

SAFETY ALERT



FATALITY FROM HOT WORK ON A DIESEL FUEL TANK

NOTE

This safety alert has been issued to inform the mining industry of a significant event.

EVENT

A mine employee received severe burns to a large portion of his body from an explosion while brazing a steel fuel tank.

He was taken to hospital, where he died 24 hours later.

CIRCUMSTANCES

It is understood that work was being carried out on the fabrication of a new 250 litre diesel fuel tank for a grader.

The procedure involved partially filling the tank with diesel fuel and pressurising the tank with compressed air. Diesel penetrating the welds was used to identify pin hole leaks. The practice used on the day of the incident was to de-pressurise the tank before carrying out spot brazing of the pin holes. Oxy-acetylene equipment was used for this task.

The fabrication process was near completion when another person had taken over the task of brazing but had apparently failed to de-pressurise the tank.

The escaping fuel vapours were ignited on contact with the oxy-acetylene flame causing the tank to explode.

RESPONSE

The accident is being investigated by the Investigation Unit of the Department.

MATTERS FOR CONSIDERATION

1. No welding or gas cutting should be carried out on any tank that has held combustible or flammable liquids without taking the proper precautions.

Even apparently empty fuel tanks can represent an explosive hazard.

2. Diesel fuel is classified as a dangerous good Class C1 combustible liquid with a flash point of approximately 61.5°C. Where this temperature is exceeded, the liquid will give off sufficient vapour to ignite in the presence of a flame.
3. Diesel fuel is also a hazardous substance. It is strongly recommended that a Material Safety Data Sheet be obtained from the manufacturer or supplier of the diesel fuel product to inform people of the hazards associated with this product.
4. The storage and handling of flammable and combustible liquids should comply with AS 1940-1993. Acceptable cutting/welding standards should be followed. AS1674.1 – 1997, "Safety in Welding and Allied Processes Part 1 – Fire Precautions" is such a standard. Appendix C of this standard provides specific reference material on this matter.

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5. Useful guidance on hazard identification and the safe work procedures for conducting welding on fuel or hydraulic tanks can also be sourced from service manuals of manufacturers of diesel-driven equipment.
6. This information should be used by managers to identify unsafe work procedures and take remedial action.

SIGNED OFF

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