



Figure S1. Barite recovered from FGD effluent.

Table S1. Limit of Detection (LOD) and Limit of Quantification (LOQ) of the measured elements by ICP-MS.

Element	LOD ($\mu\text{g}\cdot\text{L}^{-1}$)	LOQ ($\mu\text{g}\cdot\text{L}^{-1}$)	Element	LOD ($\mu\text{g}\cdot\text{L}^{-1}$)	LOQ ($\mu\text{g}\cdot\text{L}^{-1}$)
Ag	0.025	0.05	Mn	0.1	1
Al	3	10	Mo	0.2	3
As	1	2	Na	60	500
B	5	10	Ni	0.1	5
Ba	0.1	1	Pb	1	10
Be	0.025	0.05	Sb	0.025	0.05
Ca	10.7	100	Si	10	100
Cd	0.1	1	Se	1	2
Co	0.5	2	Sr	0.4	2
Cr	0.7	3	Ti	0.5	2
Cu	0.9	2	Tl	0.025	0.05
Fe	1	10	U	0.025	0.05
K	90	500	V	0.5	2
Li	5	100	Zn	0.3	3
Mg	50	100			

Table S2. Elements present in low and ultralow concentrations in the FGD effluent (determined by ICP-MS).

Element	FGD ($\mu\text{g}\cdot\text{L}^{-1}$)	Desulfurized FGD ($\mu\text{g}\cdot\text{L}^{-1}$)
As	4 (± 0.3)	12 (± 0.6)
Ag	0.33 (± 0.02)	1.09 (± 0.02)
Be	1.12 (± 0.31)	<0.05
Cr	21 (± 1.0)	19 (± 1.0)
Sb	0.51 (± 0.05)	0.36 (± 0.02)
Pb	0.2 (± 0.01)	1.94 (± 0.07)
Tl	4.7 (± 0.06)	1 (± 0.05)
V	3 (± 0.5)	<1

Table S3. FTIR assignments of recovered and commercial BaSO₄.

IR [cm ⁻¹]		Assignment
Recovered BaSO ₄	Commercial BaSO ₄	
3391	3401	v ₃ OH stretching vibrations
2064	2064	overtones and combination bands
1543		
1398	1402	
1646	1644	δ H ₂ O bending vibrations
1193	1192	v ₃ SO ₄ antisymmetric stretching vibrations
1118	1120	
1078	1077	
983	983	v ₁ SO ₄ symmetric stretching vibrations
639	640	v ₄ SO ₄ bending vibrations
610	610	
453	460	v ₂ SO ₄ bending vibrations