

1 Clifford A. Chanler  
2 CHANLER LAW GROUP  
3 1700 Montgomery Street, Suite 110  
San Francisco, CA 94111  
Tel: (415) 391-1122

**FILED**  
San Francisco County Superior Court

NOV 26 1996

4 Attorneys for Plaintiff  
5 AS YOU SOW

ALAN CARLSON, Clerk  
SUPERIOR COURT

BY: Pringle  
Deputy Clerk

6  
7 SUPERIOR COURT OF THE STATE OF CALIFORNIA  
8 COUNTY OF SAN FRANCISCO

9 AS YOU SOW, a non-profit )  
10 corporation, )  
11 Plaintiff, )  
v. )  
12 PPG INDUSTRIES, INC. )  
13 Defendants. )

Case No. 979398

JUDGMENT ON STIPULATION  
FOR ENTRY OF JUDGMENT

14  
15  
16 In the above-entitled action, plaintiff As You Sow  
17 and defendant PPG Industries, Inc., having stipulated through  
18 their respective representatives, that judgment be entered  
19 pursuant to the terms of the settlement agreement entered into  
20 by the parties on November \_\_, 1996, said stipulation being  
21 attached hereto,

22 IT IS HEREBY ORDERED that judgment be entered in  
23 accordance with the terms of the stipulation between the  
24 parties.

25  
26 Dated: November 26, 1996

Stuart R. Pollak  
Judge of the Superior Court

27  
28 STUART R. POLLAK

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San Francisco County Superior Court

NOV 26 1996

6 Attorneys for Plaintiff  
7 AS YOU SOW

ALAN CARLSON, Clerk  
SUPERIOR COURT

BY: Alan Carlson Deputy Clerk

8 SUPERIOR COURT OF THE STATE OF CALIFORNIA  
9 COUNTY OF SAN FRANCISCO

10 AS YOU SOW, a non-profit  
11 corporation, Plaintiff,  
12 v.  
13 PPG INDUSTRIES, INC.  
14 Defendants.

Case No. 979398

STIPULATION FOR  
ENTRY OF JUDGMENT

16 IT IS HEREBY STIPULATED, by and between plaintiff As  
17 You Sow and defendant PPG Industries, Inc., through their  
18 respective representatives, that judgment in the above-  
19 entitled action be entered in accordance with the terms of the  
20 settlement agreement between the parties, which is attached  
21 hereto as Exhibit A.

22 Dated: November 18, 1996

by: Clifford Chanler  
Clifford Chanler  
Attorneys for Plaintiff  
AS YOU SOW

23 Dated: November 15, 1996

by: Christine Byrd  
Christine Byrd  
Attorney For Defendant  
PPG INDUSTRIES, INC.

# **Exhibit A**

## SETTLEMENT AGREEMENT

This Settlement Agreement (the "Agreement") is entered into by and between As You Sow, a California non-profit corporation ("AYS"), and PPG Industries, Inc., a Pennsylvania corporation ("PPG"), as of October 31, 1996 (the "Effective Date").

### **WHEREAS:**

AYS is a not-for-profit public interest foundation dedicated to promoting consumer and worker awareness of exposure to toxic chemicals, protecting the environment and improving human health;

PPG sells in the State of California the following straight bulk chemicals listed pursuant to Proposition 65: trichloroethylene, perchloroethylene, methylene chloride, paradichlorobenzene and ethyl chloride ("Bulk Chemicals");

The Bulk Chemicals have been sold by PPG for use in California since July 1, 1992 mostly in tanker truckloads ("Bulk Shipments") to industrial users and other customers, some of whom repack certain of the Bulk Chemicals in 55-gallon drums or other similarly-sized containers that bear labels provided by PPG ("Drums");

PPG asserts that it has provided Proposition 65 warnings to its industrial users and other customers in the Material Safety Data Sheet for each Bulk Chemical;

On November 8, 1995, AYS first served PPG and all of the requisite public enforcement agencies with a document entitled "60-Day Notice" which provided PPG and such public enforcers with notice that PPG was allegedly in violation of Health & Safety Code §25249.6 for failing to warn purchasers that certain Bulk Chemicals it sells in California expose users to Proposition 65-listed chemicals; and

On July 1, 1996, AYS filed a complaint entitled As You Sow v. PPG Industries, et al. (No. 979398) in the San Francisco Superior Court ("Complaint"), naming PPG as a defendant and alleging violations of Business & Professions Code §17200 and Health & Safety Code §25249.6 on behalf of individuals in California who allegedly are exposed to the Bulk Chemicals.

On September 4, 1996, PPG filed an Answer in the above-referenced action denying any and all of the allegations in the Complaint and asserting various affirmative defenses;



AYS and PPG desire to completely resolve all disputes related to the Bulk Chemicals at issue in lieu of incurring any further litigation costs;

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. **Drum Labeling.** Beginning immediately, PPG shall initiate revisions to its current labels for Drums and other containers. However, PPG agrees that, as of January 1, 1997, it shall not provide to any of its customers in California any PPG labels for use on Drums containing any of the Bulk Chemicals unless each such PPG label contains the following warning statement:

"WARNING: This product is a chemical known to the State of California to cause cancer.

The warning statement shall be prominent and displayed with such conspicuousness, as compared with other words, statements, or designs as to render it likely to be read and understood by an ordinary individual. Additionally, the warning statement shall be contained within a graphic box (surrounded by a borderline of four connected lines). The parties agree that the sample labels attached hereto as Exhibit A1-A3 satisfy this requirement.

2. **Warnings for Bulk Shipments.** "Bulk Shipments" is defined as containers with a capacity of greater than 55 gallons of Bulk Chemicals. As of January 1, 1997, PPG agrees that it shall not ship (or cause to be shipped) for sale or use in California, any Bulk Shipments of the Bulk Chemicals, unless PPG has furnished each California customer of Bulk Shipments of the Bulk Chemicals with a notice letter setting forth the requirements of Proposition 65 and how they may apply to those customers ("Notice Letter"). The Notice Letter shall be sent by certified mail and shall further explain that such California customers should create adhesive labels or other affixed warnings with language as set forth above in paragraph 1 of this Agreement for the vessels that store or containers that package such customers' products. An example of this Notice Letter is attached hereto as Exhibit B.

After January 1, 1997, the Notice Letter shall be sent to each California customer of Bulk Shipments of the Bulk Chemicals along with an appropriate Material Safety Data Sheet ("MSDS") (as set forth in paragraph 4 of this Agreement) at least once in the course of each PPG fiscal year. Within 60 days of the mutual execution of this Agreement, and again at the end of PPG's 1997 fiscal year, PPG shall provide AYS with written certification, under oath, from a PPG officer or employee having the requisite personal knowledge and authority, stating that each customer of Bulk Shipments of the Bulk Chemicals has been sent a copy of the Notice Letter and the most recent MSDS for each Bulk Chemical purchased.

3. **Warnings for Out-of-State Shipments.** As of the date of this Agreement, PPG agrees that, upon receipt of any inquiry regarding Proposition 65 from any customers of the Bulk Chemicals located outside of California, PPG shall provide such customer with a letter setting forth the requirements of Proposition 65 as they may apply to such customer (an "Inquiry Response Letter"). An example of the Inquiry Response Letter is attached hereto as Exhibit C.

4. **MSDS Revisions.** PPG agrees that the Material Safety Data Sheets ("MSDS") pertaining to each of the Bulk Chemicals it provides its customers shall include the applicable warning language set forth in ¶1 of this Agreement, in bolded type, and at the beginning of each section entitled, "Health Hazard Data." The parties agree that the sample MSDSs attached hereto as Exhibits D-1 through D-5 satisfy this requirement.

5. **Restitution.** PPG agrees to pay \$47,000 to AYS within five (5) days of written notice of entry of judgment pursuant to ¶ 12, below. This payment, which is made pursuant to Business & Professions Code §17203, shall be forwarded by AYS to California non-profit groups working to reduce exposures to toxic chemicals and to increase consumer, worker, and community awareness of the health hazards posed by toxic chemicals.

6. **Penalty.** Pursuant to Health & Safety Code §25249.7(b), PPG shall pay, within five (5) days of written notice of entry of judgment pursuant to ¶ 12, below, a civil penalty of \$8,000. Penalty monies shall be apportioned by AYS in accordance with Health & Safety Code §25192, with 75% of these funds remitted to the State of California.

7. **Reimbursement of Fees and Costs.** Within five (5) days of written notice of entry of judgment pursuant to ¶ 12, below, PPG shall pay AYS \$54,000.00 as full and complete reimbursement of its investigation fees, attorney fees and other fees (including expert fees) and costs incurred in this matter.

8. **AYS Release.** AYS, by this Agreement, waives and releases all rights to institute any form of legal action against PPG, its distributors or customers, or its officers, directors, attorneys and representatives, whether under Proposition 65 or Business & Profession Code §§17200 et seq., based on or arising from PPG's and only PPG's failure to warn about exposure to the Bulk Chemicals manufactured on or prior to the Effective Date.

9. **PPG Release.** PPG, by this Agreement, waives and releases all rights to institute any form of legal action against AYS, its members, officers, directors, attorneys and representatives (the "AYS Releasees") for all actions or statements made by the AYS Releasees in the course of seeking

enforcement of Proposition 65 or Business & Profession Code §§17200 et seq. against PPG.

10. **Customer Information.** PPG agrees to provide AYS with the names and addresses of its California customers for the Bulk Chemicals since July 1, 1994. For each customer listed, PPG agrees to provide the specific Bulk Chemical sold to each customer, the amount paid by the customer along with the volume (in pounds or gallons) and quantity of units sold for such Bulk Chemical, and to identify any MSDS, label or any other health hazard warning material which was provided to the customer in conjunction with the sale of the Bulk Chemical.

PPG shall also provide AYS with an affidavit from an employee of PPG having the requisite personal knowledge and authority to state that the Bulk Chemicals, amount paid, volume, quantity, MSDSs, labels and other health hazard warning materials were in fact provided to each such customer of Proposition 65 chemicals and that all supporting documentation is attached to the affidavit. This affidavit shall be provided to AYS by December 15, 1996.

Both parties acknowledge that paragraph 10 of this agreement and the dates on which PPG is to provide this information are material terms of this settlement. AYS agrees that PPG's customer list and sales information are confidential and will not be turned over to any third party unless they are subject to a formal discovery request or subpoena. In the event that AYS receives a discovery request or subpoena seeking production of such information, it shall provide PPG with notice of such request within ten (10) days of service of the request and prior to producing documents or otherwise complying with the request or subpoena.

11. **Warranties and Representations.** The parties make the following representations and warranties:

11.1 PPG represents and warrants as follows:

11.1.1 PPG understands that the "total tons sold" data provided to counsel for AYS by PPG in letters through its counsel, including those dated August 9, 1996 and August 27, 1996, was a material factor upon which AYS has relied to determine the amount of penalties and restitution in ¶¶5 and 6 of this Agreement. The data on total tons sold provided in the above-referenced letters is true and accurate. PPG acknowledges that, in the event AYS finds that the data on total tons sold is materially inaccurate, all other parts of this Agreement notwithstanding, AYS will have the right to rescind this Agreement and re-institute an enforcement action against PPG. In such a case, all applicable statutes of limitation shall be deemed tolled for the period between July 1, 1996 (the date AYS filed the instant action) and the date

AYS notifies PPG that it is rescinding this Agreement pursuant to this subpart.

**12. Stipulated Judgment.** The parties shall file a stipulated judgment to be approved pursuant to CCP §664.6 by the San Francisco Superior Court ("Court") in accordance with the terms of this agreement. In the event that the Court does not approve the stipulated judgment, this Agreement shall be null and void.

**13. Severability.** In the event that any of the provisions of this Agreement are held by a court to be unenforceable, the validity of the enforceable provisions shall not be adversely affected.

**14. Attorneys' Fees.** In the event that a dispute arises with respect to any provision(s) of this Agreement, the prevailing party shall be entitled to recover costs and reasonable attorneys' fees.

**15. Governing Law.** The terms of this Agreement shall be governed by the laws of the State of California.

**16. Notices.** All correspondence to AYS shall be mailed to:

Lisa Wiggins, Esq.  
As You Sow  
330 19th Street, #71  
Oakland, California 94612

All correspondence to PPG shall be mailed to:

Christine W.S. Byrd  
Irell & Manella  
1800 Avenue of the Stars, Suite 900  
Los Angeles, CA 90067-4276

Either party may change its address for receipt of mailed notices by giving written notice to the other party at any time during the term of this Agreement.

**17. No Admissions.** Nothing in this Agreement shall be construed as an admission by PPG of any fact, finding, issue of law, or violation of law, nor shall compliance with this Agreement constitute or be construed as an admission by PPG of any fact, finding, conclusion, issue of law, or violation of law. However, this Section shall not diminish or otherwise affect the obligation, responsibilities, and duties of PPG under this Agreement.

**18. Counterparts.** This Agreement may be executed in counterparts, each of which shall be deemed an original, and

all of which, when taken together, shall constitute one and the same document.

19. **Change in Law.** In the event that any law, rule, regulation or final decision of any legislative, judicial or executive body becomes effective or is entered that renders the warning requirements of §§ 1, 2, 3 or 4 of the Agreement unnecessary, unlawful, or inappropriate to comply with other applicable laws, PPG is released from its obligations under those paragraphs; provided, however, that PPG shall continue to provide any warnings that continue to be required under the applicable laws, rules and regulations. Notwithstanding the terms of this paragraph, AYS shall not be required under any circumstances to refund or return any amounts paid pursuant to §§ 5, 6 and 7.

20. **Sole and Entire Agreement.** This Agreement represents the sole and entire agreement between the parties with respect to the subject matter hereof and supersedes any and all prior and contemporaneous oral and written agreements, understandings, and representations, if any. This Agreement may be amended only by a written agreement signed by both parties.

21. **Authorization.** The undersigned are authorized to execute this Agreement on behalf of their respective parties and have read, understood and agree to all of the terms and conditions of this Agreement.

AGREED TO:

AS YOU SOW

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

AGREED TO:

PPG INDUSTRIES, INC.

*Rae R. Burton*  
\_\_\_\_\_  
Rae R. Burton  
Printed Name

\_\_\_\_\_  
November 15, 1996  
Date

*Anne M. Zauke*  
11/15/96

90:3 761C1

all of which, when taken together, shall constitute one and the same document.

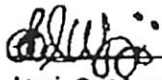
19. **Change in Law.** In the event that any law, rule, regulation or final decision of any legislative, judicial or executive body becomes effective or is entered that renders the warning requirements of §§ 1, 2, 3 or 4 of the Agreement unnecessary, unlawful, or inappropriate to comply with other applicable laws, FFG is released from its obligations under those paragraphs; provided, however, that FFG shall continue to provide any warnings that continue to be required under the applicable laws, rules and regulations. Notwithstanding the terms of this paragraph, FFG shall not be required under any circumstances to refund or return any amounts paid pursuant to §§ 5, 6 and 7.

20. **Sole and Entire Agreement.** This Agreement represents the sole and entire agreement between the parties with respect to the subject matter hereof and supercedes any and all prior and contemporaneous oral and written agreements, understandings, and representations, if any. This Agreement may be amended only by a written agreement signed by both parties.

21. **Authorization.** The undersigned are authorized to execute this Agreement on behalf of their respective parties and have read, understood and agree to all of the terms and conditions of this Agreement.

SIGNED TO:

AS YOU SAW

  
Lisa S. Wiggins, General Counsel  
Printed Name

NOVEMBER 21, 1996  
Date

SIGNED TO:

FFG INDUSTRIES, INC.

Printed Name

Date

FFG INDUSTRIES, INC.

-6-

# **Exhibit A**



EXHIBITS A1 - A3

Exemplary Labels



# PERCHLOROETHYLENE

CAS #127-18-4  
NOT FOR FOOD, DRUG, COSMETIC OR PESTICIDE USE  
CLASSIFIED BY UNDERWRITERS LABORATORIES, INC.® AS TO FIRE  
HAZARD ONLY. PERCHLOR. CLASSED AS NONFLAMMABLE. 924 P.

## WARNING! ■ KEEP AWAY FROM FOOD ■ VAPOR HARMFUL

### Precautions

- **DO NOT BREATHE VAPORS.** High vapor concentrations can cause dizziness, unconsciousness or death. Long-term overexposure may cause liver, kidney injury and possible central nervous system damage.
- **USE ONLY WITH ADEQUATE VENTILATION.** Ventilation must be sufficient to limit employee exposure to Perchloroethylene to the following limits: OSHA: 25 ppm 8-hour TWA (Time Weighted Average); 25 CFR 19.10 (1000 TWA); 2.2 Eye irritation, dizziness and/or drunkenness are signs of overexposure.
- **AVOID CONTACT WITH EYES.** Will cause irritation and pain.
- **AVOID PROLONGED OR REPEATED CONTACT WITH SKIN.** May cause irritation or dermatitis.
- **DO NOT SWALLOW.** Swallowing may cause injury or death.
- **DO NOT EAT, DRINK, OR SMOKE IN WORK AREA.**
- **CANCER INFORMATION.** May cause cancer in humans based upon animal data. Risk depends upon concentration and duration of exposure.

■ **WARNING:** This product is a chemical known to the State of California to cause cancer.

### + First Aid +

- **INHALATION:** Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
- **EYE/SKIN CONTACT:** Flush eyes and skin with plenty of water (soap and water for skin) for at least 15 minutes while removing contaminated clothing and shoes. If irritation occurs, consult a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

- **SWALLOWING:** If conscious, drink large quantities of water. DO NOT induce vomiting. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. DO NOT give anything by mouth to an unconscious person.

**NOTES TO PHYSICIAN:** Only administer adrenaline after careful consideration following Perchloroethylene overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to Perchloroethylene.

### Handling and Storage

- Do not use in poorly ventilated or confined areas.
- Perchloroethylene vapors are heavier than air and will collect in low areas.
- Keep container closed when not in use.
- Store only in closed, properly labeled containers.
- This material or its vapors when in contact with flames, hot glowing surfaces or electric arcs can decompose to form hydrogen chloride gas and traces of phosgene.
- Liquid oxygen or other strong oxidants may form explosive mixtures with Perchloroethylene.
- Do not use cutting or welding torches on drums that contained Perchloroethylene unless properly purged and cleaned.
- Store degreaser sludge in closed, vented containers.
- A chlorinated solvent used as a flashpoint suppressant must be added in sufficient quantity or the resultant mixture may have a flashpoint lower than the flammable component.
- **IN CASE OF SPILLS:** Immediately evacuate the area and provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on absorbents, such as sawdust or vermiculite and sweep into closed containers for disposal. After all visible traces have been removed, including ignitable vapors, thoroughly wet vacuum the area. DO NOT flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc., as necessary and place in closed containers for disposal (See Below). Releases of this material may be reportable under federal or state regulations.
- **WASTE DISPOSAL:** Contaminated sawdust, vermiculite or porous surface must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with any applicable federal, state or local laws/regulations regarding disposal.
- **AVOID CONTAMINATION OF WATER SUPPLIES:** Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.
- **CONTAINER REUSE:** This container may be hazardous when empty. Since empty containers may contain product residues, observe all product label precautions. Reuse of this container is not authorized until manufacturer's label is removed, proper reconditioning or cleaning is performed and an appropriate new label applied by the reuser. Container reuse is regulated by the U.S. DOT Hazardous Materials Regulation.
- For additional product information, contact PPG Industries, Inc.

### KEEP OUT OF REACH OF CHILDREN

Independently Repackaged by

Manufactured by  
PPG Industries, Inc.

© 1996 PPG Industries, Inc.

NET WEIGHT: 700 Pounds 318 Kilograms

L41D-695N

EMERGENCY TELEPHONE NUMBER, PPG INDUSTRIES, INC. (304) 843-1300.

TETRACHLOROET



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ged and cleaned

or the resultant mixture may have a  
protected personnel should move  
ould be permitted in area. Dike area  
ace waters. Recover spilled material on  
ther all visible traces have been  
ner. If area of spill is porous, remove  
or disposal (See Below). Releases

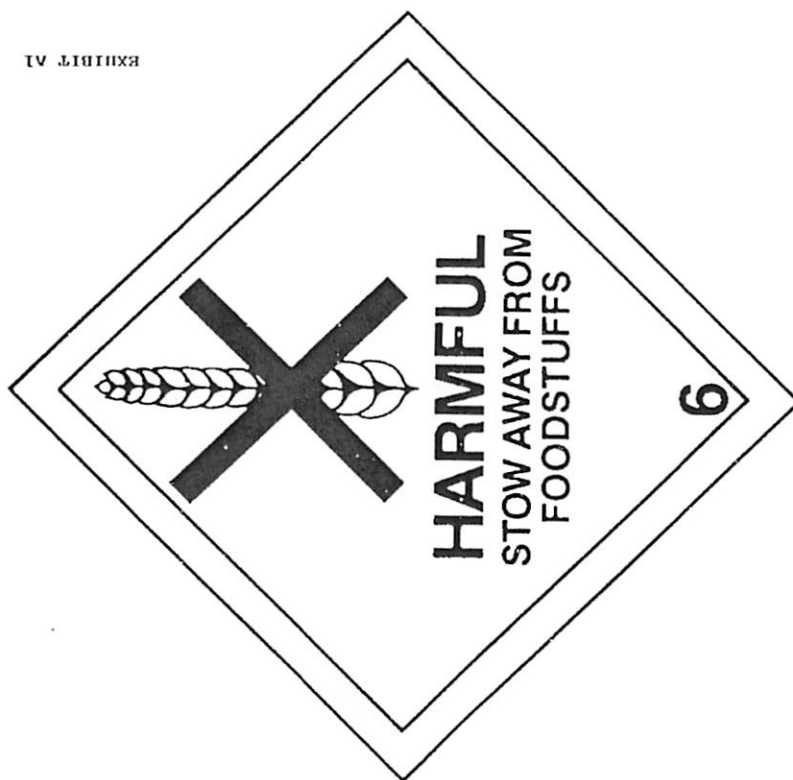
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Container reuse is regulated by the



L41D-696N

EXHIBIT A1



TETRACHLOROETHYLENE

UN1897

RQ

# TRICHLOROETHYLENE

DEGREASING AND GENERAL SOLVENT GRADE  
FOR INDUSTRIAL USE ONLY

NOT FOR FOOD, DRUG,  
COSMETIC OR PESTICIDE USE

CAS #79-01-6

## WARNING!

KEEP AWAY FROM FOOD  
VAPOR HARMFUL

### Precautions

- DO NOT BREATHE VAPORS: High vapor concentrations can cause dizziness, unconsciousness or death. Long-term overexposure may cause liver/kidney injury and possible central nervous system damage.

#### USE ONLY WITH ADEQUATE VENTILATION

Ventilation must be sufficient to limit employee exposure to Trichloroethylene below permissible limits. Observation of lower limits is advisable (OSHA: 50 ppm; 8-hour TWA; 115-minute Short-Term Exposure Limit, STEL; 15-minute Short-Term Exposure Limit, STEL; 1910.1000, Table Z-2.) Eye irritation, dizziness and/or drunkenness are signs of overexposure.

#### AVOID CONTACT WITH EYES

Causes irritation and pain.

#### AVOID PROLONGED OR REPEATED CONTACT WITH SKIN

May cause irritation or dermatitis.

#### DO NOT SWALLOW

Swallowing may cause injury or death.

#### DO NOT EAT, DRINK, OR SMOKE IN WORK AREA

Cancer information. May cause cancer in humans based upon animal data. Risk depends upon concentration and duration of exposure.

#### WARNING: This product is a chemical known to the State of California to cause cancer.

### First Aid

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

- EYE/SKIN CONTACT:** Flush eyes and skin with plenty of water (loop and water for skin) for at least 15 minutes, while removing contaminated clothing. Call a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

- SWALLOWING:** If conscious, drink large quantities of water. DO NOT induce vomiting. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. DO NOT give anything by mouth to an unconscious person.

- NOTES TO PHYSICIAN:** Only administer adrenaline after careful consideration following Trichloroethylene exposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to Trichloroethylene.

### Handling and Storage

- Do not use in poorly ventilated or confined areas. Trichloroethylene vapors are heavier than air and will collect in low areas.
- KEEP AWAY FROM FLAMES:** High energy spark, or high intensity source of heat, since vapors concentrated in a confined or poorly ventilated area can be ignited.
- Store only in closed, properly labeled containers. Keep container closed when not in use.
- Liquid oxygen or other strong oxidants may form explosive mixtures with Trichloroethylene.
- This material or its vapors when in contact with flames, hot glowing surfaces or electric arcs can decompose to form hydrogen chloride gas and traces of phosphine.
- A chlorinated solvent used as a flashpoint suppressant must be added in sufficient quantity or the resultant mixture may have a flashpoint lower than the flammable component.
- Do not use cutting or welding torches on drums that contained Trichloroethylene unless properly purged and cleaned.
- Degreaser sludge containing finely divided aluminum residues should be stored out-of-doors and away from combustible materials, in closed, vented container.
- IN CASE OF SPILLS:** Immediately evaluate the area and provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on absorbents, such as sawdust or vermiculite and sweep into closed containers for disposal. After all visible traces have been removed, including ignitable vapors, thoroughly wet vacuum the area. DO NOT flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc., as necessary under federal or state regulations, for disposal (See Below). Releases of this material may be reportable under federal or state regulations.
- WASTE DISPOSAL:** Contaminated sawdust, vermiculite or porous surface must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with any applicable federal, state or local laws/regulations regarding disposal.
- AVOID CONTAMINATION OF WATER SUPPLIES:** Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.
- CONTAINER REUSE:** This container may be hazardous when empty. Since empty containers may contain product residues, observe all product label precautions. Reuse of this container is not authorized until manufacturer's label is removed, proper reconditioning or cleaning is performed and an appropriate new label applied by the reuser. Container reuse is regulated by the U.S. DOT Hazardous Materials Regulation.
- For additional product information, contact: PPG Industries, Inc.
- New Jersey Right-to-Know: Trichloroethylene also contains Butylene Oxide (CAS #106-98-7).

## KEEP OUT OF REACH OF CHILDREN

Independently Repackaged by

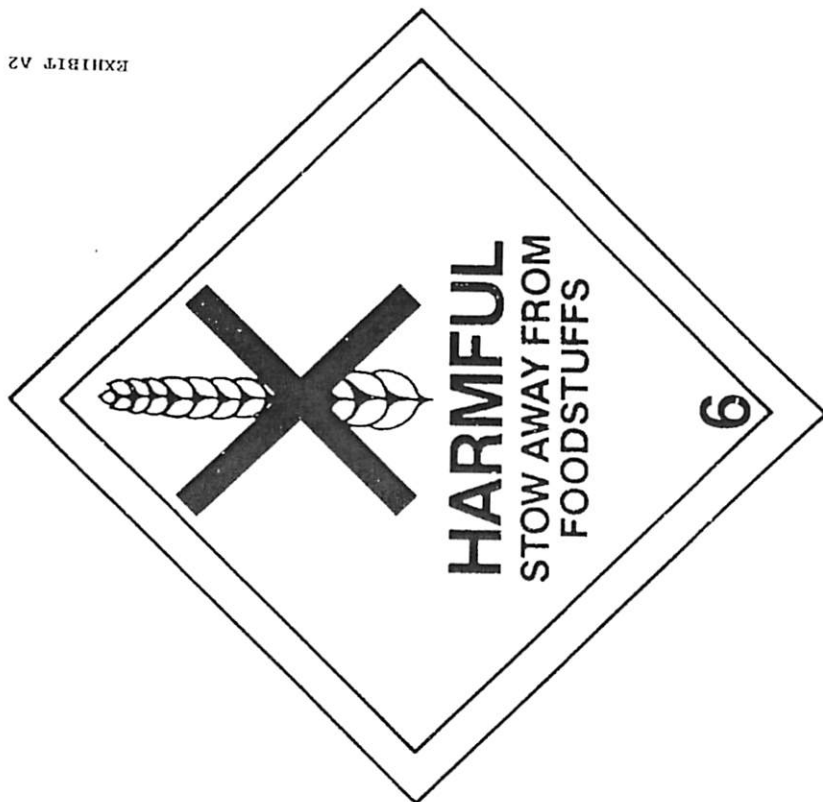
Manufactured by  
PPG Industries, Inc.

© 1996 PPG Industries, Inc. NET WEIGHT: 660 Pounds 299 Kilograms  
EMERGENCY TELEPHONE NUMBER, PPG INDUSTRIES, INC. (304) 843-1300.

L85B-696K

TRICHLOROETHYLENE

EXHIBIT A2



RQ

UN1710

TRICHLOROETHYLENE

### Storage

Store in a cool, dry place and will collect in low areas. Avoid source of heat since vapors concentrated in a

place when not in use. Mixtures with Trichloroethylene, glowing surfaces or electric arcs can be added in sufficient quantity of the flammable component. Trichloroethylene should be properly purged and

as should be stored out-of-doors and away from direct sunlight. Unprotected pipes with proper respiratory and skin/eye protection. Take precautions as necessary to prevent material on adsorbents, such as sawdust or other all visible traces have been removed. DO NOT flush to sewer. If area of spill is as necessary and place in closed containers, portable under federal or state regulations, porous surface must be disposed of in a facility. Care must be taken when using or vent environmental contamination. If storage containers in accordance with any applicable labeling, storage and use procedures must be followed to the potential to cause underground water drinking water source unit for human use. Since empty containers may be reused, reuse of this container is not recommended unless cleaning is performed and so is regulated by the U.S. DOT.

Inc

1,1,2,2-Tetrachloroethane (CAS #106-88-7)

kilograms

L85B-696K

# METHYLENE CHLORIDE

CAS #75-09-2

TECHNICAL GRADE — FOR INDUSTRIAL USE ONLY | NOT FOR FOOD, DRUG, COSMETIC OR PESTICIDE USE

## WARNING! ■ KEEP AWAY FROM FOOD ■ VAPOR HARMFUL

### Precautions

- DO NOT BREATHE VAPORS. High vapor concentrations can cause dizziness, unconsciousness or death. Long-term over exposure may cause liver/kidney injury and possible central nervous system damage.
- USE ONLY WITH ADEQUATE VENTILATION. Ventilation must be sufficient to limit employee exposure to less than 100 ppm. Methylene Chloride is a known carcinogen. OSHA 500 ppm, 8-hour TWA (Time Weighted Average); Ceiling — 1,000 ppm. NIOSH 500 ppm, 15-minute TWA (Time Weighted Average); Ceiling — 1,000 ppm. MSDS 29 CFR 1910.1000 Table Z2, ACGIH 50 ppm. Embarrassment, dizziness, and/or drunkenness are signs of overexposure.
- AVOID CONTACT WITH EYES. Will cause irritation and pain.
- AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. May cause irritation or dermatitis.
- DO NOT SWALLOW. Swallowing may cause injury or death.
- DO NOT EAT, DRINK, OR SMOKE IN WORK AREAS.
- 1 CANCER INFORMATION. Has caused cancer in certain laboratory animals.
- WARNING: This product is a chemical known to the State of California to cause cancer.

### First Aid

- INHALATION: Remove to fresh air. If not breathing, give artificial respiration. Preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
  - EYE/SKIN CONTACT: Flush eyes and skin with plenty of water (soak and water for skin) for at least 15 minutes while removing contaminated clothing and shoes. If irritation occurs, consult a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.
  - SWALLOWING: If conscious, drink large quantities of water. DO NOT induce vomiting. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. DO NOT give anything by mouth to an unconscious person.
- NOTES TO PHYSICIAN: Only administer adrenaline after careful consideration following Methylene Chloride overexposure. Increased sensitivity of the heart to adrenaline may be caused by overexposure to Methylene Chloride.

### Handling and Storage

- Do not use in poorly ventilated or confined areas. Methylene Chloride vapors are heavier than air and will collect in low areas.
- KEEP AWAY FROM FLAMES. High energy spark, or high intensity source of heat since vapors concentrated in a confined or poorly ventilated area can be ignited.
- Keep container closed when not in use. Store only in closed, properly labeled containers.
- Liquid oxygen or other strong oxidants may form explosive mixtures with Methylene Chloride.
- Caution should be taken not to use in pressurized or totally enclosed system of aluminum construction. Example: paint or adhesive spray system.
- Do not store or stack aluminum in contact with Methylene Chloride to prevent stacking corrosion.
- This material or its vapors when in contact with flames, hot glowing surfaces or electric arcs can decompose to form hydrogen chloride gas and phosphene.
- A chlorinated solvent used as a flashpoint suppressant must be added in sufficient quantity of the resultant mixture may have a flashpoint lower than the flammable component.
- Do not use cutting or welding torches on drums that contained Methylene Chloride unless properly purged and cleaned.
- Degreaser sludge containing finely divided aluminum residues should be stored out-of-doors and away from combustible materials in a closed, vented container.
- IN CASE OF SPILLS: Immediately evacuate the area and provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and skin eye protection should be permitted in area. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on absorbents, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces have been removed, including ignitable vapors, thoroughly wet vacuum the area. DO NOT flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc., as necessary and place in closed containers for disposal (See Below). Releases of this material may be reportable under federal or state regulations.
- WASTE DISPOSAL: Contaminated sawdust, vermiculite or porous surface must be disposed of in permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials, and/or their containers, to prevent environmental contamination. It is your duty to dispose of the chemical materials, and/or their containers, in accordance with any applicable federal, state or local laws, regulations, regarding disposal.
- AVOID CONTAMINATION OF WATER SUPPLIES. Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if not properly sealed, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.
- CONTAINER REUSE: This container may be hazardous when empty. Since empty containers may contain product residues, observe all product label precautions. Reuse of this container is not authorized until manufacturer's label is removed, proper reconditioning or cleaning is performed and an appropriate new label applied by the reuser. Container reuse is regulated by the U.S. DOT Hazardous Materials Regulation.
- For additional product information, contact: PPG Industries, Inc.

### KEEP OUT OF REACH OF CHILDREN

Independently Repackaged by

Manufactured for:  
PPG Industries, Inc.

© 1996 PPG Industries, Inc.

NET WEIGHT: 600 Pounds - 272 Kilograms

L27B-796K

EMERGENCY TELEPHONE NUMBER, PPG INDUSTRIES, INC. (304) 843-1300.

DICHLOROMET

# RIDE

CAS #75-09-2

FOR COSMETIC OR PESTICIDE USE

KEEP FROM FOOD  
AND DRINK

## Handling and Storage

ed areas. Methylene Chloride vapors are heavier than air and will collect in low areas. energy spark, or high intensity source of heat since vapors concentrated in a be ignited.

Store only in closed, properly labeled containers.

may form explosive mixtures with Methylene Chloride.

Pressurized or totally enclosed system of aluminum construction. Example: paint or

that with Methylene Chloride to prevent sticking corrosion

interact with flames, hot glowing surfaces or electric arcs can decompose to form

oily, suppressant must be added in sufficient quantity or the resultant mixture may

on drums that contained Methylene Chloride unless properly purged and cleaned.

ided aluminum residues should be stored out-of-doors and away from combustible

vacuate the area and provide maximum ventilation. Unprotected personnel should

ed with proper respiratory and skin-eye protection should be permitted in area

ions is necessary to prevent contamination of ground and surface waters. Recover

is sawdust or vermiculite and sweep into closed containers for disposal. After all

ing ignitable vapors, thoroughly wet vacuum the area. DO NOT flush to sewer. If

contaminated earth and gravel, etc. as necessary and place in closed containers for

materials may be reportable under federal or state regulations.

sawdust, vermiculite or porous surface must be disposed of in a permitted hazardous

of liquids may be reprocessed or incinerated or must be treated in a permitted

Care must be taken when using or disposing of chemical materials and/or their

contamination. It is your duty to dispose of the chemical materials and/or their

licable federal, state or local laws regarding disposal.

ER SUPPLIES: Handling, storage and use procedures must be carefully monitored

it has the potential to cause underground water contamination which may, if

water source unfit for human consumption. Contamination that does occur cannot be

may be hazardous when empty. Since empty containers may contain product

cautions. Reuse of this container is not authorized until manufacturer's label is

aning is performed and an appropriate new label applied by the reuser. Container

hazardous materials regulations.

Product PPG Industries, Inc.

OREN

500 Pounds 272 Kilograms

L27B-796K

304) 843-1300.

DICHLOROMETHANE

UN1593

EXHIBIT A3

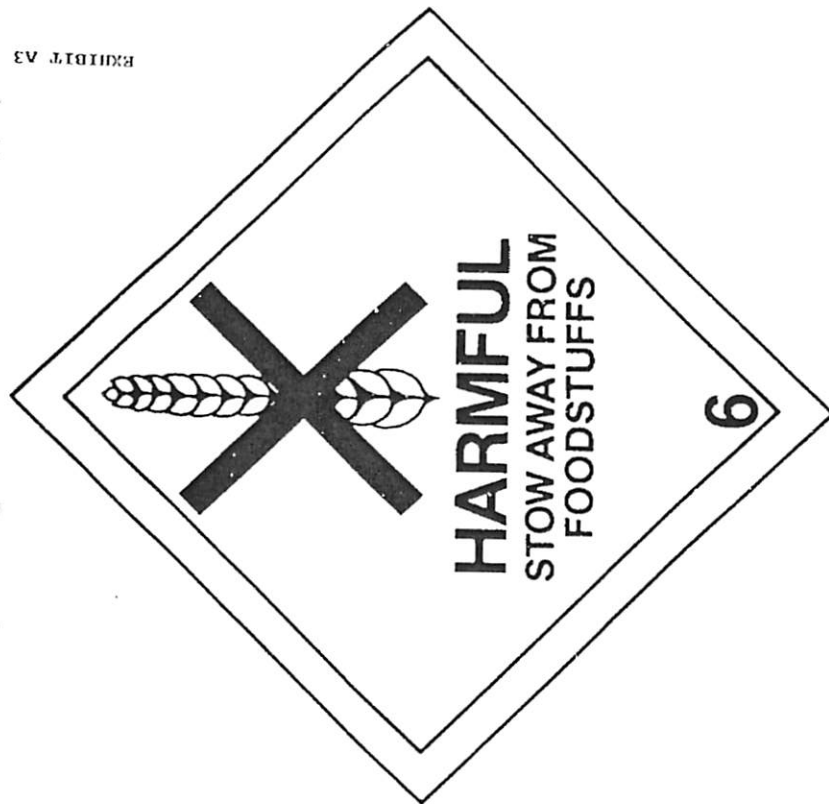


EXHIBIT B

♻️  
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EXHIBIT B  
Notice Letter

[PPG Letterhead]

IMPORTANT LEGAL NOTICE

Date:

Attention: Customers of PPG Industries, Inc.

Subject: California Proposition 65 Warnings

\*\*\*\*\*

This letter is to advise you that the chemicals listed below are known to the State of California to cause cancer:

Trichloroethylene  
Perchloroethylene  
Methylene Chloride  
Paradichlorobenzene  
Ethyl Chloride

Pursuant to the Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"), the purchasers and/or users of the above chemicals must be given clear and reasonable warning that the chemicals are known to the State of California to cause cancer.

PPG has begun revising labels for its customers who use PPG labels. You may have in your possession certain chemicals in stock that were manufactured and distributed before the new labeling was implemented. You should take certain actions to ensure that purchasers of the chemicals receive Proposition 65 warnings. If you have any of the above chemicals in stock, you should affix the enclosed warning stickers to the drum, container, cap, label or package of each listed chemical which does not already have a Proposition 65 warning on its label. The sticker must be affixed so that it is conspicuous and likely to be read and understood by an ordinary individual under customary conditions of purchase. Enclosed for your use are:

- (1) One hundred (100) Warning Stickers; and
- (2) A return postcard indicating that you have received the enclosed materials and will comply with the warning requirements of Proposition 65 for the listed products.

If you do not sell or resell any of the above chemicals using a PPG label, then it is your legal obligation to ensure



Title \_\_\_\_\_

Sincerely,

that your label complies with the warning requirements of Proposition 65. Failure to provide a Proposition 65 warning for the listed chemicals may subject you to legal action by the California Attorney General or various environmental groups, wherein monetary penalties of up to \$2,500 per violation could be sought. You should return the enclosed postcard affirming your compliance with Proposition 65's warning requirements for the listed chemicals. Should you have any questions or concerns about this matter, please do not hesitate to contact at 1-XXX-XXX-XXXX by phone, or by mail at the above address. In addition, we will be glad to supply additional warning stickers if requested.

RETURN POSTCARD FROM CUSTOMERS

\* \* \* \*

The undersigned certifies that this customer of PPG Industries, Inc. has received (a) the Important Legal Notice letter regarding Proposition 65 warning requirements, and (b) 100 warning stickers, if applicable. The undersigned further certifies that it will comply with Proposition 65 warning requirements by affixing the warning stickers provided to them in the manner directed, if applicable.

\_\_\_\_\_  
[Name & Title]

\_\_\_\_\_  
[Company]

\_\_\_\_\_  
[Address]

Please send me \_\_\_\_\_ additional stickers.

EXHIBIT C

EXHIBIT C

Inquiry Response Letter

[PPG Letterhead]

IMPORTANT LEGAL NOTICE

Date:

Attention: Purchasers of Trichloroethylene,  
Perchloroethylene, Methylene Chloride,  
Paradichlorobenzene and Ethyl Chloride From PPG  
Industries, Inc.

Subject: California Proposition 65 Warnings

\*\*\*\*\*

Pursuant to your inquiry, this letter is to advise you that the chemicals identified above are chemicals known to the State of California to cause cancer. Pursuant to the Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"), the purchasers and/or users of the chemicals must be given clear and reasonable warning that a chemical is or a particular product contains a chemical known to the State of California to cause cancer.

Although you are not located in California, you are subject to the requirements of Proposition 65 for any listed chemical products you sell in California that contain any of the above chemicals. You thus must take certain actions to ensure that your California purchasers of products containing substances listed pursuant to Proposition 65 receive adequate warnings.

You may be in compliance with Proposition 65 for the above listed chemicals if you provide the following warning on the label and Material Safety Data Sheet for each of your products that includes one of the above chemicals as a component:

"WARNING: This product contains a chemical(s) known to the State of California to cause cancer."

The warning statement must be prominent and displayed with such conspicuousness, as compared with other words, statements, or designs as to render it likely to be read and understood by an ordinary individual.

A list of all the chemicals regulated under Proposition 65 may be found in the California Code of Regulations, Title 22, Section 12000.

Failure to provide a Proposition 65 warning for products containing listed chemicals and sold in California may subject you to legal action by the California Attorney General or various environmental groups, wherein monetary penalties of up to \$2,500 per violation could be sought.

Should you have any questions or concerns about this matter, please do not hesitate to contact \_\_\_\_\_ at 1-XXX-XXX-XXXX by phone, or by mail at the above address.

Sincerely,

\_\_\_\_\_  
Title

EXHIBIT D

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-13-

EXHIBITS DI-D5

EXHIBITS DI - D5  
Exemplary MSDS's



PPG INDUSTRIES, INC.

ONE PPG PLACE

PITTSBURGH, PA 15272

## \* \* METHYLENE CHLORIDE

MSDS NUMBER: 0027  
DATE: 05/31/94  
EDITION: 012  
TRADE NAME: METHYLENE CHLORIDE  
CHEMICAL NAME/SYNONYMS: DICHLOROMETHANE  
CHEMICAL FAMILY: HALOGENATED HYDROCARBON  
FORMULA: CH<sub>2</sub>CL<sub>2</sub> CAS NUMBER: 000075 09 2  
U.S. DOT SHIPPING NAME: DICHLOROMETHANE  
U.S. DOT HAZARD CLASS: 6.1 (HARMFUL - STOW AWAY FROM FOODSTUFFS)  
SUBSIDIARY RISK: N/A  
I.D. NUMBER: UN1593  
PACKING GROUP: III  
REPORTABLE QUANTITY: 1000 LBS/454 KG  
\* DO NOT SHIP IN ALUMINUM TRAILERS.

## SECTION 1 \* PHYSICAL DATA

BOILING POINT @ 760 MM HG: 39.8 C  
VAPOR DENSITY (AIR=1): 2.93 @ 20 C  
SPECIFIC GRAVITY (H<sub>2</sub>O=1): 1.32 @ 25/25 C  
PH OF SOLUTIONS: NEUTRAL  
FREEZING/MELTING POINT: -96.7 C  
SOLUBILITY (WEIGHT % IN WATER): 2 G/100 G  
BULK-DENSITY: 11.15 LBS/GAL @ 20 C  
VOLUME % VOLATILE: 100  
VAPOR PRESSURE: 349 MM HG @ 20 C  
EVAPORATION RATE: (ETHYL ETHER=1): 0.71  
HEAT OF SOLUTION: N/A  
APPEARANCE AND ODOR:  
CLEAR, COLORLESS LIQUID WITH ETHER-LIKE ODOR

## SECTION 2 \* INGREDIENTS

MATERIAL	PERCENT
METHYLENE CHLORIDE (STABILIZED)	>99

\*\*\* 24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300 \*\*\*

## MATERIAL SAFETY DATA SHEET



## MATERIAL SAFETY DATA SHEET

\*\*\* 24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300 \*\*\*

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:  
NONE KNOWNIS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?  
NTP - YES IARC - YES OSHA - NO

## SECTION 5 \* EFFECTS OF OVEREXPOSURE

CLASSIFICATION: SLIGHTLY TOXIC  
INHALATION: SLIGHTLY TOXIC  
SKIN: MODERATELY TOXIC  
SKIN/EYE: MILDLY IRRITATING / IRRITANT  
INGESTION: SLIGHTLY TOXIC  
AQUATIC: NOT DETERMINEDTOXICITY DATA:  
LC50 INHALATION: 5000 PPM/2 HRS  
LD50 DERMAL: 500 PPM/8 HRS  
SKIN/EYE IRRITATION: SEE SECTION 5  
LD50 INGESTION: (RAT) 2136 MG/KG  
FISH, LC50 (LETHAL CONCENTRATION) NOT DETERMINED

WARNING: This product is a chemical known to the state of California to cause cancer.

## SECTION 4 \* HEALTH HAZARD DATA

SPECIAL FIRE FIGHTING PROCEDURES:  
FIRE FIGHTERS SHOULD WEAR NIOSH/MSHA APPROVED, SELF-CONTAINED BREATHING APPARATUS FOR POSSIBLE EXPOSURE TO HYDROGEN CHLORIDE AND PHOSGENE.  
UNUSUAL FIRE AND EXPLOSION HAZARDS:  
VAPORS CONCENTRATED IN A CONFINED OR POORLY VENTILATED AREA CAN BE IGNITED UPON CONTACT WITH A HIGH ENERGY SPARK, FLAME, OR HIGH INTENSITY SOURCE OF HEAT. THIS CAN OCCUR AT CONCENTRATIONS RANGING BETWEEN 12-19% BY VOL. DECOMPOSITION OR BURNING CAN PRODUCE HYDROGEN CHLORIDE OR POSSIBLE TRACES OF PHOSGENE.

EXTINGUISHING MEDIA: WATER, DRY CHEMICALS, OR CARBON DIOXIDE

FLASH POINT (METHOD USED): NONE (BY DOT TEST METHOD)  
FLAMMABLE LIMITS IN AIR (% BY VOLUME):  
LEL: 12%  
UEL: 19%

## SECTION 3 \* FIRE/EXPLOSION HAZARD DATA

PPG INDUSTRIES, INC. ONE PPG PLACE PITTSBURGH, PA 15272



MATERIAL SAFETY DATA SHEET

SEVERAL CHRONIC INHALATION STUDIES REPORTED BY NIOSH REVEALED THAT TEST ANIMALS EXPOSED TO METHYLENE CHLORIDE CONCENTRATIONS AS HIGH AS 10,000 PPM SHOWED SLIGHT LIVER AND KIDNEY CHANGES. METHYLENE CHLORIDE HAS BEEN SHOWN TO INCREASE THE RATE OF SPONTANEOUSLY OCCURRING MALIGNANT TUMORS IN ONE STRAIN OF LABORATORY MICE (1000, 2000, 4000 PPM)

CHRONIC:

EYE/SKIN: LIQUID SPLASHED IN THE EYES CAN RESULT IN DISCOMFORT, PAIN AND IRRITATION. PROLONGED OR REPEATED CONTACT WITH LIQUID ON THE SKIN CAN CAUSE IRRITATION. THE PROBLEM MAY BE AGGRAVATED BY LIQUID BECOMING TRAPPED AGAINST THE SKIN BY CONTAMINATED CLOTHING AND SHOES, AND SKIN ABSORPTION CAN OCCUR.

INGESTION: METHYLENE CHLORIDE HAS A LOW ACUTE ORAL TOXICITY IN LABORATORY ANIMALS. STUDIES INDICATE THAT ANESTHETIC DEATHS OCCURRED SHORTLY AFTER ORAL DOSING, INDICATING RAPID ABSORPTION FROM THE GASTROINTESTINAL TRACT.

EMPLOYEES WORKING WITH METHYLENE CHLORIDE SHOULD BE AWARE OF THE INCREASED HAZARD FROM SIMULTANEOUS EXPOSURE TO CARBON MONOXIDE. THIS EFFECT IS ADDITIVE IN NATURE WITH THE RISK OF EXPOSURE BEING GREATER FOR SMOKERS. EMPLOYEES WITH A HISTORY OF CARDIOVASCULAR DISEASE SHOULD NOT BE ALLOWED TO WORK WITH METHYLENE CHLORIDE UNLESS APPROVED BY A PHYSICIAN.

INHALATION: THE PRIMARY EFFECT OF METHYLENE CHLORIDE INHALATION IS NARCOSIS. PRINCIPAL SYMPTOMS OF EXPOSURE INCLUDE HEADACHE, DIZZINESS, NAUSEA, TINGLING OR NUMBNESS OF THE EXTREMITIES, SENSE OF FULLNESS IN THE HEAD, SENSE OF WEARINESS, STUPOR OR DULNESS, LETHARGY AND DRUNKENNESS. EXPOSURE TO VERY HIGH CONCENTRATIONS MAY LEAD TO POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE, UNCONSCIOUSNESS OR EVEN DEATH IN CONFINED OR POORLY VENTILATED AREAS. FATALITIES FOLLOWING SEVERE ACUTE EXPOSURE TO VARIOUS CHLORINATED SOLVENTS HAVE BEEN ATTRIBUTED TO VENTRICULAR FIBRILLATION.

ACUTE:

PERMISSIBLE EXPOSURE LIMITS:  
 OSHA: 500 PPM, 8-HOUR TWA (TIME WEIGHTED AVERAGE).  
 1000 PPM, ACCEPTABLE CEILING CONCENTRATION.  
 2000 PPM, ACCEPTABLE MAXIMUM PEAK ABOVE THE CEILING CONCENTRATION FOR AN 8-HOUR SHIFT. THE MAXIMUM DURATION FOR THIS EXPOSURE IS 5 MINUTES IN ANY 2 HOURS (29 CFR 1910.1000, TABLE Z-2).  
 (OSHA ISSUED AN ADVANCE NOTICE OF PROPOSED RULEMAKING TO REVISE THE PEL FOR METHYLENE CHLORIDE IN NOVEMBER 1986.)  
 ACGIH: 50 PPM, 8-HOUR TWA.

PPG INDUSTRIES, INC. ONE PPG PLACE PITTSBURGH, PA 15272





PPG INDUSTRIES, INC.

ONE PPG PLACE

PITTSBURGH, PA 15272

AND BENIGN TUMORS IN LABORATORY RATS (2000, 4000 PPM). OTHER ANIMAL STUDIES, AS WELL AS SEVERAL HUMAN EPIDEMIOLOGY STUDIES, HAVE INDICATED A NEGATIVE RESPONSE. METHYLENE CHLORIDE IS NOT BELIEVED TO POSE A CARCINOGENIC RISK TO MAN WHEN HANDLED AS RECOMMENDED.

METHYLENE CHLORIDE IS LISTED UNDER IARC AS A 2B.

\* EMERGENCY AND FIRST AID PROCEDURES

INHALATION:

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

EYE OR SKIN CONTACT:

IMMEDIATELY FLUSH EYES AND SKIN WITH PLENTY OF WATER (SOAP AND WATER FOR SKIN) FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. IF IRRITATION OCCURS, CONSULT A PHYSICIAN. THOROUGHLY CLEAN CONTAMINATED CLOTHING AND SHOES BEFORE REUSE OR DISCARD.

INGESTION:

IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):

ONLY ADMINISTER ADRENALINE AFTER CAREFUL CONSIDERATION FOLLOWING METHYLENE CHLORIDE OVEREXPOSURE. INCREASED SENSITIVITY OF THE HEART TO ADRENALINE MAY BE CAUSED BY OVEREXPOSURE TO METHYLENE CHLORIDE.

SECTION 6 \* REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID: AVOID OPEN FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID):

OXIDIZING MATERIALS, ALUMINUM, POTASSIUM, SODIUM, MAGNESIUM, ALUMINUM SPRAY EQUIP. AROMATIC SOLVENTS OR 1,1,1-TCE SHOULD NOT BE MIXED WITH METH. CHL. IN CONTACT W/ALUMINUM BECAUSE OF POSSIBLE DECOMP. REACTION.

HAZARDOUS DECOMPOSITION PRODUCTS:

HYDROGEN CHLORIDE AND PHOSGENE.

\*\*\* 24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300 \*\*\*

MATERIAL SAFETY DATA SHEET

# MATERIAL SAFETY DATA SHEET

\*\*\* 24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300 \*\*\*

FOR LIMITED SERVICE ONLY: VITON(R), SILVER SHIELD(R),  
GLOVES:  
SPLASHPROOF GOGGLES  
EYE PROTECTION:  
EXPOSURES TO BELOW PERMISSIBLE LIMITS.  
USE LOCAL EXHAUST OR DILUTION VENTILATION AS APPROPRIATE TO CONTROL  
VENTILATION(TYPE):  
29 CFR 1910.134.

RESPIRATORY PROTECTION:  
USE AIRLINE RESPIRATOR OR SELF-CONTAINED BREATHING APPARATUS WHEN  
CONCENTRATIONS OF METHYLENE CHLORIDE EXCEED PERMISSIBLE LIMITS. USE SELF-  
CONTAINED BREATHING APPARATUS (SCBA) OR FULL FACEPIECE AIRLINE RESPIRATOR  
WITH AUXILIARY SCBA OPERATED IN THE PRESSURE-DEMAND MODE FOR EMERGENCIES  
AND FOR ALL WORK PERFORMED IN STORAGE VESSELS, POORLY VENTILATED ROOMS, AND  
OTHER CONFINED AREAS. RESPIRATORS MUST BE APPROVED BY NIOSH OR MSHA. THE  
RESPIRATOR USE LIMITATIONS MADE BY NIOSH/MSHA AND BY THE MANUFACTURER MUST  
BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH

## SECTION 8 \* SPECIAL PROTECTION INFORMATION

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:  
IMMEDIATELY EVACUATE THE AREA AND PROVIDE MAXIMUM VENTILATION. UNPROTECTED  
PERSONNEL SHOULD MOVE UPWIND OF SPILL. ONLY PERSONNEL EQUIPPED WITH PROPER  
RESPIRATORY AND SKIN/EYE PROTECTION (SEE SECTION 8) SHOULD BE PERMITTED IN  
AREA. DIKE AREA TO CONTAIN SPILL. TAKE PRECAUTIONS AS NECESSARY TO PRE-  
VENT CONTAMINATION OF GROUND AND SURFACE WATERS. RECOVER SPILLED MATERIAL  
ON ADSORBENTS, SUCH AS SAWDUST OR VERMICULITE, AND SWEEP INTO CLOSED CON-  
TAINERS FOR DISPOSAL. AFTER ALL VISIBLE TRACES, INCLUDING IGNITABLE VAPORS,  
HAVE BEEN REMOVED, THOROUGHLY WET VACUUM THE AREA. DO NOT FLUSH TO SEWER.  
IF AREA OF SPILL IS POROUS, REMOVE AS MUCH CONTAMINATED EARTH, GRAVEL, ETC.  
AS NECESSARY AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.  
WASTE DISPOSAL METHOD:  
CONTAMINATED SAWDUST, VERMICULITE, SOIL OR POROUS SURFACE MUST BE DISPOSED OF  
IN A PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITY. RECOVERED LIQUIDS MAY BE  
REPROCESSSED OR INCINERATED OR MUST BE TREATED IN A PERMITTED HAZARDOUS WASTE  
MANAGEMENT FACILITY. CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL  
MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION.  
IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS  
IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE  
CONSERVATION AND RECOVERY ACT, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE,  
OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

## SECTION 7 \* SPILL OR LEAK PROCEDURES

PPG INDUSTRIES, INC. ONE PPG PLACE PITTSBURGH, PA 15272



# MATERIAL SAFETY DATA SHEET

\*\*\* 24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300 \*\*\*

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

- \* CANCER INFORMATION: HAS CAUSED CANCER IN CERTAIN LABORATORY ANIMALS.
- \* DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES WITHOUT PROPER RESPIRATORY PROTECTION (SEE SECTION 8).
- \* METHYLENE CHLORIDE VAPORS ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS.
- \* KEEP CONTAINER CLOSED WHEN NOT IN USE.
- \* STORE ONLY IN CLOSED, PROPERLY LABELED CONTAINERS.
- \* LIQUID OXYGEN OR OTHER STRONG OXIDANTS MAY FORM EXPLOSIVE MIXTURES WITH METHYLENE CHLORIDE.
- \* THIS MATERIAL OR ITS VAPORS WHEN IN CONTACT WITH FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS CAN DECOMPOSE TO FORM HYDROGEN CHLORIDE GAS AND TRACES OF PHOSGENE.
- \* AVOID CONTAMINATION OF WATER SUPPLIES, HANDLING, STORAGE AND USE PROCEDURES MUST BE CAREFULLY MONITORED TO AVOID SPILLS OR LEAKS. ANY SPILL OR LEAK HAS THE POTENTIAL TO CAUSE UNDERGROUND WATER CONTAMINATION WHICH MAY, IF SUFFICIENTLY SEVERE, RENDER A DRINKING WATER SOURCE UNFIT FOR HUMAN CONSUMPTION. CONTAMINATION THAT DOES OCCUR CANNOT BE EASILY CORRECTED.
- \* DO NOT STORE OR STACK ALUMINUM IN CONTACT WITH METHYLENE CHLORIDE TO PREVENT POSSIBLE SOLVENT DECOMPOSITION (STACKING CORROSION).
- \* CAUTION SHOULD BE TAKEN NOT TO USE IN PRESSURIZED OR TOTALLY ENCLOSED SYSTEM OF ALUMINUM CONSTRUCTION. EXAMPLE: PAINT OR ADHESIVE SPRAY
- \* A CHLORINATED SOLVENT USED AS A FLASHPOINT SUPPRESSANT MUST BE ADDED IN SUFFICIENT QUANTITY OR THE RESULTANT MIXTURE MAY HAVE A FLASHPOINT LOWER THAN THE FLAMMABLE COMPONENT.
- \* DO NOT USE CUTTING OR WELDING TORCHES ON DRUMS THAT CONTAINED METHYLENE CHLORIDE UNLESS PROPERLY PURGED AND CLEARED.
- \* DO NOT SHIP IN ALUMINUM TRAILERS.

OTHER PRECAUTIONS:

- \* DO NOT BREATHE VAPORS. HIGH VAPOR CONCENTRATIONS CAN CAUSE DIZZINESS, UNCONSCIOUSNESS, POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE OR DEATH. LONG-TERM OVEREXPOSURE MAY CAUSE LIVER/KIDNEY DAMAGE.
- \* USE ONLY WITH ADEQUATE VENTILATION. VENTILATION MUST BE SUFFICIENT TO LIMIT EMPLOYEE EXPOSURE TO METHYLENE CHLORIDE BELOW PERMISSIBLE EXPOSURE LIMITS. OBSERVANCE OF LOWER LIMITS (OUTLINED IN SECTION 5) IS ADVISABLE.
- \* AVOID CONTACT WITH EYES. WILL CAUSE IRRITATION AND PAIN.
- \* AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. MAY CAUSE IRRITATION OR

## SECTION 9 \* SPECIAL PRECAUTIONS

POLYVINYL ALCOHOL (DEGRADES IN WATER).

OTHER PROTECTIVE EQUIPMENT:

BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

PPG INDUSTRIES, INC. ONE PPG PLACE PITTSBURGH, PA 15272



24-HOUR EMERGENCY ASSISTANCE, (304) 843-1300

REVISIONS MADE TO 7/12/93, 11TH EDITION - DATE, EDITION, NOTE REGARDING ALUMINUM TRAILERS ADDED TO PAGE 1 AND HANDLING PRECAUTIONS (PAGE 7) .

REQUIRED.

NEW JERSEY RIGHT-TO-KNOW - GREATER THAN 99% PURE, NO COMPONENT INFORMATION

261.7 (B) (3) FOR CLEANING REQUIREMENTS FOR EMPTY CONTAINERS.

RCRA - WASTE METHYLENE CHLORIDE AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEANUP ARE U060 HAZARDOUS WASTE AS PER 40 CFR 261.33 AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA. SEE 40 CFR 261.33(C) AND

800-424-8802.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 1000 POUNDS. RELEASES TO AIR, LAND, OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER

SUBSTANCE IN SECTION 302.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE AND CHRONIC, B) LISTED IN SECTION 313 AS DICHLOROMETHANE, C) NOT LISTED AS AN EXTREMELY HAZARDOUS

TSCA - METHYLENE CHLORIDE IS ON THE TSCA INVENTORY UNDER CAS NO. 75-09-2.

COMMENTS:

DERMATITIS.  
\* DO NOT SWALLOW. SWALLOWING MAY CAUSE INJURY OR DEATH.  
\* DO NOT EAT, DRINK OR SMOKE IN WORK AREAS.

DERMATITIS.

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## \* \* PARA-DICHLOROBENZENE

MSDS NUMBER: 0039  
DATE: 05/18/95  
EDITION: 013  
TRADE NAME: PARA-DICHLOROBENZENE  
CHEMICAL NAME/SYNONYMS: 1,4-DICHLOROBENZENE, PARA, P-DCB, PDCB  
CHEMICAL FAMILY: AROMATIC CHLOROHYDROCARBON  
FORMULA: C<sub>6</sub>H<sub>4</sub>CL<sub>2</sub> CAS NUMBER: 000106 46 7  
U.S. DOT SHIPPING NAME: ELEVATED TEMPERATURE LIQUID, FLAMMABLE, NOS  
U.S. DOT HAZARD CLASS: 3 (FLAMMABLE LIQUID)  
SUBSIDIARY RISK: N/A  
I.D. NUMBER: UN3256  
PACKING GROUP: III  
REPORTABLE QUANTITY: 100 LBS/45.4 KG  
DOT SHIPPING DESCRIPTION FOR SOLID PARA IN DRUMS: RQ ENVIRONMENTALLY  
HAZARDOUS SUBSTANCE, SOLID, NOS (PARADICHLOROBENZENE), 9, UN3077, PGIII,  
MARINE POLLUTANT.  
TECHNICAL NAME: PARADICHLOROBENZENE  
THIS PRODUCT IS A MARINE POLLUTANT.

## SECTION 1 \* PHYSICAL DATA

BOILING POINT @ 760 MM HG: 174 C  
VAPOR DENSITY (AIR=1): 5.07  
SPECIFIC GRAVITY (H<sub>2</sub>O=1): 1.248 @ 55 C  
PH OF SOLUTIONS: NEUTRAL  
FREEZING/MELTING POINT: 53 C  
SOLUBILITY (WEIGHT % IN WATER): 77 PPM @ 30 C  
BULK-DENSITY: 10 LBS/GAL. (LIQ. @ 55 C)  
VOLUME % VOLATILE: 100  
VAPOR PRESSURE: 0.59 MM HG @ 20 C  
EVAPORATION RATE: N/A  
HEAT OF SOLUTION: N/A  
APPEARANCE AND ODOR:  
WHITE CRYSTALLINE SOLID OR CLEAR LIQUID WITH PENETRATING AROMATIC ODOR

## SECTION 2 \* INGREDIENTS

MATERIAL	PERCENT
PARA-DICHLOROBENZENE	99.9

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SECTION 3 \* FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): 148 F (TAG CLOSED CUP)

FLAMMABLE LIMITS IN AIR (% BY VOLUME)

LEL: UNKNOWN

UEL: UNKNOWN

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL

SPECIAL FIRE FIGHTING PROCEDURES:

FIRE FIGHTERS MUST WEAR NIOSH/MSHA APPROVED, SELF-CONTAINED PRESSURE DEMAND BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

BURNS TO FORM TOXIC, CORROSIVE HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE.

SECTION 4 \* HEALTH HAZARD DATA

WARNING: This product is a chemical known to the State of California to cause cancer.

TOXICITY DATA:

LC50 INHALATION: NO EFFECT LEVEL 150 PPM

LD50 DERMAL: > 6000 MG/KG

SKIN/EYE IRRITATION 2.9/8.0, 13.7/110 (DRAIZE)

LD50 INGESTION: (RATS) 3827 MG/KG

FISH, LC50 (LETHAL CONCENTRATION) TLM96: 10 - < 1 PPM

CLASSIFICATION:

INHALATION: SLIGHTLY IRRITATING

SKIN: PRACTICALLY NONTOXIC

SKIN/EYE: SLIGHTLY IRRITATING/SEVERE

INGESTION: MODERATELY TOXIC

AQUATIC: TOXIC

SECTION 5 \* EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?

NTP - YES IARC - NO OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

NONE KNOWN

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**PERMISSIBLE EXPOSURE LIMITS:**

OSHA: 75 PPM, 8-HOUR TWA (TIME WEIGHTED AVERAGE;  
110 PPM, 15-MINUTE STEL (SHORT-TERM EXPOSURE LIMIT);  
29 CFR 1910.1000, (REV. 3/1/89).

ACGIH: 10 PPM, 8-HOUR TWA.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 10 PPM, 8-HOUR TWA

**ACUTE:**

**INHALATION:** INHALATION OF PARA-DICHLOROBENZENE AT CONCENTRATIONS IN EXCESS OF THE PERMISSIBLE EXPOSURE LIMITS CAN CAUSE DEPRESSION OF THE CENTRAL NERVOUS SYSTEM. EFFECTS OF SUCH OVEREXPOSURE INCLUDE HEADACHE, DIZZINESS, EYE, NOSE AND THROAT IRRITATION, NAUSEA, FEELING OF DRUNKENNESS, UNCONSCIOUSNESS AND EVEN DEATH - IN CONFINED OR POORLY VENTILATED AREAS. CARDIAC SENSITIZATION, LEADING TO VENTRICULAR FIBRILLATION, MAY OCCUR IN SOME INDIVIDUALS.

**EYE/SKIN:** IN ANIMAL TESTS, PARA-DICHLOROBENZENE WAS SEVERELY IRRITATING TO THE EYES, WITH IRRITATION CLEARING BY 13 DAYS AFTER EXPOSURE. CONTACT OF SOLID PARTICLES OF PARA-DICHLOROBENZENE WITH THE EYES CAN CAUSE SEVERE IRRITATION AND PAIN. SOLID PARA-DICHLOROBENZENE HAS A SLIGHTLY IRRITATING EFFECT ON THE SKIN, WHEN HELD IN CLOSE CONTACT FOR EXCESSIVE PERIODS OF TIME.

**INGESTION:** ALTHOUGH INGESTION IS NOT A LIKELY ROUTE OF EXPOSURE IN INDUSTRIAL APPLICATIONS, ACCIDENTAL INGESTION OF LARGE AMOUNTS OF PARA-DICHLOROBENZENE CAN CAUSE ILLNESS SIMILAR TO THOSE LISTED ABOVE FOR INHALATION, OR DEATH.

**CHRONIC:**

VARIOUS LONG-TERM CHRONIC INHALATION STUDIES INVOLVING SEVERAL SPECIES OF EXPERIMENTAL ANIMALS HAVE REVEALED LIVER AND, TO A LESSER EXTENT, KIDNEY DAMAGE IN THE EXPOSED ANIMALS. SIMILAR LIVER AND KIDNEY EFFECTS WERE NOTED IN ORAL STUDIES IN RATS AND RABBITS. A TWO-YEAR GAVAGE STUDY BY NTP INDICATED CLEAR EVIDENCE FOR CARCINOGENICITY IN MALE AND FEMALE MICE (LIVER ADENOMAS AND CARCINOMAS) AND IN MALE RATS (KIDNEY ADENOCARCINOMAS). THE FINDINGS FROM THE NTP GAVAGE STUDY IN RATS ARE INCONSISTENT WITH A PREVIOUS INHALATION STUDY, WHICH HAD SHOWN NO EVIDENCE FOR INCREASED INCIDENCE OF TUMORS. OTHER STUDIES HAVE SHOWN PARA-DICHLOROBENZENE TO BE WITHOUT TERATOGENIC (BIRTH DEFECTS) OR MUTAGENIC EFFECTS. PARA-DICHLOROBENZENE IS NOT LISTED BY IARC OR OSHA AS A CARCINOGEN. BASED ON THE NTP STUDY, PARA-DICHLOROBENZENE WOULD BE AN ANIMAL CARCINOGEN. THE RELEVANCE OF THE FINDINGS FROM THE NTP STUDY TO HUMAN HEALTH ARE NOT KNOWN, BUT THE KIDNEY TUMORS IN MALE RATS HAVE BEEN DETERMINED TO BE CAUSED BY A MECHANISM UNIQUE TO THE MALE RAT AND UNLIKELY TO PRESENT A HUMAN CANCER RISK.

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\* EMERGENCY AND FIRST AID PROCEDURES

INHALATION:

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

EYE OR SKIN CONTACT:

FOR EYE CONTACT, FLUSH THOROUGHLY WITH PLENTY OF WATER, AND CALL A PHYSICIAN. FOR SKIN CONTACT, FLUSH THOROUGHLY WITH SOAP AND WATER. IF IRRITATION OR DISCOMFORT OCCURS, CONSULT A PHYSICIAN.

INGESTION:

IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):

ADMINISTRATION OF ADRENALINE MAY BE CONTRAINDICATED FOR OVEREXPOSURES TO PARA-DICHLOROBENZENE.

SECTION 6 \* REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID: OPEN FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE

INCOMPATIBILITY (MATERIALS TO AVOID):

NONE

HAZARDOUS DECOMPOSITION PRODUCTS:

HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE

SECTION 7 \* SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:

REMOVE UNPROTECTED PERSONNEL FROM AREA OF SPILL, PROVIDE MAXIMUM VENTILATION AND REMOVE ALL IGNITION SOURCES. ONLY PERSONNEL EQUIPPED WITH NIOSH/MSHA

APPROVED, SELF-CONTAINED BREATHING APPARATUS OR FULL FACEPIECE AIRLINE RESPIRATORS WITH AUXILIARY SCBA'S OPERATED IN THE PRESSURE-DEMAND MODE AND EYE/SKIN PROTECTION SHOULD BE PERMITTED IN AREA. CAREFULLY SHOVEL OR SWEEP

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UP SPILLED MATERIAL AND PLACE INTO CLOSED CONTAINERS. MAINTAIN VENTILATION UNTIL ALL VAPORS HAVE BEEN ELIMINATED. THEN THOROUGHLY FLUSH AREA OF SPILL WITH WATER.

**WASTE DISPOSAL METHOD:**

PPG RECOMMENDS MATERIAL TO BE RECOVERED AND/OR REPROCESSED. OTHERWISE, IT MUST BE DISPOSED OF BY BURNING IN AN APPROVED INCINERATOR OR DISPOSAL IN AN APPROVED HAZARDOUS WASTE MANAGEMENT FACILITY. PESTICIDE WASTES ARE TOXIC. IMPROPER DISPOSAL OF EXCESS PESTICIDE, SPRAY MIXTURE, OR RINSATE IS A VIOLATION OF FEDERAL LAW. IF THESE WASTES CANNOT BE DISPOSED OF BY USE ACCORDING TO LABEL INSTRUCTIONS, CONTACT YOUR STATE PESTICIDE OR ENVIRONMENTAL CONTROL AGENCY, OR THE HAZARDOUS WASTE REPRESENTATIVE AT THE NEAREST EPA REGIONAL OFFICE FOR GUIDANCE.

**SECTION 8 \* SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION:**

USE NIOSH/MSHA APPROVED ORGANIC VAPOR CARTRIDGE OR CANISTER RESPIRATOR FOR ROUTINE WORK PURPOSES WHEN AIR CONCENTRATIONS EXCEED THE PERMISSIBLE EXPOSURE LIMITS. IF DUST IS PRESENT, USE A PARTICULATE PREFILTER. SEE SECTION 7 FOR RESPIRATORY PROTECTION DURING SPILLS OR LEAKS. THE RESPIRATOR USE LIMITATIONS MADE BY NIOSH/MSHA OR THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29CFR 1810.134.

**VENTILATION(TYPE):**

LOCAL EXHAUST VENTILATION SUFFICIENT TO MAINTAIN WORKPLACE CONCENTRATION BELOW PERMISSIBLE EXPOSURE LIMITS.

**EYE PROTECTION:**

CHEMICAL SAFETY GOGGLES

**GLOVES:**

VITON. FOR LIMITED SERVICE ONLY: NITRILE, POLYVINYL ALCOHOL (DEGRADES IN WATER).

**OTHER PROTECTIVE EQUIPMENT:**

IMPERVIOUS BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

**SECTION 9 \* SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:**

- \* STORE IN A COOL PLACE BUT NOT BELOW 32 F.
- \* KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE.
- \* STORE ONLY IN CLOSED, PROPERLY LABELED CONTAINERS.
- \* DO NOT USE IN CONFINED OR POORLY VENTILATED AREAS.
- \* PARA-DICHLOROBENZENE VAPORS ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS.
- \* THIS MATERIAL OR ITS VAPORS WHEN IN CONTACT WITH FLAMES, HOT GLOWING

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SURFACES OR ELECTRIC ARCS, CAN DECOMPOSE TO FORM HYDROGEN CHLORIDE GAS AND POSSIBLE TRACES OF PHOSGENE.

- \* DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.
- \* THIS PRODUCT IS TOXIC TO FISH. KEEP OUT OF LAKES, PONDS OR STREAMS.
- \* DO NOT CONTAMINATE WATER BY CLEANING OF EQUIPMENT OR DISPOSAL OF WASTES.
- \* AVOID CONTAMINATION OF WATER SUPPLIES: HANDLING, STORAGE, AND USE PROCEDURES MUST BE CAREFULLY MONITORED TO AVOID SPILLS OR LEAKS. ANY SPILL OR LEAK HAS THE POTENTIAL TO CAUSE UNDERGROUND WATER CONTAMINATION WHICH MAY, IF SUFFICIENTLY SEVERE, RENDER A DRINKING WATER SOURCE UNFIT FOR HUMAN CONSUMPTION. CONTAMINATION THAT DOES OCCUR CANNOT BE EASILY CORRECTED.

- \* COMPLETELY EMPTY DRUM BY SHAKING AND TAPPING SIDES AND BOTTOM TO LOOSEN CLINGING PARTICLES. DRUM REUSE IS LIMITED TO THE SAME CLASS OF PESTICIDE OR TO NONPESTICIDE PRODUCTS, PROVIDING REUSE IS IN COMPLIANCE WITH ALL APPLICABLE GOVERNMENT REGULATIONS. EMPTY DRUM MAY BE DISPOSED OF IN A SANITARY LANDFILL OR BY INCINERATION, IF ALLOWED BY STATE AND LOCAL AUTHORITIES. IF DRUM IS CONTAMINATED AND CANNOT BE REUSED, DISPOSE OF IN THE SAME MANNER.

OTHER PRECAUTIONS:

- \* LIQUID MATERIAL IS SHIPPED HOT (155-188 F). AVOID SKIN CONTACT -- CAN CAUSE THERMAL BURNS.
- \* DO NOT BREATHE VAPORS.
- \* USE ONLY WITH VENTILATION SUFFICIENT TO KEEP EMPLOYEE EXPOSURE BELOW PERMISSIBLE EXPOSURE LIMITS (SEE SECTION 5).
- \* AVOID CONTACT WITH EYES OR SKIN.
- \* DO NOT SWALLOW.
- \* KEEP OUT OF REACH OF CHILDREN.
- \* DO NOT EAT, DRINK, OR SMOKE IN WORK AREA.

COMMENTS:

TSCA - PARADICHLOROBENZENE IS ON THE TSCA INVENTORY UNDER CAS #106-46-7.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE, CHRONIC AND FLAMMABILITY, B) LISTED IN SECTION 313 UNDER 1,4 DICHLOROBENZENE, C) NOT LISTED AS AN EXTREMELY HAZARDOUS SUBSTANCE IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 100 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

RCRA - WASTE PARADICHLOROBENZENE AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEANUP ARE U072 HAZARDOUS WASTE AS PER 40 CFR 261.33 AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA. SEE 40 CFR 261.33(C) AND 261.7(B)(3) FOR CLEANING REQUIREMENTS FOR EMPTY CONTAINERS.

FIFRA - PARADICHLOROBENZENE IS REGISTERED AS A PESTICIDE WITH EPA FOR MANUFACTURING USE ONLY, EPA REG. NO. 748-68.

CANADIAN WHMIS - A) SENSITIZATION TO PRODUCT: NONE KNOWN, B) REPRODUC-

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TIVE TOXICITY: NONE KNOWN, C) ODOR THRESHOLD: NOT KNOWN, D) PRODUCT USE:  
URINAL BLOCKS, MOTH CONTROL.

REVISIONS MADE TO 9/28/93, 12TH EDITION - DATE, EDITION, DOT INFORMATION  
UPDATED.

**R. KENNETH LEE**  
**MANAGER, PRODUCT SAFETY**

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## \* \* PERCHLOROETHYLENE

MSDS NUMBER: 0041  
DATE: 12/18/95  
EDITION: 018  
TRADE NAME: PERCHLOROETHYLENE  
CHEMICAL NAME/SYNONYMS: TETRACHLOROETHYLENE, PERCHLOROETHYLENE, PERCHLOR  
CHEMICAL FAMILY: HALOGENATED HYDROCARBON  
FORMULA: CCL2=CCL2 CAS NUMBER: 000127 18 4  
U.S. DOT SHIPPING NAME: TETRACHLOROETHYLENE  
U.S. DOT HAZARD CLASS: 6.1 (HARMFUL - STOW AWAY FROM FOODSTUFFS)  
SUBSIDIARY RISK: N/A  
I.D. NUMBER: UN1897  
PACKING GROUP: III  
REPORTABLE QUANTITY: 100 LBS/45.4 KG  
THIS PRODUCT IS A MARINE POLLUTANT.  
\* DO NOT SHIP LIGHTLY STABILIZED GRADES IN ALUMINUM TRAILERS.

## SECTION 1 \* PHYSICAL DATA

BOILING POINT @ 760 MM HG: 121 C  
VAPOR DENSITY (AIR=1): 5.83  
SPECIFIC GRAVITY (H2O=1): 1.6 @ 20/20 C  
PH OF SOLUTIONS: 6.8 TO 8.4  
FREEZING/MELTING POINT: -22.3 C  
SOLUBILITY (WEIGHT % IN WATER): 0.015% @ 25 C  
BULK-DENSITY: 13.6 LBS/GAL @ 20 C  
VOLUME % VOLATILE: 100  
VAPOR PRESSURE: 14.2 MM HG @ 20 C  
EVAPORATION RATE: (ETHYL ETHER=1): 0.09  
HEAT OF SOLUTION: N/A  
APPEARANCE AND ODOR:  
CLEAR, COLORLESS LIQUID WITH ETHER-LIKE ODOR.

## SECTION 2 \* INGREDIENTS

MATERIAL	PERCENT
PERCHLOROETHYLENE (STABILIZED)	> 99

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SECTION 3 \* FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NONE (BY DOT TEST METHOD)  
FLAMMABLE LIMITS IN AIR (% BY VOLUME)  
LEL: NONE  
UEL: NONE  
EXTINGUISHING MEDIA: WATER, DRY CHEMICALS, OR CARBON DIOXIDE

SPECIAL FIRE FIGHTING PROCEDURES:  
FIRE FIGHTERS SHOULD WEAR NIOSH/MSHA APPROVED PRESSURE DEMAND SELF-CONTAINED BREATHING APPARATUS FOR POSSIBLE EXPOSURE TO HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE.  
UNUSUAL FIRE AND EXPLOSION HAZARDS:  
PERCHLOR INVOLVED IN FIRES CAN DECOMPOSE TO HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE.

SECTION 4 \* HEALTH HAZARD DATA

WARNING: This product is a chemical known to the State of California to cause cancer.

TOXICITY DATA:  
LC50 INHALATION: (RAT) 4000 PPM (4 HOURS)  
LD50 DERMAL: NOT DETERMINED  
SKIN/EYE IRRITATION: SEE SECTION 5  
LD50 INGESTION: (RABBIT) 5000 MG/KG  
FISH, LC50 (LETHAL CONCENTRATION) 96 HR TLM: 100-10 PPM

CLASSIFICATION:  
INHALATION: MODERATELY TOXIC  
SKIN: NOT DETERMINED  
SKIN/EYE: MILDLY IRRITATING / IRRITANT  
INGESTION: SLIGHTLY TOXIC  
AQUATIC: TOXIC

SECTION 5 \* EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?  
NTP - YES IARC - YES OSHA - YES

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:  
PROLONGED EXPOSURE ABOVE THE OSHA PERMISSIBLE EXPOSURE LIMIT MAY COMPLICATE EXISTING LIVER AND KIDNEY DISEASES.

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**PERMISSIBLE EXPOSURE LIMITS:**

OSHA: 25 PPM, 8-HOUR TWA (TIME WEIGHTED AVERAGE); 29 CFR 1910.1000, TABLE Z-2, REV. 3/1/89. NOTE: THE 1971 LIMIT IS 100 PPM, 8-HOUR TWA. ACGIH: 25 PPM, 8-HOUR TWA; 100 PPM, 15-MINUTE STEL (SHORT-TERM EXPOSURE LIMIT).

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT: 25 PPM, 8-HOUR TWA; 100 PPM, STEL.

**ACUTE:**

**INHALATION:** PERCHLOROETHYLENE IS PRIMARILY A CENTRAL NERVOUS SYSTEM DEPRESSANT AND CAN CAUSE POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE WITH OVEREXPOSURE. INHALATION CAN CAUSE IRRITATION OF THE RESPIRATORY TRACT, DIZZINESS, NAUSEA, HEADACHE, LOSS OF COORDINATION AND EQUILIBRIUM, UNCONSCIOUSNESS AND EVEN DEATH IN CONFINED OR POORLY VENTILATED AREA. FATALITIES FOLLOWING SEVERE ACUTE EXPOSURE TO VARIOUS CHLORINATED SOLVENTS HAVE BEEN ATTRIBUTED TO VENTRICULAR FIBRILLATION.

**EYE/SKIN:** LIQUID SPLASHED IN THE EYE CAN RESULT IN DISCOMFORT, PAIN AND IRRITATION. PROLONGED OR REPEATED CONTACT WITH LIQUID ON THE SKIN CAN CAUSE IRRITATION AND DERMATITIS. THE PROBLEM MAY BE ACCENTUATED BY LIQUID BECOMING TRAPPED AGAINST THE SKIN BY CONTAMINATED CLOTHING AND SHOES, AND SKIN ABSORPTION CAN OCCUR.

**INGESTION:** SWALLOWING OF THIS MATERIAL MAY RESULT IN IRRITATION OF THE MOUTH AND GI TRACT ALONG WITH OTHER EFFECTS AS LISTED ABOVE FOR INHALATION. VOMITING AND SUBSEQUENT ASPIRATION INTO THE LUNGS MAY LEAD TO CHEMICAL PNEUMONIA AND PULMONARY EDEMA WHICH IS A POTENTIALLY FATAL CONDITION.

**CHRONIC:**

PROLONGED EXPOSURE ABOVE THE OSHA PERMISSIBLE EXPOSURE LIMITS MAY RESULT IN LIVER AND KIDNEY DAMAGE. PERCHLOROETHYLENE HAS BEEN EXTENSIVELY STUDIED FOR ITS CANCER POTENTIAL. A RECENT NTP STUDY HAS DETERMINED THAT THERE IS CLEAR EVIDENCE OF CARCINOGENICITY (LIVER) IN BOTH MALE AND FEMALE MICE, CLEAR EVIDENCE OF LEUKEMIA IN MALE AND FEMALE RATS AND SOME EVIDENCE OF ANIMAL CARCINOGENICITY (KIDNEY TUMORS) IN MALE RATS. THE NTP STUDY EXPOSED RATS TO 200 AND 400 PPM AND MICE TO 100 AND 200 PPM IN A LIFETIME STUDY. PRUDENT HANDLING PRACTICES SHOULD BE FOLLOWED TO MINIMIZE HUMAN EXPOSURE.

PERCHLOROETHYLENE IS LISTED UNDER IARC AS A 2A.

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**\* EMERGENCY AND FIRST AID PROCEDURES**

**INHALATION:**

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

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**CALL A PHYSICIAN.**

**EYE OR SKIN CONTACT:**

FLUSH EYES AND SKIN WITH PLENTY OF WATER (SOAP AND WATER FOR SKIN) FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. IF IRRITATION OCCURS, CONSULT A PHYSICIAN. THOROUGHLY CLEAN CONTAMINATED CLOTHING AND SHOES BEFORE REUSE OR DISCARD.

**INGESTION:**

IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

**NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):**

ONLY ADMINISTER ADRENALINE AFTER CAREFUL CONSIDERATION FOLLOWING PERCHLOROETHYLENE OVEREXPOSURE. INCREASED SENSITIVITY OF THE HEART TO ADRENALINE MAY BE CAUSED BY OVEREXPOSURE TO PERCHLOROETHYLENE.

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**SECTION 6 \* REACTIVITY DATA**

**STABILITY:** STABLE

**CONDITIONS TO AVOID:** OPEN FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS

**HAZARDOUS POLYMERIZATION:** WILL NOT OCCUR

**CONDITIONS TO AVOID:** NONE

**INCOMPATIBILITY (MATERIALS TO AVOID):**

NONE

**HAZARDOUS DECOMPOSITION PRODUCTS:**

HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE

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**SECTION 7 \* SPILL OR LEAK PROCEDURES**

**STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:**

IMMEDIATELY EVACUATE THE AREA AND PROVIDE MAXIMUM VENTILATION. UNPROTECTED PERSONNEL SHOULD MOVE UPWIND OF SPILL. ONLY PERSONNEL EQUIPPED WITH PROPER RESPIRATORY AND SKIN/EYE PROTECTION (SEE SECTION 8) SHOULD BE PERMITTED IN AREA. DIKE AREA TO CONTAIN SPILL. TAKE PRECAUTIONS AS NECESSARY TO PREVENT CONTAMINATION OF GROUND AND SURFACE WATERS. RECOVER SPILLED MATERIAL ON ADSORBENTS, SUCH AS SAWDUST OR VERMICULITE, AND SWEEP INTO CLOSED CONTAINERS FOR DISPOSAL. AFTER ALL VISIBLE TRACES, INCLUDING IGNITABLE VAPORS, HAVE BEEN REMOVED, THOROUGHLY WET VACUUM THE AREA. DO NOT FLUSH TO SEWER. IF AREA OF SPILL IS POROUS, REMOVE AS MUCH EARTH AND GRAVEL, ETC. AS NECESSARY AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.

**WASTE DISPOSAL METHOD:**

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CONTAMINATED SAWDUST, VERMICULITE, SOIL OR POROUS SURFACE MUST BE DISPOSED OF IN A PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITY. RECOVERED LIQUIDS MAY BE REPROCESSED OR INCINERATED OR MUST BE TREATED IN A PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITY. CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

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**SECTION 8 \* SPECIAL PROTECTION INFORMATION****RESPIRATORY PROTECTION:**

ATMOSPHERIC LEVELS SHOULD BE MAINTAINED BELOW THE EXPOSURE GUIDELINE. WHEN RESPIRATORY PROTECTION IS REQUIRED FOR CERTAIN OPERATIONS, USE AN APPROVED AIR PURIFYING RESPIRATOR. THE EFFECTIVENESS OF AN AIR PURIFYING RESPIRATOR IS LIMITED. USE ONLY FOR A SINGLE SHORT-TERM EXPOSURE. USE SELF-CONTAINED BREATHING APPARATUS (SCBA) OR FULL FACEPIECE AIRLINE RESPIRATOR WITH AUXILIARY SCBA OPERATED IN THE PRESSURE DEMAND MODE FOR EMERGENCIES AND FOR ALL WORK PERFORMED IN STORAGE VESSELS, POORLY VENTILATED ROOMS, AND OTHER CONFINED AREAS. RESPIRATORS MUST BE APPROVED BY NIOSH OR MSHA. THE RESPIRATOR USE LIMITATIONS MADE BY NIOSH/MSHA AND BY THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 CFR 1910.134.

**VENTILATION(TYPE):**

USE LOCAL EXHAUST OR DILUTION VENTILATION AS APPROPRIATE TO CONTROL EXPOSURES TO BELOW PERMISSIBLE LIMITS.

**EYE PROTECTION:**

SPLASHPROOF GOGGLES

**GLOVES:**

VITON(R), SILVER SHIELD(R).

FOR LIMITED SERVICE ONLY: NITRILE AND POLYVINYL ALCOHOL (DEGRADES IN WATER).

**OTHER PROTECTIVE EQUIPMENT:**

BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

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**SECTION 9 \* SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

\* CANCER INFORMATION: MAY CAUSE CANCER IN HUMANS BASED UPON ANIMAL DATA. RISK DEPENDS UPON CONCENTRATION AND DURATION OF EXPOSURE.

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- \* DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES WITHOUT PROPER RESPIRATORY PROTECTION (SEE SECTION 8).
- \* PERCHLOROETHYLENE VAPORS ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS.
- \* KEEP CONTAINER CLOSED WHEN NOT IN USE.
- \* STORE ONLY IN CLOSED, PROPERLY LABELED CONTAINERS.
- \* THIS MATERIAL OR ITS VAPORS WHEN IN CONTACT WITH FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS CAN DECOMPOSE TO FORM HYDROGEN CHLORIDE GAS AND TRACES OF PHOSGENE.
- \* AVOID CONTAMINATION OF WATER SUPPLIES. HANDLING, STORAGE AND USE PROCEDURES MUST BE CAREFULLY MONITORED TO AVOID SPILLS OR LEAKS. ANY SPILL OR LEAK HAS THE POTENTIAL TO CAUSE UNDERGROUND WATER CONTAMINATION WHICH MAY, IF SUFFICIENTLY SEVERE, RENDER A DRINKING WATER SOURCE UNFIT FOR HUMAN CONSUMPTION. CONTAMINATION THAT DOES OCCUR CANNOT BE EASILY CORRECTED.
- \* A CHLORINATED SOLVENT USED AS A FLASHPOINT SUPPRESSANT MUST BE ADDED IN SUFFICIENT QUANTITY OR THE RESULTANT MIXTURE MAY HAVE A FLASHPOINT LOWER THAN THE FLAMMABLE COMPONENT.
- \* DO NOT USE CUTTING OR WELDING TORCHES ON DRUMS THAT CONTAINED PERCHLOROETHYLENE UNLESS PROPERLY PURGED AND CLEANED.
- \* DO NOT SHIP LIGHTLY STABILIZED GRADES (TYPE 209) IN ALUMINUM TRAILERS.
- OTHER PRECAUTIONS:
  - \* DO NOT BREATHE VAPORS. HIGH VAPOR CONCENTRATIONS CAN CAUSE DIZZINESS, UNCONSCIOUSNESS, POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE OR DEATH. LONG-TERM OVEREXPOSURE MAY CAUSE LIVER/KIDNEY INJURY.
  - \* USE ONLY WITH ADEQUATE VENTILATION. VENTILATION MUST BE SUFFICIENT TO LIMIT EMPLOYEE EXPOSURE TO PERCHLOROETHYLENE BELOW PERMISSIBLE EXPOSURE LIMITS. OBSERVANCE OF LOWER LIMITS (OUTLINED IN SECTION 5) IS ADVISABLE.
  - \* AVOID CONTACT WITH EYES. WILL CAUSE IRRITATION AND PAIN.
  - \* AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. MAY CAUSE IRRITATION OR DERMATITIS.
  - \* DO NOT SWALLOW. SWALLOWING MAY CAUSE INJURY OR DEATH.
  - \* DO NOT EAT, DRINK, OR SMOKE IN WORK AREA.

COMMENTS:

TSCA - PERCHLOROETHYLENE IS LISTED ON THE TSCA INVENTORY UNDER CAS NO. 127-18-4.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE, CHRONIC, B) LISTED IN SECTION 313 UNDER TETRACHLOROETHYLENE, C) NOT LISTED AS AN EXTREMELY HAZARDOUS SUBSTANCE IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 100 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

RCRA - WASTE PERCHLOROETHYLENE AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEAN-UP ARE U210 HAZARDOUS WASTE AS PER 40 CFR 261.33 AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA. SEE 40 CFR 261.33(C) AND 261.7(B)(3)

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FOR TRIPLE RINSING REQUIREMENTS FOR EMPTY DRUMS.

NEW JERSEY RIGHT-TO-KNOW - GREATER THAN 99% PURE, NO COMPONENT INFORMATION REQUIRED.

CANADA WHMIS - SENSITIZATION TO PRODUCT: NONE KNOWN; B) REPRODUCTIVE TOXICITY: NONE KNOWN; C) ODOR THRESHOLD: APPROXIMATELY 50 PPM; D) PRODUCT USE: DRY CLEANING SOLVENT; E) REQUIRES POISON SYMBOL (CLASS D.1).

REVISIONS MADE TO 4/17/95, 17TH EDITION - DATE, EDITION, IARC UPDATED PERCHLOR AS A 2A VERSUS 2B, CANCER STATEMENT UPDATED UNDER PRECAUTIONS (PAGE 6).

**R. KENNETH LEE**  
**MANAGER, PRODUCT SAFETY**

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## \* \* TRICHLOROETHYLENE

MSDS NUMBER: 0085  
DATE: 12/18/95  
EDITION: 014  
TRADE NAME: TRICHLOROETHYLENE  
CHEMICAL NAME/SYNONYMS: TRICHLOROETHENE, TRICHLOROETHYLENE, TRICHLOR  
CHEMICAL FAMILY: HALOGENATED HYDROCARBONS  
FORMULA: CHCL=CCL2 CAS NUMBER: 000079 01 6  
U.S. DOT SHIPPING NAME: TRICHLOROETHYLENE  
U.S. DOT HAZARD CLASS: 6.1 (HARMFUL - STOW AWAY FROM FOODSTUFFS)  
SUBSIDIARY RISK: N/A  
I.D. NUMBER: UN1710  
PACKING GROUP: III  
REPORTABLE QUANTITY: 100 LBS/45.4 KG  
\* DO NOT SHIP LIGHTLY STABILIZED GRADES IN ALUMINUM TRAILERS.

## SECTION 1 \* PHYSICAL DATA

BOILING POINT @ 760 MM HG: 86-88 C  
VAPOR DENSITY (AIR=1): 4.54  
SPECIFIC GRAVITY (H2O=1): 1.465 @ 20/20 C  
PH OF SOLUTIONS: 6.7 TO 7.5  
FREEZING/MELTING POINT: -86.4 C  
SOLUBILITY (WEIGHT % IN WATER): 0.11  
BULK-DENSITY: 12.2 LBS/GAL @ 20 C  
VOLUME % VOLATILE: 100  
VAPOR PRESSURE: 57.8 MM HG @ 20 C  
EVAPORATION RATE: (ETHYL ETHER=1): 0.28  
HEAT OF SOLUTION: N/A  
APPEARANCE AND ODOR:  
CLEAR, COLORLESS LIQUID WITH ETHER-LIKE ODOR.

## SECTION 2 \* INGREDIENTS

MATERIAL	PERCENT
TRICHLOROETHYLENE (STABILIZED)	> 99
NOTE: TESTED MIXTURE	

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### SECTION 3 \* FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): NONE (BY DOT TEST METHOD)  
FLAMMABLE LIMITS IN AIR (% BY VOLUME)  
LEL: 7.8%  
UEL: 52%  
EXTINGUISHING MEDIA: WATER, DRY CHEMICALS OR CARBON DIOXIDE

SPECIAL FIRE FIGHTING PROCEDURES:  
FIRE FIGHTERS SHOULD WEAR NIOSH/MSHA APPROVED PRESSURE DEMAND, SELF-CONTAINED BREATHING APPARATUS FOR POSSIBLE EXPOSURE TO HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE.  
UNUSUAL FIRE AND EXPLOSION HAZARDS:  
VAPORS CONCENTRATED IN A CONFINED OR POORLY VENTILATED AREA CAN BE IGNITED UPON CONTACT WITH A HIGH ENERGY SPARK, FLAME, OR HIGH INTENSITY SOURCE OF HEAT. THIS CAN OCCUR AT CONCENTRATIONS RANGING BETWEEN 7.8-52% BY VOL. DECOMPOSITION OR BURNING CAN PRODUCE HYDROGEN CHLORIDE OR POSSIBLE TRACES OF PHOSGENE.

### SECTION 4 \* HEALTH HAZARD DATA

**WARNING:** This product is a chemical known to the State of California to cause cancer.

TOXICITY DATA:  
LC50 INHALATION: LCLO(RATS) 8000 PPM/4 HOUR  
LD50 DERMAL: NOT DETERMINED  
SKIN/EYE IRRITATION: SEE SECTION 5  
LD50 INGESTION: (RAT) 4900-7000 MG/KG  
FISH, LC50 (LETHAL CONCENTRATION) SEE SECTION 5

CLASSIFICATION:  
INHALATION: SLIGHTLY TOXIC  
SKIN: NOT DETERMINED  
SKIN/EYE: SKIN-MILDLY IRRITATING/EYE-IRRITANT  
INGESTION: SLIGHTLY TO MODERATELY TOXIC  
AQUATIC: SEE SECTION 5

### SECTION 5 \* EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?  
NTP - NO IARC - YES OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:  
NONE KNOWN

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**PERMISSIBLE EXPOSURE LIMITS:**

OSHA: 50 PPM, 8-HOUR TWA (TIME WEIGHTED AVERAGE); 200 PPM, 15-MINUTE STEL (SHORT-TERM EXPOSURE LIMIT); 29 CFR 1910.1000, TABLE Z.2, REV. 3/1/89.

NOTE: THE 1971 LIMIT IS 100 PPM, 8-HOUR TWA.

ACGIH: 50 PPM, 8-HOUR TWA; 100 PPM, 15-MINUTE STEL.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT: 50 PPM, 8-HOUR TWA.

**ACUTE:**

**INHALATION:** TRICHLOROETHYLENE IS A CENTRAL NERVOUS SYSTEM DEPRESSANT WHICH CAN CAUSE IRRITATION OF THE RESPIRATORY TRACT, DIZZINESS, NAUSEA, HEADACHE, LOSS OF COORDINATION AND EQUILIBRIUM, POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE, UNCONSCIOUSNESS AND DEATH IN CONFINED OR POORLY VENTILATED AREAS. FATALITIES FOLLOWING SEVERE ACUTE EXPOSURE HAVE BEEN ATTRIBUTED TO VENTRICULAR FIBRILLATION RESULTING IN CARDIAC FAILURES.

**EYE/SKIN:** LIQUID SPLASHED IN THE EYE CAN RESULT IN DISCOMFORT, PAIN AND IRRITATION. PROLONGED OR REPEATED CONTACT WITH LIQUID ON THE SKIN CAN CAUSE IRRITATION AND DERMATITIS. THE PROBLEM MAY BE ACCENTUATED BY LIQUID BECOMING TRAPPED AGAINST THE SKIN BY CONTAMINATED CLOTHING AND SHOES, AND SKIN ABSORPTION CAN OCCUR.

**INGESTION:** SWALLOWING OF THIS MATERIAL MAY RESULT IN IRRITATION OF THE MOUTH AND GI TRACT ALONG WITH OTHER EFFECTS AS LISTED ABOVE FOR INHALATION. VOMITING AND SUBSEQUENT ASPIRATION INTO THE LUNGS MAY LEAD TO CHEMICAL PNEUMONIA AND PULMONARY EDEMA WHICH IS A POTENTIALLY FATAL CONDITION.

**CHRONIC:**

PROLONGED EXPOSURE ABOVE THE OSHA PERMISSIBLE LIMITS MAY RESULT IN LIVER AND KIDNEY DAMAGE. TRICHLOROETHYLENE HAS BEEN EXTENSIVELY STUDIED FOR CHRONIC EFFECTS IN ANIMALS. WHILE THERE ARE STUDIES IN WHICH TUMORS WERE INDUCED IN MICE, THERE IS NO DOCUMENTED EVIDENCE THAT EXPOSURE TO TRICHLOROETHYLENE PRODUCES CANCER IN HUMANS. TRICHLOROETHYLENE IS LISTED IN GROUP 2A BY IARC BUT IS NOT LISTED BY NTP OR OSHA.

**TOXICITY DATA - AQUATIC DATA:**

SHEEPSHEAD MINNOWS - 96-HOUR LC50 - 52 MG/L - SLIGHTLY TOXIC

MYSID SHRIMP - 96-HOUR LC50 - 14 MG/L - SLIGHTLY TOXIC

MARINE ALGA - 96-HOUR EC50 - 95 MG/L - SLIGHTLY TOXIC

\* EMERGENCY AND FIRST AID PROCEDURES

**INHALATION:**

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REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

EYE OR SKIN CONTACT:

FLUSH EYES AND SKIN WITH PLENTY OF WATER (SOAP AND WATER FOR SKIN) FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. IF IRRITATION OCCURS, CONSULT A PHYSICIAN. THOROUGHLY CLEAN CONTAMINATED CLOTHING AND SHOES BEFORE REUSE OR DISCARD.

INGESTION:

IF CONSCIOUS: DRINK LARGE QUANTITIES OF WATER. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN.

IF UNCONSCIOUS: OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):

ONLY ADMINISTER ADRENALINE AFTER CAREFUL CONSIDERATION FOLLOWING TRICHLOROETHYLENE OVEREXPOSURE. INCREASED SENSITIVITY OF THE HEART TO ADRENALINE MAY BE CAUSED BY OVEREXPOSURE TO TRICHLOROETHYLENE.

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#### SECTION 6 \* REACTIVITY DATA

STABILITY: STABLE.

CONDITIONS TO AVOID: AVOID OPEN FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

CONDITIONS TO AVOID: NONE.

INCOMPATIBILITY (MATERIALS TO AVOID):

AVOID CONTAMINATION WITH CAUSTIC SODA, CAUSTIC POTASH OR OXIDIZING MATERIALS. SHOCK SENSITIVE COMPOUNDS MAY BE FORMED.

HAZARDOUS DECOMPOSITION PRODUCTS:

HYDROGEN CHLORIDE AND POSSIBLE TRACES OF PHOSGENE.

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#### SECTION 7 \* SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:

IMMEDIATELY EVACUATE THE AREA AND PROVIDE MAXIMUM VENTILATION. UNPROTECTED PERSONNEL SHOULD MOVE UPWIND OF SPILL. ONLY PERSONNEL EQUIPPED WITH PROPER RESPIRATORY AND SKIN/EYE PROTECTION (SEE SECTION 8) SHOULD BE PERMITTED IN AREA. DIKE AREA TO CONTAIN SPILL. TAKE PRECAUTIONS AS NECESSARY TO PREVENT CONTAMINATION OF GROUND AND SURFACE WATERS. RECOVER SPILLED MATERIALS ON ADSORBENTS, SUCH AS SAWDUST OR VERMICULITE, AND SWEEP INTO CLOSED CONTAINERS FOR DISPOSAL. AFTER ALL VISIBLE TRACES, INCLUDING IGNITABLE VAPORS, HAVE BEEN REMOVED, THOROUGHLY WET VACUUM THE AREA. DO NOT FLUSH TO SEWER. IF

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AREA OF SPILL IS POROUS, REMOVE AS MUCH CONTAMINATED EARTH, GRAVEL, ETC. AS NECESSARY AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.

**WASTE DISPOSAL METHOD:**

CONTAMINATED SAWDUST, VERMICULITE OR POROUS SURFACE MUST BE DISPOSED OF IN A PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITY. RECOVERED LIQUIDS MAY BE REPROCESSED OR INCINERATED OR MUST BE TREATED IN A PERMITTED HAZARDOUS WASTE MANAGEMENT FACILITY. CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

**SECTION 8 \* SPECIAL PROTECTION INFORMATION**

**RESPIRATORY PROTECTION:**

USE A HALF OR FULL FACEPIECE ORGANIC VAPOR CHEMICAL CARTRIDGE OR CANISTER RESPIRATOR WHEN CONCENTRATIONS EXCEED THE PERMISSIBLE LIMITS. USE SELF-CONTAINED BREATHING APPARATUS (SCBA) OR FULL FACEPIECE AIRLINE RESPIRATOR WITH AUXILIARY SCBA OPERATED IN THE PRESSURE-DEMAND MODE FOR EMERGENCIES AND FOR ALL WORK PERFORMED IN STORAGE VESSELS, POORLY VENTILATED ROOMS, AND OTHER CONFINED AREAS. RESPIRATORS MUST BE APPROVED BY NIOSH/MSHA. THE RESPIRATOR USE LIMITATIONS MADE BY NIOSH/MSHA AND BY THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 CFR 1910.134.

**VENTILATION(TYPE):**

USE LOCAL EXHAUST OR DILUTION VENTILATION AS APPROPRIATE TO CONTROL EXPOSURES TO BELOW PERMISSIBLE LIMITS.

**EYE PROTECTION:**

SPLASHPROOF GOGGLES

**GLOVES:**

VITON(R), SILVER SHIELD(R),

POLYVINYL ALCOHOL (DEGRADES IN WATER).

**OTHER PROTECTIVE EQUIPMENT:**

BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

**SECTION 9 \* SPECIAL PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:**

\* CANCER INFORMATION: MAY CAUSE CANCER IN HUMANS BASED UPON ANIMAL DATA. RISK DEPENDS UPON CONCENTRATION AND DURATION OF EXPOSURE.

\* TRICHLOROETHYLENE VAPORS ARE HEAVIER THAN AIR AND WILL COLLECT IN LOW

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AREAS.

- \* KEEP CONTAINER CLOSED WHEN NOT IN USE.
  - \* STORE ONLY IN CLOSED, PROPERLY LABELED CONTAINERS.
  - \* LIQUID OXYGEN OR OTHER STRONG OXIDANTS MAY FORM EXPLOSIVE MIXTURES WITH TRICHLOROETHYLENE.
  - \* THIS MATERIAL OR ITS VAPORS WHEN IN CONTACT WITH FLAMES, HOT GLOWING SURFACES OR ELECTRIC ARCS CAN DECOMPOSE TO FORM HYDROGEN CHLORIDE GAS AND TRACES OF PHOSGENE.
  - \* AVOID CONTAMINATION OF WATER SUPPLIES. HANDLING, STORAGE AND USE PROCEDURES MUST BE CAREFULLY MONITORED TO AVOID SPILLS OR LEAKS. ANY SPILL OR LEAK HAS THE POTENTIAL TO CAUSE UNDERGROUND WATER CONTAMINATION WHICH MAY, IF SUFFICIENTLY SEVERE, RENDER A DRINKING WATER SOURCE UNFIT FOR HUMAN CONSUMPTION. CONTAMINATION THAT DOES OCCUR CANNOT BE EASILY CORRECTED.
  - \* A CHLORINATED SOLVENT USED AS A FLASHPOINT SUPPRESSANT MUST BE ADDED IN SUFFICIENT QUANTITY OR THE RESULTANT MIXTURE MAY HAVE A FLASHPOINT LOWER THAN THE FLAMMABLE COMPONENT.
  - \* DO NOT USE CUTTING OR WELDING TORCHES ON DRUMS THAT CONTAINED TRICHLOROETHYLENE UNLESS PROPERLY PURGED AND CLEANED.
  - \* DO NOT SHIP LIGHTLY STABILIZED GRADES IN ALUMINUM TRAILERS. THE ONLY EXCEPTION IS TYPE 145 VAPOR DEGREASING GRADE.
  - \* DO NOT USE IN POORLY VENTILATED OR CONFINED SPACES WITHOUT PROPER RESPIRATORY PROTECTION (SEE SECTION 8).
- OTHER PRECAUTIONS:
- \* DO NOT BREATHE VAPORS. HIGH VAPOR CONCENTRATIONS CAN CAUSE DIZZINESS, UNCONSCIOUSNESS OR DEATH. LONG-TERM OVEREXPOSURE MAY CAUSE LIVER/KIDNEY INJURY AND POSSIBLE CENTRAL NERVOUS SYSTEM DAMAGE.
  - \* USE ONLY WITH ADEQUATE VENTILATION. VENTILATION MUST BE SUFFICIENT TO LIMIT EMPLOYEE EXPOSURE TO TRICHLOR BELOW PERMISSIBLE LIMITS. OBSERVANCE OF LOWER LIMITS IS ADVISABLE (OUTLINED IN SECTION 5). EYE IRRITATION, DIZZINESS AND/OR DRUNKENNESS ARE SIGNS OF OVEREXPOSURE.
  - \* AVOID CONTACT WITH EYES. WILL CAUSE IRRITATION AND PAIN.
  - \* AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. MAY CAUSE IRRITATION OR DERMATITIS.
  - \* DO NOT SWALLOW. SWALLOWING MAY CAUSE INJURY OR DEATH.
  - \* DO NOT EAT, DRINK OR SMOKE IN WORK AREAS.

COMMENTS:

TSCA - TRICHLOROETHYLENE IS ON THE TSCA INVENTORY UNDER CAS #79-01-6.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE AND CHRONIC, B) LISTED IN SECTION 313 UNDER TRICHLOROETHYLENE, C) NOT LISTED AS AN EXTREMELY HAZARDOUS SUBSTANCE IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 100 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

RCRA - WASTE TRICHLOR AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEANUP

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AND U228 HAZARDOUS WASTE AS PER 40 CFR 261.33 AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA. SEE 40 CFR 261.33(C) AND 261.7(B)(3) FOR CLEANING REQUIREMENTS FOR EMPTY CONTAINERS.

NEW JERSEY RIGHT-TO-KNOW - ALSO CONTAINS BUTYLENE OXIDE (CAS NO. 106-88-7)

CANADIAN WHMIS - A) SENSITIZATION TO PRODUCT: NONE KNOWN, B) REPRODUCTIVE TOXICITY: NONE KNOWN, C) ODOR THRESHOLD: NOT KNOWN, D) PRODUCT USE: DEGREASING SOLVENT, E) REQUIRES POISON SYMBOL (CLASS D.1).

REVISIONS MADE TO 5/31/94, 13TH EDITION - DATE, EDITION, IARC CARCINOGEN LISTING CHANGED TO YES, CANCER STATEMENT ADDED TO PRECAUTIONS (PAGE 6).

**R. KENNETH LEE**  
**MANAGER, PRODUCT SAFETY**

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## \* \* ETHYL CHLORIDE

MSDS NUMBER: 0140  
DATE: 03/31/94  
EDITION: 010  
TRADE NAME: ETHYL CHLORIDE  
CHEMICAL NAME/SYNONYMS: MONOCHLOROETHANE  
CHEMICAL FAMILY: CHLORINATED HYDROCARBONS  
FORMULA: C2H5CL  
U.S. DOT SHIPPING NAME: ETHYL CHLORIDE  
U.S. DOT HAZARD CLASS: 2.1 (FLAMMABLE GAS)  
SUBSIDIARY RISK: N/A  
I.D. NUMBER: UN1037  
PACKING GROUP: N/A  
REPORTABLE QUANTITY: 100 LBS/45.4 KG

CAS NUMBER: 000075 00 3

## SECTION 1 \* PHYSICAL DATA

BOILING POINT @ 760 MM HG: 54 F  
VAPOR DENSITY (AIR=1): 2.23  
SPECIFIC GRAVITY (H2O=1): 0.903 @ 15/4 C  
PH OF SOLUTIONS: ESSENTIALLY NEUTRAL  
FREEZING/MELTING POINT: -217 F  
SOLUBILITY (WEIGHT % IN WATER): 0.477 GM/100 ML  
BULK-DENSITY: 7.461 @ 20 C LBS/GAL  
VOLUME % VOLATILE: 100  
VAPOR PRESSURE: 464 MM HG @ 32 F  
EVAPORATION RATE: (ETHYL ETHER=1): 1  
HEAT OF SOLUTION: N/A  
APPEARANCE AND ODOR:  
COLORLESS GAS; LIQUID UNDER PRESSURE; ETHER-LIKE ODOR.

## SECTION 2 \* INGREDIENTS

MATERIAL	PERCENT
ETHYL CHLORIDE	100

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## SECTION 3 \* FIRE/EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): -45 F (OPEN CUP)

FLAMMABLE LIMITS IN AIR (% BY VOLUME)

LEL: 3.16%

UEL: 15%

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICALS, WATER SPRAY.

## SPECIAL FIRE FIGHTING PROCEDURES:

FIREFIGHTERS MUST WEAR NIOSH/MSHA APPROVED, SELF-CONTAINED BREATHING APPARATUS IN PRESSURE DEMAND MODE. USE WATER SPRAY TO COOL FIRE EXPOSED CONTAINER.

## UNUSUAL FIRE AND EXPLOSION HAZARDS:

EXTREMELY EXPLOSIVE WHEN EXPOSED TO FLAME OR HEAT. CAN REACT VIGOROUSLY WITH OXIDIZING MATERIAL. ETHYL CHLORIDE BURNS WITH A GREEN-EDGED FLAME PRODUCE HYDROGEN CHLORIDE, CARBON DIOXIDE, WATER AND TRACES OF PHOSGENE.

## SECTION 4 \* HEALTH HAZARD DATA

WARNING: This product is a chemical known to the State of California to cause cancer.

## TOXICITY DATA: N/A

LC50 INHALATION:

(G. PIG) LCLO 4000 PPM/45 MINUTES

LD50 DERMAL:

NOT APPLICABLE

SKIN/EYE IRRITATION

SEE SECTION 5

LD50 INGESTION:

NOT APPLICABLE

FISH, LC50 (LETHAL CONCENTRATION) 96-HR. TLM - OVER 1000 PPM

## CLASSIFICATION:

INHALATION: ANESTHETIC EFFECTS

SKIN: PRODUCES FROSTBITE

SKIN/EYE: PRODUCES FROSTBITE

INGESTION: NOT APPLICABLE

AQUATIC: NOT TOXIC

## SECTION 5 \* EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?

NTP - NO

IARC - NO

OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:  
NONE KNOWN.

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**PERMISSIBLE EXPOSURE LIMITS:**

OSHA: 1000 PPM (2600 MG/CU.M.), 8-HOUR TWA (TIME WEIGHTED AVERAGE),  
29 CFR 1910.1000.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 200 PPM, 8-HOUR TWA  
(TIME WEIGHTED AVERAGE); 375 PPM, STEL (SHORT-TERM EXPOSURE LIMIT).

**ACUTE:**

INHALATION: CAN PRODUCE VARYING DEGREES OF INTOXICATION, E.G.,  
INCOORDINATION, DRUNKENNESS, POSSIBLE CONVULSIONS, ABDOMINAL CRAMPS, AND  
COMA. IT HAS BEEN REPORTED THAT CONCENTRATED VAPORS CAN PRODUCE  
NARCOTIC AND ANESTHETIC EFFECTS IN HUMANS AND MAY PRODUCE DEEP OR EVEN  
FATAL ANESTHESIA.

SKIN CONTACT: LIQUID SPILLED ON SKIN MAY CAUSE RAPID COOLING AND  
POSSIBLE FROSTBITE.

EYE CONTACT: NO SPECIFIC KNOWN EFFECTS; HOWEVER, IT CAN BE INFERRED  
THAT THE SAME WOULD OCCUR AS CONTACT WITH SKIN - THAT IS, TISSUE DAMAGE  
DUE TO RAPID COOLING (FROSTBITE).

**CHRONIC:**

THE EFFECTS OF LONG-TERM, LOW LEVEL EXPOSURES TO THIS PRODUCT HAVE NOT  
BEEN DETERMINED. SAFE HANDLING OF THIS MATERIAL ON A LONG-TERM BASIS  
SHOULD EMPHASIZE THE AVOIDANCE OF ALL EFFECTS FROM REPETITIVE ACUTE  
EXPOSURES.

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**\* EMERGENCY AND FIRST AID PROCEDURES**

**INHALATION:**

REMOVE PATIENT TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION,  
PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A  
PHYSICIAN.

**EYE OR SKIN CONTACT:**

SKIN CONTACT: IMMEDIATELY PLUNGE SKIN INTO WATER. THEN WASH WITH SOAP AND  
WATER. BECAUSE OF ETHYL CHLORIDE'S RAPID EVAPORATION RATE, IT CAN PRODUCE  
FROSTBITE; FOR FROSTBITE, DO NOT RUB. PLACE IN LUKEWARM WATER AND MAKE WARM.  
GIVE PATIENT A WARM DRINK. EXERCISE AFTER THAWING. IF IRRITATION PERSISTS,  
CONTACT A PHYSICIAN.

EYE CONTACT: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15

MINUTES. IF IRRITATION OCCURS, CONSULT A PHYSICIAN.

**INGESTION:**

NOT A LIKELY ROUTE OF EXPOSURE.

**NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):**

AVOID USE OF ADRENALINE IN ANY CASE WHERE A PERSON HAS BEEN OVERCOME BY

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ETHYL CHLORIDE TO AVOID POTENTIAL ARYTHMIAS.

#### SECTION 6 \* REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID: MATERIALS LISTED BELOW.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

CONDITIONS TO AVOID: NONE.

INCOMPATIBILITY (MATERIALS TO AVOID):

ALKALI METALS, ALUMINUM, ALKALINE METALS AND OXIDIZERS

HAZARDOUS DECOMPOSITION PRODUCTS:

BURNING FORMS TOXIC, CORROSIVE HYDROGEN CHLORIDE AND POISONOUS

PHOSGENE GAS. REACTS WITH ALUMINUM AND ALKALINE METALS FORMING

FLAMMABLE AND TOXIC PRODUCTS.

#### SECTION 7 \* SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:

EVACUATE AREA AND ELIMINATE ALL SOURCES OF IGNITION. PROVIDE MAXIMUM VENTILATION. ONLY PERSONS EQUIPPED WITH NIOSH/MSHA APPROVED, SELF-CONTAINED BREATHING APPARATUS OR FULL FACEPIECE, AIRLINE RESPIRATORS WITH AUXILIARY SCBA'S OPERATED IN THE PRESSURE DEMAND MODE AND SKIN/EYE PROTECTION PERMITTED IN AREA. ATTEMPT TO SHUT OFF SOURCE OF LEAK. DIKE AREA TO CONTAIN SPILL. ALLOW SPILLED MATERIAL TO EVAPORATE.

WASTE DISPOSAL METHOD:

PPG RECOMMENDS INCINERATION IN APPROVED, LIQUID BURNING HAZARDOUS WASTE INCINERATOR. SMALL QUANTITIES SHOULD BE ALLOWED TO EVAPORATE. CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

#### SECTION 8 \* SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

USE NIOSH/MSHA APPROVED AIRLINE RESPIRATOR FOR ROUTINE WORK PURPOSES WHEN AIR CONCENTRATIONS EXCEED THE PERMISSIBLE EXPOSURE LIMITS. SEE SECTION 7 FOR RESPIRATORY PROTECTION DURING SPILLS OR LEAKS. THE RESPIRATOR USE LIMITATIONS MADE BY NIOSH/MSHA OR THE MANUFACTURER MUST BE OBSERVED. RES-

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PIRATORY PROTECTION PROGRAMS MUST MEET THE REQUIREMENTS OF 29 CFR 1910.134.  
VENTILATION(TYPE):

GENERAL VENTILATION SUFFICIENT TO MAINTAIN EMPLOYEE EXPOSURE BELOW  
PERMISSIBLE EXPOSURE LIMITS AND PREVENT ACCUMULATION OF EXPLOSIVE MIXTURE  
OF HIGH CONCENTRATIONS OF ETHYL CHLORIDE VAPORS.

EYE PROTECTION:

CLOSE FITTING CHEMICAL SAFETY GOGGLES.

GLOVES:

PVA, VITON, NITRILE

OTHER PROTECTIVE EQUIPMENT:

BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO  
PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT  
MUST BE IN ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

#### SECTION 9 \* SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

- \* STORE AWAY FROM DIRECT SUNLIGHT AND OTHER SOURCES OF HEAT.
- \* DO NOT SKID, DRAG, OR DROP CYLINDERS.
- \* BEFORE UNLOADING PURGE AIR FROM UNLOADING SYSTEM.
- \* CONTAINER, SYSTEM, AND STORAGE TANK MUST BE ELECTRICALLY GROUNDED BEFORE UNLOADING. STORAGE TANK SHOULD BE GROUNDED AT ALL TIMES.
- \* ADEQUATE VENTILATION MUST BE MAINTAINED IN STORAGE AREAS TO REDUCE FIRE HAZARD IN THE EVENT OF A LEAK.
- \* ETHYL CHLORIDE IS HEAVIER THAN AIR AND WILL COLLECT IN LOW AREAS IN THE ABSENCE OF VENTILATION.
- \* STORE ONLY IN CLOSED, PROPERLY LABELED CONTAINERS.

OTHER PRECAUTIONS:

- \* KEEP AWAY FROM HEAT, SPARKS, FLAME, OR ANY OTHER TYPE OF IGNITION SOURCE.
- \* AVOID CONTACT WITH SKIN/EYES. CAN CAUSE FROSTBITE AND/OR TISSUE DAMAGE DUE TO RAPID EVAPORATION.
- \* DO NOT BREATHE VAPORS. HIGH VAPOR CONCENTRATION CAN CAUSE UNCONSCIOUSNESS OR DEATH.
- \* USE ONLY WITH ADEQUATE VENTILATION. VENTILATION MUST BE SUFFICIENT TO LIMIT EMPLOYEE EXPOSURE TO ETHYL CHLORIDE IN WORK AREA BELOW THE PERMISSIBLE EXPOSURE LIMITS.

COMMENTS:

TSCA - ETHYL CHLORIDE IS ON THE TSCA INVENTORY UNDER CAS NO. 75-00-3.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE, FLAMMABILITY AND SUDDEN PRESSURE RELEASE, B) LISTED IN SECTION 313 UNDER CHLOROETHANE, C) NOT LISTED AS AN EXTREMELY HAZARDOUS SUBSTANCE IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 100 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER,

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800-424-8802.

REVISIONS MADE TO 8/12/93, 9TH EDITION - DATE, EDITION, UPDATED  
INCOMPATIBILITY STATEMENT (PAGE 4).

**R. KENNETH LEE**  
**MANAGER, PRODUCT SAFETY**

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