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Supporting information for article:

**Anisotropic compressibility of the coordination polymer
emim[Mn(btc)]**

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S1. High pressure refinement details

In this section we briefly describe the commands used in SHELXL to obtain convergence of the refinement and maintain sensible values of the parameters.

At all pressures, the emim cation was structurally restrained by DFIX commands on all atoms that are bonded to each other. A varying number of next-neighbour atoms were also fixed with DFIX commands. The imidazole ring was kept flat using the FLAT command. The thermal parameters were modified by a DELU command, and similar thermal parameters were required through the use of the SIMU command on the non-ring carbon atoms of the emim, on the five ring atoms, and on the non-ring carbon atoms of the btc ligand. Finally, the six thermal parameters of the carbon rings constituting the phenyl ring of the btc were fixed to be identical using the EADP command.

S2. CSD search results

Histograms over Mn-O distances (Figure S1-2) and O-Mn-O angles (Figure S3-4) are shown below. The search found 184 structures which fulfilled the requirements that 3D coordinates were known and that the R factor is lower than 0.075.

There are many non-octahedral MnO_x-polyhedra with long Mn-O distances (for example TEXRUL, ALIQUH, BUYPOB, GELNAN, QUVHAR, TORVEB, UMUBIN). In BUYPOB a distance of 2.67 Å is found to atoms which are definitely coordinating.

All structures with very long Mn-O distances contain bidentate ligands. The hit at 2.8 Å is from GELMUG in which Mn is almost 7-coordinated, the long distance being to a bidentate ligand. At 2.65 Å there are two 8-coordinated Mn centers in BUYPOB and OYOTEC. In LIKQUS the Mn center is almost 8-coordinate as well, with four long distances of 2.499-2.57 Å and four shorter distances of 2.35-2.38 Å. 2.28 Å is the maximum Mn-O distance found in a complex in which all ligands coordinate monodentately (CONTEE, GEPBAE, and JANXEB).

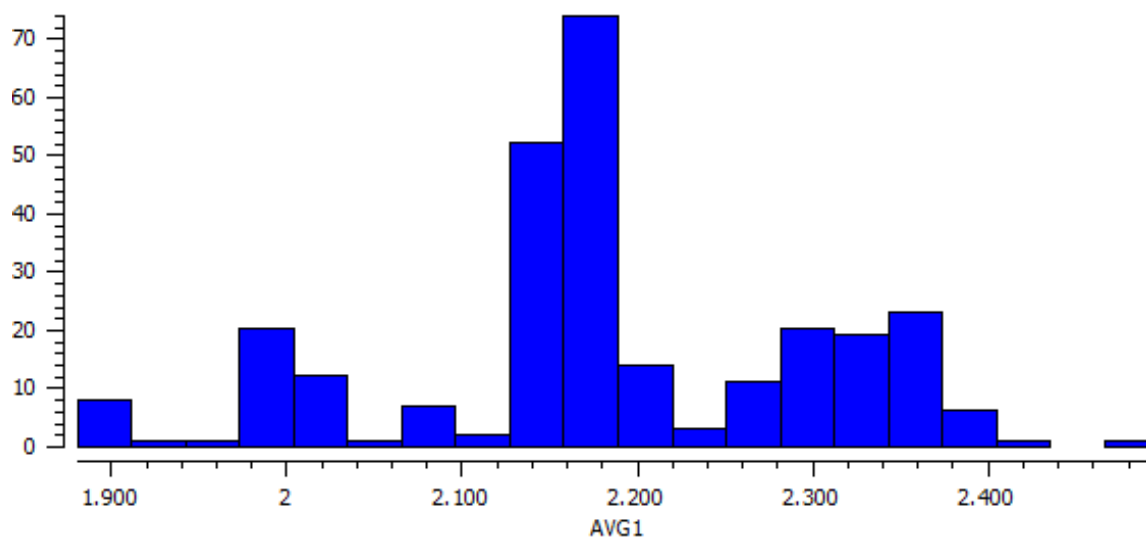


Figure S1 Average of Mn-O distances in the 184 structures. Mean: 2.182 Å, more statistics parameters are listed in Table S1 below.

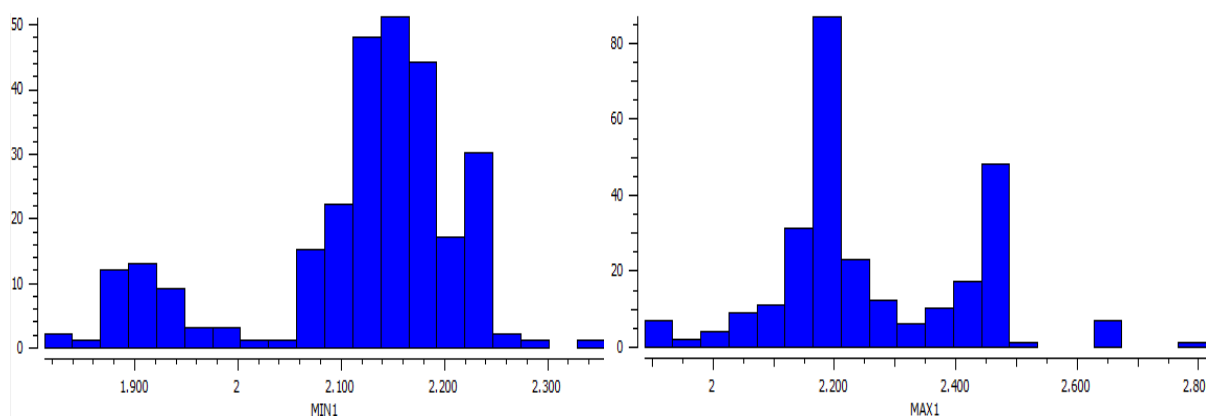


Figure S2 Minimum (a) and maximum (b) Mn-O distance in each of the 184 structures. For the minimum distances the mean is 2.118 Å and for the maximum distances the mean is 2.258 Å.

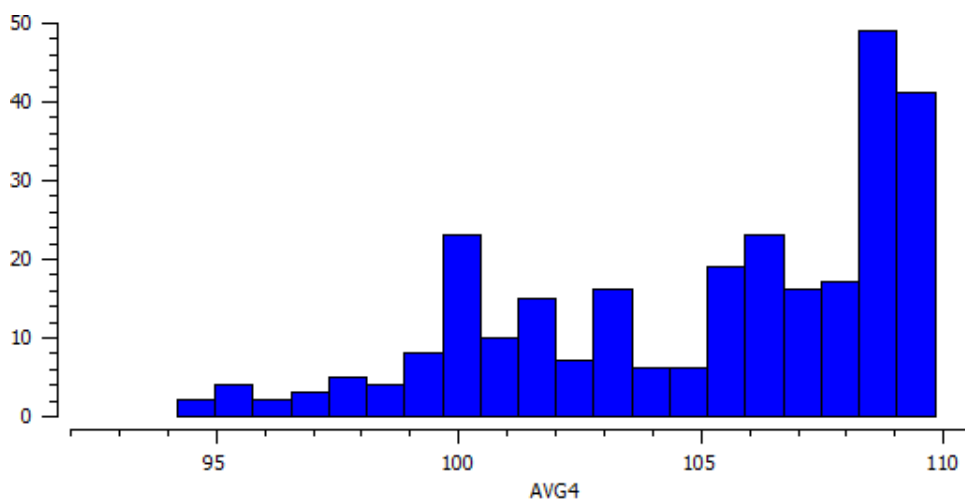


Figure S3 Average O-Mn-O angles in the structures. Mean: 105.068°.

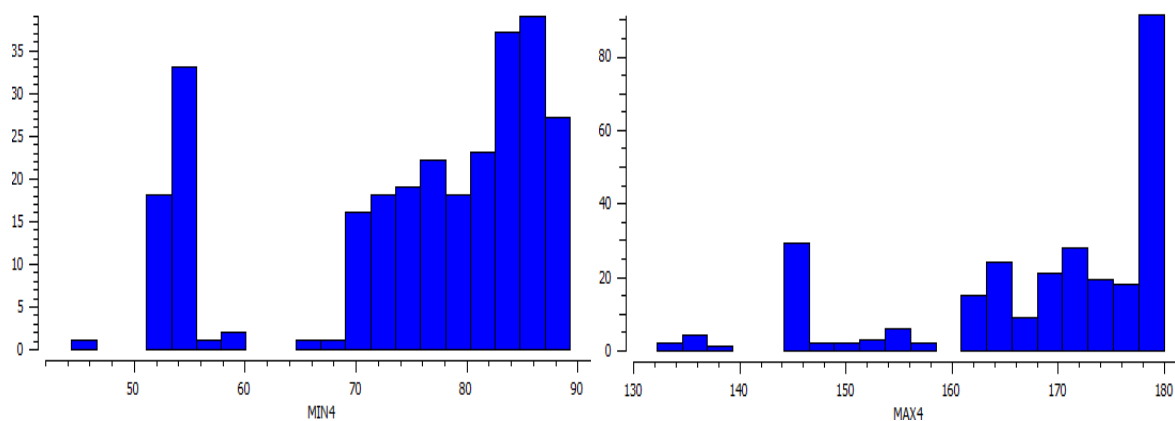


Figure S4 Minimum (a) and maximum (b) O-Mn-O angles in each of the structures. For minimum, mean is 75.305° and for maximum, mean is 168.656° .

Table S1 Statistics derived from the CSD search. MAX4: maximum O-Mn-O angle, MIN4: minimum O-Mn-O angle, AVG4: average O-Mn-O angle, MAX1: maximum O-Mn bond, MIN1: minimum O-Mn bond, AVG1: average O-Mn bond (\AA , $^\circ$).

Name	Minimum	Maximum	Sum	Mean	Variance	Std. Dev	Mean. Dev	Skewness	Kurtosis	Median	Lower quantile	Upper quantile
MAX4	132,246	180	46548.950	168.656	149.399	12.223	9.716	-1.118	0.241	171,732	164,709	179.213
MIN4	44,402	89,346	20784.174	75.305	143.701	11.988	9.718	-0.915	-0.515	79.441	71,262	84.760
AVG4	94,217	109,841	28998.888	105.068	15.877	3.985	3.451	-0.668	-0.688	106.245	101.530	108,752
MAX1	1,888	2,813	623.077	2.258	0.025	0.157	0.129	0.431	0.092	2,202	2,169	2,413
MIN1	1,813	2,356	584.697	2.118	0.011	0.103	0.076	-1.109	0.598	2,143	2,09	2,178
AVG1	1,881	2,498	602.168	2.182	0.014	0.117	0.087	-0.284	-0.129	2,169	2,146	2.284

Table S2 Selected geometric parameters (Å, °).

Pressure	0.3(1) GPa	0.7(2) GPa	1.7(2) GPa	2.5(1) GPa	3.2(1) GPa	4.3(2) GPa
Mn1—O5	2.195 (5)	2.179 (4)	2.167 (5)	2.164 (8)	2.171 (12)	2.18 (3)
Mn1—O6	2.346 (5)	2.335 (4)	2.330 (6)	2.328 (10)	2.321 (13)	2.29 (3)
Mn1—O3	2.245 (5)	2.258 (4)	2.283 (6)	2.304 (9)	2.295 (12)	2.33 (3)
Mn1—O2	2.131 (5)	2.140 (4)	2.158 (5)	2.164 (9)	2.158 (12)	2.12 (2)
Mn1—O1	2.145 (5)	2.150 (4)	2.163 (5)	2.174 (9)	2.175 (13)	2.18 (2)
Mn1—O4	2.274 (5)	2.248 (4)	2.226 (5)	2.201 (8)	2.212 (12)	2.21 (3)
O5—C9	1.240 (9)	1.253 (7)	1.259 (10)	1.266 (17)	1.24 (2)	1.34 (5)
O6—C9	1.245 (8)	1.244 (6)	1.237 (9)	1.249 (16)	1.28 (2)	1.19 (5)
O3—C8	1.260 (8)	1.261 (6)	1.270 (10)	1.247 (16)	1.27 (2)	1.35 (5)
C8—O4	1.233 (8)	1.247 (7)	1.255 (10)	1.254 (17)	1.23 (2)	1.24 (5)
O2—C7	1.263 (8)	1.269 (6)	1.256 (9)	1.287 (15)	1.27 (2)	1.37 (4)
C7—O1	1.253 (7)	1.256 (6)	1.276 (8)	1.287 (14)	1.32 (2)	1.27 (4)
C7—C1	1.495 (9)	1.490 (7)	1.505 (11)	1.477 (18)	1.49 (3)	1.48 (4)
C8—C3	1.516 (9)	1.502 (7)	1.505 (11)	1.540 (18)	1.53 (3)	1.53 (5)
C9—C	1.500 (9)	1.494 (7)	1.505 (11)	1.492 (18)	1.49 (3)	1.50 (5)
C4—C5	1.388 (9)	1.393 (7)	1.404 (10)	1.390 (16)	1.42 (2)	1.40 (4)
C4—C3	1.378 (9)	1.385 (7)	1.389 (11)	1.398 (18)	1.38 (2)	1.40 (4)
C6—C5	1.394 (9)	1.398 (7)	1.378 (11)	1.388 (18)	1.36 (2)	1.34 (4)
C6—C1	1.397 (9)	1.395 (7)	1.399 (11)	1.387 (17)	1.38 (2)	1.42 (4)
C2—C1	1.388 (8)	1.380 (7)	1.399 (10)	1.409 (16)	1.39 (2)	1.36 (4)
C2—C3	1.387 (9)	1.391 (7)	1.379 (11)	1.386 (18)	1.38 (2)	1.31 (4)
O5—Mn1—O6	56.99 (18)	57.63 (14)	58.2 (2)	58.4 (3)	58.5 (5)	59.0 (11)
O5—Mn1—O3	120.1 (2)	119.65 (16)	119.9 (2)	121.0 (4)	121.7 (5)	121.1 (10)
O3—Mn1—O4	57.78 (18)	58.23 (14)	58.6 (2)	58.6 (3)	57.5 (5)	58.7 (10)
O2—Mn1—O5	141.6 (2)	143.14 (16)	145.0 (2)	145.8 (4)	146.4 (5)	147.9 (11)
O5—Mn1—O4	109.4 (2)	109.60 (15)	109.7 (2)	110.1 (3)	110.5 (5)	109.6 (10)
O2—Mn1—O6	93.34 (19)	94.12 (15)	95.7 (2)	96.5 (3)	97.0 (5)	98.5 (11)
O2—Mn1—O3	98.32 (19)	97.16 (14)	95.0 (2)	93.1 (3)	91.9 (5)	91.1 (10)
O3—Mn1—O6	139.27 (19)	138.58 (14)	137.5 (2)	137.4 (3)	136.9 (5)	135.4 (10)
O2—Mn1—O1	98.41 (18)	97.12 (14)	95.4 (2)	94.8 (3)	94.4 (5)	92.9 (10)
O2—Mn1—O4	88.62 (18)	87.15 (14)	86.2 (2)	85.5 (3)	85.2 (4)	85.3 (10)
O1—Mn1—O5	88.04 (18)	89.13 (14)	90.2 (2)	90.6 (3)	90.8 (5)	91.7 (10)
O1—Mn1—O6	132.62 (18)	133.80 (14)	135.5 (2)	136.3 (3)	136.7 (5)	138.6 (10)
O1—Mn1—O3	84.05 (18)	84.02 (14)	83.8 (2)	83.7 (3)	83.9 (5)	83.6 (11)
O1—Mn1—O4	141.82 (19)	142.23 (15)	142.4 (2)	142.1 (4)	141.3 (5)	142.2 (11)
O4—Mn1—O6	83.82 (19)	82.82 (14)	81.3 (2)	80.9 (3)	81.3 (5)	78.7 (11)