



Product Range Catalogue

ALIGAL™

2025 EDITION

 **Air Liquide**

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and quick reference

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About Air Liquide

~66,000
employees

2+
million
customers

1.8+
million
patients

80
countries

€304m
of innovation
spendings
in 2021

In 2022,
revenues were
€21bn

400+
partnerships

13,500
patents filed

354
new patent
filed in 2021





Our actions have always been driven by
STRONG ETHICAL PRINCIPLES

SAFETY

One of Air Liquide's main priorities is the safety of its employees and of its customers.

Safety is absolutely essential and is based on the conviction that all accidents can be prevented. Everyone, from the group's managing director to all employees, contractors, and our Agents is responsible for preventing accidents. Safety is a basic work requirement, and everyone must observe safety rules. This conviction, and the development of **SAFETY AWARENESS**, have reduced the number of work-related accidents considerably over the years.

Our Policy:

Safety is and will remain our first priority

Our Target:

Zero accidents

Our Objective:

Measurable and significant continuous improvement

Ensuring the safety of our customers means that our gas distribution facilities must take into account safety criteria, the specific requirements of each customer and environmental protection. We inform our customers of the risks associated with the handling and use of industrial gases and recommend precautions to prevent accidents.

ETHICS, INTEGRITY & TRANSPARENCY

Our actions have always been driven by strong ethical principles. With approximately 66,000 employees in over 80 countries, we adhere to the highest ethical standards when conducting our business activities, in particular as concerns human rights, labour rights and the environment.

Wherever we operate, our subsidiaries respect the local cultures and traditions while also transmitting the Group's values through their actions and local commitment.

In line with our Principles of Action, we are committed to complying with all laws and regulations in force, and in particular the rules of fair trade and we do not tolerate corruption in any form. Our behaviour and actions are driven by the principles of integrity and transparency.

The Group's ethics program is built to help employees develop their activities with integrity and transparency in compliance with the rules of conduct.

SUSTAINABLE DEVELOPMENT

Air Liquide publishes a detailed report and monitors its environmental footprint in its Sustainable Development Report. These indicators are audited by an independent verifier and are part of a transparency approach that is recognised by specialised bodies and non-financial rating agencies. The latter assess the company's level of responsibility and transparency in terms of sustainable development.

By talking continuously and extensively with our stakeholders and collaborating and working together with them we can contribute to a more sustainable world.

Our stakeholders are our employees, our customers, our suppliers, our shareholders and investors, governments, NGOs and other groups.

CLIMATE & AIR QUALITY

As part of the Air Liquide global approach to climate, we set the most ambitious objectives of its sector.

- **In our company**, reduce by 30% the carbon intensity of our activities by 2025 vs 2015.
- **With its customers**, the Group is also committed to a sustainable industry. Thanks to its in-depth knowledge of essential small molecules (oxygen, hydrogen, CO₂...) and customers' processes, Air Liquide is offering technologies which allow its customers to improve the energy efficiency of their industrial processes and reduce their emissions. The Group is permanently innovating to offer new low-carbon solutions.
- **For the planet**, contribute to the development of a new low carbon society. With ecosystems, via an active dialogue with key players (public policymakers, industrial partners, NGOs and other) Air Liquide is contributing to the development of a low carbon society.

Taking action for the climate:
REDUCE BY 30%
the carbon intensity of our
activities by 2025 vs 2015.

Basic Gas Cylinder Anatomy

Premium Packaged Gas Solutions

From basic needs to full process support, Air Liquide knows that reliable gas supply is crucial to its customers' operations. Our teams work with our customers to determine the most appropriate and cost-effective supply mode based on their purity, flow and safety requirements as well as the volume of gases needed for their manufacturing processes.

Our goal is to offer an industry-leading safe and efficient supply chain that meets the specific requirements of all industries.

Air Liquide designs and produces the market's safest, most ergonomic, user-friendly cylinders and valves for small, medium and mobile gas needs.

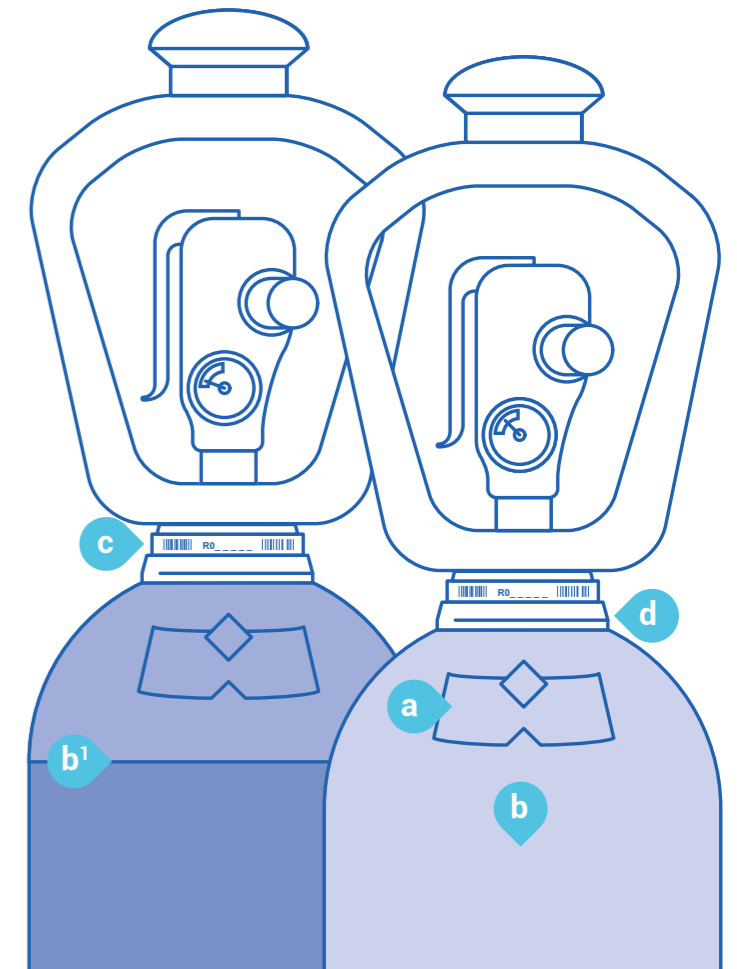
This includes:

- **SMARTOP™**, our cutting-edge, smart residual pressure valve. It features on/off lever and permanent content gauge. **SMARTOP™** is included in our **ALIGAL™** gases

CYLINDERS and their features

CYLINDER IDENTIFICATION

- a** All Air Liquide cylinders are uniquely identified and have an identification / caution label located at the neck of the cylinder. It identifies the contents, size, capacity and gas supplier ownership of the cylinder, together with the necessary safety information strictly complying with Australian Standards.
- b** The contents of a cylinder are stated on the identification label. Additionally, each cylinder is colour coded. Colour charts are available from Air Liquide on request. The predominant colour of the cylinder denotes the main gas contained within the cylinder. When other colours are painted in bands around the shoulder area **[b']**, this means other gases are present and the cylinder contents are a mix of gases.
- c** Air Liquide cylinders are uniquely and individually identifiable with a cylinder barcode located around the neck or collar of the cylinder. These barcodes are usually a 7 digit alphanumeric combination normally beginning with R0_-----
- d** In most instances the letters "ALA" or "LAA" are stamped into the cylinder, usually around the neck area. Some of the earlier versions of our cylinders may have the letters "CARBA", "AIR LIQUIDE" or "LIQUID AIR" on the cylinder. In all cases the cylinder remains the property of Air Liquide Australia. Only Air Liquide cylinders can be accepted for exchange.



Example of Air Liquide cylinder identification

The diagram shows a detailed view of an identification label. Callouts 1-9 point to various parts of the label: 1 (Gas contained in cylinder), 2 (Proper shipping name), 3 (United Nations (UN) number), 4 (Cylinder contents at standard temperature and pressure), 5 (Cylinder owner), 6 (Class diamond), 7 (Cylinder size), 8 (Danger - main hazards), 9 (Safety information).

1 Gas contained in cylinder
2 Proper shipping name
3 United Nations (UN) number relating to safe handling, transport and storage of dangerous goods
4 Cylinder contents at standard temperature and pressure
5 Cylinder owner
6 Class diamond
7 Cylinder size
8 Danger - main hazards
9 Safety information

Example of Air Liquide cylinder identification label

TYPES OF VALVES

to make life easier



SMARTOP™

Air Liquide's exclusive **SMARTOP™** valve for speciality lab gases and industrial gases in compressed gas cylinders saves time and gas while improving workplace safety.

SMARTOP™ is available with **ALPHAGAZ™** brand specialty pure gases and **ARCAL™**, **LASAL™**, and **ALIGAL™** brand industrial gases. It works perfectly with all single and two-stage gas pressure regulators from Air Liquide.

- 1 Shock-absorbing cap
- 2 On/off lever
- 3 RPV/NRV function
- 4 Permanent content gauge

Valve Type	Valve Details and Description	Thread (mm)		Gases								
		Inside Diameter	Outside Diameter	Acetylene	Air	Argon	Carbon Dioxide	Hydrogen	Helium	Nitrogen	Oxygen	Others
Type 10	5/8" BSP RH Internal, 14 T.P.I. Internal angled sealing face	21.0	-			●			●		●	○
Type 20	5/8" BSP LH Internal, 14 T.P.I. Internal angled sealing face	21.0	-	●				●				○
Type 30	0.860" WHIT RH, 14 T.P.I. Flat end sealing face	-	21.8				●					○
Type 50	W24x2 RH External, 14 T.P.I. Internal angled sealing face 1st centre hole 13.3mm x 8.1mm deep	-	24.0							●		○
Type 51	1.045" NGO RH External, 14 T.P.I. Internal angled sealing face	24.6	-			◆			◆	◆		○
Type 60	W27x2 RH External, 14 T.P.I. Internal angled sealing face 1st centre hole 18.2mm x 8.1mm deep	-	27.0		●							

○ OTHERS include but not limited to: Carbon Monoxide, Ethane, Ethylene, Krypton, Neon, Nitrous oxide, Xenon

● Gases ◆ Up to 31,500 kPa



GAS IDENTIFICATION

and safety recommendations

FLAMMABLE GAS	NON-FLAMMABLE, NON-TOXIC GAS	OXIDISING GAS	TOXIC GAS
DIVISION			
2.1	2.2	2.2 / 5.1	2.3
AUSTRALIAN STANDARD DEFINITION			
A gas which will burn in air at a pressure of 101.3 KPa absolute.	A gas which is non-flammable, non-toxic, non oxidising, and is resistant to chemical action under normally encountered conditions	A gas which gives up oxygen readily, removes hydrogen from a compound, or readily accepts electrons.	A gas that is known to be: a toxic or corrosive to humans as to pose a hazard to health; or b presumed to be toxic or corrosive to humans because it has an LC 50 value equal to or less than 5000ml/m ³ (ppm)
AIR LIQUIDE BRANDS			
• FLAMAL™ - Acetylene	• ALIGAL™ Range (excluding ALIGAL 3) • ARCAL™ Range	• FLAMAL™ - Oxygen • ALIGAL™ 3	
COMMON GASES			
• Acetylene • LPG	• Argon and Argon Mixtures • Nitrogen • Carbon Dioxide • Helium	• Oxygen • Nitrous Oxide • Air	• Sulphur Dioxide
RISKS			
• Highly flammable • Can become dangerously explosive	• May cause suffocation.	• May be toxic or corrosive • Can result in spontaneous combustion • Faster burning rates and severe injury	• Toxicity

Colour Coding for Gas Cylinder Identification

	Argon	Acetylene	Carbon Dioxide	Helium	Hydrogen	LPG	Nitrogen	Nitrous Oxide	Oxygen	Sulphur Dioxide
Australian Standard AS2700	T53 Peacock Blue	R55 Claret	N32 Green Grey	X54 Brown	R13 Signal Red	N24 Silver Grey	N63 Pewter	B21 Ultramarine	N61 Black	Y14 Golden Yellow
Sample										
RGB	R 36 G 87 B 99	R 102 G 41 B 45	R 142 G 146 B 129	R 103 G 69 B 44	R 185 G 48 B 43	R 189 G 199 B 198	R 89 G 96 B 101	R 44 G 80 B 151	R 42 G 42 B 43	R 245 G 166 B 0
CMYK	C 64 Y 00 M 12 K 61	C 00 Y 56 M 60 K 60	C 03 Y 12 M 00 K 43	C 00 Y 57 M 33 K 60	C 00 Y 77 M 74 K 27	C 05 Y 01 M 00 K 22	C 12 Y 00 M 05 K 60	C 71 Y 00 M 47 K 41	C 02 Y 00 M 02 K 83	C 00 Y 100 M 32 K 04
HEX	#245763	#66292D	#8E9281	#67452C	#BA302B	#BDC7C6	#596065	#2C5097	#2A2A2B	#F5A600
PMS	7477 C	19-1535 TCX	177-5 C	7582 CP	180 C	14-4504 TCX	10391 C	7686 C	19-4004 TCX	103 C

BODY COLOUR denotes balance gas or major component
 BAND COLOUR/S denotes minor components or mixture characteristics

CYLINDER

dimensions and sizes

	GX	G	F	E	Ez	Ex	Dx	D	CL	
			Steel	Alum.					Steel	Alum.
WATER CAPACITY (LITRES)	50	49	35	34	25	20	20	11	10	10
TARE WEIGHT (KILOGRAMS)	50	57	45	24	23	34	24	13	15	10
HEIGHT (METERS)	1.45	1.44	1.35	1.25	0.98	0.83	0.79	0.58	0.65	0.65
DIAMETER (CENTIMETERS)	22.9	23.0	20.3	21.5	21.8	20.4	20.4	17.6	16.5	17.5
AVAILABLE IN 300 BAR	x	x	x	x	x	✓	x	x	x	x

	HIGH PRESSURE MAXI 16	HIGH PRESSURE MAXI 8
	MAXI	MAXI
WATER CAPACITY (LITRES)	800	784
TARE WEIGHT (KILOGRAMS)	1,600	900
HEIGHT (METERS)	2.0	1.8
FOOTPRINT (METERS)	1 x 1	1 x 0.5
AVAILABLE IN 300 BAR	✓	x

Food Applications

Premium Gas Solutions to preserve Food Quality

Air Liquide draws on more than 100 years of its experience in the food industry to develop specialised gases, equipment, and services for a range of modified atmosphere packaging (MAP), wine making, and beverage processing applications.

We supply pure gases such as argon, oxygen, nitrogen, and carbon dioxide as well as mixtures in compressed gas cylinders or in bulk liquid cryogenic tanks, depending on the volume needed. Our **ALIGAL™** branded gases, equipment, and services have been developed by our network of experts to meet the diverse needs of the food production industry.

* Note - not all gases and sizes are available in every state. Please contact your local sales representative.

ALIGAL™ products are specially formulated for Modified Atmosphere Packaging by leveraging the properties of each gas molecule.

Application	ALIGAL™ 1	ALIGAL™ 2	ALIGAL™ 3	ALIGAL™ 6	ALIGAL™ 13	ALIGAL™ 14	ALIGAL™ 15	ALIGAL™ 28	Solutions
Bakery Products	●	●			●	●	●		Nitrogen <ul style="list-style-type: none"> Prevents oxidation Limits the growth of aerobic bacteria Protects against package collapse Carbon Dioxide <ul style="list-style-type: none"> Limits the growth of bacteria Slows down the development of mould Contributes to package collapse Oxygen <ul style="list-style-type: none"> Maintains the bright colour of red meat Prevents anaerobic conditions Essential for respiration of fresh fruits and vegetables Argon <ul style="list-style-type: none"> Similar benefits to nitrogen Inhibiting effect on the respiration of fresh fruits and vegetables
Cheese	●	●			●	●			
Dry Food (coffee, snacks)	●				●	●			
Fish, Seafood & Surimi-Processed							●		
Fish-Dried / Smoked	●				●	●			
Fresh Mussels and Oysters			○					●	
Meat Cuts-Raw			○					●	
Meat and Poultry Processed					●	●	●		
Poultry Parts-Raw		●					●		
Prepared Meals and Pasta					●	●	●		
Milk Powder	●				●	●			
Sandwiches		●			●	●			
Vegetables and Fruits (incl. salads)	●			●					
Vegetables Fresh-cut					●	●	●		

○ ALIGAL™ 3 is available for on-site mixing of ALIGAL™ 28

	Composition (%)				Modified Atmosphere Packaging	Cryogenics	Other Food Processing Applications	Carbonation	Beverage Processing	Winemaking
	N ₂	CO ₂	O ₂	Ar						
ALIGAL™ 1	100				●	●	●		●	●
ALIGAL™ 2		100			●	●	●	●	●	●
ALIGAL™ 3			100		○				●	●
ALIGAL™ 6				100	●					●
ALIGAL™ 13	70	30			●					●
ALIGAL™ 15	50	50			●					●
ALIGAL™ 28		20	80		●					

○ = Aligal 3 is available for the on-site mixing of Aligal 28

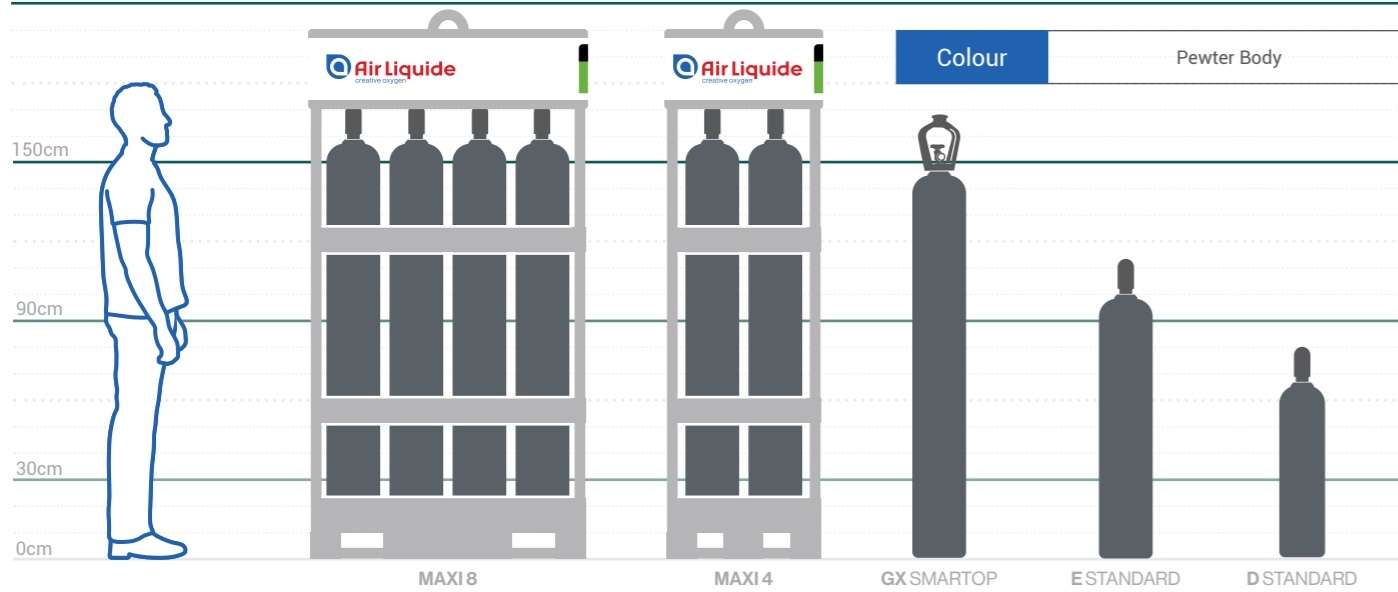
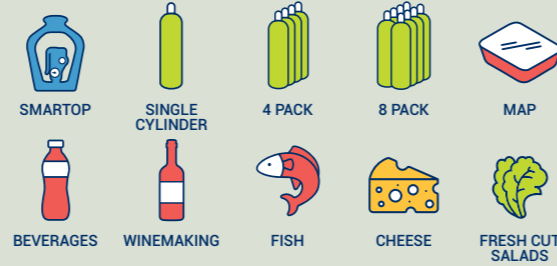
ALIGAL™ 1

FOOD & BEVERAGE | NITROGEN > 99.995%

The premier gas for quality in the food market

Applications

- MAP
- Foaming
- Beverages
- Bakery products
- Cheese
- Dried/smoked fish
- Processed meat/poultry
- Milk powder
- Sandwiches
- Fresh cut vegies & salads
- Cocktail dispensing



PRODUCT CODE:	099718, 099722	099716	099800, 099605	099601, 099607	099700, 099701
Cylinder Size Offering	MAXI 8, Pack 8	MAXI 4	GX, GM	E, EM	D
Top Type Offering	Standard	Standard	SMARTOP, Standard	Standard	Standard
Volume (m³)	100, 70.6	50.0	8.2 - 9.2	3.4 - 4.1	1.4 - 2.3
Weight (kg)	812	406	75	34	17 - 18
Pressure (bar)	291	291	201	176 - 201	155 - 167
Water Capacity (L)	400	200	50	20 - 25	10 - 15
Impurities (ppm)	H ₂ O ≤ 10 ppm O ₂ ≤ 10 ppm				

Appearance	Odour	Flammability
Colourless	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1066	2.2	2T	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

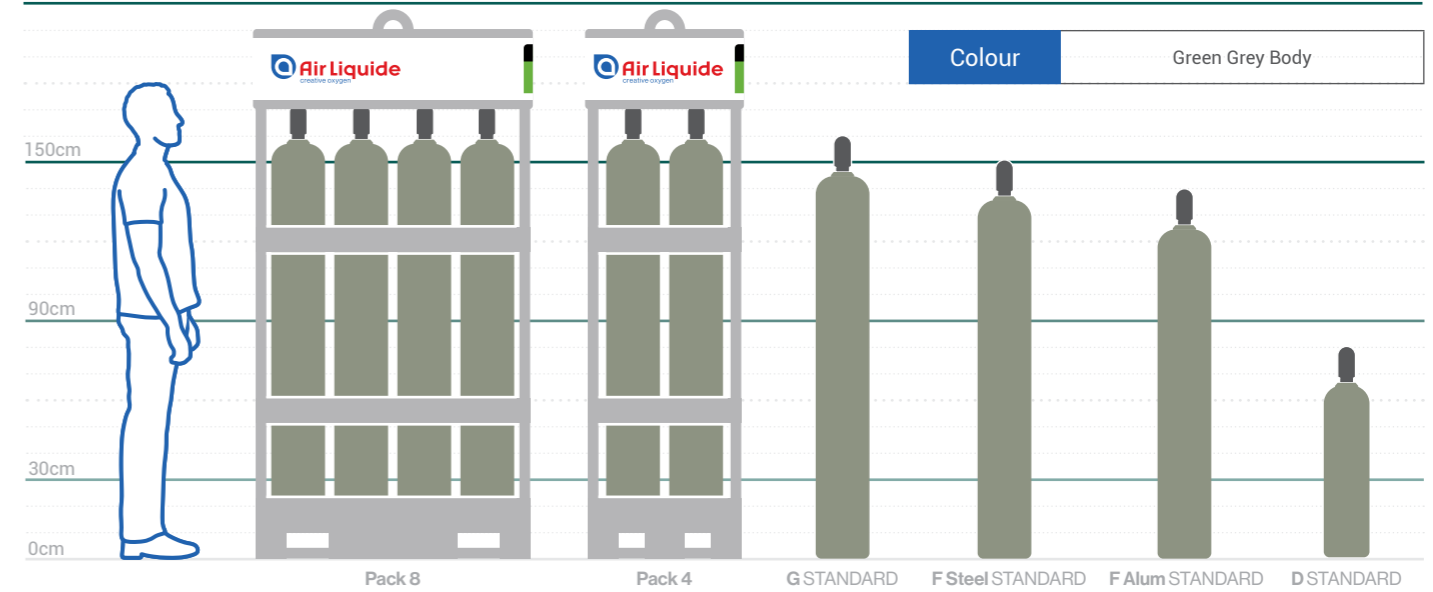
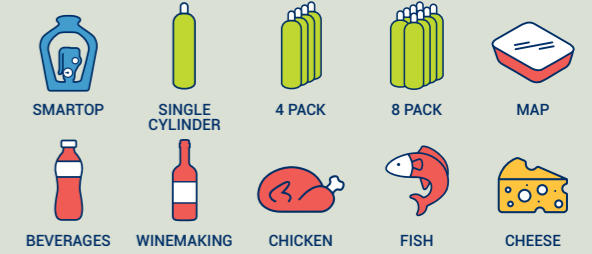
ALIGAL™ 2

FOOD & BEVERAGE | CARBON DIOXIDE ≥ 99.9%

The premier gas for quality used in food processing

Applications

- MAP
- Beverages
- Carbonation
- Post mix
- Bakery products
- Cheese
- Raw poultry
- Sandwiches
- Winemaking



PRODUCT CODES:	099805	099803	099802, 099920	099930, 099902	099903	099783, 099723, 099728	099703
Cylinder Size Offering	Pack 8	Pack 4	G	F	F Aluminum	E, D	DL
Top Type Offering	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Volume	248kg	124kg	31kg, 16.5m³	12m³, 22kg	12m³	10kg, 5m³, 6kg	5m³
Weight (kg)	904	452	83-85	62	50	33	33
Pressure (bar)	50	50	50	50	50	50	50
Water Capacity (L)	392	196	49	35	35	15	15
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 30 ppm CO ≤ 10 ppm NO _x ≤ 10 ppm C _m H _n ≤ 30 ppm						

Appearance	Odour	Flammability
Colourless Gas	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1013	2.2	2TE	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

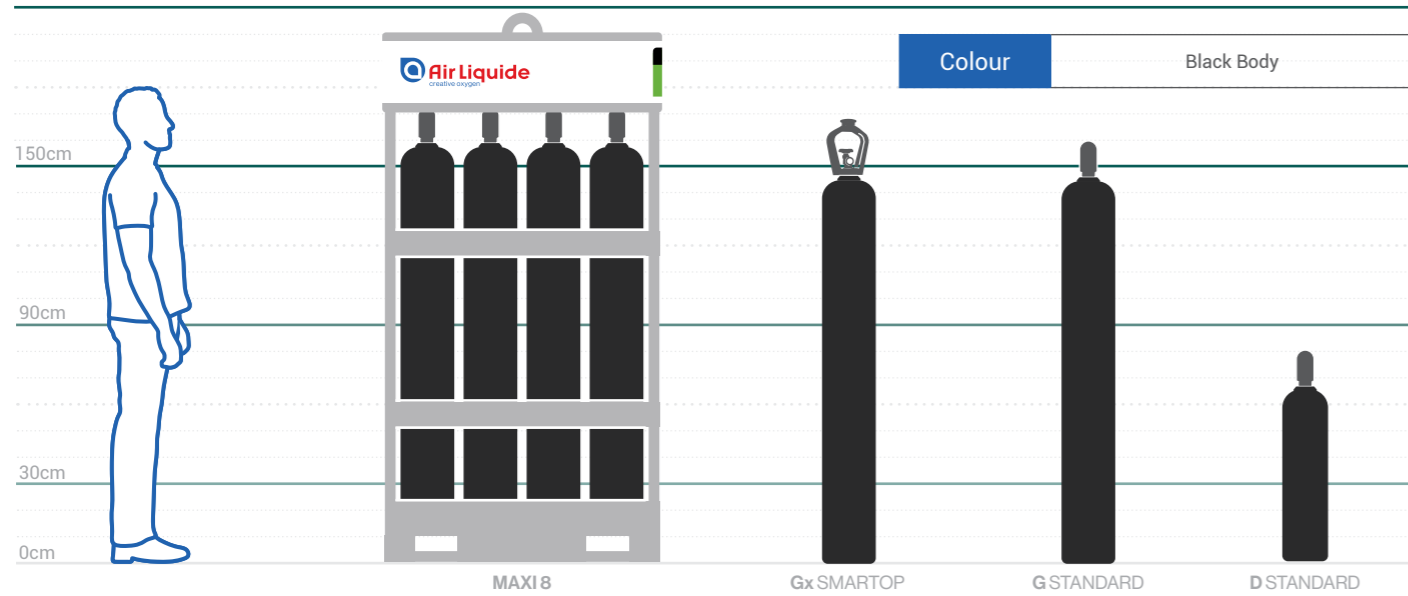
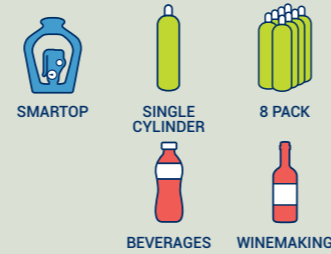
ALIGAL™ 3

FOOD & BEVERAGE | OXYGEN ≥ 99.5%

The premier gas for quality used in food processing

Applications

- Beverages
- Winemaking



PRODUCT CODE:	099949, 099938	099933, 099936, 099956 (WA)	099957
Cylinder Size Offering	MAXI 8, Pack 8	Gx, G	D
Top Type Offering	Standard	SMARTOP, Standard	Standard
Volume (m³)	82, 68	8.3 - 10.3	1.7
Weight (kg)	860	55 - 65	
Pressure (bar)	201	167 - 201	
Water Capacity (L)	404	49 - 50	
Impurities (ppm)	H ₂ O ≤ 50 ppm CO ₂ ≤ 300 ppm CO ≤ 10 ppm C _m H _n ≤ 100 ppm NO/NO ₂ ≤ 10 ppm		

Appearance	Odour	Flammability
Colourless	No Odour Warning Properties	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1072	2.2 (5.1)	2S	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

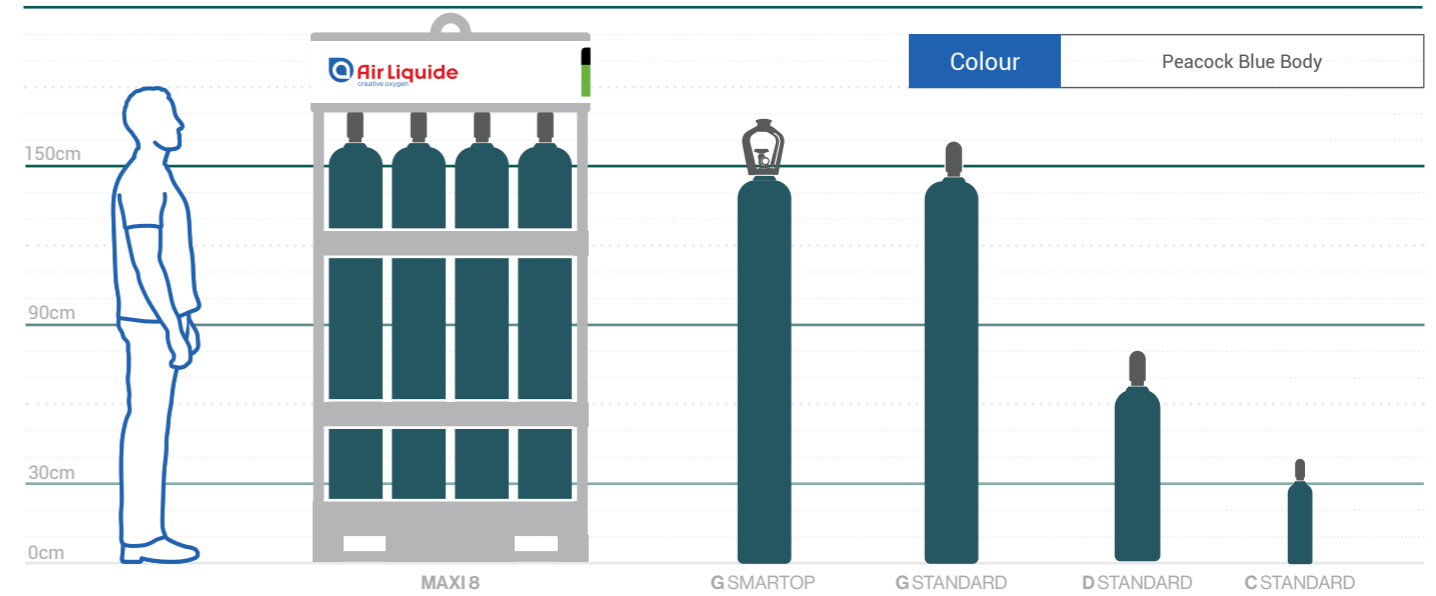
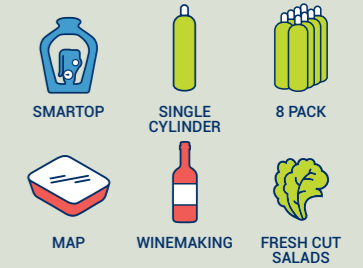
ALIGAL™ 6

FOOD & BEVERAGE | ARGON ≥ 99.99%

The premier gas for quality used in food processing

Applications

- Fresh cut salads
- Dry product preservation
- Wine Dispensing



PRODUCT CODE:	099939	099714, 099954 (WA)	099729	099719
Cylinder Size Offering	MAXI 8	G	D	C
Top Type Offering	Standard	SMARTOP, Standard	Standard	Standard
Volume (m³)	116	9.1 - 10.3	1.7	0.74
Weight (kg)	890	65 - 70		12
Pressure (bar)	291	201		201
Water Capacity (L)	400	49 - 50		3.5
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 20 ppm CO ≤ 10 ppm C _m H _n ≤ 100 ppm			

Appearance	Odour	Flammability
Colourless Gas	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1006	2.2	2T	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

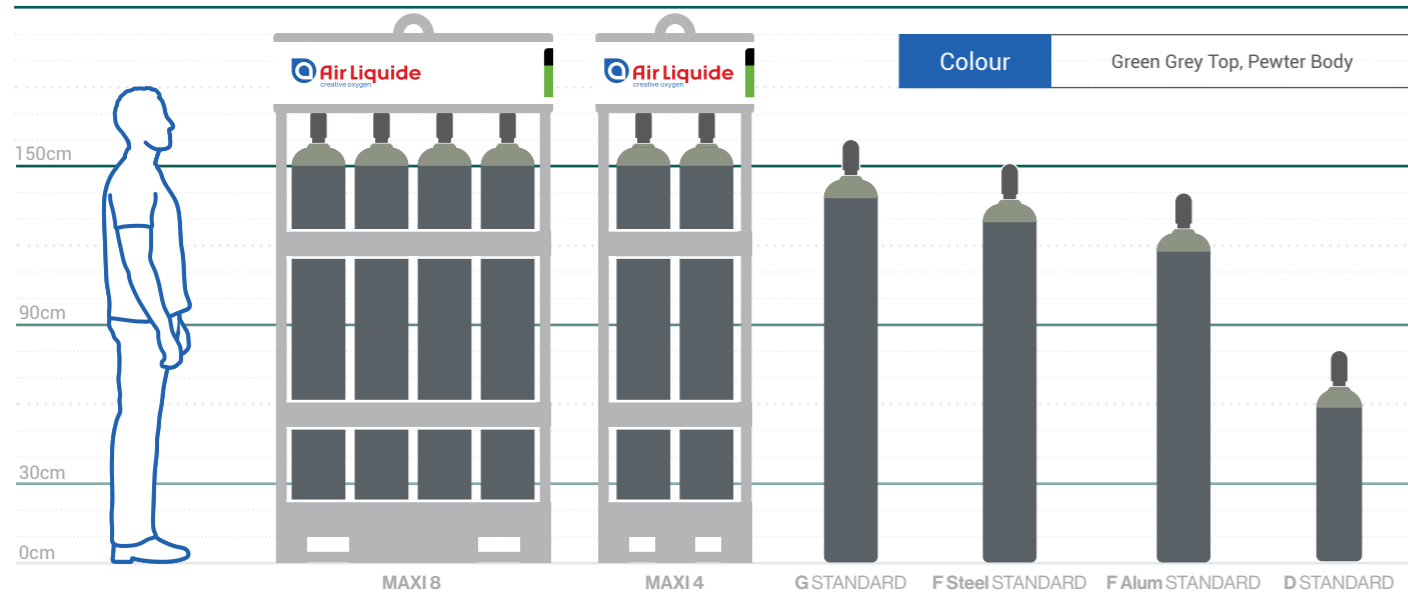
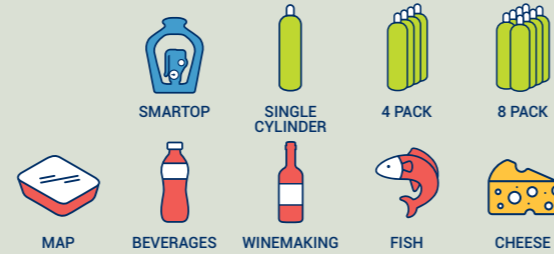
ALIGAL™ 13

FOOD & BEVERAGE | 70% NITROGEN + 30% CARBON DIOXIDE

MAP solutions for optimum appearance and maximum shelf life

Applications

- MAP
- Bakery products
- Cheese
- Dry food (coffee, snacks)
- Dried/smoked fish
- Processed meat/poultry
- Milk powder
- Sandwiches
- Fresh cut vegies
- Dispensing stout beers
- Winemaking



PRODUCT CODES:	099945	099944	099713, 099940	099913, 099962	099908	099910
Cylinder Size Offering	MAXI 8	MAXI 4	G	F	F Aluminum	DL
Top Type Offering	Standard	Standard	Standard	Standard	Standard	Standard
Volume (m³)	116	58	7.7 - 8.8	5 - 6.1	6.3	1.6
Weight (kg)	880	450	65	35 - 55	35	17
Pressure (bar)	290	290	144 - 161	130 - 161	161	100
Water Capacity (L)	400	200	49	35	35	11
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 20 ppm CO ≤ 10 ppm NO _x ≤ 10 ppm C _m H _n ≤ 30 ppm					

Appearance	Odour	Flammability
Colourless	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1006	2.2	2T	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

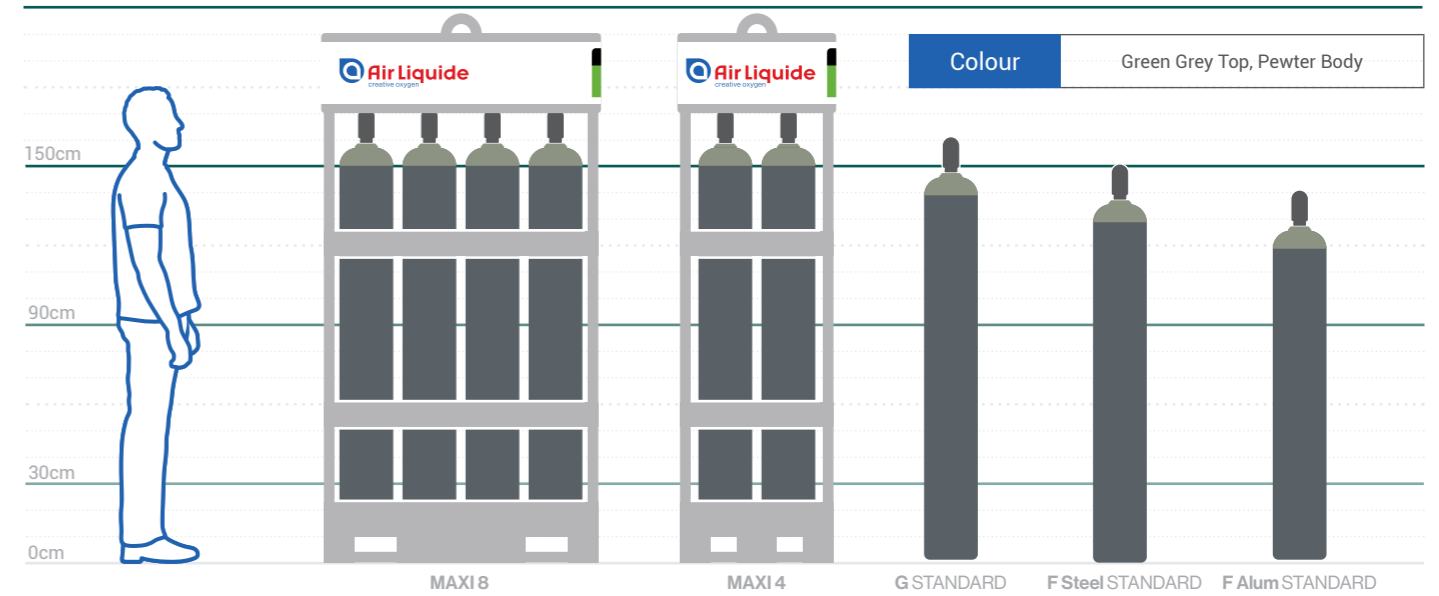
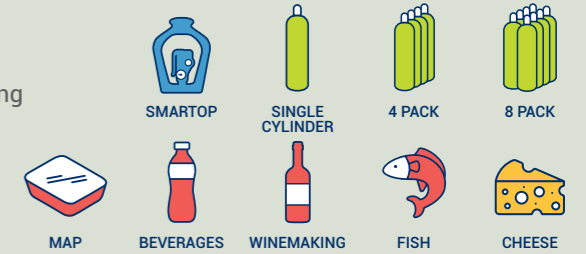
ALIGAL™ 14

FOOD & BEVERAGE | 60% NITROGEN + 40% CARBON DIOXIDE

MAP solutions for optimum appearance and maximum shelf life

Applications

- MAP
- Bakery products
- Cheese
- Dry food (coffee, snacks)
- Dried/smoked fish
- Processed meat/poultry
- Milk powder
- Sandwiches
- Fresh cut vegies
- Dispensing beer kegs and cider
- Winemaking



PRODUCT CODE:	099947, 099958	099948, 099959	099914	099991	099992
Cylinder Size Offering	MAXI 8	MAXI 4	G	F Steel	F Aluminum
Top Type Offering	Standard	Standard	Standard	Standard	Standard
Volume (m³)	89.5 - 122.3	44.8 - 62	8	5.4	6.5
Weight (kg)	868	460	65	35 - 55	35
Pressure (bar)	276	186	139	130 - 161	158
Water Capacity (L)	400	200	49	35	35
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 20 ppm				

Appearance	Odour	Flammability
Colourless Gas	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1006	2.2	2T	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

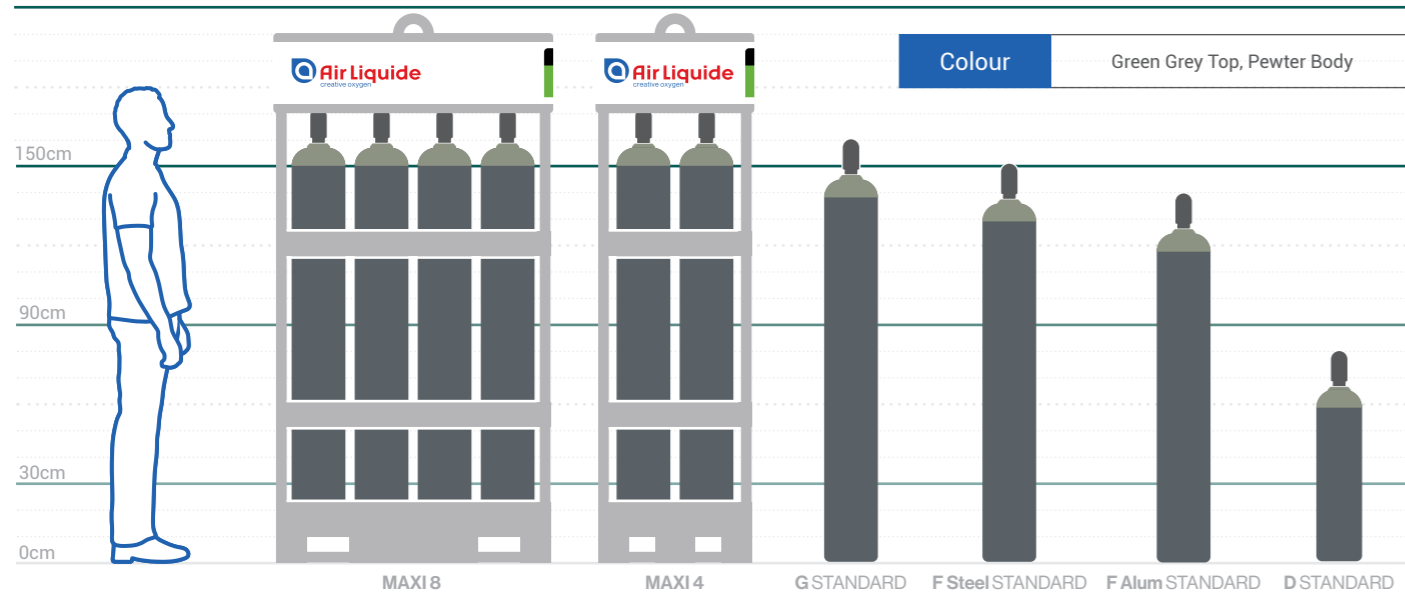
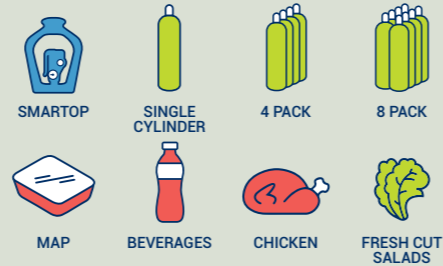
ALIGAL™ 15

FOOD & BEVERAGE | 50% NITROGEN + 50% CARBON DIOXIDE

MAP solutions for optimum appearance and maximum shelf life

Applications

- MAP
- Bakery products
- Processed fish & seafood
- Processed meat & poultry
- Raw poultry
- Ready meals
- Fresh cut vegies
- Dispensing heavy & light beers



PRODUCT CODES:	099710	099709	099708, 099815	099917, 099916	099721, 099915	099725
Cylinder Size Offering	MAXI 8	MAXI 4	G	F Steel	F Aluminum	DL
Top Type Offering	Standard	Standard	Standard	Standard	Standard	Standard
Volume (m³)	102	51.2	8 - 9.8	6	6 - 6.9	2.8
Weight (kg)	840	440	65 - 68	58	33 - 33.3	17
Pressure (bar)	201	201	127 - 151	131	134	100
Water Capacity (L)	400	200	49	35	35	11
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 20 ppm CO ≤ 10 ppm NO _x ≤ 10 ppm C _m H _n ≤ 30 ppm					

Appearance	Odour	Flammability
Colourless	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1956	2.2	2TE	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

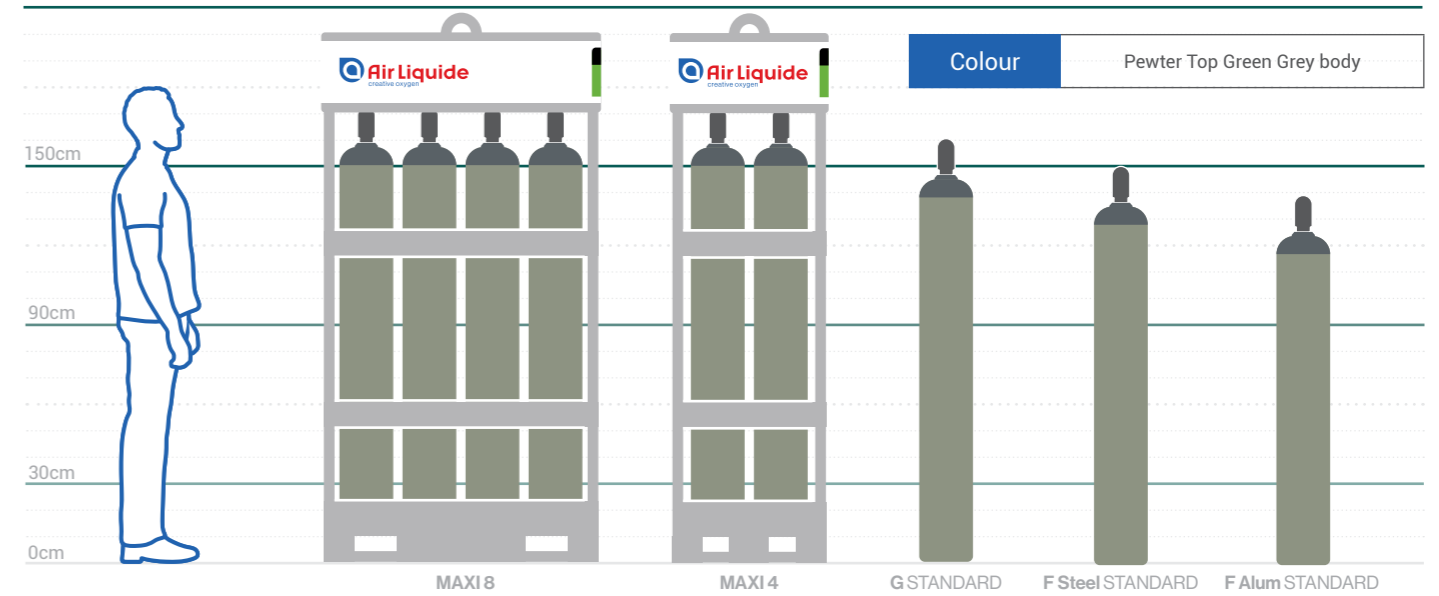
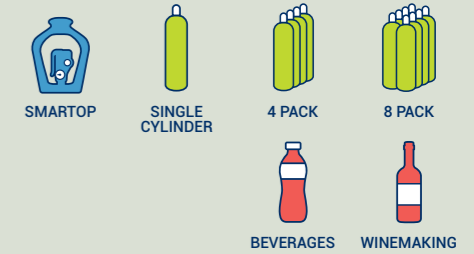
ALIGAL™ 17

FOOD & BEVERAGE | 70% CARBON DIOXIDE + 30% NITROGEN

The premier gas for quality used in food processing

Applications

- Dispensing heavy & light beers
- Winemaking



PRODUCT CODE:	099834	099847	099817, 099830	099900	099901
Cylinder Size Offering	MAXI 8	MAXI 4	G	F	F Aluminum
Top Type Offering	Standard	Standard	Standard	Standard	Standard
Volume (m³)	83	41.5	10 - 11.2	6	6
Weight (kg)	800	400	65 - 70	60	35
Pressure (bar)	118.77	118.77	115 - 125	104	105
Water Capacity (L)	400	200	49	35	35
Impurities (ppm)	H ₂ O ≤ 50 ppm O ₂ ≤ 30 ppm CO ≤ 10 ppm NO _x ≤ 10 ppm C _m H _n ≤ 30 ppm				

Appearance	Odour	Flammability
Colourless Gas	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
1956	2.2	2TE	au.airliquide.com/safety-safety-data-sheets/sds-industrial

This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000

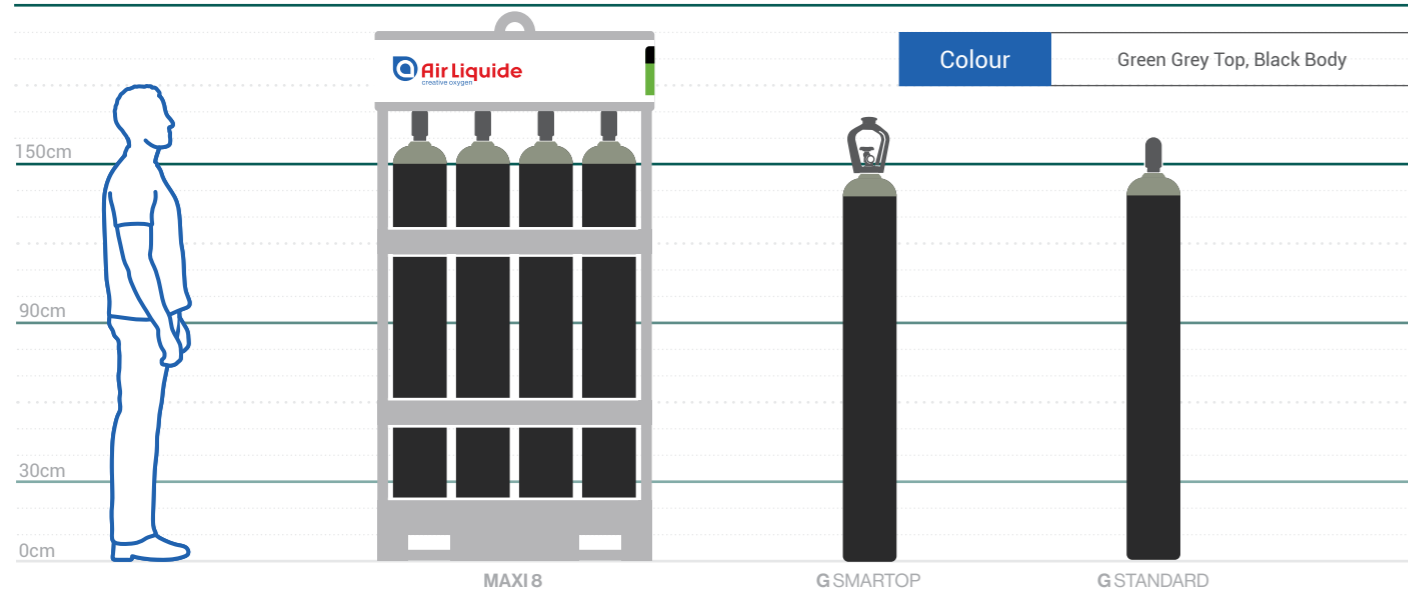
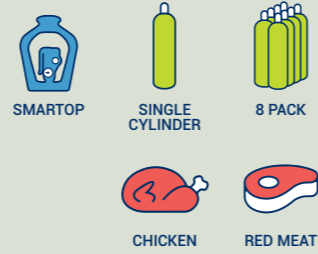
ALIGAL™ 28

FOOD | 80% OXYGEN + 20% CARBON DIOXIDE

The premier gas for quality used in food processing

Applications

- Mussels & oysters
- Raw red meat
- Raw chicken - eliminates odour



PRODUCT CODE:	099772, 099785	099771, 099770
Cylinder Size Offering	MAXI 8, Pack 8	G
Top Type Offering	Standard	SMARTOP, Standard
Volume (m³)	71.4 - 85	8.6 - 9.5
Weight (kg)	800	55
Pressure (bar)	159	166
Water Capacity (L)	400	49
Impurities (ppm)	H ₂ O ≤ 50 ppm CO ≤ 10 ppm NO _x ≤ 10 ppm C _m H _n ≤ 100 ppm	

Appearance	Odour	Flammability
Colourless Gas	Odourless	Non Flammable

UN Number	Hazard Class	HAZCHEM (EAC)	SDS
3156	2.2 (5.1)	2S	au.airliquide.com/safety-safety-data-sheets/sds-industrial

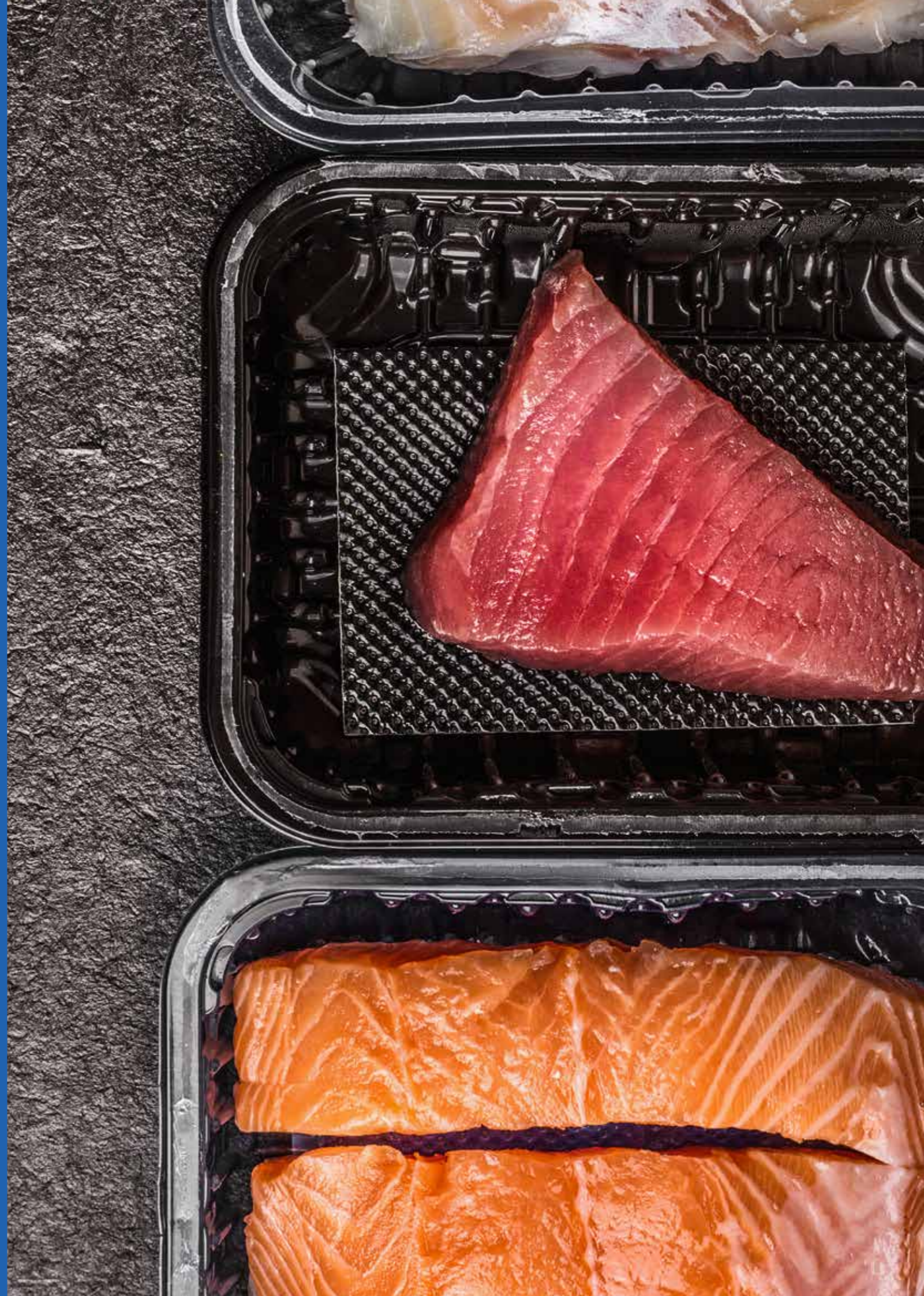
This product complies with the following Australian and International Standards: Australian Food Standards Code, FSSC 22000



Safety Guidelines

Safety is ALA's number one priority

Safety is a fundamental value. It is an integral part of Air Liquide's operational excellence and culture. The Group is committed to efficiently and under all circumstances reducing the exposure of its employees, customers, subcontractors, suppliers and local communities to professional and industrial risks.



HANDLING CYLINDERS

tips and safety guidelines

ABOUT HANDLING CYLINDERS

The highest risk of accidents or injuries involving cylinders happen when moving or handling cylinders. Larger cylinder sizes (G or F size) can be heavy, and often difficult to handle. Special care and equipment should be considered when handling cylinders to avoid falls, trips and injury. Larger full G size cylinders, combined with certain gas types can weight in excess of 80kg.

Precautions for safe handling of cylinders:

- Only experienced and properly instructed persons should handle cylinders.
- Handle cylinders with care and avoid dropping or hitting them against other objects
- Use the right PPE, including safety glasses, gloves and protective footwear.
- Protect cylinders from physical damage; do not drag, roll, slide or drop.



Use a Trolley

For moving cylinders more than 5m, a trolley makes moving cylinders safer, faster and easier



Large Cylinders are Heavy

Never attempt to catch or restrain a falling cylinder



Protect Yourself

Safety Glasses, Protective Wear, Safety Gloves and Safety Boots

Example of the Gas Cylinder Safety Guidelines poster



SAFETY FIRST

YOUR SAFETY IS OUR FIRST PRIORITY

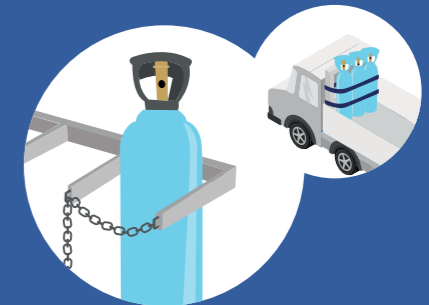
CYLINDER HANDLING

- ✓ Ensure you read the product Safety Data Sheet (SDS) to familiarise yourself with the product before use.
- ✓ Use mechanical aids in preference to direct manual handling of cylinders (ramps, trolleys, forklifts, scissor lifts).
- ✗ Never attempt to catch or restrain a falling cylinder.
- ✗ Never drop a cylinder as a method of moving it.



ENSURE CYLINDER IS SECURE

- ✓ Secure cylinders in an upright position in a well ventilated area.
- ✓ Ensure cylinders are positively secured to mechanical lifting/handling devices prior to movement.
- ✓ Ensure that full and empty cylinders are kept separate.
- ✓ Always store cylinders away from emergency exits and walkways.



WEAR PERSONAL PROTECTION

- ✓ Wear appropriate personal protective equipment (PPE) when handling cylinders - refer to SDS.
- ✗ Never use force in opening or closing a cylinder valve.



SHOULD YOU HAVE ANY CONCERNS PLEASE CONTACT YOUR NEAREST AIR LIQUIDE BRANCH FOR ASSISTANCE:

TRANSPORT / INDUSTRIAL EMERGENCY (24 HRS):
1800 812 588

CYLINDER STORAGE

and helpful information

STORAGE OF GAS CYLINDERS

Customers and Agents responsible for providing and maintaining a suitable, safe and secure storage facility for gas cylinders that meet the requirements of the Australian Standard® AS4332 – The Storage and Handling of Gases in Cylinders.

Safety is the number one priority for Air Liquide and our objective is zero accidents, in every site, in every region, at every Agent.

This facility must be easily accessible for Air Liquide delivery and a suitable parking area provided for Air Liquide and customer vehicles.

MINOR AND INDOOR STORAGE

Compressed gas cylinders contain gas stored under significant pressure, presenting a significant hazard in the workplace.

Gas cylinders should be stored outdoors, preferably in a secure, cage that's protected from sunlight.

Storage indoors is not recommended unless the building has been designed for that purpose. Refer to AS4332 for more guidance

SEGREGATION

Different dangerous goods classes of gas cylinders within a store must be segregated (*Table 1*). Inert gases (e.g. Class 2.2, without subsidiary risk) may be placed between incompatible Flammable and Oxidising gases. For example a compressed argon, argon mix, nitrogen, carbon dioxide cylinder could be placed between a flammable gas such as acetylene or LPG.





		Class 2.1	Class 2.2	Class 2.2 / 5.1	Class 2.3 / 8
Class 2.1			0	3m	3m
Class 2.2		0		0	0
Class 2.2 / 5.1		3m	0		3m
Class 2.3 / 8		3m	0	3m	

Table1 Separation of gases within the cylinder storage compound

PLACARD AND MANIFEST REQUIREMENTS

A manifest is a written summary of hazardous chemicals or stored at a workplace. The primary purpose of a manifest is to provide emergency services with information on the quantity, classification and location of hazardous chemicals at the workplace. It also contains information such as site plans and emergency contact details.

CYLINDER SAFETY SIGNAGE AND IDENTIFICATION

Customers and Agents must ensure safety diamond signage is clearly displayed at the entrance of the cylinder storage compound, alternatively this signage can be displayed at the site main entrance if the cylinder storage area is in-fact visible from the entrance point.

The safety diamonds displayed must be those cylinders stored within the compound and can be identified on the neck label of each cylinder.

Air Liquide Agents are strongly recommended to contact their appropriate State or local Statutory Authority and Insurance Underwriter to ensure that their storage facility comply in all respects for the storage of cylinder gases.



Example of Safety Diamond identification sign



Example of a HAZCHEM sign

VOLUMES AND STORAGE

Dangerous goods sites storing or handling more than the manifest quantities of dangerous goods must maintain a manifest and a dangerous goods site plan.

THE GOLDEN RULES FOR CYLINDER STORAGE

- Store Cylinders on a flat, level, stable surface in an upright position.
- Store cylinders on concrete hardstand, cylinders stored on other surfaces (dirt, gravel, roadbase) are more likely to fall over and cause injury.
- Restrain cylinders to prevent them falling over.
- Separate by minimum 3 metres cylinders containing flammable gases from oxidising gases.
- Secure cylinders away from public access to prevent unauthorised entry.
- Keep full cylinders separate from empty cylinders.
- Ensure the cylinder store is well ventilated.
- Maintain a clean cylinder store.
- Visibly display a "no smoking" sign.
- Protect cylinders from heat, ignition sources and combustible materials.
- Rotate cylinders: first in, first out.
- Minimise stock levels.
- Ensure oil based substances, greases, lubricants or aerosols are stored away from oxidising gas cylinders.
- Always take care when loading and unloading cylinder products from vehicles; always maintain an exclusion zone around mobile equipment (forklifts, cranes).

TRANSPORTING GAS CYLINDERS

Air Liquide does not recommend the practice of transporting cylinders in a closed passenger compartment, car boot, or cargo area of a passenger vehicle. This is primarily due to the risk of asphyxiation and the inability to adequately restrain cylinders.

If transporting in a passenger vehicle the following steps must be taken:

- Limit the number of cylinders to be transported;
- Do not transport toxic or corrosive gases
- Make sure the vehicle windows are down;
- The ventilation fan should be set to maximum and air intake set to 'fresh,' not recirculating;
- The cylinder(s) or boxes are secured in the footwell behind the front passenger seat (Dry Ice boxes can alternatively be transported in the boot with the lid held in open position to allow ventilation);

Drivers should be informed to drive directly to their destination and unload immediately; cylinders or Dry Ice should **NOT** be stored or left for long periods of time in the vehicle.

Cylinder gases can be dangerous if not transported correctly. Follow these safety guidelines to avoid accidents.

Beware of leaks:

- A cylinder is never totally empty. A few litres of acetylene can cause the trunk of a vehicle to explode.
- A leak is more likely to occur from the pressure regulator, pipes or blowpipe.

Beware of shocks:

- Even when stored inside a trunk, a cylinder can become a dangerous projectile in case of a frontal shock or a roll-over.

What you should do:

- Dismantle all equipment during transportation.
- Close all faucets, even if the cylinder is "empty".
- Air out the vehicle.
- Do not leave the cylinders inside the vehicle for a long period of time.
- Secure the cylinders in an upright position.

Depending on the nature and quantity of the products, the transportation may be subjected to the *Transport of Dangerous Goods* regulation in terms of:

- Display of *Dangerous Goods Safety Marks* (i.e. Placards).
- Shipping documentation.
- Circulation on roads designated for dangerous goods.
- Training on the regulation and the products transported.

Air Liquide recommends that you do not transport your cylinders in a non-ventilated trunk or space of a vehicle:

- Close the cylinder valves.
- Disconnect the equipment.
- Ensure your vehicle is well ventilated
- Do not leave cylinders inside the vehicle for prolonged periods.

LOAD RESTRAINT PRINCIPLES

The National Transport Commission (NTC) publish the *Load Restraint Guidelines 2018*.

Web link:

www.ntc.gov.au/heavy-vehicles/safety/load-restraint-guide/

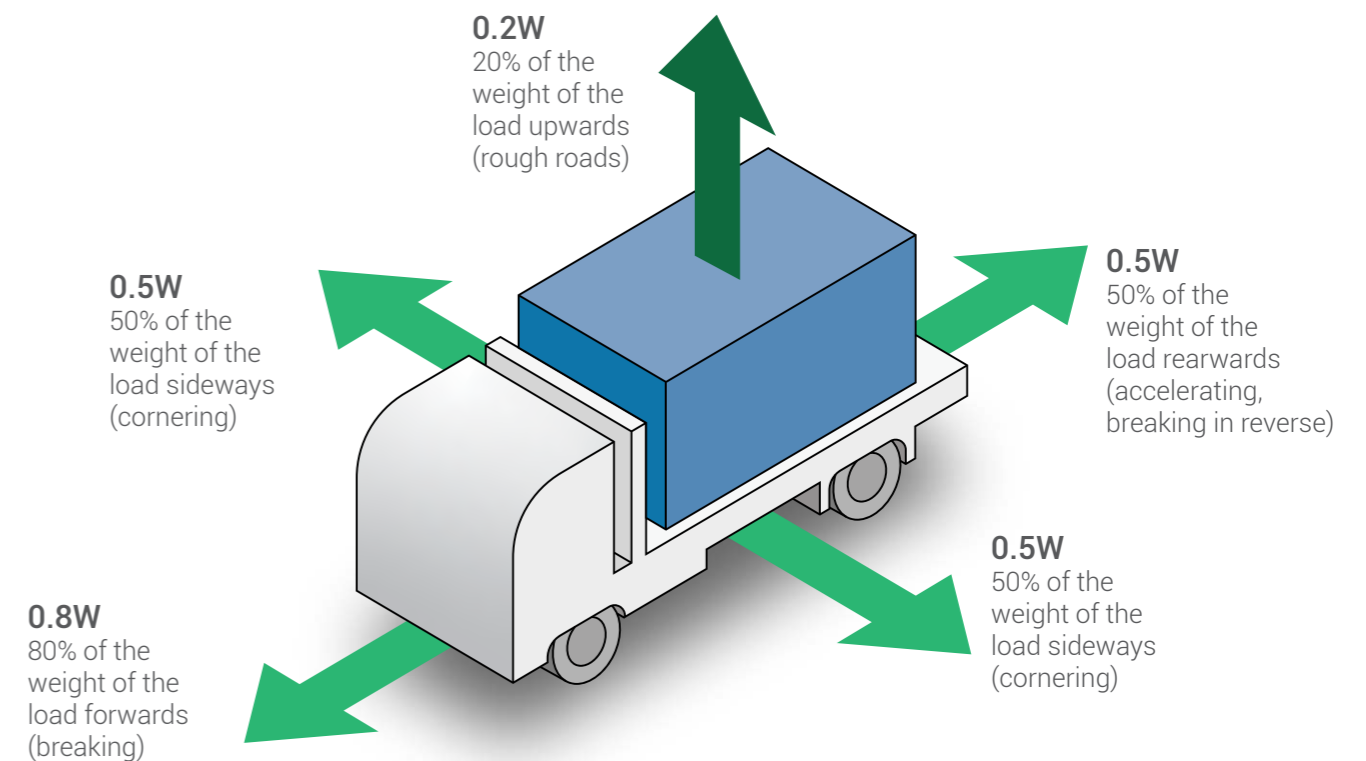
This section of the manual provides transport drivers, operators, and other participants in the transport chain of responsibility with basic safety principles which should be followed for the safe carriage of loads on road vehicles.

It also specifies the performance standards which must be met when restraining loads on road vehicles in Australia.

Just like any unrestrained person in a vehicle, loads can move forwards, backwards, sideways and upwards:

- **Forward shifts** are caused by: braking while driving forward, accelerating in reverse, downhill slopes.
- **Backward shifts** are caused by: braking in reverse, accelerating forward, uphill slopes.
- **Sideways shifts** are caused by: cornering, cambered roads.
- **Upward shifts** are caused by: uneven road surfaces.

If a load is restrained to meet these minimum Performance Standards it will not fall off or affect the stability of the vehicle under expected driving conditions. This includes emergency braking and minor collisions.



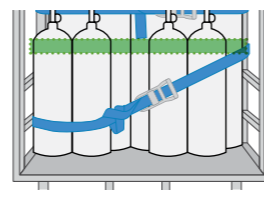
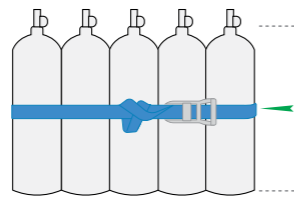
Safety is the number one priority for Air Liquide and our objective is

ZERO ACCIDENTS,
in every site, in every region, at every Agent.

WEBBING STRAP

assembly and warnings

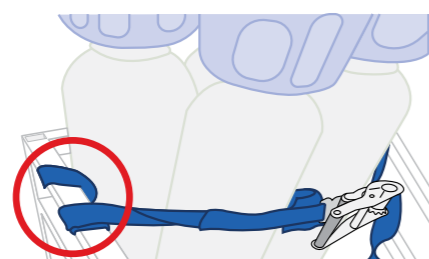
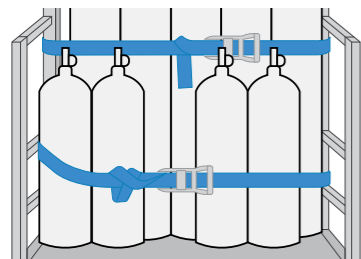
SECURING CYLINDERS USING THE WEBBING ASSEMBLY AND RATCHET:



1. Inspect ratchets and webbing and ensure the straps are either securely attached to the vertical pole of the pallet (traditional fixed straps) or pass through the space between the vertical pole and outer corner of pallet (continuous straps).

2. Straps should only remain inside the pallet and centralised around the load.

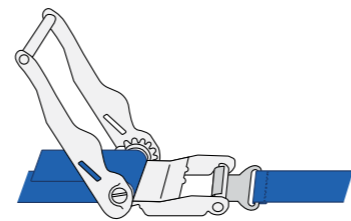
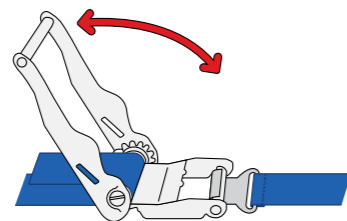
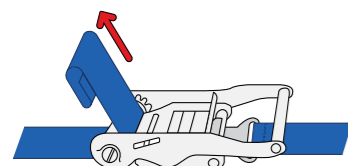
3. Ensure the straps remain horizontal on each side of the load. Securing the straps at an excessive angle can cause strap slippage and loosening.



4. For two strap pallets, secure the lower strap first.

5. Ensure the strap is not twisted around the load or in the ratchet mechanism.

6. Engage the mating hook of the ratchet around the bar on the ratchet.

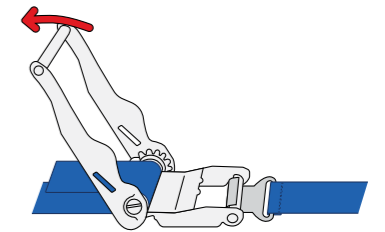
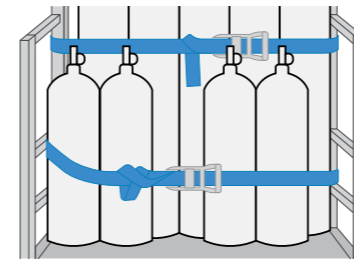


7. Pull the strap through the roller/spindle to take up the excess slack. Note: A minimum of two wraps of webbing material should be used around the ratchet spindle for secure tightening.

8. Lift the locking latch to operate the handle back and forth until the webbing is properly tensioned

9. Do not leave ratchet handles in the open position, as they may not retain tension and may become damaged when parking the pallet against a wall or up against another pallet.

RELEASING CYLINDERS FROM RESTRAINTS:



1. For a stillage with two straps, loosen the tension on the lower strap first.

2. Check the stability of the load. Under no circumstances should products be unrestrained if there is a risk that products can move towards the driver when either webbing assemblies are loosened or ratchets released.

3. Undo the ratchet and carefully release the tension in the webbing by disengaging the ratchet's locking latch via the finger operated sliding plate and opening the ratchet by means of the handle.

WEBBING STRAP WEAR AND TEAR

When assessing the serviceability of webbing and ratchet, if any of the following conditions exist, the webbing or ratchet must be replaced:

- Ratchet or hook damaged, corroded or rusted such that it is weakened by 10% or does not effectively function.
- Webbing weakened by 10% or more of its original minimum breaking strength, by wear, damage, or stitching failure caused by excessive loading, knotting and bending.

If you have any concerns about the condition of a stillage, webbing or ratched please highlight to the Air Liquide driver.

Note: Wear caused by chafing on rough surfaces causes a furry appearance on the webbing which indicates broken load-bearing fibres.

Damage can be caused by:

- Exposure to high temperatures.
- Exposure to chemicals, including acid and alkaline solutions and organic solvents.
- Prolonged exposure to sunlight or ultraviolet light.
- Prolonged friction against the load.

4 Major Causes of Damage to Straps



Exposure to Sunlight or UV



Exposure to Chemicals



Exposure to High Temperatures

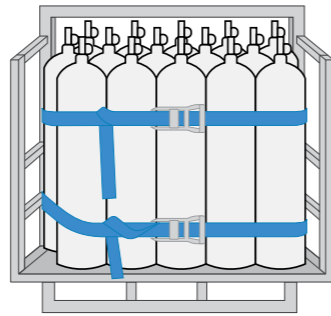
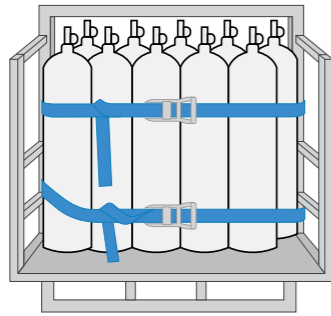


Prolonged Friction

GENERAL GUIDELINES FOR LOADING CYLINDERS.

Guidelines for loading cylinders into cylinder stillages of the same size:

- Load cylinders centrally within the stillage.
- Nest cylinders to prevent movement when secured inside the stillage.
- Load stillage with cylinders the same size wherever possible.



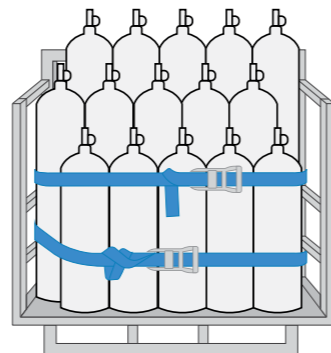
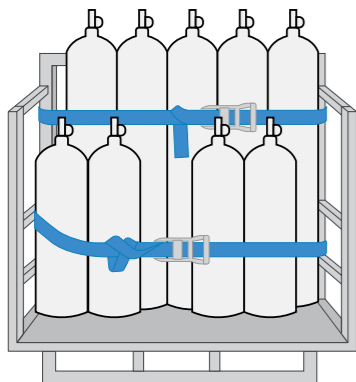
EXAMPLE
STILLAGE LOADED WITH CYLINDERS THE SAME SIZE AND A PARTLY LOADED STILLAGE

- Do not place a cylinder on top of the valve of another cylinder.
- Cylinders must not overhang the base of the stillage.
- Ensure the load is stable.
- Stillage is on firm level surface.
- Cylinders should be upright and not stacked on top of other cylinders.

LOADING MIXED CYLINDERS

Guidelines for loading cylinders into cylinder stillages with different sizes:

- Ensure the load is stable.
- Place taller cylinders at the back of the stillage, with shorter cylinders placed in front and against the taller cylinders.
- Avoid placing small cylinders amongst larger cylinders.
- Use two web strapping to secure larger cylinders and smaller cylinders.



EXAMPLE
STILLAGE LOADED WITH LARGE AND MEDIUM CYLINDERS AND A
STILLAGE LOADED WITH MEDIUM AND SMALL CYLINDERS

RESTRAINING STILLAGES OR PACKS

RESTRAINING ONE STILLAGE

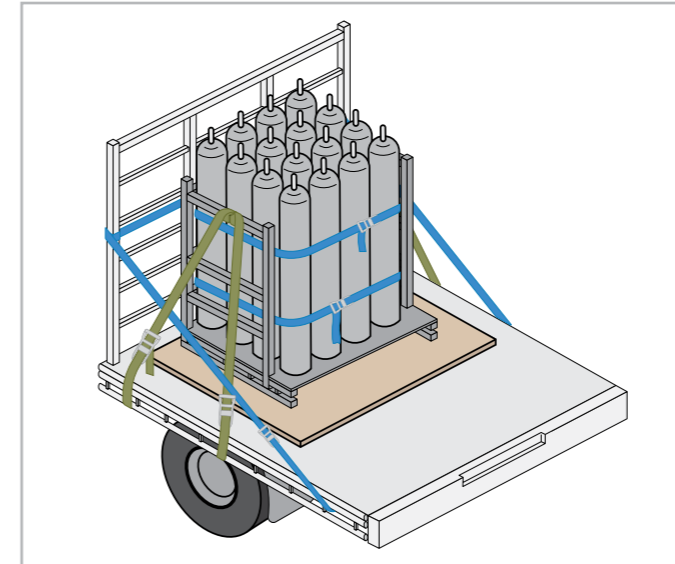


Diagram of Restraining Stillage or Packs on steel deck

RESTRAINING SINGLE PACKS

- Load single packs along the centreline of the deck.
- Single cylinder packs should be restrained with 2 looped straps, with plywood between the pack and headboard as shown in the diagram.
- Where the manifold pack does not have tie down anchorage points, vertical restraint should be provided as per the diagram.
- The same restraints are required for steel decks and timber decks.

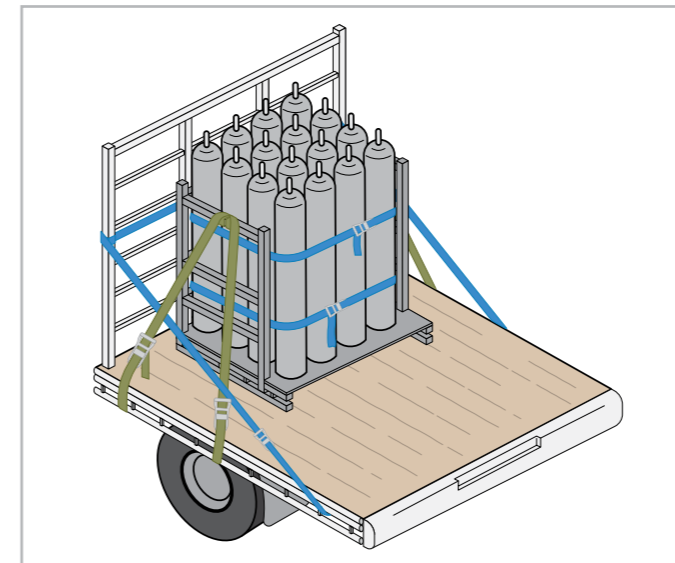


Diagram of Restraining Stillage or Packs on timber deck

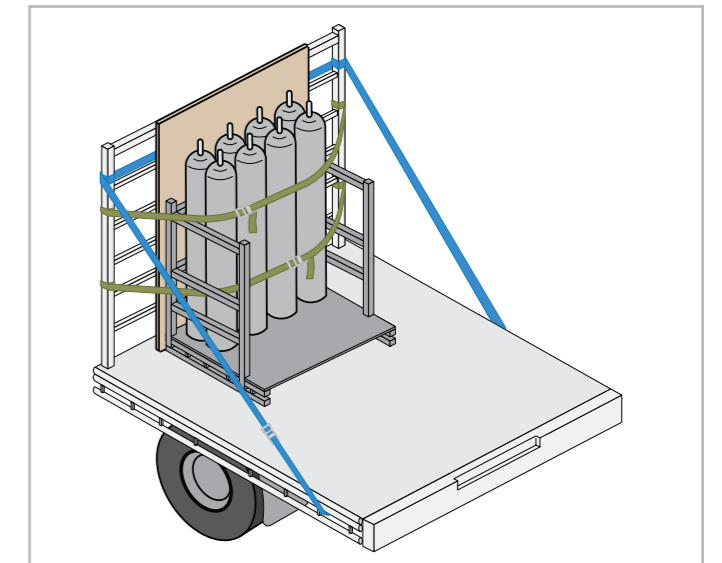


Diagram of Restraining Single Packs

LOAD RESTRAINT

TRANSPORTING CYLINDERS IN LIGHT COMMERCIAL VEHICLES

Transporting cylinders upright

Restrain cylinders by lashing them to the vehicle body or containing them in a purpose built frame.

If transporting cylinders upright against a headboard:

- The total weight of the cylinders should not exceed 250 kg.
- Apply at least two horizontal straps, as shown in the diagram.

Webbing straps must be at least 38mm wide with a minimum Lashing Capacity of 1000 kg.

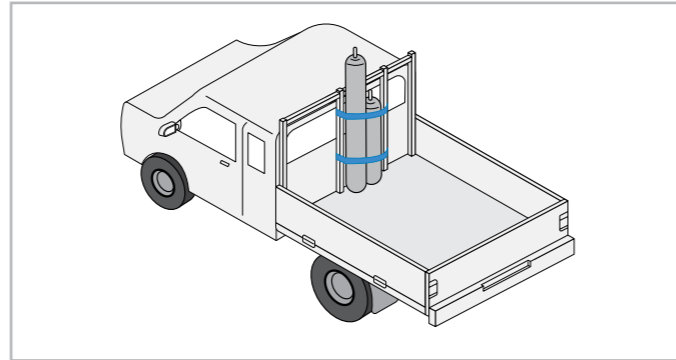


Diagram of how to transport cylinders upright

TRANSPORTING CYLINDERS LYING DOWN

Place the cylinders lengthwise on the deck.

- Position the cylinders with the valves facing rearwards, with the base blocked against the headboard or another strong part of the load.
- Apply at least two tie-down strap, as shown below.
- Cylinders containing liquid (LPG, Acetylene, CO2 Liquid withdrawal) must be transported in an upright position.
- Cylinders must be transported horizontally on timber pallet and restrained as shown in the diagram.
- Where required, the stillage must be suitably blocked in front to maintain the correct load distribution over the axle. The stillage must either be blocked in all directions or tied down to prevent moving.
- Due to manual handling hazards, it is best practice to load and restrain the cylinder with the stillage at ground level and to then load the stillage by forklift.

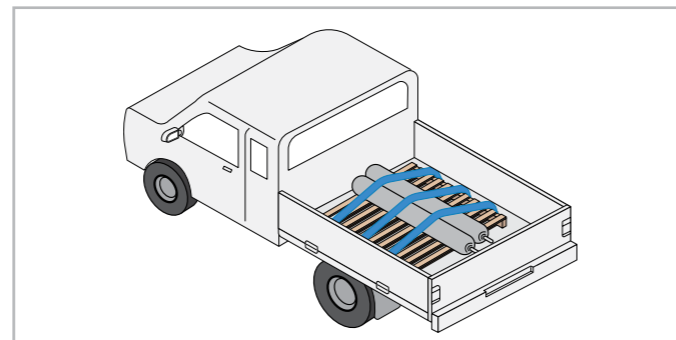


Diagram of how to transport cylinders lying down

NOTE Please refer to the ADG for any additional requirements that are applicable for transport.

TRANSPORT OF CYLINDERS IN VANS

Vans are only suitable for the transport of gas cylinders if they have:

- A sealed compartment or sealed bulkhead, separated from the driver's compartment
- High-level and low-level ventilation
- Suitable load restraint anchorage points

Cylinders must not be transported loose, they must always be restrained.

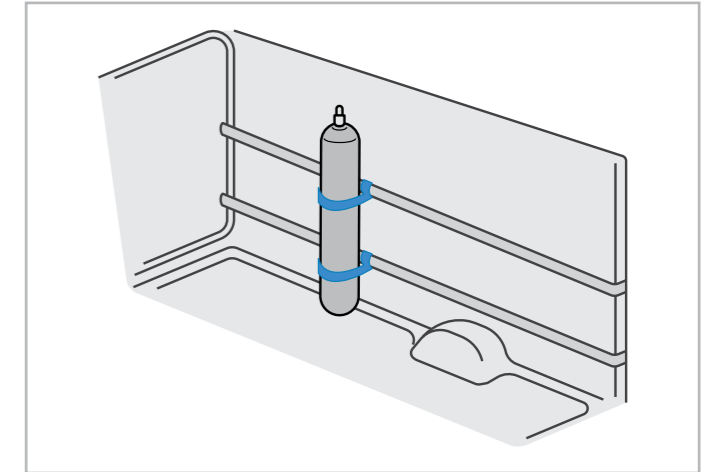


Diagram of transporting cylinders in a Van

TRANSPORT OF CYLINDERS IN TRAILERS

NOTE: IT IS NOT RECOMMENDED TO TRANSPORT CYLINDERS IN TRAILERS.

- Cylinders must be transported horizontally on timber pallet and restrained as shown in the diagram.
- Where required, the stillage must be suitably blocked in front to maintain the correct load distribution over the axle. The stillage must either be blocked in all directions or tied down to prevent moving.
- Due to manual handling hazards, it is best practice to load and restrain the cylinder with the stillage at ground level and to then load the stillage by forklift.

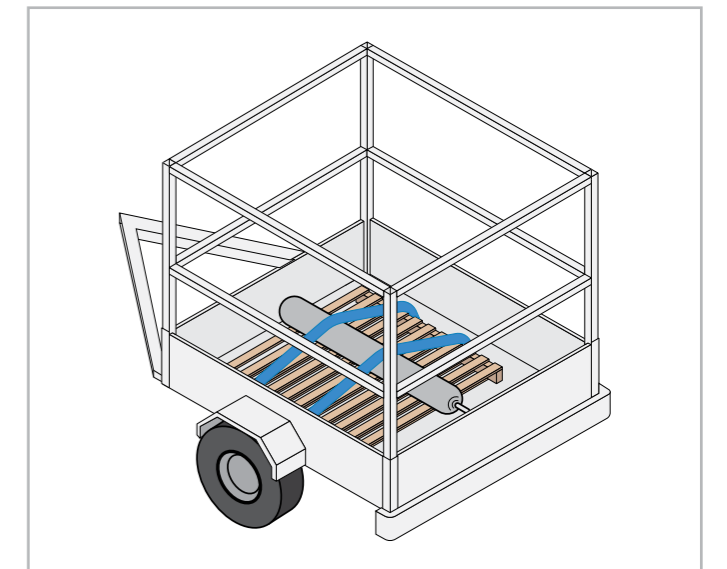


Diagram of transporting cylinders in a box trailer

DANGEROUS GOODS PLACARDING

A placard load refers to a vehicle carrying over a certain amount of dangerous goods (other than explosives, infectious and radioactive substances) that is required to display placards (i.e. Class label or Emergency Information Panel) during transport.

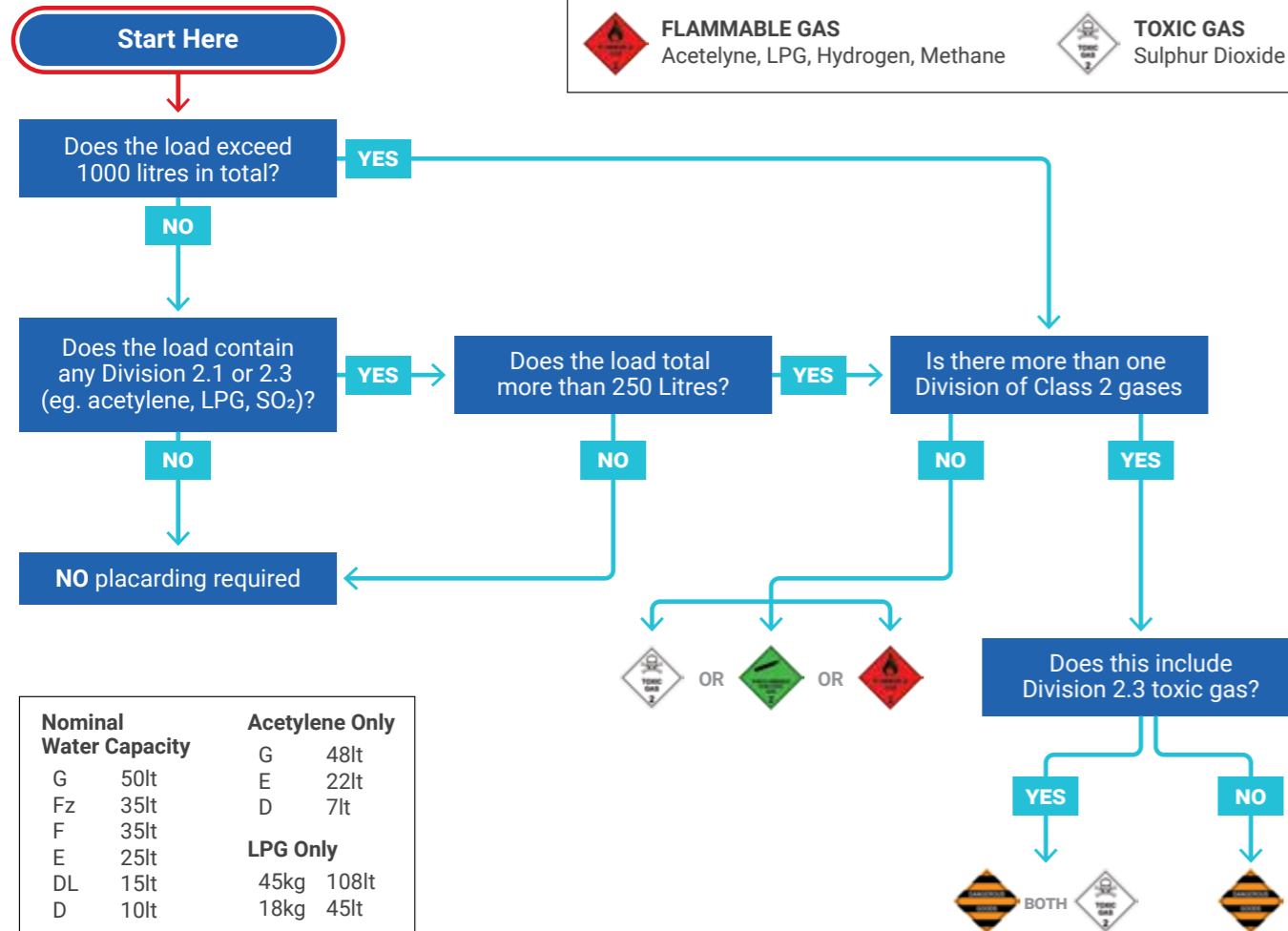
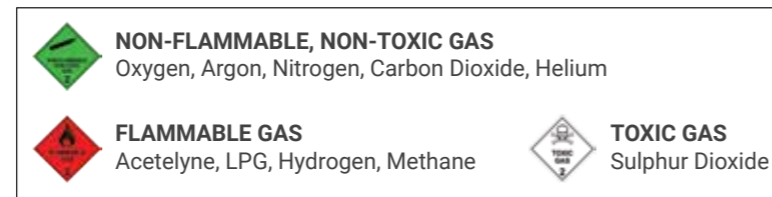
The carriage of gases in a non-dedicated enclosed vehicle, such as a car, van or station wagon is particularly hazardous because gas can accumulate very quickly. The gas may be toxic, flammable or cause asphyxiation by displacing air.

It is most important that all gases are transported in open trucks, utilities, trailers etc, and not closed vans. The rules state that acetylene and LPG cannot be carried in the same air space as the driver. They should be in a separate compartment, carried upright and safely secured, with the pressure release valve in a ventilated space.

If a customer is transporting oxygen, the cylinders cannot be carried on a vehicle that also carries any oil-based product. Remember, oxygen and oil/grease compounds can form an explosive combination. Similarly, oxygen cannot be carried with flammable liquids such as paint thinners.

The regulations are contained in detail in "The Australian Dangerous Goods Code – Requirements and Recommendations". A summary of the code has been produced by ANZIGA (Australia and New Zealand Industrial Gas Association) in booklet form and is available from Air Liquide.

Agents are obliged to inform customers and their drivers about the rules and regulations of loading and transporting gas cylinders. Please refer to the attached *Shared Standard Operating Procedure – Transportation of Products in Non-Dedicated Vehicles*.



Flowchart Diagram of Placarding of Dangerous Goods Vehicles for road Transport

GENERAL SAFETY guidelines

GUIDELINES

- Air Liquide Australia Agents are strongly recommended to contact their appropriate State/Territory or local Statutory Authority and Insurance Underwriter to ensure that their storage facilities comply in all respects for the storage of cylinder gases. See the *Australian Standard@ AS4332 – The Storage and Handling of Gases in Cylinders* for detailed information.
- Appropriate Hazardous Goods signage and identification for cylinder storage will be provided by Air Liquide. The Agent must ensure that the signage is clearly and correctly displayed.
- Air Liquide has a range of 'TECH SPECS' brochures available that contain safety and handling information about individual gas types. There are also Safety Advice brochures detailing information regarding "Oxygen Enriched or Deficient Atmospheres". This information can be found via the ALNET portal.
- Cylinders are not to be lifted by their control valves and should be moved by a suitable hand truck or trolley.
 - During transportation, cylinders should be stowed and secured in such a manner that no part of the cylinder protrudes beyond the edge of the vehicle.
 - Cylinders must NEVER be dropped, subjected to violent impact or exposed to grease, oil or direct heat.
- No attempt should be made to repair or dismantle any cylinders or valves; this includes those that are suspect or damaged. Please refer to the procedure on Suspect Cylinders.
- Safety Data Sheets (SDS)
 - Copies of *Safety Data Sheets* for the cylinder gas types held by Agents must be supplied to all new rental agreement customers at first delivery and at other times upon request. The SDS provided to Customers at point of sale must concur with the gas type they have purchased. This is a legislative requirement under the NOHSC National Standard for the *Storage and handling of Dangerous Goods. [NOHSC: 1015(2001)]*.
 - The *Safety Data Sheets* are available from the Air Liquide Australia website www.airliquide.com.au
 - The SDS details basic physical and chemical properties of the gases together with any special protection required and relevant safety information for their use.
 - If you require *Material Safety Data Sheets* for gases, please ask your Air Liquide Representative or contact customer service for help.
- A Safety Booklet entitled *It's Smart to be Safe* contains information on the safe handling and use of compressed gases and other Air Liquide products and is available on request from Air Liquide. Air Liquide advises that the booklet is to be read in conjunction with the following Australian Standards and Publications:
 - AS 1674 - *Fire precautions in cutting, heating and welding operations*
 - AS 1894 - *The safe handling of cryogenic liquids*
 - AS 2030 - *SAA Gas Cylinders Code*
 - Worksafe Australia Guide 'Welding Fumes and Gases'.

HAZCHEM Code

and helpful information

The Hazchem Code is fully titled "Hazchem Emergency Action Code". In European publications, it is now frequently referred to simply as "Emergency Action Code" or "EAC".

The Hazchem Code advises on:

- Firefighting media
- Personal protection requirements
- Risk of violent reaction
- Spillage handling
- Evacuation consideration

A Hazchem Code offers guidance on appropriate initial emergency response in a potentially dangerous situation such as leakage, spillage or fire involving the dangerous goods to which it relates.

The Hazchem Code is composed of a number, followed by one or more letters.

EXTINGUISHING MEDIA

The firefighting extinguishing media is determined by reference to the first character of the Hazchem Code as follows:

1	Coarse Water Spray
2	Fine Water Spray
•2	Alcohol Resistant Foam
3	Foam
•3	Alcohol Resistant Foam
4	Dry Agent

NOTE: Any higher number than the one shown can be used, but a lower number must not be used.

A bullet '*' sometimes precedes the number 2 or 3 and have the following meanings:

•2 denotes that alcohol resistant foam is the preferred firefighting medium but, if it is not available, fine water spray can be used.

•3 denotes that alcohol resistant foam is the preferred firefighting medium but, if it is not available, normal foam can be used.

However, if such foam is not available, fine water spray, as the next most effective medium, should be used.

MEANING OF SECOND CHARACTER OF HAZCHEM CODE

P	V	LTS	DILUTE
R			
S	V	BA and FIRE KIT	
T			
W	V	LTS	CONTAIN
X			
Y	V	BA and FIRE KIT	
Z			
E	PUBLIC SAFETY HAZARD		

SOURCE: 2018 AUSTRALIAN EMERGENCY RESPONSE GUIDE BOOK
[https://www.ntc.gov.au/Media/Reports/\(D698F2D2-CBFB-D6CC-A74F-6D3A51063694\).pdf](https://www.ntc.gov.au/Media/Reports/(D698F2D2-CBFB-D6CC-A74F-6D3A51063694).pdf)

DRY AGENT

Water must not be allowed to come into contact with the substance

V

Substance can be violently or even explosively reactive, including combustion.

LTS

Liquid - Tight Chemical Protective Suit with BA (Breathing Apparatus). Full FIRE KIT should also be worn for thermal protection if the substance is:

- Liquid Oxygen
- or Liquefied Toxic Gas (Division 2.3)
- or Toxic Gas with sub-risk 2.1 or 5.1
- or Class or sub-risk 3
- or Division 5.1 PGI with sub-risk 6.1 or 8
- or carried at temperature < 100 C

DILUTE

May be washed to drain with large quantities of water

CONTAIN

Prevent, by any means available, spillage from entering drains or water course.

E

People should be warned to stay indoors with all doors and windows closed, - but evacuation may need to be considered. Consult Control, Police and product expert.

Where the second character of the Hazchem Code is S, T, Y or Z, normal firefighting clothing is appropriate, i.e. self-contained open circuit positive pressure compressed air breathing apparatus, worn in combination with fire kit, firefighters' gloves and firefighters' boots.

Where the second character of the Hazchem Code is P, R, W or X, liquid-tight chemical protective clothing in combination with breathing apparatus specified.

Violent Reaction

Where the second character of a Hazchem Code is a P, S, W or Y there is a danger that the substance can be violently or explosively reactive. This danger may be present due to one of the following:

- Violent or explosive decomposition of the material involved, including ignition or friction.
- The ignition of a flammable gas or vapour cloud (this danger exists for all flammable gases and flammable liquids with a flash point below 60 °C)
- The rapid acceleration of combustion due to the involvement of an oxidiser.
- A reaction with water which is itself violent, and may also evolve flammable gases.

Contain/Dilute

Where the second character of a Hazchem Code is W, X, Y or Z spillages and decontamination run-off should be prevented from entering drains and watercourses. Where the second character of the code is P, R, S or T spillages and decontamination run-off may be washed to drains with large quantities of water. Due care must however still be exercised to avoid unnecessary pollution of watercourses.

E "Public Safety Hazard"

An 'E' following the first two characters of a Hazchem Code indicates that there may be a public safety hazard outside the immediate area of the incident, and that the following actions should be considered. People should be warned to stay indoors with all doors and windows closed, but evacuation may need to be considered. Consult Control, Police, and product experts.

WEIGHT: Weights added from Data Sheets are the Components weight and does not include cylinder/tops. Stated is the amount that needs to be added.

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Whilst every effort has been made to ensure the accuracy of the information in the publication, Air Liquide Australia assumes no responsibility for errors, omissions or typographical errors.

The product range is subject to correction and alteration. All goods supplied by Air Liquide Australia are subject to our general terms and conditions.

For further information on any of the products featured in this catalogue, please contact your local ALA representative.

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 66,000 employees and serves more than 3.6 million customers and patients.

