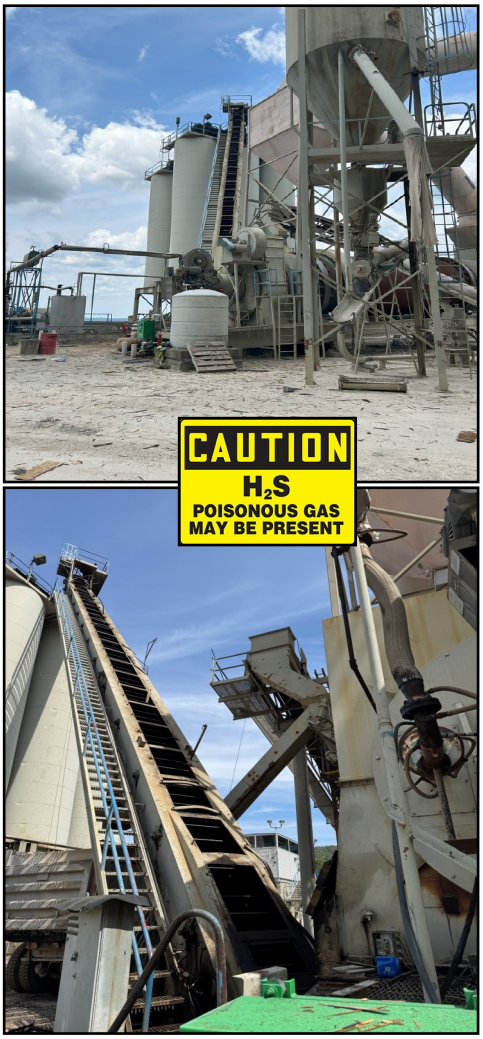
USW HEALTH & SAFETY

HAZARD ALERT

Asphalt Plant Conveyor Explosion Results in Burn Injuries



A USW member was seriously injured in an explosion at an asphalt plant and was transported by emergency helicopter to a hospital for treatment of burns. The plant had just finished producing asphalt for the day and the crew was doing some light clean-up work. As a standard practice, diesel fuel was applied by a clean-out system to the drag slat conveyor system to assist with cleaning. While cleaning out silica sand dust residue from the dryer chute and the drag slat conveyor using a long-handled metal floor scraper, a large explosion occurred. When the drag slat conveyor system exploded, the explosion traveled the entire length of the conveyor up to the silos. The force of the blast blew off the 3/4-inch marine plywood covers, heavy duty metal straps and fasteners, which scattered across the plant yard damaging nearby equipment, and narrowly missing other employees.

The suspected cause of the explosion was an unknown ignition source and a flammable atmosphere created by vaporized diesel and/or hydrogen sulfide (H_2S) gas. H_2S is a colorless gas with a pronounced odor (rotten eggs) that is flammable and heavier than air. H_2S is found in petroleum, including asphalt, and natural gas. The health hazards for asphalt products include, but are not limited to, the potential to release H_2S gas and can be further produced during the heating of materials. The drag slat conveyor system was manufactured by Gencor Industries, Inc. USW has found these types of explosions have occurred elsewhere resulting in injuries and OSHA inspections.

Recommendations:

- Where possible, eliminate flammable/combustible atmospheres by applying the hierarchy of controls and utilizing a manufacturer's manual on proper cleaning procedures, and fluids to be used as a release agent to clean drag slat conveyors.
- Properly monitor/test and ventilate areas where hazardous atmospheres are present or could be present (including breaking into the process), and provide fire suppression systems.
- Install/maintain air monitoring equipment for flammable/combustible atmospheres, including possible hydrogen sulfide (H_2S) gas, equipped with alarms that can be heard above the ambient noise. Calibrated personal air monitoring devices must be provided per a risk assessment.
- Where H_2S gas and other flammable/combustible atmospheres may be present due to cleaning fluids, and they cannot be eliminated, use non-sparking tools.
- Ensure emergency shutdown equipment is inspected and maintained with dated records, as well as operated in accordance with a manufacturer's recommendations.
- Ensure all workers are trained and familiar with asphalt Safety Data Sheets and a manufacturer's operating/safety manuals.
- Conduct a hazard assessment to determine if hazards are present, or are likely to be present, which necessitates the use of Personal Protective Equipment (PPE). Where such hazards are present, or likely to be present, select and have workers use the types of PPE that will protect them from the hazards identified. Communicate the selected PPE to workers, and provide at no cost, properly fitting PPE.

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This hazard alert is based on an actual incident, and reflects our best understanding of the incident at the time it was written. However, many incidents have multiple causes; this alert may not cover all of them. The purpose of the alert is to illustrate workplace hazards; it is not intended to be a comprehensive report on the incident.

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