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Industrial gas manufacturer fined over \$200,000 after worker suffers life-altering injuries in explosion

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Global manufacturer of industrial gas Air Liquide Advanced Materials Inc. could have prevented a May 2023 explosion in the US that severely injured several employees by following required operating procedures in the manufacturing process, a Department of Labor investigation has found.

After the explosion at the Air Liquide Advanced Materials facility in High Springs, Florida, investigators with the Occupational Safety and Health Administration initiated an inspection at the site where diborane – a toxic, colourless and pyrophoric gas – is produced, distilled, mixed and transferred.

OSHA determined the explosion occurred as a 25-year-old product technician used a heat gun to transfer gas from an aluminium source cylinder to a steel cylinder. The blast propelled the worker through the building's wall, causing severe injuries. They were flown to UF Shands Hospital's trauma centre and treated for brain injuries, third-degree burns and a leg amputation.



Representative image: Air Liquide

Four other workers suffered various injuries and were treated at the hospital. In addition, first responders aiding in the employees' rescue suffered chemical burns to their hands and necks and were taken to the UF Shands Hospital Burn Center.

After its investigation, OSHA cited Air Liquide Advanced Materials for wilfully exposing workers to fire and explosion hazards by requiring them to use equipment not intrinsically safe in the presence of flammable chemicals and vapours. The agency also cited the employer for 12 serious violations for the following failures:

- Not containing safe upper and lower limits for temperatures, pressures and flows, and thermal and chemical stability data on the process safety information documents.
- Failing to conduct a process hazard analysis to adequately address hazards related to impure or contaminated materials produced in mixing and reaction processes.
- Not retaining and addressing hazard analysis recommendations promptly and tracking resolutions.
- Failing to address requirements for the operating limits specified for cylinder temperatures in written operating procedures.
- Not removing equipment in hazardous locations with ignitable or combustible properties of specific gases, vapours, dust or fibres present.
- Not classifying buildings as process safety management sites properly and documenting that equipment complied with recognized good engineering practices.

[OSHA proposed \\$201,573 \(£159,305\) in penalties \(https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/2023/11/OSHA20232399.pdf\)](https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/2023/11/OSHA20232399.pdf) to address the safety violations found in the investigation.

"By putting production ahead of safety, Air Liquide Advanced Materials altered a young worker's life permanently. Our investigation found the company worked to increase productivity at its High Springs facility but failed to employ safety measures required for the production of a toxic chemical, diborane," said OSHA Area Office Director Scott Tisdale in Jacksonville, Florida. "No employee should ever risk their life or well-being needlessly to earn a living. This preventable tragedy must serve as a reminder of the importance of complying with safety and health standards, as required by law."

Founded in 1902, Air Liquide Advanced Materials manufactures gases, technologies and services for industry and health. The company operates in 75 countries with more than 66,000 employees and 3.8 million customers and patients.

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