Electronic Supplementary Information

Construction of a unique 2-D layered vanadoborate with water-assisted proton conductivity

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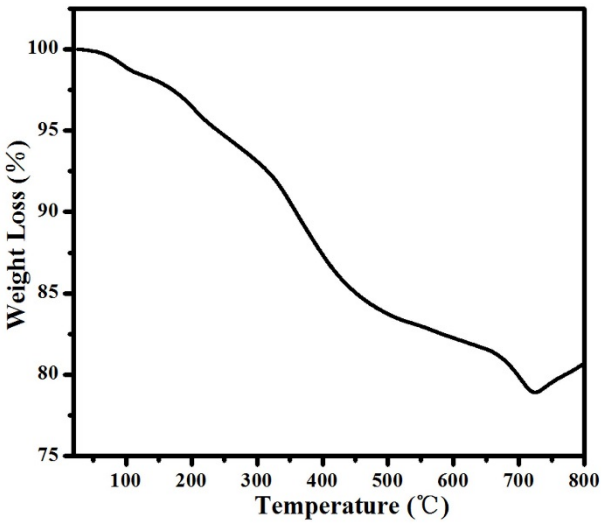

Fig. S1. TG curve of **1** in air.

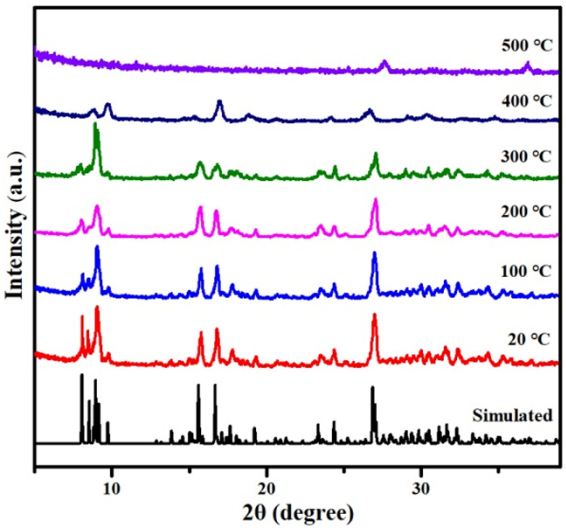

Fig. S2. In-situ PXRD patterns collected in air from 20 °C to 500 °C

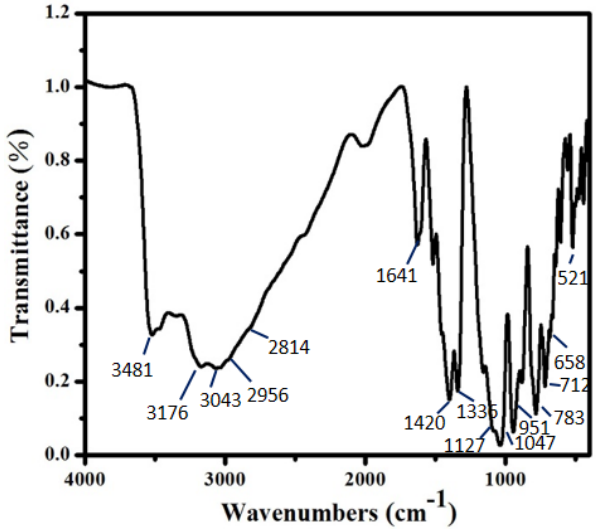

Fig. S3. The FT-IR spectra of **1**

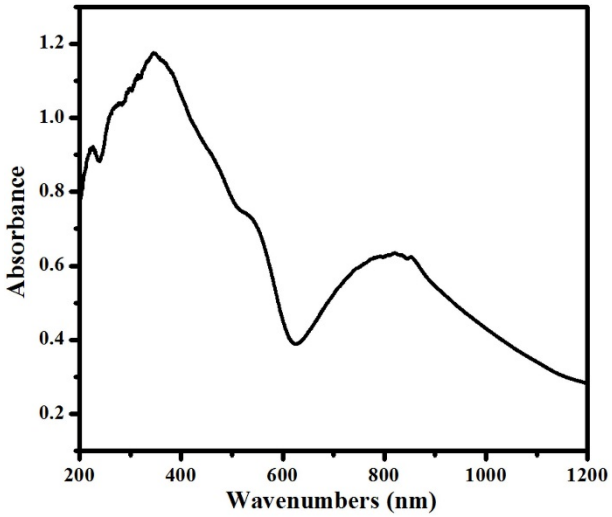

Fig. S4. UV-vis spectrum of **1**.

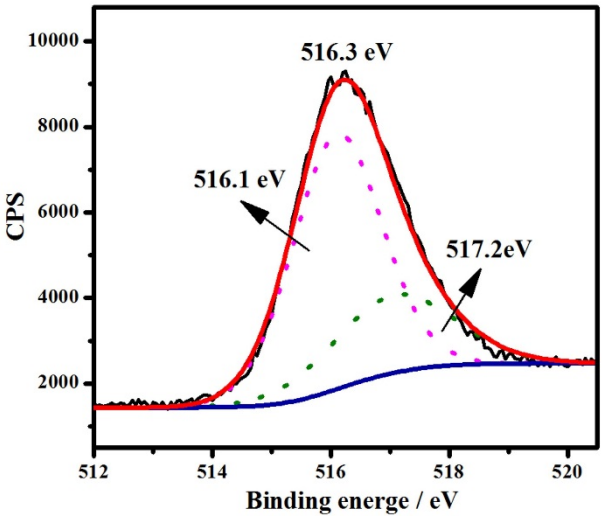

Fig. S5. XPS spectrum of vanadium in **1**

The peak at 516.1 eV is attributed to V^{4+} and a shoulder at about 517.2 eV is assigned to for V^{5+}.

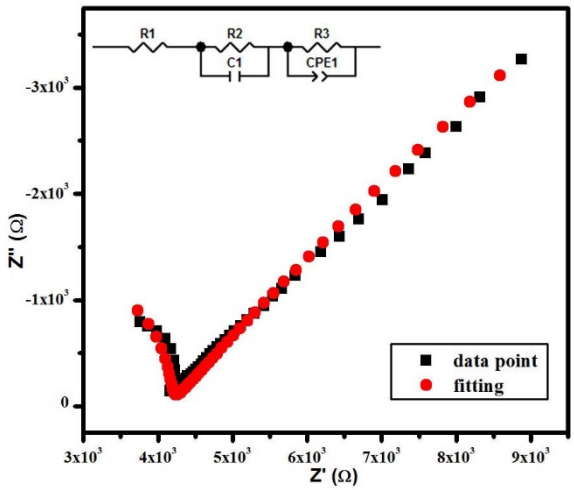

Fig. S6. Equivalent circuits used to fit the impedance data.

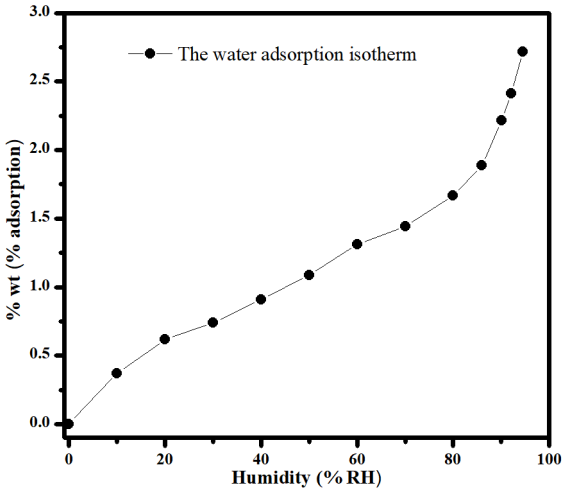

Fig. S7. The water adsorption isotherm of **1** at 293 K.

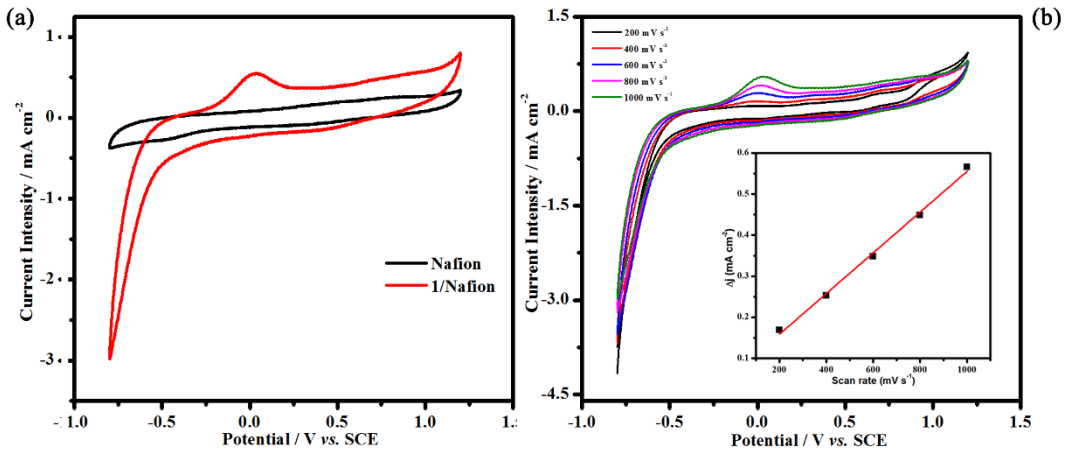

Fig. S8. (a) CV of Nafion (black) and **1**/Nafion composites with scanning rate of 1000 mV s^{-1}; (b) The typical CV of 1/Nafion composites with different scanning rate and the relationship between scanning rate and peak current intensity (insert).

Comparing with Nafion, the CV cures of **1**/Nafion composites presented two obviously different: high current intensity and special oxidation-reduction peaks (shown in Fig. S8a). The high current intensity suggested that incorporating of **1** can obviously improve the proton conduction behavior of the membrane. **1**/Nafion composites showed a couple of oxidation-reduction peaks near 0.03 V and 0.40 V respectively. This result indicated that **1** was involved in proton transfer process and the oxidation-reduction peaks were attributed to the proton migration between **1** and solvent. The relation between scanning rate and peak current intensity was shown in Fig. S8b. According to Fig. S8b† insert, peak current intensity was in direct proportion to square of scanning rate, which indicated that the diffusion process decided the reaction rate. In other word, the proton transfer process in the composite was faster than the diffusion process.

Table S1 Bond lengths [Å] for **1**

V(1)-O(11)	1.636(4)	V(6)-O(21)	2.002(3)	O(19)-B(7)	1.484(6)
V(1)-O(22)	1.929(3)	Na(2)-O(1)	2.269(4)	O(19)-V(2)#1	1.952(4)
V(1)-O(20)	1.936(4)	Na(2)-O(15)#3	2.459(4)	O(19)-Na(2)#3	2.709(4)
V(1)-O(2)	1.939(4)	Na(2)-O(6)#3	2.492(5)	O(20)-B(3)	1.485(7)
V(1)-O(17)#1	1.950(3)	Na(2)-O(1W)	2.610(7)	O(21)-B(7)	1.503(6)
V(1)-V(6)	2.9979(12)	Na(2)-O(15)	2.642(5)	O(21)-B(9)	1.524(6)
V(1)-V(5)#1	2.9992(12)	Na(2)-O(19)#3	2.709(4)	O(22)-V(5)#1	1.946(3)
V(2)-O(10)	1.634(4)	Na(2)-O(10)#4	2.925(5)	O(23)-B(4)	1.357(7)
V(2)-O(29)	1.933(4)	Na(2)-B(7)	3.022(6)	O(23)-B(9)	1.478(7)
V(2)-O(22)	1.939(3)	Na(2)-B(7)#3	3.034(6)	O(24)-B(5)	1.468(7)
V(2)-O(19)#1	1.952(4)	Na(2)-V(5)#3	3.219(3)	O(25)-B(8)	1.471(7)
V(2)-O(27)#1	1.954(3)	Na(2)-V(2)#4	3.517(3)	O(25)-V(4)#1	1.941(4)
V(2)-V(4)#1	3.0011(12)	Na(2)-Na(2)#3	3.634(6)	O(26)-B(3)	1.431(7)
V(2)-V(5)#1	3.0078(12)	O(1)-B(5)	1.420(7)	O(26)-B(9)	1.434(7)
V(2)-Na(2)#2	3.517(3)	O(1)-B(7)	1.432(7)	O(27)-B(9)	1.489(6)
V(3)-O(9)	1.632(4)	O(1W)-Na(1)	2.402(7)	O(27)-V(2)#1	1.954(3)
V(3)-O(29)	1.934(4)	O(2W)-Na(1)	2.326(8)	O(28)-B(3)#1	1.513(6)
V(3)-O(25)	1.938(3)	O(3)-B(2)	1.389(7)	O(28)-B(6)	1.517(7)
V(3)-O(24)	1.941(4)	O(3)-Na(1)#5	2.566(6)	O(28)-V(4)#1	2.000(3)
V(3)-O(2)	1.942(3)	O(4)-B(4)	1.383(7)	O(29)-V(4)#1	1.946(4)
V(3)-V(4)#1	3.0052(12)	O(6)-Na(2)#3	2.492(5)	O(30)-B(5)	1.521(6)
V(3)-V(6)	3.0157(12)	O(7)-B(1)	1.367(7)	O(30)-B(8)	1.528(6)
V(4)-O(5)	1.628(4)	O(8)-Na(1)	2.454(5)	Na(1)-O(9)#5	2.525(5)
V(4)-O(27)	1.928(4)	O(9)-Na(1)#5	2.525(5)	Na(1)-O(3)#5	2.566(6)
V(4)-O(25)#1	1.941(4)	O(10)-Na(2)#2	2.925(5)	Na(1)-B(2)#5	3.054(7)
V(4)-O(29)#1	1.946(4)	O(12)-B(1)	1.362(7)	B(2)-Na(1)#5	3.054(7)
V(4)-O(28)#1	2.000(3)	O(12)-B(3)	1.483(7)	B(3)-O(28)#1	1.513(6)
V(4)-V(2)#1	3.0011(12)	O(13)-B(2)	1.368(7)	B(6)-O(18)#1	1.472(6)
V(4)-V(3)#1	3.0052(12)	O(13)-B(5)	1.483(6)	B(7)-Na(2)#3	3.034(6)
V(5)-O(6)	1.627(4)	O(14)-B(2)	1.347(7)	C(1)-N(1)	1.454(10)
V(5)-O(17)	1.932(3)	O(14)-B(8)	1.469(6)	C(1)-C(2)	1.532(9)
V(5)-O(19)	1.937(3)	O(15)-B(4)	1.363(7)	C(1A)-C(2)	1.290(14)
V(5)-O(22)#1	1.946(4)	O(15)-B(7)	1.492(6)	C(1A)-N(1A)	1.447(10)
V(5)-O(30)	2.014(3)	O(15)-Na(2)#3	2.459(4)	C(2)-N(2)	1.476(12)
V(5)-V(1)#1	2.9992(12)	O(16)-B(8)	1.432(6)	C(3)-N(3A)	1.424(18)
V(5)-V(2)#1	3.0078(12)	O(16)-B(6)	1.434(6)	C(3)-N(3)	1.446(19)
V(5)-Na(2)#3	3.219(3)	O(17)-B(6)	1.475(7)	C(3)-C(4)	1.525(12)
V(6)-O(8)	1.628(4)	O(17)-V(1)#1	1.950(3)	C(4)-N(4)	1.457(10)
V(6)-O(24)	1.926(3)	O(18)-B(1)	1.365(7)	N(1)-N(1)#6	1.80(8)
V(6)-O(20)	1.928(4)	O(18)-B(6)#1	1.472(6)	N(1A)-N(1A)#6	1.43(3)
V(6)-O(2)	1.960(4)				

Table S2 Bond angles [deg] for **1**

O(11)-V(1)-O(22)	110.08(18)	O(6)#3-Na(2)-V(5)#3	29.79(9)
O(11)-V(1)-O(20)	107.07(18)	O(1W)-Na(2)-V(5)#3	118.54(15)
O(22)-V(1)-O(20)	142.80(16)	O(15)-Na(2)-V(5)#3	92.31(12)
O(11)-V(1)-O(2)	106.11(18)	O(19)#3-Na(2)-V(5)#3	36.90(8)
O(22)-V(1)-O(2)	92.48(15)	O(10)#4-Na(2)-V(5)#3	76.62(10)
O(20)-V(1)-O(2)	78.89(15)	B(7)-Na(2)-V(5)#3	121.69(15)
O(11)-V(1)-O(17)#1	108.43(18)	B(7)#3-Na(2)-V(5)#3	59.84(12)
O(22)-V(1)-O(17)#1	78.52(15)	O(1)-Na(2)-V(2)#4	155.09(15)
O(20)-V(1)-O(17)#1	88.27(15)	O(15)#3-Na(2)-V(2)#4	70.59(10)
O(2)-V(1)-O(17)#1	145.33(15)	O(6)#3-Na(2)-V(2)#4	77.54(10)
O(11)-V(1)-V(6)	109.14(14)	O(1W)-Na(2)-V(2)#4	103.57(16)
O(22)-V(1)-V(6)	125.08(11)	O(15)-Na(2)-V(2)#4	138.41(13)
O(20)-V(1)-V(6)	39.03(10)	O(19)#3-Na(2)-V(2)#4	33.44(8)
O(2)-V(1)-V(6)	40.00(11)	O(10)#4-Na(2)-V(2)#4	27.46(8)
O(17)#1-V(1)-V(6)	122.05(11)	B(7)-Na(2)-V(2)#4	161.86(15)
O(11)-V(1)-V(5)#1	112.39(14)	B(7)#3-Na(2)-V(2)#4	55.63(12)
O(22)-V(1)-V(5)#1	39.51(10)	V(5)#3-Na(2)-V(2)#4	52.81(4)
O(20)-V(1)-V(5)#1	121.37(11)	O(1)-Na(2)-Na(2)#3	68.49(12)
O(2)-V(1)-V(5)#1	125.97(11)	O(15)#3-Na(2)-Na(2)#3	46.63(11)
O(17)#1-V(1)-V(5)#1	39.18(10)	O(6)#3-Na(2)-Na(2)#3	98.71(16)
V(6)-V(1)-V(5)#1	138.35(4)	O(1W)-Na(2)-Na(2)#3	145.64(18)
O(10)-V(2)-O(29)	110.87(19)	O(15)-Na(2)-Na(2)#3	42.59(10)
O(10)-V(2)-O(22)	106.10(18)	O(19)#3-Na(2)-Na(2)#3	78.96(12)
O(29)-V(2)-O(22)	92.94(15)	O(10)#4-Na(2)-Na(2)#3	127.17(14)
O(10)-V(2)-O(19)#1	104.45(19)	B(7)-Na(2)-Na(2)#3	53.29(13)
O(29)-V(2)-O(19)#1	144.65(16)	B(7)#3-Na(2)-Na(2)#3	52.97(13)
O(22)-V(2)-O(19)#1	78.32(14)	V(5)#3-Na(2)-Na(2)#3	90.99(11)
O(10)-V(2)-O(27)#1	109.06(19)	V(2)#4-Na(2)-Na(2)#3	108.59(10)
O(29)-V(2)-O(27)#1	78.48(15)	B(5)-O(1)-B(7)	119.5(4)
O(22)-V(2)-O(27)#1	144.60(16)	B(5)-O(1)-Na(2)	132.9(3)
O(19)#1-V(2)-O(27)#1	89.02(15)	B(7)-O(1)-Na(2)	107.3(3)
O(10)-V(2)-V(4)#1	114.39(15)	Na(1)-O(1W)-Na(2)	112.2(3)
O(29)-V(2)-V(4)#1	39.49(11)	V(1)-O(2)-V(3)	144.4(2)
O(22)-V(2)-V(4)#1	125.36(11)	V(1)-O(2)-V(6)	100.52(16)
O(19)#1-V(2)-V(4)#1	121.98(11)	V(3)-O(2)-V(6)	101.22(16)
O(27)#1-V(2)-V(4)#1	39.06(10)	B(2)-O(3)-Na(1)#5	96.6(4)
O(10)-V(2)-V(5)#1	106.81(15)	V(5)-O(6)-Na(2)#3	100.66(19)
O(29)-V(2)-V(5)#1	126.12(12)	V(6)-O(8)-Na(1)	136.6(2)
O(22)-V(2)-V(5)#1	39.36(10)	V(3)-O(9)-Na(1)#5	131.4(2)
O(19)#1-V(2)-V(5)#1	39.16(10)	V(2)-O(10)-Na(2)#2	96.91(19)
O(27)#1-V(2)-V(5)#1	122.81(11)	B(1)-O(12)-B(3)	122.9(4)
V(4)#1-V(2)-V(5)#1	138.66(4)	B(2)-O(13)-B(5)	121.4(4)
O(10)-V(2)-Na(2)#2	55.64(16)	B(2)-O(14)-B(8)	121.5(4)

O(29)-V(2)-Na(2)#2	164.12(12)	B(4)-O(15)-B(7)	120.8(4)
O(22)-V(2)-Na(2)#2	84.07(11)	B(4)-O(15)-Na(2)#3	116.4(3)
O(19)#1-V(2)-Na(2)#2	49.90(12)	B(7)-O(15)-Na(2)#3	97.3(3)
O(27)#1-V(2)-Na(2)#2	112.65(12)	B(4)-O(15)-Na(2)	133.4(3)
V(4)#1-V(2)-Na(2)#2	149.50(5)	B(7)-O(15)-Na(2)	89.5(3)
V(5)#1-V(2)-Na(2)#2	58.49(5)	Na(2)#3-O(15)-Na(2)	90.79(15)
O(9)-V(3)-O(29)	109.03(19)	B(8)-O(16)-B(6)	120.5(4)
O(9)-V(3)-O(25)	106.26(19)	B(6)-O(17)-V(5)	130.1(3)
O(29)-V(3)-O(25)	78.49(15)	B(6)-O(17)-V(1)#1	128.7(3)
O(9)-V(3)-O(24)	107.86(19)	V(5)-O(17)-V(1)#1	101.19(16)
O(29)-V(3)-O(24)	142.90(16)	B(1)-O(18)-B(6)#1	120.7(4)
O(25)-V(3)-O(24)	87.72(15)	B(7)-O(19)-V(5)	131.3(3)
O(9)-V(3)-O(2)	108.28(19)	B(7)-O(19)-V(2)#1	127.4(3)
O(29)-V(3)-O(2)	94.08(15)	V(5)-O(19)-V(2)#1	101.34(16)
O(25)-V(3)-O(2)	145.20(16)	B(7)-O(19)-Na(2)#3	87.6(3)
O(24)-V(3)-O(2)	77.92(15)	V(5)-O(19)-Na(2)#3	86.00(14)
O(9)-V(3)-V(4)#1	110.29(15)	V(2)#1-O(19)-Na(2)#3	96.66(16)
O(29)-V(3)-V(4)#1	39.40(11)	B(3)-O(20)-V(6)	131.2(3)
O(25)-V(3)-V(4)#1	39.25(11)	B(3)-O(20)-V(1)	127.0(3)
O(24)-V(3)-V(4)#1	121.01(11)	V(6)-O(20)-V(1)	101.77(16)
O(2)-V(3)-V(4)#1	127.09(11)	B(7)-O(21)-B(9)	114.8(4)
O(9)-V(3)-V(6)	110.02(15)	B(7)-O(21)-V(6)	120.5(3)
O(29)-V(3)-V(6)	126.79(11)	B(9)-O(21)-V(6)	121.9(3)
O(25)-V(3)-V(6)	121.84(11)	V(1)-O(22)-V(2)	147.0(2)
O(24)-V(3)-V(6)	38.58(10)	V(1)-O(22)-V(5)#1	101.40(16)
O(2)-V(3)-V(6)	39.61(11)	V(2)-O(22)-V(5)#1	101.46(16)
V(4)#1-V(3)-V(6)	139.39(4)	B(4)-O(23)-B(9)	122.2(4)
O(5)-V(4)-O(27)	109.21(19)	B(5)-O(24)-V(6)	129.4(3)
O(5)-V(4)-O(25)#1	110.31(19)	B(5)-O(24)-V(3)	127.1(3)
O(27)-V(4)-O(25)#1	138.46(16)	V(6)-O(24)-V(3)	102.50(16)
O(5)-V(4)-O(29)#1	106.77(19)	B(8)-O(25)-V(3)	126.8(3)
O(27)-V(4)-O(29)#1	78.79(15)	B(8)-O(25)-V(4)#1	131.4(3)
O(25)#1-V(4)-O(29)#1	78.13(15)	V(3)-O(25)-V(4)#1	101.56(16)
O(5)-V(4)-O(28)#1	107.47(18)	B(3)-O(26)-B(9)	119.9(4)
O(27)-V(4)-O(28)#1	91.06(15)	B(9)-O(27)-V(4)	130.5(3)
O(25)#1-V(4)-O(28)#1	89.02(14)	B(9)-O(27)-V(2)#1	128.2(3)
O(29)#1-V(4)-O(28)#1	145.74(15)	V(4)-O(27)-V(2)#1	101.25(16)
O(5)-V(4)-V(2)#1	111.77(16)	B(3)#1-O(28)-B(6)	113.7(4)
O(27)-V(4)-V(2)#1	39.69(10)	B(3)#1-O(28)-V(4)#1	120.9(3)
O(25)#1-V(4)-V(2)#1	111.40(11)	B(6)-O(28)-V(4)#1	122.4(3)
O(29)#1-V(4)-V(2)#1	39.17(11)	V(2)-O(29)-V(3)	144.3(2)
O(28)#1-V(4)-V(2)#1	124.48(10)	V(2)-O(29)-V(4)#1	101.34(16)
O(5)-V(4)-V(3)#1	111.43(15)	V(3)-O(29)-V(4)#1	101.50(16)
O(27)-V(4)-V(3)#1	112.49(11)	B(5)-O(30)-B(8)	113.1(4)

O(25)#1-V(4)-V(3)#1	39.18(10)	B(5)-O(30)-V(5)	120.7(3)
O(29)#1-V(4)-V(3)#1	39.10(11)	B(8)-O(30)-V(5)	121.0(3)
O(28)#1-V(4)-V(3)#1	123.11(10)	O(2W)-Na(1)-O(1W)	98.3(2)
V(2)#1-V(4)-V(3)#1	75.60(3)	O(2W)-Na(1)-O(8)	106.1(2)
O(6)-V(5)-O(17)	111.43(18)	O(1W)-Na(1)-O(8)	98.3(2)
O(6)-V(5)-O(19)	106.55(19)	O(2W)-Na(1)-O(9)#5	88.2(2)
O(17)-V(5)-O(19)	139.77(16)	O(1W)-Na(1)-O(9)#5	86.5(2)
O(6)-V(5)-O(22)#1	106.53(18)	O(8)-Na(1)-O(9)#5	164.0(2)
O(17)-V(5)-O(22)#1	78.55(14)	O(2W)-Na(1)-O(3)#5	98.0(2)
O(19)-V(5)-O(22)#1	78.49(14)	O(1W)-Na(1)-O(3)#5	162.5(2)
O(6)-V(5)-O(30)	106.56(18)	O(8)-Na(1)-O(3)#5	83.25(17)
O(17)-V(5)-O(30)	91.25(14)	O(9)#5-Na(1)-O(3)#5	87.62(17)
O(19)-V(5)-O(30)	90.28(14)	O(2W)-Na(1)-B(2)#5	115.4(2)
O(22)#1-V(5)-O(30)	146.85(15)	O(1W)-Na(1)-B(2)#5	136.8(2)
O(6)-V(5)-V(1)#1	111.99(14)	O(8)-Na(1)-B(2)#5	97.55(18)
O(17)-V(5)-V(1)#1	39.63(10)	O(9)#5-Na(1)-B(2)#5	69.14(17)
O(19)-V(5)-V(1)#1	112.75(11)	O(3)#5-Na(1)-B(2)#5	26.86(15)
O(22)#1-V(5)-V(1)#1	39.09(10)	O(2W)-Na(1)-Na(2)	65.02(17)
O(30)-V(5)-V(1)#1	125.67(10)	O(1W)-Na(1)-Na(2)	35.50(16)
O(6)-V(5)-V(2)#1	108.51(15)	O(8)-Na(1)-Na(2)	95.32(13)
O(17)-V(5)-V(2)#1	113.00(11)	O(9)#5-Na(1)-Na(2)	97.39(14)
O(19)-V(5)-V(2)#1	39.51(10)	O(3)#5-Na(1)-Na(2)	161.97(18)
O(22)#1-V(5)-V(2)#1	39.18(10)	B(2)#5-Na(1)-Na(2)	166.29(16)
O(30)-V(5)-V(2)#1	124.93(10)	O(12)-B(1)-O(18)	121.7(5)
V(1)#1-V(5)-V(2)#1	76.26(3)	O(12)-B(1)-O(7)	120.8(5)
O(6)-V(5)-Na(2)#3	49.55(15)	O(18)-B(1)-O(7)	117.4(5)
O(17)-V(5)-Na(2)#3	156.12(12)	O(14)-B(2)-O(13)	122.6(5)
O(19)-V(5)-Na(2)#3	57.10(12)	O(14)-B(2)-O(3)	121.5(5)
O(22)#1-V(5)-Na(2)#3	92.63(12)	O(13)-B(2)-O(3)	115.7(5)
O(30)-V(5)-Na(2)#3	107.33(11)	O(14)-B(2)-Na(1)#5	132.4(4)
V(1)#1-V(5)-Na(2)#3	126.70(6)	O(13)-B(2)-Na(1)#5	77.6(3)
V(2)#1-V(5)-Na(2)#3	68.70(6)	O(3)-B(2)-Na(1)#5	56.6(3)
O(8)-V(6)-O(24)	111.76(18)	O(26)-B(3)-O(12)	107.5(4)
O(8)-V(6)-O(20)	110.87(18)	O(26)-B(3)-O(20)	109.9(4)
O(24)-V(6)-O(20)	135.55(16)	O(12)-B(3)-O(20)	108.7(4)
O(8)-V(6)-O(2)	106.74(18)	O(26)-B(3)-O(28)#1	113.9(4)
O(24)-V(6)-O(2)	77.84(15)	O(12)-B(3)-O(28)#1	108.5(4)
O(20)-V(6)-O(2)	78.55(15)	O(20)-B(3)-O(28)#1	108.4(4)
O(8)-V(6)-O(21)	106.51(18)	O(23)-B(4)-O(15)	123.2(5)
O(24)-V(6)-O(21)	89.75(15)	O(23)-B(4)-O(4)	116.4(5)
O(20)-V(6)-O(21)	89.87(15)	O(15)-B(4)-O(4)	120.4(5)
O(2)-V(6)-O(21)	146.75(15)	O(1)-B(5)-O(24)	110.7(4)
O(8)-V(6)-V(1)	112.06(14)	O(1)-B(5)-O(13)	107.9(4)
O(24)-V(6)-V(1)	110.68(11)	O(24)-B(5)-O(13)	108.9(4)

O(20)-V(6)-V(1)	39.21(11)	O(1)-B(5)-O(30)	113.0(4)
O(2)-V(6)-V(1)	39.48(10)	O(24)-B(5)-O(30)	107.5(4)
O(21)-V(6)-V(1)	124.03(10)	O(13)-B(5)-O(30)	108.7(4)
O(8)-V(6)-V(3)	111.58(15)	O(16)-B(6)-O(18)#1	106.4(4)
O(24)-V(6)-V(3)	38.92(11)	O(16)-B(6)-O(17)	111.1(4)
O(20)-V(6)-V(3)	111.64(11)	O(18)#1-B(6)-O(17)	110.0(4)
O(2)-V(6)-V(3)	39.18(10)	O(16)-B(6)-O(28)	112.6(4)
O(21)-V(6)-V(3)	124.30(10)	O(18)#1-B(6)-O(28)	109.5(4)
V(1)-V(6)-V(3)	75.81(3)	O(17)-B(6)-O(28)	107.3(4)
O(1)-Na(2)-O(15)#3	93.03(15)	O(1)-B(7)-O(19)	110.0(4)
O(1)-Na(2)-O(6)#3	127.21(18)	O(1)-B(7)-O(15)	106.5(4)
O(15)#3-Na(2)-O(6)#3	115.17(16)	O(19)-B(7)-O(15)	108.8(4)
O(1)-Na(2)-O(1W)	77.26(17)	O(1)-B(7)-O(21)	113.7(4)
O(15)#3-Na(2)-O(1W)	141.5(2)	O(19)-B(7)-O(21)	108.3(4)
O(6)#3-Na(2)-O(1W)	99.71(18)	O(15)-B(7)-O(21)	109.4(4)
O(1)-Na(2)-O(15)	56.40(14)	O(1)-B(7)-Na(2)	45.8(2)
O(15)#3-Na(2)-O(15)	89.21(15)	O(19)-B(7)-Na(2)	127.3(3)
O(6)#3-Na(2)-O(15)	79.19(15)	O(15)-B(7)-Na(2)	61.0(2)
O(1W)-Na(2)-O(15)	114.04(18)	O(21)-B(7)-Na(2)	124.1(3)
O(1)-Na(2)-O(19)#3	145.82(17)	O(1)-B(7)-Na(2)#3	96.9(3)
O(15)#3-Na(2)-O(19)#3	55.60(12)	O(19)-B(7)-Na(2)#3	63.1(2)
O(6)#3-Na(2)-O(19)#3	66.64(13)	O(15)-B(7)-Na(2)#3	53.5(2)
O(1W)-Na(2)-O(19)#3	135.17(19)	O(21)-B(7)-Na(2)#3	148.9(3)
O(15)-Na(2)-O(19)#3	105.23(15)	Na(2)-B(7)-Na(2)#3	73.75(16)
O(1)-Na(2)-O(10)#4	134.69(17)	O(16)-B(8)-O(14)	108.5(4)
O(15)#3-Na(2)-O(10)#4	81.51(14)	O(16)-B(8)-O(25)	109.6(4)
O(6)#3-Na(2)-O(10)#4	94.76(14)	O(14)-B(8)-O(25)	109.5(4)
O(1W)-Na(2)-O(10)#4	79.73(18)	O(16)-B(8)-O(30)	112.0(4)
O(15)-Na(2)-O(10)#4	165.60(16)	O(14)-B(8)-O(30)	108.6(4)
O(19)#3-Na(2)-O(10)#4	60.41(12)	O(25)-B(8)-O(30)	108.6(4)
O(1)-Na(2)-B(7)	26.89(14)	O(26)-B(9)-O(23)	108.6(4)
O(15)#3-Na(2)-B(7)	92.91(16)	O(26)-B(9)-O(27)	110.2(4)
O(6)#3-Na(2)-B(7)	104.06(17)	O(23)-B(9)-O(27)	109.6(4)
O(1W)-Na(2)-B(7)	94.03(19)	O(26)-B(9)-O(21)	113.0(4)
O(15)-Na(2)-B(7)	29.58(13)	O(23)-B(9)-O(21)	108.1(4)
O(19)#3-Na(2)-B(7)	130.22(17)	O(27)-B(9)-O(21)	107.4(4)
O(10)#4-Na(2)-B(7)	160.95(17)	N(1)-C(1)-C(2)	107.7(12)
O(1)-Na(2)-B(7)#3	116.69(17)	C(2)-C(1A)-N(1A)	125.7(13)
O(15)#3-Na(2)-B(7)#3	29.19(13)	C(1A)-C(2)-N(2)	164.6(11)
O(6)#3-Na(2)-B(7)#3	86.53(16)	C(1A)-C(2)-C(1)	57.9(8)
O(1W)-Na(2)-B(7)#3	156.7(2)	N(2)-C(2)-C(1)	112.2(9)
O(15)-Na(2)-B(7)#3	89.10(16)	N(3A)-C(3)-N(3)	108.0(12)
O(19)#3-Na(2)-B(7)#3	29.26(13)	N(3A)-C(3)-C(4)	120.2(9)
O(10)#4-Na(2)-B(7)#3	77.42(15)	N(3)-C(3)-C(4)	121.6(10)

B(7)-Na(2)-B(7)#3	106.25(16)	N(4)-C(4)-C(3)	114.7(7)
O(1)-Na(2)-V(5)#3	148.57(16)	C(1)-N(1)-N(1)#6	116(3)
O(15)#3-Na(2)-V(5)#3	88.98(11)	N(1A)#6-N(1A)-C(1A)	166(4)

Symmetry transformations used to generate equivalent atoms:

#1 -x+1,-y+1,-z+1 #2 x,y-1,z #3 -x+1,-y+2,-z+1

#4 x,y+1,z #5 -x+2,-y+2,-z+1 #6 -x+1,-y,-z