



# Standard Guide for Labeling Halogenated Hydrocarbon Solvent Containers<sup>1</sup>

This standard is issued under the fixed designation D 3844; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide is intended to provide health and safety labeling for the following chlorinated hydrocarbon solvents: methylene chloride, perchloroethylene, 1,1,1-trichloroethane, and trichloroethylene. Additional labeling may be required if other chemicals are mixed with these solvents, or if special containers (for example, aerosol packages) are employed.

## 2. Referenced Documents

### 2.1 ASTM Standards:

D 4276 Practice for Confined Area Entry<sup>2</sup>

### 2.2 ANSI Standard:

ANSI Z 129.1 Standard for Chemical Labeling<sup>3</sup>

### 2.3 Federal Standards:

29 CFR 1910.146 OSHA Permit-required Confined Spaces<sup>4</sup>

29 CFR 1910.1200 OSHA Hazard Communication Standard<sup>4</sup>

49 CFR 172 DOT Hazardous Materials Regulations<sup>4</sup>

### 2.4 Other Publications:

ACHIR Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents<sup>5</sup>

## 3. Significance and Use

3.1 Chemical product labeling is required by the OSHA Hazard Communications Standard. Labeling requirements are defined in this standard and also in ANSI Z129.1. This guide is intended as an interpretation of these standards as they apply to these specific products and grades.

3.2 This guide is intended to provide suggestions for the minimum required labeling for these chlorinated solvents. It is not intended to replace labeling determinations made by manufacturers or packagers.

3.3 This guide applies to commercially available grades of these specific products. For solvent blends, consult ANSI Z129.1 or your solvent supplier.

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee D-26 on Halogenated Organic Solvents and Fire Extinguishing Agents and is the direct responsibility of Subcommittee D26.05 on Industrial Hygiene.

Current edition approved June 10, 1996. Published August 1996. Originally published as D 3844 – 79. Last previous edition D 3844 – 91.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 15.05.

<sup>3</sup> Available from American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.

<sup>4</sup> Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

<sup>5</sup> Available from American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Dr., Cincinnati, OH 45240.

## 4. Requirements

4.1 These materials may also be subject to applicable federal, state and local laws and regulations.

## 5. Labeling

5.1 Sections 6-8 describe typical warning statements to be included in warning labels for the appropriate solvents.

5.2 Special grades of these solvents are available. These suggested statements may not be complete, or appropriate in every case. Solvent suppliers should be consulted before labeling containers of these products.

5.3 Some states require identification of any components present in concentrations of 1 % or greater, or of listed carcinogens in concentrations of 0.1 % or greater. Certain grades of these products may contain stabilizers in such concentrations. Consult the supplier for more information.

5.4 Some regulatory districts also require listing of VOC content. Methylene chloride and 1,1,1-trichloroethane are exempt in many jurisdictions, however stabilizers (where present) are considered as VOCs, and may need to be labeled as such.

5.5 Products packaged for consumer uses may require labeling that differs from the recommendations set forth in this guide.

## 6. Suggested Label for Methylene Chloride

### 6.1 Identification:

Company Name

Company Address

Emergency Telephone Number

Company Logo

Lot Number

Net Weight

Solvent Name: Methylene Chloride (dichloromethane)

CAS No.: 75-09-2

UN No.: UN 1593

OSHA PEL: 500 ppm (ACGIH TLV: 50 ppm)

Reportable Quantity: 1000 lb

### 6.2 READ MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR USING THIS PRODUCT.

### 6.3 Health and Safety Information:

**WARNING!** Harmful if inhaled. May cause liver and kidney damage based on animal data. May cause cancer based on animal data.

### 6.4 Precautions:

**AVOID BREATHING OF VAPOR OR MIST.** Exposure

to high vapor concentrations can cause unconsciousness and death.

**USE ONLY WITH ADEQUATE VENTILATION.** Ventilation must be sufficient to limit exposure below OSHA permissible exposure limits. Eye irritation and dizziness are indications of overexposure.

**DO NOT TAKE INTERNALLY.** Swallowing can cause injury, illness, and death. Do not store in food or beverage containers.

**AVOID CONTACT WITH SKIN.** Contact can cause skin irritation and dermatitis. Wear protective clothing and gloves.

**DO NOT GET IN EYES.** Contact will cause discomfort and irritation. Wear chemical goggles or a full face shield where splashing is possible.

**DO NOT EAT, DRINK, OR SMOKE IN WORK AREAS.**

**SEE CURRENT OSHA REGULATIONS.**

#### 6.5 *First Aid:*

**INHALATION OVEREXPOSURE**—Remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**NOTE TO PHYSICIAN**—Avoid use of adrenalin (or other heart stimulating drugs) in any case where a person has been overcome by methylene chloride. Increased sensitivity of the heart can be caused by overexposure to methylene chloride.

**SWALLOWING**—Get medical attention immediately. Never induce vomiting. Never give anything by mouth to an unconscious person.

**EYE CONTACT**—Immediately flush eyes thoroughly with large amounts of water for at least 15 min. Call a physician.

**SKIN CONTACT**—Remove contaminated clothing and shoes. Wash skin with warm water and soap. Wash clothes and air out shoes before reuse.

#### 6.6 *Handling and Storage:*

**IMPORTANT NOTE**—Request information from the supplier on safe procedures before blending with other chemicals. Such mixtures can produce hazardous or explosive products. Chemicals of particular concern include, but are not limited to, strong alkalis, acids, oxidizing agents, or aluminum, zinc, beryllium or metal hydride powders.

Under certain conditions of use, solvent decomposition can occur, followed by the release of toxic and corrosive vapors.

**DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES.** Vapors are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Enter these areas only while wearing a self-contained breathing apparatus, or an air line respirator with a full facepiece, and when an observer is present for assistance. See Practice D 4276 and 29 CFR 1910.146.

Keep drum tightly closed when not in use.

Avoid prolonged contact with aluminum. Do not use in aluminum equipment or containers. Contact of methylene chloride with aluminum parts in a pressurizable fluid system can cause violent reaction. Consult the equipment supplier for further information.

Avoid contact of this material or its vapors with flames, hot glowing surfaces, welding operations or electric arcs. Such

contact can form toxic and corrosive acid fumes.

Liquid oxygen or other strong oxidants can form explosive mixtures with methylene chloride.

Vapors of methylene chloride in confined or poorly ventilated areas can form flammable mixtures in the air.

Store methylene chloride in a cool, dry, well-ventilated area out of sunlight. Open slowly to relieve pressure. Do not store in open, unlabeled or mislabeled containers.

Degreaser sludge containing metallic residues should be stored in closed containers which are designed to vent in case of pressure buildup. Store these containers outdoors away from combustible materials.

Wash thoroughly after handling.

Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws.

Do not use cutting or welding torches, open flames, or electric arcs on empty or full containers (including storage tanks) that may contain methylene chloride liquid or vapors.

**SPILLS OR LEAKS**—Evacuate the area, ventilate, and avoid breathing vapors. Dike the area to contain the spill. Personnel wearing proper protective equipment including an air line respirator or a self-contained breathing apparatus with a full facepiece, should clean up the area by mopping with absorbent material, and should place the contaminant in closed containers for disposal. Avoid contamination of ground and surface waters. Do not flush to the sewer, on the ground, or into any body of water.

**DISPOSAL**—Send to a permitted waste management facility. Any disposal must be in compliance with federal, state and local regulations.

**KEEP OUT OF REACH OF CHILDREN.**

## 7. Suggested Label for Perchloroethylene

### 7.1 *Identification:*

Company Name

Company Address

Emergency Telephone Number

Company Logo

Lot Number

Net Weight

Solvent Name: Perchloroethylene (tetrachloroethylene)

CAS No.: 127-18-4

UN No.: UN 1897

OSHA PEL: 100 ppm (ACGIH TLV: 25 ppm)

Reportable Quantity: 100 lb

### 7.2 **READ MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR USING THIS PRODUCT.**

### 7.3 *Health and Safety Information:*

**WARNING!** Harmful if inhaled. May cause liver and kidney damage based on animal data. May cause cancer based on animal data.

### 7.4 *Precautions:*

**AVOID BREATHING OF VAPOR OR MIST.** Exposure to high vapor concentrations can cause unconsciousness and death.

**USE ONLY WITH ADEQUATE VENTILATION.** Ventilation must be sufficient to limit exposure below OSHA permissible exposure limits. Eye irritation and dizziness are indications of overexposure.

**DO NOT TAKE INTERNALLY.** Swallowing can cause injury, illness, and death. Do not store in food or beverage containers.

**AVOID CONTACT WITH SKIN.** Contact can cause skin irritation and dermatitis. Wear protective clothing and gloves.

**DO NOT GET IN EYES.** Contact will cause discomfort and irritation. Wear chemical goggles or a full face shield where splashing is possible.

**DO NOT EAT, DRINK, OR SMOKE IN WORK AREAS.**

**SEE CURRENT OSHA REGULATIONS.**

#### 7.5 First Aid:

**INHALATION OVEREXPOSURE**—Remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**NOTE TO PHYSICIAN**—Avoid use of adrenalin (or other heart stimulating drugs) in any case where a person has been overcome by perchloroethylene. Increased sensitivity of the heart can be caused by overexposure to perchloroethylene.

**SWALLOWING**—Get medical attention immediately. Never induce vomiting. Never give anything by mouth to an unconscious person.

**EYE CONTACT**—Immediately flush eyes thoroughly with large amounts of water for at least 15 min. Call a physician.

**SKIN CONTACT**—Remove contaminated clothing and shoes. Wash skin with warm water and soap. Wash clothes and air out shoes before reuse.

#### 7.6 Handling and Storage:

**IMPORTANT NOTE**—Request information from the supplier on safe procedures before blending with other chemicals. Such mixtures can produce hazardous or explosive products. Chemicals of particular concern include, but are not limited to, strong alkalis, acids, oxidizing agents, or aluminum, zinc, beryllium or metal hydride powders.

Under certain conditions of use, solvent decomposition can occur, followed by the release of toxic and corrosive vapors.

**DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES.** Vapors are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Enter these areas only while wearing a self-contained breathing apparatus or an air line respirator with a full facepiece, and when an observer is present for assistance. See Practice D 4276 and 29 CFR 1910.146.

Keep drum tightly closed when not in use.

Avoid prolonged contact with aluminum. Do not use in aluminum equipment or containers.

Avoid contact of this material or its vapors with flames, hot glowing surfaces, welding operations or electric arcs. Such contact can form toxic and corrosive acid fumes.

Liquid oxygen or other strong oxidants can form explosive mixtures of perchloroethylene.

Store perchloroethylene in a cool, dry, well-ventilated area out of sunlight. Open slowly to relieve pressure. Do not store in open, unlabeled or mislabeled containers.

Degreaser sludge containing metallic residues should be stored in closed containers which are designed to vent in case of pressure buildup. Store these containers outdoors away from

combustible materials.

Wash thoroughly after handling.

Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws.

Do not use cutting or welding torches, open flames, or electric arcs on empty or full containers (including storage tanks) that may contain perchloroethylene liquid or vapors.

**SPILLS OR LEAKS**—Evacuate the area, ventilate, and avoiding breathing vapors. Dike the area to contain the spill. Personnel wearing proper protective equipment including an air line respirator or self-contained breathing apparatus, with a full facepiece, should clean up the area by mopping with absorbent material, and should place the contaminant in closed containers for disposal. Avoid contamination of ground and surface waters. Do not flush to the sewer, on the ground, or into any body of water.

**DISPOSAL**—Send to a permitted waste management facility. Any disposal must be in compliance with federal, state and local regulations.

**KEEP OUT OF REACH OF CHILDREN.**

### 8. Suggested Label for 1,1,1-Trichloroethane

NOTE 1—This guide applies to metal cleaning grades of 1,1,1-trichloroethane only. Low-stabilized or aerosol grades are incompatible with aluminum, and may require additional labeling.

#### 8.1 Identification:

Company Name

Company Address

Emergency Telephone Number

Company Logo

Lot Number

Net Weight

Solvent Name: 1,1,1-Trichloroethane, methyl chloroform

CAS No.: 71-55-6

UN No.: UN 2831

OSHA PEL: 350 ppm

Reportable Quantity: 1000 lb

#### 8.2 READ MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR USING THIS PRODUCT.

#### 8.3 Health and Safety Information:

**WARNING!** Harmful if inhaled. Exposures to high concentrations can cause unconsciousness and death.

**WARNING!** Contains methyl chloroform, a substance that harms public health and environment by destroying ozone in the upper atmosphere.

#### 8.4 Precautions:

**AVOID BREATHING OF VAPOR OR MIST.** Exposure to high vapor concentrations can cause unconsciousness and death.

**USE ONLY WITH ADEQUATE VENTILATION.** Ventilation must be sufficient to limit exposure below OSHA permissible exposure limits. Eye irritation and dizziness are indications of overexposure.

**DO NOT TAKE INTERNALLY.** Swallowing can cause injury, illness, and death. Do not store in food or beverage containers.

**AVOID CONTACT WITH SKIN.** Contact can cause skin irritation and dermatitis. Wear protective clothing and gloves.

**DO NOT GET IN EYES.** Contact will cause discomfort

and irritation. Wear chemical goggles or a full face shield where splashing is possible.

**DO NOT EAT, DRINK, OR SMOKE IN WORK AREAS.**

**SEE CURRENT OSHA REGULATIONS.**

#### 8.5 *First Aid:*

**INHALATION OVEREXPOSURE**—Remove patient to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**NOTE TO PHYSICIAN**—Avoid use of adrenalin (or other heart stimulating drugs) in any case where a person has been overcome by 1,1,1-trichloroethane. Increased sensitivity of the heart can be caused by overexposure to 1,1,1-trichloroethane.

**SWALLOWING**—Get medical attention immediately. Never induce vomiting. Never give anything by mouth to an unconscious person.

**EYE CONTACT**—Immediately flush eyes thoroughly with large amounts of water for at least 15 min. Call a physician.

**SKIN CONTACT**—Remove contaminated clothing and shoes. Wash skin with warm water and soap. Wash clothes and air out shoes before reuse.

#### 8.6 *Handling and Storage:*

**IMPORTANT NOTE**—Request information from the supplier on safe procedures before blending with other chemicals. Such mixtures can produce hazardous or explosive products. Chemicals of particular concern include, but are not limited to, strong alkalis, acids, oxidizing agents, or aluminum, zinc, beryllium or metal hydride powders.

Under certain conditions of use, solvent decomposition can occur, followed by the release of toxic and corrosive vapors.

**DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES.** Vapors are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Enter these areas only while wearing a self-contained breathing apparatus, or an air line respirator with a full facepiece, and when an observer is present for assistance. See Practice D 4276 and 29 CFR 1910.146.

Keep drum tightly closed when not in use.

Avoid prolonged contact with aluminum. Do not use in aluminum equipment or containers. Contact of 1,1,1-trichloroethane with aluminum parts in a pressurizable fluid system can cause violent reaction. Consult the equipment supplier for further information.

Avoid contact of this material or its vapors with flames, hot glowing surfaces, welding operations or electric arcs. Such contact can form toxic and corrosive acid fumes.

Liquid oxygen or other strong oxidants can form explosive mixtures with 1,1,1-trichloroethane.

Vapors of 1,1,1-trichloroethane in confined or poorly ventilated areas can form flammable mixtures in air.

Store 1,1,1-trichloroethane in a cool, dry, well-ventilated area out of sunlight. Open slowly to relieve pressure. Do not store in open, unlabeled or mislabeled containers.

Degreaser sludge containing metallic residues should be stored in closed containers which are designed to vent in case of pressure buildup. Store these containers outdoors away from combustible materials.

Wash thoroughly after handling.

Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws.

Do not use cutting or welding torches, open flames, or electric arcs on empty or full containers (including storage tanks) that may contain 1,1,1-trichloroethane liquid or vapors.

**SPILLS OR LEAKS**—Evacuate the area, ventilate, and avoid breathing vapors. Dike the area to contain the spill. Personnel wearing proper protective equipment including an air line respirator or a self-contained breathing apparatus with a full facepiece, should clean up the area by mopping with absorbent material, and should place the contaminant in closed containers for disposal. Avoid contamination of ground and surface waters. Do not flush to the sewer, on the ground, or into any body of water.

**DISPOSAL**—Send to a permitted waste management facility. Any disposal must be in compliance with federal, state and local regulations.

**KEEP OUT OF REACH OF CHILDREN.**

## 9. Suggested Label for Trichloroethylene

### 9.1 *Identification:*

Company Name  
Company Address  
Emergency Telephone Number  
Company Logo  
Lot Number  
Net Weight  
Solvent Name: Trichloroethylene  
CAS No.: 79-01-6  
UN No.: UN 1710

OSHA PEL: 100 ppm (ACGIH TLV: 50 ppm)

### 9.2 **READ MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR USING THIS PRODUCT.**

### 9.3 *Health and Safety Information:*

**WARNING!** Harmful if inhaled. May cause liver and kidney damage based on animal data. May cause cancer based on animal data.

### 9.4 *Precautions:*

**AVOID BREATHING OF VAPOR OR MIST.** Exposure to high vapor concentrations can cause unconsciousness and death.

**USE ONLY WITH ADEQUATE VENTILATION.** Ventilation must be sufficient to limit exposure below OSHA permissible exposure limits. Eye irritation and dizziness are indications of overexposure.

**DO NOT TAKE INTERNALLY.** Swallowing can cause injury, illness, and death. Do not store in food or beverage containers.

**AVOID CONTACT WITH SKIN.** Contact can cause skin irritation and dermatitis. Wear protective clothing and gloves.

**DO NOT GET IN EYES.** Contact will cause discomfort and irritation. Wear chemical goggles or a full face shield where splashing is possible.

**DO NOT EAT, DRINK, OR SMOKE IN WORK AREAS.**

**SEE CURRENT OSHA REGULATIONS.**

### 9.5 *First Aid:*

**INHALATION OVEREXPOSURE**—Remove patient to

fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**NOTE TO PHYSICIAN**—Avoid use of adrenalin (or other heart stimulating drugs) in any case where a person has been overcome by trichloroethylene. Increased sensitivity of the heart can be caused by overexposure to trichloroethylene.

**SWALLOWING**—Get medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

**EYE CONTACT**—Immediately flush eyes thoroughly with large amounts of water for at least 15 min. Call a physician.

**SKIN CONTACT**—Remove contaminated clothing and shoes. Wash skin with warm water and soap. Wash clothes and air out shoes before reuse.

#### 9.6 Handling and Storage:

**IMPORTANT NOTE**—Request information from the supplier on safe procedures before blending with other chemicals. Such mixtures can produce hazardous or explosive products. Chemicals of particular concern include, but are not limited to, strong alkalis, acids, oxidizing agents, or aluminum, zinc, beryllium or metal hydride powders.

Under certain conditions of use, solvent decomposition can occur, followed by the release of toxic and corrosive vapors.

**DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES.** Vapors are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Enter these areas only while wearing a self-contained breathing apparatus, or an air line respirator with a full facepiece, and when an observer is present for assistance. See Practice D 4276 and 29 CFR 1910.146.

Keep drum tightly closed when not in use.

Avoid prolonged contact with aluminum. Do not use in aluminum equipment or containers.

Avoid contact of this material or its vapors with flames, hot glowing surfaces, welding operations or electric arcs. Such contact can form toxic and corrosive acid fumes.

Liquid oxygen or other strong oxidants can form explosive mixtures with trichloroethylene.

Vapors of trichloroethylene in confined or poorly ventilated areas can form flammable mixtures in air.

Store trichloroethylene in a cool, dry, well-ventilated area out of sunlight. Open slowly to relieve pressure. Do not store in open, unlabeled or mislabeled containers.

Degreaser sludge containing metallic residues should be stored in closed containers which are designed to vent in case of pressure buildup. Store these containers outdoors away from combustible materials.

Wash thoroughly after handling.

Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws.

Do not use cutting or welding torches, open flames, or electric arcs on empty or full containers (including storage tanks) that may contain trichloroethylene liquid or vapors.

**SPILLS OR LEAKS**—Evacuate the area, ventilate, and avoid breathing vapors. Dike the area to contain the spill. Personnel wearing proper protective equipment including an air line respirator or a self-contained breathing apparatus with a full facepiece, should clean up the area by mopping with absorbent material, and should place the contaminant in closed containers for disposal. Avoid contamination of ground and surface waters. Do not flush to the sewer, on the ground, or into any body of water.

**DISPOSAL**—Send to a permitted waste management facility. Any disposal must be in compliance with federal, state and local regulations.

**KEEP OUT OF REACH OF CHILDREN.**

## 10. Keywords

10.1 1,1,1-trichloroethane; dichloromethane; labeling; methyl chloroform; methylene chloride; perchloroethylene; trichloroethylene

*The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 100 Barr Harbor Drive, West Conshohocken, PA 19428.*