



Materials Compatibility Guide

The following data should serve as a guide in the selection of components for particular gas services.

C - Gas is compatible at room temperature in pure form with material recommended.

N - Not recommended with this gas.

- Insufficient data available at this time.

Gas	ID #	Chemical Formula	316 Stainless Steel	Monel	Brass	Aluminum	Zinc	Copper
Acetylene	UN1001	C ₂ H ₂	C	C	C	C	N	N
Air	UN1002	N / A	C	C	C	C	C	C
Allene	UN2200	C ₃ H ₄	C	C	C	C	-	N
Ammonia	UN1005	NH ₃	C	C	N	C	N	N
Argon	UN1006	Ar	C	C	C	C	C	C
Arsine	UN2188	AsH ₃	C	C	C	-	-	-
Boron Trichloride	UN1741	BCl ₃	C	C	C	-	-	C
Boron Trifluoride	UN1008	BF ₃	C	C	C	C	-	C
1,3 Butadiene	UN1010	C ₄ H ₆	C	C	C	C	C	C
Butane	UN1011	C ₄ H ₁₀	C	C	C	C	C	C
1-Butene	UN1012	C ₄ H ₈	C	C	C	C	C	C
Carbon Dioxide	UN1013	CO ₂	C	C	C	C	C	C
Carbon Monoxide	UN1016	CO	C	C	C	C	C	C
Carbonyl Sulfide	UN2204	COS	C	C	C	C	-	C
Chlorine	UN1017	Cl ₂	C	C	N	N	N	N
Cyanogen	UN1026	(CN) ₂	C	C	-	-	-	-
Cyclopropane	UN1027	C ₃ H ₆	C	C	C	C	C	C
Deuterium	UN1957	D ₂	C	C	C	C	C	C
Dichlorosilane	UN2189	H ₂ SiCl ₂	C	C	-	-	-	-
Dimethylamine	UN1032	(CH ₃) ₂ NH	C	-	N	N	N	N
Dimethyl Ether	UN1033	(CH ₃) ₂ O	C	C	C	C	C	C
Ethane	UN1035	C ₂ H ₆	C	C	C	C	C	C
Ethyl Chloride	UN1037	C ₂ H ₅ Cl	C	C	C	C	-	C
Ethylene	UN1962	C ₂ H ₄	C	C	C	C	C	C
Halocarbon 11	None	CCl ₃ F	C	C	C	C	-	C
Halocarbon 12	UN1028	CCl ₂ F ₂	C	C	C	C	-	C
Halocarbon 13	UN1022	CClF ₃	C	C	C	C	-	C
Halocarbon 13B1	UN1009	CBrF ₃	C	C	C	C	-	C
Halocarbon 14	UN1982	CF ₄	C	C	C	C	-	C
Halocarbon 22	UN1018	CHClF ₂	C	C	C	C	-	C
Halocarbon 23	UN1984	CHF ₃	C	C	C	C	-	C
Halocarbon 113	None	CCl ₂ FCClF ₂	C	C	C	C	N	C
Halocarbon 114	Un1958	C ₂ Cl ₂ F ₄	C	C	C	C	-	C
Halocarbon 115	UN1020	C ₂ ClF ₅	C	C	C	C	-	C
Halocarbon 116	UN2193	C ₂ F ₆	C	C	C	C	-	C
Halocarbon 142B	UN2517	C ₂ H ₃ ClF ₂	C	C	C	C	-	C
Halocarbon C318	UN1956	C ₂ F ₆	C	C	C	C	-	-
Halocarbon 502	UN1973	CHClF ₂ /CClF ₂ -CF ₃	C	C	-	C	-	-

Gas	ID #	Chemical Formula	316 Stainless Steel	Monel	Brass	Aluminum	Zinc	Copper
Helium	UN1046	He	C	C	C	C	C	C
Hydrogen	UN1049	H ₂	C	C	C	C	C	C
Hydrogen Bromide	UN1048	HBr	C	C	N	-	N	N
Hydrogen Chloride	UN1050	HCl	C	C	N	-	N	N
Hydrogen Fluoride	UN1052	HF	C	C	-	-	-	-
Hydrogen Selenide	UN2202	H ₂ Se	C	-	C	C	-	-
Hydrogen Sulfide	UN1053	H ₂ S	C	C	-	C	-	-
Isobutane	UN1969	CH(CH ₃) ₃	C	C	C	C	C	C
Isobutylene	UN1055	C ₄ H ₈	C	C	C	C	C	C
Krypton	UN1056	Kr	C	C	C	C	C	C
Methane	UN1062	CH ₄	C	C	C	C	C	C
Methyl Bromide	UN1072	CH ₃ Br	C	-	C	N	-	C
Methyl Chloride	UN1063	CH ₃ Cl	C	C	C	N	N	C
Methyl Fluoride	UN2454	CH ₃ F	C	C	C	C	-	C
Methyl Mercaptan	UN1064	CH ₃ SH	C	N	C	N	-	N
Monomethylamine	UN1061	CH ₃ NH ₂	C	N	N	N	N	N
Neon	UN1065	Ne	C	C	C	C	C	C
Nitric Oxide	UN1660	NO	C	C	C	C	-	C
Nitrogen	UN1066	N ₂	C	C	C	C	C	C
Nitrogen Dioxide	UN1067	NO ₂	C	C	-	C	-	-
Nitrous Oxide	UN1070	N ₂ O	C	C	C	C	C	C
Oxygen	UN1072	O ₂	C	C	C	N	C	C
Perfluoropropane	UN2424	C ₃ F ₈	C	C	C	C	C	C
Phosgene	UN1076	COCl ₂	C	C	-	-	-	N
Phosphine	UN2199	PH ₃	C	C	-	-	-	-
Phosphorus								
Pentafluoride	UN2198	PF ₅	C	C	-	-	-	-
Propane	UN1978	C ₃ H ₈	C	C	C	C	C	C
Propylene	UN1077	C ₃ H ₆	C	C	C	C	C	C
Silane	UN2203	SiH ₄	C	C	C	C	-	C
Silicon								
Tetrafluoride	UN1859	SiF ₄	C	C	C	C	-	C
Sulfur Dioxide	UN1079	SO ₂	C	C	N	C	N	N
Sulfur								
Hexafluoride	UN1080	SF ₆	C	C	C	C	-	C
Trimethylamine	UN1083	(CH ₃) ₃ N	C	C	N	N	N	N
Vinyl Methyl Ether	UN1087	C ₂ H ₅ O	C	C	C	C	-	N
Xenon	UN2036	Xe	C	C	C	C	C	C