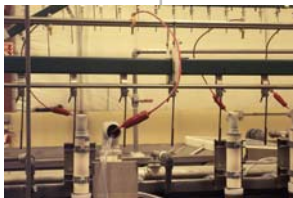


TECHNICAL REFERENCE

TOPIC: WHY CURRENT MONITORING IS IMPORANT IN AN ED SYSTEM

An E-Coat system uses electrical energy (current) to perform its work. The number of grams of E-Coat paint deposited is a function of the Coulombs delivered to the work package. Each Coulomb equals one amp for one second. Since conveyor speeds for most E-coat systems generally are fixed, the number of amps is a very important parameter for E-coat tenders to pay special attention to.



- The Cell does not draw current, but simply allows current to pass through it on its way to the work package. The actual load is the E-coat paint film being deposited.
- The amp gauge on the front of the DC rectifier will provide the “total current” load, but indicates nothing about how the current is distributed throughout the E-coat tank.
- Each Cell is wired in parallel with the rectifier. However, the individual current paths from each Cell to the work package are actually a series of circuits within a parallel branch. If several Cells are connected to a single ammeter, it will not indicate that a single Cell has a problem because the other Cells will absorb the increase in current to make up for the non-performing Cell.
- If current through each Cell is routinely measured and recorded then, at the point a problem occurs, you will find that you have a baseline or basis of comparison.
- Individual current data is also important to predict the useful life of the Cell. The Cell has two components that wear. The first is the Electrode. If it is an anode (for use in cathodic e-coat paint systems), then it is sacrificial and can last up to three to four years. The other major component is the Membrane Shell, which shows its wear by a gradual increase in the resistivity of the membrane. In a DC circuit, if the resistance goes up then the voltage must also go up to keep the current level constant (to keep the e-coat film thickness constant).
- In addition, a loose cable lead or a poor or corroded electrical connection can be spotted by looking at Cell current reading periodically.

For more information see the original manual that came with the equipment or call UFSc at the phone number show above.

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