

Gas Tables and K-factors

Actual Gas	Chemical Symbol	K-factor Relative to Air	Cp (Cal/g)	Density (g/l) @ 0°C	Elastomer* O-ring Valve Seat	
Acetylene	C ₂ H ₂	.58	.4036	1.162		
Air		1.000	.240	1.293		
Allene (Propadiene)	C ₃ H ₄	.43	.352	1.787		KR
Ammonia	NH ₃	.73	.492	.760	NEO	NEO
Argon	Ar	1.398	.1244	1.782		
Arsine	AsH ₃	.67	.1167	3.478		KR
Boron Trichloride	BCl ₃	.41	.1279	5.227	800 Series Recommended	
Boron Trifluoride	BF ₃	.51	.1778	3.025		KR
Boron Tribromide	Br ₃	.38	.0647	11.18		KR
Bromine	Br ₂	.81	.0539	7.130		
Bromine Pentafluoride	BrF ₅	.26	.1369	7.803		KR
Bromine Trifluoride	BrF ₃	.38	.1161	6.108		KR
Bromotrifluoromethane (Freon-13 B1)	CBrF ₃	.37	.1113	6.644		
1,3-Butadiene	C ₄ H ₆	.32	.3514	2.413		
Butane	C ₄ H ₁₀	.26	.4007	2.593	NEO	KR
1-Butane	C ₄ H ₈	.30	.3648	2.503	NEO	KR
2-Butane	C ₄ H ₈ CIS	.324	.336	2.503	NEO	KR
2-Butane	C ₄ H ₈ TRANS	.291	.374	2.503		
Carbon Dioxide	CO ₂	.737	.2016	1.964		
Carbon Disulfide	CS ₂	.60	.1428	3.397		
Carbon Monoxide	CO	1.004	.2488	1.250		
Carbon Tetrachloride	CCl ₄	.31	.1655	6.860		KR
Carbon Tetrafluoride (Freon-14)	CF ₄	.42	.1654	3.926		KR
Carbonyl Fluoride	COF ₂	.54	.1710	2.945		
Carbonyl Sulfide	COS	.66	.1651	2.680		
Chlorine	CL ₂	.86	.114	3.163		KR
Chlorine Trifluoride	ClF ₃	.40	.1650	4.125		KR
Chlorodifluoromethane (Freon-22)	CHClF ₂	.46	.1544	3.858		KR
Chloroform	CHCl ₃	.39	.1309	5.326		KR
Chloropentafluoroethane (Freon-115)	C ₂ ClF ₅	.24	.164	6.892		KR
Chlorotrifluoromethane (Freon-13)	CClF ₃	.38	.153	4.660		KR
Cyanogen	C ₂ N ₂	.61	.2613	2.322		KR
Cyanogen Chloride	ClCN	.61	.1739	2.742		
Cyclopropane	C ₃ H ₆	.46	.3177	1.877		KR
Deuterium	D ₂	1.00	.1722	1.799		
Diborane	B ₂ H ₆	.44	.508	1.235		KR
Dibromodifluoromethane	CBr ₂ F ₂	.19	.15	9.362		KR
Dibromomethane		.47	.075	7.76		KR
Dichlorodifluoromethane (Freon-12)	CCl ₂ F ₂	.35	.1432	5.395		KR
Dichlorofluoromethane (Freon-21)	CHCl ₂ F	.42	.140	4.952		KR

- If no O-ring material is specified then O-ring to be used is Viton. Nylon Flow Body instruments are only available with Viton elastomers. Valve Seat applies only to controllers.

Actual Gas	Chemical Symbol	K-factor Relative N2	Cp (Cal/g)	Density (g/l) @ 0°C	Elastomer* O-ring Valve Seat
Dichloromethylsilane	(CH ₃) ₂ SiCl ₂	.25	.1882	5.758	KR
Dichlorosilane	SiH ₂ Cl ₂	.40	.150	4.506	KR
Dichlorotetrafluoroethane (Freon-114)	C ₂ Cl ₂ F ₄	.22	.1604	7.626	KR
1,1-Difluoroethylene (Freon-1132A)	C ₂ H ₂ F ₂	.43	.224	2.857	KR
Dimethylamine	(CH ₃) ₂ NH	.37	.366	2.011	KR
Dimethyl Ether	(CH ₃) ₂ O	.39	.3414	2.055	KR
2,2-Dimethylpropane	C ₃ H ₁₂	.22	.3914	3.219	KR
Ethane	C ₂ H ₆	.50	.4097	1.342	
Ethanol	C ₂ H ₆ O	.39	.3395	2.055	KR
EthylAcetylene	C ₄ H ₆	.32	.3513	2.413	KR
Ethyl Chloride	C ₂ H ₅ Cl	.39	.244	2.879	KR
Ethylene	C ₂ H ₄	.60	.1365	1.251	
Ethylene Oxide	C ₂ H ₄ O	.52	.268	1.965	KR
Fluorine	F ₂	.980	.1873	1.695	KR
Fluoroform (Freon-23)	CHF ₃	.50	.176	3.127	KR
Freon-11	CCl ₃ F	.33	.1357	6.129	KR
Freon-12	CCl ₂ F ₂	.35	.1432	5.395	KR
Freon-13	CCIF ₃	.38	.153	4.660	KR
Freon-13	B1 CFrF ₃	.37	.1113	6.644	KR
Freon-14	CF ₄	.42	.1654	3.926	
Freon-21	CHCl ₂ F	.42	.140	4.952	KR
Freon-22	CHClF ₂	.46	.1544	3.858	KR
Freon-113	CCl ₂ FCClF ₂	.20	.161	8.360	KR
Freon-114	C ₂ Cl ₂ F ₄	.22	.160	7.626	KR
Freon-115	C ₂ ClF ₅	.24	.164	6.892	KR
Freon-C318	C ₄ F ₆	.17	.185	8.397	KR
Germane	GeH ₄	.57	.1404	3.418	
Germanium Tetrachloride	GeCl ₄	.27	.1071	9.565	KR
Helium	He	1.399	1.241	.1786	
Hexafluoroethane (Freon-116)	C ₂ F ₆	.24	.1834	6.157	KR
Hexane	C ₆ H ₁₄	.18	.3968	3.845	KR
Hydrogen	H ₂	1.001	3.419	.0899	
Hydrogen Bromide	HBr	1.000	.0861	3.610	KR
Hydrogen Chloride	HCl	1.000	.1912	1.627	800 Series Recommended
Hydrogen Cyanide	HCN	1.070	.3171	1.206	KR
Hydrogen Fluoride	HF	1.000	.3479	.893	800 Series Recommended
Hydrogen Iodide	HI	1.000	.0545	5.707	KR
Hydrogen Selenide	H ₂ Se	.79	.1025	3.613	KR
Hydrogen Sulfide	H ₂ S	.80	.2397	1.520	KR
Iodine Pentafluoride	IF ₅	.25	.1108	9.90	KR
Isobutane	CH(CH ₃) ₃	.27	.3872	3.593	KR
Isobutylene	C ₄ H ₈	.29	.3701	2.503	KR
Krypton	Kr	1.453	.0593	3.739	
Methane	CH ₄	.754	.5328	.715	
Methanol	CH ₃ OH	.58	.3274	1.429	
Methyl Acetylene	C ₃ H ₄	.43	.3547	1.787	KR
Methyl Bromide	CH ₂ Br	.58	.1106	4.236	
Methyl Chloride	CH ₃ Cl	.1926	2.253		KR
Methyl Fluoride	CH ₃ F	.68	.3221	1.518	KR

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Actual Gas	Chemical Symbol	K-factor Relative N2	Cp (Cal/g)	Density (g/l) @ 0°C	Elastomer* O-ring Valve Seat
Methyl Mercaptan	CH ₃ SH	.52	.2459	2.146	KR
Methyl Trichlorosilane	(CH ₃) SiCl ₃	.25	.164	6.669	KR
Molybdenum Hexafluoride	MoF ₆	.21	.1373	9.366	KR
Monoethylamine	C ₂ H ₅ NH ₂	.35	.387	2.011	KR
Monomethylamine	CH ₃ NH ₂	.51	.4343	1.386	KR
Neon	NE	1.46	.245	.900	
Nitric Oxide	NO	.990	.2328	1.339	
Nitrogen	N ₂	1.000	.2485	1.25	
Nitrogen Dioxide	NO ₂	.74	.1933	2.052	
Nitrogen Trifluoride	NF ₃	.48	.1797	3.168	KR
Nitrosyl Chloride	NOCl	.61	.1632	2.920	KR
Nitrous Oxide	N ₂ O	.715	.2088	1.964	
Octafluorocyclobutane (Freon-C318)	C ₄ F ₆	.17	.185	8.397	KR
Oxygen Difluoride	OF ₂	.63	.1917	2.406	
Oxygen	O ₂	.999	.2193	1.427	
Ozone	O ₃	.446	.3	2.144	
Pentaborane	B ₅ H ₉	.26	.38	2.816	KR
Pentane	C ₅ H ₁₂	.21	.398	3.219	KR
Perchloryl Fluoride	ClO ₃ F	.39	.1514	4.571	KR
Perfluoropropane	C ₃ F ₈	.174	.197	8.388	KR
Phosgene	COCl ₂	.44	.1394	4.418	KR
Phosphine	PH ₃	1.070	.2374	1.517	KR
Phosphorous Oxychloride	POCl ₃	.36	.1324	6.843	KR
Phosphorous Pentafluoride	PF ₅	.30	.1610	5.620	KR
Phosphorous Trichloride	PCl ₃	.30	.1250	6.127	KR
Propane	C ₃ H ₈	.36	.3885	1.967	
Propylene	C ₃ H ₆	.41	.3541	1.877	KR
Silane	SiH ₄	.60	.3189	1.433	KR
Silicon Tetrachloride	SiCl ₄	.28	.1270	7.580	KR
Silicon Tetrafluoride	SiF ₄	.35	.1691	4.643	KR
Sulfur Dioxide	SO ₂	.69	.1488	2.858	KR
Sulfur Hexafluoride	SF ₆	.26	.1592	6.516	KR
Sulfuryl Fluoride	SO ₂ F ₂	.39	.1543	4.562	KR
Teos		.090			800 Series Recommended
Tetrafluorohydrazine	N ₂ F ₄	.32	.182	4.64	KR
Trichlorofluoromethane (Freon-11)	CCl ₃ F	.33	.1357	6.129	KR
Trichlorosilane	SiHCl ₃	.33	.1380	6.043	KR
1,1,2-Trichloro-1,2,2 Trifluoroethane (Freon-113)	CCl ₂ FCCLF ₂	.20	.161	8.360	KR
Trisobutyl Aluminum	(C ₄ H ₉)Al	.061	.508	8.848	KR
Titanium Tetrachloride	TiCl ₄	.27	.120	8.465	KR
Trichloro Ethylene	C ₂ HCl ₃	.32	.163	5.95	KR
Trimethylamine	(CH ₃) ₃ N	.28	.3710	2.639	KR
Tungsten Hexafluoride	WF ₆	.25	.0810	13.28	800 Series Recommended
Uranium Hexafluoride	UF ₆	.20	.0888	15.70	KR
Vinyl Bromide	CH ₂ CHBr	.46	.1241	4.772	KR
Vinyl Chloride	CH ₂ CHCl	.48	.12054	2.788	KR
Xenon	Xe	1.44	.0378	5.858	

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