Supplementary Table 1: Crystallographic information relating to data collection and refinement of fairbankite

Crystal data	
Ideal chemical formula	$Pb^{2+}_{12}(Te^{4+}O_3)_{11}(SO_4)$
Crystal system, space group	Triclinic, *P*1 (no. 1)
Temperature (K)	293(2)
a, *b*, *c* (Å)	7.0205(3), 10.6828(6), 14.4916(8)
α, *β*, *γ* (°)	75.161(5), 81.571(4), 83.744(4)
V (Å^3)	1036.35(9)
Z	1
Calculated density (g cm^{-3})	7.233
Radiation type and wavelength (Å)	Mo K_α, λ = 0.71073
μ (mm^{-1})	56.283
Crystal dimensions (mm)	0.057 × 0.083 × 0.143
Reflections for unit-cell refinement	7475
Data Collection	
Crystal description	Clear colorless irregularly shaped crystal
Diffractometer	Xcalibur E (1K Eos detector)
θ (°) range	2.734, 31.721
h, *k*, *l* range	*h*: ±10, *k*: ±15, *l*: -21 to 20
Absorption correction	Numerical (Gaussian)
T_{min}, T_{max}	0.088, 0.325
No. of measured, independent and observed [$I > 2\sigma(I)$] reflections	21374, 12546, 11017
R_{int}	0.0255
Data completeness to 25.242° θ (%)	99.5
Refinement	
Number of reflections, parameters, restraints	12546, 368, 4
$R_1[F^2 > 2\sigma(F^2)]$, R_1(all)	0.0331, 0.0414
$wR_2[F^2 > 2\sigma(F^2)]$, wR_2(all)	0.0605, 0.0651
GoF (F^2)	1.019
$\Delta\rho_{max}$, $\Delta\rho_{min}$ (e Å^{-3})	2.33, -2.43