



Battery Room Safety - Ventilation

Affected: All Forklift Battery Rooms and Charging Areas

Tech Tip
TT-979

Subject:

Federal safety regulations require employers to monitor and ventilate hydrogen in battery charging areas. OSHA, IFC, NFPA, and IEEE all mandate or recommend these essential safety precautions. Protect your staff and your warehouse with state-of-the-art hydrogen monitoring and ventilating equipment from BHS.

Description:

The Occupational Health and Safety Administration states:

"Ventilation shall be provided to ensure diffusion of the gases from the battery and to prevent the accumulation of an explosive mixture."
OSHA 29 CFR 1926.441(a)(2)

The National Fire Protection Association states:

For flooded lead-acid, flooded nickel-cadmium, and VRLA batteries, ventilation shall be provided for rooms and cabinets in accordance with the mechanical code and one of the following:

(1) The ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room during the worst-case event of simultaneous "boost" charging of all the batteries, in accordance with nationally recognized standards.

(2) Continuous ventilation shall be provided at a rate of not less than 1 ft³/min/ft² (5.1 L/sec/m²) of floor area of the room or cabinet.

NFPA 1 Chapter 52.3.6

Recommendation:

Ensure compliance with regulations, improve safety, and notify personnel of hidden dangers with the BHS Hydrogen Exhaust Fan Kit (HEF-1). The BHS HEF-KIT monitors hydrogen gas levels, activating alarms and ventilation fans when necessary to exhaust gases. The HEF-KIT is intended for use in battery charging rooms and other areas where hydrogen gas may be present.

The HEF-KIT consists of a dual-relay Hydrogen Gas Detector (HGD-DR) and a Hydrogen Exhaust Fan (HEF-1). The Hydrogen Gas Detector monitors hydrogen gas and warns staff before gas accumulates to dangerous levels.

Should the concentration of hydrogen gas in the air surrounding the sensor reach 1 percent by volume, the yellow Warning LED will light and the 1-percent internal relay will close, activating the Hydrogen Exhaust Fan for forced ventilation. If the concentration reaches 2 percent by volume, the red Danger LED will flash, an 80-decibel alarm will sound, and the 2-percent internal relay will close. The relays will remain closed, and the LEDs lit, with the exhaust fan and alarm activated until the hydrogen concentration drops below the corresponding percentages.

Repair:

Use our [Hydrogen Gas Ventilation Calculator](#) to calculate the ventilation and exhaust fan requirements for your application. Additional information on the Hydrogen Exhaust Fan Kit as well as other safety equipment which may be required for your application can also be found at [our website](#) or contact BHS or your local BHS Dealer for more information.



For more information call: 1.800.BHS.9500
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