Fluorine. F_2

Product information

Fluorine is produced by electrolyzing a solution of potassium fluoride in anhydrous hydrogen fluoride. It is used as chemical feedstock for a variety of fluorinated compounds such as sulfur hexafluoride, nitrogen trifluoride, boron trifluoride, tungsten hexafluoride, etc. Fluorine is used for CVD chamber cleaning in semiconductor, LCD, and solar manufacturing. It can be used either thermally or with plasma due to its low decomposition energy. Fluorine has zero GWP; along with cleaning performance, reduced global warming emissions can be a driver for the use.

Characteristics

Pale yellow gas with sharp odour. Ignites most organic materials and metals. Highly corrosive. See comprehensive handling directives. Gas density is heavier than air.

Physical data

Molecular weight	[g/mol]	37.997		
Boiling point	at 1.013 bar [°C]	-188.2	at 14.5 psi [°F]	-306.74
Density	at 1.013 bar, 15 °C [kg/m³]	1.608	at 1 atm., 70 °F [lb/ft³]	0.098
Vapor pressure	at 0 °C [bar]	-	at 32 °F [psi]	-
	at 20 °C [bar]	-	at 70 °F [psi]	-
Flammability range in air (% volume)		Non-combustible		

Product specification

Purity grade	Typical purity	Typical impurities [ppm]						
		CF_4	CH_4	CO	CO_2	HF	N_2O	SF_6
3.5N	≥99.95 %	≤75	≤5	≤10	≤10	≤20	≤5	≤10

Contact our team for higher grade or different specification products.

Shipping information

UN number	CAS number	EC number	DOT label	Hazard labels required
1045	7782-41-4	231-954-8	Poison gas, Oxidizing, Corrosive	ADR Class 2.3 (5.1, 8) DOT Class 2.3 (5.1, 8)

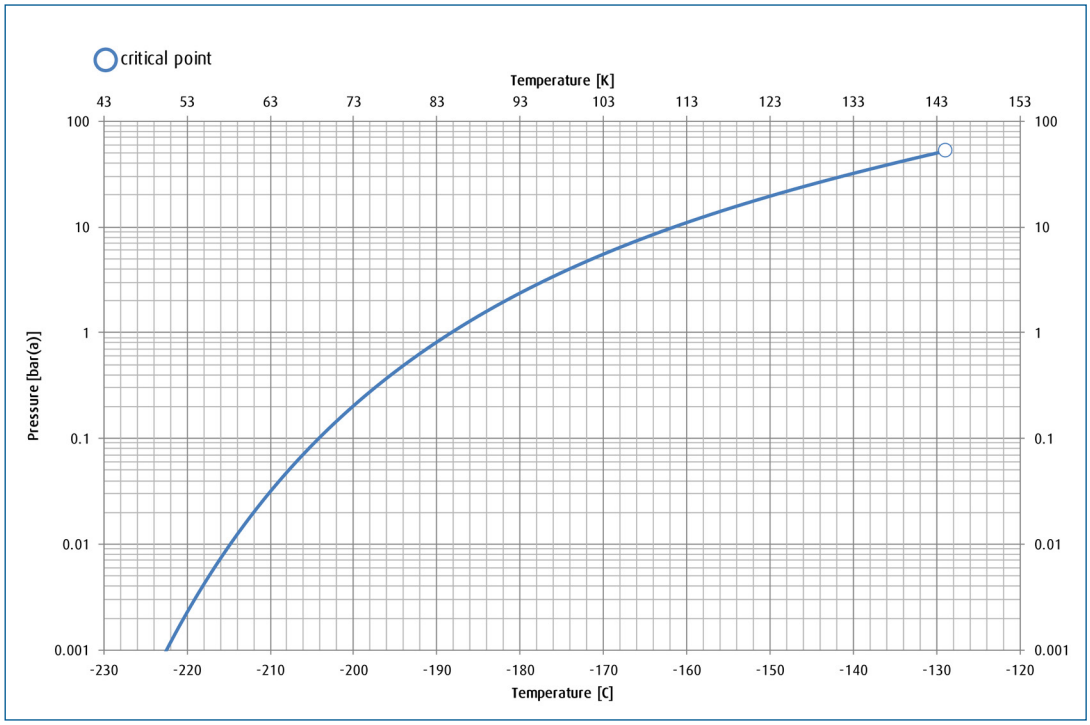
Packaging information

Linde provides on-site services with proven technology for generating low pressure F_2 on-site and on-demand eliminates the need for large volume / high pressure storage and ensures safe, reliable, and high-purity supply.

F_2 Generator basic information - Please contact local team for more details.

Package options	Dimensions Dimensions do not include piping and ductwork.	Cell Type	Production Capacity
F80	803 mm D x 2340 mm W x 2054 mm H (31.6″ D x 92.1″ W x 80.9″ H)	FZ2	1.3 slpm
F1600	1450 mm D x 7730 mm W x 2500 mm H (57″ D x 304″ W x 98″ H)	FZ32M / FM32	26.7 slpm
F3200	1600 mm D x 7623 mm W x 2200 mm H (63″ D x 300″ W x 87″ H)	FZ32M / FM32 / FM64	26.7 slpm for FZ32 and FM32, 50 slpm for FM64

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.

Please visit www.linde.com/electronics for Linde Electronics sales offices information.