

## HAZARD COMMUNICATION PROGRAM

### RESPONSIBILITY

The Environmental Health and Safety Officer is responsible for developing the program which includes:

1. A list of hazardous chemicals in the work area.
2. Establishment of an MSDS library.
3. Establishment of an employee training program consisting of:
  - a. Notification of the Hazard Communication Program
  - b. Location of hazardous communication information (MSDS, list etc.)
  - c. Program implementation
  - d. Instruction on reading labels and MSDS.
  - e. Hazards in each work area
  - f. Procedures for providing personal protective equipment
4. Procedures for informing employees of hazards of non-routine tasks.
5. Procedures for informing contractors of hazards which might be encountered during contract jobs.

### DELEGATED RESPONSIBILITIES

The Department Head or Directors shall insure that appropriate MSDS are received/obtained for chemicals used on campus.

The Department Head or Directors shall maintain a current set of MSDS applicable to Louisiana Tech University and will make same available to employees and authorized local, state, or federal officials upon request.

An MSDS library shall be housed in the Environmental Health and Safety office.

Environmental Health and Safety personnel shall periodically monitor areas for selected chemicals or agents and will ensure that supervisors are aware of such monitoring.

Department Heads/Supervisors shall ensure that necessary physical or toxic warning signs are posted in those areas where special notices are required.

Department Heads/Supervisors shall ensure that each work area requiring specific personal protective equipment is posted with appropriate warning signs. Department Heads/Supervisors shall make appropriate personal protective equipment available as needed.

Plant Stores shall ensure that each container of a chemical is labelled according to its MSDS and to applicable regulations.

Supervisors shall inform their employees about the chemicals in the workplace, the location and operation of controls, procedures used to protect themselves and other workers, emergency plans, and location of MSDS of information related to chemicals in the workplace; and they shall inform the

department head or supervisor of any change in the process that may affect the health and safety of the employee. (Note: Much of the above can be handled in safety meetings.)

Employees shall become informed about the chemical and physical hazards of their workplace and how to protect themselves and other employees from these hazards. Employees shall become aware of where Louisiana Tech University's Hazard Communication Program, the Act, applicable MSDS, and lists of chemicals and information are located for their review. Employees shall inform their supervisors of changes in operations that could affect the safety and health of the job site or work area.

**INFORMATION PROGRAM**

At periodic safety meetings, Department Heads/Supervisors shall pass on any major changes in operations involving chemicals.

Posters shall be located at various points, i.e., conference rooms, lunchrooms, etc., indicating the location of copies of the Hazard Communication Standard, the Hazard Communication Program, lists of chemicals, and where additional information may be obtained. (See attached notice.)

NOTICE:

\*\*\*\*\*HAZARDOUS COMMUNICATION INFORMATION\*\*\*\*\*

The Hazard Communication Standard, a listing of hazardous materials/chemicals, and Material Safety Data Sheets are available at the Environmental Health and Safety Department, Campus Box 22, phone 257-2120.

Nights, weekends, or holidays call Campus Police at 257-4018.

\*\*\*\*\*THIS NOTICE MUST BE POSTED PROMINENTLY\*\*\*\*\*

**TRAINING PROGRAM**

The Program shall be presented as needed by Environmental Health and Safety and/or department heads/supervisors to affected employees, or when changes in operations warrant. The program shall include the following points:

1. Methods that may be used to detect the presence of a chemical or material are by visual appearance, odor, and irritation (skin, headaches, coughing).
2. Physical and health hazards of the chemicals or materials in the workplace and all information on the MSDS that may affect employees.
3. Measures used to protect the employee (Engineering design, barriers, ventilation, operating procedures, special training, etc.).
4. Details of the Hazard Communication Program.

## HAZARD COMMUNICATION--TEACHING OUTLINE

### Introduction to Subject Matter

#### I. Objectives:

- A. To ensure that the employee is made aware of the danger of hazardous materials/chemicals in the workplace.
- B. To ensure that the employee is made aware of how such materials/chemicals affect his/her body.
- C. To ensure that the employee learns how to recognize through labelling, the hazard categories of materials/chemicals.
- D. To ensure that the employee learns to interpret the Material Safety Data Sheet (MSDS).
- E. To ensure that the employee learns how to protect himself/herself from hazardous materials/chemicals.

#### II. Modes of Entry Into the Body:

- A. Inhalation--Breathing
- B. Ingestion--Entering through the mouth
- C. Absorption--Contact with exposed body areas
- D. Contact--As above (Corrosives)
  - 1. Once in the body, many materials/chemicals attack vital organs.
  - 2. Attack can be long or short term, but the results can be the same.

#### III. Effects:

- A. Carcinogenic--Cancer
- B. Toxic--Poison the organs
- C. Flammable--Burns
- D. Reactive--Explosion, burns, or toxic fumes leading to injury or death
- E. Cryogenic--Freezing or frostbite of body parts
- F. Corrosive--Destruction of human tissue
- G. Mutagenic--Damage to reproductive processes and fetus

#### IV. Recognizing the Hazard:

- A. The NFPA Hazard Identification System
  - 1. Health--Blue
  - 2. Flammability--Red
  - 3. Reactivity--Yellow
  - 4. Others--Colorless
  - 5. Numerical rating system
- B. Product labelling by manufacturer
  - 1. Display of labels
  - 2. Display of signs

- V. Material Safety Data Sheets:
- A. Section I--Name, address, phone number, etc., of the manufacturer
  - B. Section II--Hazardous ingredients identity information
  - C. Section III--Physical/chemical characteristics
  - D. Section IV--Fire and explosion hazard data
  - E. Section V--Reactivity data
  - F. Section VI--Health hazard data
  - G. Section VII--Precautions for safe handling and use
  - H. Section VIII--Control measures
- VI. Review

## **HAZARDOUS MATERIALS**

### Flammable solvents (liquid)

A flammable solvent is an organic liquid whose vapor can form an ignitable mixture with air. The solvent vapor is the fuel. The oxidizer is the surrounding atmosphere. For the mixture to burn, an ignition source must be present.

### Reactive Chemicals

Reactive chemicals are substances which, under certain ambient or induced conditions, enter into violent reactions with spontaneous generation of large quantities of heat, light, gases, or toxins that can be destructive to life and property.

### Radioactive Chemicals

Radioactive chemicals are those which possess one or more constituent atoms capable of spontaneously emitting alpha, beta, or gamma rays by disintegration of the corresponding atomic nuclei (when removed from shielding, the body can be bombarded by the rays).

### Corrosive Chemicals

Corrosive chemicals are those substances that by direct chemical action are injurious to body tissue. Corrosive injury may be of a minor degree (irritation) or of actual physical disruption of body tissues.

### Toxic Chemicals

A toxic substance has the potential of injury by direct chemical action with body systems. Almost any substance is toxic when taken in excess. Toxic substances interfere with the function of cells in body tissues, i.e., direct physicochemical corrosion or subtle chemical reaction disrupting biological processes.

### Biohazards

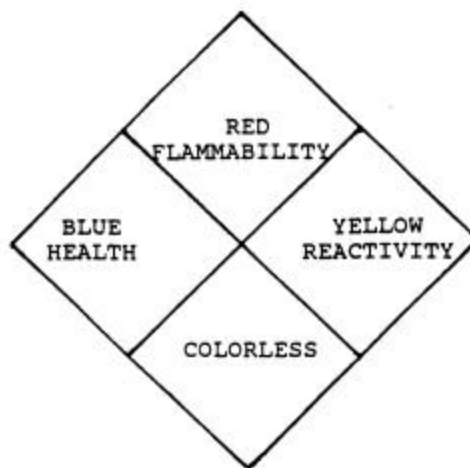
Biological hazards include insects, molds, fungi, and bacterial contamination stemming from items such as water, sewage, and food.

Compressed Gases

A compressed gas is any material in a container under pressure. Compressed gas cylinders contain a large amount of energy which, if released improperly, can result in serious injury. These gases can be toxic, flammable, or corrosive.

Cryogenic Liquids

Cryogenic liquids and compressed gases have many properties in common, hence many common hazards exist. Freezing or frostbite of tissue is a common hazard related to the use of cryogenics.

**THE NFPA HAZARD IDENTIFICATION SYSTEM**

Numerical rating from becoming more extreme as they are upscaled.

0-4 with the hazards

Health-Blue

- 4 A few whiffs of the gas or vapor could cause death; liquid penetration could be fatal.
- 3 Material is extremely dangerous, but area may be entered if fully protected.
- 2 Material hazardous to health, but area may be entered freely if SCBA is used.
- 1 Material is only slightly hazardous to health.
- 0 Material offers no health hazards.

Flammability-Red

- 4 Very flammable gases and very volatile flammable liquids and materials in the form of dusts or mists readily form explosive mixtures when dispersed into the air.
- 3 Liquids which can be ignited under almost all normal temperatures (low flashpoint); solids which form dusts, solids in shredded or fibrous form; solids that burn rapidly because they create their own oxygen; any material that ignites spontaneously at normal temperature.
- 2 Liquids which must be moderately heated before ignition will occur and solids that readily give off flammable vapors. (Usually, water can cool them off.)
- 1 Materials that must be preheated before ignition can occur.
- 0 Materials that will not burn.

Reactivity-Yellow

- 4 Materials which, in themselves, are readily capable of detonation or explosive decomposition at normal temperatures. This includes materials sensitive to mechanical or thermal shock.
- 3 Materials which, in themselves, are capable of detonation or explosive decomposition, but require a strong initiation source or must be heated before initiation under confinement. Includes materials that are shock sensitive at elevated temperatures or pressures. (May react with water.)
- 2 Materials which, in themselves, are normally unstable and readily undergo violent chemical change but do not denotate. Includes materials that can undergo chemical change with rapid release of energy at normal temperatures or pressures. (May react with water.)
- 1 Materials which, in themselves, are normally stable, but may become unstable at elevated pressures and temperatures. May react with water but not violently.
- 0 Materials that are stable even under fire conditions and are not reactive with water.

Colorless

Special reactive materials such as:

OXY Oxidizers



Radiation

-W- Water Reactive

## HAZARDOUS SUBSTANCES

Acetaldehyde	Anisidine	Bromoform	Carbaryl
Acetic acid	Antimony	1,3-Butadiene	Carbofuran
Acetic anhydride	Antimony trioxide	Butane	Carbon black
Acetone	ANTU	Butanethiol	Carbon dioxide
Acetonitrile	Argon	2-Butanone	Carbon disulfide
Acetylene	Arsenic	2-Butoxyethanol	Carbon monoxide
Acetylene dichloride	Arsenic trioxide	n-Butyl acetate	Carbon tetrabromide
Acetylene tetrabromide	Arsine	sec-Butyl acetate	Carbon tetrachloride
Acetylsalicylic acid	Asbestos	tert-Butyl acetate	Carbonyl chloride
Acrolein	Asphalt	Butyl acrylate	Carbonyl fluoride
Acrylamide	Atrazine	n-Butyl alcohol	Catechol
Acrylic acide	Azinphos-methyl	sec-Butyl alcohol	Cellulose
Acrylonitrile	Barium	tert-Butyl alcohol	Cesium hydroxide
Aldrin	Benomyl	Butylamine	Chlordane
Allyl alcohol	Benzene	tert-Butyl chromate	Chlorinated camphene
Allyl chloride	Benzidine	n-Butyl glycidyl ether	Chlorinated diphenyl oxide
Allyl glycidyl ether	p-Benzoquinone	n-Butyl lactate	Chlorine
Allyl propyl disulfide	Benzoyl peroxide	Butyl mercaptan	Chlorine dioxide
α-Alumina	Benzo α-pyrene	o-sec-Butylphenol	Chlorine trifluoride
Aluminum	Benzyl chloride	p-tert-Butyltoluene	Chloroacetaldehyde
4-Aminodiphenyl	Beryllium	Cadmium	α-Chloroacetophenone
2-Aminoethanol	Biphenyl	Cadmium oxide	Chloroacetyl chloride
2-Aminopyridine	Bismuth telluride	Calcium carbonate	Chlorobenzen
3-Amino 1, 2 4-triazole	Borates	Calcium cyanamide	o-Chlorobenzylidene
Amitrol	Boron oxide	Calcium hydroxide	malononitrile
Ammonia	Boron tribromide	Calcium oxide	Chlorobromomethane
Ammonium chloride	Boron trifluoride	Calcium silicate	2-Chloro-1,3-butadiene
Ammonium sulfamate	Bromacil	Camphor	Chlorodifluoromethane
n-Amyl acetate	Bromine	Caprolactam	Chlorodiphenyl
sec-Amyl acetate	Bromine pentafluoride	Captafol	1-Chloro-2,3-epoxy-propane
Aniline	Bromochloromethane	Captan	2-Chloroethanol

## HAZARDOUS SUBSTANCES (cont.)

Chloroethylene	Cyanogen	1,1-Dichloroethylene	Dimethyl carbamyl chloride
Chloroform	Cyanogen chloride	1,2-Dichloroethylene	Dimethyl-1,2-dibromo,
bis-Chloromethyl ether	Cyclohexane	Dichlorofluoromethane	2-dichloroethyl phosphate
Chloromethyl methyl ether	Cyclohexanol	Dichloromethane	Dimethylformamide
1-Chloro-1-nitropropane	Cyclohexanone	1,1-Dichloro-1-nitroethane	2,6-Dimethyl-4-heptanone
Chloropentafluoroethane	Cyclohexene	1,2-Dichloropropane	1,1-Dimethylhydrazine
Chloropicrin	Cyclohexylamine	Dichloropropene	Dimethylphthalate
B-Chloroprene	Cy-clonite	2,2-Dichloropropionic acid	Dimethyl sulfate
o-Chlorostyrene	Cyclopentadiene	Dichlorotetrafluoroethane	Dinitolmide
o-Chlorotoluene	Cyclopentane	Dichlorvos	Dinitrobenzene
2-Chloro-6-(trichloro methyl) pyridine	Cyhexatin	Dicrotophos	Dinitro-o-cresol
Chlorpyrifos	2,4-D	Dicyclopentadiene	3,5-Dinitro-o-toluamide
Chromite ore processing	DDT	Dicyclopentadienyl iron	Dinitrotoluene
Chromium	Decaborane	Dieldrin	Dioxane
Chromium (II) compounds	Demeton	Diethanolamine	Diozathion
Chromium (III) compounds	Diacetone alcohol	Diethylamine	Diphenyl
Chromium (VI) compounds	1,2-Diaminoethane	Diethylaminoethanol	Diphenylamine
Chromyl chloride	Diazinon	Diethylene triamine	Diphenylmethane diisocyanate
Chrysene	Diazomethane	Diethyl ether	Dipropylene glycol methyl ether
Clopidol	Diborane	Diethyl ketone	Dipropyl ketone
Coal tar pitch volatiles	1,2-Dibromoethane	Diethylphthalate	Diquat
Cobalt	2-N-Dibutylaminoethanol	Difluorodibromomethane	Di-sec, octyl phthalate
Cobalt carbonyl	Dibutyl phosphate	Diglycidyl ether	Disulfiram
Cobalt hydrocarbonyl	Dibutyl phthalate	Dihydroxybenzene	Disulfoton
Copper	Dichloroacetylene	Diisobutyl ketone	2,6-Ditert. butyl-p-cresol
Cotton dust	o-Dichlorobenzene	Diisopropylamine	Diuron
Cresol	p-Dichlorobenzene	Dimethoxymethane	Divinyl benzene
Crotonaldehyde	3,3-Dichlorobenzidine	Dimethyl acetamide	Emery
Crufomate	Dichlorodifluoromethane	Dimethylamine	Endosulfan
Cumene	1,3-Dichloro-5, 5-dimethyl hydantoin	Dimethylaminobenzene	Endrin
Cyanamide	1,1-Dichloroethane	Dimethylaniline	Epichlorohydrin
Cyanides	1,2-Dichloroethane	Dimethylbenzene	EPN

## HAZARDOUS SUBSTANCES (cont.)

1,2-Epoxypropane	N-Ethylmorpholine	Hexachlorocyclopentadiene	Isoamyl acetate
2,3-Epoxy-1-propanol	Ethyl silicate	Hexachloroethane	Isobutyl alcohol
Ethane	Fensulfothion	Hexachloronaphthalene	Isooctyl alcohol
Ethanethiol	Fenthion	Hexafluoroacetone	Isophorone
Ethanolamine	Ferbam	Hexamethyl phosphoramine	Isophorone diisocyanate
Ethion	Ferrovandium dust	Hexane	Isopropoxyethanol
2-Ethoxyethanol	Fibrous glass dust	2-Hexanone	Isopropyl acetate
2-Ethoxyethyl acetate	Florides	Hexone	Isopropyl alcohol
Ethyl acetate	Fluorine	s-Hexyl acetate	Isopropylamine
Ethyl acrylate	Fluorotrichloromethane	Hexylene glycol	N-Isopropylaniline
Ethyl alcohol	Fonofos	Hydrazine	Isopropyl ether
Ethylamine	Formaldehyde	Hydrogen	Isopropyl glycidyl ether
Ethyl amyl keton	Formamide	Hydrogenated terphenyls	Kaolin
Ethyl benzene	Formic acid	Hydrogen bromide	Ketene
Ethyl bromide	Forfural	Hydrogen chloride	Lead
Ethyl butyl keton	Furfuryl alcohol	Hydrogen cyanide	Lead arsenate
Ethyl chloride	Gasoline	Hydrogen fluoride	Lead chromate
Ethylene	Germanium tetrahydride	Hydrogen peroxide	Limestone
Ethylene chlorohydrin	Glass	Hydrogen selenide	Lindane
Ethylenediamine	Glutaraldehyde	Hydrogen sulfide	Lithium hydride
Ethylene dibromide	Glycerin mist	Hydroquinone	L.P.G.
Ethylene dichloride	Glycidol	4-Hydroxy-4-methyl-2-pentanone	Magnesite
Ethylene glycol	Glycol monothyl ether	2-Hydroxypropyl acrylate	Magnesium oxide fume
Ethylene glycol dinitrate	Graphite	Indene	Malathion
Ethylene glycol methyl ether acetate	Gypsum	Indium	Maleic anhydride
Ethylene oxide	Hafniun	Iodine	Manganese
Ethyleneimine	Helium	Iodoform	Manganese cyclopentadienyl tricarbonyl
Ethyl ether	Heptachlor	Iron oxide fume	Manganese tetroxide
Ethyl formate	Heptane	Iron pentacarbonyl	Marble/calcium carbonate
Ethylidene chloride	2-Heptanone	Iron salts	Mercury
Ethylidene norbornene	3-Heptanone	Isobutyl acetate	Mesityl oxide
Ethyl mercaptan	Hexachlorobutadiene	Isoamyl alcohol	Methacrylic acid

## HAZARDOUS SUBSTANCES (cont.)

Methane	Methylene chloride	Nickel	Paraffin wax fume
Methanethiol	4,4-Methylene bis	Nickel carbonyl	Paraquat
Methomyl	Methylene bis	Nickel sulfide	Parathion
Methoxychlor	4,4-Methylene dianiline	Nicotine	Particulate polycyclic aromatic hydrocarbons
2-Methoxyethanol	Methyl ethyl ketone	Nitrapyrin	Pentaborane
2-Methoxyethyl acetate	Methyl ethyl ketone peroxide	Nitric acid	Pentachloronaphthalene
4-Methoxyphenol	Methyl formate	Nitric oxide	Pentachlorophenol
Methyl acetate	5-Methyl-3-heptanone	p-Nitroaniline	Pentaerythritol
Methyl acetylene	Methyl hydrazine	Nitrobenzene	Pentane
Methyl acetylene propadiene mixture	Methyl iodide	p-Nitrochlorobenzene	2-Pentanone
Methyl acrylate	Methyl isoamyl ketone	4-Nitrodiphenyl	Perchloroethylene
Methylacrylonitrile	Methyl isobutyl carbinol	Nitroethane	Perchloromethyl mercaptan
Methylal	Methyl isobutyl ketone	Nitrogen dioxide	Perchloryl fluoride
Methyl alcohol	Methyl isocyanate	Nitrogen trifluoride	Phenol
Methylamine	Methyl isopropyl ketone	Nitroglycerin	Phenothiazine
Methyl amyl alcohol	Methyl mercaptan	Nitromethane	N-Phenyl-beta-naphthylamine
Methyl n-amyl ketone	Methyl methacrylate	1-Nitropropane	p-Phenylene diamine
N-methyl aniline	Methyl parathion	2-Nitropropane	Phenyl ether
Methyl bromide	Methyl propyl ketone	N-Nitrosodimethylamine	Phenylethylene
Methyl n-butyl ketone	Methyl silicate	Nitrotoluene	Phenyl glycidyl ether
Methyl chloride	α-Methyl styrene	Nitrotrichloromethane	Phenylhydrazine
Methyl chloroform	Mevinphos	Nonane	Phenyl mercaptan
Methyl 2-cyanoacrylate	Molybdenum	Octachloronaphthalene	Phenylphosphine
Methylcyclohexane	Monocrotophos	Octane	Phorate
Methylcyclohexanol	Morpholine	Oil Mist	Phosdrin
o-Methylcyclohexanone	Naled	Osmium tetroxide	Phosgene
Methylcyclopentadienyl manganese tricarbonyl	Naphthalene	Oxalic acid	Phosphine
Methyl demeton	B-Naphthylamine	Oxygen difluoride	Phosphoric acid
Methylene bisphenyl isocyanate	Neon	Ozone	Phosphorus

## HAZARDOUS SUBSTANCES (cont.)

Phosphorus oxychloride	Propylene oxide	Stibine	Tetrahydrofuran
Phosphorus pentachloride	Propyne	Soddard solvent	Tetramethyl lead
Phosphorus pentasulfide	Pyrethrun	Strychnine	Tetramethyl succinonitrile
Phosphorus trichloride	Pyridine	Styrene	Tetranitromethane
Phthalic anhydride	Quinone	Subtilisins	Tetrasodium pyrophosphate
m-Phthalodinitrile	RDX	Sucrose	Tetryl
Picric acid	Resorcinol	Sulfotep	Thallium
Pindone	Rhodium	Sulfur hexafluoride	4, 4-Thiobis
Piperazine dihydrochloride	Ronnel	Sulfuric acid	Thioglycolic acid
2-Pivalyl-1, 3-indandione	Rosin core solder pyrolysis	Sulfur monochloride	Thiram
Plaster of Paris	Rotenone	Sulfur pentafluoride	Tin
Platinum	Rouge	Sulfur tetrafluoride	Titanium dioxide
Polychlorobiphenyls	Rubber solvent	Sulfuryl fluoride	o-Tolidine
Polytetrafluoroethylene	Selenium compounds	Systox	Toluene
Potassium hydroxide	Selenium hexafluoride	2, 4, 5-T	Toluene-2, 4-diisocyanate
Propane	Sesone	Tantalum	o-Toluidine
Propane sultone	Silane	TEDP	Toxaphene
Propargyl alcohol	Silica	Tellurium & compounds	Tributyl phosphate
B-Propiolactone	Silicon	Tellurium hexafluoride	Trichloroacetic acid
Propionic acid	Silicon carbide	Temephos	1,2,4-Trichlorobenzene
Propoxur	Silicon tetrahydride	TEPP	1,1,1-Trichloroethane
n-Propyl acetate	Silver	Terphenyls	1,1,2-Trichloroethane
Propyl alcohol	Sodium azide	1, 1, 1, 2-Tetrachloro-2, 2-difluoroethane	Trichloroethylene
n-Propyl nitrate	Sodium bisulfite	1, 1, 2, 2-Tetrachloro-1, 2-difluoroethane	Trichlorofluoromethane
Propylene	Sodium 2,4-dichlorophenoxy-ethyl sulfate	1, 1, 2, 2-Tetrachloroethane	Trichloromethane
Propylene dichloride	Sodium fluoroacetate	Tetrachloroethylene	Trichloronaphthalene
Propylene glycol dinitrate	Sodium hydroxide	Tetrachloromethane	Trichloronitromethane
Propylene glycol monomethyl ether	Sodium metabisulfite	Tetrachloronaphthalene	1,2,3-Trichloropropane
Propyleneimine	Starch	Tetraethyl lead	1,1,2-Trichloro-1,2,2 tri-fluoroethane

## HAZARDOUS SUBSTANCES (cont.)

Tricyclohexyltin hydroxide	Wood dust		
Triethylamine	Xylene		
Trifluorobromomethane	m-Xylene á,á-diamine		
Trimellitic anhydride	Xylidine		
Trimethylamine	Yttrium		
Trimethyl benzene	Zinc chloride fume		
Trimethyl phosphite	Zinc chromate		
2, 4, 6-Trinitrophenol	Zinc oxide		
2, 4, 6-Trinitrophenyl methylnitramine	Zinc stearate		
2, 4, 6-Trinitrotoluene	Zirconium compounds		
Triorthocresyl phosphate			
Triphenyl amine			
Triphenyl phosphate			
Tungstan			
Turpentine			
Uranium			
Valeraldehyde			
Vanadium			
Vegetable oil mists			
Vinyl acetate			
Vinyl benzene			
Vinyl bromide			
Vinyl chloride			
Vinyl cyanide			
Vinyl cyclohexene dioxide			
Vinylidene chloride			
Vinyl toluene			
VM & P Naphtha			
Warfarin			
Welding fumes			