

HAZARD ALERT

TRASH COMPACTOR FATALITY

A 22-year-old worker sustained a fatal head injury while checking a vertical cardboard bale compactor. The feed gate was in the open position, and the ramming plate was in the raised position. It is believed that the worker heard a noise in the machine and put his head into the opening to investigate. The hydraulic cylinder that held the ramming plate up in the air broke off at the joint, causing the plate to slide down rapidly. The young worker's head was caught in between the plate and the top of the bale chamber door, causing immediate and fatal injuries.



The unit worked in such a way that when cardboard was piled evenly in the chamber, the plate could come down and crush the cardboard without putting stress on the cylinder rod and connection pin. If, however, cardboard was not placed squarely in the middle of the chamber when the plate was lowered, it compressed the cardboard unevenly, causing stress at the joints.

It was found that the vertical cylinder rod broke due to fatigue at the joint where the rod connected to the pin. Due to repeated bending of the ram during compression of the uneven cardboard, there was excessive force on the connecting area, which led to a failure at the joint. On several previous occasions, the ram became wedged sideways when compressing uneven loads, and a metal rod was used to pry it back into place.

The bale compactor was not certified nor designed by an engineer, and had been in service for only seven months at the time of the incident.

Recommended Preventive Action

- 1. Proper design:** A bale compactor must be designed using an established standard or code such as the ANSI standard Z245.51-2004 for Equipment Technology and Operations for waste and Recyclable Materials – Baling Equipment – Safety Requirements. The ram and cylinder in all bale compactors should be inspected regularly for any signs of wear. A secondary safeguard that holds the plate in the event of a cylinder failure or hydraulic fluid leak should be standard in the manufacturing of these units.
- 2. Information:** The manufacturer must supply information regarding the proper installation, operation, and maintenance of the units.
- 3. Training:** It is essential that employees be trained in proper procedures and maintenance of these units. All users must keep all parts of their bodies out of the machine at all times, except to enter the unit to remove the bale. When it is necessary to remove the baled cardboard, there must be a way of blocking the plate so it cannot fall on a worker inside.