

## SAFETY ALERT

# Switchloading when transferring flammable liquids

Switchloading is defined as 'when a flammable or combustible liquid is to be filled into a vehicle tank compartment which had previously contained a liquid having a lower flash point' (Australian Standard AS1940: 2004 *The storage and handling of flammable and combustible liquids*). This situation is most likely to arise, but not limited to, when a combustible liquid such as diesel is pumped into a tank that has previously contained petrol. While the tank may have been emptied of its liquid contents, it is likely to still contain flammable vapours that could ignite.

This safety alert was originally published following a 2011 coroners finding into an incident at Peak Hill in 2008 that highlighted the dangers of switchloading and static electricity. The work health and safety legislation commenced in January 2012. The alert has now been revised and re-issued to reflect the legislative changes.



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### Work health and safety requirements

The WHS Act requires persons conducting a business or undertaking (PCBUs) in particular those in control of workplaces to take all necessary steps to ensure that safe systems of work are implemented, maintained and supervised, and that persons undertaking them are provided with adequate information and training to ensure their safety.

The WHS Regulation, clause 351 provides more specific obligations to manage the risks to health and safety when handling hazardous chemicals at a workplace. Clause 355 requires steps to be taken to prevent the introduction of an ignition source, (including those caused by static electricity), into a hazardous area. If it is not reasonably practicable to eliminate the risks, they must be controlled as far as is reasonably practicable.

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The WorkCover NSW publication *The storage and handling of dangerous goods* (catalogue no. WC01354) provides PCBUs with practical advice on reducing risks associated with the discharge of static electricity.

## Risk controls

The controls identified in this safety alert are not exhaustive and a number of measures could be integrated into a system of work to ensure risks associated with the transfer of dangerous goods are effectively controlled.

The following are some of the control measures that should be considered to reduce the risks from the discharge of static electricity:

- all tanks, pipework, transfer systems (including decanting) and process plant associated with dangerous goods should be electrically bonded to each other and earthed, or otherwise protected (see AS/NZS1020 and AS4979 for advice)
- completely drain previously loaded liquid with the lower flashpoint
- 'gas free' the compartment where appropriate
- reduce loading rates to less than one m/s until the fill pipe is submerged
- use anti-static additives in non-conductive liquids
- ensure that hose and hose assemblies are appropriate for use with petroleum products (see AS2683 for advice).

## Further information

- AS1940: *2004 Storage and handling of flammable and combustible liquids*
- AS4979: *2008 Flammable and combustible liquids – Precautions against electrostatic ignition during tank vehicle loading*
- AS/NZS1020: *1995 The control of undesirable static electricity*
- AS2683: *2000 Hose and hose assemblies for distribution of petroleum and petroleum products (excepting LPG)*
- AS/NZS60079.10.1: *2009 Explosive atmospheres part 10.1: Classification of areas – explosive gas atmospheres*
- The WorkCover publication *Storage and handling of dangerous goods* (catalogue no. WC01354)
- [workcover.nsw.gov.au](http://workcover.nsw.gov.au) or call **13 10 50**.

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This publication may contain work health and safety and workers compensation information. It may include some of your obligations under the various legislations that WorkCover NSW administers. To ensure you comply with your legal obligations you must refer to the appropriate legislation.

Information on the latest laws can be checked by visiting the NSW legislation website ([www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au)).

This publication does not represent a comprehensive statement of the law as it applies to particular problems or to individuals or as a substitute for legal advice. You should seek independent legal advice if you need assistance on the application of the law to your situation.

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