Hydrogen Generators
Frequently Asked Questions

Q: Where are the Hydrogen Generators typically used?

A:

- **Gas Chromatographs with the following detectors: FID, NPD, PFPD, FPD, HALL / ELCD**
- **Carrier gas for capillary GC columns**
- **Total Hydrocarbon Analyzers, Vehicle Emissions Benches**
- **Hydrogenation Reactors**
- **Fuel Cells**

Q: How to select a Hydrogen Generator for fuel gas in Gas Chromatography?

A:

Summate the total number of and types of detectors being used, bearing in mind that many GCs may have multiple detectors. Calculate total flow in cc/min and make sure that the result is less than the rated output capacity of the generator. Make sure that the point of use pressure needs (psig) are less than maximum 60 psig output pressure capacity of the generator.

- **The typical FID hydrogen flow rate is 40 cc/min.**
- **The typical FPD hydrogen flow rate is 75 cc/min.**
- **The typical NPD hydrogen flow rate is 3 cc/min.**
- **The typical HALL / ELCD hydrogen flow rate is 100 cc/min.**

Q: Can the Hydrogen Generators be installed outdoors?

A: No, indoor areas only and not subject to freezing temperatures.

Q: Can the Hydrogen Generators be installed outside the lab?

A:

- **Preference is in the same lab as the instruments.**
- **Yes, installer will have to account for pressure drop, piping impurities, building safety codes, and piping costs.**
- **Exceptionally long runs of piping can take time to fill with generated hydrogen, please budget up to a full day at start-up if you have long runs of piping.**

Q: What is needed to install Hydrogen Generators properly?

A:

- **Electricity: a clean power supply, use a power conditioner if suspect.**
- **Deionized water, 5 meg-ohm purity, if not available use Parker's 72-730 or 72-731 tap water processor.**
- **1/8" pre-cleaned refrigeration grade copper tubing if using the Hydrogen Gas Generator as a fuel gas. Use Parker's IK7532 series installation kits.**
- **1/8" pre-cleaned 304 or 316 stainless steel tubing if using the Hydrogen Gas Generator as a carrier gas.**
- **A flat surface such as a lab bench.**

Q: What are the maintenance requirements for Hydrogen Generators?

A:

- **Fill the deionized water reservoir weekly or biweekly, if not use auto water fill feature.**
- **Drain and replenish the liquid electrolyte annually following cool down period.**

Q: What is the liquid electrolyte?

A: It's a 22% concentration of a specially prepared (metallic ion free) sodium hydroxide solution. Sub-par electrolyte will damage the Electro-chemical cell assembly.

Q: How do the Hydrogen Generators produce 99.99999% pure hydrogen?

A: These systems incorporate a palladium membrane. Palladium is a rare metal that allows hydrogen ions to recombine on the surface matrix. Water vapor and oxygen have no way of passing through the surface matrix.

Q: How do I verify that the Hydrogen Generator is really producing 99.99999% purity hydrogen?

A:

- **You can verify and test the gas quality by using a local independent test laboratory.**
- **You can verify and test the gas quality by using your own “discharge ionization detector”. GC-DID.**
- **You can refer to the certificate of conformity that came with your 75 Series Hydrogen Gas Generator upon delivery.**