Table S2. Composition of oxide (wt%) for selected mordenite crystals, obtained by EDS analyses.

CAMP	H1	H1	H1	H2	H2	H2	H3	H3	H3	H3	F2	F2	F2	F2	F3	F3	F3	F3	I1	I1
	m	c	c	s	c	c	c	c	c	m	c	c	s	s	c	c	s	s	s	c
Oxide																				
SiO_2	69.79(39)	68.12(30)	69.41 (28)	67.83(70)	67.89(62)	68.75(25)	68.42(32)	68.24(40)	67.73(41)	68.19(42)	69.50(47)	69.11(50)	68.59(25)	70.10(30)	66.14(41)	66.02(40)	66.15(43)	66.96(36)	70.06(40)	72.11(35)
Al_2O_3	11.89(19)	11.67(22)	11.61(25)	11.19(30)	11.30(31)	10.99(20)	10.94(21)	10.93(22)	11.12(25)	11.25(27)	11.75(30)	11.73(32)	11.59(32)	10.07(27)	11.45(15)	11.15(30)	10.97(12)	11.11(17)	10.96(31)	11.31(31)
$^{\alpha}Fe_2O_3$	0.07(7)	0.08(6)	-	0.17(5)	0.33(10)	0.39(10)	0.28(7)	0.22(5)	0.42(5)	0.02(5)	0.13(5)	0.03(3)	-	-	-	-	-	-	1.01(2)	0.06(5)
MgO	0.08(6)	0.11(8)	0.21(8)	0.18(12)	0.08(5)	0.18(9)	0.36(7)	0.35(6)	0.34(7)	0.36 (10)	0.50(3)	0.62(5)	0.65(9)	0.62(11)	0.51 (11)	0.28(21)	0.28(15)	0.40(7)	0.43(10)	0.15(7)
CaO	2.82(10)	2.89(12)	2.73(9)	3.05(8)	2.91(9)	2.90(15)	2.99 (8)	2.90(7)	3.04(15)	3.06(20)	3.43(20)	3.28(11)	3.08(15)	2.76(15)	2.97(15)	2.85(23)	2.90(21)	3.03(11)	2.87(16)	2.67(15)
Na_2O	2.84(9)	2.85(15)	3.37(12)	2.66(2)	2.38(10)	2.62(30)	1.57(17)	1.66(19)	1.58(10)	1.57(21)	2.20(17)	1.89(17)	1.87(16)	1.57(13)	1.73(9)	1.81(1)	1.77(3)	1.79(5)	1.14 (6)	1.17(6)
K_2O	1.12(5)	1.04(5)	1.09(12)	1.44(10)	1.42(12)	1.36(21)	1.54(10)	1.73(9)	1.95(20)	1.64(8)	0.73(19)	0.74(13)	0.93(8)	1.02(8)	1.59(7)	1.46(10)	1.40(11)	1.63(8)	2.33(2)	3.29(8)
Tot.	88.60	86.76	88.42	86.52	86.33	87.19	86.10	86.05	86.19	86.10	87.93	87.38	86.71	86.14	84.39	83.57	83.47	84.92	88.80	90.77
Number of cations on the basis of 96 framework O																				
Si	40.05	39.96	40.01	40.03	40.09	40.21	40.36	40.34	40.10	40.24	40.04	40.03	40.14	40.78	39.68	40.08	40.20	40.13	40.36	40.58
Al	8.04	8.07	7.89	7.78	7.86	7.56	7.58	7.61	7.76	7.82	7.97	7.99	7.99	7.33	8.09	7.98	7.86	7.85	7.43	7.50
Fe^{3+}	0.03	0.03	-	0.08	0.15	0.17	0.12	0.10	0.19	0.07	0..6	0.01	-	-	-	-	-	-	0.49	0.03
Mg	0.07	0.09	0.18	0.16	0.07	0.16	0.32	0.31	0.30	0.31	0.43	0.53	0.57	0.54	0.46	0.25	0.25	0.36	0.37	0.13
Ca	1.72	1.81	1.68	1.92	1.83	1.81	1.87	1.83	1.92	1.93	2.11	2.02	1.92	1.71	1.90	1.84	1.88	1.94	1.76	1.60
Na	3.15	3.24	3.77	3.04	2.72	2.96	1.79	1.91	1.82	1.80	2.11	2.09	1.78	1.59	2.01	2.14	2.08	2.08	1.27	1.28
K	0.82	0.78	0.80	1.08	1.07	1.01	1.15	1.30	1.47	1.24	0.54	0.55	0.69	0.76	1.22	1.13	1.08	1.25	1.71	2.36
ΣT	48.12	48.06	47.90	47.89	48.10	47.94	48.06	48.05	48.05	48.04	48.12	48.06	48.11	48.08	47.77	48.06	48.06	47.98	48.27	48.11
Si/Al	4.98	4.95	5.07	5.14	5.09	5.30	5.30	5.29	5.16	5.14	5.01	4.99	5.02	5.55	4.90	5.02	5.12	5.11	5.42	5.41
ϒE%	6.17	3.39	-5.05	-5.41	5.01	-2.20	4.91	2.96	2.74	3.94	3.89	3.12	3.01	6.05	4.51	6.55	5.39	-0.86	2.65	5.43
CAMP	I2	I2	I2	I2	I2	I2	E1a	E1a	E1b	E1b	N1	N3	N3	N4	N4	M2	M2	M3	M3	
	s	s	s	c	c	c	c	c	m	c	s	s	s	c	s	c	c	s	s	
Oxide																				
SiO_2	68.54(33)	68.91 (37)	68.81(30)	69.32(30)	69.35(40)	69.16(40)	66.85(32)	67.33(40)	69.12(41)	69.32(42)	66.74(47)	68.46(40)	66.82(45)	67.69(30)	66.78(38)	66.15(30)	69.86(43)	67.30(36)	66.59(40)	
Al_2O_3	11.36(18)	11.45(22)	11.98(25)	11.66 (22)	11.92 (27)	11.13(11)	11.07(21)	11.90(22)	11.13(25)	11.64(27)	13.70(30)	12.64(28)	11.98(32)	12.80(27)	12.13(15)	12.46(10)	13.54(12)	12.18(17)	12.67(31)	
$^{\alpha}Fe_2O_3$	-	-	-	-	-	-	0.06 (7)	0.11(5)	-	0.14(5)	0.27(5)	0.25(3)	0.48(6)	-	0.11(5)	0.40 (5)	0.15(6)	0.08(2)	-	
MgO	0.17(6)	0.05(2)	0.25(8)	0.16(5)	0.20(2)	0.16(6)	0.09(7)	-	0.13(7)	0.13(10)	1.71(3)	1.86(5)	1.52(10)	1.49(11)	1.63 (15)	1.18(18)	1.38(21)	0.91(7)	1.39(10)	
CaO	2.36(10)	2.41(12)	2.61(15)	2.45(10)	2.44(9)	2.31(9)	2.78 (8)	3.01(7)	3.24(15)	3.23 (20)	4.11(20)	3.55(15)	3.76 (18)	3.71(18)	3.17(15)	2.56(1)	2.57(3)	2.54(11)	2.65(16)	
Na_2O	1.54(9)	1.78(14)	1.66(12)	1.91(15)	1.71 (11)	1.61(10)	1.65(17)	1.35(19)	2.78(10)	2.67(21)	0.79(10)	0.84(15)	0.84(10)	0.92(12)	0.73(8)	1.20(10)	1.18 (11)	1.20(5)	1.18 (6)	
K_2O	4.48(8)	3.83(5)	4.47(12)	3.69(10)	4.08(7)	3.68 (5)	2.85(10)	2.72(9)	0.48(20)	0.43(8)	0.65 (19)	0.53(15)	0.37(8)	0.43(10)	0.07(2)	2.20(10)	2.69(15)	2.36(8)	2.29(2)	
Tot.	88.45	88.43	89.78	89.20	89.87	88.03	85.36	86.42	86.90	87.55	87.97	88.13	85.77	87.04	85.02	86.15	91.37	86.56	86.77	
Number of cations on the basis of 96 framework O																				
Si	39.89	39.88	39.60	40.01	39.84	40.13	40.10	40.19	40.31	40.11	38.56	39.29	39.43	39.30	39.58	39.33	39.11	39.65	39.19	
Al	7.79	7.81	8.13	7.90	8.07	7.65	7.82	7.87	7.65	7.94	9.33	8.55	8.33	8.76	8.37	8.73	8.93	8.45	8.79	
Fe^{3+}	-	-	-	-	-	-	0.03	0.05	-	0.06	0.12	0.11	0.21	-	0.05	0.02	0.06	0.04	-	
Mg	0.15	0.04	0.21	0.14	0.71	0.14	0.08	-	0.12	0.11	1.47	1.59	1.33	1.29	1.44	1.05	1.15	0.80	1.22	
Ca	1.46	1.49	1.60	1.51	1.50	1.44	1.78	1.91	2.02	2.00	2.54	2.17	2.36	2.30	2.00	1.62	1.53	1.60	1.66	
Na	1.74	2.00	1.85	2.13	1.90	1.82	1.93	1.56	3.14	2.99	0.88	0.94	0.96	1.04	0.84	1.38	1.28	1.37	1.35	
K	3.33	2.83	3.28	2.71	2.99	2.73	2.18	2.07	0.36	0.31	0.48	0.39	0.28	0.32	0.35	1.67	1.92	1.77	1.72	

ΣT	47.68	47.69	47.73	47.91	47.91	47.78	47.95	48.18	47.96	48.11	48.01	47.95	47.97	48.06	48.10	48.08	48.10	48.15	47.98
Si/Al	5.12	5.10	4.87	5.04	4.93	5.27	5.12	5.10	5.27	5.05	4.13	4.59	4.73	4.49	4.67	5.02	5.12	4.67	4.60
ᵞE%	-3.02	3.48	-5.86	-2.70	-1.94	-0.79	0.28	5.75	-1.60	5.90	0.70	-2.23	-1.19	2.63	5.16	6.55	5.39	6.60	-0.49

Notes: The data are the mean of then point analyses, standard deviations are given in parentheses. "s" is shards, "c" is cavities and "m" is matrix. $^{\alpha}$ Total Fe as Fe_2O_3; $^{\beta}$ water was calculated by difference; $^{\gamma}$ E(%) by [69].