

Installation Reference

Topic: Nitric Feeder into Electrolyte Solution

Please read all the instructions listed below carefully to familiarize yourself with the project before attempting to perform any of the work or unpacking any further

Required Materials

- Plastic string, 1 m long
- 50-150 ml Bottle with screw top

Required Tools

- Nitric acid

Since oxygen is present on the surface of the anode, the anode is considered sacrificial. However, there are several elements such as chlorides, bromides, etc that are known to accelerate the loss rate of the mass of the stainless steel anode. Nitric acid has been found to be helpful with reducing the fast corrosion of 316L anodes in an E-coat paint bath. Generally the ppm level of the nitric should be 6 to 10 times more than the ppm of the halides in the anolyte solution.

The purpose of the feeder bottle is to provide a slow dispensing of the nitric into the anolyte solution in order to achieve a ppm level of ~250 ppm or so as required by the presence of the halides in the anolyte solution.

1. **Use the appropriate clothing and other protection required for use when handling nitric acid.**
 2. Notify your ED paint supplier and confirm that they will approve the use of nitric acid. It is possible that some of the nitric will enter the ED bath if there is a cut in membrane of any of the Membrane Electrode Cells.
 3. Ask your ED paint supplier for the specific quality and strength of nitric acid to be used.
 4. Open up the bottle and fill the bottle with the nitric acid.
 5. Tie a piece of plastic string to the top of the bottle and the other end to something in order to keep the bottle in a corner of the anolyte tank.
 6. Try to keep the bottle as vertical as possible.
 7. Until the usage rate is better known, inspect the bottle every 2 hours and record the approximate volume of nitric acid that has left the bottle.
 8. If possible measure the ppm of nitric acid in the anolyte solution. UFS may be able to make a couple of these measurements for you. Please call and discuss with the technical service group.
 9. UFS recommends to feed nitric when the system is operating and to keep a stable level of nitric acid in the anolyte solution.
 10. Once the usage rate is known, fill up the feeder bottle each day so that it will be 90% empty by the time the work ends for that day. You can continue feeding during downtime, but this will increase the usage of nitric acid.
- For more information** see the original manual that came with the equipment or call UFS at the phone number shown above.