

TEA Supplementary material

Table S1. Estimation of equipment costs for options R1, R2

No.	Equipment	Quantity	Price, €	Total, €
1.	Forklift	2	4,000	8,000
2.	Hammer mill	1	9,000	9,000
3.	Pump in ex version for decanting of the liquid component of Zr-based coating in potentially explosive atmospheres	1	300	300
4.	Mud pump	2	1,000	2,000
5.	Distillate pump	4	300	1,200
6.	Silo with attached filter for fly ash	1	2,000	2,000
7.	Silos with attached filter for bentonite	1	2,000	2,000
8.	Screw conveyor PT-10	2	1,500	3,000
9.	Mixer with mixing volume 4m ³	1	27,000	27,000
10.	Vibro needle	1	500	500
11.	Casting mold	40	200	8,000
12.	Bag filter	1	10,000	10,000
13.	Filter conveyor	1	1,500	1,500
14.	Filter conveyor chamber dispenser	1	800	800
15.	Filter with active carbon	1	13,500	13,500
Total				88,800

Table S2. Estimation of additional equipment costs necessary for R2 processes

No.	Equipment	Quantity	Price, €	Total, €
1.	Pump for the transfer of emulsion or waste sludge	1	1,000	1,000
2.	Sulfuric acid tank	1	750	750
3.	Sulfuric acid transfer pump	1	1,000	1,000
4.	Demulsification reactor with stirrer	1	3,500	3,500
5.	Pump for transfer of deemulsified mixture	1	1,000	1,000
6.	Oil, water, and sludge separator	1	37,000	37,000
7.	Thanks for the storage of the oil phase		750	750
8.	Pump for oil phase	1	1,000	1,000
9.	Pump for water phase	1	300	300
10.	Mud pump	1	1,000	1,000
Total				47,300.00

Table S3. Depreciation calculation

No.	Equipment	Rate, %	Amount, €
1.	R1 – one-stage process	6	5,328.00
2.	R2 – two-stage process	6	8,166.00

Table S4. Staff costs

No.	Position	Number of workers	Net salary, €	Gross salary, €	Annual salary expenses, €
1.	Operator	2	980	1.350	32.400
2.	Manipulative worker	2	760	1.066	25.584
Total					57.984

Table S5. Energy costs

No.	Option	kW	h	No.of working days	Price kw/h	Annual, €
1.	R1 – one-stage process	63.23	7	360	0.096	15,296.6
2.	R2 – two-stage process	77.48	7	360	0.096	18,743.9

Table S6. The costs of additives

No.	Option	Annual costs of additives, €
1.	R1 – one-stage process	83,160.00
2.	R2 – two-stage process	59,310.60