

# Lehigh University

List of Toxic and Pyrophoric Gases that require approval from EH&S before purchase 610-758-4251.

Chemical	Health	Fire	Reactive
1,3-BUTADIENE	2d	4	0
BIETHYLENE	2d	4	0
DIVINYL	2d	4	0
ERYTHRENE	2d	4	0
VINYLETHYLENE	2d,j	4	0
2-METHYL-1,3-BUTADIENE	1i	4	0
ISOPRENE	1i	4	0
ACETYL FLUORIDE	3	0	0
METHYLCARBONYL FLUORIDE	3	0	0
AMMONIA	3	1	0
AZANE	3	1	0
HYDROGEN NITRIDE	3	1	0
NITRO-SIL	3	1	0
TRIHYDROGEN NITRIDE	3	1	0
ANTIMONY (V) FLUORIDE	4	0	1
ANTIMONY PENTAFLUORIDE	4	0	1
PENTAFLUOROANTIMONY	4	0	1
ARSENIC (V) FLUORIDE	3	1	0
ARSENIC PENTAFLUORIDE	3	1	0
ARSORANE	3	1	0
ARSENIC (III) FLUORIDE	3	0	1
ARSENIC TRIFLUORIDE	3	0	1
TRIFLUOROARSANE	3	0	1
ARSANE	4	4	2

ARSENIC TRIHYDRIDE	4	4	2		
ARSENIURETTED HYDROGEN	4	4	2		
ARSENOUS HYDRIDE	4	4	2		
ARSINE	4	4	2		
HYDROGEN ARSENIDE	4	4	2		
TRIHYDRIDOARSENIC	4	4	2		
BIS(TRIFLUOROMETHYL)PEROXIDE	a, j	a, j	a, j		
BORON BROMIDE	4	2	0		
BORON TRIBROMIDE	4	2	0		
TRIBOROMBORANE	4	2	0		
BORON TRICHLORIDE	3	0	1		
BORON(III) CHLORIDE	3	0	1		
BORON FLUORIDE	4	0	1		
BORON TRIFLUORIDE	4	0	1		
TRIFLUOROBORANE	4	0	1		
BROMINE	3	0	0		
BROMINE CHLORIDE	3	0	1		
BROMINE MONOCHLORIDE	3	0	1		
BROMINE(I) CHLORIDE	3	0	1		

BROMOCHLORIDE	3	0	1		
BROMINE PENTAFLUORIDE	3	0	3		
BROMINE TRIFLUORIDE	3	0	3		
BROMINE TRIFLUORIDE	3	0	3		
BROMOETHENE	2 <sub>d</sub>	4	1		
BROMOETHYLENE	2 <sub>d</sub>	4	1		
MONOBROMOETHENE	2 <sub>d</sub>	4	1		
VINYL BROMIDE	2 <sub>d</sub>	4	1		
BROMOMETHANE	3	1	0		
METHYL BROMIDE	3	1	0		
MONOBROMOMETHANE	3	1	0		
CARBON DISULFIDE	3	4	0		

DITHIOCARBONIC ANHYDRIDE	3	4	0		
CARBON MONOXIDE	2 <sub>e</sub>	4	0		
CARBONOUS OXIDE	2 <sub>e</sub>	4	0		
CARBON DIFLUORIDE OXIDE	4	0	1		
CARBON OXYFLUORIDE	4	0	1		
CARBONYL DIFLUORIDE	4	0	1		
CARBONYL FLUORIDE	4	0	1		
FLUOROFORMYL FLUORIDE	4	0	1		
FLUOROPHOSGENE	4	0	1		
CARBON OXIDE SULFIDE	3	4	1		
CARBONYL SULFIDE	3	4	1		
CHLORINE	4	0	0		
CHLORINE DIOXIDE	3	0	4		
CHLORINE OXIDE	3	0	4		
CHLORINE PEROXIDE	3	0	4		
CHLORYL	3	0	4		
CHLORINE MONOXIDE	a	a	a		
CHLORINE(II) OXIDE	a	a	a		
CHLOROXYDANYL	a	a	a		
CHLORINE PENTAFLUORIDE	3	0	3		
CHLORINE FLUORIDE	4	0	3		
CHLORINE TRIFLUORIDE	4	0	3		
CHLOROTRIFLUORIDE	4	0	3		
1-CHLORO-1,2,2-TRIFLUOROETHENE	3	4	4		
CHLOROTRIFLUOROETHENE	3	4	3		
CHLOROTRIFLUOROETHYLENE	3	4	3		
CARBON NITRIDE	4	4	2		
CYANOGEN	4	4	2		
DICYAN	4	4	2		
DICYANOGEN	4	4	2		
ETHANE DINITRILE	4	4	2		
NITRILACETONITRILE	4	4	2		

OXALIC ACID DINITRILE	4	4	2		
OXALONITRILE	4	4	2		
OXALYL CYANIDE	4	4	2		
CARBONONITRIDIC CHLORIDE	4	0	2		
CHLORCYAN	4	0	2		
CHLORINE CYANIDE	4	0	2		
CHLOROCYANIDE	4	0	2		
CHLOROCYANOGEN	4	0	2		
CHLOROFORMONITRILE	4	0	2		
CYANIC CHLORIDE	4	0	2		

CYANOGEN CHLORIDE	4	0	2		
DEUTERIUM BROMIDE	3	0	0		
DEUTERIUM CHLORIDE	3	0	1		
DEUTERIUM SULFIDE	4	0	0		
AZIMETHYLENE	4	4	4		
AZOMETHYLENE	4	4	4		
DIAZIRINE	4	4	4		
DIAZOMETHANE	4	4	4		
BOROETHANE	4	4	3		
BORON HYDRIDE	4	4	3		
DIBORANE	4	4	3		
DIBORON HEXAHYDRIDE	4	4	3		
DIBROMOMETHANE	2i	0	0		
METHYLENE BROMIDE	2i	0	0		
METHYLENE DIBROMIDE	2i	0	0		
METHYLENE DIBROMIDE	2i	0	0		
DICHLOROSILANE	4	4	2		
SILICIC DICHLORIDE DIHYDRIDE	4h	4	2		
DICHLOROMETHANE	2d	1	0		
METHYLENE CHLORIDE	2d	1	0		
METHYLENE DICHLORIDE	2d	1	0		

DIMETHYLAMINE	3	4	0		
DIMETHYLSILANE	1h	4	1		
DICHLOROETHYNE	4	0	0		
DIPHOSGENE	4	0	0		
TRICHLOROMETHYL CHLOROFORMATE	4	0	0		
DISILANE	0	4h	0		
DISILICANE	0	4h	0		
DISILICON HEXAHYDRIDE	0	4h	0		
SILICOETHANE	0	4h	0		
SILICON HEXAHYDRIDE	0	4h	0		
SILICON HYDRIDE	0	4h	0		
CHLORENE	2i	4	2		
CHLOROETHANE	2i	4	2		
ETHYL CHLORIDE	2i	4	2		
MONOCHLOROETHANE	2i	4	2		
MURIATIC ETHER	2i	4	2		
ETHANETHIOL	2i	4	0		
ETHYL MERCAPTAN	2i	4	0		
1-NITROSOOXYETHANE	4	4	4		
ETHYL ALCOHOL NITRITE	4	4	4		
ETHYL NITRITE	4	4	4		
NITRETHYL	4	4	4		
NITROUS ACID, ETHYL ESTER	4	4	4		
AMINOETHANE	3	4	0		
ETHANAMINE	3	4	0		
MONOETHYLAMINE	3	4	0		
ETHYL BENZENE	2i	3	0		
ETHYLBENZOL	2i	3	0		
METHYLTOLUENE	2i	3	0		
PHENYLETHANE	2i	3	0		

DIMETHYLENE OXIDE	3	4	4		
EPOXYETHANE	3	4	3		
ETHYLENE OXIDE	3	4	3		
OXACYCLOPROPANE	3	4	3		
OXIRANE	3	4	3		
ETHYLSILANE	2h	4	0		
FLUORINE	4	0	4		
FLUOROETHENE	2d	4	2		
FLUOROETHYLENE	2d	4	2		
VINYL FLUORIDE	2d	4	2		
FORMALDEHYDE, GAS	4	4	1		
FORMIC ANAMMONIDE	4	4	1		
FORMOL	4	4	1		
METHANAL	4	4	1		
METHYL ALDEHYDE	4	4	1		
METHYLENE GLYCOL	4	4	1		
METHYLENE OXIDE	4	4	1		
GERMANE	4	4	3		
GERMANIUM HYDRIDE	4	4	3		
GERMANIUM TETRAHYDRIDE	4	4	3		
GERMANOMETHANE	4	4	3		
MONOGERMANE	4	4	3		
HELIUM-3	0i	0	0		
HEPTAFLUOROBUTYRONITRILE	9	9	9		
HEXACHLORO-1,3-BUTADIENE	4	4	1		
PERCHLORO-1,3-BUTADIENE	4	4	1		
PERCHLOROBUTADIENE	4	4	1		
HEXAFLURO-2-BUTYNE	4	0	0		
ACETONE HEXAFLUORIDE	3	0	2		
HEXAFLURO-2-PROPANONE	3	0	2		
HEXAFLUROACETONE	3	0	2		
PERFLURO-2-PROPANONE	3	0	2		

PERFLUOROACETONE	3	0	2		
HEXAFLUOROBUTADIENE	3	4	0		
PERFLUORODUTADIENE	3	4	0		
BROMANE	3	0	0		
HYDROBROMIC ACID	3	0	0		
HYDROGEN BROMIDE	3	0	0		
HYDROCHLORIDE	3	0	1		
HYDROGEN CHLORIDE	3	0	1		
FORMONITRILE	4	4	1		
HYDROCYANIC ACID	4	4	1		
HYDROGEN CYANIDE, GAS	4	4	1		
PRUSSIC ACID, GAS	4	4	1		
HYDROFLUORIDE	4	0	1		
HYDROGEN FLUORIDE	4	0	1		
HYDROGEN IODIDE	3	0	1		
HYDROGEN SELENIDE	4	4	3		
HYDROSELENIC ACID	4	4	3		
SELANE	4	4	3		
SELENIUM HYDRIDE	4	4	3		
DIHYDROGEN MONOSULFIDE	4	4	0		
DIHYDROGEN SULFIDE	4	4	0		
HYDROGEN SULFIDE	4	4	0		

SULFANE	4	4	0		
SULFUR HYDRIDE	4	4	0		
SULFURATED HYDROGEN	4	4	0		
SULFURETED HYDROGEN	4	4	0		
SULFURETTED HYDROGEN	4	4	0		
HYDROGEN TELLURIDE	f	f	f		
IODINE FLUORIDE	3	0	2		
IODINE PENTAFLUORIDE	3	0	2		

PENTAFLUOROIODINE	3	0	2		
CARBOMETHANE	3	0	0		
ETHENONE	3	0	0		
KETENE	3	0	0		
KETOETHYLENE	3	0	0		
CHLOROMETHANE	2 <sub>d</sub>	4	0		
METHYL CHLORIDE	2 <sub>d</sub>	4	0		
MONOCHLOROMETHANE	2 <sub>d</sub>	4	0		
IODOMETHANE	3	1	1		
METHYL IODIDE	3	1	1		
MONOIODOMETHANE	3	1	1		
ISOTHICYANIC ACID	3	1	1		
ISOTHIOCYANATOMETHANE	3	1	1		
METHYL ISOTHIOCYANATE	3	1	1		
MERCAPTOMETHANE	4	4	1		
METHANETHIOL	4	4	1		
METHANETHIOL	4	4	1		
METHYL MERCAPTAN	4	4	1		
METHYL SULFHYDRATE	4	4	1		
METHYL FORMATE	2 <sub>i</sub>	4	0		
METHYL METHANOATE	2 <sub>i</sub>	4	0		
METHYL SILANE	3 <sub>h</sub>	4	2		
MONOMETHYLSILANE	3 <sub>h</sub>	4	2		
MONOSILYLMETHANE	3 <sub>h</sub>	4	2		
SILYLMETHANE	3	4	2		
AMINOMETHANE	3	4	0		
CARBINAMINE	3	4	0		
GLYCAMINE	3	4	0		
METHANAMINE	3	4	0		
METHYLAMINE, ANHYDROUS	3	4	0		
MONOMETHYLAMINE	3	4	0		
METHYL CHLOROSILANE	3	3	2		



ISOCYANATOMETHANE	3	4	2		
METHYL CARBYLAMINE	3	4	2		
METHYLISOCYANATE	3	4	2		
NICKEL CARBONYL	4	3	3		
NICKEL TETRACARBONYL	4	3	3		
TETRACARBONYLNICKEL	4	3	3		
AMIDOGEN	3	0	0		
MONONITROGEN MONOXIDE	3	0	0		
NITRIC OXIDE	3	0	0		
NITROGEN MONOXIDE	3	0	0		
DEUTOXIDE OF NITROGEN	3	0	0		
NITROGEN DIOXIDE	3	0	0		
NITROGEN PEROXIDE 8	3	0	0		
NITROGEN(IV) OXIDE	3	0	0		

DINITROGEN TETROXIDE	3	0	0		
NITROGEN TETROXIDE	3	0	0		
NITROGEN TETROXIDE, (LIQUEFIED)	3	0	0		
NITROGEN TETROXIDE, GAS	3	0	0		
NITROGEN OXYCHLORIDE	3	1	0		
NITROOYL CHLORIDE	3	1	0		
NITROSONIUM CHLORIDE	3	1	0		
NITROSYL CHLORIDE	3	1	0		
TILDENS REAGENT	3	1	0		
DIFLUORINE MONOXIDE	4	0	2		
FLUORINE MONOXIDE	4	0	2		
HYPOFLUOROUS ANHYDRIDE	4	0	2		
OXYGEN DIFLUORIDE	4	0	2		
OXYGEN FLUORIDE	4	0	2		
OZONE GAS	4	0	2		
TRIATOMIC OXYGEN	4	0	2		

TRIOXYGEN	4	0	2		
PENTABORANE	4	4	2		
PENTABORON NONAHYDRIDE	4	4	2		
CHLORINE FLUORINE OXIDE	3	2	3		
CHLORINE OXYFLUORIDE	3	2	3		
PERCHLORYL FLUORIDE	3	2	3		
TRIOXYCHLOROFLUORIDE	3	2	3		
1,1,3,3,3-PENTAFLUORO-2-(TRIFLUOROMETHYL)PROP-1-ENE	b	b	b		
OCTAFLUOROISOBUTYLENE	b	b	b		
OCTAFLUORO-SEC-BUTENE	b	b	b		
PERFLUOROISOBUTENE	b	b	b		
PERFLUOROISOBUTYLENE	b	b	b		
PFIB	b	b	b		
CARBON DICHLORIDE OXIDE	4	1	0		
CARBON OXYCHLORIDE	4	1	0		
CARBONYL DICHLORIDE	4	1	0		
CHLOROFORMYL CHLORIDE	4	1	0		
DICHLOROFORMALDEHYDE	4	1	0		
DICHLOROMETHANONE	4	1	0		
PHOSGENE, GAS	4	1	0		
HYDROGEN PHOSPHIDE	4	4	2		
PHOSPHAMINE	4	4	2		
PHOSPHANE	4	4	2		
PHOSPHINE	4	4	2		
PHOSPHORATED HYDROGEN	4	4	2		
PHOSPHORUS TRIHYDRIDE	4	4	2		
PHOSPHORUS HYDRIDE	4	4	2		
PHOSPHOROUS OXYCHLORIDE	4	0	2		
PHOSPHORUS CHLORIDE	4	0	2		
PHOSPHORUS TRIOXYCHLORIDE	4	0	2		
PHOSPHORYL CHLORIDE	4	0	2		
PENTAFLUORIDOPHOSPHORUS	3	0	2		

PENTAFLUOROPHOSPHORANE	3	0	2		
PHOSPHORUS PENTAFLUORIDE	3	0	2		
PHOSPHORUS(V) FLUORIDE	3	0	2		
PHOSPHOROUS TRICHLORIDE	4	0	2		
PHOSPHORUS CHLORIDE	4	0	2		
PHOSPHORUS(III) CHLORIDE	4	0	2		
PHOSPHORUS FLUORIDE	3	0	1		

PHOSPHORUS TRIFLUORIDE	3	0	1		
TRIFLUOROPHOSPHINE	3	0	1		
1,2-EPOXYPROPANE	3	4	2		
1,2-PROPYLENE OXIDE	3	4	2		
EPHOXYPROPANE	3	4	2		
METHYL ETHYLENE OXIDE	3	4	2		
METHYL OXIRANE	3	4	2		
METHYLETHYLENE OXIDE	3	4	2		
PROPENE OXIDE	3	4	2		
PROPYLENE EPOXIDE	3	4	2		
PROPYLENE OXIDE	3	4	2		
SELENIUM FLUORIDE	3	0	1		
SELENIUM HEXAFLUORIDE	3	0	1		
SELENIUM(VI) FLUORIDE	3	0	1		
MONOSILANE	2h	4	3		
SILANE	2h	4	3		
SILICANE	2h	4	3		
SILICON HYDRIDE	2h	4	3		
SILICON TETRAHYDRIDE	2h	4	3		
SILICON TETRACHLORIDE	3	0	2		
SILICON(IV) CHLORIDE	3	0	2		
TETRACHLOROSILANE	3h	0	2		
FLUORO ACID AIR	3	0	2		
SILICON FLUORIDE	3	0	2		

SILICON TETRAFLUORIDE	3	0	2		
TETRAFLUOROSILANE	3h	0	2		
ANTIMONY HYDRIDE	4	4	2		
ANTIMONY TRIHYDRIDE	4	4	2		
HYDROGEN ANTIMONIDE	4	4	2		
STIBANE	4	4	2		
STIBINE	4	4	2		
SULFUR DIOXIDE	3	0	0		
SULFUR OXIDE	3	0	0		
SULFUR(IV) OXIDE	3	0	0		
SULFUROUS ACID ANHYDRIDE	3	0	0		
SULFUROUS ANHYDRIDE	3	0	0		
SULFUROUS OXIDE	3	0	0		
1,1'-THIOBIS[2-CHLOROETHANE]	4	1	1		
1-CHLORO-2-(BETA-CHLOROETHYLTHIO)ETHANE	4	1	1		
BIS(2-CHLOROETHYL) SULFIDE	4	1	1		
DICHLORODIETHYL SULFIDE	4	1	1		
SULFUR MUSTARD	4	1	1		
DISULFUR DECAFLUORIDE	4	3	2		
SULFUR DECAFLUORIDE	4	3	2		
SULFUR PENTAFLUORIDE	4	3	2		
SULFUR TETRAFLUORIDE	4	1	0		
SULFUR(IV) FLUORIDE	4	1	0		
TETRAFLUOROSULFURANE	4	1	0		
SULFONYL FLUORIDE	3	1	0		
SULFUR DIFLUORIDE DIOXIDE	3	1	0		
SULFURYL DIFLUORIDE	3	1	0		
SULFURYL FLUORIDE	3	1	0		
SULPHURYL FLUORIDE	3	1	0		
VIKANE	3	1	0		
TELLURIUM FLUORIDE	4	0	2		

TELLURIUM HEXAFLUORIDE	4	0	2		
PERFLUORETHYLENE	2d	4	3		
TETRAFLUOROETHENE	2d	4	3		
TFE	2d	4	3		
SILICOCHLOROFORM	3	4	2		
SILICON CHLORIDE	3	4	2		
TRICHLOROSILANE	3	4	2		
CYANOTRIFLUOROMETHANE	4	0	0		
PERFLUOROACETONITRILE	4	0	0		
TRIFLUOROACETONITRILE	4	0	0		
TRIFLUOROACETYL CHLORIDE	3	0	0		
N,N-DIMETHYLMETHANAMINE	3	4	0		
TRIMETHYLAMINE	3	4	0		
TRIMETHYLBORANE	4	4	3		
TRIMETHYLBORINE	4	4	3		
TRIMETHYLBORON	4	4	3		
TRIMETHYLSILANE	2i	4	1		
TRIMETHYLSILYL HYDRIDE	2i	4	1		
HEXAFLUOROTUNGSTEN	4	0	2		
TUNGSTEN HEXAFLUORIDE	4	0	2		
WOLFRAM HEXAFLUORIDE	4	0	2		
CHLOROETHENE	2d	4	2		
VINYL CHLORIDE	2d	4	2		
METHYL VINYL ETHER	0j	4	2		
VINYL METHYL ETHER	0j	4	2		
XYLENE, GAS	2i	3	0		
a = on multiple university toxic gas lists, no MSDS available					
b = LC <sub>50</sub> between 17-300ppm, see <a href="http://www.epa.gov/oppt/aegl/pubs/perfloroisobutylene_interim_section_2010.pdf">http://www.epa.gov/oppt/aegl/pubs/perfloroisobutylene_interim_section_2010.pdf</a>					
c = as a cryogen hazard, not a toxic hazard - SOP required for atypical use only					
d = low health rating, but known or suspected carcinogen					
e = poor warning properties					
f = LC <sub>50</sub> is 1ppm, see <a href="http://www.msds-al.co.uk/assets/file_assets/SDS_074-CLP-HYDROGEN%20TELLURIDE.pdf">http://www.msds-al.co.uk/assets/file_assets/SDS_074-CLP-HYDROGEN%20TELLURIDE.pdf</a>					

g=LC50 is 10ppm, see CGA P-20 Table 3					
h=pyrophoric					
i = on Airgas restricted sales list					
j = peroxide former					