



# Learning Event



## Dropped Object

**Hazard**  
Object at Height

led to

**Unwanted Event**  
Dropped Object

### Description

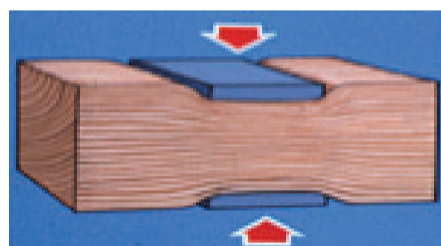
A 30 kg piping support was found in a gas plant pipe rack. It had fallen approximately 2m to the pipe rack, which is 6m above a pedestrian traffic area.

The event posed a dropped object risk to personnel walking through the area. If the piping support struck someone when it fell from the pipe rack, a serious injury may have occurred.

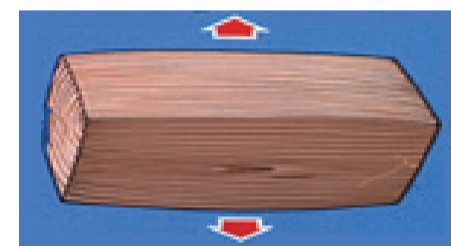
The event caused no damage to piping and, given the location of its occurrence, had no potential to cause a process safety event. If a similar event occurred in another area of the plant, a loss of containment may have resulted.



Pipe support with Permal block



Permal in compression



Permal in tension

### Risk Event Statement

Using Permal blocks in services they are not suitable for, and inspection procedures that are not adequate to identify failure modes, may lead to mechanical failures in piping supports. Such failures can cause objects to drop from height which could lead to equipment damage, loss of containment, serious injury or fatality.

### Habits

- ✗ Equipment used in unsuitable service.
- ✗ Inadequate inspection procedures.

### Learnings

The condition of the Permal block, which supported a load in tension, had deteriorated over time. The block failed by splitting into two pieces. It is believed that the final fracture was initiated by a single load event, possibly operational draining activities.

It is possible for deterioration of aged Permal blocks to result in failure in compression.

Designers must consider all possible service modes and operational influences when specifying what equipment to use. In this case a Permal block was used in a service that it was not suitable for.

Effective inspection and maintenance of piping supports requires specific knowledge to enable inspectors to identify application and age-related defects.

### Considerations

- > Survey and identify any piping supports with Permal blocks installed in tension. Implement a strategy to manage the immediate and longer term risk.
- > Update pipe support design documents to identify and propose strategies to mitigate the risks associated with Permal pipe support failures.

### Could this happen to you?

- > Do you have Permal blocks on your facility? Are any Permal blocks at your facility installed in tension (and possibly subject to in-service degradation modes that were not anticipated during design)?
- > Does your workplace identify specific age-related failure modes during routine inspections of your piping supports? Has your workplace adopted alternative inspection techniques that can effectively identify the same or similar issues?

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