Lead–Acid Battery

PM Laser has eliminated quarterly inspection of the Silo room - an unsafe area to enter and work.

Overview

A global lead-acid battery manufacturer required a reliable method to monitor airborne lead particulate within a fully sealed, uninhabitable silo room. Lead oxide is produced on-site and stored indoors prior to use in battery plate production.

Because of the hazards associated with lead dust, continuous containment verification is critical for employee safety, environmental responsibility, and regulatory compliance. The manufacturer sought a solution that could provide immediate indication of particulate release without requiring routine personnel entry into a high-risk area.

Application

The silo room houses multiple lead oxide storage silos supplied by several oxide mills. Each silo is equipped with a bin vent dust collection system to capture airborne particulate during material transfer.

The room itself is completely sealed and classified as uninhabitable under normal operating conditions. Any entry requires extensive OSHA-mandated procedures, including specialized training, full-atmosphere respirators, protective clothing, shields, and barriers stored in a designated sanitary area.

Potential particulate releases could occur due to:

- Fugitive dust during oxide transfer
- Dust collector malfunctions or broken filter bags
- Process upsets within the conveying system

Historically, the facility relied on scheduled physical inspections to verify system integrity—an approach that increased risk exposure and operational burden.

Solution

To improve safety and reduce risk, the manufacturer installed an Auburn PM Laser LP particulate monitoring system across the silo room.

The PM Laser provides continuous, non-contact monitoring of airborne particulate levels. If lead particles escape due to process upsets or dust collection failures, the system alarms immediately prompting response only when necessary.

Over three years of operation, the PM Laser has alarmed just twice, accurately identifying conditions requiring maintenance. As a result, the facility eliminated routine quarterly inspections, significantly reducing employee exposure to hazardous conditions.

Installed Technology

PM Laser provides continuous, non-contact particulate measurement using advanced laser transmission and forward-scattering technology. Designed for harsh industrial environments, it delivers real-time dust concentration data with high sensitivity and low maintenance, helping operators improve safety, reduce risk, and maintain control of critical processes.

- Continuous, non-contact particulate detection
- Designed for large, sealed, or restricted-access areas
- Immediate alarming for fugitive emissions or system failures
- Reduces the need for manual inspections
- Supports safer, more sustainable operations

Tight door sealing is critical to containing airborne lead dust and protecting personnel from exposure.

Sustainability & Safety Impact

By replacing manual inspections with continuous monitoring, the PM Laser supports the manufacturer's broader sustainability goals by:

- Minimizing employee exposure to hazardous lead particulate
- Reducing unnecessary use of protective equipment and entry procedures
- Providing early detection of emissions before environmental impact occurs
- Supporting safer, more efficient, and responsible production practices

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