

Air Products' Hydrogen Technology for the Material Handling Market



In a just-in-time marketplace, every hour spent changing, recharging and maintaining lead-acid forklift batteries eats into productivity. Now, there's an alternative. Hydrogen fuel cells can help enhance material handling operations through superior performance that helps to increase productivity. Air Products provides the hydrogen supply and fueling infrastructure for fuel cell power packs, which are direct replacements for the industrial batteries used in forklifts, automated guided vehicles (AGVs) and other material handling vehicles.

Using Air Products' hydrogen fuel with fuel cell power packs offers many benefits:

- Eliminates time-consuming recharging and swap-outs associated with batteries; vehicles are refueled once or twice per day and can be refueled in three to five minutes.
- Produces constant voltage, so industrial vehicles maintain constant speed throughout the workday
- Does not produce hazardous vapors or chemical wastes

Flexible options for hydrogen supply and fueling

Air Products offers complete hydrogen supply and fueling solutions tailored to the needs of the material handling industry.

Support for pilot programs—Air Products' mobile Hydrogen Fueling Services make it easy and cost-effective to evaluate fuel cell technology at your facility. The HF150 mobile hydrogen fueler provides everything you need—hydrogen supply as well as self-contained dispensing equipment. No utility hookups are required. The fill procedure is completely automated, and Air Products trains your people to use the fueler safely. Wayne Mabry of Mitsubishi Caterpillar had this to say about the use of Air Products' mobile fueler:

"The testing went great and your fueler played a big part in making it go so smoothly. Our test guys were really impressed with how easy it was to refuel the truck instead of having to charge the battery."

Delivered hydrogen—When you're ready for a permanent installation, Air Products offers gaseous hydrogen supply via tube trailer for low-volume requirements as well as liquid hydrogen delivery for users who require higher volumes. Hydrogen usage and deliveries are supported by Air Products' customer service organization to provide an uninterrupted supply of fuel 24/7, 365 days per year.



Air Products mobile Hydrogen Fueler provides hydrogen fuel for a customer's forklift.

On-site hydrogen generation—If on-site generation better meets your needs, Air Products offers electrolyzer technology as well as high-efficiency natural gas or hydrocarbon reformers. Our team of supply chain experts can analyze your particular situation and recommend the source of supply that can help you maximize reliability of supply while minimizing operational costs.

Fueling systems—Air Products' fueling systems are designed for simple, cost-effective installation and automatic operation for high reliability. Each fueling system comprises three components—compression, buffer storage and dispensing. Air Products' dispensers offer fast-fill capabilities, are easy to use, and are designed for safe operation by your personnel. Air Products' dispensers support vehicle communications to optimize the refueling process and increase safety.

Take advantage of Air Products' 50+ years of hydrogen experience

Air Products is on the forefront of hydrogen energy technology development. Since 1996, we have installed over 50 hydrogen fueling stations

worldwide, and are now making this technology available to the material handling industry.

As the world's largest supplier of merchant hydrogen, we understand the wide range of issues involved in the transition to hydrogen energy—technical, operational, economic. With decades of experience in hydrogen applications and an unsurpassed safety record, we offer a wide range of safety, training, engineering, business analysis and project management services as your provider in this endeavor.

Why not handle it with hydrogen? We'll show you how.

When you are ready to look at increasing productivity and enhancing forklift performance with hydrogen fuel cell power packs, contact Air Products to learn more about our fueling stations, hydrogen supply, safety support and other industrial gas capabilities.

For More Information

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