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*
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***S** Suitability depends on condition of use*
***–** Insufficient data available at this time*

			Metals						Plastics				Elastomers		
Gas	ID #	Chemical Formula	316 Stainless Steel	Monel	Brass	Aluminum	Zinc	Copper	Kel-F	Teflon	Tetzel	Kynar	Viton	Buna-N	Neoprene
Acetylene	UN1001	C_2H_2	C	C	C	C	N	N	C	C	C	C	C	C	C
Air	UN1002	N/A	C	C	C	C	C	C	C	C	C	C	C	C	C
Ammonia	UN1005	NH_3	C	C	N	C	N	N	C	C	C	N	N	C	C
Argon	UN1006	Ar	C	C	C	C	C	C	C	C	C	C	C	C	C
Arsine	UN2188	AsH_3	C	C	C	-	-	C	C	C	C	C	C	C	C
Boron Trichloride	UN1741	BCl_3	C	C	S	N	-	C	C	C	C	-	-	-	-
Boron Trifluoride	UN1008	BF_3	C	C	S	C	-	S	C	C	C	-	-	-	-
Bromine Trifluoride	UN1746	BrF_3	C	C	S	S	-	S	S	S	C	N	N	N	N
1,3-Butadiene	UN1010	C_4H_6	C	C	C	C	C	C	C	C	C	C	C	C	C
n-Butane	UN1011	C_4H_{10}	C	C	C	C	C	C	C	C	C	C	C	C	C
1-Butene	UN1012	C_4H_8	C	C	C	C	C	C	C	C	C	C	C	C	C
cis-2-Butene	UN1012	C_4H_8	C	C	C	C	C	C	C	C	C	C	C	C	C
trans-2-Butene	UN1012	C_4H_8	C	C	C	C	C	C	C	C	C	C	C	C	C
Carbon Dioxide	UN1013	CO_2	C	C	C	C	C	C	C	C	C	C	C	S	S
Carbon Monoxide	UN1016	CO	C	C	C	C	C	C	C	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	C	C	C	C	C	N	N
Chlorine Trifluoride	UN1749	ClF_3	C	C	-	N	-	-	S	S	C	N	N	N	N
Cyanogen	UN1026	C_2N_2	C	C	-	-	-	-	-	-	-	-	-	-	-
Cyclopropane	UN1027	C_3H_6	C	C	C	C	C	C	-	-	-	-	-	-	-
Deuterium	UN1957	D_2	C	C	C	C	C	C	C	C	C	C	C	C	C
Dichlorosilane	UN2189	H_2SiCl_2	C	C	-	N	-	-	C	C	C	C	-	-	-
Dimethylamine	UN1032	$(CH_3)_2NH$	C	C	N	N	N	N	C	C	C	C	N	N	-
Dimethyl Ether	UN1033	$(CH_3)_2O$	C	C	C	C	C	C	C	C	C	C	N	N	-
Disilane	UN1954	Si_2H_6	C	C	C	C	-	C	C	C	C	C	C	C	C
Ethane	UN1035	C_2H_6	C	C	C	C	C	C	C	C	C	C	C	C	C
Ethyl Chloride	UN1037	CH_3CH_2Cl	C	C	C	C	-	C	C	C	C	C	C	C	C
Ethylene	UN1962	$CH_2{:}CH_2$	C	C	C	C	C	C	C	C	C	C	C	C	C
Fluorine	UN1045	F_2	C	C	S	S	S	S	S	S	S	S	N	N	N
Halocarbon-14	UN1982	CF_4	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-23	UN1984	CHF_3	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-32	UN3252	CH_2F_2	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-116	UN2193	C_2F_6	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-218	UN2424	C_3F_8	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-236a	UN1954	$C_3H_2F_6$	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-1113	UN1082	C_2ClF_3	C	C	C	C	-	C	C	C	C	C	C	C	C
Halocarbon-4110	UN2810	C_5F_8	C	C	C	C	-	C	C	C	C	C	C	C	C
Helium	UN1046	He	C	C	C	C	C	C	C	C	C	C	C	C	C
Hydrogen	UN1049	H_2	C	C	C	C	C	C	C	C	C	C	C	C	C
Hydrogen Bromide	UN1048	HBr	C	C	N	N	N	N	C	C	C	C	C	N	N
Hydrogen Chloride	UN1050	HCl	C	C	N	N	N	N	C	C	C	C	C	N	N
Hydrogen Fluoride	UN1052	HF	C	C	N	N	-	N	C	C	C	C	N	N	N

Materials Compatibility Guide *(continued)*

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Gas	ID #	Chemical Formula	316 Stainless Steel	Monel	Brass	Aluminum	Zinc	Copper	Kel-F	Teflon	Tetzel	Kynar	Viton	Buna-N	Neoprene
Hydrogen Sulfide	UN1053	H_2S	C	C	N	C	-	-	C	C	C	C	N	C	C
Isobutane	UN1969	$(CH_3)_2CHCH_3$	C	C	C	C	C	C	C	C	C	C	C	C	C
Isobutylene	UN1055	$(CH_3)_2C:CH_2$	C	C	C	C	C	C	C	C	C	C	C	C	C
Krypton	UN1056	Kr	C	C	C	C	C	C	C	C	C	C	C	C	C
Methane	UN1062	CH_4	C	C	C	C	C	C	C	C	C	C	C	C	C
Methyl Bromide	UN1072	CH_3Br	C	-	C	N	-	C	-	-	-	-	-	-	-
Methyl Chloride	UN1063	CH_3CI	C	C	C	N	N	C	C	C	C	C	C	N	N
Methyl Fluoride	UN2454	CH_3F	C	C	C	C	-	C	C	C	C	C	-	-	-
Methyl Mercaptan	UN1064	CH_3SH	C	C	C	C	-	C	-	-	-	-	-	-	-
Monomethylamine	UN1061	CH_3NH_2	C	N	N	N	N	N	-	-	-	-	-	-	-
Neon	UN1065	Ne	C	C	C	C	C	C	C	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	C	C	C	C	C	C	C
Nitrogen Dioxide	UN1067	NO_2	C	C	N	C	-	N	C	C	-	-	N	N	N
Nitrogen Trifluoride	UN2451	NF_3	C	C	C	-	-	C	C	C	C	C	C	-	-
Nitrous Oxide	UN1070	N_2O	C	C	C	C	C	C	C	C	C	C	C	C	C
Octafluorocyclobutane	UN1976	C_4F_5	C	C	C	C	-	C	C	C	C	-	-	C	C
Octafluoropropane	UN2424	C_3F_5	C	C	C	C	-	C	C	C	C	C	C	C	C
Oxygen	UN1072	O_2	S	C	C	C	C	C	C	C	C	C	S	N	N
Phosphine	UN2199	PH_3	C	C	-	C	-	-	C	C	C	-	-	-	-
Propane	UN1978	C_3H_8	C	C	C	C	C	C	C	C	C	C	C	C	C
Propylene	UN1077	C_3H_6	C	C	C	C	C	C	C	C	C	C	C	C	N
Silane	UN2203	SiH_4	C	C	C	C	-	C	C	C	C	C	C	C	C
Silicon Tetrachloride	UN1818	$SiCI_4$	C	C	N	N	-	N	C	C	C	C	N	N	N
Silicon Tetrafluoride	UN1859	SiF_4	C	C	N	N	-	N	C	C	C	C	N	N	N
Sulfur Dioxide	UN1079	SO_2	C	C	N	C	N	C	C	C	C	C	C	N	N
Sulfur Hexafluoride	UN1080	SF_6	C	C	C	C	-	C	C	C	C	C	C	C	C
Sulfur Tetrafluoride	UN2418	SF_4	C	C	N	N	-	N	C	C	C	C	N	N	N
Trimethylamine	UN1083	$(CH_3)_3N$	C	C	N	N	N	N	-	-	-	-	-	-	-
Tungsten Hexafluoride	UN2196	WF_6	C	C	N	N	-	C	C	C	C	C	N	N	N
Vinyl Methyl Ether	UN1087	$CH_2:CHOCH_3$	C	C	C	C	-	N	-	-	-	-	-	-	-
Xenon	UN2036	Xe	C	C	C	C	C	C	C	C	C	C	C	C	C