

HGX-200

Hydride Generation/Cold Vapor System

The HGX-200 is a specialized system for the generation of volatile hydride species or the reduction of mercury to Hg(0) (cold vapor). Elements of interest that form volatile hydrides include the difficult to measure elements As, Se and Sb.



A number of elements can be chemically converted to gaseous forms. As, Bi, Ge, Pb, Sb, Se, Sn, Te are easily converted to volatile hydrides and mercury to Hg(0). Sample solutions are typically mixed with a sodium borohydride (NaBH₄) solution for hydride generation and Sn(II)/HCl for reduction of mercury to Hg(0). This conversion offers a number of advantages for elemental measurement by ICP-AES or ICP-MS. The nearly 100% analyte transport efficiency combined with no water loading (as from conventional nebulizer systems) of the ICP can provide signal enhancements up to 100 times. This feature is particularly advantageous for difficult to measure elements such as As, Sb, and Se.

An additional benefit is the separation of analytes from potential matrix interferences. Examples are the argon chloride (ArCl) ICP-MS interferences on ⁷⁵As and ⁷⁷Se and tungsten oxides (WO) on various Hg isotopes.

DESIGN FEATURES

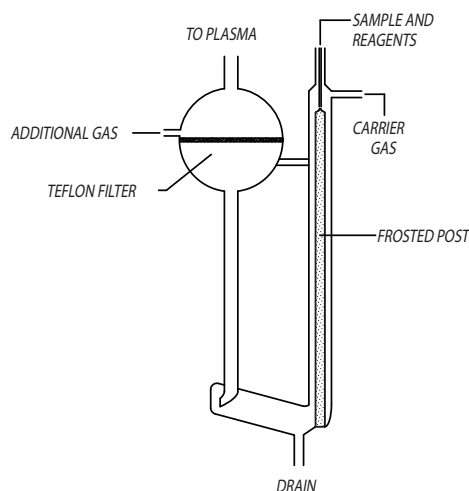
The HGX-200 system features a specialized gas liquid separator (GLS), dedicated reagent vessels, clearly labeled tubing and connections, solution mixing blocks and coils, and a built-in gas flow meter. The peristaltic pump for sample, reagent, and waste flows is user provided, usually from the host ICP-AES or ICP-MS.

The special U-shaped GLS incorporates a “frosted” glass post that provides a high surface area for liquid

film evaporation and release of hydrides and Hg(0). This feature helps to enhance analyte sensitivity. The GLS also features a porous PTFE membrane and droplet separator to achieve complete gas/liquid separation and reduce signal noise.

An integrated gas flow meter enables controlled addition of argon gas through the GLS. This flow meter allows for best optimization of washout time and reduction of signal noise.

HGX-200 GAS LIQUID SEPARATOR



Technical Specifications

Dimensions:

Width: 30.5 cm (12")

Height: 43.8 cm (17¼")

Depth: 21.9 cm (8¾")

Weight: 3.4 kg (7.5 lbs)

Gas Flow Meter: 1 L/min Ar, up to 200 psi pressure

Reagent Bottles: Acid, NaBH₄, HCl/Sn (II), 1 L each

Warranty: 12 month limited

NEBULIZERS

