

## Automated Mercury Analyzers The Hydra Series — **HYDRA PREP**

# HYDRA PREP

### An Automated Mercury Sample Preparation System

**Hydra Prep** is a sample preparation system for mercury analysis that is designed to enhance your productivity, reduce labor and sample analysis costs, and provide outstanding analytical reliability. Samples are automatically digested according to operator selectable EPA methods. **Hydra Prep** uses lower sample and reagent volumes (than manual preparation) minimizing the quantity of hazardous waste generated.

- *Automatically digests water, wastewater, sludge, soils, blood, urine and tissue samples* — improves laboratory productivity and reduces labor and sample analysis costs.
- *Unattended Operation* — allows the operator to perform other laboratory functions.
- *Small Sample Volumes* — reduces reagent and reagent disposal costs.
- *Computer Controlled Pipetting* — delivers precise volume of reagents and provides day-to-day, operator-to-operator repeatability.
- *Computer Controlled Timing of the Digestion Process* — ensures analytical precision of the method.
- *Automatic Sparging of Samples* — eliminates interferences associated with the presence of chlorine.
- *Automatic Mixing of Samples* — ensures homogeneity of digestion.
- *Sample Cap with Integral Reflux Condenser* — facilitates the digestion of difficult organic samples.



*The Hydra Prep is designed to enhance productivity, reduce labor and sample analysis costs and provide outstanding analytical reliability*

- *Autosampler Rack and Sample ID Information* — can be transferred from the **Hydra Prep** directly to the Hydra AA or Hydra AF saving time and increasing productivity.
- *Compatible with Hydra AA, Hydra AF, Hydra AF Gold and Hydra AF Gold Plus* — for automatic sample preparation and improved lab productivity.

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Mercury has long been known as a toxic metal and the determination of mercury at trace levels has been a growing concern in recent years. In the environment, mercury is present in various forms and must be converted to  $Hg^{+2}$  prior to analysis by cold vapor atomic absorption (CVAA) or cold vapor atomic fluorescence (CVAf). The digestion must be done carefully to prevent loss of mercury and reproducibly to ensure precision and accuracy. Over 75% of the labor involved in mercury analysis is in the preparation of the samples.

### Save Time and Costs

The **Hydra Prep** is designed for unattended operation. Simply setup your samples, select your protocol, and the **Hydra Prep** performs all reagent additions and heating steps required to comply with EPA Methods for aqueous, soil and tissue samples. Alternatively, user-defined digestion procedures can be implemented. Up to 88 aqueous samples or 28 soil samples can be digested in a single digestion cycle. The volume of reagents is significantly decreased and results in the reduction of wastes by up to 75%.

### Reliability

The **Hydra Prep** dispenses reagents precisely, accurately and quickly. The reagent bay and water bath are constructed of chemically resistant material to prevent corrosion. Within a digestion procedure, each sample is handled in an identical manner eliminating inconsistencies from run-to-run or operator-to-operator. The computer controlled pipetting used in the **Hydra Prep** results in a volumetric precision of <0.5% RSD. Computer control of the entire process ensures reproducible timing of the digestion procedure. The following table of data illustrates the excellent accuracy and precision that can be obtained with **Hydra Prep**.

SAMPLE	MEASUREMENT	MEAN	%RSD	CERTIFICATE VALUE
5 ppb (aqueous standard)	5	4.9	1.2	5.0 ppb
	5			
	4.9			
ERA CLP Soil (priority pollutant)	1.689	1.676	1.5	1.68 $\mu g/g$
	1.692			
	1.646			
NIST SRM 2704 (river sediment)	1.364	1.39	1.5	1.47 $\mu g/g$
	1.386			
	1.405			
NIST SRM 8406 (sediment)	0.0662	0.067	6.6	0.06 $\mu g/g$
	0.0624			
	0.0714			

Hydra Prep/Hydra AA Performance Data

### Built-in Applications

Choose from a variety of preprogrammed protocols, including water, soil, blood, and tissue. The six reagents bays are easily changed to accommodate different protocols including the bromide/bromate application. Figure 2 shows the reagent addition system of the **Hydra Prep**.

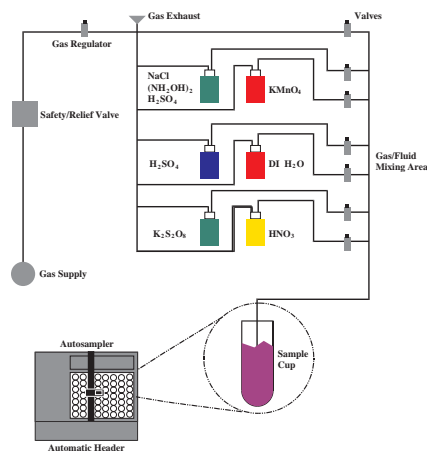


Figure 2. Hydra Prep Reagent Addition Schematic

Leeman Labs manufactures a complete line of mercury analyzers including AA, AF and Automated Sample Prep Systems, as well as ICP Spectrometers, Metal Alloy Analyzers and ICP/Hg Calibration Standards.

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Contact Leeman Labs to discuss how **Hydra Prep** can significantly increase the productivity and reliability of your mercury determinations.

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