J. Gmehling
U. Onken

VAPOR-LIQUID EQUILIBRIUM DATA COLLECTION

Halogen, Nitrogen, Sulfur and other Compounds
Supplement 1

Chemistry Data Series

Vol. I, Part 8a

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Vapor-Liquid Equilibrium Data Collection

8a

Halogen, Nitrogen, Sulfur and other Compounds

Supplement 1

Tables and diagrams of data for binary and multicomponent mixtures up to moderate pressures. Constants of correlation equations for computer use.

J. Gmehling, U. Onken

Technische Chemie
Universität Oldenburg

Halogen, Nitrogen, Sulfur and other compounds

8a

Systems include:

Partially substituted aliphatic halogen compounds
Partially substituted aromatic halogen compounds
Fully substituted aliphatic halogen compounds
Fully substituted aromatic halogen compounds
Amides
Amines
Nitriles
Thiols
Sufides
Silanes
Heterocyclic compounds

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An substance index to Volume I on CD-ROM is available from the DECHEMA e.V. and its agents.

AUTHORS' PREFACE

With this volume we continue the publication of the new series of supplements of the Vapor-Liquid Equilibrium Data Collection.

The data in this book are taken from the Dortmund Data Bank. These data are also available in electronic form. This allows more frequent updating. The Dortmund Data Bank covers a large number of data in addition to VLE, LLE, h^E, γ^∞ published in the DECHEMA Chemistry Data Series. These include databases of the vapor-liquid equilibria of low boiling substances, azeotropic data, gas solubilities, vapor-liquid equilibria of electrolyte systems, excess volumes, excess heat capacities, solid-liquid equilibria, salt solubility data, adsorption equilibria for gases and a comprehensive collection of pure component properties.

The data in electronic form are available from DDBST GmbH (Oldenburg, Germany) or DECHEMA e.V. (Frankfurt am Main, Germany). Inhouse solutions are available from DDBST, DECHEMA e.V., FIZ Chemie GmbH (Berlin, Germany), Aspen Tech, Inc. (Boston MA, USA) and Mitsubishi Chemical Corporation (Kurashiki, Japan). A library of programs, available from DDBST GmbH, offers improved data handling and thus increased productivity. STN International (Columbus OH, USA / Karlsruhe, Germany / Tokyo, Japan) offers the databases online, as does DECHEMA via the Internet.

We would like again to express our thanks to the large number of colleagues who have supported and continue to support our efforts by supplying VLE and other thermophysical data from their research. Furthermore we like to appeal to other colleagues in this field to send us reprints of their published experimental results.

Oldenburg November 2001

J. Gmehling U. Onken

EXECUTIVE EDITOR'S PREFACE

DECHEMA, The Society for Chemical Technology and Biotechnology sees one of its major roles as a not-for-profit learned engineering society in enabling the publication of important fundamental engineering data. It has long offered authors from academe and industry the chance to publish collections of basic data. Because of its size and specialised interest this data would probably have never found a publisher outside the ranks of the engineering societies. DECHEMA is proud to have been associated with this programme for over twenty years. Much of the research effort to obtain this information was financed by the Federal German Research Ministry.

We hope that the publication of this data collection spurs other workers in this field to publish their collections of results. DECHEMA would be pleased to assist new toilers in the groves of physical data collection to bring their work to the attention of a wider audience either in a volume alone or in cooperation with one of our present teams of authors. We hope too that end users of this data find it of interest and utility. We are always prepared to extend this series and would thus be pleased to hear from readers, computer programmers and practising engineers and scientists of gaps in the physical data palette offered by the society which we could endeavour to fill.

Frankfurt am Main, November 2001 Gerhard Kreysa

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		$C_5H_{14}N_2$	N,N,N',N'-Tetramethyldiaminomethane	251
$C_2H_8N_2$	Ethylenediamine	C_3H_7NO	N,N-Dimethylformamide [DMF]	252
C_3F_6	Perfluoropropylene	$CHClF_2$	Difluorochloromethane [R22]	103
C_3H_3N	Acrylonitrile	CHN	Hydrogen Cyanide	140–144
		C_2H_3N	Acetonitrile	209
		C_3H_7NO	N,N-Dimethylformamide [DMF]	253
C_3H_5Cl	3-Chloro-1-Propene	$C_3H_6Cl_2$	1,2-Dichloropropane	256–259
	1-Chloropropane (isomer not specified)	$C_3H_6Cl_2$	1,2-Dichloropropane	254–255
$C_3H_6Cl_2$	1,2-Dichloropropane	CCl_4	Tetrachloromethane	71
		C_3H_5Cl	3-Chloro-1-Propene	256–259
			1-Chloropropane (isomer not specified)	254–255
		C_3H_7Cl	Isopropyl Chloride	260–263
	1,3-Dichloropropane	CCl_4	Tetrachloromethane	72–73
C_3H_7Br	Propyl Bromide	C_2H_3N	Acetonitrile	210
		$C_2H_4Cl_2$	1,1-Dichloroethane [R150a]	225
		C_2H_5I	Ethyl Iodide	226
		C_4H_9Cl	Butyl Chloride	264–265

C_3H_7Cl	Isopropyl Chloride	$C_3H_6Cl_2$	1,2-Dichloropropane	260–263
C_3H_7NO	N,N-Dimethylformamide [DMF]	$CHClF_2$	Difluorochloromethane [R22]	104–107
		C_2HCl_3	Trichloroethylene	188
		$C_2H_4Cl_2$	1,2-Dichloroethane	221
		C_2H_7N	Dimethylamine	246–248
		$C_2H_8N_2$	Ethylenediamine	252
		C_3H_3N	Acrylonitrile	253
		C_3H_9N	Trimethylamine	266–267
		C_4H_9NO	N,N-Dimethylacetamide	268–273
		C_6H_5Br	Bromobenzene	274
		C_6H_5Cl	Chlorobenzene	275
		C_6H_5F	Fluorobenzene	276
		C_6H_7N	Aniline	277
		$C_6H_{13}N$	Cyclohexylamine	278–280R
		$C_6H_{15}N$	Triethylamine	281–282
		$C_7H_5F_3$	1',1',1'-Trifluorotoluene	283–285
	N-Methylacetamide	C_5H_5N	Pyridine	286–287
		C_6H_7N	Aniline	288–289
		$C_6H_{15}N$	Dipropylamine	290–291
			Triethylamine	292–293
C_3H_8S	1-Propanethiol	$C_7H_{13}NO$	N-Methyl-6-Caprolactam	294–300
	2-Propanethiol	$C_7H_{13}NO$	N-Methyl-6-Caprolactam	301–305
$C_3H_9BO_3$	Methyl Borate	C_2HCl_3	Trichloroethylene	189
C_3H_9ClSi	Trimethylchlorosilane	Cl_4Si	Silicon Tetrachloride	11–13
		CH_3Cl_3Si	Methyltrichlorosilane	157–158
		CH_4Cl_2Si	Methyldichlorosilane	165

		C_2H_3N	Acetonitrile	211
		$C_2H_6Cl_2Si$	Dimethyldichlorosilane	229–230
C_3H_9N	Propylamine	$C_4H_{11}N$	Diethylamine	306–307
		$C_6H_{15}N$	Dipropylamine	308
		$C_6H_{18}OSi_2$	Hexamethyl Disiloxane	309–310
		$C_9H_{21}N$	Tripropylamine	311
	Trimethylamine	CH_5N	Methylamine	170
		C_2H_7N	Dimethylamine	249–250
		C_3H_7NO	N,N-Dimethylformamide [DMF]	266–267
$C_3H_9O_3P$	Trimethylphosphite	$C_6H_{15}N$	Triethylamine	312–313
C_4F_8	Perfluorocyclobutane	$CHClF_2$	Difluorochloromethane [R22]	108–109
C_4H_4S	Thiophene	C_5H_5N	Pyridine	314–316
C_4H_5N	Pyrrole	C_5H_5N	Pyridine	317–318
C_4H_5NS	Allyl Isothiocyanate	CS_2	Carbon Disulfide	81
$C_4H_8Cl_2$	1,4-Dichlorobutane	CCl_4	Tetrachloromethane	74
$C_4H_8O_2S$	Sulfolane	$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	203
C_4H_9Br	Butyl Bromide	C_2Cl_4	Tetrachloroethylene	185
		C_2HCl_3	Trichloroethylene	190
		$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	204
		$C_2H_4Cl_2$	1,2-Dichloroethane	222
C_4H_9Cl	Butyl Chloride	CCl_4	Tetrachloromethane	75
		$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	205
		C_2H_3N	Acetonitrile	212
		$C_2H_4Cl_2$	1,2-Dichloroethane	223
		C_2H_5I	Ethyl Iodide	227
		C_3H_7Br	Propyl Bromide	264–265

		C_4H_9Cl	sec-Butyl Chloride	319–320
			tert-Butyl Chloride	321
	sec-Butyl Chloride	C_4H_9Cl	Butyl Chloride	319–320
			tert-Butyl Chloride	322
	tert-Butyl Chloride	C_4H_9Cl	Butyl Chloride	321
			sec-Butyl Chloride	322
C_4H_9NO	N,N-Dimethylacetamide	C_3H_7NO	N,N-Dimethylformamide [DMF]	268–273
		$C_6H_{15}N$	Triethylamine	323–324
$C_4H_{10}S$	Diethyl Sulfide	CCl_4	Tetrachloromethane	76
		$CHCl_3$	Chloroform	129
		$C_7H_{13}NO$	N-Methyl-6-Caprolactam	325–327
$C_4H_{11}BrSi$	(Bromomethyl-) Trimethylsilane	$C_4H_{12}Si$	Tetramethyl Silane	328
$C_4H_{11}N$	Butylamine	C_2H_3N	Acetonitrile	213
		$C_5H_{11}N$	Piperidine	329–334
		$C_6H_{18}OSi_2$	Hexamethyl Disiloxane	335–336
	Diethylamine	$CHCl_3$	Chloroform	130
		C_2H_3N	Acetonitrile	214–217
		C_3H_9N	Propylamine	306–307
		$C_6H_{15}N$	Diisopropylamine	337
			Dipropylamine	338
	Isobutylamine	$C_6H_{18}OSi_2$	Hexamethyl Disiloxane	339–340
$C_4H_{12}Si$	Tetramethyl Silane	$C_4H_{11}BrSi$	(Bromomethyl-) Trimethylsilane	328
C_5F_{10}	Perfluorocyclopentane	C_5F_{12}	Perfluoropentane	341–343
		C_6F_{14}	Perfluorohexane	344
C_5F_{12}	Perfluoropentane	C_5F_{10}	Perfluorocyclopentane	341–343
C_5H_5N	Pyridine	$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	206

		C_2H_3N	Acetonitrile	218
		C_3H_7NO	N-Methylacetamide	286–287
		C_4H_4S	Thiophene	314–316
		C_4H_5N	Pyrrole	317–318
		$C_5H_{11}N$	Piperidine	345
		C_6F_6	Hexafluorobenzene	346
		$C_6H_5NO_2$	Nitrobenzene	347
		C_6H_7N	2-Methylpyridine	348–350
			3-Methylpyridine	351–354
			4-Methylpyridine	355
$C_5H_{11}N$	Piperidine	$C_4H_{11}N$	Butylamine	329–334
		C_5H_5N	Pyridine	345
		$C_6H_{13}N$	N-Methylpiperidine	356–361
		$C_6H_{18}OSi_2$	Hexamethyl Disiloxane	362
$C_5H_{14}N_2$	N,N,N',N'-Tetramethyldiaminomethane	C_2H_7N	Dimethylamine	251
C_6F_6	Hexafluorobenzene	C_5H_5N	Pyridine	346
		C_7H_9N	2,6-Dimethylpyridine	363
C_6F_{14}	Perfluorohexane	C_5F_{10}	Perfluorocyclopentane	344
C_6HF_5	Pentafluorobenzene	C_7F_{14}	Perfluoromethylcyclohexane	364–366R
$C_6H_3Cl_3$	1,2,3-Trichlorobenzene	$C_6H_3Cl_3$	1,2,4-Trichlorobenzene	367
	1,2,4-Trichlorobenzene	$C_6H_3Cl_3$	1,2,3-Trichlorobenzene	367
$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	368
			p-Dichlorobenzene	370
	o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	368
			p-Dichlorobenzene	369

		$C_6H_5NO_2$	Nitrobenzene	371–372
	p-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	370
			o-Dichlorobenzene	369
$C_6H_4F_2$	1,4-Difluorobenzene	C_6H_5F	Fluorobenzene	373–375R
C_6H_5Br	Bromobenzene	C_3H_7NO	N,N-Dimethylformamide [DMF]	274
		C_6H_5Cl	Chlorobenzene	376
		C_6H_5F	Fluorobenzene	377
		$C_6H_5NO_2$	Nitrobenzene	378–379
		$C_7H_7NO_2$	o-Nitrotoluene	380–381
C_6H_5Cl	Chlorobenzene	CCl_2O	Phosgene	45
		CCl_4	Tetrachloromethane	77–78
		$CHCl_3$	Chloroform	131
		CH_2Cl_2	Dichloromethane	150–152
		C_2H_3N	Acetonitrile	219
		C_2H_6OS	Dimethyl Sulfoxide	234–235
		C_3H_7NO	N,N-Dimethylformamide [DMF]	275
		C_6H_5Br	Bromobenzene	376
		C_6H_5F	Fluorobenzene	383
		$C_6H_5NO_2$	Nitrobenzene	382, 384–385
		C_6H_7N	2-Methylpyridine	386
		$C_7H_5F_3$	1',1',1'-Trifluorotoluene	387
C_6H_5F	Fluorobenzene	C_3H_7NO	N,N-Dimethylformamide [DMF]	276
		$C_6H_4F_2$	1,4-Difluorobenzene	373–375R
		C_6H_5Br	Bromobenzene	377
		C_6H_5Cl	Chlorobenzene	383
		$C_7H_5F_3$	1',1',1'-Trifluorotoluene	388–390R

$C_6H_5NO_2$	Nitrobenzene	CS_2	Carbon Disulfide	82
		$CHCl_3$	Chloroform	132
		$C_2H_5NO_2$	Nitroethane	228
		C_5H_5N	Pyridine	347
		$C_6H_4Cl_2$	o-Dichlorobenzene	371–372
		C_6H_5Br	Bromobenzene	378–379
		C_6H_5Cl	Chlorobenzene	382, 384–385
C_6H_7N	Aniline	$CHCl_3$	Chloroform	133
		C_3H_7NO	N,N-Dimethylformamide [DMF]	277
			N-Methylacetamide	288–289
		$C_6H_8N_2$	Phenylhydrazine	391
		$C_7H_{13}NO$	N-Methyl-6-Caprolactam	392
	2-Methylpyridine	C_5H_5N	Pyridine	348–350
		C_6H_5Cl	Chlorobenzene	386
		C_7H_9N	o-Methylaniline	393
		$C_8H_{11}N$	2-Methyl-5-Ethylpyridine	394
	3-Methylpyridine	C_5H_5N	Pyridine	351–354
		$C_8H_{11}N$	2-Methyl-5-Ethylpyridine	395
	4-Methylpyridine	C_5H_5N	Pyridine	355
		C_7H_9N	o-Methylaniline	396
$C_6H_8N_2$	Adipodinitrile	$C_6H_{13}N$	Hexamethylene Imine	397
	Phenylhydrazine	C_6H_7N	Aniline	391
$C_6H_{13}N$	Cyclohexylamine	C_3H_7NO	N,N-Dimethylformamide [DMF]	278–280R
	Hexamethylene Imine	$C_6H_8N_2$	Adipodinitrile	397
	N-Methylpiperidine	$C_5H_{11}N$	Piperidine	356–361

$C_6H_{15}N$	Diisopropylamine	$CHCl_3$	Chloroform	134
		$C_4H_{11}N$	Diethylamine	337
	Dipropylamine	C_3H_7NO	N-Methylacetamide	290–291
		C_3H_9N	Propylamine	308
		$C_4H_{11}N$	Diethylamine	338
		$C_9H_{21}N$	Tripropylamine	398
	Triethylamine	CS_2	Carbon Disulfide	83
		$CHCl_3$	Chloroform	135
		C_2H_3N	Acetonitrile	220
		$C_2H_4Cl_2$	1,2-Dichloroethane	224
		C_3H_7NO	N,N-Dimethylformamide [DMF]	281–282
			N-Methylacetamide	292–293
		$C_3H_9O_3P$	Trimethylphosphite	312–313
		C_4H_9NO	N,N-Dimethylacetamide	323–324
$C_5H_{18}OSi_2$	Hexamethyl Disiloxane	C_3H_9N	Propylamine	309–310
		$C_4H_{11}N$	Butylamine	335–336
			Isobutylamine	339–340
		$C_5H_{11}N$	Piperidine	362
C_7F_{14}	Perfluoromethylcyclohexane	C_6HF_5	Pentafluorobenzene	364–366R
C_7F_{16}	Perfluoroheptane	$C_7H_5F_3$	1',1',1'-Trifluorotoluene	399–401R
$C_7H_5F_3$	1',1',1'-Trifluorotoluene	Br_2	Bromine	4
		C_3H_7NO	N,N-Dimethylformamide [DMF]	283–285
		C_6H_5Cl	Chlorobenzene	387
		C_6H_5F	Fluorobenzene	388–390R
		C_7F_{16}	Perfluoroheptane	399–401R
C_7H_7Cl	Benzyl Chloride	C_8H_7N	Benzylcyanide	402

$C_7H_7NO_2$	m-Nitrotoluene	$C_7H_7NO_2$	o-Nitrotoluene	403
	o-Nitrotoluene	C_6H_5Br	Bromobenzene	380–381
		$C_7H_7NO_2$	m-Nitrotoluene	403
			p-Nitrotoluene	404
	p-Nitrotoluene	$C_7H_7NO_2$	o-Nitrotoluene	404
C_7H_9N	2,6-Dimethylpyridine	C_6F_6	Hexafluorobenzene	363
		C_7H_9N	o-Methylaniline	405
	3-Ethylpyridine	$C_8H_{11}N$	2-Methyl-5-Ethylpyridine	406
	N-Methylaniline	$C_7H_{13}NO$	N-Methyl-6-Caprolactam	407
	o-Methylaniline	C_6H_7N	2-Methylpyridine	393
			4-Methylpyridine	396
		C_7H_9N	2,6-Dimethylpyridine	405
$C_7H_{13}NO$	N-Methyl-6-Caprolactam	CCl_4	Tetrachloromethane	79
		$CHCl_3$	Chloroform	136
		CH_4S	Methanethiol	166–168
		C_2H_6S	Ethanethiol	238–240
		$C_2H_6S_2$	Dimethyldisulfide	241–245
		C_3H_8S	1-Propanethiol	294–300
			2-Propanethiol	301–305
		$C_4H_{10}S$	Diethyl Sulfide	325–327
		C_6H_7N	Aniline	392
		C_7H_9N	N-Methylaniline	407
C_8H_7N	Benzylcyanide	C_7H_7Cl	Benzyl Chloride	402
C_8H_9N	2-Methyl-5-Vinylpyridine	$C_8H_{11}N$	2-Methyl-5-Ethylpyridine	408
$C_8H_{11}N$	N,N-Dimethylaniline	$CHCl_3$	Chloroform	137
		CH_2Cl_2	Dichloromethane	153

	2-Methyl-5-Ethylpyridine	C_6H_7N	2-Methylpyridine	394
			3-Methylpyridine	395
		C_7H_9N	3-Ethylpyridine	406
		C_8H_9N	2-Methyl-5-Vinylpyridine	408
$C_9H_{21}N$	Tripropylamine	C_3H_9N	Propylamine	311
		$C_6H_{15}N$	Dipropylamine	398
$C_{12}F_{27}N$	Perfluorotributylamine	$C_2Cl_3F_3$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	178

R – Recommended Values

Cl_2OS	Thionyl Chloride	C_7H_5ClO	Benzoylchloride	$C_8H_4Cl_2O_2$	Terephthaloydichloride	409
Cl_3OP	Phosphoryl Chloride	Cl_4Ti	Titanium Tetrachloride	Cl_3OV	Vanadium Oxytrichloride	410
Cl_3OV	Vanadium Oxytrichloride	Cl_3OP	Phosphoryl Chloride	Cl_4Ti	Titanium Tetrachloride	410
Cl_4Si	Silicon Tetrachloride	C_3H_9ClSi	Trimethylchlorosilane	C_2H_3N	Acetonitrile	411
Cl_4Ti	Titanium Tetrachloride	Cl_3OV	Vanadium Oxytrichloride	Cl_3OP	Phosphoryl Chloride	410
CCl_2F_2	Dichlorodifluoromethane [R12]	$C_2Cl_3F_3$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2H_4F_2$	1,1-Difluoroethane [R152a]	412
CCl_4	Tetrachloromethane	C_2HCl_3	Trichloroethylene	C_2Cl_4	Tetrachloroethylene	413
$C_2Cl_3F_3$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2H_4F_2$	1,1-Difluoroethane [R152a]	CCl_2F_2	Dichlorodifluoromethane [R12]	412
C_2Cl_4	Tetrachloroethylene	CCl_4	Tetrachloromethane	C_2HCl_3	Trichloroethylene	413
		$C_2H_4Cl_2$	1,2-Dichloroethane	C_2HCl_3	Trichloroethylene	414
C_2HCl_3	Trichloroethylene	C_2Cl_4	Tetrachloroethylene	CCl_4	Tetrachloromethane	413
				$C_2H_4Cl_2$	1,2-Dichloroethane	414
$C_2H_3ClF_2$	1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3Cl_2F$	1,1-Dichloro-1-Fluoroethane [R141b]	$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	416
$C_2H_3Cl_2F$	1,1-Dichloro-1-Fluoroethane [R141b]	$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	$C_2H_3ClF_2$	1-Chloro-1,1-Difluoroethane [R142b]	416
$C_2H_3Cl_3$	1,1,1-Trichloroethane [R140a]	$C_2H_3ClF_2$	1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3Cl_2F$	1,1-Dichloro-1-Fluoroethane [R141b]	416
C_2H_3N	Acetonitrile	Cl_4Si	Silicon Tetrachloride	C_3H_9ClSi	Trimethylchlorosilane	411
$C_2H_4Cl_2$	1,2-Dichloroethane	C_2HCl_3	Trichloroethylene	C_2Cl_4	Tetrachloroethylene	414
$C_2H_4F_2$	1,1-Difluoroethane [R152a]	CCl_2F_2	Dichlorodifluoromethane [R12]	$C_2Cl_3F_3$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	412
C_3H_9ClSi	Trimethylchlorosilane	C_2H_3N	Acetonitrile	Cl_4Si	Silicon Tetrachloride	411
$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	p-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	417
	o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	p-Dichlorobenzene	417
	p-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	417

C_7H_5ClO	Benzoylchloride	$C_8H_4Cl_2O_2$	Terephthaloydichloride	Cl_2OS	Thionyl Chloride	409
$C_8H_4Cl_2O_2$	Terephthaloydichloride	Cl_2OS	Thionyl Chloride	C_7H_5ClO	Benzoylchloride	409

Acetonitrile	C_2H_3N	Acrylonitrile	C_3H_3N	209
		Ammonia	H_3N	21
		Butyl Chloride	C_4H_9Cl	212
		Butylamine	$C_4H_{11}N$	213
		Chlorobenzene	C_6H_5Cl	219
		1,2-Dichloroethane	$C_2H_4Cl_2$	207–20 8
		Diethylamine	$C_4H_{11}N$	214–217
		Hydrogen Cyanide	CHN	138–139
		Nitromethane	CH_3NO_2	163
		Propyl Bromide	C_3H_7Br	210
		Pyridine	C_5H_5N	218
		Triethylamine	$C_6H_{15}N$	220
		Trimethylchlorosilane	C_3H_9ClSi	211
		Vinyl Chloride	C_2H_3Cl	199
Acrylonitrile	C_3H_3N	Acetonitrile	C_2H_3N	209
		N,N-Dimethylformamide [DMF]	C_3H_7NO	253
		Hydrogen Cyanide	CHN	140–144
Adipodinitrile	$C_6H_8N_2$	Hexamethylene Imine	$C_6H_{13}N$	397
Allyl Isothiocyanate	C_4H_5NS	Carbon Disulfide	CS_2	81
Ammonia	H_3N	Acetonitrile	C_2H_3N	21
		Vinyl Chloride	C_2H_3Cl	20
Aniline	C_6H_7N	Chloroform	$CHCl_3$	133
		N,N-Dimethylformamide [DMF]	C_3H_7NO	277
		N-Methyl-6-Caprolactam	$C_7H_{13}NO$	392
		N-Methylacetamide	C_3H_7NO	288–289
		Phenylhydrazine	$C_6H_8N_2$	391

Benzyl Chloride	C_7H_7Cl	Benzylcyanide	C_8H_7N	402
Benzylcyanide	C_8H_7N	Benzyl Chloride	C_7H_7Cl	402
Bromine	Br_2	1,1,1,2-Tetrachloro-2,2-Difluoroethane [R112a]	$C_2Cl_4F_2$	3
		Tetrachloromethane	CCl_4	1
		1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	2
		1',1',1'-Trifluorotoluene	$C_7H_5F_3$	4
1-Bromo-1-Chloro-2,2,2-Trifluoroethane	$C_2HBrClF_3$	Chloroform	$CHCl_3$	120
		Tetrachloromethane	CCl_4	54
		1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	176
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	186
1-Bromo-2-Chloro Ethane	C_2H_4BrCl	Tetrachloromethane	CCl_4	56
Bromobenzene	C_6H_5Br	Chlorobenzene	C_6H_5Cl	376
		N,N-Dimethylformamide [DMF]	C_3H_7NO	274
		Fluorobenzene	C_6H_5F	377
		Nitrobenzene	$C_6H_5NO_2$	378–379
		o-Nitrotoluene	$C_7H_7NO_2$	380–381
Bromochloromethane [R30B1]	CH_2BrCl	Tetrachloromethane	CCl_4	49–50
(Bromomethyl-) Trimethylsilane	$C_4H_{11}BrSi$	Tetramethyl Silane	$C_4H_{12}Si$	328
Butyl Bromide	C_4H_9Br	1,2-Dichloroethane	$C_2H_4Cl_2$	222
		Tetrachloroethylene	C_2Cl_4	185
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	204
		Trichloroethylene	C_2HCl_3	190
Butyl Chloride	C_4H_9Cl	Acetonitrile	C_2H_3N	212

		sec-Butyl Chloride	C_4H_9Cl	319–320
		tert-Butyl Chloride	C_4H_9Cl	321
		1,2-Dichloroethane	$C_2H_4Cl_2$	223
		Ethyl Iodide	C_2H_5I	227
		Propyl Bromide	C_3H_7Br	264–265
		Tetrachloromethane	CCl_4	75
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	205
sec-Butyl Chloride	C_4H_9Cl	Butyl Chloride	C_4H_9Cl	319–320
		tert-Butyl Chloride	C_4H_9Cl	322
tert-Butyl Chloride	C_4H_9Cl	Butyl Chloride	C_4H_9Cl	321
		sec-Butyl Chloride	C_4H_9Cl	322
Butylamine	$C_4H_{11}N$	Acetonitrile	C_2H_3N	213
		Hexamethyl Disiloxane	$C_6H_{18}OSi_2$	335–336
		Piperidine	$C_5H_{11}N$	329–334
Carbon Disulfide	CS_2	Allyl Isothiocyanate	C_4H_5NS	81
		Difluorochloromethane [R22]	$CHClF_2$	80
		Nitrobenzene	$C_6H_5NO_2$	82
		Triethylamine	$C_6H_{15}N$	83
1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3ClF_2$	Difluorochloromethane [R22]	$CHClF_2$	93–102
3-Chloro-1-Propene	C_3H_5Cl	1,2-Dichloropropane	$C_3H_6Cl_2$	256–259
Chlorobenzene	C_6H_5Cl	Acetonitrile	C_2H_3N	219
		Bromobenzene	C_6H_5Br	376
		Chloroform	$CHCl_3$	131
		Dichloromethane	CH_2Cl_2	150–152
		Dimethyl Sulfoxide	C_2H_6OS	234–235

		N,N-Dimethylformamide [DMF]	C_3H_7NO	275
		Fluorobenzene	C_6H_5F	383
		2-Methylpyridine	C_6H_7N	386
		Nitrobenzene	$C_6H_5NO_2$	382, 384–385
		Phosgene	CCl_2O	45
		Tetrachloromethane	CCl_4	77–78
		1',1',1'-Trifluorotoluene	$C_7H_5F_3$	387
Chloroform	$CHCl_3$	Aniline	C_6H_7N	133
		1-Bromo-1-Chloro-2,2,2-Trifluoroethane	$C_2HBrClF_3$	120
		Chlorobenzene	C_6H_5Cl	131
		1,2-Dichloroethane	$C_2H_4Cl_2$	123–127R
		Diethyl Sulfide	$C_4H_{10}S$	129
		Diethylamine	$C_4H_{11}N$	130
		Diisopropylamine	$C_6H_{15}N$	134
		Dimethyl Sulfide	C_2H_6S	128
		N,N-Dimethylaniline	$C_8H_{11}N$	137
		Methyl Isocyanate	C_2H_3NO	122
		N-Methyl-6-Caprolactam	$C_7H_{13}NO$	136
		Nitric Acid	HNO_3	19
		Nitrobenzene	$C_6H_5NO_2$	132
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	121
		Tetrachloromethane	CCl_4	46–48R
		Triethylamine	$C_6H_{15}N$	135
Chloropentafluoroethane [R115]	C_2ClF_5	1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	172

		Difluorochloromethane [R22]	$CHClF_2$	86–90
		Hexafluoroethane [R116]	C_2F_6	171
1-Chloropropane (isomer not specified)	C_3H_5Cl	1,2-Dichloropropane	$C_3H_6Cl_2$	254–255
Cyclohexylamine	$C_6H_{13}N$	N,N-Dimethylformamide [DMF]	C_3H_7NO	278–280R
1,2-Dibromoethane	$C_2H_4Br_2$	Tetrachloromethane	CCl_4	57–66
1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	Chloropentafluoroethane [R115]	C_2ClF_5	172
		Dichlorodifluoromethane [R12]	CCl_2F_2	38
		Dichlorofluoromethane [R21]	$CHCl_2F$	110–119
		Difluorochloromethane [R22]	$CHClF_2$	91–92
		1,1,2,2-Tetrachloro-1,2-Difluoroethane [R112]	$C_2Cl_4F_2$	174
		1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	173
m-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	$C_6H_4Cl_2$	368
		p-Dichlorobenzene	$C_6H_4Cl_2$	370
o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	368
		p-Dichlorobenzene	$C_6H_4Cl_2$	369
		Nitrobenzene	$C_6H_5NO_2$	371–372
p-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	370
		o-Dichlorobenzene	$C_6H_4Cl_2$	369
1,4-Dichlorobutane	$C_4H_8Cl_2$	Tetrachloromethane	CCl_4	74
Dichlorodifluoromethane [R12]	CCl_2F_2	1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	38
		Difluorochloromethane [R22]	$CHClF_2$	34–37
		Trichlorofluoromethane [R11]	CCl_3F	32–33
		Trifluorochloromethane [R13]	$CClF_3$	23–29

1,2-Dichloroethane	$C_2H_4Cl_2$	Acetonitrile	C_2H_3N	207–208
		Butyl Bromide	C_4H_9Br	222
		Butyl Chloride	C_4H_9Cl	223
		Chloroform	$CHCl_3$	123–127R
		N,N-Dimethylformamide [DMF]	C_3H_7NO	221
		Phosgene	CCl_2O	42–44
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	195–196
		Tetrachloroethylene	C_2Cl_4	183–184
		Tetrachloromethane	CCl_4	67–70R
		Trans-1,2-Dichloroethylene	$C_2H_2Cl_2$	193
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	202
		Triethylamine	$C_6H_{15}N$	224
		Vinyl Chloride	C_2H_3Cl	200
1,1-Dichloroethane [R150a]	$C_2H_4Cl_2$	Propyl Bromide	C_3H_7Br	225
		1,1,2-Trichloroethane	$C_2H_3Cl_3$	201
1,1-Dichloroethylene	$C_2H_2Cl_2$	Trans-1,2-Dichloroethylene	$C_2H_2Cl_2$	191
Dichlorofluoromethane [R21]	$CHCl_2F$	1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	110–119
		Difluorochloromethane [R22]	$CHClF_2$	84–85
Dichloromethane	CH_2Cl_2	Chlorobenzene	C_6H_5Cl	150–152
		N,N-Dimethylaniline	$C_8H_{11}N$	153
		Nitromethane	CH_3NO_2	145–146
		Tetrachloroethylene	C_2Cl_4	147–148
		Tetrachloromethane	CCl_4	51
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	149

1,2-Dichloropropane	$C_3H_6Cl_2$	3-Chloro-1-Propene	C_3H_5Cl	256–259
		1-Chloropropane (isomer not specified)	C_3H_5Cl	254–255
		Isopropyl Chloride	C_3H_7Cl	260–263
		Tetrachloromethane	CCl_4	71
1,3-Dichloropropane	$C_3H_6Cl_2$	Tetrachloromethane	CCl_4	72–73
Diethyl Sulfide	$C_4H_{10}S$	Chloroform	$CHCl_3$	129
		N-Methyl-6-Caprolactam	$C_7H_{13}NO$	325–327
		Tetrachloromethane	CCl_4	76
Diethylamine	$C_4H_{11}N$	Acetonitrile	C_2H_3N	214–217
		Chloroform	$CHCl_3$	130
		Diisopropylamine	$C_6H_{15}N$	337
		Dipropylamine	$C_6H_{15}N$	338
		Propylamine	C_3H_9N	306–307
1,4-Difluorobenzene	$C_6H_4F_2$	Fluorobenzene	C_6H_5F	373–375R
Difluorochloromethane [R22]	$CHClF_2$	Carbon Disulfide	CS_2	80
		1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3ClF_2$	93–102
		Chloropentafluoroethane [R115]	C_2ClF_5	86–90
		1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	91–92
		Dichlorodifluoromethane [R12]	CCl_2F_2	34–37
		Dichlorofluoromethane [R21]	$CHCl_2F$	84–85
		N,N-Dimethylformamide [DMF]	C_3H_7NO	104–107
		Hydrogen Chloride	HCl	15
		Perfluorocyclobutane	C_4F_8	108–109

		Perfluoropropylene	C_3F_6	103
		Trifluorobromomethane [R13B1]	$CBrF_3$	22
1,1-Difluoroethane [R152a]	$C_2H_4F_2$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	177
Diisopropylamine	$C_6H_{15}N$	Chloroform	$CHCl_3$	134
		Diethylamine	$C_4H_{11}N$	337
Dimethyl Sulfide	C_2H_6S	Chloroform	$CHCl_3$	128
		Dimethyl Sulfoxide	C_2H_6OS	231–233
		Ethanethiol	C_2H_6S	236–237
Dimethyl Sulfoxide	C_2H_6OS	Chlorobenzene	C_6H_5Cl	234–235
		Dimethyl Sulfide	C_2H_6S	231–233
N,N-Dimethylacetamide	C_4H_9NO	N,N-Dimethylformamide [DMF]	C_3H_7NO	268–273
		Triethylamine	$C_6H_{15}N$	323–324
Dimethylamine	C_2H_7N	N,N-Dimethylformamide [DMF]	C_3H_7NO	246–248
		Methylamine	CH_5N	169
		N,N,N',N'-Tetramethyldiaminomethane	$C_5H_{14}N_2$	251
		Trimethylamine	C_3H_9N	249–250
N,N-Dimethylaniline	$C_8H_{11}N$	Chloroform	$CHCl_3$	137
		Dichloromethane	CH_2Cl_2	153
Dimethyldichlorosilane	$C_2H_6Cl_2Si$	Methyldichlorosilane	CH_4Cl_2Si	164
		Methyltrichlorosilane	CH_3Cl_3Si	156
		Silicon Tetrachloride	Cl_4Si	10
		Trimethylchlorosilane	C_3H_9ClSi	229–230
Dimethyldisulfide	$C_2H_6S_2$	N-Methyl-6-Caprolactam	$C_7H_{13}NO$	241–245

N,N-Dimethyl-formamide [DMF]	C_3H_7NO	Acrylonitrile	C_3H_3N	253
		Aniline	C_6H_7N	277
		Bromobenzene	C_6H_5Br	274
		Chlorobenzene	C_6H_5Cl	275
		Cyclohexylamine	$C_6H_{13}N$	278–280R
		1,2-Dichloroethane	$C_2H_4Cl_2$	221
		Difluorochloromethane [R22]	$CHClF_2$	104–107
		N,N-Dimethylacetamide	C_4H_9NO	268–273
		Dimethylamine	C_2H_7N	246–248
		Ethylenediamine	$C_2H_8N_2$	252
		Fluorobenzene	C_6H_5F	276
		Trichloroethylene	C_2HCl_3	188
		Triethylamine	$C_6H_{15}N$	281–282
		1',1',1'-Trifluorotoluene	$C_7H_5F_3$	283–285
		Trimethylamine	C_3H_9N	266–267
2,6-Dimethylpyridine	C_7H_9N	Hexafluorobenzene	C_6F_6	363
		o-Methylaniline	C_7H_9N	405
Dipropylamine	$C_6H_{15}N$	Diethylamine	$C_4H_{11}N$	338
		N-Methylacetamide	C_3H_7NO	290–291
		Propylamine	C_3H_9N	308
		Tripropylamine	$C_9H_{21}N$	398
Ethanethiol	C_2H_6S	Dimethyl Sulfide	C_2H_6S	236–237
		N-Methyl-6-Caprolactam	$C_7H_{13}NO$	238–240
Ethyl Iodide	C_2H_5I	Butyl Chloride	C_4H_9Cl	227
		Propyl Bromide	C_3H_7Br	226

Ethylenediamine	$C_2H_8N_2$	N,N-Dimethylformamide [DMF]	C_3H_7NO	252
3-Ethylpyridine	C_7H_9N	2-Methyl-5-Ethylpyridine	$C_8H_{11}N$	406
Fluorobenzene	C_6H_5F	Bromobenzene	C_6H_5Br	377
		Chlorobenzene	C_6H_5Cl	383
		1,4-Difluorobenzene	$C_6H_4F_2$	373–375R
		N,N-Dimethylformamide [DMF]	C_3H_7NO	276
		1',1',1'-Trifluorotoluene	$C_7H_5F_3$	388–390R
Fluoroform [R23]	CHF_3	Trifluorochloromethane [R13]	$CClF_3$	30–31
Formamide	CH_3NO	N-Methylformamide	C_2H_5NO	159–161
Hexafluorobenzene	C_6F_6	2,6-Dimethylpyridine	C_7H_9N	363
		Pyridine	C_5H_5N	346
Hexafluoroethane [R116]	C_2F_6	Chloropentafluoroethane [R115]	C_2ClF_5	171
Hexamethyl Disiloxane	$C_6H_{18}OSi_2$	Butylamine	$C_4H_{11}N$	335–336
		Isobutylamine	$C_4H_{11}N$	339–340
		Piperidine	$C_5H_{11}N$	362
		Propylamine	C_3H_9N	309–310
Hexamethylene Imine	$C_6H_{13}N$	Adipodinitrile	$C_6H_8N_2$	397
Hydrogen Chloride	HCl	Difluorochloromethane [R22]	$CHClF_2$	15
		Vinyl Chloride	C_2H_3Cl	16
Hydrogen Cyanide	CHN	Acetonitrile	C_2H_3N	138–139
		Acrylonitrile	C_3H_3N	140–144
Isobutylamine	$C_4H_{11}N$	Hexamethyl Disiloxane	$C_6H_{18}OSi_2$	339–340
Isopropyl Chloride	C_3H_7Cl	1,2-Dichloropropane	$C_3H_6Cl_2$	260–263
Methanethiol	CH_4S	N-Methyl-6-Caprolactam	$C_7H_{13}NO$	166–168
Methyl Borate	$C_3H_9BO_3$	Trichloroethylene	C_2HCl_3	189

Methyl Isocyanate	C_2H_3NO	Chloroform	$CHCl_3$	122
2-Methyl-5-Ethylpyridine	$C_8H_{11}N$	3-Ethylpyridine	C_7H_9N	406
		2-Methyl-5-Vinylpyridine	C_8H_9N	408
		2-Methylpyridine	C_6H_7N	394
		3-Methylpyridine	C_6H_7N	395
2-Methyl-5-Vinylpyridine	C_8H_9N	2-Methyl-5-Ethylpyridine	$C_8H_{11}N$	408
N-Methyl-6-Caprolactam	$C_7H_{13}NO$	Aniline	C_6H_7N	392
		Chloroform	$CHCl_3$	136
		Diethyl Sulfide	$C_4H_{10}S$	325–327
		Dimethyldisulfide	$C_2H_6S_2$	241–245
		Ethanethiol	C_2H_6S	238–240
		Methanethiol	CH_4S	166–168
		N-Methylaniline	C_7H_9N	407
		1-Propanethiol	C_3H_8S	294–300
		2-Propanethiol	C_3H_8S	301–305
		Tetrachloromethane	CCl_4	79
N-Methylacetamide	C_3H_7NO	Aniline	C_6H_7N	288–289
		Dipropylamine	$C_6H_{15}N$	290–291
		Pyridine	C_5H_5N	286–287
		Triethylamine	$C_6H_{15}N$	292–293
Methylamine	CH_5N	Dimethylamine	C_2H_7N	169
		Trimethylamine	C_3H_9N	170
N-Methylaniline	C_7H_9N	N-Methyl-6-Caprolactam	$C_7H_{13}NO$	407
o-Methylaniline	C_7H_9N	2,6-Dimethylpyridine	C_7H_9N	405
		2-Methylpyridine	C_6H_7N	393

		4-Methylpyridine	C_6H_7N	396
Methyldichlorosilane	CH_4Cl_2Si	Dimethyldichlorosilane	$C_2H_6Cl_2Si$	164
		Methyltrichlorosilane	CH_3Cl_3Si	154–155
		Silicon Tetrachloride	Cl_4Si	9
		Trichlorosilane	HCl_3Si	18
		Trimethylchlorosilane	C_3H_9ClSi	165
N-Methylformamide	C_2H_5NO	Formamide	CH_3NO	159–161
N-Methylpiperidine	$C_6H_{13}N$	Piperidine	$C_5H_{11}N$	356–361
2-Methylpyridine	C_6H_7N	Chlorobenzene	C_6H_5Cl	386
		2-Methyl-5-Ethylpyridine	$C_8H_{11}N$	394
		o-Methylaniline	C_7H_9N	393
		Pyridine	C_5H_5N	348–350
3-Methylpyridine	C_6H_7N	2-Methyl-5-Ethylpyridine	$C_8H_{11}N$	395
		Pyridine	C_5H_5N	351–354
4-Methylpyridine	C_6H_7N	o-Methylaniline	C_7H_9N	396
		Pyridine	C_5H_5N	355
Methyltrichlorosilane	CH_3Cl_3Si	Dimethyldichlorosilane	$C_2H_6Cl_2Si$	156
		Methyldichlorosilane	CH_4Cl_2Si	154–155
		Silicon Tetrachloride	Cl_4Si	7–8
		Trichlorosilane	HCl_3Si	17
		Trimethylchlorosilane	C_3H_9ClSi	157–158
Nitric Acid	HNO_3	Chloroform	$CHCl_3$	19
Nitrobenzene	$C_6H_5NO_2$	Bromobenzene	C_6H_5Br	378–379
		Carbon Disulfide	CS_2	82
		Chlorobenzene	C_6H_5Cl	382, 384–385
		Chloroform	$CHCl_3$	132

		o-Dichlorobenzene	$C_6H_4Cl_2$	371–372
		Nitroethane	$C_2H_5NO_2$	228
		Pyridine	C_5H_5N	347
Nitroethane	$C_2H_5NO_2$	Nitrobenzene	$C_6H_5NO_2$	228
Nitromethane	CH_3NO_2	Acetonitrile	C_2H_3N	163
		Dichloromethane	CH_2Cl_2	145–146
		1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	162
m-Nitrotoluene	$C_7H_7NO_2$	o-Nitrotoluene	$C_7H_7NO_2$	403
o-Nitrotoluene	$C_7H_7NO_2$	Bromobenzene	C_6H_5Br	380–381
		m-Nitrotoluene	$C_7H_7NO_2$	403
		p-Nitrotoluene	$C_7H_7NO_2$	404
p-Nitrotoluene	$C_7H_7NO_2$	o-Nitrotoluene	$C_7H_7NO_2$	404
Pentafluorobenzene	C_6HF_5	Perfluoromethylcyclohexane	C_7F_{14}	364–366R
Perfluorocyclobutane	C_4F_8	Difluorochloromethane [R22]	$CHClF_2$	108–109
Perfluorocyclopentane	C_5F_{10}	Perfluorohexane	C_6F_{14}	344
		Perfluoropentane	C_5F_{12}	341–343
Perfluoroheptane	C_7F_{16}	1',1',1'-Trifluorotoluene	$C_7H_5F_3$	399–401R
Perfluorohexane	C_6F_{14}	Perfluorocyclopentane	C_5F_{10}	344
Perfluoromethylcyclohexane	C_7F_{14}	Pentafluorobenzene	C_6HF_5	364–366R
Perfluoropentane	C_5F_{12}	Perfluorocyclopentane	C_5F_{10}	341–343
Perfluoropropylene	C_3F_6	Difluorochloromethane [R22]	$CHClF_2$	103
Perfluorotributylamine	$C_{12}F_{27}N$	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	178
Phenylhydrazine	$C_6H_8N_2$	Aniline	C_6H_7N	391
Phosgene	CCl_2O	Chlorobenzene	C_6H_5Cl	45

		1,2-Dichloroethane	$C_2H_4Cl_2$	42–44
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	40
		Tetrachloromethane	CCl_4	39
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	41
Piperidine	$C_5H_{11}N$	Butylamine	$C_4H_{11}N$	329–334
		Hexamethyl Disiloxane	$C_6H_{18}OSi_2$	362
		N-Methylpiperidine	$C_6H_{13}N$	356–361
		Pyridine	C_5H_5N	345
1-Propanethiol	C_3H_8S	N-Methyl-6-Caprolactam	$C_7H_{13}NO$	294–300
2-Propanethiol	C_3H_8S	N-Methyl-6-Caprolactam	$C_7H_{13}NO$	301–305
Propyl Bromide	C_3H_7Br	Acetonitrile	C_2H_3N	210
		Butyl Chloride	C_4H_9Cl	264–265
		1,1-Dichloroethane [R150a]	$C_2H_4Cl_2$	225
		Ethyl Iodide	C_2H_5I	226
Propylamine	C_3H_9N	Diethylamine	$C_4H_{11}N$	306–307
		Dipropylamine	$C_6H_{15}N$	308
		Hexamethyl Disiloxane	$C_6H_{18}OSi_2$	309–310
		Tripropylamine	$C_9H_{21}N$	311
Pyridine	C_5H_5N	Acetonitrile	C_2H_3N	218
		Hexafluorobenzene	C_6F_6	346
		N-Methylacetamide	C_3H_7NO	286–287
		2-Methylpyridine	C_6H_7N	348–350
		3-Methylpyridine	C_6H_7N	351–354
		4-Methylpyridine	C_6H_7N	355
		Nitrobenzene	$C_6H_5NO_2$	347
		Piperidine	$C_5H_{11}N$	345

		Pyrrole	C_4H_5N	317–318
		Thiophene	C_4H_4S	314–316
		1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	206
Pyrrole	C_4H_5N	Pyridine	C_5H_5N	317–318
Silicon Tetrachloride	Cl_4Si	Dimethyldichlorosilane	$C_2H_6Cl_2Si$	10
		Methyldichlorosilane	CH_4Cl_2Si	9
		Methyltrichlorosilane	CH_3Cl_3Si	7–8
		Tin Tetrachloride	Cl_4Sn	6
		Trimethylchlorosilane	C_3H_9ClSi	11–13
Sulfolane	$C_4H_8O_2S$	1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	203
Sulfuryl Chloride	Cl_2O_2S	1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	5
1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	Chloroform	$CHCl_3$	121
		1,2-Dichloroethane	$C_2H_4Cl_2$	195–196
		Phosgene	CCl_2O	40
		Sulfuryl Chloride	Cl_2O_2S	5
		Tetrachloroethylene	C_2Cl_4	181–182
		Trans-1,2-Dichloroethylene	$C_2H_2Cl_2$	192
		1,1,2-Trichloroethane	$C_2H_3Cl_3$	194
		Trichloroethylene	C_2HCl_3	187
1,1,2,2-Tetrachloro-1,2-Difluoroethane [R112]	$C_2Cl_4F_2$	1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	174
		1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	175
1,1,1,2-Tetrachloro-2,2-Difluoroethane [R112a]	$C_2Cl_4F_2$	Bromine	Br_2	3
1,1,1,2-Tetrachloroethane [R130a]	$C_2H_2Cl_4$	1,1,2-Trichloroethane	$C_2H_3Cl_3$	197

Tetrachloroethylene	C_2Cl_4	Butyl Bromide	C_4H_9Br	185
		1,2-Dichloroethane	$C_2H_4Cl_2$	183–184
		Dichloromethane	CH_2Cl_2	147–148
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	181–182
		Tetrachloromethane	CCl_4	53
		Trans-1,2-Dichloroethylene	$C_2H_2Cl_2$	180
		Trichloroethylene	C_2HCl_3	179
Tetrachloromethane	CCl_4	Bromine	Br_2	1
		1-Bromo-1-Chloro-2,2,2-Trifluoroethane	$C_2HBrClF_3$	54
		1-Bromo-2-Chloro Ethane	C_2H_4BrCl	56
		Bromochloromethane [R30B1]	CH_2BrCl	49–50
		Butyl Chloride	C_4H_9Cl	75
		Chlorobenzene	C_6H_5Cl	77–78
		Chloroform	$CHCl_3$	46–48R
		1,2-Dibromoethane	$C_2H_4Br_2$	57–66
		1,4-Dichlorobutane	$C_4H_8Cl_2$	74
		1,2-Dichloroethane	$C_2H_4Cl_2$	67–70R
		Dichloromethane	CH_2Cl_2	51
		1,2-Dichloropropane	$C_3H_6Cl_2$	71
		1,3-Dichloropropane	$C_3H_6Cl_2$	72–73
		Diethyl Sulfide	$C_4H_{10}S$	76
		N-Methyl-6-Caprolactam	$C_7H_{13}NO$	79
		Phosgene	CCl_2O	39
		Tetrachloroethylene	C_2Cl_4	53
		Tin Tetrachloride	Cl_4Sn	52

		Trichloroethylene	C_2HCl_3	55
Tetramethyl Silane	$C_4H_{12}Si$	(Bromomethyl-) Trimethylsilane	$C_4H_{11}BrSi$	328
N,N,N',N'-Tetramethyldiaminomethane	$C_5H_{14}N_2$	Dimethylamine	C_2H_7N	251
Thiophene	C_4H_4S	Pyridine	C_5H_5N	314–316
Tin Tetrachloride	Cl_4Sn	Silicon Tetrachloride	Cl_4Si	6
		Tetrachloromethane	CCl_4	52
		Trichlorosilane	HCl_3Si	14
Trans-1,2-Dichloroethylene	$C_2H_2Cl_2$	1,2-Dichloroethane	$C_2H_4Cl_2$	193
		1,1-Dichloroethylene	$C_2H_2Cl_2$	191
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	192
		Tetrachloroethylene	C_2Cl_4	180
1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	Bromine	Br_2	2
		1-Bromo-1-Chloro-2,2,2-Trifluoroethane	$C_2HBrClF_3$	176
		1,2-Dichloro Tetrafluoro Ethane [R114]	$C_2Cl_2F_4$	173
		1,1-Difluoroethane [R152a]	$C_2H_4F_2$	177
		Nitromethane	CH_3NO_2	162
		Perfluorotributylamine	$C_{12}F_{27}N$	178
		1,1,2,2-Tetrachloro-1,2-Difluoroethane [R112]	$C_2Cl_4F_2$	175
1,2,3-Trichlorobenzene	$C_6H_3Cl_3$	1,2,4-Trichlorobenzene	$C_6H_3Cl_3$	367
1,2,4-Trichlorobenzene	$C_6H_3Cl_3$	1,2,3-Trichlorobenzene	$C_6H_3Cl_3$	367
1,1,2-Trichloroethane	$C_2H_3Cl_3$	1,1-Dichloroethane [R150a]	$C_2H_4Cl_2$	201

		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	194
		1,1,1,2-Tetrachloroethane [R130a]	$C_2H_2Cl_4$	197
		Vinyl Chloride	C_2H_3Cl	198
1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	1-Bromo-1-Chloro-2,2,2-Trifluoroethane	$C_2HBrClF_3$	186
		Butyl Bromide	C_4H_9Br	204
		Butyl Chloride	C_4H_9Cl	205
		1,2-Dichloroethane	$C_2H_4Cl_2$	202
		Dichloromethane	CH_2Cl_2	149
		Phosgene	CCl_2O	41
		Pyridine	C_5H_5N	206
		Sulfolane	$C_4H_8O_2S$	203
Trichloroethylene	C_2HCl_3	Butyl Bromide	C_4H_9Br	190
		N,N-Dimethylformamide [DMF]	C_3H_7NO	188
		Methyl Borate	$C_3H_9BO_3$	189
		1,1,2,2-Tetrachloro Ethane	$C_2H_2Cl_4$	187
		Tetrachloroethylene	C_2Cl_4	179
		Tetrachloromethane	CCl_4	55
Trichlorofluoromethane [R11]	CCl_3F	Dichlorodifluoromethane [R12]	CCl_2F_2	32–33
Trichlorosilane	HCl_3Si	Methyldichlorosilane	CH_4Cl_2Si	18
		Methyltrichlorosilane	CH_3Cl_3Si	17
		Tin Tetrachloride	Cl_4Sn	14
Triethylamine	$C_6H_{15}N$	Acetonitrile	C_2H_3N	220
		Carbon Disulfide	CS_2	83
		Chloroform	$CHCl_3$	135
		1,2-Dichloroethane	$C_2H_4Cl_2$	224

		N,N-Dimethylacetamide	C_4H_9NO	323–324
		N,N-Dimethylformamide [DMF]	C_3H_7NO	281–282
		N-Methylacetamide	C_3H_7NO	292–293
		Trimethylphosphite	$C_3H_9O_3P$	312–313
Trifluorobromomethane [R13B1]	$CBrF_3$	Difluorochloromethane [R22]	$CHClF_2$	22
Trifluorochloromethane [R13]	$CClF_3$	Dichlorodifluoromethane [R12]	CCl_2F_2	23–29
		Fluoroform [R23]	CHF_3	30–31
1',1',1'-Trifluorotoluene	$C_7H_5F_3$	Bromine	Br_2	4
		Chlorobenzene	C_6H_5Cl	387
		N,N-Dimethylformamide [DMF]	C_3H_7NO	283–285
		Fluorobenzene	C_6H_5F	388–390R
		Perfluoroheptane	C_7F_{16}	399–401R
Trimethylamine	C_3H_9N	Dimethylamine	C_2H_7N	249–250
		N,N-Dimethylformamide [DMF]	C_3H_7NO	266–267
		Methylamine	CH_5N	170
Trimethylchlorosilane	C_3H_9ClSi	Acetonitrile	C_2H_3N	211
		Dimethyldichlorosilane	$C_2H_6Cl_2Si$	229–230
		Methyldichlorosilane	CH_4Cl_2Si	165
		Methyltrichlorosilane	CH_3Cl_3Si	157–158
		Silicon Tetrachloride	Cl_4Si	11–13
Trimethylphosphite	$C_3H_9O_3P$	Triethylamine	$C_6H_{15}N$	312–313
Tripropylamine	$C_9H_{21}N$	Dipropylamine	$C_6H_{15}N$	398

		Propylamine	C_3H_9N	311
Vinyl Chloride	C_2H_3Cl	Acetonitrile	C_2H_3N	199
		Ammonia	H_3N	20
		1,2-Dichloroethane	$C_2H_4Cl_2$	200
		Hydrogen Chloride	HCl	16
		1,1,2-Trichloroethane	$C_2H_3Cl_3$	198

R – Recommended Values

Acetonitrile	C_2H_3N	Silicon Tetrachloride	Cl_4Si	Trimethylchlorosilane	C_3H_9ClSi	411
Benzoylchloride	C_7H_5ClO	Terephthaloydichloride	$C_8H_4Cl_2O_2$	Thionyl Chloride	Cl_2OS	409
1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3ClF_2$	1,1-Dichloro-1-Fluoroethane [R141b]	$C_2H_3Cl_2F$	1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	416
1,1-Dichloro-1-Fluoroethane [R141b]	$C_2H_3Cl_2F$	1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3ClF_2$	416
m-Dichlorobenzene	$C_6H_4Cl_2$	p-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	$C_6H_4Cl_2$	417
o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	p-Dichlorobenzene	$C_6H_4Cl_2$	417
p-Dichlorobenzene	$C_6H_4Cl_2$	o-Dichlorobenzene	$C_6H_4Cl_2$	m-Dichlorobenzene	$C_6H_4Cl_2$	417
Dichlorodifluoromethane [R12]	CCl_2F_2	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	1,1-Difluoroethane [R152a]	$C_2H_4F_2$	412
1,2-Dichloroethane	$C_2H_4Cl_2$	Trichloroethylene	C_2HCl_3	Tetrachloroethylene	C_2Cl_4	414
1,1-Difluoroethane [R152a]	$C_2H_4F_2$	Dichlorodifluoromethane [R12]	CCl_2F_2	1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	412
Phosphoryl Chloride	Cl_3OP	Titanium Tetrachloride	Cl_4Ti	Vanadium Oxytrichloride	Cl_3OV	410
Silicon Tetrachloride	Cl_4Si	Trimethylchlorosilane	C_3H_9ClSi	Acetonitrile	C_2H_3N	411
Terephthaloydichloride	$C_8H_4Cl_2O_2$	Thionyl Chloride	Cl_2OS	Benzoylchloride	C_7H_5ClO	409
Tetrachloroethylene	C_2Cl_4	1,2-Dichloroethane	$C_2H_4Cl_2$	Trichloroethylene	C_2HCl_3	414
		Tetrachloromethane	CCl_4	Trichloroethylene	C_2HCl_3	413
Tetrachloromethane	CCl_4	Trichloroethylene	C_2HCl_3	Tetrachloroethylene	C_2Cl_4	413
Thionyl Chloride	Cl_2OS	Benzoylchloride	C_7H_5ClO	Terephthaloydichloride	$C_8H_4Cl_2O_2$	409
Titanium Tetrachloride	Cl_4Ti	Vanadium Oxytrichloride	Cl_3OV	Phosphoryl Chloride	Cl_3OP	410
1,1,2-Trichloro-1,2,2-Trifluoroethane [R113]	$C_2Cl_3F_3$	1,1-Difluoroethane [R152a]	$C_2H_4F_2$	Dichlorodifluoromethane [R12]	CCl_2F_2	412
1,1,1-Trichloroethane [R140a]	$C_2H_3Cl_3$	1-Chloro-1,1-Difluoroethane [R142b]	$C_2H_3ClF_2$	1,1-Dichloro-1-Fluoroethane [R141b]	$C_2H_3Cl_2F$	416
Trichloroethylene	C_2HCl_3	Tetrachloroethylene	C_2Cl_4	1,2-Dichloroethane	$C_2H_4Cl_2$	414
				Tetrachloromethane	CCl_4	413

Trimethylchlorosilane		C_3H_9ClSi	Acetonitrile	C_2H_3N	Silicon Tetrachloride	Cl_4Si	411
Vanadium de	Oxytrichlori-	Cl_3OV	Phosphoryl Chloride	Cl_3OP	Titanium Tetrachloride	Cl_4Ti	410

1,2-Difluorobenzene	$C_6H_4F_2$	1,3-Difluorobenzene	$C_6H_4F_2$	Fluorobenzene	C_6H_5F	1,4-Difluorobenzene	$C_6H_4F_2$	418–419
1,3-Difluorobenzene	$C_6H_4F_2$	Fluorobenzene	C_6H_5F	1,4-Difluorobenzene	$C_6H_4F_2$	1,2-Difluorobenzene	$C_6H_4F_2$	418–419
1,4-Difluorobenzene	$C_6H_4F_2$	1,2-Difluorobenzene	$C_6H_4F_2$	1,3-Difluorobenzene	$C_6H_4F_2$	Fluorobenzene	C_6H_5F	418–419
Fluorobenzene	C_6H_5F	1,4-Difluorobenzene	$C_6H_4F_2$	1,2-Difluorobenzene	$C_6H_4F_2$	1,3-Difluorobenzene	$C_6H_4F_2$	418–419