

PIONEER ENERGY  
1111 LARK  
LANSING, MI 48206

MAY 12 1992

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**MATERIAL SAFETY DATA SHEET**

Dow Chemical U.S.A.\* Midland, MI 48674 Emergency Phone: 517-636-4400

Product Code: 16896 Page: 1

Product Name: CHLOROTHENE (R) SM SOLVENT *Film Cleaner + Conditioner Type "B"*

Effective Date: 07/18/90 Date Printed: 08/21/90 MSDS:001111

**1. INGREDIENTS: (% w/w, unless otherwise noted)**

<del>1,1,1-Trichloroethane</del>	CAS# 000071-55-6	96.5% (wt.)
Diethylene Ether (1,4-Dioxane)	CAS# 000123-91-1	2.5
1,2-Butylene oxide	CAS# 000106-88-7	0.47
Nitromethane	CAS# 000075-52-5	0.34

The hazard information presented is based on tests conducted on this or similar mixtures. Therefore, pursuant to the OSHA Hazard Communication Standard (see 29 CFR Part 1910.1200 (g)(2)(b)), the information is based on the tested mixture and not individual

ingredients.

**2. PHYSICAL DATA:**

BOILING POINT: 165F (74C)  
VAP PRESS: 100 mmHg @ 20C  
VAP DENSITY: 4.55  
SOL. IN WATER: 0.07 g/100g @ 25C  
SP. GRAVITY: 1.321 @ 25/25C  
APPEARANCE: Colorless liquid.  
ODOR: Irritating odor at high concentrations.

**3. FIRE AND EXPLOSION HAZARD DATA:**

FLASH POINT: None  
METHOD USED: TOC, TCC, COC

FLAMMABLE LIMITS  
LFL: 7.5% @ 25C  
UFL: 12.5% @ 25C

EXTINGUISHING MEDIA: Water fog.

FIRE & EXPLOSION HAZARDS: Vapors of this solvent may develop a flammable atmosphere in confined or poorly-ventilated areas.

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## 3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus.

## 4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) Avoid open flames, welding arcs or other high temperature sources which induce thermal decomposition.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Prolonged contact with free water may result in corrosion and diminished stabilizer levels. Prolonged contact with, or storage in aluminum, its alloys, and particularly metallic aluminum and zinc powders should be avoided. These reactive metals can cause hydrochloric acid gas to form and, if confined as in an aerosol can or pump, the gas pressure may rupture the container.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride and very small amounts of phosgene and chlorine.

HAZARDOUS POLYMERIZATION: Will not occur.

## 5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Small leaks: Mop up, wipe up, or soak up immediately. Remove to out-of-doors.  
Large spills: Evacuate area. Contain liquid; transfer to closed metal containers. Keep out of water supplies.

DISPOSAL METHOD: When disposing of the unused contents, the preferred options are to send to licensed reclaimer, or to permitted incinerators. Any disposal practice must be in compliance with federal, state, and local laws and regulations. Do not dump into sewers, on the ground, or into any body of water.

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## 5. ENVIRONMENTAL AND DISPOSAL INFORMATION: (CONTINUED)

Empty containers must be disposed of in accordance with all applicable federal, state and local regulations. DO NOT CUT OR WELD CONTAINER due to explosion hazard.

## 6. HEALTH HAZARD DATA:

**EYE:** May cause pain. May cause slight transient (temporary) irritation with slight transient corneal injury. Vapors may irritate eyes.

**SKIN CONTACT:** Prolonged or repeated exposure may cause skin irritation. Repeated contact may cause drying or flaking of skin.

**SKIN ABSORPTION:** A single prolonged skin exposure is not likely to result in absorption of harmful amounts. The LD50 for rabbits is about 15,000 mg/kg.

**INGESTION:** Single dose oral toxicity is low. The LD50 for rats is >10,000 mg/kg. If aspirated (liquid enters the lung), may be rapidly absorbed through the lungs and result in injury to other body systems.

**INHALATION:** Minimal anesthetic or narcotic effects may be seen in the range of 500-1000 ppm trichloroethane. Progressively higher levels over 1000 ppm may cause dizziness, drunkenness; concentrations as low as 10,000 ppm can cause unconsciousness and death. These high levels may also cause cardiac arrhythmias (irregular heartbeats). In confined or poorly ventilated areas, vapors which readily accumulate can cause unconsciousness and death.

**SYSTEMIC & OTHER EFFECTS:** Based on available data, repeated exposures are not anticipated to cause any significant adverse effects. The formulation containing 1,1,1-trichloroethane, 1,4-dioxane, 1,2-butylene oxide, and nitromethane was tested in

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## 6. HEALTH HAZARD DATA: (CONTINUED)

long-term animal studies and did not cause cancer. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. In animal studies, has been shown not to interfere with reproduction. Results of in vitro (test tube) mutagenicity tests have been negative. Results of mutagenicity tests in animals have been negative.

## 7. FIRST AID:

EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

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

NOTE TO PHYSICIAN: Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Exposure may increase "myocardial irritability". Do not administer

sympathomimetic drugs unless absolutely necessary. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

## 8. HANDLING PRECAUTIONS:

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## 8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): 1,1,1-Trichloroethane (methyl chloroform):  
OSHA PEL and ACGIH TLV are 350 ppm TWA, 450 ppm STEL.  
1,4-Dioxane (diethylene ether): OSHA PEL and ACGIH ATLV are  
25 ppm, Skin.

ACGIH TLV is 25 ppm (skin) for diethylene ether. OSHA PEL is  
100 ppm (skin) for diethylene ether. Dow Industrial Hygiene  
Guide for 1,2-butylene oxide is 40 ppm (excursion 100 ppm).  
ACGIH TLV and OSHA PEL for nitromethane is 100 ppm.

VENTILATION: Control airborne concentrations below the exposure  
guideline. Use only with adequate ventilation. Local exhaust  
ventilation may be necessary for some operations. Lethal  
concentrations may exist in areas with poor ventilation.

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. For emergency and other conditions where the  
exposure guideline may be greatly exceeded, use an approved  
positive pressure self-contained breathing apparatus. In  
confined or poorly ventilated areas, use an approved positive-  
pressure self contained breathing apparatus.

SKIN PROTECTION: For brief contact, no precautions other than  
clean body-covering clothing should be needed. When prolonged  
or frequently repeated contact could occur, use protective  
clothing impervious to this material. Selection of specific  
items such as gloves, boots, apron, or full body suit will  
depend on operation.

EYE PROTECTION: Use safety glasses. Where contact with liquid is  
likely, chemical goggles are recommended because eye contact  
with this material may cause discomfort, even though it is

unlikely to cause injury.

## 9. ADDITIONAL INFORMATION:

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## 9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Handle with reasonable care. Avoid breathing vapors. Store in a cool, dry place. Concentrated vapors of this product are heavier than air and will collect in low areas such as pits, degreasers, storage tanks, and other confined areas. Do not enter areas where vapors of this product are suspected unless special breathing apparatus is used and an observer is present for assistance.

1,1,1-Trichloroethane products should not be packaged in aluminum aerosol cans or with finely divided aluminum or its alloys in an aerosol can.

Aluminum is not an acceptable material of construction for pumps, mixers, fittings, storage tanks for 1,1,1-trichloroethane products or formulations. Metallic aluminum and zinc powders should be avoided.

The following uses are not approved by Dow: Fire ant insecticide, direct food applications, fire extinguisher fluid, use in welding areas, septic tank or sink drain cleaner, presurgical cleanup or adhesive tape removal from skin in hospitals, anesthetic agent, wig cleaning, etc. Absence from this list does not imply approval because the list cannot be all-inclusive. These uses and other uses not listed above may be inappropriate due to the likelihood of potential health or environmental hazards. In general, this solvent should not be used where it may become a groundwater contaminant, where inadequate ventilation is likely (see Section 8), or where vapor concentrations may become flammable (7.5-12.5 percent volume in air). Mixtures of potentially reactive chemicals with 1,1,1-trichloroethane should not be made without thorough testing; examples of reactive materials are: amines, highly-reactive metals (sodium, lithium, beryllium, etc.), reactive metal powders (aluminum, zinc, brass, etc.), organometallic compounds, and metal hydrides. Users are urged to contact the Dow product steward in cases of doubt by calling 1-800-258-CHEM.

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**M A T E R I A L   S A F E T Y   D A T A   S H E E T**

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**9. ADDITIONAL INFORMATION: (CONTINUED)**

MSDS STATUS: Revised section 9 and regsheet.

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**REGULATORY INFORMATION:** (Not meant to be all-inclusive--selected regulations represented.)

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSD Sheet for health and safety information.

## U.S. REGULATIONS

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**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION	
1,1,1-TRICHLOROETHANE (METHYL CHLOROFORM)	000071-55-6	96.5	%
1,4-DIOXANE	000123-91-1	2.5	%

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**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

## CANADIAN REGULATIONS

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## REGULATORY INFORMATION (CONTINUED)

The Workplace Hazardous Materials Information System (W.H.M.I.S.)  
Classification for this product is:

D1B

D2B

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The Transportation of Dangerous Goods Act (T.D.G.A.) classification for  
this product is:

1,1,1-Trichloroethane/Class 6.1/UN2831/111

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Express Or Implied, Is Made. Consult The Dow Chemical Company  
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