Application Note - Sample Preparation for Waste Water Samples

Introduction:

This study evaluated the effectiveness of ***Easy*PREP** Sample Handler, our new robotic system for sample preparation. The study entailed the acid addition, normalization and internal standard addition for the digestion and analysis of waste water sample EU-H-2.

Sample Type:

- Sample: EU-H-2
- Sample volume: 45 ml
- 24 Replicates

Supplies and Reagent:

1) ***Easy*PREP** Sample Handler*
2) 50 ml ***Digi*TUBEs***
3) 15 ml ***Digi*TUBEs***
4) ***Accu*NORM*** fill-to-volume accessory
5) Analytical Balance, 4 Decimal Places, Mettler-Toledo
6) ***Digi*PREPJr*** Block digestion system
7) Touch Screen Controller for use with the ***Digi*PREPJr**
8) ***Digi*PREP** rack*
9) ***Plasma*Pure** HNO_3, (70%), 5 ml

* Manufactured by **SCP SCIENCE**

Sample Preparation Procedure:

The samples were placed on the ***Easy*PREP** Sample Handler for the addition of 5 ml of concentrated ***Plasma*Pure** Nitric Acid to each sample. The sample rack was then moved manually to the ***Digi*PREPJr** for digestion. After the digestion was completed and the samples cooled, the rack was placed back on to the Sample Handler. 0.8 ml of internal standard was added to each sample. The samples were then normalized to 50 ml with ***Accu*NORM** and a 2 ml aliquot was transferred to autosampler tubes for a 1/10 dilution.

Discussion:

The acid addition time for 24 samples was 4.5 minutes and the normalization time was 10 minutes. All steps were automated except the manual rack transfer from Sample Handler to ***Digi*PREP Jr**.

Accuracy:

Accuracy for normalization is +/- 130 µl for a 50 ml ***Digi*TUBE**.
Accuracy for standard addition is +/- 3 µl for an 800 µl addition.

Conclusion:

***Easy*PREP** Sample Handler provides complete automation to prepare samples ready for analysis. Coupled with ***Digi*PREP**, it is an unmatched solution for saving time on repetitive "painful" tasks.

References:

1) Certificate of Analysis EU-H-2
2) APHA Standard Method 3030 E

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