

SILVER RECLAMATION

Contaminated silver from the combustion tubes, used by UIC Inc systems for total and organic carbon measurements, can be reclaimed. There is generally a 10% loss using the procedure outlined below. Exceptional care must be exercised since the procedure uses both acid and explosive hydrogen gas.

PROCEDURE

1. Remove the used silver from the combustion tube. The silver usually cannot be removed without breaking the combustion tube.
2. Break up the silver plug with a wood rasp or an appropriate grinder.
3. Wash the silver with 10% nitric acid.
4. Rinse the silver thoroughly with deionized (or distilled) water.
5. Dry the washed silver at 110°C.
6. Place the silver in a clean combustion tube. DO NOT PACK TIGHTLY.
7. Pass hydrogen gas through the tube with a flow rate of 20-30 ml/min. Bubble the exit gas through water to remove any acid gases that may form.
8. Heat the combustion tube to 800 - 850°C for two (2) hours. Keep the H₂ flow on.
9. Remove the exit gas water bubbler, let the furnace cool down, stop the H₂ flow, and remove the reclaimed silver.