

Table S1: FI analysis

Sample Name	Phase	N°			Room temperature		Heating runs			Cooling runs						Salinity	
		Chip	FIA	FI	System	Type	Th	±	Tn _g	Tn _i	Te _{ap}	Tm _i	±	Tm _i (MET)	±	eq. wt % NaCl	
LOL 2008	CAL2	1	1	1	Aq/Gas	Prim	84	1	-	-	-	-	-	-	-	-	-
		1	1	2	Aq/Gas	Prim	84	1	met2	-53	-	-	-	-	-	-	-
		1	1	3	Aq/Gas	Prim	84	1	-	-	-	-	-	-	-	-	-
		1	1	4	Aq/Gas	Prim	77.5	0.5	-	-53	-28	-12.5	0.1	-	-	-	16.4
		1	1	5	Aq/Gas	Prim	90	1	-	-53	-	-	-	-9.5	0.1	-	-
		1	2	6	Aq/Gas	Prim	86	1	-	-65	<-24	-15.6	0.1	-	-	-	19.1
		1	2	7	Aq/Gas	Prim	86	1	-	-59	-26	-16.7	0.1	-	-	-	20.0
		1	2	8	Aq/Gas	Prim	74.5	0.5	-	-59	-	-12.5	0.1	-	-	-	16.4
		1	2	9	Aq/Gas	Prim	86	1	met2	-	-	-15.7	0.1	-7	0.1	-	19.2
		1	3	10	Aq/Gas	Prim	82	1	-	-59	<-23	-11.9	0.1	-	-	-	15.9
		1	4	11	Aq/Gas	Prim	77.5	0.5	-	-	-	-	-	-	-	-	-
		1	4	12	Aq/Gas	Prim	96	1	-	-44	-26	-	-	-8.6	0.1	-	-
		1	5	13	Aq/Gas	Prim	77.5	0.5	met	-61	-30	-12.6	0.1	-	-	-	16.5
		1	6	14	Aq/Gas	Prim	84	1	met	-	-	-	-	-2.5	0.1	-	-
		1	6	15	Aq/Gas	Prim	82	1	-	-53	-	-10.6	0.1	-	-	-	14.6
	CAL1	2	1	1	Aq/Gas	Prim	91	1	-	-	-	-	-	-	-	-	-
		2	1	2	Aq/Gas	Prim	87	1	met	-	-	-	-	-	-	-	-
		2	1	3	Aq/Gas	Prim	85	1	met2	-	-	-	-	-	-	-	-
		2	1	4	Aq/Gas	Prim	79	1	met	-	-	-	-	-	-	-	-
		2	2	5	Aq/Gas	Prim	77	1	met2	-59	-26	-	-	-10.1	0.1	-	-
		2	2	6	Aq/Gas	Prim	81	1	-	-55	-26	-12.8	0.1	-	-	-	16.7
		2	2	7	Aq/Gas	Prim	77	1	-	-53	-	-12.6	0.1	-	-	-	16.5
		2	2	8	Aq/Gas	Prim	67.5	2.5	met	-50	-	-10.6	0.1	-	-	-	14.6
		2	2	9	Aq/Gas	Prim	67.5	2.5	met2	-58	-	-11	0.1	-	-	-	15.0
		2	2	10	Aq/Gas	Prim	67.5	2.5	-	-	-	-	-	-	-	-	0.0
		2	2	11	Aq/Gas	Prim	62.5	2.5	-	-	<-20	-10.8	0.1	-	-	-	14.8
		2	3	12	Aq/Gas	Prim	79	1	met	-43	-24	-16	0.1	-	-	-	19.4
		2	3	13	Aq/Gas	Prim	89	1	met2	-	-25	-12	0.1	-	-	-	16.0
		2	3	14	Aq/Gas	Prim	89	1	met	-42	-25	-13.3	0.1	-	-	-	17.2
2	4	15	Aq/Gas	Prim	67.5	2.5	met2	-59	-	-13	0.1	-	-	-	16.9		
2	4	16	Aq/Gas	Prim	67.5	2.5	-	-60	-30	-12.7	0.1	-	-	-	16.6		
2	5	17	Aq/Gas	Prim	91	1	-	-55	-	-10.4	0.1	-	-	-	14.4		
2	6	18	Aq/Gas	Prim	73	1	-	-58	-26	-12.1	0.1	-	-	-	16.1		
2	6	19	Aq/Gas	Prim	79	1	-	-59	-	-	-	-	-	-	-		
LOL 8-9	CAL1	1	1	1	Aq/Gas	Prim	99	1	-	-57	-	-11.8	0.1	-	-	15.8	

1	1	2	Aq/Gas	Prim	91	1	-	-	-	-	-	-	-	-	
1	2	3	Aq/Gas	Prim	>80	-	-	-	<-25	-15.8	0.2	-	-	19.3	
1	2	4	Aq/Gas	Prim	82	2	-	-54	-	-12.7	0.2	-	-	16.6	
1	2	5	Aq/Gas	Prim	>80	-	-	-	-	-13.4	0.2	-	-	17.3	
1	2	6	Aq/Gas	Prim	>80	-	-	-	-	-13.4	0.2	-	-	17.3	
1	2	7	Aq/Gas	Prim	72.5	2.5	-	-63	-	-	-	-7	0.1	-	
1	2	8	Aq/Gas	Prim	82	2	-	-	-	-11.8	0.1	-	-	15.8	
1	2	9	Aq/Gas	Prim	-	-	-	-63	<-21	-11.4	0.1	-7	0.1	15.4	
1	2	10	Aq/Gas	Prim	-	-	-	-63	-	-	-	-	-	-	
2	1	1	Aq/Gas	Prim	95.5	0.5	-	-58.7	-	-11	0.2	-	-	15.0	
2	1	2	Aq/Gas	Prim	87.5	0.5	-	-59.4	-	-8.2	0.2	-	-	11.9	
2	1	3	Aq/Gas	Prim	93.5	0.5	-	-60.1	-	-	-	-7.6	0.1	-	
2	1	4	Aq/Gas	Prim	91.5	0.5	-	-60.7	-	-12.3	0.2	-	-	16.2	
2	1	16	Aq/Gas	Prim	84.5	0.5	-	-	-	-	-	-	-	-	
2	2	5	Aq/Gas	Prim	88.5	0.5	-	-	-	-	-	-	-	-	
2	3	6	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-	
2	3	7	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-	
2	4	8	Aq/Gas	Prim	62.5	2.5	-	-60.8	-	-12.2	0.1	-	-	16.1	
2	4	9	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-	
2	4	10	Aq/Gas	Prim	79	1	-	-	-	-11.4	0.2	-	-	15.4	
2	5	11	Aq/Gas	Prim	-	-	-	-	<-30	-	-	-	-	-	
2	5	12	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-	
2	6	13	Aq/Gas	Prim	73.5	0.5	-	-	-	-	-	-	-	-	
2	6	14	Aq/Gas	Prim	71	1	-	-59.1	<-21	-11.6	0.2	-	-	15.6	
2	6	15	Aq/Gas	Prim	62.5	2.5	-	-	-	-	-	-	-	-	
CAL2	4	1	1	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	
	4	1	2	Aq/Gas	Prim	>99	-	-	-	-	-11.4	0.1	-	15.4	
	4	1	3	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	
	4	2	4	Aq/Gas	Prim	>100	-	-	-	-	-	-	-	-	
	4	2	5	Aq/Gas	Prim	105.5	0.5	-	-	-	-	-	-	-	
	4	2	6	Aq/Gas	Prim	86.5	0.5	-	-	-	-	-7.9	0.1	-	
	4	3	7	Aq/Gas	Prim	92.5	0.5	-	-63	-	-13.5	0.1	-	17.3	
	4	3	8	Aq/Gas	Prim	88.5	0.5	-	-	<-45	-	-	-5.2	0.1	-
	4	3	9	Aq/Gas	Prim	97.5	0.5	-	-58	<-35	-11.2	0.1	-	-	15.2
	4	3	10	Aq/Gas	Prim	101.5	0.5	-	-57.7	<-45	-10.2	0.1	-	-	14.1
	4	4	11	Aq/Gas	Prim	105.5	0.5	-	-57.7	<-35	-	-	-3.7	0.1	-
	4	4	12	Aq/Gas	Prim	95.5	0.5	-	-	-	-11.2	0.1	-	-	15.2
	4	5	13	Aq/Gas	Prim	88.5	0.5	-	-65	<-37	-14.3	0.1	-	-	18.0
	4	5	14	Aq/Gas	Prim	89.5	0.5	-	-	-	-	-	-6.1	0.1	-
	4	5	15	Aq/Gas	Prim	88.5	0.5	-	-	-	-	-	-	-	-
AR 18-19	CAL1	1	1	1	Aq/Gas	Prim	60.5	0.5	-	-59.7	-	-10.9	0.1	-	14.9

1	2	2	Aq/Gas	Prim	83.5	0.5	-	-	-	-	-	-	-	-
1	3	3	Aq/Gas	Prim	74.5	0.5	-	-59	-	-10.6	0.1	-	-	14.6
1	3	4	Aq/Gas	Prim	89.5	0.5	-	-	-	-	-	-	-	-
1	3	5	Aq/Gas	Prim	93.5	0.5	-	-	-	-	-	-	-	-
1	3	6	Aq/Gas	Prim	78.5	0.5	-	-	-	-11.5	0.1	-	-	15.5
1	3	7	Aq/Gas	Prim	>100	-	-	-	-	-	-	-	-	-
1	3	8	Aq/Gas	Prim	>100	-	-	-58	<-21	-9.8	0.1	-	-	13.7
1	3	9	Aq/Gas	Prim	94.5	0.5	-	-53	-	-9.6	0.1	-	-	13.5
1	4	10	Aq/Gas	Prim	87.5	0.5	-	-	-	-	-	-	-	-
1	5	11	Aq/Gas	Prim	99.5	0.5	-	-57	-	-9.9	0.1	-	-	13.8
1	5	12	Aq/Gas	Prim	89.5	0.5	-	-57	-	-9.9	0.1	-	-	13.8
1	5	13	Aq/Gas	Prim	77.5	0.5	-	-	-	-	-	-	-	-
1	5	14	Aq/Gas	Prim	95.5	0.5	-	-48	<-29	-	-	-2.2	0.1	-
1	5	15	Aq/Gas	Prim	72.5	0.5	-	-59	-	-6.2	0.1	-	-	9.5
1	5	17	Aq/Gas	Prim	94.50	0.5	-	-	-	-9.4	0.1	-	-	13.3
1	6	16	Aq/Gas	Prim	80.5	0.5	-	-	-	-9.8	0.1	-	-	13.7
1	6	18	Aq/Gas	Prim	94.5	0.5	-	-54	-	-	-	-7.2	0.1	-
1	6	19	Aq/Gas	Prim	82.5	0.5	-	-53	-	-	-	-6.8	0.1	-
1	6	20	Aq/Gas	Prim	80.5	0.5	-	-	-	-	-	-	-	-
2	1	1	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-
2	1	2	Aq/Gas	Prim	91.5	0.5	-	-55	-	-8.9	0.1	-	-	12.7
2	2	3	Aq/Gas	Prim	74.5	0.5	met2	-	<-28	-	-	-	-	-
2	2	4	Aq/Gas	Prim	75.5	0.5	met2	-	-	-12.3	0.1	-	-	16.2
2	2	5	Aq/Gas	Prim	89	1	met2	-	-	-	-	-	-	-
2	2	6	Aq/Gas	Prim	77.5	0.5	met2	-54	<-30	-8	0.1	-	-	11.7
2	2	7	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-
2	3	8	Aq/Gas	Prim	75.5	0.5	-	-	-	-	-	-	-	-
2	4	9	Aq/Gas	Prim	77.5	0.5	met2	-52	-	-	-	-3.4	0.1	-
2	4	10	Aq/Gas	Prim	96.5	0.5	met2	-52	-	-	-	-	-	-
2	5	11	Aq/Gas	Prim	89	1	met2	-	-	-	-	-	-	-
2	5	12	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-
2	6	13	Aq/Gas	Prim	87	1	-	-	-28	-	-	-2.7	0.1	-
2	7	14	Aq/Gas	Prim	76.5	0.5	met2	-	<-23	-7.9	0.1	-	-	11.6
1	1	1	Aq/Gas	Prim	119	1	met	-	-	-17.3	0.1	-	-	20.4
1	1	2	Aq/Gas	Prim	-	-	-	-70	-	-	-	-12.6	0.1	-
1	2	3	Aq/Gas	Prim	131	1	-	-67	-	-15.4	0.1	-	-	19.0
1	2	4	Aq/Gas	Prim	113	1	-	-66	-	-16.9	0.2	-	-	20.1
1	2	5	Aq/Gas	Prim	-	-	met	-55	-	-	-	-	-	-
1	3	6	Aq/Gas	Prim	113	1	met	-67	-	-	-	-18.9	0.2	-
1	3	7	Aq/Gas	Prim	133	1	-	-	-	-16.5	0.1	-	-	19.8
1	3	8	Aq/Gas	Prim	103	1	met	-	-	-	-	-	-	-

FEX 2396

DOL1

1	4	9	Aq/Gas	Prim	125	1	met	-	-	-	-	-	-	-
1	4	10	Aq/Gas	Prim	117	1	-	-67	-	-16.3	0.1	-	-	19.7
1	4	11	Aq/Gas	Prim	123	1	met	-	-	-16.3	0.1	-	-	19.7
2	1	1	Aq/Gas	Prim	113	1	met	-	-	-	-	-12.9	0.1	-
2	1	2	Aq/Gas	Prim	117	1	-	-	-	-	-	-	-	-
2	1	3	Aq/Gas	Prim	112	1	-	-	-	-	-	-	-	-
2	2	4	Aq/Gas	Prim	113	1	met	-	-	-	-	-12.7	0.1	-
3	1	1	Aq/Gas	Prim	101	1	-	-66	-	-	-	-	-	-
3	1	2	Aq/Gas	Prim	111	1	-	-	-	-16.3	0.1	-	-	19.7
3	1	3	Aq/Gas	Prim	105	1	-	-68	-	-16.1	0.1	-	-	19.5
3	1	4	Aq/Gas	Prim	107	1	-	-	-	-16.5	0.1	-	-	19.8
3	1	5	Aq/Gas	Prim	86	1	-	-	-	-16.4	0.1	-	-	19.8
3	2	6	Aq/Gas	Prim	-	-	-	-	-	-	-	-	-	-
3	2	7	Aq/Gas	Prim	86	1	-	-	-	-	-	-	-	-
3	2	8	Aq/Gas	Prim	101	1	-	-	-	-	-	-	-	-
3	3	9	Aq/Gas	Prim	101	1	-	-	-	-	-	-	-	-
3	3	10	Aq/Gas	Prim	115	1	-	-	-	-16.3	0.1	-	-	19.7

Notes

FIA: Fluid Inclusion Assamblage

Th: homogenization temperature

Tng: temperature of gas nucleation after homogenization

Tni: temperature of ice nucleation

Teap: apparent eutectic temperature

Tmi: final melting temperature of ice

Tmi(MET): metastable final melting temperature of ice

met: metastable behavior

met2: highly metastable behavior. Gas nucleation after fast cooling-heating cycles