Metals Cleaning Procedures for Teflon Bottles and Rigid HDPE

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December 1993

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1.0 Teflon Bottles & Rigid HDPE

1.1 Rinse the bottle and cap three times with DI water by filling the bottle approximately **a** full, capping, and shaking vigorously. Discard water is poured into cap as part of the cleaning procedure.

1.2 Fill the bottle with 10% reagent nitric acid, screw on the cap and let soak for 24 hours. The bottle should be shaken once at the beginning and once at the end of the 24-hour period.

1.3 Discard the acid solution and rinse three times with DI water, follow same procedure as in Step 1 above.

1.4 Fill the bottle with DI water, screw on cap and let soak for 24 hours. The bottle should be shaken once at the beginning and once at the end of the 24-hour period.

1.5 Discard the DI water and rinse three times with DI water, follow the same procedure as in Step 1 above.

1.6 Shake out excess water, cap snugly, and store for use.

2.0 Teflon Bucket Assembly Cleaning Procedures

2.1 Upon receipt at the ISWS laboratory, the bucket assembly is removed from the polyethylene bag, and the removable components separated from the bucket. These components, the teflon fitting, o-ring, and tubing assembly are placed in a 10% HNO_3 bath.

2.2 The inside of the bucket is wiped with a wet sponge (and DI water) and the inverted bucket is cleaned in a FORMA-FURY laboratory glassware washer using DI water and the same washing sequence and procedures as used for the NADP/NTN collection buckets. A rubbermaid mesh screening is placed under the buckets to prevent abrasion of the teflon coating on the bucket, and prevent contact with the stainless steel interior.

2.3 The bucket and components are washed twice in the Forma-Fury unit. During the first wash, the tube assemblies are set up in the hole atop the inverted bucket, and the partially assembled teflon and o-ring fittings are placed in the washer also. During the second wash, the teflon and o-ring fittings are assembled with the bucket, and the tubing assembly placed next to the buckets vertically.

2.4 Upon removal from the glassware washer, the bucket assembly is shaken to remove excess water. The interior of the assembly is rinsed with 10% reagent grade nitric acid from a squeeze bottle, and then copiously rinsed with DI water.

2.5 The bucket assembly is then placed in a closed polyethylene bag and placed in a well padded 16"x16"x16" box for shipment.

2.6 The tubing assembly is placed in a separate 1 gallon resealable single use teflon bag.

3.0 Assembly Package

3.1 A 16"x16"x16" heavy duty cardboard box is assembled and taped with several layers of high quality packaging tape.

3.2 Sufficient packaging to prevent damage is placed in the bottom of the box.

3.3 The following materials are then placed in the box.

Teflon bucket assembly
Tared 2.0 L teflon sample collection bottle
Cleaned tubing assembly in 1 gallon resealable bag
Dry side bag
Data sheet, including shipping date, tare weight, and site ID already completed
Weekly memo - including specific instructions for the week

On occasion, field blank and or system blank bottles and materials are included along with specific instructions.

3.4 The boxes are then filled with packaging materials, sealed, and mailed to the site operators.

4.0 Sample Handling Procedures

4.1 Samples are received at the ISWS from one to seven days after being removed by the operator, with a typical sample arriving three days after sampling. Samples are generally treated on the day of arrival at the ISWS.

4.2 Upon arrival at the ISWS, the sample bottle is taken and reweighed. This and the tare weight are used to calculate the weight and volume of the sample.

4.3 A 0.2% HNO_3 solution is added to each sample based on volume. The sample is then shaken and allowed to equilibrate a minimum of 24 hours, and if possible over a weekend.

4.4 After equilibration, the samples are decanted into previously cleaned 60 mL, 125 mL, 250 mL, or 500 mL sample bottles, based on volume of the sample. The sample bottles are rinsed twice with the sample solution before the entire sample is placed in the bottle. The rinsing procedure is waved in sample of less than 60 mL of solution, as use of the sample would leave too little for analytical analysis.

4.5 Samples are labeled and stored at the ISWS, and taken to the HWRIC for analysis once per month. Samples at the HWRIC are stored at 4°C both before and after analysis.