

MATERIAL SAFETY DATA SHEET

MSDS NUMBER : M20544 *per oxychem - Transcylene is 94% pure tetrachloroethylene -*
MSDS DATE : 12-16-93 *See perylene for almost 100% pure*
PRODUCT NAME : **TRANSCYLENE** *This is the haz substance version*
24 HOUR EMERGENCY PHONE: 1-800-733-3665 OR 716-278-7021 *in Wewaul*

I. PRODUCT IDENTIFICATION

HMIS HAZARD RATINGS

HEALTH HAZARD 2* FIRE HAZARD 0 REACTIVITY 0
Based on the National Paint & Coatings Association HMIS rating system.

SARA/TITLE III HAZARD CATEGORIES (See Section X)

Immediate (ACUTE) Health: YES Reactive Hazard: NO
Delayed (Chronic) Health: YES Sudden Release of Pressure: NO
Fire Hazard: NO

MANUFACTURER'S: Occidental Chemical Corporation Telephone
NAME AND ADDRESS: Customer Service, Occidental Tower, (1-800-752-5151)
P O Box 809050, Dallas, Texas 75380

CHEMICAL NAME: Tetrachloroethylene CAS NUMBER: 127-18-4

SYNONYMS/Common Names: Tetrachloroethylene

PRODUCT USE: Transformer Fluid

DOT PROPER SHIPPING NAME: Tetrachloroethylene

DOT HAZARD CLASS: 6.1

DOT IDENTIFICATION NUMBER: UN 1897

DOT PACKING GROUP: III

DOT HAZARDOUS SUBSTANCE: RQ = 100 lbs. (Tetrachloroethylene)

DOT MARINE POLLUTANT: Marine Pollutant (Perchloroethylene)

ADDITIONAL DESCRIPTION REQUIREMENT: NA

TDG SHIPPING NAME: Tetrachloroethylene

TDG PRIMARY CLASS: 6.1

TDG IDENTIFICATION NUMBER: UN 1897

TDG PACKING GROUP: III

RL FOR DIVISION 9.2: NA

CAS = Chemical Abstract Service Number ND = No relevant information found or not available
PEL = OSHA Permissible Exposure Limit CDRP = Corporate Exposure Limit
TLV = ACGIH Threshold Limit Value, Current * = See Chronic Effects Information NA = Not applicable

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY, OR GUARANTY, EXPRESS OR IMPLIED IS MADE REGARDING PERFORMANCE, STABILITY, OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling and storage. Other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any Federal, State or local laws.

II. HEALTH HAZARD INFORMATION

EMERGENCY AND FIRST AID PROCEDURES

EYES:

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. SEEK MEDICAL ATTENTION.

SKIN:

Wash contaminated areas with plenty of soap and water. A soothing ointment may be applied to irritated skin after thorough cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION.

INHALATION:

Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If breathing has stopped, give mouth-to-mouth resuscitation. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION:

DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victims head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration. Further Medical Treatment: Following ingestion, adsorbents such as activated charcoal may be of value. Gastric lavage may be effective when performed by a physician within 4 hours of ingestion.

ROUTES OF EXPOSURE

INHALATION:

Excessive inhalation may produce symptoms of central nervous system depression ranging from light-headedness, nausea and vomiting, to unconsciousness and death.

SKIN:

Mildly irritating. May produce a burning sensation. Prolonged or repeated contact may redden, roughen, and dry due to the removal of natural oils and may result in dermatitis. May be absorbed through the skin, although not expected to produce toxicity through this route.

EYE CONTACT:

Irritating to the eyes pain, tearing, and general inflammation.

INGESTION:

May cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration, chemical pneumonia could follow. Absorption through the gastrointestinal tract may produce symptoms of central nervous system depression ranging from light-headedness to unconsciousness.

II. HEALTH HAZARD INFORMATION (Continued)

EFFECTS OF OVEREXPOSURE

ACUTE:

Excessive inhalation or ingestion may produce symptoms of central nervous system depression ranging from light-headedness, to unconsciousness and death. Can cause headache, mental confusion, depression, fatigue, loss of appetite, nausea, vomiting, cough, loss of sense of balance and visual disturbances. Exposure of the eyes and skin may produce irritation. Animals exposed to high levels have shown cardiac sensitization.

CHRONIC:

Overexposure may result in liver and kidney damage. Prolonged or repeated skin contact may cause dermatitis.

TOXICOLOGY DATA:

Perchloroethylene:

Acute Oral:	LD50 (rat)	3980 to 4680 mg/kg
Acute Inhalation:	LD50 (rat)	5040 ppm, 34.2 mg/l for 8 hrs

NCI (DHEW-NIH Pub 77-813) stated that laboratory animals exposed to perchloroethylene at 80 to 150 ppm developed liver cancer in one study with no evidence of liver cancer in another study.

IARC - Lists this product as having inadequate evidence in humans, and sufficient evidence in animals to evaluate carcinogenicity. (Group 2B).

The National Toxicology Program (NTP 89-239), reports that PERC when administered via inhalation to rats and mice produced "clear evidence of carcinogenicity" in male rats (mononuclear cell leukemia and kidney tumors) and male and female mice (liver tumors).

The inhibitors in this product are not considered toxic nor carcinogenic by IARC, NTP, OSHA, or other and present no additional hazard.

SYNERGISTIC MATERIALS:

None known

III. IMPORTANT COMPONENTS

CAS NUMBER / NAME

127184 Ethene, tetrachloro-

EXPOSURE LIMITS

PEL:25 ppm; 170 mg/m3, TWA
TLV:25 ppm; 170 mg/m3, TWA, A3
STEL 100 ppm; 685 mg/m3

PERCENTAGE

VOL ND
WT 93-94

COMMON NAMES:

ETHYLENE TETRACHLORIDE
PERCHLOROETHYLENE
TETRACHLOROETHYLENE#
1,1,2,2,-TETRACHLOROETHYLENE

Listed On(List Legend Below):

02 07 09 11 15 18 21

111660 1-Octene

EXPOSURE LIMITS

PEL:Not Established
TLV:Not Established

PERCENTAGE

VOL ND
WT 5.80-6.20

COMMON NAMES:

Listed On(List Legend Below):

12 23

79016 Ethene, trichloro-

EXPOSURE LIMITS

PEL:50 ppm; 270 mg/m3, TWA
STEL 200 ppm; 1080 mg/m3
TLV:50 ppm; 269 mg/m3, TWA, A5
STEL 100 ppm; 537 mg/m3

PERCENTAGE

VOL ND
WT 300PPM400PPM

COMMON NAMES:

ETHYLENE TRICHLORIDE
TRICHLOROETHYLENE#
TRICHLOROETHYLENE

Listed On(List Legend Below):

02 11 13 18 21

Chemical name used in the SARA Section 313 List of Toxic Chemicals (40 CFR - Section 372.65) if different from CAS name.

NIOSH (DHEW PUB. 78-112) recommends minimal exposure based on NCI study.

All components of this product that are required to be on the TSCA Inventory are listed on the inventory.

LIST LEGEND

- 2 SARA TOXIC CHEM, SECTION 313
- 9 IARC GROUP 2A OR 2B CARCINOGEN
- 12 PA HAZARDOUS SUBSTANCE
- 15 PA SPECIAL & ENV HAZ SUBSTANCE
- 21 NJ SPECIAL HEALTH HAZ SUB
- 7 NTP "ANTPTD HUMAN CARCINOGENS"
- 11 CA PROP 65 - CARCINOGEN
- 13 PA ENVIROMENTAL HAZ SUBSTANCE
- 18 NY HAZARDOUS SUBSTANCES
- 23 NJ REQUIREMENT- 1% OR GREATER

IV. FIRE AND EXPLOSION DATA

FLASH POINT: None

AUTOIGNITION TEMPERATURE: No data

FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: Nonflammable
LOWER: Nonflammable

EXTINGUISHING MEDIA:

Fires involving this product are unlikely, but should one occur, it may be controlled by water spray, dry chemical, carbon dioxide or foam.

SPECIAL FIRE FIGHTING PROCEDURES:

Pressure-demand, self-contained breathing apparatus should be provided for fire fighters in buildings or confined areas where this product is stored. Storage containers exposed to fire should be kept cool with a water spray in order to prevent pressure build-up.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Nonflammable and nonexplosive under normal conditions of use. At high temperatures, this product decomposes to give off hydrogen chloride gas and small quantities of other toxic and irritating vapors such as phosgene. If storage containers are exposed to excessive heat, over-pressurization of the containers can result.

SENSITIVITY TO MECHANICAL IMPACT:

None.

SENSITIVITY TO STATIC DISCHARGE:

None.

V. SPECIAL PROTECTION

VENTILATION REQUIREMENTS:

Work in well ventilated areas. Maintain exposure level below 25 ppm. Where engineering controls are not feasible use adequate local exhaust ventilation where mist, spray, or vapor may be generated. The odor of perchloroethylene may indicate an air concentration in excess of 50 ppm.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:

Use a NIOSH/MSHA approved respirator following manufacturer's recommendations where vapor, mist or spray may be generated. Use supplied air respirator in positive pressure mode following ANSI Z117.1 for tank and confined space entry.

EYE:

Wear chemical safety goggles, plus full face shield to protect against splashing when appropriate.

GLOVES:

Solvent resistant gloves should be worn, such as Viton, polyvinyl alcohol, or equivalent. Gloves contaminated with product should be discarded.

OTHER CLOTHING AND EQUIPMENT:

Protective clothing should be worn to minimize skin contact. Use standard work shoes; discard if shoes cannot be decontaminated. Store contaminated clothing in well ventilated cabinets or closed containers. Wash and dry contaminated clothing before reuse. Emergency shower and eyewash facility should be in close proximity.

VI. PHYSICAL DATA

PHYSICAL STATE: Liquid
BOILING POINT @ 760 mm Hg: 120°C
FREEZING POINT: -28°C
VAPOR PRESSURE: 18 mm Hg @ 25°C
SPECIFIC GRAVITY (H₂O=1): 1.5
SOLUBILITY IN H₂O % BY WT: 0.015
APPEARANCE AND ODOR: Clear, colorless liquid with an ether-like odor
ODOR THRESHOLD (ppm): Not available
pH: Not available
% VOLATILES BY VOL.: 100
VAPOR DENSITY (Air=1) 5.83
EVAPORATION RATE (BuAc=1): 2.3 estimate
COEFFICIENT WATER/OIL DISTRIBUTION: Not available

VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:

Under normal conditions, the material is stable.

Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition to irritating and corrosive HCl from solvent vapor. Strong UV light (eg. welding arc) can cause significant phosgene to be generated.

INCOMPATIBILITY:

Avoid contacting this product with alkali metals, pure oxygen, open flames, and welding arcs. This product should not be used in long term contact with zinc or zinc alloys.

HAZARDOUS DECOMPOSITION PRODUCTS:

Involvement in fire or high temperatures forms hydrogen chloride and very small amounts of phosgene and chlorine. Solvent decomposition occurs when catalyzed by metal chlorides which can be produced by reaction of HCl and metals in the system. In transformer applications where the fluid is used as a dielectric media, oxygen is excluded by use of an N₂ pad which eliminates the potential of phosgene formation if arcing occurs.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:

Material is not known to polymerize.

VIII. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS:

Do not take internally.
Do not breathe vapors.
Do not get in eyes, on skin, on clothing.
Use with adequate ventilation to maintain exposure level below 25 ppm. Perform personal monitoring to assess the exposure level.
When handling, wear chemical splash goggles, protective clothing, and solvent resistant gloves.
Wash thoroughly after handling or contact. Do not eat, drink or smoke in areas where perchloroethylene is used.
Never enter a pit or tank without following safety procedures—never alone, always with a life line, and always with a positive pressure supply of fresh air. Perchloroethylene vapors are heavier than air and will tend to collect in low areas. Avoid use in confined spaces. Areas of poor ventilation could contain concentration high enough to cause unconsciousness and death.
Use NIOSH/MSHA approved respirators following manufacturer's recommendations where vapors may be generated.
Avoid contact with pure oxygen, flames, pilot lights, hot glowing surfaces, welding arcs or alkali metals to prevent decomposition resulting in toxic and irritating vapors.
Avoid exposure to strong UV light, can cause generation of phosgene.
Keep containers tightly closed and properly labeled.
Store containers in cool, dry, ventilated place out of direct sunlight.

Under normal conditions this product can be stored satisfactory in mild steel without an interior lining. Dike storage tanks separately to contain 110% of tank volume. Vent indoor tanks to an outside location so escaping vapors will not contaminate any work areas.

IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Leaks should be stopped. Spills should be contained and cleaned up immediately. Recovery and reuse of spilled product, rather than disposal, should be the ultimate goal of a clean up operation.

Evacuate unnecessary personnel. Prevent discharge or flushing to streams and sewers systems. Large spills should be removed by vacuum truck. Smaller spills may be soaked up with compatible absorbent material (sand, diatomaceous earth, kitty litter, etc.) which should be placed in closed containers, labeled and stored in a safe place outdoors to await proper disposal. Flush the spill area with water if the rinse water can be collected and placed in appropriate containers for proper disposal. Spills on areas other than pavement, e.g., dirt or sand, may be handled by removing the affected soils and placing in approved containers. People performing the clean up should have full protective equipment including a NIOSH/MSHA approved positive pressure self contained breathing apparatus.

According to 40 CFR 302 Table 302.4 (CERCLA), environmental releases of more than 100 pounds (approximately 7 gallons) of perchloroethylene must be reported to the National Response Center by calling 800-424-8802 (202-426-2675). Releases of over 100 pounds must also be reported to the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40). In addition, state and local regulations may have additional reporting requirements. Check with the proper state or local authorities.

IX. ENVIRONMENTAL PROCEDURES (Continued)

WASTE DISPOSAL METHOD:

Recovery and reuse of solvent, rather than disposal, should be the ultimate goal of handling efforts.

According to RCRA, disposal of perchloroethylene waste will require assignment of an EPA Hazardous Waste Number. Some examples are: perchloroethylene is classed as Hazardous Waste U210 (40CFR 261.33); spent perchloroethylene from degreasing operations and still bottoms from degreasing solvent stills are assigned Hazardous Waste Number F001 (40 CFR 261.31); spent solvent and still bottoms from solvent recovery operations are assigned Hazardous Waste Number F002 (40 CFR 261.31).

Always package, store, transport, and dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Shipments of waste materials containing perchloroethylene are subject to manifesting per applicable regulation. Appropriate disposal will depend on the nature of each waste material and should be done by a competent and properly permitted contractor.

X. ADDITIONAL INFORMATION

OSHA Standard 29CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

This product contains a toxic chemical or chemicals 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. (See Section III, List Legend 02)

State of California Safe Drinking Water and Toxic Enforcement Act Of 1986 (Proposition 65) :

WARNING: This product contains a chemical known to the State Of California to cause cancer.

Warning: This chemical is known to the State of California to cause cancer. See Section III.

California South Coast Air Quality Management District Rule 443.1:
Maximum Volatile Organic Carbon (VOC) 1500 grams/liter
VOC Vapor Pressure at 20°C 13 mm/Hg

WHMIS CLASSIFICATION D2A, D2B

XI. PREPARATION INFORMATION

For additional Non-Emergency health, safety, or environmental information telephone (716) 286-3081, or write to:
Occidental Chemical Corporation
Product Stewardship Department
360 Rainbow Boulevard South
Niagara Falls, NY 14302

For Emergencies: 24 HOUR EMERGENCY PHONE: 1-800-733-3665

To request an MSDS: 716-286-3400

This MSDS replaces MSDS M20544 dated 01/11/91.

WARNING LABEL INFORMATION

SIGNAL WORD: CAUTION

STATEMENT OF HAZARDS:

VOLATILE SOLVENT
PROLONGED BREATHING OF VAPOR CAN CAUSE DIZZINESS, LOSS OF CONSCIOUSNESS, LIVER AND KIDNEY DAMAGE AND MAY RESULT IN DEATH. CAUSES IRRITATION OF THE EYES, SKIN, AND RESPIRATORY TRACT. MAY BE FATAL IF SWALLOWED.
POSSIBLE CANCER HAZARD - MAY CAUSE CANCER BASED ON ANIMAL DATA. RISK OF CANCER DEPENDS ON DURATION AND LEVEL OF EXPOSURE.

PRECAUTIONARY STATEMENTS:

Do not take internally.
Do not breathe vapors.
Do not get in eyes, on skin, on clothing.
Use with adequate ventilation to maintain exposure level below 25 ppm. Perform personal monitoring to assess the exposure level.
When handling, wear chemical splash goggles, protective clothing, and solvent resistant gloves.
Wash thoroughly after handling or contact. Do not eat, drink or smoke in areas where perchloroethylene is used.
Never enter a pit or tank without following safety procedures- never alone, always with a life line, and always with a positive pressure supply of fresh air. Perchloroethylene vapors are heavier than air and will tend to collect in low areas. Avoid use in confined spaces. Areas of poor ventilation could contain concentration high enough to cause unconsciousness and death.
Use NIOSH/MSHA approved respirators following manufacturer's recommendations where vapors may be generated.
Avoid contact with pure oxygen, flames, pilot lights, hot glowing surfaces, welding arcs or alkali metals to prevent decomposition resulting in toxic and irritating vapors.
Avoid exposure to strong UV light, can cause generation of phosgene.
Keep containers tightly closed and properly labeled.
Store containers in cool, dry, ventilated place out of direct sunlight.

FIRST AID:

IN CASE OF CONTACT:

FOR EYES:

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. SEEK MEDICAL ATTENTION.

FOR SKIN:

Wash contaminated areas with plenty of soap and water. A soothing ointment may be applied to irritated skin after thorough cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION.

IF INHALED:

Remove to fresh air. If breathing has stopped, give mouth-to-mouth resuscitation. If breathing is difficult, have trained person administer oxygen. GET IMMEDIATE MEDICAL ATTENTION.

WARNING LABEL INFORMATION (Continued)

IF SWALLOWED:

DO NOT INDUCE VOMITING. This material is not soluble. DO NOT GIVE FLUIDS. If spontaneous vomiting is inevitable, PREVENT ASPIRATION by keeping the victims head below the knees. GET IMMEDIATE MEDICAL ATTENTION. A qualified physician can perform gastric lavage only when the airway (trachea) has been secured to prevent aspiration.

IN CASE OF:

SPILL OR LEAK:

Leaks should be stopped. Spills should be contained and cleaned up immediately. Evacuate unnecessary personnel. Prevent discharge or flushing to streams and sewers systems. Large spills should be removed by vacuum truck. Smaller spills may be soaked up with compatible absorbent material (sand, diatomaceous earth, kitty litter, etc.) which should be placed in closed containers, labeled and stored in a safe place outdoors to await proper disposal. People performing the clean up should have full protective equipment including a NIOSH/MSHA approved positive pressure self contained breathing apparatus.

According to 40 CFR 302 Table 302.4 (CERCLA), environmental releases of more than 100 pounds (approximately 7 gallons) of perchloroethylene must be reported to the National Response Center by calling 800-424-8802 (202-426-2675). Releases of over 100 pounds must also be reported to the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40). In addition, state and local regulations may have additional reporting requirements. Check with the proper state local authorities.

FIRE:

Fires involving this product are unlikely, but should one occur, it may be controlled by water spray, dry chemical, carbon dioxide or foam. Pressure-demand, self-contained breathing apparatus should be provided for fire fighters in buildings or confined areas where this product is stored. Storage containers exposed to fire should be kept cool with a water spray to prevent pressure build up. At high temperatures, product decomposes to give off hydrogen chloride gas and small quantities of other toxic and irritating vapors such as phosgene.

HANDLING AND STORAGE:

Under normal conditions, this product may be stored satisfactorily in mild steel, without an interior lining. Dike storage tanks separately to contain 110% of tank volume. Vent indoor tanks to an outside location so escaping vapors will not contaminate any work areas.

DISPOSAL:

According to RCRA, disposal of perchloroethylene waste will require assignment of a EPA Hazardous Waste Number. Always package, store, transport, and dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Shipments of waste materials containing perchloroethylene are subject to manifesting per applicable regulation. Appropriate disposal will depend on the nature of each waste material and should be done by a competent and properly permitted contractor.

OCCIDENTAL CHEMICAL
MSDS NUMBER: M20544
PRODUCT NAME: TRANSCLENE

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WARNING LABEL INFORMATION (Continued)

INFORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:

This product contains:

CAS#	NAME
127184	Ethene, tetrachloro-
111660	1-Octene
79016	Ethene, trichloro-

HMIS RATING SYSTEM: HEALTH 2* FLAMMABILITY 0 REACTIVITY 0

FOR INDUSTRIAL USE ONLY

LABEL 123M20544