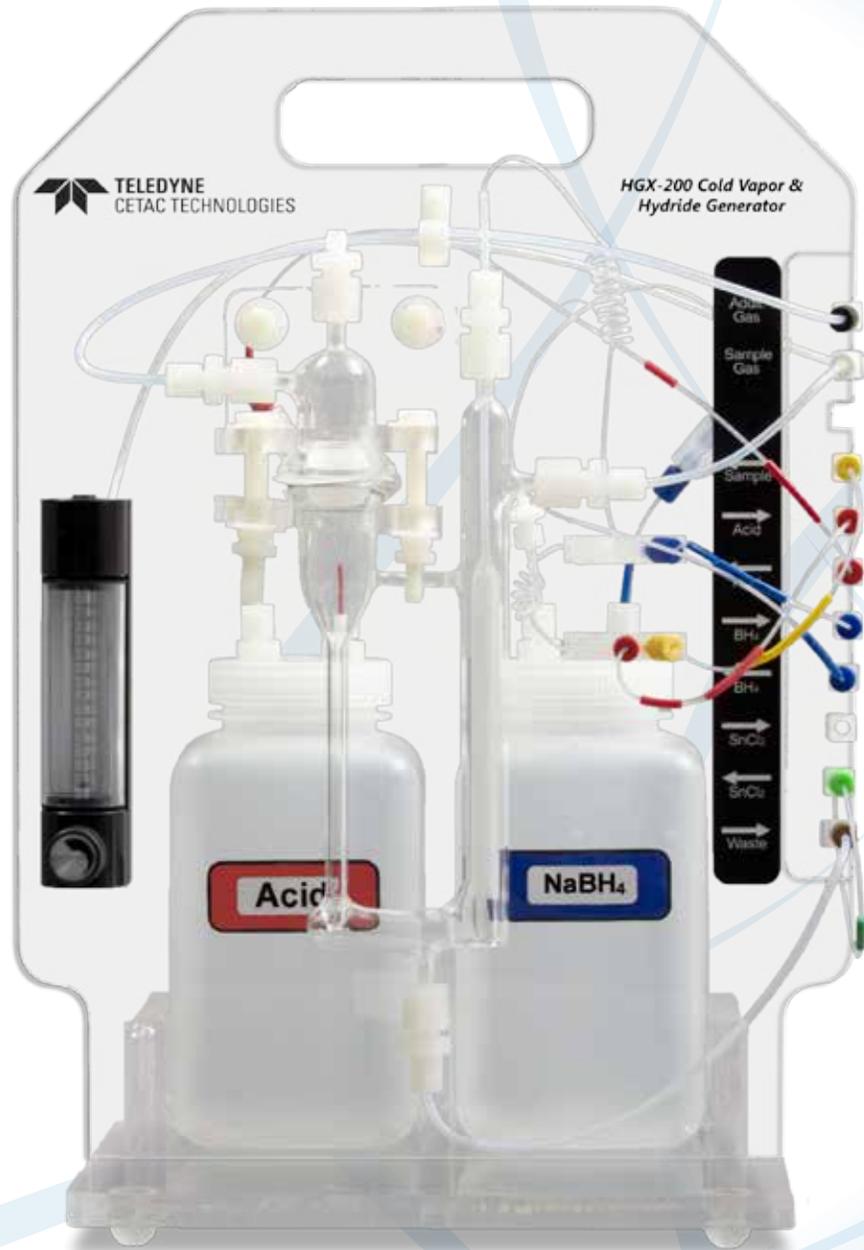


HGX-200



Hydride Generation/Cold Vapor System



HGX-200 Hydride Generation/Cold Vapor System

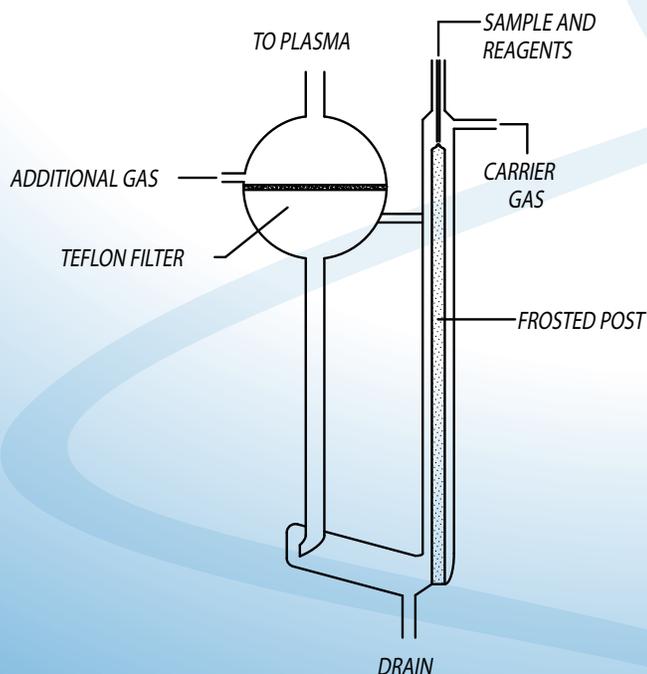
Introduction

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. The HGX-200 can be easily interfaced to any ICP-AES or ICP-MS instrument.

A number of elements can be chemically converted to gaseous forms: As, Bi, Ge, Pb, Sb, Se, Sn, Te 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 fold. This feature is particularly advantageous for difficult to measure elements such as As 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.

HGX-200 Gas Liquid Separator



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.

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 (polytetrafluoroethylene) membrane and droplet separator to achieve complete gas/liquid separation and reduce signal noise.

The integrated gas flow meter enables the addition of a second Ar gas flow after the GLS membrane. This second gas allows for best optimization of washout time and reduction of signal noise.

The small footprint of the HGX-200 allows convenient placement in the sample rack tray of the ASX-520 autosampler for larger sample runs. The top of the HGX-200 transparent stand has a built-in carrying handle for easy transport. Two peristaltic pumps (user provided) are recommended: one pump for sample and reagent addition and one pump to remove liquid waste from the GLS.

Technical Specifications

Dimensions:

Width: 30.5 cm (12")

Height: 43.8 cm (17.25")

Depth: 21.9 cm (8.75")

Weight: 3.4 kg (7.5 lb)

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