

# MATERIAL SAFETY DATA SHEET



**Date-Issued:** 12/15/2009  
**MSDS Ref. No:** MSDS-TS3  
**Date-Revised:** 12/15/2009  
**Revision No:** 16 Part MSDS

## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** TS-3  
**GENERAL USE:** Cured Ink Remover  
**PRODUCT CODE:** TS-3

### MANUFACTURER

Technical Marketing, Ltd. (TEKMAR)  
P.O. Box 4700  
Santa Barbara, CA 93140

**Contact:** Health & Safety  
**Product Stewardship:** (805) 965-0704  
**Transportation:** (800) 564-1096

### 24 HR. EMERGENCY TELEPHONE NUMBERS

**CHEMTREC (U.S.):** (800) 424-9300  
**Emergency Phone:** (805) 965-0704  
**International (collect):** ++703 527-3887

**COMMENTS:** To the best of our knowledge, this Material Safety Data Sheet conforms to the requirements of US OSHA 29 CFR 1910.1200, 91/155/EEC and Canadian Hazardous Products Act.

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Wt.%</u>	<u>OSHA/PEL</u>	<u>ACGIH</u>	<u>CAS#</u>	<u>EINECS#</u>	<u>Sec. 313</u>
Dichloromethane	70-90	25	25	75-09-2	200-838-9	Yes
Tetrachloroethylene	5-15	25	25	127-18-4	204-825-9	Yes
Petroleum, Naphtha	5-15	300	300	64742-89-8	265-192-2	No
Proprietary Non-Hazardous Components	<1	N/A	N/A	N/A	N/A	No

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

- **Colorless liquid. Irritating odor. Toxic fumes are released in fire situations. Causes eye irritation. Harmful if inhaled. May cause skin irritation. Clear all personnel from area. Aspiration hazard. Can enter lungs and cause damage to body systems. \***
- **POTENTIAL HEALTH EFFECTS**

**EYES** May cause pain disproportionate to the level of irritation to eye tissues. May cause moderate eye irritation which may be slow to heal. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

**SKIN:** Prolonged or repeated exposure may cause skin irritation, even a burn. Repeated contact may cause drying or flaking of skin. May cause more severe response on covered skin (under clothing, gloves) Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**INGESTION** Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting resulting in rapid absorption and injury to other body systems.

**INHALATION:** In confined or poorly ventilated areas, vapors can readily accumulate and can cause unconsciousness and death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen. Minimal anesthetic or narcotic effects may be seen in the range of 500-1000 ppm methylene chloride. Progressively higher levels over 1000 ppm can cause dizziness, drunkenness, and as low as 10,000 ppm, unconsciousness and death. These high levels may also cause cardiac arrhythmias (irregular heartbeats).

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** In animals, effects have been reported on the following organs: central nervous system, kidney and liver. May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen.

**TARGET ORGAN STATEMENT:** In animals, effects have been reported on the following organs: central nervous system, kidney and liver. May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen.

**CARCINOGENICITY:** For hazard communication purposes, under OSHA Standard 29 CFR Part 1910.1200, this chemical is listed as a potential carcinogen by IARC and NTP. Dichloromethane has been shown to increase the incidence of malignant tumors in mice and benign tumors in rats. Studies have shown that tumors observed in mice are unique to that species. Other animal studies, as well as several human epidemiology studies, failed to show a tumorigenic response. Dichloromethane is not believed to pose a measurable carcinogenic risk to man when handled as recommended.

**TERATOLOGY (BIRTH DEFECTS):** Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

**REPRODUCTIVE TOXICITY** In animal studies, did not interfere with reproduction.

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#### 4. FIRST AID MEASURES

**EYES:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

**SKIN:** skin with plenty of water

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

**INHALATION:** Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**MEDICAL CONDITIONS AGGRAVATED:** Carboxyhemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias. If burn is present, treat as any thermal burn after decontamination. Because rapid absorption may occur through the 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. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## 5. FIRE FIGHTING MEASURES

**FLASHPOINT AND METHOD:** > 100°C T.C.C.

**FLAMMABLE LIMITS:** LFL: 14% @ 25 deg C. UFL: 22% @ 25 deg C.

**AUTOIGNITION TEMPERATURE:** Not Available

**FLAMMABLE CLASS:** Nonflammable

**GENERAL HAZARD:** Evacuate personnel downwind of fire to avoid inhalation of irritating and/or harmful fumes and smoke.

**EXTINGUISHING MEDIA:** Water fog or fine spray, carbon dioxide, dry chemical, foam. Water fog, applied gently may be used as a blanket for fire extinguishment.

**HAZARDOUS COMBUSTION PRODUCTS:** During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to hydrogen chloride, carbon monoxide, carbon dioxide. Hazardous combustion products may include trace amounts of phosgene, chlorine.

**FIRE FIGHTING PROCEDURES:** This product is a nonflammable substance. However, hazardous decomposition and combustion products may be formed in a fire situation. Cool exposed containers with water spray to prevent overheating.

**FIRE FIGHTING EQUIPMENT** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

**SMALL SPILL:** Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Wearing the appropriate personal protective equipment designated in Section 8, move the leaking container to a containment area or rotate the container so that the opening is above the liquid level. Absorb on diatomaceous earth or equivalent inert material. Shovel up and dispose of at an appropriate waste disposal facility according to current applicable laws and regulations, and product characteristics at time of disposal.

**LARGE SPILL:** Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Wearing the appropriate personal protective equipment designated in Section 8, close or cap valves and/or block or plug hole in leaking container and transfer to another container. Contain material as described above and call the local fire or police department for immediate emergency assistance.

### ENVIRONMENTAL PRECAUTIONS

**WATER SPILL:** Use appropriate containment to avoid runoff or release to sewer or waterways.

**LAND SPILL:** Use appropriate containment to avoid runoff or release to ground.

**RELEASE NOTES:** If spill could potentially enter any waterway, including intermittent dry creeks, contact the local authorities. If in the U.S., contact the US COAST GUARD NATIONAL RESPONSE CENTER toll free number 800-424-8802.

In case of accident or road spill notify:  
CHEMTREC in USA at 800-424-9300  
CHEMTREC, other countries, at (International code)+1 703 527 3887

**COMMENTS:** See Section 13 for disposal information and Section 15 for regulatory requirements. Large and small spills may have a broad definition depending on the user's handling system. Therefore, the spill category must be defined at the point of release by technically qualified personnel.

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## 7. HANDLING AND STORAGE

**HANDLING:** To avoid uncontrolled emissions, vent vapor from container to storage tank. Do not eat, drink, or smoke in working area. Refer to Exposure Controls/Personal Protection, Section 8, of the MSDS. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. 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 these areas where vapors of this product are suspected unless special breathing apparatus is used and an observer is present for assistance. Manual operations (such as cold cleaning or paint stripping) using methylene chloride should be engineered to provide for confining solvent vapors, adequate ventilation and/or respiratory protection to reduce the potential for overexposure to vapors. Gloves or other protective equipment should be worn if skin contact is likely.

**STORAGE:** Keep containers tightly closed when not in use.. Store in a cool, dry place. Significant vapor pressures (>5 psi) can be generated above 85F. This may result in venting or rupture. Do not store in zinc, aluminum, aluminum alloys, plastics. Product is denser than water. Design storage containers appropriately.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**ENGINEERING CONTROLS** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Lethal concentrations may exist in areas with poor ventilation.

### PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** Wear safety glasses with side shields or goggles when handling this material.

**SKIN:** To prevent any contact, wear impervious protective clothing such as neoprene or butyl rubber gloves, apron, boots or whole bodysuit, as appropriate.

**RESPIRATORY:** For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved self contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply.

**WORK HYGIENIC PRACTICES:** Facilities storing or using this material should be equipped with an eyewash facility and a safety shower. Good personal hygiene practices should always be followed.

**COMMENTS:** ACGIH TLV is 50 ppm, A3. OSHA PEL is 25 ppm TWA 125 ppm, STEL.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Liquid

**ODOR:** Irritating Odor

**APPEARANCE:** Colorless Liquid

**COLOR:** Water White

**pH:** Not Applicable

**VAPOR PRESSURE:** 205.57 mm/Hg

**VAPOR DENSITY:** 3.12

**BOILING POINT:** 105-305 °F

**FREEZING POINT:** > -50 °C

**SOLUBILITY IN WATER:** Negligible (<0.1%)

**EVAPORATION RATE:** 10 (N-butyl Acetate = 1)

**SPECIFIC GRAVITY:** 1.257

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## 10. STABILITY AND REACTIVITY

**HAZARDOUS POLYMERIZATION:** NO

**CONDITIONS TO AVOID:** Product can decompose at elevated temperatures. Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition. Avoid direct sunlight or ultraviolet sources..

**STABILITY:** Stable under recommended storage conditions. See Storage, Section 7.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Hazardous decomposition products may include and are not limited to hydrogen chloride. Hazardous decomposition products may include trace amounts of chlorine, phosgene.

**INCOMPATIBLE MATERIALS:** Avoid contact with oxidizing materials. Avoid contact with strong bases. Avoid unintended contact with amines. Avoid contact with metals such as zinc powders, aluminum powders, magnesium powders, potassium, sodium. Water contamination may cause corrosion of metals due to formation of hydrochloric acid.

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## 11. TOXICOLOGICAL INFORMATION: (See Section 3 for Potential Health Effects).

**DERMAL LD50:** dermal LD50 has not been determined.

**SKIN ABSORPTION:** No data available. .

**ORAL LD<sub>50</sub>:** The oral LD<sub>50</sub> for rats is between 1500-2500 mg/kg.

**INHALATION LC<sub>50</sub>:** Not Available

**EYE EFFECTS:** This material may cause significant irritation to the eyes.

**SKIN EFFECTS:** This material may cause significant irritation to the skin.

**SENSITIZATION:** Not Available

**TARGET ORGANS:** Liver, Kidneys

**CARCINOGENICITY:**

**IARC:** Listed by IARC - No

**NTP:** Listed by NTP - No

**OSHA:** Listed by OSHA - No

**MUTAGENICITY:** Negative or equivocal results have been obtained in mutagenicity tests with methylene chloride using mammalian cells or animals. This is consistent with the lack of interaction with DNA in rats and hamsters. Although results of Ames bacterial tests have generally been positive, overall the data suggest the genotoxic potential does not appear to be a significant factor Not Available

**REPRODUCTIVE EFFECTS:** Not Available

**TERATOGENIC EFFECTS:** Not Available

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## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL DATA:** May cause adverse environmental impact if material reaches waterways. Bioconcentration potential is low this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation rate may increase in soil and/or water with acclimation. In the atmospheric environment, material is estimated to have a tropospheric half-life of 79-110 days

**ECOTOXICOLOGICAL INFORMATION:** Material has low toxicity to aquatic organisms on an acute basis

**DISTRIBUTION:** Not Available

**CHEMICAL FATE INFORMATION:** Not Available

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### 13. DISPOSAL CONSIDERATIONS: (See Section 15 for Regulatory Information)

**DISPOSAL METHOD:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator

**FOR LARGE SPILLS:** Contain material and call local authorities for emergency assistance. In consultation with the appropriate authorities, determine the disposal method or contact the manufacturer.

**PRODUCT DISPOSAL:** Dispose of at a supervised incineration facility or an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.

**EMPTY CONTAINER:** Contaminated bags should be cleaned and disposed of in the same manner as the product in accordance with applicable regulations.

**GENERAL COMMENTS:** Refer to Section 6, Accidental Release Measures for additional information.

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### 14. TRANSPORT INFORMATION

**DOT (DEPARTMENT OF TRANSPORTATION) D.O.T Shipping Information:**

**Large Containers (>5 L)** RQ; Toxic, Liquid, Organic, N.O.S. (DICHLOROMETHANE, TETRACHLOROETHYLENE) ; 6.1 ; U.N.# 2810 ; PG.III; ERG# 55

**Small Containers ( 4 Lsize or smaller up to Max of 60 lbs. Per case):** Not Regulated; Consumer Commodity, ORM-D

**AIR (ICAO/IATA)**

**Large Containers (>5 L)** RQ; Toxic, Liquid, Organic, N.O.S. (DICHLOROMETHANE, TETRACHLOROETHYLENE) ; 6.1 ; U.N.# 2810 ; PG.III

**Small Containers ( 4 Lsize or smaller up to Max of 60 lbs. Per case):** Consumer Commodity, ORM-D AIR

**VESSEL (IMO/IMDG)**

**Large Containers (>5 L)** RQ; Toxic, Liquid, Organic, N.O.S. (DICHLOROMETHANE, TETRACHLOROETHYLENE) ; 6.1 ; U.N.# 2810 ; PG.III

**Small Containers ( 4 Lsize or smaller up to Max of 60 lbs. Per case):** Toxic, Liquid, Organic, N.O.S. (DICHLOROMETHANE, TETRACHLOROETHYLENE) ; 6.1 ; U.N.# 2810 ; PG.III

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### 15. REGULATORY INFORMATION

**UNITED STATES FEDERAL REGULATIONS**

**REPORTABLE QUANTITY (RQ):** 1000 POUNDS

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)** All ingredients are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act.

**CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)**

**REPORTABLE QUANTITY (RQ):** 1000 POUNDS

**TSCA (TOXIC SUBSTANCE CONTROL ACT):** All ingredients are listed on the TSCA Inventory.

**NATIONAL RESPONSE CENTER:** U.S. Coast Guard National Center telephone # 1-800-424-8802

**CANADA**

**WHMIS (WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM):** The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D1B - poisonous substance defined by TDG regulations D2A - possible, probable or known human carcinogen according to classifications by IARC or ACGIH

D2B - eye or skin irritant

Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**CANADA INGREDIENT DISCLOSURE LIST:** This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

<u>Chemical Name</u>	<u>Wt.%</u>	<u>CAS #</u>
Dichloromethane	70-90	75-09-2
Tetrachloroethylene	5-15	127-18-4

**CANADIAN ENVIRONMENTAL PROTECTION ACT:** All intentional ingredients are listed on the DSL (Domestic Substance List).

**EUROPEAN COMMUNITY**

**EUROPEAN COMMUNITY REGULATORY:** All intentional ingredients are listed on the European's EINECS Inventory.

**MEXICO** This product is considered to be an irritant according to Mexican Standard, Instruction No. 9, ANNEX 1.

**STATE REGULATIONS** Not Available

**REGULATIONS**

**STATE REGULATIONS:** Not Available

**LOCAL REGULATIONS:** Not Available

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**16. OTHER INFORMATION**

**REASON FOR ISSUE:** New 16 Part MSDS

**APPROVED BY:** Nicholas Kondrats **TITLE:** General Manager

**PREPARED BY:** Product Stewardship Department

**INFORMATION CONTACT:** Product Stewardship Analyst

<b>HMIS RATING</b>	
<b>HEALTH:</b>	<b>2</b>
<b>FLAMMABILITY:</b>	<b>1</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	<b>SEE SEC. 8</b>

**NFPA CODES**

**HEALTH:** 2  
**FLAMMABILITY:** 1  
**REACTIVITY:** 0

**MANUFACTURER DISCLAIMER:** Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.