

Hydrogen Safety Questions

Safe Alternative to Gas Cylinders



State-of-the-art, self-contained hydrogen generators are the safe alternative to old technology gas cylinders and the 40,000 laboratories throughout the world currently using Parker gas generators prove it!

Is it safe to use Hydrogen with my Gas Chromatographs?

Yes. Hydrogen has to reach a temperature of 500°C to ignite and a concentration between 4%-76% to be explosive, which is nearly impossible when using a hydrogen gas generator and a modern GC.

How much Hydrogen is necessary for there to be a safety concern?

The lower explosive limit of hydrogen is 4%, which in a 6x4x3 meter, air-tight space requires 2,265 L of hydrogen. This would require a generator supplying 500 mL/min to vent directly into the air continuously for over 4 days without any air exchange. A hydrogen cylinder could instantly vent this much hydrogen with a single leak.

Can my GC make concentrated areas of Hydrogen at its exhaust?

It is nearly impossible. Hydrogen diffuses four times faster than air and is the smallest of all molecules. It diffuses almost immediately in air. All laboratories have air turnover and air movement, which further aids in the diffusion process.



Can my GC make concentrated areas of Hydrogen internally?

Modern GC's are made with safety features to handle hydrogen as a carrier gas and can automatically shut off the carrier gas flow in case an issue is detected. Also, ovens are not sealed. Please check with your GC manufacturer.

Are generators a safe source of Hydrogen?

Gas generators are considered the only safe source of hydrogen. Parker

generators produce hydrogen on demand and at low pressure, so there is very little stored volume. A larger stored volume equates to a larger potential issue. Cylinders contain up to 6000 L at 2500 psi whereas Parker gas generators store, at most, 300 ml.

Do Parker generators have additional safety features?

Yes. Parker hydrogen generators utilize built in pressure transducers to detect any internal or external leaks. In the event that a leak is detected, the generator will shut down and an alarm will sound.



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