



Health and Safety Bulletin No. 3

Ruptured aluminium air conditioning flushing canisters

Date: 20 September 2022

Background

From 2018 to 2021, six serious incidents relating to air conditioning flushing canisters have been reported on mine sites in Western Australia. In five of these incidents, the flushing canister had been over-pressurised and subsequently ruptured.

In all reported incidents, the involved flushing canisters were assumed to be in working order at the beginning of the task. Injuries from these events included lacerations to the lower arm and workers being hit by the canister and/or fragments.

Flushing canisters contain cleaning solvent, which is used to clean and flush residue or contaminants from the vehicle's air conditioning system. The solvent is collected via a venturi effect primarily by nitrogen gas supplied using a standard nitrogen gas cylinder.

Flushing canisters are predominantly rated to a maximum pressure of 1,034 kPa (150 psi), and nitrogen supply can be in excess of 16,300 kPa (2,360 psi).



Example of a ruptured flushing canister. Provided by NT WorkSafe.

Summary of hazard

Within the reported incidents, the primary hazard was either from the percussive shock wave causing injury to workers when the flushing canister ruptured or injury from the impact of the canister into the body. Other hazards relating to the use of flushing of air conditioning systems were also present, such as exposure to harmful chemicals and fire.

Contributory factors

- Canisters operated outside of their designed pressure rating and/or being damaged.
- No automatic pressure relief system preventing over-pressure of the flushing canister when connected to a nitrogen cylinder.
- Equipment, such as pressure gauges on gas regulators, being misread leading to over-pressurisation.
- Lack of procedures identifying or controlling all foreseeable risks involved in air conditioning flushing.
- Inadequate training in the use of flushing canisters and related equipment.

Actions required

All mines should review and risk assess their processes and procedures for the maintenance of air conditioning systems with a focus on, but not limited to:

- the use of flushing canisters with an automatic pressure relief system
- engineering solutions to eliminate the use of flushing canisters
- equipment suitability and condition
- original equipment manufacturer instructions and recommendations
- training and competency of workers.

References and further information

- Worksafe Northern Territories
Dangers of using pressurised canisters
www.worksafe.nt.gov.au/forms-and-resources/safety-alerts/dangers-of-using-pressurised-canisters
- Resources Safety & Health, Queensland
Flushing canister bursts
www.rshq.qld.gov.au/safety-notice/mines/flushing-canister-bursts

Visit www.worksafe.wa.gov.au for more information on workplace health and safety.

Department of Mines, Industry Regulation and Safety - WorkSafe

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