

Materials Handling and Fuel Cells

How can Fuel Cells be used in Today's Materials Handling Market?

Today's materials handling market is highly focused on efficiency while reducing energy costs and emissions. Many in the materials handling business are looking for alternatives to combustion powered fork lifts, leaving the market ripe for a strong green technology, fuel cells. In fact, fuel cell forklifts have already been deployed across the country in materials handling applications, including with such high-profile companies such as Wal-Mart, Sysco, Wegmans, Coca-Cola, Whole Foods, Central Grocers, United Grocers, Nissan and BMW.

What Advantages do Fuel Cells have over Battery Powered Fork Lifts?

Battery electric forklifts are becoming a strong force in today's materials handling market, but fuel cells outperform compared to batteries in almost every measure.

Power Degradation

Battery electric forklifts have a serious issue with powered degradation over time. As batteries near the end of their charge, their performance decreases exponentially. Fuel cells will never degrade in power output over time; they run at the same excellent level of performance as long as they have fuel in their tanks.

Battery Replacement

Another major issue of lead acid forklifts is that they must be replaced with a new battery once the charge runs out. This requires further valuable floor space be used for supplementary battery storage and charging, as well as needing an extra technician to assist in the battery replacement. Furthermore, this process takes about 20 minutes to perform, wasting valuable time in an industry devoted to efficiency. On the other hand, fuel cells only take about 3 minutes to refill their tanks, and require the same level of skill to fill up a car with gasoline. Without the need for replacement and back-up battery storage and charging, more space is made available for actual warehouse needs.

Battery Life

When using lead acid batteries in forklifts, two batteries are needed and they last only 4 years before needing to be completely replaced. However, fuel cell forklifts require only 1 fuel cell unit which will last for 8 to 10 years, a much sounder investment.

Performance Time

A completely filled hydrogen fuel cell forklift can run for about 18 hours while the plant is in full production. A battery-powered forklift runs for approximately four to six hours before the battery must be recharged. Less down-time and no decrease in power output means an increase in productivity and efficiency, showing fuel cells to be the superior forklift unit.

Refrigerated Warehouses

Particularly in refrigerated warehouses, batteries experience power degradation much faster, while fuel cells continue working at the same level of output regardless of the temperature.

Are Fuel Cell Forklifts Affordable?

Grant opportunities from federal agencies such as the Department of Energy and federal tax credits and are plentiful for consumers wishing to switch to fuel cell technology.

Are Fuel Cell Forklifts Environmentally Friendly?

Fuel cells' only by-products are water, heat, and electricity when using hydrogen. However, even when using natural gas or other fuel sources, fuel cells cut overall fuel consumption and green house gas emissions. Additionally, charging forklift batteries currently consumes 3.2 million kilowatt hours of electricity per year. Therefore, by switching to hydrogen fuel cells 2,098 tons of carbon dioxide emissions will be eliminated a year.