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Service Reference

Topic: Cleaning Out ED Paint From Inside ME Cells

Required Materials

- Neutralizer & Solvent
- Nylon Strainer Bag (\approx 400 microns) & Clamp

Required Tools

- None

Sudden reductions in current draw can have a variety of causes. One cause is paint contamination. The paint is a foulant because it "plates out" on the inside of the Membrane Electrode Cell and creates resistance to the flow of current.

In order to increase the current draw, it will be necessary to remove the paint solids from inside the Cell. Contact your ED paint vendor and seek their approval first. Some of the cleaning solution may find its way into the ED bath if there is a leak in one of the Cells. The cleaning solution should be a mixture of electrolyte with a 3% solvent level (to cause the ED solids to flow) with a low pH (say 2 pH for cathodic ED paint) or a high pH (say 12 pH for anodic ED paint). The cleaning should be done on a Friday night or other down time. If you cannot wait, call UFS for special instructions.

1. Drain the electrolyte tank to just above the pump suction inlet to reduce the amount of neutralizer & solvent required. Estimate the volume of remaining electrolyte in tank, electrolyte piping, and TECTRONE™ ME Cells. See below
2. Calculate amount of solvent needed to equal \sim 3% of total volume from Step 1 and add it to the electrolyte tank.
3. Next adjust the pH based upon the type by adding (to the electrolyte) small amounts of the neutralizer until the desired pH is met.
4. Add the nylon strainer bag to the open end of the electrolyte return manifold just before it enters the electrolyte tank and attach with a stainless clamp-off plastic tie.
5. After 24 hours of circulating this special cleaning solution, dump it to waste water treatment. Refill with D.I. Water and add enough neutralizer to get up to 80% of recommended electrolyte conductivity. Turn on pump and circulate. **Do not allow D.I. Water to stand.**
6. Repeat steps 1-5 the following weekend. Continue each weekend until no more paint solids are found in strainer bag or the current draw has returned to normal levels. Perform at least two (2) cleanings.

Effective Length	Est Volume in TECTRONE Cell (1-1/2" size) ea	
<910 mm (36")	3 l	(0.75 gal)
<1400 mm (55")	5 l	(1.25 gal)
<1900 mm (74")	6.5 l	(1.7 gal)
<2900 mm (114")	10 l	(2.5 gal)

If you are using the 2" size TECTRONE Cell, then increase the amount from the table above by 35%.

Example:

Electrolyte total from Step 1 = 200 l (50 gal)
 $200 \text{ l} \times 0.03 = 6 \text{ l} (\sim 1.5 \text{ gal})$ of solvent.