

FILE NAME: Warning Labels (WL)

DATE: 1946

DOC#: WL012

DOCUMENT DESCRIPTION: MCA Guide for the Preparation of Warning Labels for Hazardous Chemicals

STATE OF PENNSYLVANIA

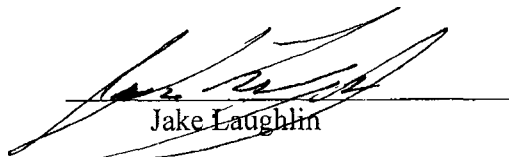
CITY OF PHILADELPHIA, to wit:

NOW COMES JAKE LAUGHLIN, who after being duly sworn, makes oath as follows:

1. I am a paralegal employed by the Locks Law Firm of Philadelphia, Pennsylvania.
2. On November 18, 2014 I traveled to the Othmer Library of Chemical History, located at 315 Chestnut Avenue, Philadelphia, Pennsylvania.
3. While at the library, I reproduced the following publications:
Warning Labels, 1946, Pages 1-63
4. These digital images were captured from the original publications housed at the archival section of the Othmer Library of Chemical History. The original publications are the property of the Othmer Library of Chemical History, and were returned to their custody following their reproduction. Each of these documents is over 20 years old and were found at a library of chemical history, where they would be expected to be maintained.

I declare under penalty of perjury under the laws of the State of Pennsylvania that the foregoing is true and correct.

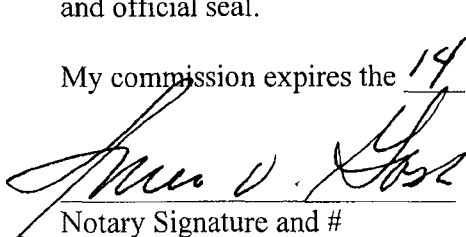
Executed this 19th day of November, 2014.

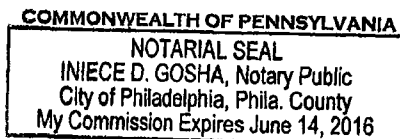

Jake Laughlin

NOTARY:

Subscribed and sworn to this 19th day of November, 2014, before me, the undersigned, a notary public in and for the City of Philadelphia and State of Pennsylvania, and as witnessed by my hand and official seal.

My commission expires the 14 day of June, 20 16.


Notary Signature and #



PART I

MANUAL L-1—A GUIDE FOR THE PREPARATION OF WARNING LABELS
FOR HAZARDOUS CHEMICALS

Adopted 1945

Revised April 1946

The development of new chemical products and the introduction of chemical processes into ever widening fields has accentuated the need for furnishing appropriate information in those cases where special precautions are necessary. Many chemicals present no hazards in normal handling and storage and for these products no precautionary labels are necessary.

The education of employees regarding chemical hazards is, and must remain, the direct responsibility of their employers. However, such hazards are not confined to employees alone, and information concerning them should, so far as practicable, reach every person using, transporting, or storing chemicals. The most practical means for the seller to disseminate this information appears to be by labels affixed to containers of hazardous chemicals, bearing appropriate precautionary statements and instructions stated as simply and briefly as circumstances permit.

In the interest of uniformity and more adequate labeling of chemical products, the Manufacturing Chemists' Association has prepared this Manual for the benefit and guidance of its members. A series of definitions is included in Schedule 1 in order that the terms used may be clearly understood. In addition to the general recommendations contained herein, the MCA has prepared suggested labels for specific products. These have been printed as Manual L-2, which will be supplemented from time to time as additional recommended labels are developed.

A precautionary label does not take the place of safety equipment such as suitable goggles, airline respirators, gas masks, clothing, shoes, etc.

Individual statutes, regulations or ordinances may require that particular information be included on a label or that a specific label be affixed to a container. In each case, the requirements of these laws should also be studied. The warning labels suggested in this Manual should be used in addition to, or in combination with, any label required by law.*

* Federal statutes include

Interstate Commerce Commission Regulations for Transportation of Explosives and Other Dangerous Articles
Supt. of Documents, Govt. Printing Office, Washington, D. C.

Federal Caustic Poison Act and regulations. Food and Drug Administration, Federal Security Agency,
Washington, D. C.

Federal Insecticide Act of 1910 and regulations. Agricultural Marketing Administration, U. S. Department
of Agriculture, Washington, D. C.

Federal Food, Drug and Cosmetic Act and regulations. Food and Drug Administration, Federal Security
Agency, Washington, D. C.

Related statutes of the 48 States and the District of Columbia include Caustic Acid, Pharmacy, Poison, and
Insecticide Acts.

RECEIVED

AUG 16 1948

THE CHEMISTS' CLUB
LIBRARY

WARNING LABELS

PART I

A GUIDE FOR THE PREPARATION
OF WARNING LABELS FOR
HAZARDOUS CHEMICALS

PART 2

ILLUSTRATIVE WARNING LABELS
FOR HAZARDOUS
CHEMICALSTHE OTHMER LIBRARY OF
CHEMICAL HISTORY
CHEMICAL HERITAGE FOUNDATION

PUBLISHED BY

MANUFACTURING CHEMISTS' ASSOCIATION
OF THE UNITED STATES
608 Woodward Bldg., Washington 5, D. C.

Copyright 1946 by Manufacturing Chemists' Association of the United States

PREPARATION OF PRECAUTIONARY LABELS

The basic considerations in the preparation of a precautionary label for any chemical product (including mixtures) are:

- 1) Determination of the hazards present in the particular chemical product
- 2) Selection of appropriate statements for each significant hazard inherent in the product.
- 3) Arrangement of statements in the order of emphasis desired

The most frequently encountered hazards have been classified by the MCA into 10 types as listed in Schedule 2. Set opposite each class are statements illustrating characteristic precautions usually required for that type of hazard.

Many chemical products will have more than one type of hazard, in which case appropriate statements for each significant type should be included on the label. Most chemical products contain impurities. When these are present in harmful quantities, appropriate warnings and precautionary measures should be included on the labels.

As each chemical product must be treated individually, there will be many instances in which the illustrative statements will not be applicable either because they do not accurately express the degree of hazard or because they fail to cover the particular characteristics. In such cases, suitable statements should be selected from Schedule 3. This Schedule presents a more comprehensive list of statements arranged in columnar form and grouped as follows:

A	B	C	D
Signal Word	Hazards	Precautionary Measures	Instructions in Case of Accident

Column A—The degree of hazard can be expressed only in relative terms. The purpose is two-fold: to indicate to the reader the comparative seriousness of the danger involved in handling a given product and to call attention to the precautionary instructions which should immediately follow. The "signal words" recommended are, in the order of diminishing severity of hazard, (1) DANGER, (2) WARNING, (3) CAUTION.

Example: WARNING!

Column B—From this column should be selected the phrase (or phrases) that most accurately describes the principal hazard. This is placed on the same line as the "signal word."

Example: WARNING! FLAMMABLE

If other significant hazards are present, they should be tabulated under the principal hazard.

Column C—The appropriate statement of "precautionary measures" should be chosen from Column C and should follow on subsequent lines.

Example: WARNING! FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

GENERAL PRINCIPLES

In the preparation of any precautionary label the following principles should first be considered.

- 1) Each chemical product (including mixtures) presents a distinct problem and must be treated individually, in the light of its own characteristics.
- 2) Extreme care should be exercised in the choice of terminology. Statements should be brief and simple.
- 3) On labels for different products, uniformity in language to indicate the same hazards is most desirable in order to gain greater understanding through standardization.

- 4) Precautionary statements must be accurate, selectively chosen, and expressed in clearly defined terms. To be effective they should be used only when and to the extent necessary. Labeling of a relatively harmless product so as to indicate that it is hazardous, as well as the failure to give adequate notice of a hazard, will develop a disregard for labels and defeat their purpose.

For example, if the word "POISON" is to retain its usefulness on a label, it should be applied exclusively to those products (1) which are poisons according to a definite toxicity standard, or (2) with which it is associated through common usage, or (3) for which its use is prescribed by law. In all other cases the relative degree of the hazard can be better indicated by the use of signal words such as "DANGER" to cover extremely serious hazards, "WARNING" to cover less serious hazards, and "CAUTION" to cover minor hazards, together with a descriptive statement of the hazard.

- 5) Chemical names should be those recommended by the American Chemical Society.
- 6) The use of a non-descriptive code designation or trade name as the only identification of a hazardous chemical should be avoided. If for any reason, it is undesirable to show the chemical name, or if the chemical name is so complex as to be meaningless except to the trained chemist, the label should state the type of chemical, e.g., "corrosive acid," "lead compound."
- 7) The following subject matter should be considered for inclusion on a precautionary label:
 1. Chemical name
 2. "Signal word" (DANGER-WARNING-CAUTION) designating degree of hazard (Column A, Schedule 3)
 3. Affirmative statement of "hazard" (Column B, Schedule 3)
 4. "Precautionary measures" covering actions to be followed or avoided (Column C, Schedule 3)
 5. "Instructions in case of accident," where advisable (Column D, Schedule 3)
- 8) Warning labels should be printed in easily legible type, which is in contrast by typography, layout, or color with any other printed matter on the label and should be placed conspicuously on containers. Legibility may be preserved with a suitable protective coating.

* To provide a practical working standard for labeling purposes "POISON" is defined in Schedule 1 of this Manual to include only chemicals capable of causing acute effects by ingestion and inhalation the principal modes of entry into the body. This definition excludes chemicals capable of causing injuries as a result of skin absorption or of chronic exposure by inhalation, because the variable actions and effects of chemicals with these characteristics preclude a practical means of measuring their hazards.

Schedule 1

DEFINITIONS

Flammable Liquid¹—An inflammable¹ liquid is any liquid which gives off inflammable vapors (as determined by flash point from Tagliabue's open-cup tester, as used for test of burning oils) at or below a temperature of 80° F

Extremely Flammable Liquid²—An extremely flammable liquid is a liquid which gives off flammable vapors (as determined by flash point from Tagliabue's open-cup tester, as used for test of burning oils) at or below a temperature of 20° F

Corrosive³—(Physiological)—A corrosive is an agent which in contact with living tissue will cause more or less severe destruction of tissue by chemical action.

Irritant³—(Physiological)—An irritant is an agent which in contact with living tissue will induce either immediately or after prolonged or repeated contact a more or less severe local tissue reaction not leading directly to destruction of tissue.

Sensitizer³—(Physiological)—A sensitizer is a material which as ordinarily handled does not necessarily cause any discernible reaction in living tissue but which after initial or repeated contact with the tissue of some individuals may, at a later date, produce a prompt inflammatory reaction on contact, even in minute amounts, with the tissue of the same individuals.

Dusts⁴—Solid particles generated by handling, crushing, grinding, rapid impact, detonation and decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain, etc. Dusts do not tend to flocculate except under electrostatic forces; they do not diffuse in air but settle under the influence of gravity

Fumes⁴—Solid particles generated by condensation from the gaseous state, generally after volatilization from molten metals, etc., and often accompanied by a chemical reaction such as oxidation. Fumes flocculate and sometimes coalesce.

Mists⁴—Suspended liquid droplets generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, and atomizing.

Gases⁴—Normally formless fluids which occupy the space of enclosure and which can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature. Gases diffuse.

Vapors⁴—The gaseous form of substances which are normally in the solid or liquid state and which can be changed to these states either by increasing the pressure or decreasing the temperature alone. Vapors diffuse.

Poison⁵—Poison means a substance which, when taken by mouth in amounts of 60 grains (4 grams) or less, or when inhaled in concentrations of less than 200 parts per million by volume in the air, rapidly (within 5 or 10 minutes) jeopardizes life by other than mechanical or physical action

Note: This definition of "Poison" is based on practical considerations only, as an aid in determining, generally, when the word "Poison" should be included on a warning label. See General Principles 4

Mixture⁶—A physical commingling of two or more substances which may or may not bear a fixed proportion to one another and which have not reacted chemically with one another

¹ ICC definition: While the term "inflammable" is used by the ICC, the preferred form "flammable" is used in this Manual

² MCA definition

³ As defined in Chapter II "Engineering Control of the Air Contamination of the Working Environment" (Allen D. Brandt, D.Sc.) page 198, "Manual of Industrial Hygiene," USPHS.

Column D—When it is advisable to include instructions in case of accident, the appropriate statements may be selected from this column. Instructions in case of accident to individuals are valuable but should be limited to recognized first aid procedures based upon simple methods and commonly available materials. Instructions for strictly medical treatment should be omitted except when specifically required by law. Because of the serious and lasting effects that may result from eye injuries, a recommendation to obtain medical attention should accompany any specific instruction directed to the treatment of the eyes. If the statements from Schedule 3 fail to meet the exact needs, they should be modified to suit. In the example shown, toluene, no phrase from this column appears to be necessary.

While every compound carries some hazard, if improperly used, it is impractical to cover every possible contingency on a label. Efforts should be directed toward naming the serious hazards, and warning against such abuses and accidents as are likely to be encountered under normal conditions. There are scarcely any means of measuring in absolute terms the relative seriousness of hazards, and the recommendations in Schedule 3 only contemplate their division into two or three degrees of intensity. It follows that of two compounds one may be less hazardous than the other and yet may carry the same warnings and cautions.

Instructions for handling and storage of containers should be included where conditions indicate their need. These instructions should take into consideration both the characteristics of the chemical product and the limitations of the type or types of container in which it is packed.

Schedule 4 presents suggested labels for samples of experimental products for which full data regarding hazards are not yet known.

Schedule 5 illustrates the application of caution statements to three specific products. In the case of toluene, the statements used are similar to those given in Schedule 2 for a compound or mixture having hazards in classifications I-B and IV. The second example, aqueous hydrofluoric acid, represents a very special case where the particular hazards require modification of the standard statements. The third example is that of a label for a proprietary compound or mixture.

V Gases and Vapors Physiologically Inert	CAUTION! VAPOR REDUCES OXYGEN AVAILABLE FOR BREATHING Use with adequate ventilation. Keep container closed.
VI. Harmful Dusts.	CAUTION! HARMFUL DUST Avoid repeated breathing or skin contact. Wash thoroughly before eating or smoking Keep away from feed or food products
VII Skin Irritants—Corrosive.	DANGER! CAUSES SEVERE BURNS Do not get in eyes Do not get on skin Do not get on clothing In case of contact, immediately flush skin or eyes with plenty of water. For eyes, get medical attention. Remove and wash clothing before re-use
VIII Materials Causing Skin Irritations after Repeated or Continued Contact	CAUTION! MAY CAUSE SKIN IRRITATION Avoid prolonged or repeated contact.
IX. Materials Toxic through Vapor Inhalations or Skin Absorption.	WARNING! ABSORBED THROUGH SKIN VAPOR HAZARDOUS Avoid contact with skin or clothing Avoid breathing vapor In case of exposure, remove to fresh air. Immediately wash with soap and plenty of water. Remove and wash clothing before re-use
X Toxic if Taken Internally Applies to materials covered by statutory definition of poison "liable to be destructive of human adults in doses of 60 grains or less (4 gms.)" or to any material toxic in amounts likely to be taken internally through easily anticipated errors.	POISON If not covered by regulation or definition (see General Principles 4) a typical label might read DANGER! MAY BE FATAL IF SWALLOWED Do not take internally

Schedule 2
CLASSIFICATION OF HAZARDS

Class	Typical Label
I Flammable Liquids and Oxidizing Agents which Support Combustion (Flash points for liquids are determined by Taghian's Open-Cup Method). A Flash point 20° F or below. B. Flash point above 20° to 80° F inclusive.	DANGER! EXTREMELY FLAMMABLE Keep away from heat and open flame Keep container closed WARNING! FLAMMABLE. Keep away from heat and open flame. Keep container closed
II Flammable Solids and Oxidizing Agents as Classified by the ICC	CAUTION! EXPOSURE MAY CAUSE FIRE OR CREATE FIRE HAZARD Keep away from heat and open flame Keep container closed. In case of contact, immediately flush with plenty of water, remove and wash clothing before re-use
III Vapors Immediately Toxic or Extremely Irritating Even on Exposure for a Short Time or to Low Concentrations.	DANGER! VAPOR EXTREMELY HAZARDOUS Do not breathe vapor Do not get on skin Do not get in eyes Keep container closed and away from heat. Keep away from feed or food products Have air line respirator or gas mask approved by U. S. Bureau of Mines specifically for (name of chemical) available for emergency
IV Vapors Hazardous from Prolonged or Repeated Exposures, or Exposure to Higher Concentrations	WARNING! VAPOR HARMFUL Use only with adequate ventilation Avoid prolonged or repeated breathing of vapor Keep container closed and away from heat.

Schedule 1

LABELS FOR EXPERIMENTAL SAMPLES

The labeling of experimental samples of new products presents unusual problems. All of the properties or possible uses of a product are seldom known. The following safeguards are therefore recommended:

1. Samples of a product already on the market should carry the same warning label as a commercial shipment.

2. The following label is suggested for samples of any material that has never been in commercial production unless (1) the material is known to be wholly innocuous, or (2) the dangers are limited to known hazards and appropriate cautions are submitted.

SAMPLE (.) Name or Description of Product FOR EXPERIMENTAL USE ONLY CAUTION! The chemical, physical and toxicological properties of this product have not been fully investigated and its handling or use may be hazardous. <i>Exercise due care</i>

3. The identity of the sample, indicated in parentheses above, should be as clear as possible. Wherever feasible, it should be the name of the compound or mixture, and in any case it should be the best possible identification to aid the user in knowing with what he is concerned.

4. Where there are significant known hazards they should be so indicated.

5. The above label may be used in the case of old products being considered for new uses.

Schedule 5

SPECIMEN PRODUCT LABELS

The following specimen labels illustrate the application to specific products of the principles set forth in this Manual:

Product Combining
Hazard of
Class I-B and IV
(Schedule 2)
Chemicals

TOLUENE WARNING! FLAMMABLE Keep away from heat and open flame Use with adequate ventilation Avoid prolonged breathing of vapor Avoid prolonged or repeated contact with skin

Schedule 3

RECOMMENDED LABEL CAUTIONS

A. Signal Words	B. Hazards	C. Precautionary Measures	D. Instructions in Case of Accident
Flammability			
	a. Extremely Flammable (flash point 20° F or below) b. Flammable (flash point above 20° to 80° F inclusive) c. Exposure May Cause Fire or Create Fire Hazard	a. Keep away from heat (sparks) and open flame b. Keep container closed (and away from heat)	
Volatility			
	a. Highly Volatile b. Volatile (Solvent or Liquid)	a. Keep out of sun and away from heat. b. Keep container closed (and away from heat)	
Inhalation			
a. DANGER!	a. Vapor Extremely Hazardous b. May be Fatal if Inhaled c. Vapor Harmful d. Vapor Reduces Oxygen Available for Breathing e. Harmful Dust f. Causes Irritation to Eyes, Nose and Throat.	a. Do not breathe vapor (or) Avoid breathing vapor. b. Avoid prolonged or repeated breathing of vapor. c. Use (only) with adequate ventilation. d. Avoid prolonged breathing of dust.	a. In case of exposure remove to fresh air. b. Have an eye respirator or gas mask approved by U. S. Bureau of Mines specifically for (name of chemical) available for emergency.
b. WARNING!			
c. CAUTION!			
Contact			
	a. Corrosive Liquid b. Causes (Severe) Burns c. Dangerous because (Rapidly) Absorbed through Skin d. Causes Skin Irritation e. May Cause Skin Irritation.	a. Do not get (1) in eyes, (2) on skin, (3) on clothing. b. Avoid contact with (1) eyes, (2) skin, (3) clothing. c. Wash thoroughly before eating or smoking.	a. In case of contact: (1) Immediately flush (skin or eyes) with plenty of water (for at least 15 minutes). (For eyes, get medical attention) (2) Immediately wash with soap and plenty of water (3) Remove and wash clothing before re use.
Ingestion			
	a. Poison (skull & crossbones) b. May be Fatal if Swallowed	a. Do not take internally.	
General			
	a. Strong Oxidant b. Contact with Combustible Material May Cause Fire.	a. Keep away from food or food products. b. Keep dry. c. Store in cool place. d. Keep away from combustible materials.	a. Get medical attention. b. In case of spillage, flush with plenty of water. c. In case of spillage, absorb with sand, ashes or earth.

The use of any warning or other statement listed above is not necessarily limited to the hazard under which it is grouped. The grouping merely indicates the type of hazard to which given statements most frequently apply. The small letters are not intended to indicate a correlation between similarly lettered statements in adjacent columns but are for identification only.

The parenthetical words indicate optional statements.

HYDROFLUORIC ACID, AQUEOUS

**DANGER! CORROSIVE LIQUID
VAPOR HAZARDOUS
CAUSES SEVERE BURNS WHICH MAY NOT BE
IMMEDIATELY PAINFUL OR VISIBLE**

Product Requiring
Modified Cautions
and First Aid

Do not breathe vapor
Do not get in eyes, on skin, on clothing
In case of contact or suspicion of contact:
Immediately flush skin with plenty of water until whiteness disappears, paying particular attention to skin under nails. Soak affected areas with crushed ice in 70% ethyl alcohol until physician arrives. Flush eyes with plenty of water for at least 15 minutes in all cases get medical attention. Remove and wash clothing before re use. Avoid use of greasy ointments.

(PROPRIETARY NAME)

Proprietary Product
(e.g. containing fluorine salts)

Contains Fluorine Compounds
**WARNING! POISONOUS IF TAKEN
INTERNALLY**
Avoid breathing dust
Flush spillage to sewer with water

PART II

MANUAL L-2 — ILLUSTRATIVE WARNING LABELS FOR HAZARDOUS CHEMICALS

Adopted 1945

Revised 1946

PREFACE

This Manual contains warning labels suggested by the Manufacturing Chemists' Association to cover the significant hazards inherent in a large number of industrial chemical products. These products have been selected so as to provide illustrative labels for each major type of hazardous chemical which is of commercial importance. In many cases these labels are applicable to other products which are listed only in the index with appropriate cross references.

These labels do not cover impurities which may be present in the products and, except in a few instances, do not include precautionary information regarding the handling and storage of the containers. The manufacturer or packer should in each case include on his label additional warnings to cover the hazards due to impurities which may be present in harmful quantities and, where the facts so indicate, to cover container handling and storage.

Suggested first aid treatment has been included for a few products only. The omission of first aid treatment for other products should not in any case be interpreted to mean that it may not be desirable.

Individual statutes, regulations or ordinances may require that particular information be included on a label or that a specific label be affixed to a container as in the case of the Interstate Commerce Commission Regulations for Transportation of Explosives and Other Dangerous Articles. In each case, the requirements of these laws should also be studied. *The warning labels suggested in this Manual should be used in addition to or in combination with any label required by law.*

These labels have been prepared in accordance with the procedure outlined in Part I, M.C.A. Manual L-1 "A Guide for the Preparation of Warning Labels for Hazardous Chemicals." The user should familiarize himself with Manual L-1 before adapting any of the label statements contained in Manual L-2 to his products.

It is anticipated that Manual L-2 will be supplemented from time to time as additional illustrative labels are suggested or revisions are made.

ACETALDEHYDE

DANGER! EXTREMELY FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Chill thoroughly before opening.

CARBOY LABEL

ACETIC ACID, GLACIAL

DANGER! CAUSES SEVERE BURNS

Do not get liquid or vapor in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
CARBOY HANDLING AND STORAGE
Glacial Acetic Acid freezes at 62°F, forming hard lumps which may break carboy when moved.
Store in area maintained above 62°F.
If frozen, thaw by carefully moving carboy to warm area.

ALUMINUM DRUM LABEL

ACETIC ACID, GLACIAL

DANGER! CAUSES SEVERE BURNS

Do not get liquid or vapor in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
DRUM HANDLING AND STORAGE
Glacial Acetic Acid freezes at 62°F, forming hard lumps.
Store in area maintained above 62°F.
If frozen, thaw by moving to warm area.

BARREL LABEL

ACETIC ACID (80%)

DANGER! CAUSES SEVERE BURNS

Do not get liquid or vapor in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
BARREL HANDLING AND STORAGE
Keep out of sun and away from heat.
Store with barge bung up.
Never use pressure to empty.
Drain completely.
Keep barrel moist; shrinkage may cause leaks.
In case of spillage, flush with plenty of water.

BARREL LABEL

ACETIC ACID (56% and 70%)

WARNING! MAY CAUSE BURNS

Avoid contact with eyes, skin, or clothing.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
BARREL HANDLING AND STORAGE
(Use same instructions as for Acetic Acid 80%)

BARREL LABEL

ACETIC ACID (28%)

CAUTION! MAY CAUSE BURNS

Avoid contact with eyes, skin, or clothing.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
BARREL HANDLING AND STORAGE
(Use same instructions as for Acetic Acid 80%)

ACETIC ANHYDRIDE**DANGER! CAUSES SEVERE BURNS**

Do not get liquid or vapor in eyes, on skin,
on clothing.
Do not breathe vapor.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

ACETONE**DANGER! EXTREMELY FLAMMABLE**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged or repeated contact with skin.

ACETONYLACETONE**CAUTION! VOLATILE SOLVENT**

Keep away from heat and open flame.
Avoid prolonged breathing of vapor.
Use with adequate ventilation.
Avoid prolonged or repeated contact with skin.
Note: Contact with this material stains the skin.

ACETYL CHLORIDE**DANGER! FLAMMABLE
CAUSES SEVERE BURNS**

Do not allow water to get in container.
Keep away from heat and open flame.
Keep container closed.
Do not get in eyes, on skin, on clothing.
Avoid exposure to concentrated vapor.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

ACRYLONITRILE**DANGER! FLAMMABLE POISON**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
Use with adequate ventilation.
Keep away from heat and open flame.
Keep container closed.

**FIRST AID TREATMENT**

Carry patient to fresh air. Have him lie down. Remove contaminated clothing but keep patient warm. Start the following first aid treatment immediately and CALL A PHYSICIAN.

If patient is conscious and breathing.

- (1) Break an amyl nitrite pearl in a cloth and hold lightly over the nose for not more than 15-20 seconds. Repeat every 5 minutes for 25 minutes if recovery is not forthcoming.
- (2) If this product has been SWALLOWED, give patient one pint of 1% Sodium Thiosulfate solution (or soapy water or mustard water) by mouth every 15 minutes until vomiting occurs.

If patient has stopped breathing:

Give artificial respiration until breathing starts. Break an amyl nitrite pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes or until breathing starts.

If patient is unconscious but breathing:

Break an amyl nitrite pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes if recovery is not forthcoming. Give oxygen from an inhalator.

Never give anything by mouth to an unconscious person. In all cases keep patient quiet and warm until a physician arrives.

ALLYL ALCOHOL

**DANGER! RAPIDLY ABSORBED THROUGH SKIN
VAPOR EXTREMELY HAZARDOUS
FLAMMABLE**

Do not get in eyes, on skin, on clothing.
Do not breathe vapor.
Keep away from heat and open flame.
Keep container closed.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention. Remove and
wash clothing before re-use.
Do not take internally.

ALLYL CHLORIDE

DANGER! HARMFUL AND FLAMMABLE VAPOR

Do not get in eyes, on skin, on clothing.
Do not breathe vapor.
Keep away from heat and open flame.
Keep container closed.

CARBOY LABEL

AMMONIA, AQUA

**WARNING! LIQUID CAUSES BURNS
VAPOR EXTREMELY IRRITATING**

Avoid breathing vapor.
Avoid contact with eyes, skin, or clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.
Loosen closure carefully.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning.
In case of spillage, flush with plenty of water.

DRUM LABEL

AMMONIA, AQUA

**WARNING! LIQUID CAUSES BURNS
VAPOR EXTREMELY IRRITATING**

Avoid breathing vapor.
Avoid contact with eyes, skin, or clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.
Keep drum out of sun and away from heat.
Before removing plug, loosen slowly to relieve pressure.
Never use pressure to empty.
Keep lights, fire and sparks away from drum openings.
Drum must not be washed out or used for other purposes.
Replace plug after each withdrawal and return with empty drum.
In case of spillage, flush with plenty of water.

CYLINDER LABEL

AMMONIA, ANHYDROUS

**WARNING: HAZARDOUS LIQUID AND VAPOR
UNDER PRESSURE**

**LIQUID CAUSES BURNS
VAPOR EXTREMELY IRRITATING**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin and eyes
with plenty of water for at least 15 minutes. Call
a physician at once in case of burns, especially to
the eyes, nose and throat, or if the victim is
unconscious.

CYLINDER HANDLING AND STORAGE

Keep away from heat.
Do not store in sunlight.
Never drop cylinders.
Be sure connections are tight.
Never refill cylinder. I. C. C. Regulations prohibit refilling
without permission of owner.
Have gas mask approved by U. S. Bureau of Mines
specifically for ammonia service available for emergency.

AMMONIUM BICHROMATE

**WARNING! FLAMMABLE
HARMFUL DUST
MAY CAUSE RASH OR EXTERNAL
ULCERS**

KEEP AWAY FROM HEAT, SPARKS, AND FLAME.
KEEP CONTAINER CLOSED.

Avoid contact with skin or eyes.
Avoid breathing dust or solution spray.
Do not take internally.

In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes; for
eyes, get medical attention. Remove and wash
clothing before re-use.

Use fresh clothing daily. Take hot shower after work
using plenty of soap.

AMYL ACETATE

CAUTION! VOLATILE SOLVENT

Avoid prolonged breathing of vapor.
Use with adequate ventilation.
Avoid prolonged or repeated contact with skin.

ANILINE

**DANGER! RAPIDLY ABSORBED THROUGH SKIN
VAPOR HAZARDOUS**



POISON



Do not get on skin, on clothing.

Avoid breathing vapor.

Use with adequate ventilation.

In case of contact, immediately flush skin with
plenty of water. Remove and wash clothing before
re-use.

o-ANISIDINE

**WARNING! HAZARDOUS LIQUID AND VAPOR
ABSORBED THROUGH SKIN**

Avoid contact with skin.
Avoid breathing vapor.

p-ANISIDINE

**WARNING! HAZARDOUS SOLID AND VAPOR
ABSORBED THROUGH SKIN**

Avoid contact with skin.
Avoid breathing dust or vapor

ANTIMONY TRICHLORIDE

**DANGER! CAUSES SEVERE BURNS
VAPOR HAZARDOUS**

Avoid contact with eyes, skin, or clothing.
Avoid breathing vapor.
Keep container closed.

In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention. Remove and
wash clothing before re-use.

AROMATIC INDUSTRIAL SOLVENT

*(For solvents having an initial boiling point not below 100° C. and
having a flash point 80° F. or BELOW, Tagliabue Open Cup Method as
specified by Interstate Commerce Commission.)*

WARNING! FLAMMABLE

Keep away from heat and open flames.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

AROMATIC INDUSTRIAL SOLVENT

(For solvents having an initial boiling point not below 100°C, and having a flash point ABOVE 80°F., Tagliabue Open Cup Method as specified by Interstate Commerce Commission)

CAUTION! VOLATILE SOLVENT

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

ARSENIC TRICHLORIDE

**DANGER! CORROSIVE LIQUID
VAPOR EXTREMELY HAZARDOUS**



POISON

Do not get in eyes, on skin, on clothing.
Do not breathe vapor.

Keep container closed.

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention. Remove and wash clothing before re-use.

BARIUM NITRATE

CAUTION! STRONG OXIDANT CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE

Keep container closed and away from combustible material and heat.

Sweep up and carefully remove spilled material

Avoid repeated contact with skin.

Do not take internally.

BARIUM OXIDE

CAUTION! MAY CAUSE SKIN IRRITATION

Avoid contact with skin.
Keep away from feed or food products.
Do not take internally.

BARIUM PEROXIDE

CAUTION! STRONG OXIDANT CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE

Keep container closed and away from combustible material and heat.

Sweep up and carefully remove spilled material.

Avoid contact with skin.

Do not take internally.

BENZENE (BENZOL)

DANGER! EXTREMELY FLAMMABLE VAPOR HARMFUL - POISON

Keep away from heat and open flame.

Keep container closed.

Use with adequate ventilation

Avoid prolonged or repeated breathing of vapor.

Avoid prolonged or repeated contact with skin.

BENZIDINE

WARNING! HAZARDOUS SOLID AND VAPOR RAPIDLY ABSORBED THROUGH SKIN

Avoid breathing dust or vapor.

Avoid contact with skin.

In case of contact, immediately wash with soap and plenty of water.

CARBOY LABEL

BENZOYL CHLORIDE

**WARNING! CAUSES BURNS
VAPOR IRRITATING**

Avoid contact with skin or eyes.
Avoid breathing vapor.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.
Loosen closure carefully.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning
in case of spillage, flush with plenty of water.

CARBOY LABEL

BENZYL CHLORIDE

WARNING! CAUSES BURNS

Avoid contact with eyes, skin, or clothing.
Avoid breathing vapor.
In case of contact with liquid, immediately wash
skin with soap and plenty of water; flush eyes with
water for at least 15 minutes and get medical
attention.

Do not transfer to ordinary metal containers
without first adding stabilizer. Get instructions
from manufacturer.

DRUM LABEL

BENZYL CHLORIDE

WARNING! CAUSES BURNS

Avoid contact with eyes, skin, or clothing.
Avoid breathing vapor.
In case of contact with liquid, immediately wash
skin with soap and plenty of water; flush eyes with
water for at least 15 minutes and get medical
attention.

The Benzyl Chloride in this drum contains a stabilizer.
Before transferring, get instructions from manufacturer.

BROMINE

DANGER! CAUSES SEVERE BURNS

Do not get on skin or in eyes.

Do not breathe vapor.

In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
keep skin area wet with crushed ice in 70% ethyl
alcohol until physician arrives.

BUTYL ACETATE (normal)

CAUTION! VOLATILE SOLVENT

Avoid prolonged breathing of vapor.

Use with adequate ventilation.

Avoid prolonged or repeated contact with skin.

**BUTYL ALCOHOL
(normal or secondary)**

CAUTION! VOLATILE SOLVENT

Avoid prolonged breathing of vapor.

Use with adequate ventilation.

Avoid prolonged or repeated contact with skin.

BUTYL ALCOHOL (tertiary)

WARNING! FLAMMABLE

Keep away from heat and open flame.

Keep container closed.

Use with adequate ventilation.

Avoid prolonged breathing of vapor.

Avoid prolonged or repeated contact with skin.

BUTYLAMINE (normal)

**WARNING: FLAMMABLE
MAY CAUSE SKIN IRRITATION**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid exposure to vapor.
Avoid contact with skin or eyes.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

p-tert. BUTYL CATECHOL

**WARNING! CAUSES SKIN IRRITATION
CAUSES BURNS WHEN MOIST**

Do not get in eyes, on skin, on clothing.
In case of contact, immediately wash skin with soap
and plenty of water; flush eyes with water for at
least 15 minutes and get medical attention.

BUTYL CHLORIDE (normal)

DANGER! EXTREMELY FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

BUTYL ETHER (normal)

WARNING! VOLATILE SOLVENT

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.
CAUTION: Dry ethers tend to form explosive peroxides.
Do not use material if it liberates iodine
from acidified aqueous iodide solutions

CALCIUM CYANIDE

DANGER! LIBERATES POISONOUS GAS

Avoid breathing gas or dust.
Avoid contact with skin.
Keep away from acids.
Store away from feed or food products.
Keep container tightly closed and dry.



POISON



FIRST AID TREATMENT

(Use same first aid treatment as recommended for Inorganic Cyanides)

CARBON DISULFIDE

**DANGER! EXTREMELY FLAMMABLE
VAPOR HARMFUL
HIGHLY VOLATILE**



POISON



Keep away from fire, sparks, or heated surfaces.
Store in cool place and keep container closed.
Avoid breathing vapor.
Avoid contact with skin.

CARBON TETRACHLORIDE

**WARNING! VOLATILE SOLVENT
VAPOR HARMFUL**

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

**CHLORINATED
NAPHTHALENE**

Avoid repeated contact with skin.
Avoid repeated inhalation of the fumes and dust.

CAUSTIC SODA (SODIUM HYDROXIDE)

**WARNING! CAUSTIC SODA IS CORROSIVE
BURNS SKIN AND EYES**

Avoid contact with body or clothing.
Do not take internally.

PRECAUTIONS

When handling Sodium Hydroxide wear goggles or face shield and avoid all contact with skin. While making solutions, add Sodium Hydroxide slowly to surface of solution to avoid violent spattering. In case of accidental contact with skin, immediately flush affected parts with water and wash with vinegar. For eyes, flush freely with water for at least 15 minutes and get medical attention.

IN THE CASE OF PROPRIETARY COMPOUNDS CONTAINING
CAUSTIC ALKALI:

{
Name of Product

**WARNING! CONTAINS CAUSTIC ALKALI WHICH IS
CORROSIVE
BURNS SKIN AND EYES**

Avoid contact with body or clothing.
Do not take internally.

PRECAUTIONS

(Use same precautions as for Sodium Hydroxide, substituting name of product for Sodium Hydroxide.)

CHLOROBENZENE, MONO

WARNING! VAPOR HARMFUL

Use with adequate ventilation.
Avoid contact with skin or clothing.
Avoid prolonged breathing of vapor.

CHLOROFORM

**WARNING! VOLATILE SOLVENT
VAPOR HARMFUL**

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

CHLOROTOLUENE, MONO

CAUTION! VAPOR HARMFUL

Use with adequate ventilation.
Avoid prolonged breathing of vapor.

CHROMIC ACID

**WARNING! CONTACT WITH COMBUSTIBLE
MATERIAL MAY CAUSE FIRE
CAUSES SEVERE BURNS**

KEEP CONTAINER CLOSED.
Avoid contact with skin or eyes.
Avoid breathing dust or solution spray.
Do not take internally.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention. Remove and wash clothing before re-use.
Use fresh clothing daily. Take hot shower after work using plenty of soap.

COAL TAR CREOSOTE (CREOSOTE OIL)

CAUTION! MAY CAUSE SKIN IRRITATION

Use only with adequate ventilation.
Avoid prolonged or repeated contact with skin.
Avoid prolonged breathing of vapor.

CYANIDES, INORGANIC*(excluding Liquid Hydrocyanic Acid and Calcium Cyanide)**(Name of Product)***DANGER! CONTACT WITH ACID LIBERATES
POISONOUS GAS**

Avoid breathing gas or dust.
Avoid contact with skin.
Keep away from feed or food products.
Keep container closed and store in a dry place.

**POISON****FIRST AID TREATMENT**

Carry patient to fresh air. Have him lie down. Remove contaminated clothing but keep patient warm. Start the following first aid treatment immediately and CALL A PHYSICIAN.

If patient is conscious and breathing:

(1) Break an amyl nitrite pearl in a cloth and hold lightly over the nose for not more than 15-20 seconds. Repeat every 5 minutes for 25 minutes if recovery is not forthcoming.

(2) If this product has been SWALLOWED give patient one pint of 1% Sodium Thiosulfate solution (or soapy water or mustard water) by mouth every 15 minutes until vomiting occurs. (Eliminate this for liquid HCN).

If patient has stopped breathing:

Give artificial respiration until breathing starts. Break an amyl nitrite pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes or until breathing starts.

If patient is unconscious but breathing:

Break an amyl nitrite pearl in a cloth and hold lightly over nose for not more than 20 seconds, repeating every 5 minutes for 25 minutes if recovery is not forthcoming. Give oxygen from an inhalator.

Never give anything by mouth to an unconscious person. In all cases keep patient quiet and warm until a physician arrives.

**CRESOL
(CRESYLIC ACID)****DANGER! RAPIDLY ABSORBED THROUGH SKIN
CAUSES SEVERE BURNS**

Do not get on skin or in eyes.
Do not breathe vapor.
Do not take internally.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention. Remove and wash clothing before re-use.

CYCLOHEXANE**DANGER! EXTREMELY FLAMMABLE**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.

CYCLOHEXANOL**CAUTION! VAPOR HARMFUL**

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

DICHLOROETHYLENE**WARNING! FLAMMABLE
VOLATILE SOLVENT**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

DICHLOROETHYL ETHER

**WARNING! VOLATILE SOLVENT
VAPOR HARMFUL**

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

DICHLOROPHENOL

(For all isomeric dichlorophenols)

WARNING! MAY CAUSE BURNS

Avoid contact with skin.
Avoid breathing vapor.
Do not take internally.
In case of contact, immediately wash with soap
and plenty of water.

DIETHYLAMINE

**DANGER! EXTREMELY FLAMMABLE
MAY CAUSE SKIN IRRITATION**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid exposure to vapor.
Avoid contact with skin or eyes.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

DIOXANE (1,4-DIETHYLENE DIOXIDE)

**WARNING! FLAMMABLE
VOLATILE SOLVENT**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.
CAUTION! Dry ethers tend to form explosive peroxides.
Do not use material if it liberates iodine from
acidified aqueous iodide solutions.

ETHYL ACETATE

**WARNING! FLAMMABLE
VOLATILE SOLVENT**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

ETHYL BROMIDE

WARNING! VAPOR HARMFUL

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Keep out of sun and away from heat.
Keep container closed.

ETHYL CHLORIDE

DANGER! EXTREMELY FLAMMABLE

Keep away from heat, sparks, and open flame.
Use with adequate ventilation.
Keep container closed, out of sun and away from heat.

ETHYLENE CHLOROHYDRIN**DANGER! RAPIDLY ABSORBED THROUGH SKIN
VAPOR EXTREMELY HAZARDOUS**

Do not get on skin or clothing.
Do not breathe vapor.
Do not take internally.
In case of contact, immediately wash with soap and
plenty of water; remove and wash clothing before
re-use.

 POISON
FIRST AID TREATMENT

If swallowed, make patient vomit immediately (finger
down throat) or give warm mustard water or salt
water freely.

General: Keep patient warm; if conscious give
black coffee. Call physician.

Notes: Do not give adrenalin.

ETHYLENE DIBROMIDE**WARNING! VAPOR HARMFUL**

Avoid breathing vapor.
Avoid contact with eyes, skin, or clothing.
In case of contact, immediately wash skin with soap
and plenty of water; flush eyes with water for at
least 15 minutes and get medical attention. Remove
and wash clothing before re-use.
Do not take internally.

ETHYLENE DICHLORIDE**WARNING! FLAMMABLE
VOLATILE SOLVENT
VAPOR HARMFUL**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

**ETHYLENE GLYCOL
MONOMETHYL ETHER****CAUTION! VOLATILE SOLVENT**

Avoid prolonged breathing of vapor.
Use with adequate ventilation.
Avoid prolonged or repeated contact with skin.

ETHYL ETHER**DANGER! EXTREMELY FLAMMABLE
HIGHLY VOLATILE**

Keep away from heat and open flame.
Keep container tightly closed.

CAUTION! Dry ethers tend to form explosive peroxides.
Do not use material if it liberates iodine
from acidified aqueous iodide solutions.

ETHYL FORMATE**DANGER! EXTREMELY FLAMMABLE**

Keep away from heat, sparks, and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.

**ETHYL METHACRYLATE
MONOMER****WARNING! FLAMMABLE**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid contact with skin or clothing.

FORMALDEHYDE

WARNING! CAUSES IRRITATION OF SKIN, EYES, NOSE AND THROAT

Avoid prolonged or repeated contact.
Avoid prolonged breathing of vapor.
Use with adequate ventilation.



CALL A PHYSICIAN AT ONCE

FIRST AID

Internally: Give milk freely, or one glassful of water containing 1 table-spoonful of ammonium acetate. Produce vomiting with a pint or more of warm salt water (1 cupful per quart) or warm soapy water. Repeat three times. Follow with milk and raw eggs.

BARREL LABEL

FORMIC ACID

WARNING! CAUSES BURNS

Avoid breathing vapor.
Avoid contact with skin or eyes.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.

BARREL HANDLING AND STORAGE

Keep out of sun and away from heat.
Store with bilge bung up.
Never use pressure to empty.
Drain completely.
Keep barrel moist; shrinkage may cause leaks.
In case of spillage, flush with plenty of water.

CARBOY LABEL

FORMIC ACID

WARNING! CAUSES BURNS

Avoid breathing vapor.
Avoid contact with skin or eyes.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning.
In case of spillage, flush with plenty of water.

CARBOY LABEL

HYDROCHLORIC ACID

WARNING! CAUSES BURNS

Avoid breathing vapor.
Avoid contact with skin or eyes.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy, be sure closure is securely fastened.
Loosen closure carefully.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning.
In case of spillage, flush with plenty of water.

HYDROCYANIC ACID, LIQUID

DANGER! POISON GAS

- Do not breathe gas.
- Avoid contact with skin.
- Do not drop container.
- Keep cool and away from open flame.

**POISON**

FIRST AID TREATMENT

(Use same first aid treatment as recommended for Inorganic Cyanides)

HYDROGEN PEROXIDE (stronger than 2.5 volume and not exceeding 130 volume)

CAUTION! STRONG OXIDANT

Avoid contact with eyes or skin—wear goggles and rubber gloves.

Avoid contact with combustible materials. Drying of this concentrated product on clothing or other combustible materials may cause fire.

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.

Avoid contamination from any source, including metals, dust, etc. Such contamination may cause rapid decomposition, generation of large quantities of oxygen gas, and high pressures.

CONTAINER HANDLING AND STORAGE

Store in original closed container.

Keep out of sun and away from heat.

Be sure that the container vent is working satisfactorily.

Do not add any other product to this container.

When empty, rinse thoroughly with clean water.

HYDROGEN PEROXIDE (2.5 volume)

CAUTION! STRONG OXIDANT

Avoid contact with eyes or skin—wear goggles and rubber gloves.

Avoid contamination from any source, including metals, dust, etc. Such contamination may cause rapid decomposition, generation of large quantities of oxygen gas, and high pressures.

CONTAINER HANDLING AND STORAGE

Store in original closed container.

Be sure that the container vent is working satisfactorily.

Do not add any other product to this container.

When empty, rinse thoroughly with clean water.

HYDROFLUORIC ACID, AQUEOUS

DANGER! CORROSIVE LIQUID VAPOR HAZARDOUS

CAUSES SEVERE BURNS WHICH MAY NOT BE IMMEDIATELY PAINFUL OR VISIBLE

Do not breathe vapor.

Do not get in eyes, on skin, on clothing.

In case of contact or suspicion of contact:

Immediately flush skin with plenty of water until whiteness disappears, paying particular attention to skin under nails. Soak affected areas with crushed ice in 70% ethyl alcohol until physician arrives. Flush eyes with plenty of water for at least 15 minutes. In all cases get medical attention. Remove and wash clothing before re-use. Avoid use of greasy ointments.

LEAD ACETATE**WARNING! HARMFUL DUST**

Avoid breathing dust.
Wear dust mask approved by U. S. Bureau of
Mines for this purpose.
Wash thoroughly before eating or smoking.
Keep away from feed or food products.

MALEIC ANHYDRIDE**WARNING! CAUSES BURNS**

Avoid contact with eyes, skin, or clothing
Avoid exposure to concentrated vapor
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes; for
eyes, get medical attention.

**MERCURY BICHLORIDE
(MERCURIC CHLORIDE)****DANGER! MAY BE FATAL IF SWALLOWED****POISON**

Do not breathe dust.
Keep away from feed or food products.
Wash thoroughly before eating or smoking.
Use fresh clothing daily. Take hot shower after
work using plenty of soap.

METHYL n-AMYL KETONE**CAUTION! VOLATILE SOLVENT**

Avoid prolonged breathing of vapor.
Use with adequate ventilation.
Avoid prolonged or repeated contact with skin

METHYL BROMIDE**DANGER! HIGHLY VOLATILE****CAUSES BURNS****VAPOR EXTREMELY HAZARDOUS**

Keep away from heat.
Keep container closed.
Avoid breathing vapor.
Avoid contact with skin, eyes, or clothing.

ON CAN LABEL ADD:**POISON****FIRST AID**

Remove to fresh air.
Keep lying down and warm.
Use artificial respiration if breathing has
stopped.
Get immediate medical attention.
Oxygen inhalator should be used only at
the direction of a physician.

CAUTION! The contents of this can are under pressure.
Do not use ordinary can opener. Special
handling equipment is available.

Contact () for
Name of Manufacturer
information on equipment and proper use.

METHYLENE CHLORIDE**CAUTION! VOLATILE SOLVENT**

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

METHYL ETHYL KETONE

**WARNING! FLAMMABLE
VOLATILE SOLVENT**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

METHYL METHACRYLATE MONOMER

**WARNING! FLAMMABLE
MAY CAUSE SKIN IRRITATION**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid contact with skin or clothing.

METHYL iso-PROPYL KETONE

**WARNING! FLAMMABLE
VOLATILE SOLVENT**

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

CARBOY LABEL

MIXED ACID (Sulfuric and Nitric)

**DANGER! CAUSES SEVERE BURNS
VAPOR EXTREMELY HAZARDOUS
MAY CAUSE NITROUS GAS POISONING**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.
Loosen closure carefully.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning.
In case of spillage, flush with plenty of water.

(Under I. C. C. Regulations carboys are permissible shipping containers
for mixed acid containing not more than 17% Nitric Acid and at least
33% water.)

DRUM LABEL

MIXED ACID (Sulfuric and Nitric)

**DANGER! CAUSES SEVERE BURNS
VAPOR EXTREMELY HAZARDOUS
MAY CAUSE NITROUS GAS POISONING**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.
Keep drum out of sun and away from heat.
Relieve internal pressure when received and at least weekly
thereafter by slowly loosening plug. Retighten immediately.
Never use pressure to empty.
Keep lights, fire and sparks away from drum openings.
Drum must not be washed out or used for other purposes.
Replace plug after each withdrawal and return with empty drum.
In case of spillage, flush with plenty of water.

MORPHOLINE

**WARNING! HAZARDOUS LIQUID AND VAPOR
MAY CAUSE SKIN IRRITATION**

Use with adequate ventilation.
Avoid exposure to vapor.
Avoid contact with skin or eyes.

6-NAPHTHYLAMINE

**CAUTION! CONTENTS HARMFUL
REPEATED ABSORPTION MAY RESULT
IN BLADDER TUMORS**

Avoid breathing dust or vapor.
Avoid contact with skin.
Do not take internally.

CARBOXY LABEL

NITRIC ACID

**DANGER! CAUSES SEVERE BURNS
VAPOR EXTREMELY HAZARDOUS
MAY CAUSE NITROUS GAS POISONING**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened
Loosen closure carefully
Keep out of sun and away from heat
Never use pressure to empty
Completely drain carboy before returning
In case of spillage, flush with plenty of water

DRUM LABEL

NITRIC ACID

**DANGER! CAUSES SEVERE BURNS
VAPOR EXTREMELY HAZARDOUS
MAY CAUSE NITROUS GAS POISONING**

Do not breathe vapor.
Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
get medical attention.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.
Keep drum out of sun and away from heat.
Relieve internal pressure when received and at least weekly thereafter by slowly loosening plug Retighten immediately
Never use pressure to empty
Keep lights, fire and sparks away from drum openings.
Drum must not be washed out or used for other purposes.
Replace plug after each withdrawal and return with empty drum
In case of spillage, flush with plenty of water.

m-NITROANILINE

**WARNING! HARMFUL BECAUSE ABSORBED
THROUGH SKIN**

Avoid contact with skin.
Avoid breathing dust.
In case of contact, immediately wash thoroughly with soap and plenty of water; remove and wash clothing before re-use.

NITROPHENOL, MONO

WARNING! MAY BE ABSORBED THROUGH SKIN

Avoid breathing dust.
Avoid contact with skin.
In case of contact, immediately wash with soap
and plenty of water.

DRUM LABEL

OLEUM**DANGER! CAUSES SEVERE BURNS**

Avoid breathing vapor.

Do not get in eyes, on skin, on clothing.

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; get medical attention.

Do not add water to contents while in a container because of violent reaction.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.

Keep drum out of sun and away from heat.

Relieve internal pressure when received and at least weekly thereafter by slowly loosening plug. Retighten immediately.

Never use pressure to empty.

Keep lights, fire and sparks away from drum openings.

Drum must not be washed out or used for other purposes.

Replace plug after each withdrawal and return with empty drum.

In case of spillage, flush with plenty of water.

OXALIC ACID**WARNING! HARMFUL IF TAKEN INTERNALLY
CAUSES SKIN IRRITATION**

Avoid breathing dust.

Avoid contact with skin.

In case of contact, immediately flush with plenty of water.

Do not take internally.

Keep away from feed or food products.

PARALDEHYDE**CAUTION! VAPOR HARMFUL**

Use with adequate ventilation.

Avoid prolonged or repeated breathing of vapor.

Do not take internally.

Solidifies at about 54°F. (12°C.) and may break container.

Store in a moderately warm place.

PENTACHLOROPHENOL**WARNING! HARMFUL DUST**

Avoid breathing dust.

Avoid contact with skin or clothing.

In case of contact with dry material or its solution, wash at once with soap and plenty of water.

Do not take internally.

**PENTACHLOROPHENOL,
OIL SOLUTIONS OF****CAUTION! CAUSES SKIN IRRITATION
ABSORBED THROUGH SKIN**

Avoid breathing vapor.

Avoid contact with skin or clothing.

In case of contact with skin, wash at once with plenty of soap and warm water.

Do not take internally.

See instructions for use before handling.

**PETROLEUM NAPHTHAS
AND SOLVENTS, INDUSTRIAL**

(For solvents having a flash point 20°F. or BELOW, Tagliabue Open Cup Method as specified by Interstate Commerce Commission)

(Name of Product)

DANGER! EXTREMELY FLAMMABLE

Keep away from heat and open flame.

Keep container closed.

Use with adequate ventilation

Avoid prolonged breathing of vapor.

Avoid prolonged or repeated contact with skin.

PETROLEUM NAPHTHAS AND SOLVENTS, INDUSTRIAL

(For solvents having a flash point ABOVE 20°F, but not above 80° F.,
Tagliabue Open Cup Method as specified by Interstate Commerce
Commission)

(Name of Product)

WARNING! FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

PETROLEUM NAPHTHAS AND SOLVENTS, INDUSTRIAL

(For solvents having a flash point ABOVE 80°F., Tagliabue Open Cup
Method as specified by Interstate Commerce Commission)

(Name of Product)

CAUTION! VOLATILE SOLVENT

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

p-PHENETIDINE

CAUTION! HAZARDOUS LIQUID AND VAPOR
ABSORBED THROUGH SKIN

Avoid contact with skin.
Avoid breathing vapor

PHENOL

DANGER! RAPIDLY ABSORBED THROUGH SKIN
CAUSES SEVERE BURNS



Do not get on skin or in eyes.

Avoid breathing vapor.

Do not take internally.

In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes; for
eyes, get medical attention. Remove and wash
clothing before re-use.

p-PHENYLENEDIAMINE

CAUTION! MAY CAUSE SKIN IRRITATION
Avoid breathing or contact with dust.

CARBOY LABEL

PHOSPHORIC ACID

CAUTION! CAUSES SKIN IRRITATION

Avoid contact with skin or eyes.

In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.

Loosen closure carefully

Keep out of sun and away from heat.

Never use pressure to empty

Completely drain carboy before returning.

In case of spillage, flush with plenty of water.

PHOSPHORIC ANHYDRIDE

WARNING! CAUSES BURNS

Avoid contact with skin or eyes.
When using, protect eyes with goggles and wear rubber gloves.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
Do not add water to contents while in a container because of violent reaction.
Open carefully.

PHOSPHORUS

⚠ DANGER! CAUSES SEVERE BURNS



POISON

Contents packed under water and will ignite if water is removed.
Keep drum out of sun and away from heat.
Do not get on skin or in eyes.
Protect eyes with goggles or face shield and wear heavy rubber gloves.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; keep skin area wet until medical attention is obtained.

PHOSPHORUS PENTACHLORIDE

WARNING! HAZARDOUS DUST CAUSES BURNS

Do not breathe dust.
Do not get on skin or in eyes.
Protect eyes with goggles and wear rubber gloves.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
Do not add water to contents while in a container because of violent reaction.
Open carefully.

PHOSPHORUS OXYCHLORIDE

DANGER! CAUSES SEVERE BURNS VAPOR EXTREMELY IRRITATING

Do not breathe vapor.
Do not get on skin or in eyes.
In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention.
Do not add water to contents while in a container because of violent reaction.
CONTAINER HANDLING AND STORAGE
Do not open unless you have been instructed in the proper manner.
Never use pressure to empty.
Do not use this container for any other product.
In case of spillage, flood carefully with LARGE VOLUME of water and provide adequate ventilation.

iso-PROPYL ACETATE

WARNING! FLAMMABLE VOLATILE SOLVENT

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

PYRIDINE

WARNING! FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.

SAMPLE*()
Name or Description of Product**FOR EXPERIMENTAL USE ONLY**

CAUTION! The chemical, physical and toxicological properties of this product have not been fully investigated and its handling or use may be hazardous. Exercise due care.

*See M.C.A. Manual L-1.

SILVER NITRATE**WARNING! CAUSES BURNS****POISON**

Stains skin.

Do not get on skin or in eyes.

In case of contact with eyes, get medical attention.

SODIUM CHLORATE**WARNING! CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE**

All clothing contaminated with chlorates is DANGEROUSLY FLAMMABLE. Remove and wash thoroughly with water.

Do not get on floor.

Spillage may cause fires with combustible material.

Sweep up and remove immediately.

When not in use keep tightly closed in original metal container.

Keep away from fire.

Store separately from flammable material.

FOR PACKAGES OF AGRICULTURAL CHLORATES, ADD:

Keep Animals Off Freshly Treated Areas

The label must be securely affixed to the exterior of each package. Lithographed or transfer labels are preferred.

SODIUM BICHROMATE**WARNING! HARMFUL DUST
MAY CAUSE RASH OR EXTERNAL
ULCERS****KEEP CONTAINER CLOSED.**

Avoid breathing dust or solution spray.

Avoid contact with skin or eyes.

Do not take internally.

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes, get medical attention. Remove and wash clothing before re-use.

Use fresh clothing daily. Take hot shower after work using plenty of soap.

SODIUM FLUORIDE**WARNING! POISONOUS IF TAKEN INTERNALLY**

Avoid breathing dust.

Flush spillage to sewer with water.

IN THE CASE OF PROPRIETARY COMPOUNDS WHERE FORMULA DISCLOSURE IS NOT MADE ON THE LABEL:

()
Name of Product

Contains Fluorine Compounds

WARNING! POISONOUS IF TAKEN INTERNALLY

Avoid breathing dust.

Flush spillage to sewer with water.

NOTE: All inorganic fluorine compounds sold for insecticidal use which are acutely toxic to man should be colored.

SODIUM HYDROSULFITE**CAUTION! SUBJECT TO FIRE IF ALLOWED TO
BECOME DAMP**

Keep container tightly closed.

Use only dry, clean utensils in handling

Store in a cool, dry place.

SODIUM SULFIDE (Granular)

**DANGER! CONTACT WITH ACID LIBERATES
POISONOUS GAS
BURNS SKIN AND EYES
FLAMMABLE
EXPOSURE MAY CAUSE FIRE OR
CREATE FIRE HAZARD**

Avoid breathing dust.
Avoid contact with skin and eyes.
Keep container closed and away from acids, com-
bustible material and heat.
Sweep up spillage. Do not flush to sewer which may
contain acid.

STYRENE MONOMER

WARNING! VAPOR HARMFUL

Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

DRUM LABEL**SULFUR CHLORIDE**

**DANGER! CAUSES BURNS
VAPOR IRRITATING**

Avoid contact with eyes, skin, or clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.
Do not add water to contents while in a container
because of violent reaction.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.
Keep drum out of sun and away from heat.
Relieve internal pressure when received and at least weekly
thereafter by slowly loosening plug. Retighten immediately.
Never use pressure to empty.
Keep lights, fire and sparks away from drum openings.
Drum must not be washed out or used for other purposes.
Replace plug after each withdrawal and return with empty drum.
In case of spillage, flush with LARGE VOLUME of water.

CARBOY LABEL**SULFURIC ACID**

DANGER! CAUSES SEVERE BURNS

Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes; for
eyes, get medical attention.
Do not add water to contents while in a container
because of violent reaction.

CARBOY HANDLING AND STORAGE

Before moving carboy be sure closure is securely fastened.
Loosen closure carefully.
Keep out of sun and away from heat.
Never use pressure to empty.
Completely drain carboy before returning.
In case of spillage, flush with plenty of water.

DRUM LABEL**SULFURIC ACID**

DANGER! CAUSES SEVERE BURNS

Do not get in eyes, on skin, on clothing.
In case of contact, immediately flush skin or eyes
with plenty of water for at least 15 minutes;
for eyes, get medical attention.
Do not add water to contents while in a container
because of violent reaction.

DRUM HANDLING AND STORAGE

Keep plug up to prevent leakage.
Keep drum out of sun and away from heat.
Relieve internal pressure when received and at least weekly
thereafter by slowly loosening plug. Retighten immediately.
Never use pressure to empty.
Keep lights, fire and sparks away from drum openings.
Drum must not be washed out or used for other purposes.
Replace plug after each withdrawal and return with empty drum.
In case of spillage, flush with plenty of water.

SULFUR DIOXIDE (Under Pressure)

WARNING! EXTREMELY IRRITATING GAS AND LIQUID

Avoid breathing gas.
Do not drop cylinder.
Do not allow cylinder temperature to reach 130°F.

TETRACHLOROETHANE

**DANGER! VAPOR EXTREMELY HAZARDOUS
VOLATILE LIQUID**



POISON

Use only in completely enclosed system.
Do not breathe vapor.
Do not get on skin or clothing.
Do not take internally.

TETRACHLOROETHYLENE (PERCHLOROETHYLENE)

WARNING! VOLATILE SOLVENT

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

TOLUENE (TOLUOL)

WARNING! FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.
Avoid prolonged or repeated contact with skin.

m-TOLUIDINE

**WARNING! HAZARDOUS LIQUID AND VAPOR
RAPIDLY ABSORBED THROUGH SKIN**

Avoid contact with skin and clothing.
Do not breathe vapor.
Use with adequate ventilation.
In case of contact, immediately wash thoroughly with soap and plenty of water; remove and wash clothing before re-use.

TRICHLOROETHYLENE

WARNING! VOLATILE SOLVENT

Use with adequate ventilation.
Avoid prolonged or repeated breathing of vapor.
Avoid prolonged or repeated contact with skin.
Do not take internally.

TRICHLOROPHENOL

(For all isomeric Trichlorophenols)

CAUTION! MAY CAUSE SKIN IRRITATION

Avoid prolonged or repeated contact.
Do not take internally.

VINYL CHLORIDE

DANGER! EXTREMELY FLAMMABLE

Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Avoid prolonged breathing of vapor.

XYLENE (XYLOL)**WARNING! FLAMMABLE**

Keep away from heat and open flame.

Keep container closed.

Use with adequate ventilation.

Avoid prolonged breathing of vapor.

Avoid prolonged or repeated contact with skin.

ZINC CHLORIDE
(Granular, Fused or Solution)**CAUTION! MAY CAUSE SKIN IRRITATION**

Avoid prolonged or repeated contact.

MANUAL L-2 INDEX

Many of the products listed in this index do not appear specifically in the label listings. The labels applicable to such products are indicated by the cross-reference "s.l.a." (same label as—).

—A—

Acetaldehyde	12
Acetic Acid	
Glacial	
Carboy	12
Drum	12
80% ..	13
56% and 70%	13
28%	13
Acetic Anhydride	14
Acetone	14
Acetonylacetone	14
Acetyl Chloride	14
Acrylonitrile	15
Allyl Alcohol	16
Allyl Chloride	16
Ammonia	
Anhydrous	18
Aqua	
Carboy	16
Drum	17
Ammonium Bichromate	18
Ammonium Hydroxide—See Ammonia, Aqua	16-17
Amyl Acetate	18
Aniline	18
o-Anisidine	19
p-Anisidine	19
Antimony Trichloride	19
Aromatic Industrial Solvent	19-20
Arsenic Trichloride	20

—B—

Barium Hydroxide—s.l.a. Barium Oxide	21
Barium Nitrate	20
Barium Oxide	21
Barium Peroxide	21
Benzene	21

Benzidine	21
Benzol—See Benzene	21
Benzoyl Chloride	22
Benzyl Chloride	
Carboy	22
Drum	22
Bichloride of Mercury—See Mercury Bichloride	38
Bichromates—See Sodium Bichromate	51
Bromine	23
Butyl Acetate (Normal)	23
Butyl Alcohol	
Normal or Secondary	23
Tertiary	23
Butylamine (Normal)	24
p-tert. Butylcatechol	24
Butyl Chloride (Normal)	24
Butyl Ether (Normal)	24
Butylidene Acetone—s.l.a. Butyl Acetate	23
Butyraldehyde—s.l.a. Ethyl Acetate	31

—C—

Calcium Cyanide	25
Carbon Disulfide	25
Carbon Tetrachloride	25
Caustic Potash—s.l.a. Caustic Soda	26
Caustic Soda	26
Chlorinated Diphenyl—s.l.a. Chlorinated Naphthalene	25
Chlorinated Diphenyl Oxide—s.l.a. Chlorinated Naphthalene	25
Chlorinated Naphthalene	25
Chlorobenzene, Mono	26
Chloroform	26
Chlorophenol, Mono, Ortho, Meta, or Para—s.l.a. Phenol	47
Chlorotoluene, Mono	27
Chromates and Bichromates of Sodium and Potassium	
See Sodium Bichromate	51
Chromic Acid	27
Coal Tar Creosote	27
Corrosive Sublimato—See Mercury Bichloride	38
Creosote Oil—See Coal Tar Creosote	27
Cresol	29
Cresylic Acid—See Cresol	29
Cyanides, Inorganic	28
Cyclohexane	29

Cyclohexanol	29
Cyclohexanone—s.l.a. Cyclohexanol	29

—D—

Diacetone Alcohol—s.l.a. Ethyl Acetate	31
Dichloroethylene	29
Dichloroethyl Ether	30
Dichlorophenol	30
Diethylamine	30
1,4-Diethylene Dioxide—See Dioxane	31
Diethylenetriamine—s.l.a. Morpholine	42
Diisobutyl Ketone—s.l.a. Butyl Acetate	23
Dimethylaniline—s.l.a. Aniline	18
Dioxane	31
Dipropyl Ketone—s.l.a. Butyl Acetate	23

—E—

Ethyl Acetate	31
Ethyl Acetoacetate—s.l.a. Butyl Acetate	23
Ethyl Bromide	31
Ethyl Butanol—s.l.a. Butyl Acetate	23
2-Ethylbutyl Acetate—s.l.a. Butyl Acetate	23
2-Ethylbutyraldehyde—s.l.a. Ethyl Acetate	31
Ethyl Chloride	31
Ethylene Chlorohydrin	32
Ethylenediamine—s.l.a. Morpholine	42
Ethylene Dibromide	32
Ethylene Dichloride	32
Ethylene Glycol Monomethyl Ether	33
Ethyl Ether	33
Ethyl Formate	33
2-Ethylhexanol—s.l.a. Butyl Acetate	23
2-Ethylhexyl Acetate—s.l.a. Butyl Acetate	23
Ethyl Methacrylate Monomer	33

—F—

Formaldehyde	34
Formic Acid	
Barrel	34
Carboy	35

—G—	
Glycol Diacetate—s.l.a. Butyl Acetate	23
Glycol Diformate—s.l.a. Butyl Acetate	23
—H—	
Heptanol-2—s.l.a. Butyl Acetate	23
Hexanol—s.l.a. Butyl Acetate	23
Hydrochloric Acid	35
Hydrocyanic Acid, Liquid	35
Hydrofluoric Acid	
Aqueous	37
Hydrogen Peroxide	
Stronger than 25 volume and not exceeding 130 volume	36
25 Volume	37
—I—	
Industrial Petroleum Naphthas and Solvents	
See Petroleum Naphthas and Solvents, Industrial	45-46
Industrial Solvent, Aromatic	19-20
Inorganic Cyanides (See Cyanides, Inorganic)	28
Isophorone—s.l.a. Butyl Acetate	23
—L—	
Lead Acetate	38
Litharge—s.l.a. Lead Acetate	38
—M—	
Maleic Anhydride	38
Mercuric Chloride—See Mercury Bichloride	38
Mercury Bichloride	38
Mesityl Oxide—s.l.a. Butyl Acetate	23
Methyl Acetoacetate—s.l.a. Butyl Acetate	23
Methyl Amyl Acetate—s.l.a. Methyl n-Amyl Ketone	38
Methyl Amyl Alcohol—s.l.a. Methyl n-Amyl Ketone	38
Methyl n-Amyl Ketone	38
Methyl Bromide	39
Methyl iso-Butyl Ketone—s.l.a. Methyl Ethyl Ketone	40
Methyl Cyclohexanol—s.l.a. Cyclohexanol	29
Methyl Cyclohexanone—s.l.a. Cyclohexanol	29
Methylene Chloride	39
Methyl Ethyl Ketone	40

Methyl Methacrylate Monomer	40
Methyl Morpholine—s.l.a. Morpholine	42
Methyl iso-Propyl Ketone	40
Mixed Acid (Sulfuric and Nitric)	
Carboy	41
Drum	41
Monochlorobenzene—See Chlorobenzene, Mono	26
Monochlorophenol—s.l.a. Phenol	47
Monochlorotoluene—See Chlorotoluene, Mono	27
Mononitrophenol—See Nitrophenol, Mono	43
Morpholine	42
Muriatic Acid—See Hydrochloric Acid	35
—N—	
Naphthas, Industrial Petroleum, and Solvents	
See Petroleum Naphthas and Solvents	45-46
a-Naphthylamine (containing 5% b-Naphthylamine)	
s.l.a. b-Naphthylamine	42
b-Naphthylamine	42
Nitric Acid	
Carboy	42
Drum	43
m-Nitroaniline	43
p-Nitroaniline—s.l.a. m-Nitroaniline	43
Nitrobenzene—s.l.a. Aniline	18
m-Nitro-p-Anisidine—s.l.a. m-Nitroaniline	43
p-Nitro-o-Toluidine—s.l.a. m-Nitroaniline	43
Nitrophenol, Mono	43
—O—	
Oil of Vitriol—See Sulfuric Acid	53
Oil Solutions of Pentachlorophenol—See Pentachlorophenol,	
Oil Solutions of	45
Olaum	44
Oxalic Acid	44
—P—	
Paraldehyde	44
Pentachlorophenol	45
Oil Solutions of	45
Perchlorethylene—See Tetrachloroethylene	54

Petroleum Naphthas and Solvents, Industrial	45-46
o-Phenetidine—s.l.a. p-Phenetidine	46
p-Phenetidine	46
Phenol	47
p-Phenylenediamine	47
Phosphoric Acid	47
Phosphoric Anhydride	48
Phosphorus	48
Phosphorus Oxichloride	49
Phosphorus Pentachloride	48
Phosphorus Trichloride—s.l.a. Phosphorus Oxichloride	49
Potassium Chlorate—s.l.a. Sodium Chlorate	50
Potassium Chromate and Bichromate—See Sodium Bichromate	51
Potassium Hydroxide—s.l.a. Caustic Soda	26
iso-Propyl Acetate	49
Propylene Chlorohydrin—s.l.a. Ethylene Chlorohydrin	32
iso-Propyl Ether—s.l.a. Ethyl Ether	33
Pyridine	49

—S—

Sample—Label for Experimental Products	50
Silver Nitrate	50
Sodium Chlorate	50
Sodium Bichromate	51
Sodium Fluoride	51
Sodium Hydrosulfite	51
Sodium Hydroxide—See Caustic Soda	26
Sodium Orthosilicate—s.l.a. Caustic Soda	26
Sodium Sesquisilicate—s.l.a. Caustic Soda	26
Sodium Sulfhydrate—s.l.a. Sodium Sulfide	52
Sodium Sulfide (Granular)	52
Solvents	
Aromatic Industrial	19-20
Industrial Petroleum Naphthas and Solvents	45-46
Styrene Monomer	52
Sulfur Chloride	52
Sulfur Dichloride—s.l.a. Sulfur Chloride	52
Sulfur Dioxide	54
Sulfuric Acid	
Carboy	53
Drum	53
Sulfuryl Chloride—s.l.a. Sulfur Chloride	52

—T—

Tar Acids—s.l.a. Cresol	29
Tetrachloroethane	54
Tetrachloroethylene	54
Tetrachlorophenol—s.l.a. Pentachlorophenol	45
Tetraethylenepentamine—s.l.a. Morpholine	42
Thionyl Chloride—s.l.a. Sulfur Chloride	52
Toluene	54
m-Toluidine	55
o-Toluidine—s.l.a. m-Toluidine	55
p-Toluidine—s.l.a. m-Toluidine	55
Toluol—See Toluene	54
Trichloroethylene	55
Trichlorophenol	55
Triethylenetetramine—s.l.a. Morpholine	42
Trimethylcyclohexanol—s.l.a. Butyl Acetate	23

—V—

Vinyl Chloride	55
----------------	----

—X—

Xylene	56
Xylidines—s.l.a. m-Toluidine	55
Xylol—See Xylene	56

—Z—

Zinc Chloride (Granular, Fused or Solution)	56
---	----

This Manual including L-1 and L-2 is supplied by
Manufacturing Chemists Association of the United States
612 Woodward Building
Washington 5, D. C.
U. S. A.
Price \$1.00 each
PRINTED IN U. S. A.