

Engulfment in a Sugar Hopper

U.S. Department of Labor

Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)

INCIDENT SUMMARY

Incident type: Engulfment of a temporary worker in a sugar hopper
 Weather conditions/Time of day: Indoors/approx. 1:30 p.m.
 Type of operation: Marine cargo warehousing and bagging
 Size of work crew: 10
 Worksite inspection conducted: Yes
 Competent safety monitoring on site: No
 Safety and health program in effect: No
 Training and education for workers: None
 Occupation of deceased worker: Laborer
 Age/Sex of deceased worker: 49/M
 Time on job: Approximately 9 months
 Time at task: 2-3 times/shift
 Employment classification (FT/PT/Temporary): Temporary
 Language spoken: Spanish
 Union/Non-Union: Non-Union

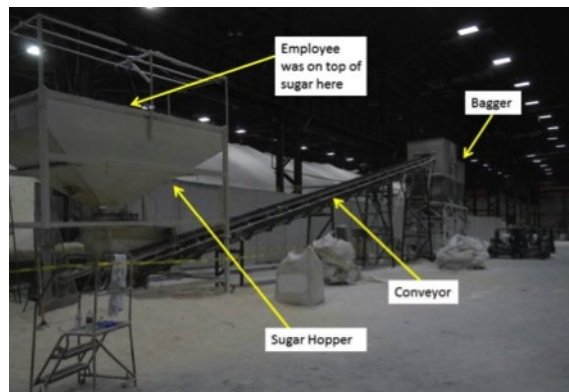


Figure 1: Hopper-conveyor-bagger system

BRIEF DESCRIPTION OF INCIDENT

A temporary worker was fatally injured after falling through a sugar hopper and becoming engulfed by sugar. The fatality occurred in a marine cargo warehouse operation, where bulk granulated sugar from ships is transported to the warehouse for storage, bagging, and distribution. Sugar clumps often prevented the sugar from flowing freely through a hopper onto a conveyor belt during bagging. Two or three times per shift, workers would manually break up the clumps. This fatal incident occurred when the temporary worker was breaking up sugar clumps with a pole/shovel while standing on a hardened sugar bridge at the top of the hopper (Figure 1). The sugar bridge collapsed. As the worker fell to the bottom of the hopper, his legs went through the chute where he was engulfed by sugar and suffocated.

Likely Causes of Incident

The host employer did not provide workers with a safe and healthful work environment:

- There was a corporate safety program but it was not implemented at this work site.
- There were no site-specific safe work procedures for breaking up sugar clumps.
- The hopper and chute openings were not guarded to protect workers from falling into the hopper and being engulfed by sugar.
- There was no safe method or walkway to reach the top of the hopper and there was no safe work platform at the top. Workers had to reach a height of more than 13 feet to break up the sugar clumps.
- The workers (mostly temporary) did not receive appropriate safety and health training.
- The supervisor, who was also a temporary worker, did not receive training in assessing potential workplace hazards and instructing other workers on how to avoid unsafe conditions.

You Have a Voice in the Workplace

The *Occupational Safety and Health Act of 1970* affords workers the right to a safe workplace (see OSHA's **Worker Rights** page, www.osha.gov/workers). Workers also have the right to file a complaint with OSHA if they believe that there are either violations of OSHA standards or serious workplace hazards.

How OSHA Can Help

For questions or to get information or advice, to report an emergency, report a fatality or catastrophe, or to file a confidential complaint, contact your nearest OSHA office, visit www.osha.gov or call our toll-free number at 1-800-321-OSHA (6742), TTY 1-877-889-5627. It's confidential.

More Information

OSHA standards and regulations: www.osha.gov/law-regs.html

OSHA publications: www.osha.gov/publications

OSHA-approved state plans: www.osha.gov/dcsp/osp

OSHA's free On-site Consultation services: www.osha.gov/consultation

Training resources: www.osha.gov/dte

Help for Employers: www.osha.gov/employers



The host employer received several citations for violating OSHA standards in this incident, including: [29 CFR 1917.27\(b\)\(1\)](#) and [29 CFR 1917.49\(c\) & \(d\)](#).

INCIDENT PREVENTION

After this incident, the host employer put into effect engineering and administrative controls for breaking up sugar clumps safely. The hopper was redesigned with a permanently affixed (welded) top screen. Workers were trained to break up sugar clumps by scraping the sugar across the screen using a material handling bucket while safely on the ground. A structure for attaching a horizontal lifeline was installed at the top of the hopper for the limited work activities requiring access. Safe work procedures for using the redesigned equipment were developed and incorporated into the workplace practices.

To prevent similar incidents, temporary staffing agencies and host employers have a responsibility to properly train all employees and ensure that appropriate safety measures are present in workplaces before work begins, for example:

1. Establish a clear understanding of the staffing agency and host employer's respective roles in protecting workers. OSHA recommends that temporary staffing agencies and host employers specify in their contract their respective responsibilities for compliance with applicable OSHA standards (see [OSHA's Protecting Temporary Workers Page](#)).
 2. Staffing agencies should maintain frequent communication with their workers and host employers.
 3. Whenever feasible, before assigning work, staffing agencies should determine potential hazards at host employers' workplaces, and ensure that the host employer would provide appropriate training and protective measures to temporary workers.
 4. The host employer and staffing agency should each consider the hazards they are in a best position to prevent and work cooperatively to comply with OSHA standards.
5. To protect workers from the hazards described in this incident, employers should:
 - a. Implement an effective safety and health program specific to the workplace. See [OSHA's Injury and Illness Prevention Programs Safety and Health Topics Page](#) for details.
 - b. Develop site-specific safe work procedures and provide training to workers in a language they understand.
 - c. Eliminate the need to work on top of hoppers, if possible.
 - d. Use protective measures if it is not possible to eliminate the need to work on top of a sugar hopper. For example:
 - i. Guard hopper and chute openings to prevent workers from falling or reaching into hoppers or chutes (e.g., install covers, [29 CFR 1917.49\(c\)](#)).
 - ii. Equip hoppers with a safe walkway and means of access when workers are required to work on top (e.g., a fixed ladder to a work platform with guardrails, [29 CFR 1917.49\(d\)](#)).
 - iii. Protect workers from falling from the top of a hopper if work activities require access to the top by installing guardrails, providing fall protection equipment or using other appropriate equipment. When selecting a ladder, scissor lift, or similar type of equipment consider if it is suitable for the job, can be properly positioned, and safely used.
 - e. Provide all required training to workers, including temporary workers, in a language they understand. Include training on how to recognize and report unsafe conditions, necessary protective measures, how to properly use appropriate personal protective equipment, and how to safely complete assigned tasks.
 - f. Provide training to all supervisors, including temporary workers hired as supervisors, on how to prevent incidents ([29 CFR 1917.27\(b\)\(1\)](#)).

Note: The described case was selected as being representative of improper work practices which likely contributed to a fatality from an incident. The incident prevention recommendations do not necessarily reflect the outcome of any legal aspects of this case. OSHA encourages your company or organization to duplicate and share this information.

This Fatal Facts is not an OSHA standard or regulation and it creates no new legal obligations. The recommendations contained herein are advisory in nature and are intended to assist employers in providing safe and healthful workplaces. The Occupational Safety and Health Act of 1970 (OSH Act) requires employers to comply with safety and health standards promulgated by OSHA or by an OSHA-approved state plan. The requirements of OSHA-approved state plans can be reviewed by selecting the state's website at: www.osha.gov/dcsp/osp. The OSH Act's General Duty Clause, Section 5(a)(1), requires employers to provide employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

For assistance, contact us. We can help. It's confidential.



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