Appendix A – Prohibited Chemicals

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
2-Butanol (sec-Butyl Alcohol)	$C_2H_5CH(OH)CH_3$	78-92-2	may form explosive peroxides upon concentration
Acetal (1,1-Diethoxyethane)	$C_6H_{14}O_2$	105-57-7	may form explosive peroxides upon concentration; toxic
Acetaldehyde (Ethanal)	CH_3CHO	75-07-0	may form explosive peroxides upon concentration; possibly carcinogenic to humans; highly flammable
Acetyl Halides (e.g., Acetyl Fluoride, Acetyl Chloride, Acetyl Bromide, Acetyl Iodide)			respiratory irritant, toxic; violent reaction with water; dangerous fire risk
Acetyl Nitrate	CH_3CONO_3	591-09-3	shock sensitive
Acrolein	CH_2CHCHO	107-02-8	flammable and reactive; may be fatal if ingested, inhaled, or absorbed through the skin
Acrylic Acid (Propenoic Acid)	H_2CCHCO_2H	79-10-7	may form explosive peroxides; reactive; corrosive
Acrylonitrile	CH_2CHCN	107-13-1	may form explosive peroxides; possibly carcinogenic to humans; flammable; reactive
Alcohols (Allylic, Benzylic) Note: Alcohols are referred to as allylic or benzylic if the hydroxyl group is bonded to an allylic carbon atom (adjacent to a C=C double bond) or a benzylic carbon atom (next to a benzene ring), respectively. (e.g., 3-penten-2-ol; 2-propen-1-ol (allyl alcohol), 1-phenylethanol, phenylmethanol (benzyl alcohol), diphenylmethanol (diphenylcarbinol), triphenylmethanol (triphenylcarbinol)).			may form explosive peroxides upon concentration

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Alkyl-Substituted Cycloaliphatics Note: Methyl-, ethyl-, propyl-, butyl- are common alkyl substituents. A cycloaliphatic is a cyclic hydrocarbon such as cyclopropane, cyclobutane, or cyclohexane (e.g., tert-butylcycloheptane or 1-cyclobutyl-4-methylpentane).			may form explosive peroxides upon concentration
Aluminum Phosphide	AlP	20859-73-8	water-reactive; generates poisonous and explosive gas when in contact with air or moisture
Amatol (TNT and Ammonium Nitrate mixture)			explosive
Ammonal (TNT, Ammonium Nitrate, and Aluminum Powder Mixture)			explosive
Ammonium Bromate	NH_4BrO_3	13843-59-9	shock sensitive
Ammonium Chlorate	NH_4ClO_3	10192-29-7	strong oxidizer; explosive
Ammonium Hexanitrocobaltate	$NH_3Co(NO_2)_6$	13600-98-1	explosive
Ammonium Nitrite	NH_4NO_2	13446-48-5	explosive
Ammonium Perchlorate	NH_4ClO_4	7790-98-9	strong oxidizer; explosive; irritant
Ammonium Periodate	NH_4IO_4	13446-11-2	strong oxidizer; explosive; irritant; inhalation hazard
Ammonium Permanganate	NH_4MnO_4	13446-10-1	explosive
Ammonium Tetraperoxychromate	$(NH_4)_3CrO_8$		explosive
Antimony Compounds (e.g., triethyl stibine, tripropyl stibine, trivinyl stibine, antimony trichloride, antimony pentachloride, nickel antimonide)			dust fire and explosion hazard; poison; corrosive; reactive; some antimony compounds are possibly carcinogenic to humans

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Arsenic and Arsenic Compounds (e.g., lead arsenate, sodium arsenate, sodium arsenite, Trisilyl Arsine, arsine, arsenic trioxide)			carcinogenic to humans; poison
Azide Compounds (e.g., hydrogen azide, sodium azide, copper azide, lead (dinitride) azide)			acutely toxic; shock sensitive; explosive
Azidocarbonyl Guanidine	$C_2H_4N_6O$	54567-24-7	shock sensitive, explosive
Barium	Ba	7440-39-3	water-reactive; may ignite on contact with water or moist air; acutely toxic
Barium Chlorate	$Ba(ClO_3)_2 \cdot H_2O$	13477-00-4	explosive; strong oxidizer; toxic
Barium Oxide (Anhydrous)	BaO	1304-28-5	poison; water-reactive
Barium Peroxide	BaO_2	1304-29-6	poison; water-reactive; oxidizer
Benzene	C_6H_6	71-43-2	carcinogenic to humans; flammable
Benzene Diazonium Chloride	$C_6H_5ClN_2$	100-34-5	explosive
Benzotriazole	$C_6H_5N_3$	95-14-7	explosive
Benzoyl Peroxide	$(C_6H_5CO)_2O_2$	94-36-0	flammable; explosive; oxidizer; sensitizer; allergen; reacts violently with bases
Benzyl Alcohol	$C_6H_5CH_2OH$	100-51-6	reacts violently with oxidants; may form explosive peroxides upon concentration
Bismuth Nitrate	$Bi(NO_3)_3 \cdot 5H_2O$	10035-06-0	strong oxidizer; contact with other material may cause fire; toxic
Boranes and Diboranes (e.g., borane, tribromoborane, trifluoroborane, diborane, pentaborane, methyldiborane)			poison; flammable; water-reactive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Bromine Pentafluoride	BrF_5	7789-30-2	oxidizer; poison; inhalation hazard; corrosive; reacts with water with explosive force
Bromine Trifluoride	BrF_3	7787-71-5	oxidizer; poison; inhalation hazard; corrosive; reacts with water with explosive force
Butadiene	C_4H_6	106-99-0	may for explosive peroxides; carcinogenic to humans
Butanetriol Trinitrate (BTTN)	$C_4H_7N_3O_9$	6659-60-5	explosive
Cadmium and Cadmium Compounds (e.g., cadmium hydroxide, cadmium oxide, cadmium sulfide)			carcinogenic to humans; highly toxic
Calcium Nitrate, Anhydrous	$Ca(NO_3)_2$	10124-37-5	strong oxidizer; may explode if shocked or heated
Calcium Permanganate	$Ca(MnO_4)_2$	10118-76-0	strong oxidizer
Carbon Tetrachloride	CCl_4	56-23-5	possibly carcinogenic to humans; acutely toxic
Chloral Hydrate	$CCl_3CH(OH)_2$	302-17-0	controlled barbiturate; probably carcinogenic to humans
Chlorine	Cl_2	7782-50-5	oxidizer, corrosive, may be fatal if inhaled
Chlorine Dioxide	ClO_2	10049-04-4	oxidizer; flammable and reactive; shock sensitive; explosive
Chlorine Trifluoride	ClF_3	7790-91-2	powerful oxidizer; explosive reaction with water and acids; poisonous if inhaled
Chlorine Trioxide	ClO_3	13932-10-0	shock sensitive; explosive
Chloroacetylene	C_2HCl	593-63-5	shock sensitive; air reactive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Chloroform	$CHCl_3$	67-66-3	poison; possibly carcinogenic to humans
Chloropicrin	CCl_3NO_2	76-06-2	shock sensitive; explosive; poison; inhalation hazard
Chloroprene	C_4H_5Cl	126-99-8	may form explosive peroxides; possibly carcinogenic to humans
Chlorotrifluoroethylene	C_2F_3Cl	79-38-9	may form explosive peroxides
Chromic Chloride (Chromium (III) Chloride)	$CrCl_3 \cdot 6H_2O$	10060-12-5	acutely toxic; fatal if inhaled
Chromium (Powder)	Cr	7440-47-3	flammable; toxic
Chromyl Chloride	CrO_2Cl_2	14977-61-8	water-reactive; chromium (VI) compounds are carcinogenic to humans
Cobalt (Powder)	Co	7440-48-4	possibly carcinogenic to humans
Colchicine	$C_{22}H_{25}NO_6$	64-86-8	acutely toxic
Copper Acetylide	Cu_2C_2	1117-94-8	explosive
Cumene (Isopropylbenzene)	$C_6H_5CH(CH_3)_2$	98-82-8	may form explosive peroxides upon concentration; possibly carcinogenic to humans
Cycloheptanone	$C_7H_{12}O$	502-42-1	may form explosive peroxides; flammable; corrosive; toxic
Cyclohexanol	$C_6H_{11}OH$	108-93-0	may form explosive peroxides upon concentration
Cyclopentene	C_5H_8	142-29-0	may form explosive peroxides upon concentration
Diacetylene (Butadiyne)	C_4H_2	460-12-8	may form explosive peroxides upon concentration; highly flammable; explosive
Diazidoethane	$C_2H_4N_6$	629-13-0	explosive
Diazodinitrophenol (DDNP)	$C_6H_2N_4O_5$	4682-03-5	explosive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Diazomethane	CH_2N_2	334-88-3	poisonous and flammable gas
Dicyclopentadiene	$C_{10}H_{12}$	77-73-6	may form explosive peroxides upon concentration; acutely toxic; fatal if inhaled; flammable
Diisopropyl Ether	$C_6H_{14}O$	108-20-3	may form explosive peroxides
Dinitrophenol	$C_6H_3OH(NO_2)_2$	51-28-5	explosive
Dioxane	$C_4H_80_2$	123-91-1	may form explosive peroxides upon concentration; possibly carcinogenic to humans
Dipentaerythritol Hexanitrate (DPEHN)	$C_{10}H_{16}N_6O_{19}$	13184-80-0	explosive
Disulfur Dinitride	S_2N_2	25474-92-4	explosive
Divinyl Acetylene	C_6H_6	821-08-9	may form explosive peroxides; acutely toxic; highly flammable
Divinyl Ether	$C_4H_6O_2$	109-93-3	may form explosive peroxides; highly flammable
Ethyl Ether (diethyl ether)	$(C_2H_5)_2O$	60-29-7	may form explosive peroxides upon concentration
Ethyl Nitrite	$C_2H_5NO_2$	109-95-5	explosive
Ethylene Glycol Dimethyl Ether (Glyme or 1,2-Dimethoxyethane)	$C_4H_{10}O_2$	28923-39-9	may form explosive peroxides upon concentration
Ethylene Glycol Dinitrate (EGDN or 1,2-Dinitroxyethane)	$C_2H_4N_2O_6$	628-96-6	explosive
Ethylene Oxide	C_2H_4O	75-21-8	carcinogenic to humans; flammable; explosive; may be fatal if inhaled or absorbed through the skin
Formaldehyde	CH_2O	50-00-0	carcinogenic to humans; poison; may cause allergic reaction

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Furan	C_4H_4O	110-00-9	possibly carcinogenic to humans; may form explosive peroxides upon concentration
Glycerol Monolactate Trinitrate (GLTN)	$C_6H_9N_3O_{11}$		explosive
Grignard Reagents and their solvents Note: a Grignard Reagent has a formula RMgX where X is a halogen and R is an alkyl or aryl (based on a benzene ring) group. An example is CH_3CH_2MgBr (ethylmagnesium bromide). They are typically found in solution with tetrahydrofuran or ether as the solvent.			Both the Grignard Reagent and the solvents are hazardous. The Grignard Reagents can be highly reactive, corrosive, pyrophoric, and toxic. The solvents are highly flammable and may form explosive peroxides.
Guanyl Nitrosamino Guanylidene Hydrazine			explosive; strong oxidizer
Hexyl Alcohol	$CH_3(CH_2)_4CH_2OH$	111-27-3	highly flammable; poison
HMX	$C_4H_8N_8O_8$	2691-41-0	explosive
Hydrofluoric Acid	HF	7664-39-3	corrosive; may be fatal if inhaled or ingested; liquid and vapor can cause severe burns not always immediately painful or visible, but possibly fatal
Hydrogen Peroxide (>30%)	H_2O_2	7722-84-1	fire and explosion risk, severely corrosive; strong oxidizer
Hydrogen Sulfide	H_2S	7783-06-4	highly flammable; exposure to very high concentrations causes immediate death; death or permanent injury may occur after very short exposure to small quantities
Isopropyl Ether (Diisopropyl Ether)	$C_6H_{14}O$	108-20-3	highly flammable; may form explosive peroxides
Lead Dinitroresorcinate (LDNR)	$PbC_6H_2(NO_2)_2(OH)_2$		explosive; probably carcinogenic to humans

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Lead Dioxide (Lead (IV) Oxide or Lead Brown)	PbO_2	1309-60-0	toxic; probably carcinogenic to humans; will accelerate burning in fire; may explode from heat or contamination
Lead Mononitroresorcinate (LMNR)	$PbC_6H_3NO_2(OH)_2$	51317-24-9	explosive; shock sensitive; probably carcinogenic to humans
Lead Trinitroresorcinate (Lead Styphnate)	$PbC_6H(NO_2)_3(OH)_2$	15245-44-0	explosive; probably carcinogenic to humans
Lithium Nitrate	$LiNO_3$	7790-69-4	oxidizer; shock sensitive
Lithium Nitride	Li_3N	26134-62-3	highly flammable; powder is easily ignited and burns with intense heat; may ignite spontaneously in moist air
Lithium Peroxide	Li_2O_2	12031-80-0	oxidizer; toxic; explosive
Magnesium (except Mg ribbon & turnings)	Mg	7439-95-4	reacts with water to liberate hydrogen gas; flammable solid; easily ignited
Magnesium Peroxide	MgO_2	14452-57-4	strong oxidizer
Mannitol Hexanitrate	$C_6H_8N_6O_{18}$	15825-70-4	explosive; strong oxidizer
Mercury (except in sealed devices)	Hg	7439-97-6	corrosive; poison; severely and subtly toxic
Mercury Compounds (e.g., Nessler's Reagent, mercuric chloride, mercuric potassium iodide, mercuric fluoride)			poison; severely and subtly toxic
Methyl Acetylene	C_3H_4	74-99-7	highly flammable; may form explosive peroxides upon concentration
Methyl Cyclopentane	C_6H_{12}	96-37-7	highly flammable
Methyl Isocyanate	CH_3NCO	624-83-9	water-reactive; highly flammable; polymerizable

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Methyl MethacrylateMonomer	$C_5H_8O_2$	80-62-6	may form explosive peroxides; flammable; explosive (vapor)
meta-Trinitrocresol (3-Methyl-2,4,6-trinitrophenol)	$C_7H_5N_3O_7$	602-99-3	explosive; strong oxidizer
Nessler's Reagent (Mercuric Potassium Iodide and Sodium Hydroxide)	Hg+KI+NaOH	7783-33-7	
Nicotine	$C_{10}H_{14}N_2$	54-11-5	poison; acutely toxic
Nitroglycerin	$C_3H_5N_3O_9$	55-63-0	explosive; strong oxidizer
Nitrosoguanidine	$C_2H_5N_5O_3$	70-25-7	explosive; highly flammable; water-reactive; decomposes at elevated temperatures
Osmic Acid (Osmium Tetroxide)	OsO_4	20816-12-0	acutely toxic; may be fatal if inhaled or ingested
ortho-Toluidine (e.g., Toluidine Blue)	C_7H_9N	95-53-4	carcinogenic to humans; poison
Pentaerythrite Tetranitrate (PETN)	$C_5H_8N_4O_{12}$	78-11-5	explosive; strong oxidizer
Perchloric Acid	$HClO_4$	7601-90-3	strong oxidizing agent; corrosive; contact with organics may result in explosion; can cause serious or permanent injury
Phenol	C_6H_6O	108-95-2	combustible; corrosive; may be fatal if inhaled, ingested, or absorbed through skin
Phenyl Thiourea	$C_7H_8N_2S$	103-85-5	extremely toxic; poison; emits toxic fumes when heated
Phosphorus (yellow or white)	P	7723-14-0	flammable solid; self-ignition possible; evolves dangerous gas if burned

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Phosphorus Halides and Oxides (e.g., phosphorus trichloride, phosphorus trioxide, phosphorus, pentabromide)			water-reactive; corrosive; toxic
Phosphides (e.g., magnesium aluminum phosphide, potassium phosphide, sodium phosphide)			poison; water-reactive
Phthalic Anhydride	$C_8H_4O_3$	85-44-9	explosive; water-reactive
Picramide	$C_6H_4N_4O_6$	489-98-5	explosive; strong oxidizing agent
Picrates and Picryl Compounds (e.g.,ammonium picrate, lead picrate, potassium picrate, picryl sulfonic acid, picryl chloride)			explosive
Picric Acid (2,4,6-Trinitrophenol)	$C_6H_3N_3O_7$	88-89-1	extremely reactive; explosive when dry
para-Nitrophenol (4-Nitrophenol)	$NO_2C_6H_4OH$	100-02-7	poison; forms explosive mixtures
Polyvinyl Nitrate (PVN or polyethenyl nitrate)	$(C_2H_3NO_3)_n$		explosive; shock sensitive
Potassium Amide	KNH_2	17242-52-3	may form explosive peroxides
Potassium Cyanide	KCN	151-50-8	acutely toxic
Potassium Dinitrobenzofuroxan (KDNBF)	$KC_6H_2N_4O_6$	29267-75-2	explosive
Potassium Nitrite	KNO_2	7758-09-0	strong oxidizer
Potassium Perchlorate	$KClO_4$	7778-74-7	explosive
Potassium Periodate	KIO_4	7790-21-8	strong oxidizer
Potassium Peroxide	K_2O_2	17014-71-0	water-reactive; strong oxidizer
Potassium Superoxide	KO_2	12030-88-5	water-reactive; strong oxidizer
RDX	$C_3H_6N_6O_6$	121-82-4	explosive
Silanes and Chlorosilanes (e.g., silane; dichlorosilane; tetramethylsilane; trichlorosilane)			flammable; reactive; highly toxic

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Silicon Tetrachloride	$SiCl_4$	10026-04-7	air- and water-reactive; corrosive
Silver Acetylide	Ag_2C_2	13092-75-6	explosive; shock sensitive
Silver Cyanide	AgCN	506-64-9	acutely toxic; may be fatal if inhaled, ingested, or absorbed through skin
Silver Dinitroresorcinate (Silver Styphnate)	$Ag_2C_6H(NO_3)_2(OH)_2$		reactive; ignitable; shock sensitive
Silver Fulminate	AgCNO	5610-59-3	explosive
Silver Cyanate	AgOCN	3315-16-0	toxic
Silver Nitride	Ag_3N	20737-02-4	shock sensitive; explosive
Silver Oxalate	$Ag_2C_2O_4$	533-51-7	shock sensitive
Silver Tetrazene			shock sensitive
Sodium Amide	$NaNH_2$	7782-92-5	may form explosive peroxides; water-reactive; highly flammable
Sodium Chlorate	$NaClO_3$	7775-09-9	oxidizer; explosive
Sodium Chlorite	$NaClO_2$	7758-19-2	oxidizer; explosive
Sodium Cyanide	NaCN	143-33-9	acutely toxic
Sodium Dithionite (Sodium Hydrosulfite)	$Na_2S_2O_4$	7775-14-6	spontaneously combustible; water-reactive; pyrophoric
Sodium Methylate	$NaCH_3O$	124-41-4	spontaneously combustible; water-reactive; pyrophoric
Sodium Perborate	$NaBO_3$	7632-04-4	air- and water- reactive; explosive
Sodium Perchlorate	$NaClO_4$	7601-89-0	oxidizer; water-reactive; explosive
Sodium Permanganate	$NaMnO_4$	10101-50-5	oxidizer; explosive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Sodium Peroxide	Na_2O_2	1313-60-6	oxidizer; water-reactive; toxic; explosion and fire risk in combination with powdered metals and organics
Strontium Perchlorate	$SrCl_2O_8$	13450-97-0	shock sensitive
Styrene Monomer	C_8H_8	100-42-5	highly flammable; may form explosive peroxides; polymerizable
Sulfur Trioxide	SO_3	7446-11-9	air- and water-reactive; corrosive; poison; inhalation hazard
Sulfuryl Chloride (Sulfonyl Chloride)	Cl_2O_2S	7791-25-5	air- and water-reactive; corrosive; poison; inhalation hazard
Sulfuryl Chloride Fluoride	$ClFO_2S$	13637-84-8	poison; water-reactive; corrosive
tert-butyl Hypochlorite	C_4H_9ClO	507-40-4	spontaneously combustible; pyrophoric; fire will produce irritating, corrosive, and/or toxic gases
Tetrafluoroethylene	C_2F_4	116-14-3	may form explosive peroxides; highly flammable; probably carcinogenic to humans
Tetrahydrofuran	C_4H_8O	109-99-9	highly flammable; oxidizes in air to form explosive peroxides
Tetrahydronaphthalene	$C_{10}H_{12}$	119-64-2	highly flammable; vapors may form explosive mixtures with air; may form explosive peroxides upon concentration
Tetranitromethane	CN_4O_8	509-14-8	oxidizer; poison; possibly carcinogenic to humans; inhalation hazard; explosive
Tetraselenium Tetranitride	Se_4N_4	12033-88-4	shock sensitive

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Tetrazene (tetrazolyl guanyltetrazene hydrate)	$C_2H_6N_{10}\cdot H_2O$	31330-63-9	shock sensitive; explosive
Tetryl (2,4,6-trinitrophenylmethylnitroamine)	$C_7H_5N_5O_8$	479-45-8	oxidizer; explosive
Thallium Nitride	Tl_3N	12033-67-9	shock sensitive
Thermit (example: could be a mixture of aluminum powder, iron oxide, ferro managanese, and ferro vanadium)			flammable solid; dangerous fire risk; once started, reaction is very difficult to stop
Thermite Igniting Mixture (example: could be a mixture of aluminum, barium nitrate, iron oxide and a binder such as dextrin on a copper stick)			becomes a fire hazard if exposed to a flame or high temperatures
Thiocarbonyl Tetrachloride (Perchloromethyl Mercaptan)	CCl_4S	594-42-3	poison; inhalation hazard
Thionyl Chloride	$SOCl_2$	7719-09-7	violently water-reactive; lachrymator; highly corrosive; toxic
Titanium (Powder)	Ti	7440-32-6	spontaneously combustible; may ignite on contact with moist air or moisture
Titanium Tetrachloride	$TiCl_4$	7550-45-0	water-reactive; corrosive; acutely toxic; may be fatal if inhaled
Triethyl Aluminum	$(C_2H_5)_3Al$	97-93-8	spontaneously combustible; flammable gas is produced on contact with water
Triisobutyl Aluminum	$(C_4H_9)_3Al$	100-99-2	spontaneously combustible; reacts violently with water producing flammable gas
Trimethyl Aluminum	$(CH_3)_3Al$	75-24-1	spontaneously combustible; flammable gas is produced on contact with water
Trinitroanisole	$C_7H_5N_3O_7$	606-35-9	explosive; strong oxidizer
Trinitrobenzene	$C_6H_3N_3O_6$	99-35-4	explosive; flammable solid; strong oxidizer

Appendix A – Prohibited Chemicals			
Name	**Formula**	**CAS #**	**Hazard***
Trinitrobenzoic Acid	$C_7H_3N_3O_8$	129-66-8 or 35860-50-5	explosive; highly flammable; strong oxidizer
Trinitronaphthalene (1,3,5-Trinitronaphthalene)	$C_{10}H_5N_3O_6$	2243-94-9	explosive; strong oxidizer
Trinitroresorcinol	$C_6H_3N_30_8$	82-71-3	explosive; strong oxidizer
Trinitrotoluene (TNT or 2,4,6-Trinitrotoluene)	$C_7H_5N_3O_6$	118-96-7	explosive; strong oxidizer
Uranium and Uranium Compounds (e.g., uranium oxide, Uranyl Acetate, Uranyl Nitrate, uranium hexafluoride, uranium tetrafluoride)			toxic by inhalation or ingestion
Urea Nitrate	$CH_4N_2O.HNO_3$	124-47-0	explosive; strong oxidizer
Vinyl Acetate	$C_4H_6O_2$	108-05-4	may form explosive peroxides; possibly carcinogenic to humans; reactive
Vinyl Acetylene	C_4H_4	689-97-4	may form explosive peroxides; reactive
Vinyl Chloride	C_2H_3Cl	75-01-4	carcinogenic to humans; may form explosive peroxides; reactive
Vinyl Ethers (e.g., divinyl ether; 2-chloroethylvinyl ether; butyl vinyl ether)			may form explosive peroxides upon concentration
Vinylidene Chloride (1,1-Dichloroethene or 1,1-DCE)	$C_2H_2Cl_2$	75-35-4	may form explosive peroxides
Zinc Peroxide	ZnO_2	1314-22-3	oxidizer; used as an oxidant in explosives; toxic

* The hazard information provided for the listed chemicals is not intended to address all safety concerns. Before attempting to work with any chemical, review and comply with information provided on the SDS.

Appendix B – Restricted Chemicals

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
2-Butanone (Methyl Ethyl Ketone or MEK)	$CH_3COC_2H_5$	78-93-3	highly flammable; may form explosive peroxides	Good
Acetamide	CH_3CONH_2	60-35-5	possibly carcinogenic to humans	Poor; deliquescent
Acetanilide (n-Phenylacetamide or Acetamidobenzene)	$CH_3CONHC_6H_5$	103-84-4	combustible; irritant	Indefinite
Acetic Acid	CH_3COOH	64-19-7	flammable; corrosive	Good
Acetic Anhydride	$(CH_3CO)_2O$	108-24-7	water-reactive; corrosive; flammable	Good
Acetone	CH_3COCH_3	67-64-1	highly flammable; inhalation hazard	Good
Acetylcholine Bromide	$C_7H_{16}BrNO_2$	66-23-9	toxic; irritant	Good
Acridine Orange	$C_{17}H_{19}N_3$	10127-02-3	irritant	Fair
Adipoyl Chloride	$ClOC(CH_2)_4COCl$	111-50-2	corrosive	Poor
Alizarin Red	$C_{14}H_7NaO_7S$	130-22-3	toxic	Indefinite
Alkyl Aluminum Chloride	Unavailable	Unavailable	water reactive	Poor; deliquescent
Aluminum (Powder)	Al	7429-90-5	water-reactive; strong reducing agent; pyrophoric	Indefinite
Aluminum Acetate	$Al(C_2H_3O_2)_2OH$	142-03-0	toxic	Good
Aluminum Bromide	$AlBr_3$	7727-15-3	air- and water-reactive; corrosive	Fair
Aluminum Chloride Hexahydrate	$AlCl_3 \cdot 6H_2O$	7784-13-6	water-reactive; corrosive	Poor; deliquescent
Aluminum Fluoride	AlF_3	7784-18-1	water-reactive; corrosive; inhalation hazard	Fair
Aluminum Hydroxide	$Al(OH)_3$	21645-51-2	possibly toxic	Indefinite
Aluminum Nitrate	$Al(NO_3)_3 \cdot 9H_2O$	7784-27-2	strong oxidizer	Indefinite

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Aluminum Tetrahydroborate (Aluminum Borohyrdide)	$Al(BH4)3$	16962-07-5	poison; air- and water–reactive; pyrophoric; strong reducing agent	Fair
Ammonia, Anhydrous	NH_3	7664-41-7	poison; water-reactive; inhalation hazard; corrosive	Indefinite
Ammonia Solutions in Water	NH_3	7664-41-7	corrosive; reactive; toxic	Indefinite
Ammonium Acetate	$NH_4C_2H_3O_2$	631-61-8	inhalation hazard; irritant	Poor; deliquescent
Ammonium Bicarbonate	NH_4HCO_3	1066-33-7	inhalation hazard; irritant	Good
Ammonium Dichromate	$(NH_4)_2Cr_2O_7$	7789-09-5	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Fair
Ammonium Bromide	NH_4Br	12124-97-9	inhalation hazard; irritant	Fair to poor; hygroscopic
Ammonium Carbonate	NH_4CO_3	10361-29-2	inhalation hazard; irritant	Indefinite
Ammonium Chloride	NH_4Cl	12125-02-9	toxic; inhalation hazard; irritant	Fair to poor; hygroscopic
Ammonium Chromate	$(NH_4)_2CrO_4$	7788-98-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Indefinite
Ammonium Fluoride	NH_4F	12125-01-8	corrosive; toxic	Fair to poor; substance is deliquescent
Ammonium Hydroxide	NH_4OH	1336-21-6	inhalation hazard; severely corrosive	Indefinite
Ammonium Iodide	NH_4I	12027-06-4	inhalation hazard	Poor; very hygroscopic
Ammonium Molybdate Tetrahydrate	$(NH_4)_6Mo_7O_{24}\cdot 4H_2O$	12054-85-2	toxic	Indefinite

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Ammonium Nitrate (500 g limit)	NH_4NO_3	6484-52-2	shock sensitive; oxidizer	Poor
Ammonium Oxalate Monohydrate	$(NH_4)_2C_2O_4 \cdot H_2O$	6009-70-7	corrosive; toxic	Indefinite
Ammonium Phosphate, Dibasic (Diammonium Hydrogen Phosphate	$(NH_4)_2HPO_4$	7783-28-0	respiratory hazard; potential for skin and eye damage	Indefinite
Ammonium Phosphate, Monobasic (Ammonium Dihydrogen Phosphate)	$NH_4H_2PO_4$	7722-76-1	respiratory hazard; potential for skin and eye damage	Indefinite
Ammonium Sulfate	$(NH_4)_2SO_4$	7783-20-2	respiratory hazard	Indefinite
Ammonium Sulfide	$(NH_4)_2S$	12135-76-1	respiratory hazard; corrosive; poison; flammable	Good
Ammonium Tartrate	$(NH_4)_2C_4H_4O_6$	3164-29-2	irritant	Fair
Ammonium Thiocyanate	NH_4SCN	1762-95-4	inhalation hazard; strong reducing agent	Poor; deliquescent
Amyl Acetate	$CH_3COOC_5H_{11}$	628-63-7	flammable; toxic	Good
Aniline	$C_6H_5NH_2$	62-53-3	acutely toxic	Poor
Aniline Hydrochloride	$C_6H_5NH_2 \cdot HCl$	142-04-1	corrosive; acutely toxic	Poor
Anisoyl Chloride (Methyoxybenzoyl Chloride)	$C_8H_7ClO_2$	100-07-2	air- and water-reactive; corrosive;	Fair
Barium Acetate	$Ba(C_2H_3O_2)_2$	543-80-6	acutely toxic	Indefinite
Barium Carbide	BaC_2	50813-65-5	water–reactive; toxic	Fair
Barium Chloride, Dihydrate	$BaCl_2 \cdot 2H_2O$	10326-27-9	poison; acutely toxic	Indefinite
Barium Nitrate	$Ba(NO_3)_2$	10022-31-8	oxidizer; toxic	Indefinite
Benzaldehyde	C_6H_5CHO	100-52-7	combustible	Fair
Benzene Phosphorus Dichloride	$C_6H_5PCl_2$	644-97-3	air-and water-reactive; fumes in air; corrosive	Fair
Benzoic Acid	C_6H_5COOH	65-85-0	concentrated dust may form explosive mixture	Indefinite

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Benzyl Chloride	$C_6H_5CH_2Cl$	100-44-7	probably carcinogenic to humans; poison; corrosive; toxic; lachrymator; releases toxic fumes when heated	Fair
Benzylsodium	C_7H_7Na	1121-53-5	water reactive; ignites spontaneously in air;	Fair
Benzylamine (Benzenemethanamine)	$C_6H_5CH_2NH_2$	100-46-9	corrosive; poison; combustible	Fair
Beryllium Tetrahydroborate	$Be(BH_4)_2$	17440-85-6	violently air- and water-reactive; beryllium compounds are carcinogenic to humans	Fair
Biphenyl (Diphenyl)	$C_6H_5C_6H_5$	92-52-4	irritant; combustible	Limited; refer to expiration date on label
Bismuth Pentafluoride	BiF_5	7787-62-4	water–reactive; toxic	Fair
Boric Acid	H_3BO_3	10043-35-3	harmful if swallowed	Indefinite
Boron Bromide Diiodide	$BBrI_2$	14355-21-6	violently water-reactive	Fair
Boron Dibromoiodide	BBr_2I	unavailable	violently water-reactive	Fair
Boron Phosphide	BP	20205-91-8	water-reactive	Fair
Boron Trichloride	BCl_3	13517-10-7	water-reactive; toxic	Fair
Bromine Fluoride	BrF	13863-59-7	water-reactive	Fair
Bromine Water	$Br_2 + H_2O$	7726-95-6	corrosive; irritating fumes; toxic	Indefinite
Bromobenzene	C_6H_5Br	108-86-1	highly flammable; toxic	Indefinite
Bromodiethylaluminum	$C_4H_{10}AlBr$	760-19-0	water-reactive	Fair
Bromoform	$CHBr_3$	75-25-2	poison; lachrymator	Good

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Butanol (n-Butyl Alcohol)	$CH_3(CH_2)_3OH$	71-36-3	highly flammable; toxic	Fair
Butyric Acid	$CH_3CH_2CH_2COOH$	107-92-6	corrosive; combustible; stench agent; lachrymator	Indefinite
Calcium (100 g limit)	Ca	7440-70-2	water-reactive; flammable solid	Good
Calcium Bromide	$CaBr_2$	7789-41-5	toxic	Good
Calcium Hypochlorite	$Ca(ClO)_2$	7778-54-3	strong oxidizer; reactive; toxic	Fair to poor
Calcium Nitrate Tetrahydrate	$Ca(NO_3)_2 \cdot 4H_2O$	13477-34-4	strong oxidizer; shock sensitive	Fair to poor; deliquescent
Calcium Phosphide (CP)	Ca_3P_2	1305-99-3	violently air- and water- reactive; strong reducing agent; poison	Fair
Camphor	$C_{10}H_{16}O$	76-22-2	toxic; flammable solid; combustible	Indefinite
Carbon Disulfide (Carbon Bisulfide)	CS_2	75-15-0	highly flammable; poison; severe fire risk	Indefinite
Cerium (IV) Sulfate (Ceric Sulfate)	$Ce(SO_4)_2$	13590-82-4	strong oxidizer; corrosive; irritant	Limited; refer to expiration date on label
Cesium Amide	CsH_2N	22205-57-8	water-reactive	Fair
Cesium Phosphide	Cs_3P	113737-02-3	water-reactive	Fair
Chlorine Fluoride	ClF	7790-89-8	strong oxidizer; water-reactive	Fair
Chlorine Pentafluoride	ClF_5	13637-63-3	water-reactive	Fair
Chloroacetic Acid	$C_2H_3ClO_2$	79-11-8	acutely toxic; corrosive	Indefinite
Chloroacetyl Chloride	$C_2H_2Cl_2O$	79-04-9	air- and water-reactive; corrosive; poison; inhalation hazard	Good

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Chlorobenzene	C_6H_5Cl	108-90-7	highly flammable; inhalation hazard	Limited; refer to expiration date on label
Chlorodiisobutyl Aluminum (Diisobutylaluminum Chloride)	$C_8H_{18}AlCl$	1779-25-5	water-reactive; highly flammable	Fair
2-Chlorophenyl Isocyanate	C_7H_4ClNO	3320-83-0	poison; highly flammable	Fair
Chromic Acid	CrO_3	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Poor
Chromium (III) Nitrate Nonahydrate (Chromium Trinitrate)	$Cr(NO_3)_3 \cdot 9H_2O$	7789-02-8	oxidizer; toxic	Good
Chromium (III) Sulfate (Chromic Sulfate)	$Cr_2(SO_4)_3 \cdot nH_2O$	10101-53-8	corrosive; toxic	Indefinite
Chromium Trioxide	CrO_3	1333-82-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Poor
Cobalt (II) Nitrate Hexahydrate (Cobaltous Nitrate)	$Co(NO_3)_2 \cdot 6H_2O$	10026-22-9	cobalt and cobalt compounds are possibly carcinogenic to humans; acutely toxic	Poor; deliquescent
Copper (II) Bromide (Cupric Bromide, Anhydrous)	$CuBr_2$	7789-45-9	toxic; irritant	Poor; deliquescent
Cyclohexane	$CH_2(CH_2)_4CH_2$	110-82-7	highly flammable; poison	Indefinite
Dichloromethane (Methylene Dichloride)	CH_2Cl_2	75-09-2	probably carcinogenic to humans; poison	Good
Diethyl Aluminum Chloride	$C_4H_{10}AlCl$	96-10-6	water-reactive; highly flammable; inhalation hazard	Fair

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Diethyl Zinc (DEZ)	$C_4H_{10}Zn$	557-20-0	air- and water-reactive; highly flammable	Fair
Diisopropyl Beryllium	$C_6H_{14}Be$	15721-33-2	water-reactive; beryllium compounds are carcinogenic to humans	Fair
Dimethyl Magnesium	C_2H_6Mg	2999-74-8	air- and water-reactive; spontaneously flammable in air	Fair
Diphenylmethane-4,4-Diisocyanate	$C_{15}H_{10}N_2O_2$	101-68-8	Poison	Poor
Diphenylamine	$(C_6H_5)_2NH$	122-39-4	Poison	Indefinite
Ethanol (Ethyl Alcohol)	C_2H_5OH	64-17-5	highly flammable	Indefinite
Ethyl Acetate	$CH_3COOC_2H_5$	141-78-6	highly flammable; toxic; may form explosive peroxides	Good
Ethyl Methacrylate	$CH_2CCH_3COOC_2$	97-63-2	highly flammable; polymerizable	Poor
Ethylene Dichloride (1,2-Dichloroethane)	$C_2H_4Cl_2$	107-06-2	highly flammable; possibly carcinogenic to humans; poison; emits toxic gases if heated or burned	Poor
Ethylenediamine	$NH_2CH_2CH_2NH_2$	107-15-3	highly flammable;air-reactive; corrosive	Poor
FAA Solution (Formalin-Aceto-Alcohol Solution)			flammable; acutely toxic; carcinogenic to humans	Good
Fehlings Solution A (Copper (II) Sulfate and Water)			acutely toxic	Fair
Fehlings Solution B (Sodium Hydroxide; Potassium Sodium Tartrate; and Water)			caustic; toxic	Fair
Ferric Chloride, Anhydrous (Iron (III) Chloride)	$FeCl_3$	7705-08-0	corrosive; inhalation hazard	Poor

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Ferric Nitrate Nonahydrate (Iron (III) Nitrate Nonahydrate)	$Fe(NO_3)_3 \cdot 9H_2O$	7782-61-8	strong oxidizer; irritant; explosion hazard with heat	Good
Fluorine Monoxide (Oxygen Difluoride)	F_2O	7783-41-7	strong oxidizer; air- and water-reactive; poison; corrosive	Fair
Fluorosulfonic Acid	HSO_3F	7789-21-1	corrosive; air- and water-reactive	Fair
Formalin	CH_2O	50-00-0	toxic; corrosive; carcinogenic to humans	Indefinite
Formic Acid	HCOOH	64-18-6	flammable; corrosive	Poor
Gasoline	UNDEFINED	8006-61-9 or 86290-81-5	highly flammable; possibly carcinogenic to humans	Poor
Glutaraldehyde	$OCH(CH_2)_3CHO$	111-30-8	water-reactive; toxic	Indefinite
Gold Acetylide	C_2Au_2	70950-00-4	explosive; shock sensitive; water reactive	Fair
Hematoxylin	$C_{16}H_{14}O_6$	517-28-2	toxic	Fair
n-Heptane	$CH_3(CH_2)_5CH_3$	142-82-5	highly flammable; toxic	Good
Hexamethylene Diisocyanate (HDI)	$C_8H_{12}N_2O_2$	822-06-0	water-reactive; toxic	Fair
Hexamethylenediamine (1, 6-Diaminohexane)	$H_2N(CH_2)_6NH_2$	124-09-4	corrosive; toxic	Indefinite
n-Hexane	$CH_3(CH_2)_4CH_3$	110-54-3	highly flammable; toxic	Good
Hydriodic Acid	HI	10034-85-2	acutely toxic; corrosive	Fair
Hydrobromic Acid	HBr	10035-10-6	acutely toxic; water-reactive; corrosive	Fair
Hydrochloric Acid (Muriatic Acid)	HCl	7647-01-0	toxic; severely corrosive	Good

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Hydrogen Peroxide (30% or less)	H_2O_2	7722-84-1	readily decomposes with almost anything; strong oxidizer; explosion hazard; corrosive	Fair
Hydroquinone (Benzene-1, 4-diol)	$C_6H_4(OH)_2$	123-31-9	toxic	Poor
Hydroxylamine Hydrochloride	$NH_2OH{\cdot}HCl$	5470-11-1	toxic; strong reducing agent	Poor
Iodine	I_2	7553-56-2	poison; strong oxidizing agent	Fair
Iodine Monochloride (Chlorine Iodide)	ICl	7790-99-0	toxic; water-and air-reactive; strong oxidizing agent; corrosive	Poor
Iron (powder)	Fe	7439-89-6	metal dust may present a fire hazard and a health hazard	Good
Isoamyl Alcohol (3-Methyl-1-butanol or Isopentyl Alcohol)	$(CH_3)_2CHCH_2CHOH$	123-51-3	highly flammable; toxic	Fair
Isobutyl Alcohol	$(CH_3)_2CHCH_2OH$	78-83-1	highly flammable; toxic	Indefinite
Isopropyl Alcohol	$(CH_3)_2CHOH$	67-63-0	highly flammable; toxic; may form explosive peroxides	Fair
Kerosene	UNDEFINED	8008-20-6	highly flammable; toxic	Indefinite
Lead Nitrate	$Pb(NO_3)_2$	10099-74-8	oxidizer; toxic; probably carcinogenic to humans	Indefinite
Lead Tetraoxide, (Red Lead Oxide)	Pb_3O_4	1314-41-6	oxidizer; acutely toxic; probably carcinogenic to humans	Indefinite
Lithium Amide	$LiNH_2$	7782-89-0	water-reactive; toxic; flammable; dangerous fire and explosion hazard	Fair

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Lithium Bromide	LiBr	7550-35-8	acutely toxic	Good
Lithium Ferrosilicon	Fe-Si·Li	70399-13-2	water-reactive; acutely toxic; highly flammable	Fair
Lithium Silicon	Li·Si	68848-64-6	water-and air-reactive; acutely toxic; strong reducing agent	Fair
Lithium Sulfate	$Li_2SO_4 \cdot H_2O$	10102-25-7	toxic	Indefinite
Magnesium (ribbon)	Mg	7439-95-4	flammable solid; water-reactive	Indefinite
Magnesium Nitrate Hexahydrate	$Mg(NO_3)_2 \cdot 6H_2O$	13446-18-9	oxidizer; toxic	Good
Manganese Carbonate	$MnCO_3$	598-62-9	toxic	Good
Manganese Dioxide (Manganese Black; Manganese Oxide; Manganese Peroxide; Manganese Superoxide)	MnO_2	1313-13-9	toxic	Indefinite
Manganese (II) Nitrate Hexahydrate (Manganous Nitrate Hexahydrate)	$Mn(NO_3)_2 \cdot 6H_2O$	10377-66-9	strong oxidizer; toxic	Indefinite
Methyl Alcohol (Methanol)	CH_3OH	67-56-1	highly flammable; toxic	Good
Methyl Aluminum Sesquibromide	$C_3H_9Al_2Br_3$	12263-85-3	water-and air-reactive; toxic; dangerous fire and explosion hazard	Fair
Methyl Aluminum Sesquichloride	$C_3H_9Al_2Cl_3$	12542-85-7	water-and air-reactive; toxic; dangerous fire and explosion hazard	Fair
Methyl Chloride (Chloromethane)	CH_3Cl	74-87-3	highly flammable; toxic	Indefinite
Naphthalene (Moth Balls, Moth Flakes)	$C_{10}H_8$	91-20-3	possibly carcinogenic to humans; highly flammable	Poor
1-Naphthol (alpha-Naphthol)	$C_{10}H_7OH$	90-15-3	toxic	Indefinite

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
n-Butyllithium	C_4H_9Li	109-72-8	spontaneously flammable in air; toxic	Limited; refer to expiration date on label
Nickel (II) Nitrate Hexahydrate	$Ni(NO_3)_2 \cdot 6H_2O$	13478-00-7	nickel compounds are carcinogenic to humans; oxidizer	Poor
Nickel (II) Sulfate Hexahydrate	$NiSO_4 \cdot 6H_2O$	10101-97-0	nickel compounds are carcinogenic to humans	Good
Nitric Acid	HNO_3	7697-37-2	acutely toxic; strong oxidizer; water-and air-reactive	Fair
Nitrobenzene	$C_6H_5NO_2$	98-95-3	possibly carcinogenic to humans; acutely toxic; flammable	Fair
Nitrogen	N_2	7727-37-9	may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards; liquid nitrogen presents a low temperature hazards	Indefinite
Octyl Alcohol (Octanol or Caprylic Alcohol)	$CH_3(CH_2)_6CH_2OH$	111-87-5	flammable; toxic	Limited; refer to expiration date on label
ortho-Dichlorobenzene (1, 2-Dichlorobenzene)	$C_6H_4Cl_2$	95-50-1	flammable; toxic	Fair to poor
Oxalic Acid, Dihydrate (Ethanedioic Acid)	$H_2C_2O_4 \cdot 2H_2O$	6153-56-6	acutely toxic	Indefinite
Oxygen	O_2	7782-44-7	strong oxidizer; fire and explosion hazard; compressed gas cylinder hazards	Indefinite
para-Dichlorobenzene (1, 4-Dichlorobenzene	$C_6H_4Cl_2$	106-46-7	possibly carcinogenic to humans; flammable	Fair to poor
Pentyl Alcohol (Amyl Alcohol or Pentanol)	$CH_3(CH_2)_4OH$	71-41-0	highly flammable; toxic	Poor

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Petroleum Ether (500 mL limit)	UNDEFINED	Unavailable	highly flammable; toxic	Indefinite
Phosphoric Acid	H_3PO_4	7664-38-2	toxic; corrosive	Good
Phthalic Acid (1, 2-Benzenedicarboxylic Acid)	$C_6H_4(COOH)_2$	88-99-3	combustible; toxic	Limited; refer to expiration date on label
Polymethylene Polyphenyl Isocyanate (Polymeric Diphenylmethane Diisocyanate or MDI)	$(C_8H_5NO)n$	9016-87-9	water reactive; toxic	Fair
Polyvinyl Alcohol	$CH_2CH(OH)$	9002-89-5	combustible; toxic	Indefinite
Potassium Bromate	$KBrO_3$	7758-01-2	possibly carcinogenic to humans	Indefinite
Potassium Chromate	K_2CrO_4	7789-00-6	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Indefinite
Potassium Dichromate (Potassium Bichromate)	$K_2Cr_2O_7$	7778-50-9	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Indefinite
Potassium Ferricyanide (Red Prussiate)	$K_3Fe(CN)_6$	13746-66-2	contact with acids liberates toxic gas	Fair
Potassium Ferrocyanide (Tetrapotassium Hexacyanoferrate or Yellow Prussiate)	$K_4Fe(CN)_6 \cdot 3H_2O$	14459-95-1	toxic; contact with acids liberates toxic gas	Fair to poor
Potassium Hydroxide (Potash Lye)	KOH	1310-58-3	corrosive; toxic	Fair
Potassium Iodate	KIO_3	7758-05-6	oxidizer; toxic	Indefinite
Potassium Nitrate	KNO_3	7757-79-1	strong oxidizer	Good
Potassium Permanganate	$KMnO_4$	7722-64-7	strong oxidizer; explodes on sudden heating	Indefinite
Potassium Persulfate	$K_2S_2O_8$	7727-21-1	strong oxidizer; toxic	Fair to poor; deliquescent

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Potassium Sulfide	K_2S	1312-73-8	pyrophoric; spontaneously combustible; strong reducing agent; acutely toxic	Fair
Propane	$CH_3CH_2CH_3$	74-98-6	highly flammable; compressed gas cylinder hazards; vaporizing liquid may cause frostbite; toxic; will displace oxygen, which may cause asphyxiation	Fair
Propionic Acid	$C_3H_6O_2$	79-09-4	corrosive; flammable; toxic	Indefinite
Propyl Alcohol (n-Propanol or Propanol)	C_3H_8O	71-23-8	highly flammable; toxic	Indefinite
Pyridine (Azine or Azabenzene)	C_5H_5N	110-86-1	highly flammable; toxic	Good
Pyrosulfuryl Chloride (Sulfur Pentoxydichloride)	$Cl_2O_5S_2$	7791-27-7	water- and air-reactive; corrosive; toxic	Fair
Silver Nitrate	$AgNO_3$	7761-88-8	strong oxidizer; corrosive; toxic	Indefinite
Silver Sulfate	Ag_2SO_4	10294-26-5	toxic	Indefinite
Sodium Bisulfite	$NaHSO_3$	7631-90-5	strong reducing agent; corrosive; toxic	Fair to poor
Sodium Chromate	Na_2CrO_4	7775-11-3	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Fair
Sodium Cobaltinitrite (Sodium Hexanitrocobaltate)	$Na_3Co(NO_2)_6$	13600-98-1	cobalt and cobalt compounds are possibly carcinogenic to humans; toxic	Indefinite
Sodium Dichromate Dihydrate	$Na_2Cr_2O_7 \cdot 2H_2O$	7789-12-0	chromium (VI) compounds are carcinogenic to humans; strong oxidizer; poison	Poor

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Sodium Fluoride	NaF	7681-49-4	corrosive; poison	Indefinite
Sodium Hydroxide (Lye)	NaOH	1310-73-2	water-reactive; corrosive; toxic	Good
Sodium Hypochlorite	NaClO	7681-52-9	strong oxidizer; corrosive; toxic	Poor
Sodium Iodate	$NaIO_3$	7681-55-2	strong oxidizer; toxic	Fair to poor
Sodium Iodide	NaI	7681-82-5	toxic	Fair to poor
Sodium Metabisulfite	$Na_2S_2O_5$	7681-57-4	strong reducing agent; corrosive; toxic	Poor
Sodium Nitrate	$NaNO_3$	7631-99-4	strong oxidizer; toxic	Indefinite
Sodium Nitrite	$NaNO_2$	7632-00-0	strong oxidizer; poison	Indefinite
Sodium PhosphateTribasic Dodecahydrate	$Na_3PO_4 \cdot 12H_2O$	10101-89-0	corrosive; toxic	Fair
Sodium Potassium Alloy	K_2Na	11135-81-2	water-reactive; in contact with water releases flammable gases which may ignite spontaneously; corrosive	Fair
Sodium Sulfide Nonahydrate	$Na_2S \cdot 9H_2O$	1313-84-4	explosive; flammable solid; strong reducing agent; corrosive; toxic	Fair
Sodium Thiocyanate	NaSCN	540-72-7	strong reducing agent; toxic	Poor
Sodium Thiosulfate Pentahydrate	$Na_2S_2O_3 \cdot 5H_2O$	10102-17-7	toxic	Poor
Stannic Chloride	$SnCl_4$	7646-78-8	air- and water-reactive; corrosive; toxic	Poor
Strontium Nitrate	$Sr(NO_3)_2$	10042-76-9	strong oxidizer	Indefinite
Sulfur Chloride (Sulfur Dichloride)	Cl_2S_2	10025-67-9	water-reactive; corrosive; toxic	Fair

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Sulfur Pentafluoride	S_2F_{10}	5714-22-7	water-reactive; poison	Fair
Sulfuric Acid (<10%)	H_2SO_4	7664-93-9	strong oxidizer; severely corrosive; water-reactive; toxic	Good
Sulfuric Acid (>10%) (2.5 L limit)	H_2SO_4	7664-93-9	strong oxidizer; severely corrosive; water-reactive; toxic	Good
tert-Butyl Alcohol (t-Butanol or 1,1-Dimethyl Ethanol)	$(CH_3)_3COH$	75-65-0	highly flammable; irritating vapor and liquid	Fair
Terpineol (Terpene Alcohol)	$C_{10}H_{17}OH$	98-55-5	flammable; toxic	Indefinite
Thiophosphoryl Chloride	Cl_3SP	3982-91-0	air- and water-reactive; corrosive; toxic	Fair
Tin	Sn	7440-31-5	metal dust may present a fire hazard and a health hazard	Indefinite
Toluene (Methyl Benzene)	C_7H_8	108-88-3	highly flammable; toxic	Good
Toluene Diisocyanate (TDI)	$C_9H_6N_2O_2$	584-84-9	water-reactive; acutely toxic	Poor
Trichloroethane-1,1,1 (Methyl Chloroform)	$C_2H_3Cl_3$	71-55-6	poison; flammable	Fair
Trichloroethylene (Acetylene Trichloride)	C_2HCl_3	79-01-6	carcinogenic to humans; poison; flammable	Indefinite
Triethanolamine	$C_6H_{15}NO_3$	102-71-6	toxic	Fair
2,2,4-Trimethylpentane	C_8H_{18}	540-84-1	highly flammable; toxic	Limited; refer to expiration date on label
Tri-n-Butylaluminum	$C_{12}H_{27}Al$	1116-70-7	air- and water-reactive; strong reducing agent; pyrophoric; toxic	Fair
Trioctyl Aluminum	$(CH_3(CH_2)_7)_3Al$	1070-00-4	water-reactive; acutely toxic; flammable	Poor

Appendix B – Restricted Chemicals				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Triphenyltetrazolium Chloride (Red Tetrazolium or Vitastain)	$C_{19}H_{15}N_4Cl$	298-96-4	toxic	Good
Trisodium Phosphate (Sodium Phosphate)	Na_3PO_4	7601-54-9	toxic	Indefinite
Tungsten	W	7440-33-7	Metal dust may present a fire hazard and a health hazard.	Indefinite
Turpentine	$C_{10}H_{16}$	8006-64-2	Highly flammable; toxic	Indefinite
Vanadium Trichloride	VCl_3	7718-98-1	Toxic; air- and water-reactive; corrosive	Fair
Xylene	C_8H_{10}	1330-20-7	Highly flammable; toxic by inhalation or absorption through skin.	Good
Zinc (Powder)	Zn	7440-66-6	Strong reducing agent; water-reactive; pyrophoric; metal dust may present a fire hazard and a health hazard	Indefinite
Zinc Acetylide			shock sensitive; water-reactive	Fair
Zinc Nitrate Hexahydrate (500 g limit)	$Zn(NO_3)_2 \cdot 6H_2O$	10196-18-6	Strong oxidizer	Indefinite
Zinc Phosphide	Zn_3P_2	1314-84-7	Strong reducing agent; water reactive; toxic	Fair

Appendix B2 – Restricted Chemicals (Demonstration Use Only)

Appendix B2 – Restricted Chemicals (Demonstration Use Only)				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Aluminum Chloride, Anhydrous (25 g limit)	$AlCl_3$	7446-70-0	air-and water-reactive; fumes in moist air form toxic gas	Good
Ammonium Dichromate (100 g limit)	$(NH_4)_2Cr_2O_7$	7789-09-5	oxidizer; chromium (VI) compounds arecarcinogenic to humans	Fair
Ammonium Persulfate (100 g limit)	$(NH_4)_2S_2O_8$	7727-54-0	strong oxidizer; explosion hazard	Indefinite
Antimony Metal (50 g limit)	Sb	7440-36-0	poison; combustible powder; strong reducing agent	Indefinite
Bromine (3 - 1 g ampules limit)	Br_2	7726-95-6	strong oxidizer; reacts violently with organics; acutely toxic by inhalation and ingestion	Indefinite
Calcium Carbide (100 g limit)	CaC_2	75-20-7	water-reactive; reacts violently with water to generate acetylene gas; serious fire risk	Good
Chromium Oxide (Chromic Oxide) (20 g limit)	Cr_2O_3	1308-38-9	strong oxidizer; poison; corrosive	Indefinite
Collodion (a solution of pyroxylin in ether and alcohol) (100 mL limit)	$C_{25}H_{33}O_{13}(NO_3)_7$	9004-70-0	highly flammable	Fair
Cyclohexanone (100 mL limit)	$C_6H_{10}O$	108-94-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	Indefinite
Cyclohexene (100 mL limit)	C_6H_{10}	110-83-8	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	Poor
Cyclopentanone (100 mL limit)	C_5H_8O	120-92-3	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides	Good

Appendix B2 – Restricted Chemicals (Demonstration Use Only)				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Diglyme (Diethylene Glycol Dimethyl Ether) (500 mL limit)	$(CH_3O)CH_2$	111-96-6	combustible; oxidizes readily in air to form explosive peroxides	Limited; refer to expiration date on label
Dinitrophenylhydrazine (100 g limit)	$C_6H_6N_4O_4$	119-26-6	flammable solid; explosive when dry	Good
Hydrides, Borohydrides (e.g., aluminum borohydride, aluminum hydride, magnesium lauminum hydride, phosphorous hydride, sodium borohydride)(100 g limit)	Unavailable		strong reducing agents; air-and water-reactive	sodium borohydride: indefinite, phosporous hydride, magnesium lauminum hydride, aluminum hydride, aluminum borohydride: limited; refer to expiration date on label
Hydrogen (limited to lecture bottle of 4 cu. ft. or less)	H_2	13333-74-0	flammable gas; burns with a pale blue, almost invisible flame; may displace oxygen, which could cause asphyxiation; compressed gas cylinder hazards	Indefinite
Lithium (20 g limit)	Li	7439-93-2	water-reactive; highly flammable solid; readily ignited by and reacts with man y extinguishing agents	Indefinite
Magnesium (turnings) (100 g limit)	Mg	7439-95-4	water-reactive; flammable solid; strong reducing agent	Indefinite
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone or MIBK) (250 mL limit)	$CH_3COCH_2CH(CH)$	108-10-1	highly flammable; vapors may travel a considerable distance and ignite; may form explosive peroxides; possibly carcinogenic to humans	Fair to poor
Pentane (100 mL limit)	C_5H_{12}	109-66-0	highly flammable	Indefinite

Appendix B2 – Restricted Chemicals (Demonstration Use Only)				
Name	**Formula**	**CAS #**	**Hazard***	**Shelf Life[1]**
Phosphorus, Red (Amorphous) (50 g limit)	P	7723-14-0	water-reactive; flammable solid; can change to white phosphorus if heated; strong reducing agent; acutely toxic	Indefinite
Potassium (1-container with 5 demonstration-size pieces)	K	7440-09-7	violently water-reactive; may form explosive peroxides; combustible; flammable solid; ignites when exposed to water or moisture; may ignite spontaneously in air;	Poor
Potassium Chlorate (100 g limit)	$KClO_3$	3811-04-9	explosive; strong oxidizer	Indefinite
Silver Oxide (100 g limit)	Ag_2O	20667-12-3	strong oxidizer; contact with other material may cause fire	Indefinite
Sodium (100 g limit)	Na	7440-23-5	violently water-reactive; strong reducing agent; flammable solid; may ignite spontaneously in air	Good
Wright's Stain (Hg Containing) (100 mL limit)	UNDEFINED	68988-92-1	contains mercury; poison; acutely toxic	Indefinite

* The hazard information provided for the listed chemicals is not intended to address all safety concerns. Before attempting to work with any chemical, review and comply with information provided on the SDS.

[1] Chemicals with an indefinite shelf life may be stored in the school for up to five years. Chemicals with a shelf life less than indefinite (limited, poor, fair, and good) may be stored in the school for up to one year unless the manufacturer indicates a lesser period of time in which the chemical shall be used.