

Technical Service Bulletin 914

Resin Sample Collection Procedure from Ion Exchange Column

1. Purpose

This Procedure explains the procedure to collect a representative resin sample from an ion exchange column

2. Scope

This procedure applies to all operations involving collection of resin samples from an ion exchange column. It must be followed by all authorized personnel performing this operation.

3. Safety Precautions

Personnel must wear appropriate personal protective equipment (PPE) including chemical-resistant gloves, face shield, chemical splash goggles, rubber boots, and chemical-resistant clothing. An emergency eyewash station and safety shower must be readily accessible in the work area.

Note

This procedure is not intended to act in confined space entry procedure, and all local/site precautions should be followed.

4. Equipment and Materials Required

It's assumed that ion exchange column, with resin, with proper drain system and anti-corrosive coating is available.

- A small (10 liter or 2 to 3 gallon) clean plastic bucket
- Plastic sample jars (1 liter or 1 US quart)
- Plastic storage bags for secondary leak containment
- Sampling rod/pipe
- Marker pen or Labels
- Process water supply
- Waste collection system
- PPE as specified above

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5. Sampling Procedure

- 1) Backwash resin bed for 15-20 minutes to loosen bed.
- 2) This is a good opportunity to check bed depth. Check free board so bed depth can be calculated.
- 3) Open the drain valve of the unit with air release valve and drain excess water.
- 4) Open manhole of the unit.
- 5) Enter the unit, using proper PPE & safety harness.
- 6) Fit wooden planks over the surface of the resin bed.
- 7) For small diameter columns (less than 1 m or 3 feet) take a sample from the center.

- 8) For large diameters, a sample should be taken from the center, plus two-three additional points evenly spaced around the center of the bed.
- 9) Plunge sampling pipe vertically into the resin bed.
- 10) Pipe should reach to approximately the center of the bed. Top of the bed will have fines & lower most layer beads will be as supplied, due to bed stratification after backwash. Take care not to hit the bottom of the bed as plastic parts of the collection system, if any, may get damaged.
- 11) Open the sampling rod, rotate it, close it again and withdraw it from the bed. In case sampling rod is not available use a PVC pipe.
- 12) Collect the resin sample(s).
- 13) Remove the planks, close the manhole and fill the column again. Care should be taken that no foreign material is dropped or left in the resin bed as the resin itself, column lining or internals may get damaged.
- 14) Ideally, 2 – 3 liters of the sample should be withdrawn. Repeat the procedure till enough quantity is collected.
- 15) Label the resin samples carefully, noting the column details, date of resin loading, whether it was top up or complete replacement, resin grade and suspected problem.

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