

hydrideFAST 1

Simple, Accurate, and Fast Hydride Generation for ICP

hydrideFAST is an online sample introduction system that minimizes the complexity of previous hydride generators while offering high sensitivity. The hydrideFAST 1 version is a compact, easy-to-use device that generates hydrides for ICP detection with high sensitivity and low detection limits. At the heart of the hydrideFAST are two key components: the **MP² Precision Micro Peripump** and the patent-pending **hydrideFAST Gas Liquid Separator**.

MP² Peripump

Designed with ICP and ICPMS applications in mind, the MP² micro peripump uses a combination of acid-resistant ceramic pins with long-life precision polymer rollers to deliver sample and reagents smoothly at flow rates ranging from sub microliter-per-minute to > 10 milliliters per minute.



Gas Liquid Separator

ESI has developed the smallest, highest-performing and most stable gas liquid separator on the market for the hydrideFAST system. All connections are conveniently and securely made using threaded quartz connectors. The design promotes rapid mixing of sample with hydride reagents, promoting a more complete reaction and separation of hydride gases from sample liquids in a small volume.

The Highest Level of Stability

When hydrides form, a considerable amount of hydrogen gas is created as well.

With other systems, the amount of hydrogen gas formed over time can vary, causing issues with system sensitivity. The MP² pump on the hydrideFAST system ensures precision addition of hydride reagents providing constant formation of both analyte hydrides and hydrogen gas, promoting a remarkably stable ICP and further improved detection limits.

(Also available is hydrideFAST 2 for the best detection limits of both hydride and non-hydride forming elements.)

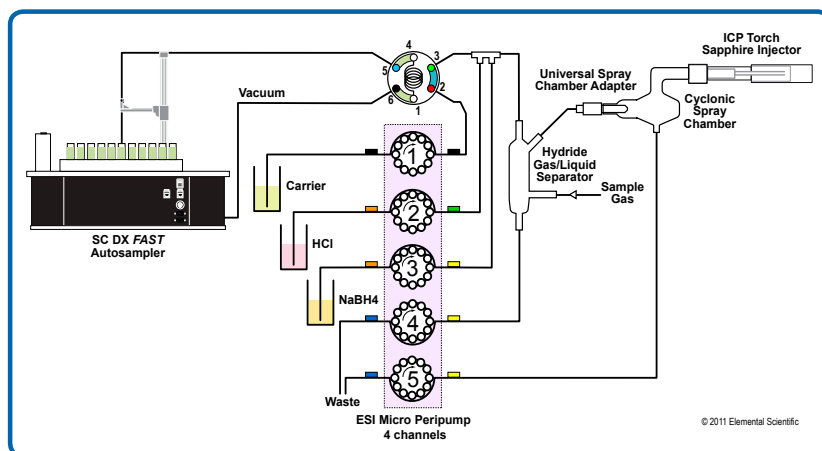
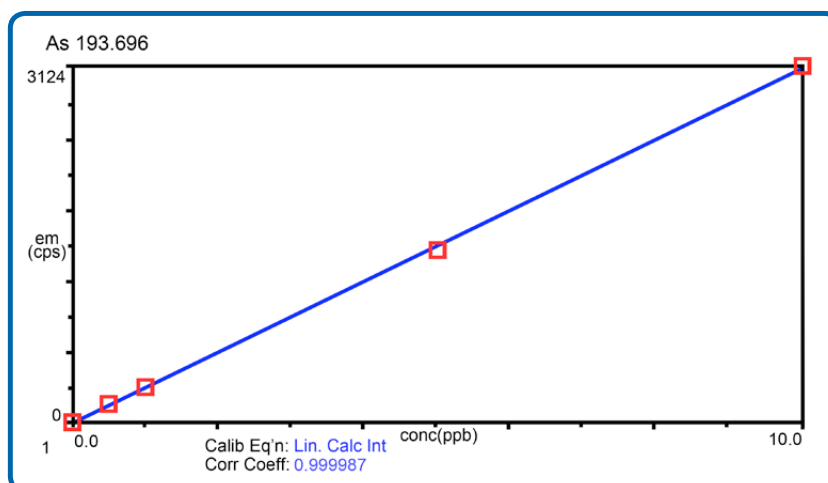


Figure 1. Diagram of the hydrideFAST 1 system.

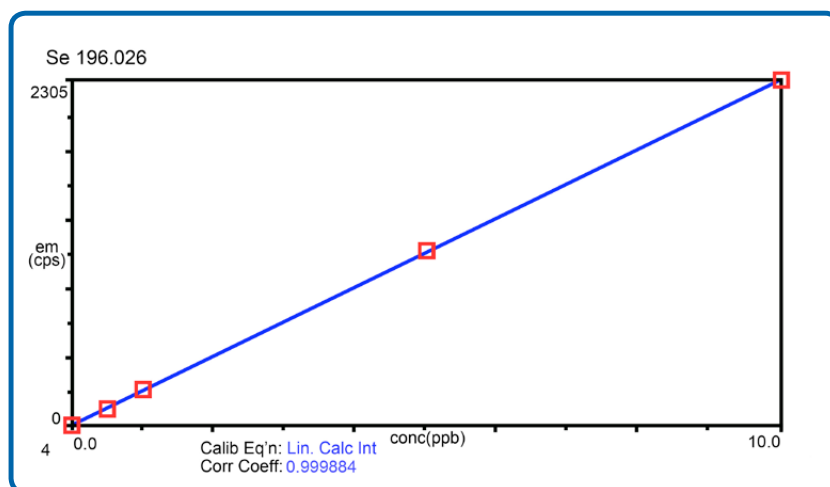
Features and Benefits of hydrideFAST	
Feature	Benefits
MP ² Peripump	• Stable signal for improved detection limits • Stable hydrogen gas formation
Gas-Liquid Separator	• Enhances sensitivity • Small internal volume for low memory effect and fast washout
Small Size	• Conserves lab space
Integrated, Modular Design	• Tames tubing • Built-in connections
Clean Samples	• Sample does not touch peripump tubing so much lower carry-over effect

ICP Detection limits (3σ) for hydride-forming elements in hydrideFAST mode				
Analyte	As	Se	Hg	Sb
DL (ppb)	.05	.08	.02	.1

With hydrideFAST 1, extremely low levels of hydride-forming elements can be detected. Calibration curves for As, Se, Sb, and other hydride-forming elements measured with NaBH₄ show excellent linearity from 0 to 10 ppb. Hg curves, which showed similar linearity, were measured with SnCl₂.



Calibration curve for As. Calibration points at 0, 0.5, 1, 5, and 10 ppb.



Calibration curve for Se. Calibration points at 0, 0.5, 1, 5, and 10 ppb.