

## Toxic and Hazardous Gas Classifications Chart

Gas	Molecular Formula	CAS	Physical State & Description	Hazard Control Plan	Description	Hazards	CGSL Hazard Class
Acetylene	C <sub>2</sub> H <sub>2</sub>	74-86-2	Dissolved gas - Colorless, odorless	Compressed gas	Colorless, odorless	Flammable, unstable, reactive	IV
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Ammonia	NH <sub>3</sub>	7664-41-7	Liquefied gas	Compressed gas	Colorless, strong pungent odor	Corrosive, non-flammable	III
	[Threshold Limit Values ppm: 25; Permissible Exposure Limit ppm: 50; Lethal Concentration ppm: 7338; Immediately Dangerous to Life or Health ppm: 500]						
Argon	Ar	7440-37-1	Compressed gas	Compressed gas	Colorless, odorless	Simple asphyxiant	IV
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Arsine	AsH <sub>3</sub>	7784-42-1	Compressed gas	Arsine	Colorless, garlic or fish-like scent	Highly toxic, flammable, pyrophoric	I
	[Threshold Limit Values ppm: 0.05; Permissible Exposure Limit ppm: 0.05; Lethal Concentration ppm: 178; Immediately Dangerous to Life or Health ppm: 3]						
Boron tribromide	BBr <sub>3</sub>	10294-33-4	Liquid	Compressed gas	Colorless	Toxic, corrosive	II
	[Threshold Limit Values ppm: 1; Permissible Exposure Limit ppm: 1; Lethal Concentration ppm: 380; Immediately Dangerous to Life or Health ppm: 50]						
Boron trichloride	BCl <sub>3</sub>	10294-34-5	Compressed gas	Compressed gas	Colorless	Corrosive	III
	[Threshold Limit Values ppm: 5; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 2541; Immediately Dangerous to Life or Health ppm: 25]						

					Colorless, strong irritating pungent odor	Toxic, corrosive	II
Boron trifluoride	BF3	7637-07-2	Compressed gas	Compressed gas			
	[Threshold Limit Values ppm: 1; Permissible Exposure Limit ppm: 1; Lethal Concentration ppm: 864; Immediately Dangerous to Life or Health ppm: 25]						
					Brownish red liquid, suffocating odor	Highly toxic, corrosive, oxidizer	I
Bromine	Br2	7726-95-6	Liquid	Bromine			
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 113; Immediately Dangerous to Life or Health ppm: 3]						
					Colorless, odorless, tasteless	Simple asphyxiant	IV
Carbon dioxide	CO2	124-38-9	Compressed gas	Compressed gas			
	[Threshold Limit Values ppm: 5000; Permissible Exposure Limit ppm: 5000; Immediately Dangerous to Life or Health ppm: 40000]						
					Colorless, odorless, tasteless	Toxic, flammable	III
Carbon monoxide	CO	630-08-0	Compressed gas	Carbon monoxide			
	[Threshold Limit Values ppm: 25; Permissible Exposure Limit ppm: 25; Lethal Concentration ppm: 3760; Immediately Dangerous to Life or Health ppm: 1200]						
					Greenish- yellow, pungent odor similar to bleach	Toxic, corrosive, oxidizer	II
Chlorine	Cl2	7782-50-5	Compressed gas	Chlorine			
	[Threshold Limit Values ppm: 0.5; Permissible Exposure Limit ppm: 1; Lethal Concentration ppm: 293; Immediately Dangerous to Life or Health ppm: 10]						
					Chlorine-like odor	Toxic, oxidizer	II
Chlorine dioxide	ClO2	10049-04-4	Gas	Compressed gas			
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 250; Immediately Dangerous to Life or Health ppm: 5]						

Chlorine trifluoride	ClF <sub>3</sub>	7790-91-2	Liquefied gas	Compressed gas	Colorless, strong irritating odor	Toxic, oxidizer, corrosive	II
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 299; Immediately Dangerous to Life or Health ppm: 20]						
Deuterium	H <sub>2</sub>	7782-39-0	Compressed gas	Compressed gas	Colorless	Flammable	IV
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Diborane	B <sub>2</sub> H <sub>6</sub>	19278-45-7	Liquefied gas	Diborane	Colorless, repulsively sweet odor	Highly toxic, flammable, pyrophoric	I
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 80; Immediately Dangerous to Life or Health ppm: 15]						
Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub> (HCl)	4109-96-0	Liquefied gas	Compressed gas	Colorless	Toxic, corrosive, flammable	II
	[Threshold Limit Values ppm: 2; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 314; Immediately Dangerous to Life or Health ppm: 50]						
Ethane	C <sub>2</sub> H <sub>6</sub>	74-84-0	Compressed gas	Compressed gas	Colorless, odorless	Flammable	IV
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Ethylene	C <sub>2</sub> H <sub>4</sub>	74-85-1	Compressed gas	Compressed gas	Colorless, sweet musky odor	Flammable	IV
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Ethylene oxide	C <sub>2</sub> H <sub>4</sub> O	75-21-8	Liquefied gas	Ethylene oxide	Colorless, faintly sweet odor	Toxic, flammable	III
	[Threshold Limit Values ppm: 1; Permissible Exposure Limit ppm: 1; Lethal Concentration ppm: 2900; Immediately Dangerous to Life or Health ppm: 800]						

Fluorine	F2	7782-41-4	Compressed gas	Hydrogen fluoride	Pale yellow, strong, irritating, pungent	Highly toxic, corrosive, oxidizer	I
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 185; Immediately Dangerous to Life or Health ppm: 25]						
Germane	GeH4	7782-65-2	Liquefied gas	Germane	Colorless	Highly toxic, flammable, pyrophoric	II
	[Threshold Limit Values ppm: 0.2; Permissible Exposure Limit ppm: 0.2; Lethal Concentration ppm: 620]						
Helium	He	7440-59-7	Compressed or Liquefied gas	Compressed gas	Colorless, odorless, tasteless	Simple asphyxiant	IV
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Hydrogen	H2	1333-74-0	Compressed gas	Compressed gas	Colorless, odorless, tasteless	Flammable	IV
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Hydrogen bromide	HBr	10035-10-6	Compressed gas	Compressed gas	Colorless, sharp, unpleasant, pungent odor	Toxic, corrosive	III
	[Threshold Limit Values ppm: 3; Permissible Exposure Limit ppm: 3; Lethal Concentration ppm: 2860; Immediately Dangerous to Life or Health ppm: 30]						
Hydrogen chloride	HCl	7647-01-0	Compressed gas	Compressed gas	Colorless, strongly irritating	Toxic, corrosive	III
	[Threshold Limit Values ppm: 5; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 2810; Immediately Dangerous to Life or Health ppm: 50]						
	HCN	74-90-8	Liquid	Hydrogen cyanide	Colorless, faint almond-like odor	Highly toxic, flammable	I

Hydrogen cyanide	[Permissible Exposure Limit ppm: 4.7; Lethal Concentration ppm: 40; Immediately Dangerous to Life or Health ppm: 50]						
	HF	7664-39-3	Liquefied gas	Hydrogen fluoride	Colorless, strong irritating odor	Toxic, corrosive	II
Hydrogen fluoride	[Threshold Limit Values ppm: 0.5; Permissible Exposure Limit ppm: 3; Lethal Concentration ppm: 1300; Immediately Dangerous to Life or Health ppm: 30]						
Hydrogen iodide	HI	10034-85-2	Liquefied gas	Compressed gas	Colorless, pungent odor	Toxic, corrosive	III
	[Lethal Concentration ppm: 2860]						
	H <sub>2</sub> Se	7783-07-5	Compressed gas	Hydrogen selenide	Colorless, very irritating odor like rotten eggs	Highly toxic, flammable	I
Hydrogen selenide	[Threshold Limit Values ppm: 0.05; Permissible Exposure Limit ppm: 0.05; Lethal Concentration ppm: 51; Immediately Dangerous to Life or Health ppm: 1]						
	H <sub>2</sub> S	7783-06-4	Liquefied gas	Compressed gas	Colorless, foul odor like rotten eggs	Toxic, flammable, corrosive	II
Hydrogen sulfide	[Threshold Limit Values ppm: 10; Permissible Exposure Limit ppm: 10; Lethal Concentration ppm: 712; Immediately Dangerous to Life or Health ppm: 100]						
	Kr	7439-90-9	Compressed gas	Compressed gas	Colorless, odorless, tasteless	Simple asphyxiant	IV
Krypton	—						
	CH <sub>4</sub>	74-82-8	Compressed gas	Compressed gas	Colorless, odorless	Flammable	IV
Methane	—						
	CH <sub>3</sub> Br	74-83-9	Compressed gas	Compressed gas	Colorless, odorless, nonflammable	Toxic, flammable	II

Methyl bromide	[Threshold Limit Values ppm: 1; Permissible Exposure Limit ppm: 1; Lethal Concentration ppm: 850; Immediately Dangerous to Life or Health ppm: 250]						
	CH3Cl	74-87-3	Compressed gas	Compressed gas	Colorless, mildly sweet odor	Flammable	IV
Methyl chloride	[Threshold Limit Values ppm: 50; Permissible Exposure Limit ppm: 50; Immediately Dangerous to Life or Health ppm: 2000]						
	CH3NCO	624-83-9	Liquid	Methylisocyanate	Colorless	Highly toxic, flammable	I
Methyl isocyanate	[Threshold Limit Values ppm: 0.02; Permissible Exposure Limit ppm: 0.02; Lethal Concentration ppm: 22; Immediately Dangerous to Life or Health ppm: 3]						
	CH3SH	74-93-1	Liquefied gas	Compressed gas	Colorless, cabbage-like odor	Toxic, flammable	II
Methyl mercaptan	[Threshold Limit Values ppm: 0.5; Permissible Exposure Limit ppm: 0.5; Lethal Concentration ppm: 1350; Immediately Dangerous to Life or Health ppm: 150]						
	Ne	1/9/7440	Compressed gas	Compressed gas	Colorless, odorless, tasteless	Simple asphyxiant	IV
Neon	—						
	Ni(CO)4	13463-39-3	Liquid	Forbidden at UCSD	Musty or sooty odor	Highly toxic, flammable	I
Nickel carbonyl	[Threshold Limit Values ppm: 0.001; Permissible Exposure Limit ppm: 0.001; Lethal Concentration ppm: 18; Immediately Dangerous to Life or Health ppm: 2]						
	NO	10102-43-9	Compressed gas	Nitric oxide	Colorless, irritating odor	Highly toxic, oxidizer, corrosive	I
Nitric oxide	[Threshold Limit Values ppm: 25; Permissible Exposure Limit ppm: 25; Lethal Concentration ppm: 115; Immediately Dangerous to Life or Health ppm: 100]						
	N2	7727-37-9	Compressed or Liquefied gas	Compressed gas	Colorless, odorless, tasteless	Simple asphyxiant	IV

Nitrogen	—						
Nitrogen dioxide	NO2	10102-44-0	Liquefied gas	Nitrogen dioxide	Reddish-brown color, irritating odor	Highly toxic, oxidizer, corrosive	I
	[Threshold Limit Values ppm: 3; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 115; Immediately Dangerous to Life or Health ppm: 20]						
Nitrous oxide	N2O	10024-97-2	Compressed gas	Compressed gas	Colorless, faint sweet odor	Oxidizer	IV
	[Threshold Limit Values ppm: 50; Permissible Exposure Limit ppm: 50]						
Oxygen	O2	7782-44-7	Compressed gas	Compressed gas	Colorless, odorless, tasteless	Oxidizer	IV
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Ozone	O3	10028-15-6	In situ, dissolved gas	Ozone	Colorless, sharp odor	Highly toxic, oxidizer	I
	[Threshold Limit Values ppm: 0.05; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 9; Immediately Dangerous to Life or Health ppm: 5]						
Phosgene	COCl2	75-44-5	Liquefied gas	Phosgene	Colorless, odor like freshly cut hay or grass	Highly toxic	I
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 5; Immediately Dangerous to Life or Health ppm: 2]						
Phosphine	PH3	7803-51-2	Liquefied gas	Phosphine	Colorless, odorless	Highly toxic, flammable, pyrophoric	I
	[Threshold Limit Values ppm: 0.3; Permissible Exposure Limit ppm: 0.3; Lethal Concentration ppm: 20; Immediately Dangerous to Life or Health ppm: 50]						
Phosphorus	POCl3	10025-87-3	Liquid	Phosphorus oxychloride	Colorless	Highly toxic	I

oxychloride	[Threshold Limit Values ppm: 0.1]						
Phosphorus pentafluoride	PF5	7647-19-0	Liquefied gas	Compressed gas	Colorless, strong, irritating, pungent odor	Toxic, oxidizer, corrosive	II
	[Permissible Exposure Limit ppm: 261]						
Phosphorus trichloride	PCl3	12/2/7719	Liquid	Compressed gas	Colorless fuming liquid, pungent odor	Toxic, corrosive	II
	[Threshold Limit Values ppm: 0.2; Permissible Exposure Limit ppm: 0.2; Lethal Concentration ppm: 208; Immediately Dangerous to Life or Health ppm: 25]						
Propane	C3H8	74-98-6	Liquefied gas	Compressed gas	Colorless	Flammable	IV
	[Permissible Exposure Limit ppm: 1000]						
Selenium hexafluoride	SeF6	7783-79-1	Compressed gas	Selenium hexafluoride	Colorless, strong, irritating, repulsive odor	Highly toxic, corrosive	I
	[Threshold Limit Values ppm: 0.05; Permissible Exposure Limit ppm: 0.05; Lethal Concentration ppm: 50; Immediately Dangerous to Life or Health ppm: 2]						
Silane	SiH4	7803-62-5	Compressed gas	Silane	Colorless, sharp repulsive odor	Pyrophoric	I
	[Threshold Limit Values ppm: 5; Permissible Exposure Limit ppm: 5]						
Silicon tetrachloride	SiCl4	10026-04-7	Liquid	Compressed gas	Colorless fuming liquid, irritating odor	Toxic, corrosive	II
	[Threshold Limit Values ppm: 2; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 750; Immediately Dangerous to Life or Health ppm: 100]						



					Colorless, strong irritating disagreeable odor	Toxic, corrosive	II
Silicon tetrafluoride	SiF4 (HF)	7783-61-1	Compressed gas	Compressed gas			
	[Threshold Limit Values ppm: 3.2; Permissible Exposure Limit ppm: 3.2; Lethal Concentration ppm: 922; Immediately Dangerous to Life or Health ppm: 30]						
					Colorless, odor like rotten eggs	Highly toxic, flammable	I
Stibine	SbH3	7803-52-3	Compressed gas	Stibine			
	[Threshold Limit Values ppm: 0.1; Permissible Exposure Limit ppm: 0.1; Lethal Concentration ppm: 178; Immediately Dangerous to Life or Health ppm: 5]						
					Colorless, pungent odor	Toxic, corrosive	III
Sulfur dioxide	SO2	7446-09-5	Liquefied gas	Compressed gas			
	[Threshold Limit Values ppm: 2; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 2520; Immediately Dangerous to Life or Health ppm: 100]						
					colorless, odorless, tasteless	Simple asphyxiant	IV
Sulfur hexafluoride	SF6	2551-62-4	Liquefied gas	Compressed gas			
	—						
					Colorless, odorless, strong irritating	Toxic, corrosive	III
Sulfuryl fluoride	SO 2F2	2699-79-8	Liquefied gas	Compressed gas			
	[Threshold Limit Values ppm: 5; Permissible Exposure Limit ppm: 5; Lethal Concentration ppm: 3020; Immediately Dangerous to Life or Health ppm: 1000]						
					Colorless gas, repulsive odor, strong irritating	Highly toxic, corrosive	I
Tellurium hexafluoride	TeF6	7783-80-4	Compressed gas	Tellurium hexafluoride			
	[Threshold Limit Values ppm: 0.02; Permissible Exposure Limit ppm: 0.02; Lethal Concentration ppm: 25; Immediately Dangerous to Life or Health ppm: 1]						

	TiCl <sub>4</sub>	7550-45-0	Liquid	Titanium tetrachloride	Colorless, yellow or reddish brown	Highly toxic, corrosive	I
Titanium tetrachloride	[Permissible Exposure Limit ppm: 1.3; Lethal Concentration ppm: 119; Immediately Dangerous to Life or Health ppm: 1.3]						
	WF <sub>6</sub> (HF)	7783-82-6	Compressed gas	Compressed gas	Colorless, strong irritating	Toxic, corrosive	II
Tungsten hexafluoride	[Permissible Exposure Limit ppm: 30; Lethal Concentration ppm: 218; Immediately Dangerous to Life or Health ppm: 30]						
	C <sub>2</sub> H <sub>3</sub> Br	593-60-2	Liquefied gas	Compressed gas	Colorless, sweet odor	Toxic, flammable	IV
Vinyl bromide	[Permissible Exposure Limit ppm: .01; Lethal Concentration ppm: >40,000]						
	C <sub>2</sub> H <sub>3</sub> Cl	75-01-4	Liquefied gas	Compressed gas	Colorless, sweet odor	Toxic, flammable	IV
Vinyl chloride	[Lethal Concentration ppm: 150.000]						
	Xe	7440-63-3	Compressed gas	Compressed gas	Colorless, odorless, tasteless	Simple asphyxiant	IV
Xenon							