

**Table S1.** Composition of oxide (wt%) for selected clinoptilolite crystals by EDS.

CAMP	F2	F2	F1a	F1b	P1	P1	P1	P1	P2	P2	P3	P3	P4
	c	c	s	s	s	s	m	m	s	m	s	c	c
oxide													
SiO <sub>2</sub>	68.16(50)	67.49(32)	66.24(20)	66.47(25)	69.01(62)	70.65(55)	68.76(42)	67.78(40)	69.49(41)	68.19(42)	68.20(47)	67.32(50)	67.47(25)
Al <sub>2</sub> O <sub>3</sub>	11.89(20)	12.04(25)	11.96(21)	11.48(12)	12.40(31)	12.61(30)	11.98(21)	12.01(22)	12.20(25)	11.25(29)	12.29(30)	11.88(25)	11.70(32)
<sup>a</sup> Fe <sub>2</sub> O <sub>3</sub>	-	0.05(3)	0.15(6)	-	-	-	-	-	0.31(7)	1.10 (10)	1.14(5)	1.99(3)	0.62(10)
MgO	1.12(5)	1.22(9)	0.25 (12)	0.19(6)	1.57(5)	1.45(9)	1.36(7)	1.53(6)	1.23(18)	1.07 (20)	1.39(3)	1.06(5)	0.63(9)
CaO	3.43(12)	3.41(17)	3.29(13)	3.25(10)	3.21(9)	3.22(14)	3.34 (8)	3.34(7)	3.07(10)	3.31	3.41(20)	3.55 (11)	3.41(15)
Na <sub>2</sub> O	1.44(7)	0.91(6)	2.99(4)	2.27(8)	0.80(10)	0.86(30)	0.69(17)	0.52(19)	1.10(20)	0.85(8)	1.12(17)	0.81(17)	1.39(16)
K <sub>2</sub> O	0.58 (13)	1.06(16)	0.76(9)	0.78(11)	0.57(10)	0.84(21)	0.69(17)	0.52(8)	1.11(10)	1.12(7)	0.98(19)	0.91 (13)	0.87(8)
Tot.	86.62	86.18	85.64	84.44	87.56	89.64	86.70	85.84	88.35	86.35	88.53	87.52	86.09
Number of cations on the basis of 72 framework O													
Si	29.84	29.75	29.61	29.97	29.77	29.82	29.95	29.82	29.84	29.79	29.49	29.54	29.87
Al	6.14	6.26	6.30	6.10	6.31	6.27	6.15	6.23	6.17	6.04	6.26	6.14	6.11
Fe <sup>3+</sup>	-	0.17	0.05	-	-	--	-	-	0.11	0.41	0.41	0.73	0.23
Mg	0.73	0.80	0.17	0.13	1.01	0.91	0.88	0.10	0.79	0.71	0.90	0.69	0.42
Ca	1.60	1.60	1.57	1.56	1.47	1.44	1.54	1.55	1.41	1.56	1.57	1.66	1.61
Na	1.22	0.78	2.59	1.98	0.67	0.70	0.48	1.56	0.92	0.74	0.94	0.69	1.19
K	0.32	0.60	0.43	0.45	0.32	0.45	0.38	0.29	0.61	0.64	0.54	0.51	0.49
T	35.98	36.18	36.03	35.99	36.08	36.06	36.01	36.05	36.12	36.24	36.16	36.41	36.3
Si/Al	4.86	4.76	4.70	4.91	4.72	4.75	4.87	4.78	4.83	4.93	5.01	4.99	5.02
TE%	-1.25	1.29	-2.26	4.69	5.48	6.22	6.76	3.63	4.16	2.22	-2.45	3.83	6.03
CAMP	E1c	E1d	E1d	E1d	E1d	N2	N2	N2	N2	N3			
	c	c	c	c	c	s	s	m	m				
oxide													
SiO <sub>2</sub>	67.80(35)	66.23(52)	67.52(30)	69.80(55)	69.97(42)	69.35(55)	70.15(30)	67.61(32)					
Al <sub>2</sub> O <sub>3</sub>	11.90(18)	12.29(31)	12.35(21)	11.96(32)	13.02(25)	13.29(22)	12.98(19)	12.47(22)					
<sup>a</sup> Fe <sub>2</sub> O <sub>3</sub>	-	0.15(2)	0.15(8)	0.19(5)	0.12(2)	0.19(2)	0.26(3)	0.21(2)					
MgO	1.41(3)	1.44(6)	1.41 (11)	1.43(6)	1.62(5)	1.68(9)	1.16(7)	1.65(5)					
CaO	3.16(11)	3.26(12)	3.31(11)	3.36(12)	3.67(15)	3.67(15)	4.34 (18)	3.51(7)					

<b>Na<sub>2</sub>O</b>	0.74(7)	0.75(5)	0.92(3)	0.66(7)	0.63(9)	0.75(15)	0.76(17)	0.79(10)
<b>K<sub>2</sub>O</b>	0.68 (9)	0.57(12)	0.67(9)	0.55(13)	0.55(10)	0.51(11)	0.46(10)	0.28(5)
<b>Tot.</b>	85.69	84.69	86.33	87.95	89.58	89.44	90.10	86.52
<i>Number of cations on the basis of 72 framework O</i>								
<b>Si</b>	29.78	29.76	29.64	29.98	29.57	29.39	29.55	29.56
<b>Al</b>	6.32	6.32	6.39	6.05	6.49	6.64	6.44	6.43
<b>Fe<sup>3+</sup></b>	0.03	0.05	0.05	0.06	0.04	0.06	0.08	0.07
<b>Mg</b>	0.92	0.94	0.92	0.91	1.02	1.06	0.73	1.08
<b>Ca</b>	1.48	1.52	1.55	1.52	1.66	1.66	1.95	1.63
<b>Na</b>	0.63	0.78	0.55	1.98	0.51	0.62	0.61	0.67
<b>K</b>	0.32	0.38	0.30	0.45	0.29	0.28	0.24	0.16
<b>T</b>	36.01	36.13	36.08	36.09	36.10	36.09	36.07	36.06
<b>Si/Al</b>	4.83	4.76	4.70	4.91	4.55	4.43	4.58	4.76
<b><sup>γ</sup>E%</b>	6.05	7.95	5.28	6.39	5.54	5.38	4.56	0.16

Notes: The data are the mean of then point analyses, standard deviations are given in parentheses. "s" is shards, and "c" is cavities and "m" is matrix. <sup>α</sup> Total Fe as Fe<sub>2</sub>O<sub>3</sub>; <sup>β</sup> water was calculated by difference; <sup>γ</sup> E(%) by [69].