



FACT SHEET – IMPROVING RESOURCE RECOVERY CENTRES

Gas cylinders

Gas cylinders are cylinders or tanks that are used to store gases (typically liquid petroleum gas) as a liquid under pressure. Gas cylinders and their fittings come in a range of sizes and are generally manufactured using plate steel. Depending on the condition of the bottle, it may be suitable for reuse after degassing by either refilling the bottle or recycling it as scrap metal.

Regulatory requirements and standards (OH&S and environmental)

Various acts, regulations and guidelines apply to the storage, transfer, transport and recycling of gas cylinders at resource recovery centres/transfer stations. These include:

- › Occupational health and safety (OH&S):
 - Occupational Health and Safety Act 2004 (Victorian Government)
 - Safe manual handling techniques (Sustainability Victoria: Guide to Best Practice at Resource Recovery Centres)
 - Occupational Health and Safety Regulations 2007 (Victorian Government)
 - Code of Practice for Manual Handling 2000 (WorkSafe Victoria).
- › Environmental:
 - Environment Protection (Industrial Waste Resource) Regulations 2009 (EPA Victoria).
- › Dangerous goods storage:
 - Dangerous Goods Act 1985 (Victorian Government)
 - Code of Practice for the Storage and Handling of Dangerous Goods (Work Safe Victoria).
- › Relevant Australian standards:
 - AS 2030.1-2009 Gas cylinders – general requirements
 - AS 4332-2004 The storage and handling of gases in cylinders.

Potential hazards and OH&S requirements

Due to the flammability and pressurised nature of gas cylinders, there are numerous potential hazards and OH&S requirements to be considered when receiving and handling gas cylinders.

These include:

- › Dropped-off gas cylinders may contain gas and be flammable, with the potential for a gas explosion or for pressurised cylinders to be propelled at high speed if punctured.
- › Gas cylinders can leak and mix with other potential dangerous chemicals.
- › Gas cylinders can be heavy and awkward to lift.

When handling gas cylinders, it is important that resource recovery centre/transfer station operators:

- › treat all gas cylinders as though they are full, with no smoking or open flames allowed in their vicinity
- › ensure gas cylinders are stored separately to other hazardous chemicals (such as acids or oxidisers)
- › follow the correct safe manual handling and management procedures (refer to WorkSafe Victoria's Code of Practice for Manual Handling)
- › use equipment to aid handling (e.g. forklifts for cages of consolidated cylinders)
- › wear personal protective equipment (PPE).

Acceptance criteria

Criteria for accepting gas cylinders at resource recovery centres/transfer stations include:

- › Only domestically used cylinders (typically up to 9kg) should be accepted at resource recovery centres/transfer stations. Larger gas cylinders are typically used for commercial purposes and are managed by private waste contractors who specialise in their transportation, treatment and disposal or recycling.
- › **Gas cylinders should be free of their liquid gas content** (i.e. they should not contain significant quantities of gas).
- › Only domestic sources and quantities should be accepted (i.e. up to five per customer). Commercial sources and quantities are to be handled by private waste contractors.



Storage guidelines

The storage of gas cylinders is an important consideration for resource recovery centres/transfer stations, particularly concerning OH&S.

Best practice is to store gas cylinders in caged compounds and on sealed surfaces, in addition to minimum requirements.

The minimum requirements for storing gas cylinders include them being:

- › stored in a secure area
- › stored outside with roof covering. Indoor storage of gas cylinders should be avoided wherever possible (Refer AS 4332-2004 and AS 1596-2014)
- › stored in outdoor well ventilated areas, away from other hazardous materials and materials and equipment that may pose a risk of explosion or fire
- › stored in an adequately ventilated space (e.g. in a cage or basket arrangement)
- › stored in a suitably signed area (refer to Code of Practice for the Storage and Handling of Dangerous Goods (Work Safe Victoria), AS 1596-2014 and Sustainability Victoria's signage library)
- › accompanied by safety signs (e.g. no smoking, flammable gas)
- › collected regularly to ensure no more than 30 gas cylinders are stored at any one time.

Transport and recycling guidelines

There are numerous OH&S and environmental hazards that can arise when gas cylinders that still contain gas are processed for resource recovery. Gas cylinders can potentially explode or propel at high speed both during shredding by metals recyclers and if mishandled by workers. Before being shredded, gas cylinders need to be rendered safe through both purging and removing the primary gas cylinder valve. This is normally done by trained personnel.

Best practice and minimum standards in the transport and recycling of gas cylinders are not significantly differentiated and the following standards should be met at resource recovery centres/transfer stations:

- › Gas cylinders should only be transported in accordance with guidance given WorkSafe's Storing gas cylinders in vehicles". Namely gas cylinders should only be transported:
 - in vehicles with cargo areas open to the air, and not stored inside closed type vehicles
 - with main cylinder valves tightly closed
 - with not leakage from the main valve area (e.g. using a gas detector or soapy water test)
 - where they are secured in an upright position, to prevent them tipping or falling over
 - where they cannot be struck by other objects (e.g. loose tools)
 - where gas is never used while the cylinder is inside a vehicle
 - with at least one 10B dry-powder fire extinguisher is fitted in the driver's cabin.
- › Some gas cylinders can be reconditioned for reuse (seek advice from your collection, reuse or recycling contractor) and those which are damaged, deteriorated or unfit for reuse for other reasons can be recycled as scrap metal. The collection, reuse or recycling contractor will assess the condition of gas cylinders for either of these purposes.

- › Gas cylinders that cannot be reconditioned for reuse **must only be degassed by a suitable contractor or person trained in the safe disposal method of gas cylinders**. These must be punctured and tagged to indicate they are 'gas free' cylinders before they can be recycled into other materials.
- › Gas cylinders **must not be placed in landfill** as they may explode or leak gas.

Record keeping guidelines

Keeping records of gas cylinders received and sent for recycling at resource recovery centres/transfer stations will enable tracking of resource recovery from the site, as well as managing onsite storage.

Best practice is to gain a certificate of reuse/recycling from the processor of the gas cylinders, in addition to the minimum requirements.

Minimum requirements include:

- › recording gas cylinders at the gatehouse as they enter the site
- › doing a monthly stocktake of gas cylinders being stored on site and comparing this to the maximum allowable number of cylinders that can be stored on site
- › recording the number of gas cylinders collected from the site by the approved contractor.

Framework for continuous improvement

The priority for any decision regarding the acceptance and management of gas cylinders should be to divert these from landfill, while protecting the health and safety of all stakeholders (especially operators and customers of resource recovery centres/transfer stations) and the environment.

A continuous improvement framework for the recycling and resource recovery of gas cylinders is to:

- › communicate and engage with other local municipalities, Waste and Resource Recovery Groups and Sustainability Victoria to investigate consolidated collection/joint procurement activities
- › seek out and contract with local collection and recycling contractors who meet the relevant standards and regulations
- › improve storage areas towards storing gas cylinders outside, undercover in easily manageable cages (e.g. transported by forklifts) and accompanied by safety signage.

Resources

Worksafe Victoria

Phone (03) 9641 1444 or 1800 136 089 (toll free)
www.worksafe.vic.gov.au

Further information

For further information and resources, please contact Sustainability Victoria on 8626 8700 or visit www.sustainability.vic.gov.au