

Safety Advice No. 23

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Recovery of liquefied gases

ANZIGA

ANZIGA is the peak industry group for the manufacture and distribution of gases in Australia and New Zealand. As a leading industry association, ANZIGA promotes the highest standards of safety, quality and reliability.

ANZIGA aims to:

- consult with government authorities and organisations that make policy or prepare regulations and standards which govern the production, transportation, storage, handling and use of gases.
- collaborate with other industry and trade organisations on safety and technical matters, including public programs that relate to the gases industry.
- produce information that promotes the safe storage, handling and use of gases.

The members of ANZIGA produce and distribute gases for the health and medical industries, manufacturing, food, scientific and hospitality industries.

Notice of Safety Advice

In general a notice of Safety Advice is intended to provide information and relevant recommendations on a safety concern relating to the production, transportation, storage, handling and use of gases.

Recovering liquefied gases

This notice of Safety Advice addresses concerns relating to the recovery of liquefied gases due to the specific hazards this activity creates with potential to harm to people and plant.

Summary

Operator and public safety is the prime concern in the supply of liquefied gases to the specialised industrial sector. It must be ensured that liquefied gases are supplied by reputable gas suppliers to help ensure that all cylinders and other equipment are approved, tested and filled according to specifications. The recovery of liquefied gases is a hazardous process and may result in severe injuries and damage to equipment if not undertaken in the correct manner.

Safety Concern

Over the recent months, several accidents (resulting in injuries and plant damages) have highlighted to the Industry the hazards of attempting to recover liquefied gases, for example ammonia from refrigerant units, sulphur hexafluoride from power generators, sulphur dioxide from storage vessels.

The potential consequences of this activity are; injuries to personnel or members of the public, severe damage to plant and equipment, lost production, investigations by OHS Authorities and emergency services and quarantining of areas by emergency services.

In the provision of liquefied gases to the specialised industrial sector, operator and public safety is a paramount concern.

Some of these concerns include, but are not limited to:

- Hydraulic over-filling is a serious risk to personnel, the public and plant;
- Cylinders may rupture, leading to rapid pressure release and shrapnel type cylinder disintegration;
- Cylinders may rupture and release the gas (in many cases toxic, very cold or asphyxiating) content rapidly into the atmosphere.



Outside the reputable supplier chain, the following has been noticed:

- The recovery of liquefied gases by personnel not specialised and qualified to do so;
- The use of inappropriate equipment (not authorised and rated for the gas in question);
- The use of containers not approved for liquefied gases;
- The use of foreign cylinders (without written approval) or damaged / otherwise compromised cylinders;
- The use of out of date cylinders;
- Contaminant ingress into valve parts by fine particulate matter, fluid or other compounds;
- The lack alarm systems to warn of any gas leaks;
- The lack of emergency response capabilities on site.

Advantages of sourcing liquefied gases from a reputable supplier only

- All reputable gas suppliers will guarantee that the cylinders used are approved for the gas contained and within test date;
- All reputable gas suppliers will guarantee that the gas cylinders used are not overfilled and therefore safe to use, as per their safety data sheet (SDS), and other safety information (e.g. on the product label).
- All reputable gas suppliers offer replacement services which do not carry a risk to personnel, the public or plant.

References

- AS4484:** *Gas Cylinders for industrial, scientific, medical and refrigerant use – Labelling and colour coding.*

CONTACTS:

Australia and New Zealand Industrial Gas Association (ANZIGA)

ACN 003 067 178
PO Box 422, Flinders Lane, Victoria, 8009.
Telephone: +61 3 9611 5412
Email: office@ANZIGA.org

Member Companies

Air Liquide Australia Limited

Level 12, 600 St Kilda Road, Melbourne VIC
3004

Adelaide: (08) 8209 3600
Brisbane: (07) 3246 6363
Darwin: (08) 8947 1184
Launceston: (03) 6334 9666
Melbourne: (03) 9290 1100
Perth: (08) 9312 9111
Sydney: (02) 9892 9777

Coregas Pty Ltd

66 Loftus Road, Yennora NSW 2161
Telephone: 1800 807 203
Emergency Number: 1300 657 070

Coregas New Zealand

141 Roscommon Road
PO Box 76-351
Manukau 2241 Auckland, New Zealand

Air Liquide Healthcare

Telephone: 1300 360 202

Emergency Number: 1800 812 588

Air Liquide New Zealand Limited

19 Maurice Road, Penrose Auckland,
New Zealand Telephone: (09) 622 3888

Associate Member Supagas

5 Benson Road,
Ingleburn NSW 2565
Telephone (02) 8788 4444
Emergency 1300 275 021

BOC Limited

10 Julius Avenue, North Ryde NSW 2113
Telephone: 131 262
Facsimile: 132 427
Emergency Number: 1800 653 572

BOC Limited (New Zealand)

988 Great South Road, Penrose Auckland, New
Zealand Telephone: 0800 111 333

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