



## Carbon dioxide. CO<sub>2</sub>

**Product information** CO<sub>2</sub> is an oxidant in depositing metal oxide and carbon doped silicon oxide. CO<sub>2</sub> is a component in wafer cleaning and CO<sub>2</sub> mixture is used in cleaning of ion implant sources.

**Characteristics** Liquefied, colorless gas. Asphyxiant in high concentrations. Gas density is heavier than air.

Physical data	Molecular weight	[g/mol]	44.01
	Boiling point	at 1.013 bar [° C]	-78.5 at 14.5 psi [° F] -109.3
	Density	at 1.013 bar, 15° C [kg/m <sup>3</sup> ]	1.872 at 1 atm., 70° F [lb/ft <sup>3</sup> ] 0.114
	Vapor pressure	at 0° C [bar]	34.5 at 32° F [psi] 505.3
		at 20° C [bar]	57.3 at 70° F [psi] 853.7
	Flammability range in air (% volume)		Non-combustible

Product specification	Purity grade	Typical purity	Typical impurities [ppm]			
			N <sub>2</sub>	O <sub>2</sub>	THC	H <sub>2</sub> O
	4.0N	≥99.99 %	≤70	≤20	≤10	≤10
	5.0N	≥99.999 %	≤5	≤2	≤1	≤1

Contact our team for higher grade or different specification products.

Shipping information	UN number	CAS number	EC number	DOT label	Hazard labels required
	1013, 2187 (Refrigerated liquid)	124-38-9	204-696-9	Non-flammable gas	ADR Class 2, 2A DOT Class 2.2

Packaging information	Package options	Cylinder designation	Cylinder internal volume	Cylinder material	Cylinder diameter	Cylinder height to valve outlet	Cylinder tare weight	Fill contents	Pressure (psig) @ 70° F	Valve outlet	Valve material
US Grade 4.0 to 6.0	Cylinder	200	44 L	Steel	9 in	52 in	130 lb	60 lb	838	CGA 320 / CGA 716/Single port/Dip tube	Brass or SS
	Cylinder	920	446 L	Steel	24 in	20 in	1,230 lb	600 lb	838	CGA 716/Single port/Dip tube	SS
	ISO module	T-350	20,649 L	Steel	N/A	N/A	23,000 lb	40,000 lb	350	CGA 716/Single port/Dip tube	Brass or SS
	Bulk tanker	Bulk tanker	Bulk tanker	Steel	N/A	N/A	N/A	40,000 lb	350	CGA 716/Single port/Dip tube	Brass or SS
	Cylinder	152	29.5 L	Aluminum	8 in	49.5 in	49.5 lb	40 lb	838	CGA 320 / CGA 716/Single port/Dip tube	Brass or SS
	Cylinder	302	46 L	Aluminum	9.8 in	53 in	98 lb	65 lb	838	CGA 320 / CGA 716/Single port/Dip tube	Brass or SS

Contact Product Management for higher grade or other cylinder/valve combinations.

## Packaging information

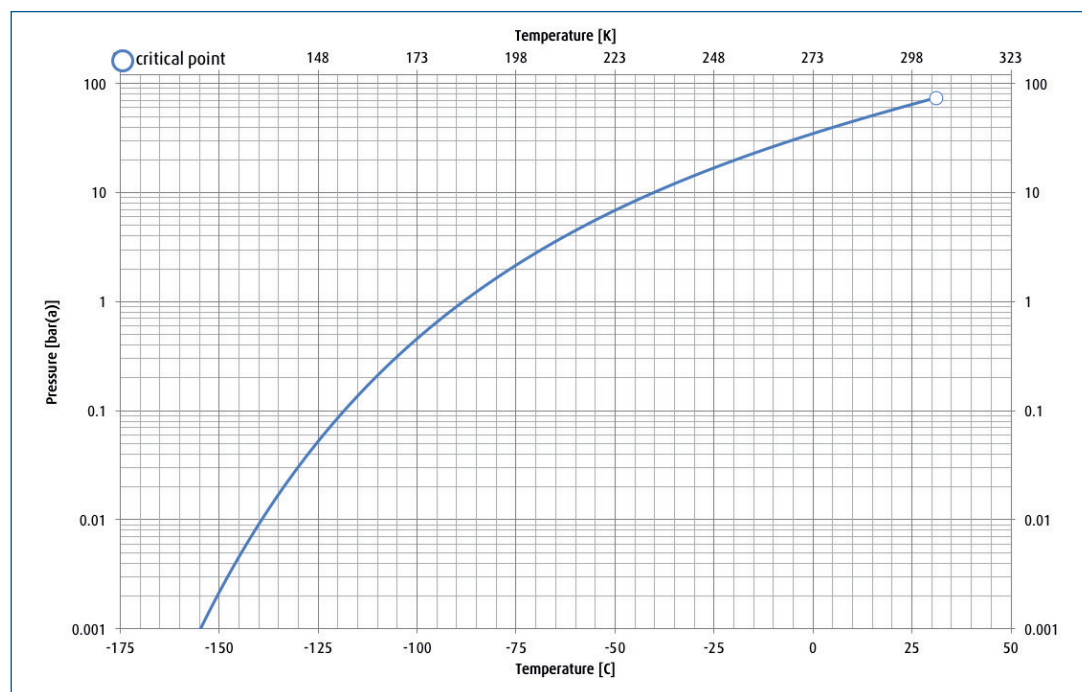
Package options	Cylinder designation	Cylinder internal volume	Cylinder material	Cylinder diameter	Cylinder height to valve outlet	Cylinder tare weight	Fill contents	Pressure (psig) @ 70°F	Valve outlet	Valve material
EU Grade 4.5N to 5.3N	Cylinder	50 L	Steel	237 mm	1,530 mm	63 kg	37.5 kg	57.3	DIN 6	SS
	Cylinder	10 L	Steel	140 mm	880 mm	12 kg	6.6 kg	57.3	DIN 6	SS

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## China Grade 5.0N

Y-Ton	470 L	470 L	Steel	610 mm	500 mm	560 kg	250 kg	58	CGA320	SS
Cylinder	47 L	47 L	Steel	237 mm	1,500 mm	65 kg	25 kg	58	CGA716	SS
Cylinder	47 L	47 L	Steel	237 mm	1,500 mm	65 kg	25 kg	58	CGA716	SS

## Vapor pressure curve



## Additional information

The information, recommendations, and data contained in this publication are intended to give basic guidance for safe handling and use of gases. For more information, please refer to Safety Data Sheets. You can locate these through the [Linde Safety Data Sheet Search](#). It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards. Further information and advice on any matter relating to the safe handling or use of these products may be obtained from the nearest Linde office.

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