

List of Toxic and Pyrophoric Gases that require preapproval from MSU EHS BEFORE purchase					
Chemical	MSDS	CAS #	Health	Fire	Reactive
1,3-BUTADIENE	1,3-BUTADIENE	106-99-0	2d	4	0
2-METHYL-1,3-BUTADIENE	2-METHYL-1,3-BUTADIENE	78-79-5	1i	4	0
ACETYL FLUORIDE	ACETYL FLUORIDE	557-99-3	3	0	0
AMMONIA	AMMONIA	7664-41-7	3	1	0
ANTIMONY PENTAFLUORIDE	ANTIMONY PENTAFLUORIDE	7783-70-2	4	0	1
ARSENIC PENTAFLUORIDE	ARSENIC PENTAFLUORIDE	7784-36-3	3	1	0
ARSENIC TRIFLUORIDE	ARSENIC TRIFLUORIDE	7784-35-2	3	0	1
ARSINE	ARSINE	7784-42-1	4	4	2
BIS(TRIFLUOROMETHYL)PEROXIDE	BIS(TRIFLUOROMETHYL)PEROXIDE	927-84-4	a, j	a, j	a, j
BORON TRIBROMIDE	BORON TRIBROMIDE	10294-33-4	4	2	0
BORON TRICHLORIDE	BORON TRICHLORIDE	10294-34-5	3	0	1
BORON TRIFLUORIDE	BORON TRIFLUORIDE	7637-07-2	4	0	1
BROMINE	BROMINE	7726-95-6	3	0	0
BROMINE CHLORIDE	BROMINE CHLORIDE	13863-41-7	3	0	1
BROMINE PENTAFLUORIDE	BROMINE PENTAFLUORIDE	7789-30-2	3	0	3
BROMINE TRIFLUORIDE	BROMINE TRIFLUORIDE	7787-71-5	3	0	3
BROMOETHENE	BROMOETHENE	593-60-2	2d	4	1
BROMOMETHANE	BROMOMETHANE	74-83-9	3	1	0
CARBON DISULFIDE	CARBON DISULFIDE	75-15-0	3	4	0
CARBON MONOXIDE	CARBON MONOXIDE	630-08-0	2e	4	0
CARBONYL FLUORIDE	CARBONYL FLUORIDE	353-50-4	4	0	1
CARBONYL SULFIDE	CARBONYL SULFIDE	463-58-1	3	4	1
CHLORINE	CHLORINE	7782-50-5	4	0	0
CHLORINE DIOXIDE	CHLORINE DIOXIDE	10049-04-4	3	0	4
CHLORINE MONOXIDE	CHLORINE MONOXIDE	12301-79-0	a	a	a
CHLORINE PENTAFLUORIDE	CHLORINE PENTAFLUORIDE	13637-63-3	3	0	3
CHLORINE TRIFLUORIDE	CHLORINE TRIFLUORIDE	7790-91-2	4	0	3
CHLOROTRIFLUOROETHYLENE	CHLOROTRIFLUOROETHYLENE	79-38-9	3	4	3
CARBON NITRIDE	CYANOGEN	460-19-5	4	4	2
CYANOGEN	CYANOGEN	460-19-5	4	4	2
CYANOGEN CHLORIDE	CYANOGEN CHLORIDE	506-77-4	4	0	2
DEUTERIUM BROMIDE	DEUTERIUM BROMIDE	13536-59-5	3	0	0
DEUTERIUM CHLORIDE	DEUTERIUM CHLORIDE	7698-05-7	3	0	1
DEUTERIUM SULFIDE	DEUTERIUM SULFIDE	13536-94-2	4	0	0
DIAZOMETHANE	DIAZOMETHANE	334-88-3	4	4	4
DIBORANE	DIBORANE	19287-45-7	4	4	3
DIBROMOMETHANE	DIBROMOMETHANE	74-95-3	2i	0	0
DICHLOROSILANE	DICHLOROSILANE	4109-96-0	4	4	2
DICHLOROMETHANE	DICHLOROMETHANE	75-09-2	2d	1	0
DIMETHYLAMINE	DIMETHYLAMINE	124-40-3	3	4	0
DIMETHYLSILANE	DIMETHYLSILANE	1111-74-6	1h	4	1

DIPHOSGENE	DIPHOSGENE	503-38-8	4	0	0
DISILANE	DISILANE	1590-87-0	0	4h	0
ETHYL CHLORIDE	ETHYL CHLORIDE	75-00-3	2i	4	2
ETHYL MERCAPTAN	ETHYL MERCAPTAN	75-01-1	2i	4	0
ETHYL NITRITE	ETHYL NITRITE	109-95-5	4	4	4
ETHANAMINE	ETHYLAMINE	75-0-7	3	4	0
ETHYL BENZENE	ETHYLBENZENE	100-41-4	2i	3	0
ETHYLENE OXIDE	ETHYLENE OXIDE	75-21-8	3	4	3

ETHYLSILANE	ETHYLSILANE	2814-79-1	2h	4	0
FLUORINE	FLUORINE	7784-41-4	4	0	4
FLUOROETHENE	FLUOROETHENE	75-02-5	2d	4	2
FORMALDEHYDE, GAS	FORMALDEHYDE	50-00-0	4	4	1
GERMANE	GERMANE	7782-65-2	4	4	3
HELIUM-3	HELIUM-3 ISOTOPE	7440-59-7	0i	0	0
HEPTAFLUOROBUTYRONITRILE	HEPTAFLUOROBUTYRONITRILE	375-00-8	g	g	g
HEXACHLORO-1,3-BUTADIENE	HEXACHLOROBUTADIENE	87-68-3	4	4	1
HEXAFLUORO-2-BUTYNE	HEXAFLUORO-2-BUTYNE	692-50-2	4	0	0
HEXAFLUROACETONE	HEXAFLUROACETONE	684-16-2	3	0	2
HEXAFLUROBUTADIENE	HEXAFLUROBUTADIENE	685-63-2	3	4	0
HYDROGEN BROMIDE	HYDROGEN BROMIDE	10035-10-6	3	0	0
HYDROGEN CHLORIDE	HYDROGEN CHLORIDE	7647-01-0	3	0	1
HYDROGEN CYANIDE, GAS	HYDROGEN CYANIDE	74-90-8	4	4	1
HYDROGEN FLUORIDE	HYDROGEN FLUORIDE	7664-39-3	4	0	1
HYDROGEN IODIDE	HYDROGEN IODIDE	10034-85-2	3	0	1
HYDROGEN SELENIDE	HYDROGEN SELENIDE	7783-07-5	4	4	3
HYDROGEN SULFIDE	HYDROGEN SULFIDE	7783-06-4	4	4	0
HYDROGEN TELLURIDE	HYDROGEN TELLURIDE	7783-09-7	f	f	f
IODINE PENTAFLUORIDE	IODINE PENTAFLUORIDE	7783-66-6	3	0	2
KETENE	KETENE	463-51-4	3	0	0
METHYL CHLORIDE	METHYL CHLORIDE	74-87-3	2d	4	0
METHYL IODIDE	METHYL IODIDE	74-88-4	3	1	1
METHYL ISOTHIOCYANATE	METHYL ISOTHIOCYANATE	556-61-6	3	1	1
METHYL MERCAPTAN	METHYL MERCAPTAN	74-93-1	4	4	1
METHYL METHANOATE	METHYL METHANOATE	107-31-3	2i	4	0
METHYL SILANE	METHYL SILANE	992-94-9	3h	4	2
METHYLAMINE, ANHYDROUS	METHYLAMINE	74-89-5	3	4	0
METHYL CHLOROSILANE	METHYLCHLOROSILANE	933-00-0	3	3	2
METHYLISOCYANATE	METHYLISOCYANATE	624-83-9	3	4	2
NICKEL CARBONYL	NICKEL CARBONYL	13463-39-3	4	3	3
NITRIC OXIDE	NITRIC OXIDE	10102-43-9	3	0	0
NITROGEN DIOXIDE	NITROGEN DIOXIDE	10102-44-0	3	0	0
NITROGEN TETROXIDE, GAS	NITROGEN TETROXIDE	10544-72-6	3	0	0
NITROSYL CHLORIDE	NITROSYL CHLORIDE	2696-92-6	3	1	0
OXYGEN DIFLUORIDE	OXYGEN DIFLUORIDE	7783-41-7	4	0	2

OZONE GAS	OZONE	10028-15-6	4	0	2
PENTABORANE	PENTABORANE	19624-22-7	4	4	2
PERCHLORYL FLUORIDE	PERCHLORYL FLUORIDE	7616-94-6	3	2	3
PERFLUOROISOBUTYLENE	PERFLUOROISOBUTYLENE	382-21-8	b	b	b
PHOSGENE, GAS	PHOSGENE	75-44-5	4	1	0
PHOSPHINE	PHOSPHINE	7803-51-2	4	4	2
PHOSPHOROUS OXYCHLORIDE	PHOSPHOROUS OXYCHLORIDE	10025-87-3	4	0	2
PHOSPHORUS PENTAFLUORIDE	PHOSPHORUS PENTAFLUORIDE	7647-19-0	3	0	2
PHOSPHOROUS TRICHLORIDE	PHOSPHOROUS TRICHLORIDE	7719-12-2	4	0	2
PROPYLENE OXIDE	PROPYLENE OXIDE	75-56-9	3	4	2
SELENIUM HEXAFLUORIDE	SELENIUM HEXAFLUORIDE	7783-79-1	3	0	1
SILANE	SILANE	7803-62-5	2h	4	3
SILICON TETRACHLORIDE	SILICON TETRACHLORIDE	10026-04-7	3	0	2
SILICON TETRAFLUORIDE	SILICON TETRAFLUORIDE	7783-61-1	3	0	2
STIBINE	STIBINE	7803-52-3	4	4	2
SULFUR DIOXIDE	SULFUR DIOXIDE	7446-09-5	3	0	0
SULFUR MUSTARD	SULFUR MUSTARD	505-60-2	4	1	1
SULFUR PENTAFLUORIDE	SULFUR PENTAFLUORIDE	5714-22-7	4	3	2

SULFUR TETRAFLUORIDE	SULFUR TETRAFLUORIDE	7783-60-0	4	1	0
SULFURYL FLUORIDE	SULFURYL FLUORIDE	2699-79-8	3	1	0
TELLURIUM HEXAFLUORIDE	TELLURIUM HEXAFLUORIDE	7783-80-4	4	0	2
TETRAFLUOROETHENE	TETRAFLUOROETHENE	116-14-3	2d	4	3
TRICHLOROSILANE	TRICHLOROSILANE	10025-78-2	3	4	2
TRIFLUOROACETONITRILE	TRIFLUOROACETONITRILE	353-85-5	4	0	0
TRIFLUOROACETYL CHLORIDE	TRIFLUOROACETYL CHLORIDE	354-32-5	3	0	0
TRIMETHYLAMINE	TRIMETHYLAMINE	75-50-3	3	4	0
TRIMETHYLBORANE	TRIMETHYLBORANE	593-90-8	4	4	3
TRIMETHYLSILANE	TRIMETHYLSILANE	993-07-7	2i	4	1
TUNGSTEN HEXAFLUORIDE	TUNGSTEN HEXAFLUORIDE	7783-82-6	4	0	2
VINYL CHLORIDE	VINYL CHLORIDE	75-01-4	2d	4	2
VINYL METHYL ETHER	VINYL METHYL ETHER	107-25-5	0j	4	2
a = on multiple university toxic gas lists, no MSDS available					
b = LC ₅₀ between 17-300ppm, see http://www.epa.gov/oppt/aegl/pubs/perfloroisobutylene_interim_sept_2010.pdf					
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= LC50 is 1ppm, see http://www.msds-al.co.uk/assets/file_assets/SDS_074-CLP-HYDROGEN%20TELLURIDE.pdf					
g=LC50 is 10ppm, see CGA P-20 Table 3					
h=pyrophoric					

i = on Airgas restricted sales list					
j = peroxide former					