



Dangerous Goods Safety Significant Incident Report No. 02-16

Fire while decanting LP gas

Summary of incident

In July 2015, a fire started in the decanting area alongside a building during the filling of a 15 kg LP gas cylinder. The cylinder was being filled by decanting from a 210 kg cylinder.

Prior to filling the cylinder, the decanting operator had placed it on a plastic crate, connected the decanting nozzle to the cylinder valve, and fitted a cable tie on the decanting nozzle lever for 'hands-free' cylinder filling and moved several metres away.

When the cylinder was filled, the operator walked towards the decanting area to shut off the bleed valve of the cylinder being filled. As he reached over to shut off the valve, a fire started. The operator was not wearing personal protective equipment (PPE; e.g. gloves) at the time and received minor burns to his hands and face.

The fire escalated and the operator left the area. Eventually, the decanting cylinder's safety relief valve activated, resulting in a vertical flame about 8 metres high. The fire continued burning until there was no gas left. The building was partly damaged, as was the warehouse on site.

Earlier, the operator had successfully filled a number of 9 kg gas cylinders and another 15 kg cylinder prior to the fire. He was wearing gloves at the time.

Staff at the site and adjoining businesses were evacuated while Department of Fire and Emergency Services (DFES) officers brought the incident under control.

Static electricity was later identified as the ignition source for the fire.



Left: The incident scene. Right: Re-creation of the cylinder setup used for decanting.

Direct factors

- The decanting nozzle was cable-tied in the open position.
- A plastic crate, which is non-conductive, was used as a stand.

Contributory factors

- There was a lack of appropriate staff training on the safe filling of LP gas cylinders.
- The operator was not wearing PPE.

Actions required

Appendix J of the Australian Standard AS/NZS 1596 provides guidance on the correct procedures for filling LP gas cylinders by decanting. It also recommends appropriate personal protective equipment (PPE) for LP gas storage and handling.

Training

- Site operators should ensure that people involved in cylinder filling are trained, with regular refresher training.

Note: LP gas suppliers may be contacted to provide the necessary training.

Cylinder placement

- LP gas cylinders being filled should be earthed by placing them on the ground or a conductive metal stand to minimise the risk from static electricity.

Safe practices

- An LP gas decanting nozzle incorporates a safety device (or fail-safe mechanism) that cuts off the gas flow when the operator releases pressure on the lever. The nozzle must be hand held so that, if there is an incident during decanting, the operator can simply release the lever to stop the gas flow.
- Appropriate PPE, such as safety glasses and shoes, gloves, cotton long-sleeved shirt and long pants should be worn at all times when filling LP gas cylinders.

Further information

- Standards Australia, www.standards.org.au
AS/NZS 1596 The storage and handling of LP Gas
- Gas Energy Australia, https://www.youtube.com/watch?v=dATQPGm8_jw
In 2014, the LP gas industry released an online video, *How to safely decant LPG (Liquefied Petroleum Gas)*, on the appropriate decanting procedure.
- NSW Workcover, www.workcover.nsw.gov.au/_data/assets/pdf_file/0017/19133/Decanting-of-liquefied-petroleum-gas-LPG-into-cylinders.pdf
Decanting of liquefied petroleum gas (LPG) into cylinders (September 2012)
- Queensland Department of Natural Resources and Mines, <https://www.dnrm.qld.gov.au/mining/safety-and-health/alerts-bulletins-search-tool/alerts-bulletins-search/alerts-bulletins/petroleum-gas/safe-lpg-decanting>
Petroleum and Gas Safety Alert no. 66, 2014: Safe LPG decanting procedures and static electricity

Ross Stidolph, Director Dangerous Goods and Petroleum Safety

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