

Affected by the Helium Shortage?

Switch Your GC Carrier Gas to Hydrogen

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Faced with helium shortages and prices that continue to soar upwards like a runaway party balloon? Consider switching your carrier gas to hydrogen. Hydrogen is a safe alternative to helium, and high quality gas is readily available from either cylinders or hydrogen generators.

Switching to hydrogen is cost-effective and can improve GC performance. Hydrogen provides shorter (by half if running isothermally) analysis times than helium and many times yields overall better separations. Also, with splitless injection, hydrogen's higher velocities carry the solutes from the inlet to the column faster and more efficiently, decreasing the potential for band broadening. However, while hydrogen is a great choice for most GC work, it is difficult to remove from the MS source and energizing the source without the pumps running could cause an explosion. Therefore, hydrogen is not typically recommended for mass spectrometry applications.

The most common concern when considering a switch to hydrogen is the risk of explosion. Safety depends largely on whether a GC is back pressure regulated or head pressure regulated. Generally older instruments use a pressure regulator located upstream of the injection port (head pressure regulated). In the event of a leak the upstream pressure regulator will maintain pressure, but overall flow can increase dramatically. This situation can lead to an explosion if hydrogen carrier gas fills the hot GC oven. Check your instrument manual to make sure your instrument is either back pressure regulated or equipped with safety features to prevent major leaks. Many instrument companies also are now recognizing the benefits of using hydrogen as a carrier gas and are manufacturing their latest models with additional safety features designed to prevent hydrogen build-up and reduce the risk of explosion.

Hydrogen is available in cylinders, but it can also be produced on-site using a hydrogen generator. Hydrogen generators are much safer and more cost-effective than high pressure cylinders. All hydrogen generators offered by Restek are equipped with built-in sensing circuits that will automatically shut down the generator in the rare case that a leak is detected. Another advantage is that hydrogen generators produce hydrogen on-demand, meaning only small volumes (50-100mL) are stored at any one time. Producing hydrogen as it is consumed is much safer than using cylinders which each store up to 9,000 liters.

Hydrogen is a safe, dependable alternative to helium, and hydrogen generators are an ideal way to produce the hydrogen your lab requires. They include great safety features and are cost-effective; based on cylinder savings alone, a generator pays for itself in only one or two years. If your lab has been affected by the current helium shortage and you are considering a switch to hydrogen, see the titles in the sidebar for more information. You'll find switching to hydrogen and using a hydrogen generator to supply your lab offers significant financial and performance benefits.

See page 18 & 19 for our listing of Hydrogen Generators.

Get More!

Information on switching from helium to hydrogen.



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