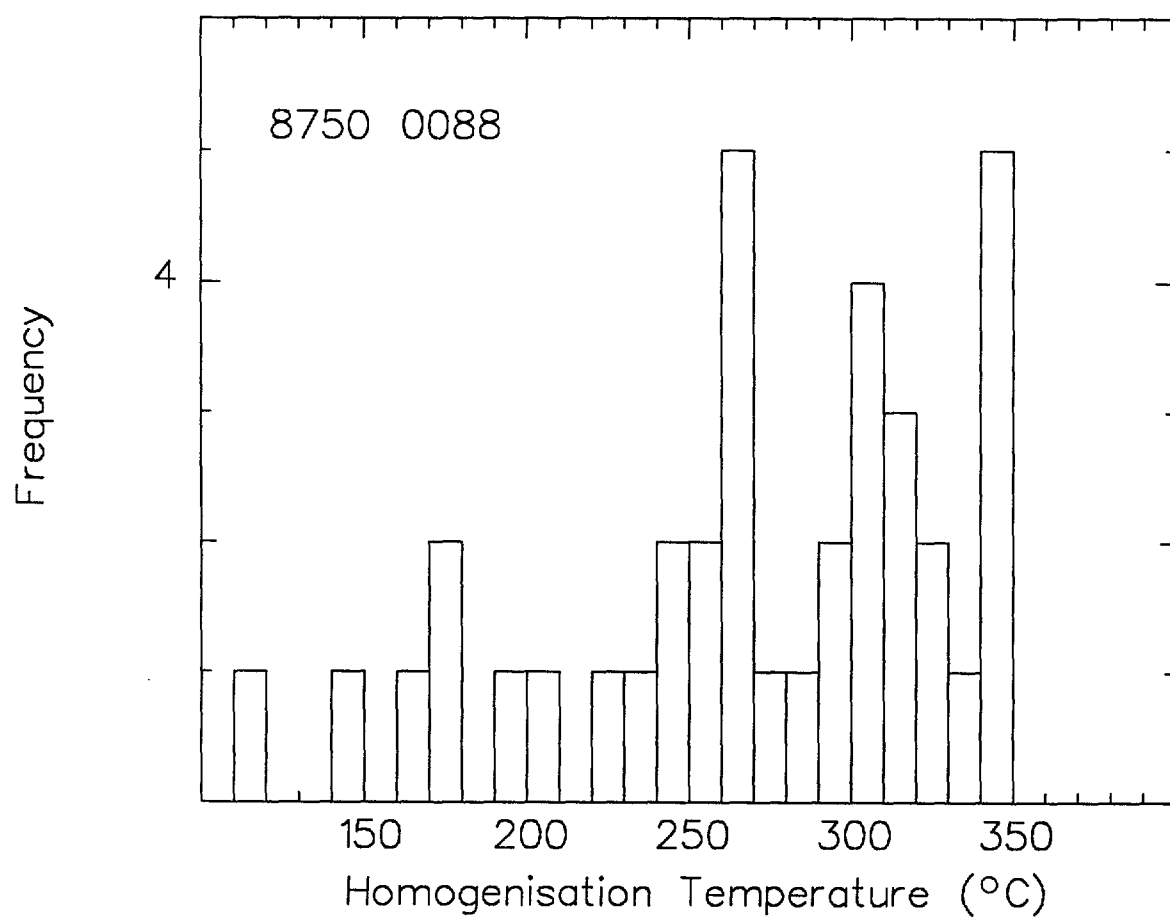


SAMPLE No. 8750 0088
SAMPLE surface
MINERAL quartz
PROSPECT Bluegum
AREA -

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	115		
	147		
	165		
	172		
	176		
	195	-4.8	7.6
	200		
	224		
	232	-5.0	7.9
	240		
	246		
	255		
	258		
	262		
	263	-3.5	5.7
	264		
	265		
	265		
	276	-5.3	8.3
	288		
	297		
	297		
	300		
	302		
	309		
	309	-2.7	4.5
	311	-2.4	4.0
	313		
	317	-4.0	6.4
	322		
	328		
	335		
	341		
	341		
	341		
	341		
	341		
mean	269		6.8
std. dev.	61		2.3
no. samples	37		16

REMARKS:

Massive milky quartz but with abundant fluid inclusions in coarser material. Inclusions are regular, 5-10 microns, 10% vapour. Also groups of 5-10 micron, CO₂-rich (>75% vapour) inclusions. Further salinity measurements (Wt % NaCl equiv.): -1.4 (2.4), -2.5 (4.2), -2.7 (4.5), -4.3 (6.9), -5.1 (8.0), -5.1 (8.0), -5.2 (8.1), -6.6 (10.0), -7.9 (11.6)



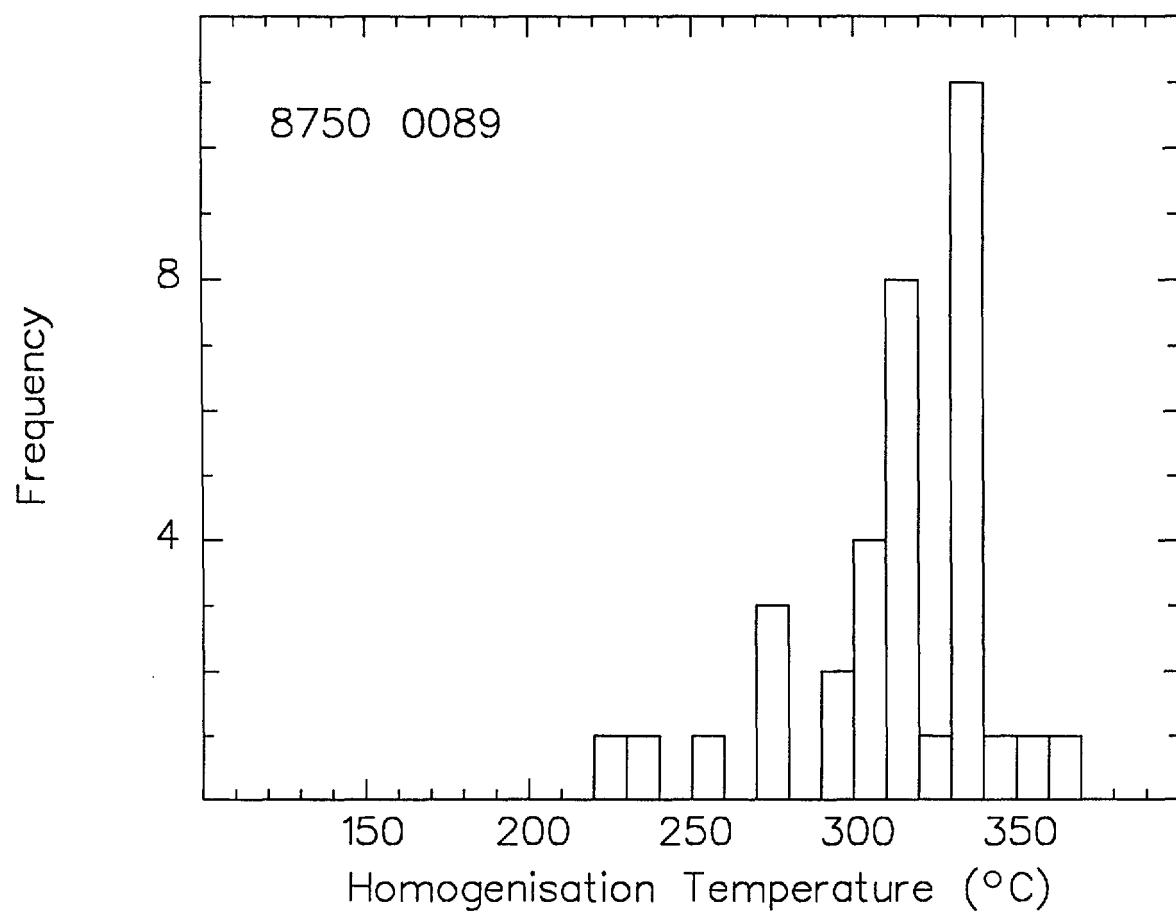
SAMPLE No. 8750 0089
SAMPLE surface
MINERAL quartz
PROSPECT Bluegum
AREA -

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	224		
	236		
	258		
	271		
	272		
	276		
	290	-0.1	0.2
	294		
	301		
	302	-0.1	0.2
	307		
	308		
	311		
	311		
	312	-0.1	0.2
	313	-0.2	0.4
	314		
	315		
	315		
	316		
	320		
	330		
	330		
	331		
	332		
	332		
	333		
	334		
	337		
	337		
	337		
	338		
	341		
	354		
	360		
mean	311		0.2
std. dev.	31		0.1
no. samples	35		4

REMARKS:

Massive milky quartz with few cavities. Inclusions in growth zones are regular, 5-10 microns, 10% vapour. Other inclusions are up to 10 microns, 5% vapour and contain up to 5 solid phases (including halite and anhydrite). CO₂-rich inclusions are 5-10 microns, ≥ 75% vapour and contain up to 5% liquid CO₂.

T_{m-clathrate} (T_h CO₂) measurements: +9.8 (+25.0), +10.0 (-), +10.1 (+29.1)



SAMPLE No. 8750 0090
SAMPLE surface
MINERAL quartz
PROSPECT Bluegum
AREA Mojo

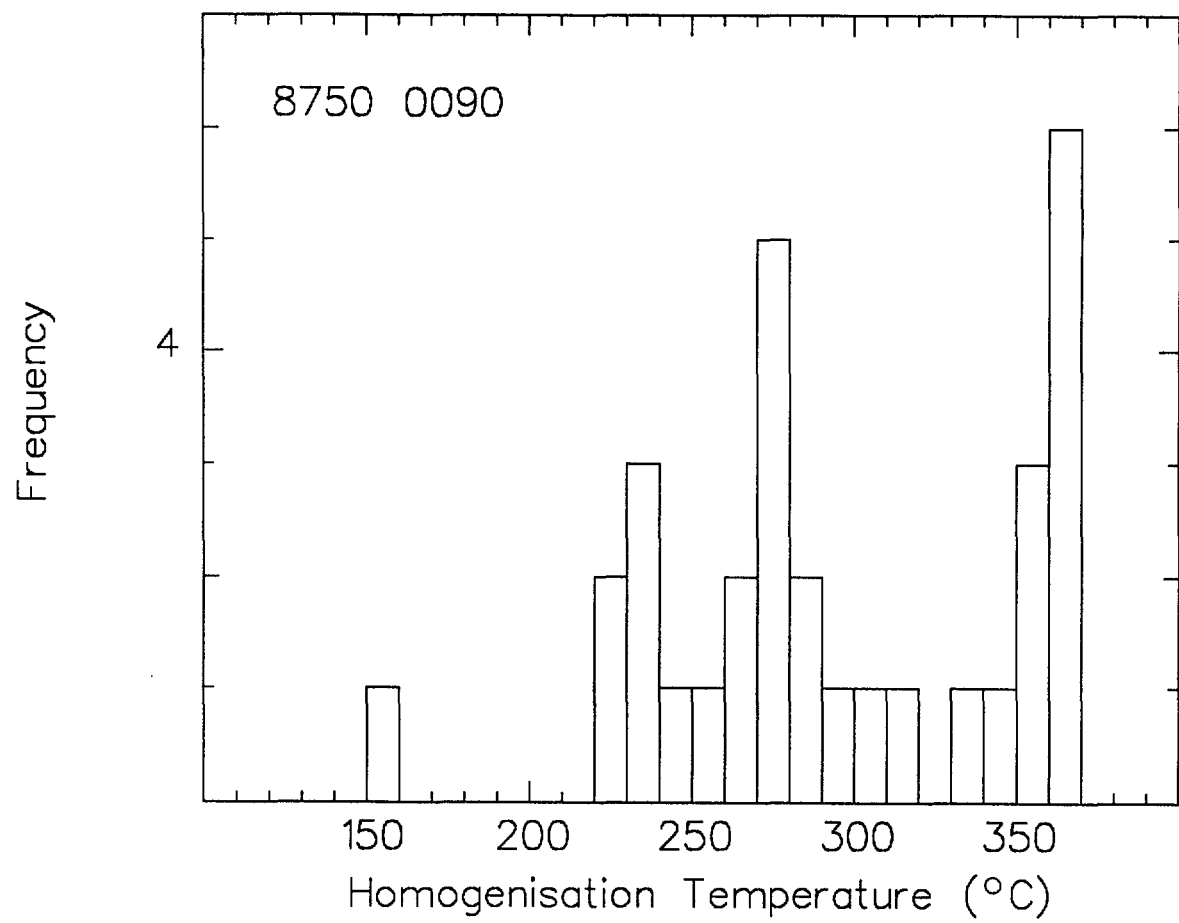
	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	155		
	221	-0.5	0.9
	227	-7.1	10.6
	230		
	234		
	237		
	247		
	258		
	265		
	269		
	270	-6.1	9.3
	271		
	273	-6.1	9.3
	275	-7.2	10.7
	276		
	284		
	286		
	290	-2.3	3.9
	304		
	316		
	338		
	340		
	354		
	357		
	359		
	361		
	362		
	364		
	365		
	366		
	369		
mean	295		6.1
std. dev.	56		3.0
no. samples	31		14

REMARKS:

Massive milky quartz with few cavities. Inclusions in growth zones are regular, 5-10 microns, 10% vapour. Other inclusions are up to 10 microns, 5% vapour and contain up to 5 solid phases (including halite and anhydrite). CO₂-rich inclusions are 5-10 microns, ≥ 75% vapour and contain up to 5% liquid CO₂.

Further salinity measurements (Wt % NaCl equiv.): -1.6 (2.7), -1.8 (3.1), -2.1 (3.5), -2.3 (3.9), -3.9 (6.3), -4.1 (6.6), -4.4 (7.0), -4.5 (7.2)

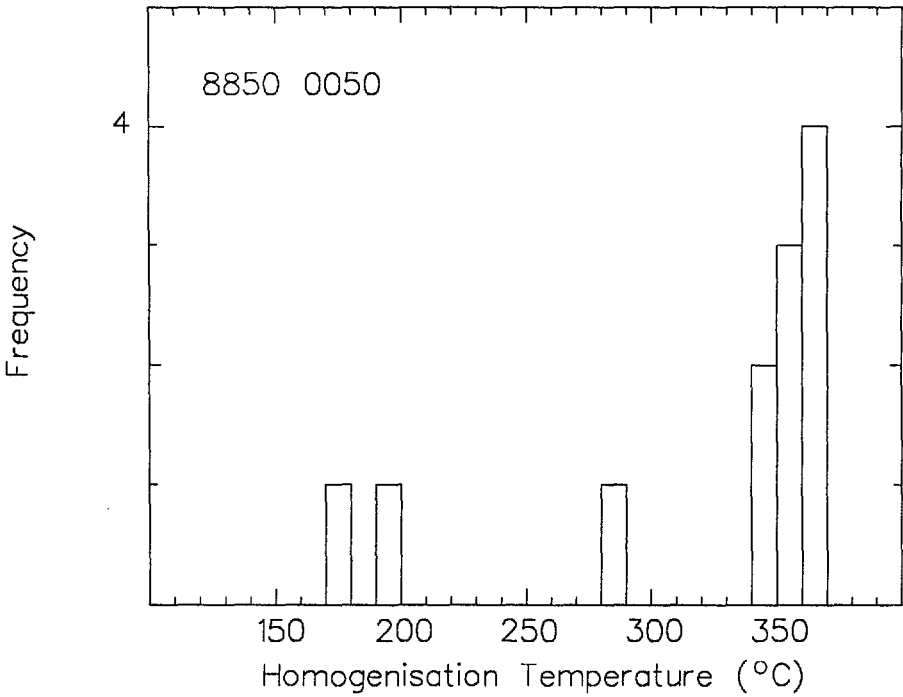
T_{m-clathrate} (T_h CO₂) measurements: +7.1 (+25.1), +9.0 (+26.2)



SAMPLE No.	8850 0050
SAMPLE	DDH BG1, 55.5 m
MINERAL	quartz
PROSPECT	Bluegum
AREA	-

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	177		
	191		
	280		
	344		
	344		
	354		
	357		
	359		
	360		
	364		
	364		
	365		
mean	322		0.4
std. dev.	68		0.1
no. samples	12		3

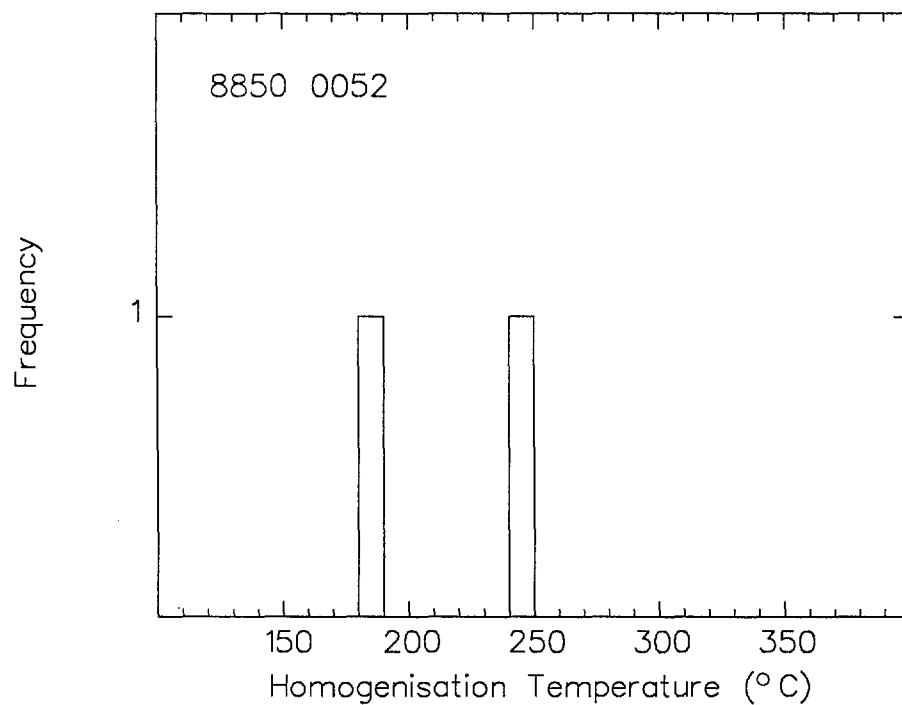
REMARKS: Milky quartz veins in a crystal-rich volcanic rock, regular fluid inclusions 5-10 microns with 10% vapour, some vapour rich.
 Further salinity measurements (Wt % NaCl equiv.): -0.2 (0.4), -0.2 (0.4), -0.3 (0.5)



SAMPLE No.	8850 0052
SAMPLE	DDH BG2, 52.3 m
MINERAL	quartz
PROSPECT	Bluegum
AREA	-

	T_h (°C)	T_m ice (°C)	Wt % NaCl equiv.
	185		
	244		
mean	215	-	
std. dev.	29	-	
no. samples	2	-	

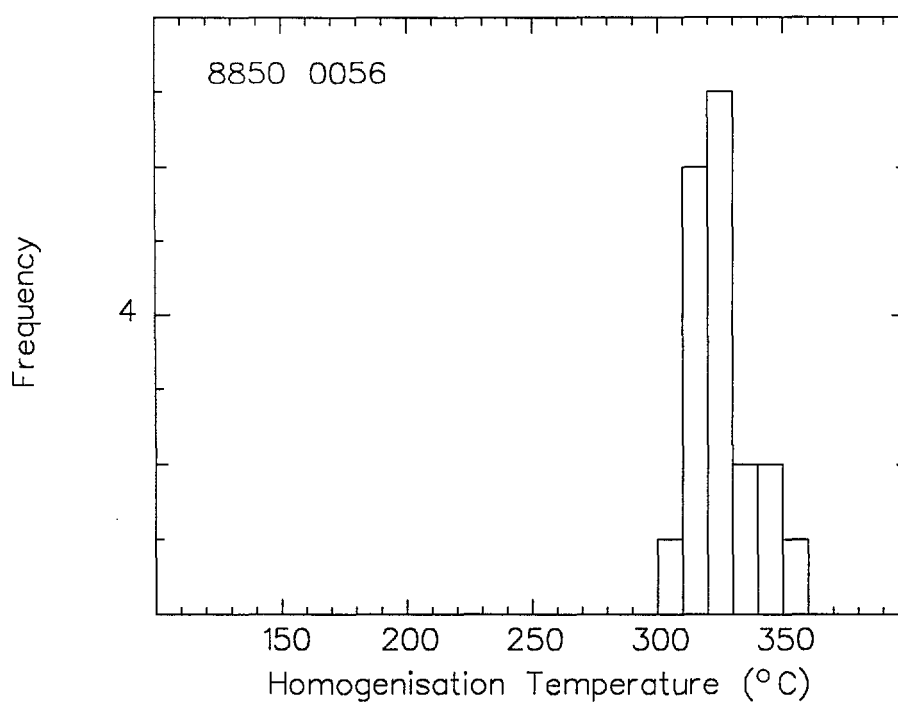
REMARKS: Milky quartz veins in a highly altered breccia; rare fluid inclusions 5-10 microns with 10% vapour, some vapour rich.



SAMPLE No. 8850 0056
SAMPLE DDH BG34, 65.3 m
MINERAL quartz
PROSPECT Bluegum
AREA -

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	309	-0.9	1.6
	310	-0.7	1.2
	310	-0.7	1.2
	311		
	316	-0.8	1.4
	319	-0.7	1.2
	319		
	320		
	320	-0.7	1.2
	321	-0.9	1.6
	322		
	322		
	324		
	327		
	331		
	339		
	341		
	347		
	352		
mean	324		1.3
std. dev.	13		0.2
no. samples	19		7

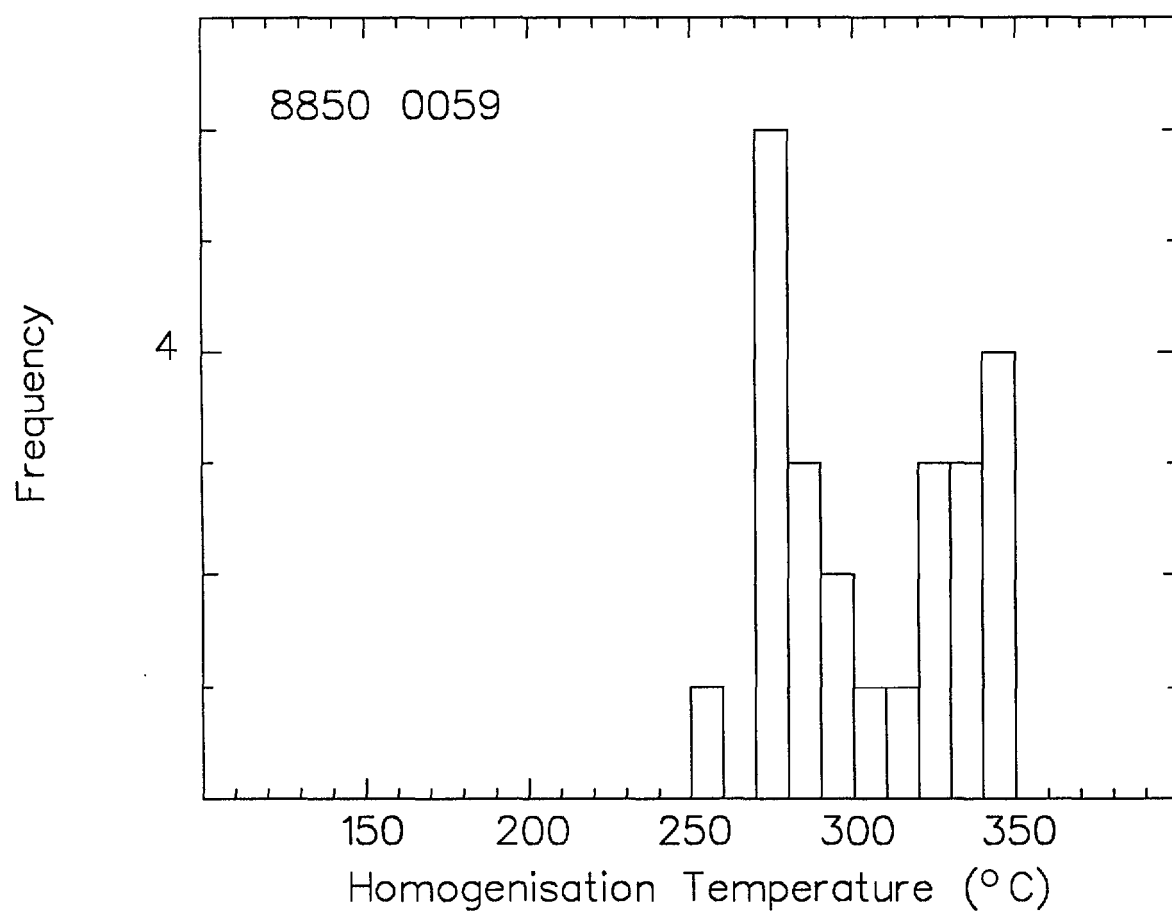
REMARKS: Quartz veins in silicified breccia. Regular fluid inclusions, 5-15 micron, 10-40% vapour.



SAMPLE No.	8850 0059
SAMPLE	DDH BG35, 48.7 m
MINERAL	quartz
PROSPECT	Bluegum
AREA	-

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	251		
	270		
	271		
	271		
	273	-4.8	7.6
	277		
	278	-3.2	5.2
	280		
	284		
	287		
	292		
	293		
	306		
	315	-3.1	5.1
	326		
	326		
	328		
	330		
	331		
	331		
	342		
	342		
	347		
	349		
mean	304		6.0
std. dev.	30		1.4
no. samples	24		3

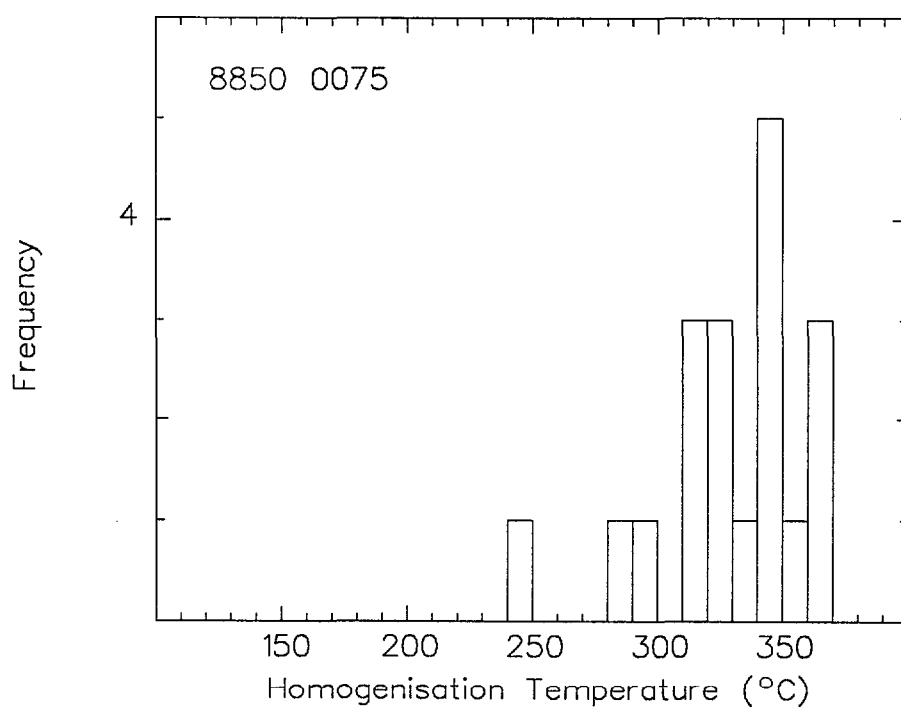
REMARKS: Coarse quartz crystals in a pervasively silicified rock with liquid-rich and vapour-rich inclusions, up to 30 microns, 10-30% vapour.



SAMPLE No.	8850 0075
SAMPLE	DDH BG39, 52.6 m
MINERAL	quartz
PROSPECT	Bluegum
AREA	-

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	240		
	283		
	293		
	312		
	313		
	318		
	327		
	328		
	328		
	336		
	341		
	342		
	347		
	349		
	349		
	351		
	363		
	366		
	367		
mean	329		-
std. dev.	32		-
no. samples	19		-

REMARKS: Quartz veins in altered volcanic rock. Regular small fluid inclusions of 3-6 microns but up to 15 microns, 10-50% vapour.

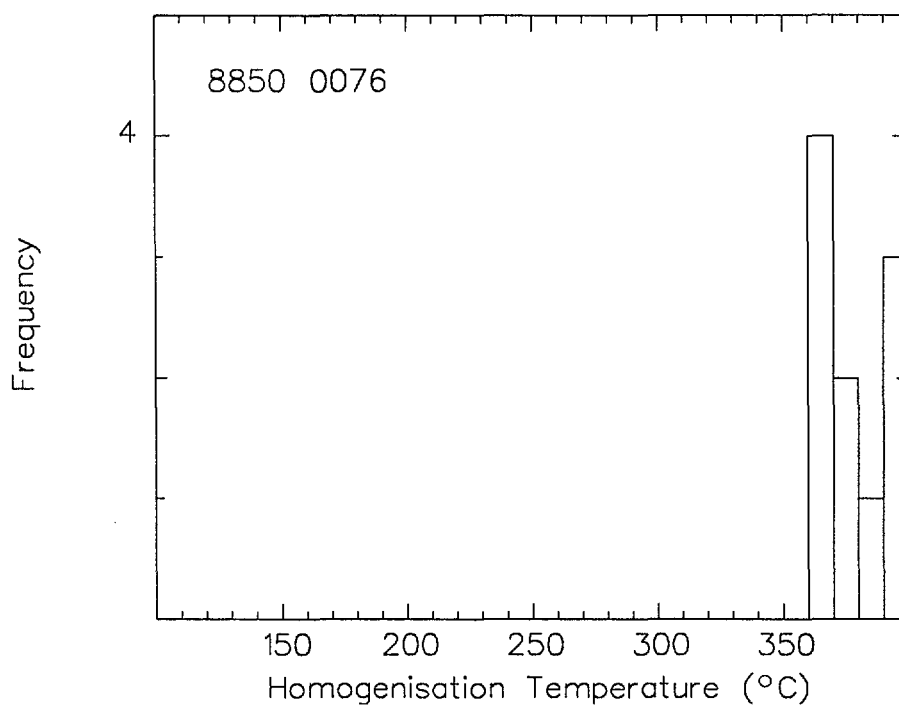


SAMPLE No.	8850 0076
SAMPLE	DDH BG39, 58.5 m
MINERAL	quartz
PROSPECT	Bluegum
AREA	-

	Th (°C)	Tm ice (°C)	Wt % NaCl equiv.
	362		
	365		
	365		
	366		
	370		
	374		
	387		
	393		
	394		
	398		
mean	377		0.5
std. dev.	14		-
no. samples	10		5

REMARKS: Quartz veins in altered volcanic rock. Regular liquid-rich fluid inclusions are 5-15 microns with 30% vapour. Some CO₂-rich inclusions are 5-10 microns, ≥ 75% vapour and contain up to 5% liquid CO₂.

Further salinity measurements (Wt % NaCl equiv.): -0.3 (0.5), -0.3 (0.5), -0.3 (0.5), -0.3 (0.5), -0.3 (0.5)



STABLE ISOTOPE DATA FROM BHP PROSPECTS

Oxygen isotope data for quartz veins and sinters

BMR SAMPLE NUMBER	$\delta^{18}\text{O}_{\text{SMOW}}$
8750 0014	+8.8 (2)
8750 0037	+8.5
8750 0038	+11.2 (2)
8750 0040	+8.7 (2)
8750 0043	+6.0 (2)
8750 0044	+3.6 (2)
8750 0045	+6.8 (2)
8750 0047	+5.0 (2)
8750 0048	+5.5
8750 0049	+5.6 (2)
8750 0050	+7.7
8750 0051	+6.5
8750 0054	+5.6 (2)
8750 0055	+5.1
8750 0058	+4.4 (2)
8750 0101	+8.0 (2)
8750 0103	+9.0 (2)
8750 0104	+6.9 (2)
8750 0105	+9.4 (2)
8750 0108	+10.9 (2)
8750 0109	+12.5 (2)
8850 0001	+11.5
8850 0005	+7.3
8850 0007	+2.8
8850 0023	+3.8
8850 0037	+7.2
8850 0040	+3.9
8850 0044	+2.2
8850 0047	+9.5
8850 0065	+14.4 (2)
8850 0066	+7.9
8750 0089	+4.9
8750 0090	+5.5
8850 0096	+13.6 (2)

Oxygen and hydrogen isotope data for sericite from BHP prospects

BMR SAMPLE NUMBER	$\delta^{18}\text{O}_{\text{SMOW}}$	δD
8750 0005	+4.2 (2)	-98
8750 0026	+3.4 (2)	-88
8750 0065	+3.4 (2)	-84
8750 0067	+3.1 (2)	--
8750 0071	+2.5 (2)	-90
8750 0080	+3.6 (2)	-77
8750 0091	+0.6 (2)	-115
8850 0016	+0.2	-107
8850 0035	-1.1	-101
8850 0054	-3.7	-134
8850 0062	+0.1	-134

Oxygen and carbon isotope data for calcite samples from BHP prospects

BMR SAMPLE NUMBER	$\delta^{13}\text{C}_{\text{PDB}}$	$\delta^{18}\text{O}_{\text{SMOW}}$
8750 0001	-3.7	+7.8
8750 0007	-3.0	+9.3
8750 0008	-4.7	+5.0
8750 0009	-5.4	+5.6
8750 0010	-5.8	+7.2
8750 0011	-6.4	+9.5
8750 0012	-6.9	+9.6
8750 0013	-5.5	+4.4
8750 0014	-4.5	+7.9
8750 0030	-4.9	+4.8
8750 0031	-5.4	+5.0
8750 0032	-4.0	+6.8
8750 0033	-6.1	+4.9
8750 0034	-4.7	+5.5
8750 0061	-2.8 (2)	+10.8 (2)
8750 0070	-4.4	+6.0
8750 0074	-3.9	+6.8
8750 0094	-12.5 (2)	+13.6 (2)
8750 0095	-7.8	+2.5
8750 0096	-6.9 (2)	-1.8 (2)
8750 0099	-13.9	+7.7
8750 0106	-6.6	+7.5
8850 0017	-2.9	+2.9
8850 0018	-1.1	+5.1
8850 0019	-2.9	+3.4
8850 0024	-3.8	+4.4
8850 0028	-4.2	+3.3
8850 0031	-4.6	+3.7
8850 0032	-5.3	+3.5
8850 0034	-7.5	+11.2
8850 0036	-4.8	+4.9
8850 0072	-7.0	-1.8
8850 0073	-6.1	-3.2
8850 0076	-7.3	-2.0

Sulphur isotope data for pyrite from BHP prospects

BMR SAMPLE NUMBER	$\delta^{34}\text{S}_{\text{CDT}}$
8750 0068	-4.9
8750 0069	+6.2
8750 0099	-6.1
8750 0100	+1.5
8850 0008	+2.6
8850 0021	+2.2
8850 0030	-1.9
8850 0041	-6.3
8850 0051	+0.4
8850 0053	-16.5
8850 0061	+7.5
8850 0069	-0.6
8850 0070	-1.1
8850 0070 (pyrrhotite)	+0.5
8850 0075	-0.8
8850 0077	-0.7
8850 0082	+4.5
8850 0086	-3.2
8850 0087	-0.4

Whole-rock oxygen isotope data for samples from the Conway prospect

BMR SAMPLE NUMBER	$\delta^{18}\text{O}_{\text{SMOW}}$
8750 0006	+5.7
8750 0015	+4.2
8750 0022	+5.0
8750 0027	+4.4
8750 0068	+4.4
8750 0075	+3.1
8850 0011	+4.0 (2)
8850 0012	+4.9

K-Ar DATING OF SERICITE ALTERATION IN EPITHERMAL PROSPECTS

BMR SAMPLE	%K	$^{40}\text{Ar}^*$ ($\times 10^{-10}$ moles/g)	$^{40}\text{Ar}^*/^{40}\text{Ar}_{\text{Total}}$	AGE ⁺
8750 0005	7.13 7.07	42.767	0.993	317 $\pm$ 2 Ma
8750 0026	7.29 7.41	41.210 41.405	0.994 0.980	297 $\pm$ 2 Ma 299 $\pm$ 3 Ma
8750 0067	8.25 8.31	48.942	0.995	312 $\pm$ 3 Ma
8750 0071	6.93 6.91	43.527	0.993	330 $\pm$ 3 Ma
8750 0080	5.72 5.75	34.995	0.988	321 $\pm$ 3 Ma
8750 0091	7.31 7.23	38.680	0.991	283 $\pm$ 3 Ma
8850 0016	7.75	46.772	0.989	318 $\pm$ 5 Ma
8850 0035	7.93	50.551	0.993	334 $\pm$ 5 Ma
8850 0054	6.71	37.839	0.981	299 $\pm$ 4 Ma
8850 0062	6.47	36.767	0.993	301 $\pm$ 4 Ma

* denotes radiogenic ^{40}Ar

+ error limits in age given for the analytical uncertainty at one standard deviation

Constants: $^{40}\text{K} = 0.01167$ atom percent
 $\lambda_{\beta} = 4.962 \times 10^{-10}$ per year
 $\lambda_{\epsilon} = 0.581 \times 10^{-10}$ per year