

# GAS SAFETY AND MATERIAL COMPATIBILITY DATA CHART

This data has been compiled from the best information available and is offered as a guide to proper material selection. The data presented are generalized for average conditions of temperature and pressure. The user should always investigate the characteristics of the gas being handled and take all the proper precautions. Our technical staff will be pleased to give free advice and technical information on any gas or chemical product of interest.

GAS	HAZARDS FOR HUMANS			MATERIALS OF CONSTRUCTION									SPECIAL CHARACTERISTICS
	Toxic	Flammable	Corrosive	Aluminum	Copper	Brass	Steel	Stainless Steel	Monel®	Kel-F®	Teflon®		
Acetylene		◇		R	N	R	R	R		R	R	Do not use at pressures exceeding 15psig	
Air				R	R	R	R	R	R	R	R		
Ammonia	◇	◇	◇	R	N	N	X	R		R	R	Causes stress cracking of copper and copper alloys	
Argon				R	R	R	R	R		R	R		
Arsine*	◇	◇		X	N	X	X	R		R	R	Highly toxic, excessive exposure may have delayed effect	
Boron Trichloride	◇		◇	N	X	X	X	X	X	R	R		
Boron Trifluoride	◇		◇	X	R	R	R	R	R	R	R		
1-3, Butadiene		◇		R	R	R	R	R		R	R		
Butane		◇		R	R	R	R	R		R	R		
Butenes		◇		R	R	R	R	R		R	R		
Carbon Dioxide				R	R	R	R	R		R	R		
Carbon Monoxide	◇	◇		R	R	R	R	R		R	R		
Carbonyl Sulfide	◇	◇		R	N	N	X	R		R	R	Treat as Hydrogen Sulfide, affects central nervous system	
Chlorine	◇		◇	N	N	N	X	X	X	R	R	Very toxic and damaging to the respiratory system	
Cyanogen*	◇	◇		X			R	R		R	R	Treat as cyanides	
Deuterium		◇		R	R	R	R	R		R	R		
Dimethylamine	◇	◇	◇	X	N	N	R	R		X	R	Attacks copper and copper alloys rapidly.	
Dimethyl Ether		◇		R	R	R	R	R		R	R		
Ethane		◇		R	R	R				R	R		
Ethyl Chloride	◇	◇				R	R	R		R	R		
Ethylene		◇		R	R	R	R	R		R	R		
Ethylene Oxide	◇	◇		N	N	R	R			R	R	Exposure of liquid on skin or clothing can cause dermatitis	
Fluorine*	◇		◇	R	R	X		R	R	N	X	Strong oxidant, can ignite combustible materials and metals	
Helium				R	R	R	R	R		R	R		
Hydrogen		◇		R	R	R	R	R		R	R		
Hydrogen Bromide	◇		◇	N	X	N	X	X	X	R	R	Steel or stainless steel serviceable in dry liquid or gas service	
Hydrogen Chloride	◇		◇	N	X		X	X	X	R	R	Steel or stainless steel serviceable in dry liquid or gas service	
Hydrogen Fluoride*	◇		◇	X	R	R	R	R		R	R	Exposure can attack skin, bones and fingernails	
Hydrogen Selenide	◇	◇		N	N	N	X	R		R	R	Extremely toxic, odor deadens the olfactory nerves	
Hydrogen Sulfide*	◇	◇		N	N	N	X	R		R	R	Odor deadens olfactory nerves, can cause paralysis	
Isobutane		◇		R	R	R	R	R		R	R		
Isobutylene		◇		R	R	R	R	R		R	R		
Krypton				R	R	R	R	R		R	R		

\*It is recommended that users thoroughly familiarize themselves with the specific properties of this gas.

LEGEND	
◇ - Primary Hazard	N - Not Recommended
R - Recommended	X - Depends on conditions