

## Electrocoagulation Trial Results

### ELECTROCOAGULATION TRIAL RESULTS

#### ZT003 Interceptor Water – Heavy Metal Removal – Electrocoagulation Current Applied 30A

Heavy Metals	Raw Effluent	One pass	Reduction	Two passes	Reduction
Chromium	0.2400	0.0280	88.33%	0.0033	98.64%
Cobalt	0.0525	0.0040	92.38%	0.0003	99.42%
Copper	3.8500	0.0090	99.77%	0.0000	100.00%
Lead	2.0300	0.0020	99.90%	0.0000	100.00%
Molybdenum	1.3000	0.0170	98.69%	0.0002	99.98%
Nickel	0.3600	0.1340	62.78%	0.0499	86.15%
Tin	0.0800	0.0300	62.50%	0.0113	85.94%
Zinc	61.8000	0.2500	99.60%	0.0010	100.00%
Total Heavy Metals	69.7125	0.4740	99.32%	0.0032	100.00%

#### ZT003 Interceptor Water – Heavy Metal Removal – Electrocoagulation Current Applied 45A

Heavy Metals	Raw Effluent	One pass	Reduction	Two passes	Reduction
Chromium	0.2400	0.1100	54.17%	0.0504	78.99%
Cobalt	0.0525	0.0014	97.33%	0.0000	99.93%
Copper	3.8500	0.0030	99.92%	0.0000	100.00%
Lead	2.0300	0.0020	99.90%	0.0000	100.00%
Molybdenum	1.3000	0.0200	98.46%	0.0003	99.98%
Nickel	0.3600	0.1200	66.67%	0.0400	88.89%
Tin	0.0800	0.0300	62.50%	0.0113	85.94%
Zinc	61.8000	0.0270	99.96%	0.0000	100.00%
Total Heavy Metals	69.7125	0.3134	99.55%	0.0014	100.00%

#### ZT005 Interceptor Water – Heavy Metal Removal – Electrocoagulation Current Applied 30A

Heavy Metals	Raw Effluent	One pass	Reduction	Two passes	Reduction
Chromium	0.3300	0.0220	93.33%	0.0015	99.56%
Cobalt	0.0290	0.0007	97.59%	0.0000	99.94%
Copper	1.9500	0.0170	99.13%	0.0001	99.99%
Lead	0.5300	0.0020	99.62%	0.0000	100.00%
Molybdenum	0.0830	0.0050	93.98%	0.0003	99.64%
Nickel	0.2600	0.0285	89.04%	0.0031	98.80%
Tin	0.0300	0.0030	90.00%	0.0003	99.00%
Arsenic	0.0590	0.0410	30.51%	0.0285	51.71%
Zinc	8.4200	0.0810	99.04%	0.0008	99.99%
Total Heavy Metals	11.6910	0.2002	98.29%	0.0034	99.97%

#### ZT005 Interceptor Water – Hydrocarbon Removal - Electrocoagulation Current Applied 30A

TPH	Raw Effluent	One pass	Reduction	Two passes	Reduction
>C6 - C8	39.80	0.0200	99.95%	0.0000	100.00%
>C8 - C10	501.00	0.2460	99.95%	0.0001	100.00%
>C10 - C16	25100.00	5.0200	99.98%	0.0010	100.00%
>C16 - C24	25300.00	3.8600	99.98%	0.0006	100.00%
>C24 - C40	7690.00	1.9900	99.97%	0.0005	100.00%
Total >C6 - C40	58500.00	11.1000	99.98%	0.0021	100.00%

## Electrocoagulation Trial Results

### ELECTROCOAGULATION TRIAL RESULTS/Cont.

#### ZT007 Acid Mine Water Discharge from Former Tin Mine in Cornwall, UK Electrocoagulation Current Applied 30A

Description	Suspended Solids (mg/l)	TDS105 <sup>o</sup> C (mg/l)	Fe (mg/l)	Zn (mg/l)	Cu (mg/l)	TPH (mg/l)
Mine water containing brown ochre	1300	3100	88	0.38	0.1	58
Electro-coagulation treated mine water	29	2700	35	0.16	0.019	2.2
Reduction %	97.77%	12.90%	60.23%	57.89%	81.00%	96.21%

#### ZT006 Interceptor Water – Heavy Metal Removal – Electrocoagulation Current Applied 35A

Heavy Metals	Raw Effluent	One pass	Reduction	Two passes	Reduction
Chromium	0.0170	0.0014	91.76%	0.0001	99.32%
Cobalt	0.0049	0.0008	83.67%	0.0001	97.33%
Copper	0.2300	0.0060	97.39%	0.0002	99.93%
Lead	0.0750	0.0020	97.33%	0.0001	99.93%
Molybdenum	0.0120	0.0050	58.33%	0.0021	82.64%
Nickel	0.0295	0.0026	91.19%	0.0002	99.22%
Tin	0.0300	0.0030	90.00%	0.0003	99.00%
Arsenic	0.1190	0.0490	58.82%	0.0202	83.04%
Zinc	1.5300	0.0440	97.12%	0.0013	99.92%
Total Heavy Metals	2.0474	0.1138	94.44%	0.0063	99.69%

#### ZT011 Oil-Water Separator – Heavy Metal Removal – Electrocoagulation Current Applied 30A

Heavy Metals	Raw Effluent	One pass	Reduction	Two passes	Reduction
Chromium	1.1000	0.0300	97.27%	0.0008	99.93%
Cobalt	0.1800	0.0289	83.94%	0.0046	97.42%
Copper	17.8000	0.0020	99.99%	0.0000	100.00%
Lead	3.7700	0.0120	99.68%	0.0000	100.00%
Molybdenum	0.1900	0.0020	98.95%	0.0000	99.99%
Nickel	0.7000	0.1100	84.29%	0.0173	97.53%
Tin	0.1700	0.0300	82.35%	0.0053	96.89%
Zinc	65.4000	0.2000	99.69%	0.0006	100.00%
Total Heavy Metals	89.3100	0.4149	99.54%	0.0019	100.00%

### ELECTROCOAGULATION + REVERSE OSMOSIS TRIAL RESULTS

#### ZT014 North Sea Platform Slops – Electrocoagulation Current Applied 30A Followed by High Pressure Reverse Osmosis

	Raw Effluent	Treated	Reduction
COD (TPH + C2-C5 Volatile Fatty Acids)	14,000	57	99.59%
Total Suspended Solids	1,000	6	99.40%
Total Dissolved Salts	45,000	90	99.80%