

**** MATERIAL SAFETY DATA SHEET ****

Chloroform-D, 99.8 Atom % D Contains 1% V/V TMS
 ACROS95525

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Chloroform-D, 99.8 Atom % D Contains 1% V/V TMS
 Catalog Numbers:
 AC166260000, AC166260250, AC166260500, AC166261000, AC166262500
 Synonyms:
 Formyl Trichloride-D; Methane Trichloride-D; Methane-D, Trichloro-;
 Methenyl Trichloride-D; Methyl Trichloride-D; Trichloromethan-D;
 Trichloroform-D; Trichloromethane-D.

Company Identification (Europe): Acros Organics N.V.
 Janssen Pharmaceuticaal 3a
 2440 Geel, Belgium

Company Identification (USA): Acros Organics
 One Reagent Lane
 Fairlawn, NJ 07410
 For information in North America, call: 800-ACROS-01
 For information in Europe, call: 0032(0) 14575211
 For emergencies in the US, call CHEMTREC: 800-424-9300
 For emergencies in Europe, call: 0032(0) 14575299

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
75-76-3	Tetramethyl Silane	1.0% V/V	200-899-1
865-49-6	Chloroform-D	>99.0%	212-742-4

Hazard Symbols: XN
 Risk Phrases: 22 38 40 48/20/22

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear, colorless.
 Warning! Light sensitive. Cancer suspect agent. May be harmful if swallowed. This substance has caused adverse reproductive and fetal effects in animals. May cause central nervous system depression. May cause cardiac disturbances. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause cancer based on animal studies.

Target Organs: Blood, kidneys, heart, central nervous system, liver, gastrointestinal system, cardiovascular system, excretory system.

Potential Health Effects

Eye:

May cause conjunctivitis. Causes redness and pain. Contact with liquid causes immediate burning pain, tearing, and reddening of the conjunctiva.

Skin:

Causes irritation with burning pain, itching, and redness.

Ingestion:

May cause central nervous system depression, kidney damage, and liver damage. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause cardiac disturbances. May cause hallucinations and distorted perceptions.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause liver and kidney damage. May cause cardiac sensitization and possible failure. Inhalation of large amounts may cause respiratory stimulation, followed by respiratory depression, convulsions and possible death due to respiratory paralysis. May be absorbed through the lungs. Causes irritation of the mucous membrane and upper respiratory tract.

Chronic:

Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause dermatitis. May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Chronic exposure has been associated with an increased incidence of kidney, liver, rectal, bladder, colon, brain, and lymph node cancer. Toxicity may be increased by exposure to alcohol, steroids, and ketones. Prolonged exposure may cause liver, kidney, and heart damage.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. Do NOT allow victim to rub or keep eyes closed.

Skin:

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid. Wash mouth out with water.

Inhalation:

Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration.

Notes to Physician:

Causes cardiac sensitization to endogenous catecholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine or pseudoepinephrine. Persons with liver, kidney, or central nervous system diseases may be at increased risk from exposure to this product. Alcoholic beverage consumption may enhance the toxic effects of this substance. Effects may be delayed.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Use extinguishing media appropriate to the surrounding fire. Substance is nonflammable. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.

Extinguishing Media:

Do NOT get water inside containers. Do NOT use straight streams of water. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use water spray, fog or regular foam. Cool containers with flooding quantities of water until well after fire is out.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Avoid contact with eyes, skin, and clothing. Do not breathe dust, vapor, mist, or gas. Do not ingest or inhale. Store protected from light.

Storage:

Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances. Separate from strong mineral acids.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Tetramethyl Silane	none listed	none listed	none listed
Chloroform-D	none listed	none listed	none listed

OSHA Vacated PELs:

Tetramethyl Silane:
 No OSHA Vacated PELs are listed for this chemical.
 Chloroform-D:
 No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical

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safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR :1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear, colorless
Odor: sweet, fruity odor - ethereal odor
pH: Not available.
Vapor Pressure: 160 mm Hg @ 20 deg C
Vapor Density: 4.20 (Air=1)
Evaporation Rate: 11.6 (Butyl acetate=1)
Viscosity: 0.58 cps @ 20 d
Boiling Point: 60.5-61.5 deg C
Freezing/Melting Point: -63 deg C
Autoignition Temperature: Not available.
Flash Point: Not available.
NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Upper: Not available.
Decomposition Temperature: Not available.
Solubility: Slightly soluble.
Specific Gravity/Density: 1.492 (Water=1)
Molecular Formula: C₄H₁₀Cl₂
Molecular Weight: 120.373

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Light sensitive.

Conditions to Avoid: High temperatures, incompatible materials, light, moisture.

Incompatibilities with Other Materials: Strong oxidizing agents, aluminum, fluorine, magnesium, sodium potassium, lithium, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), dinitrogen tetroxide, sodium + methanol, potassium-tert-butoxide, chemically active metals, Attacks some forms of plastics, rubbers, and coatings.; nitrogen tetroxide, acetone + alkali, disilane, perchloric acid + phosphorus pentoxide, sodium methylate, triisopropylphosphine, sodium methoxide + methanol.

Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, chlorine, phosgene gas.
Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#: CAS# 75-76-3 unlisted.
CAS# 865-49-6 unlisted.

LD50/LC50: Not available.
Not available.

Carcinogenicity: Tetramethyl Silane - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Chloroform-D - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: Oral, rat: TDLo = 13832 mg/kg/2Y-C (Tumorigenic - Carcinogenic by RTECS criteria - Blood - leukemia).; Oral, mouse: TDLo = 127 gm/kg/92W-I (Tumorigenic - Carcinogenic by RTECS criteria - Liver - tumors).; Oral, rat: TD = 98 gm/kg/78W-I (Tumorigenic - neoplastic by RTECS criteria - Kidney, Ureter, Bladder - Kidney tumors and Endocrine - thyroid tumors).; Oral, mouse: TD = 18 gm/kg/17W-I (Tumorigenic - neoplastic by RTECS criteria - Liver - tumors).; Teratogenicity: Oral, rat: TDLo = 1260 mg/kg (female 6-15 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus) Specific Developmental Abnormalities - musculoskeletal system.; Inhalation, rat: TCLo = 100 ppm/7H (female 6-15 day(s) after conception) Specific Developmental Abnormalities - gastrointestinal system and homeostasis.; Inhalation, mouse: TCLo = 100 ppm/7H (female 8-15 day(s) after conception) Specific Developmental Abnormalities - craniofacial (including nose and tongue).

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Reproductive Effects: Inhalation, rat: TCLo = 30 ppm/7H (female 6-15 day(s) after conception) Fertility - other measures of fertility.; Inhalation, rat: TCLo = 300 ppm/7H (female 6-15 day(s) after conception) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated) and post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

Neurotoxicity: No information available.

Mutagenicity: DNA Inhibition: Human, HeLa cell = 19 mmol/L.; Sister Chromatid Exchange: Human, Lymphocyte = 10 mmol/L.; Micronucleus Test:

Oral, rat = 4 mmol/kg.; Unscheduled DNA Synthesis: Oral, rat = 1 gm/kg.; Sister Chromatid Exchange: Hamster, Embryo = 100 umol/L.

Other Studies: Open Irritation test: Administration onto the skin (rabbit) 10 mg/24H (Mild). Standard Draize Test: Administration onto the skin (rabbit) = 500 mg/24H (Mild). Standard Draize Test: Administration into the eye (rabbit) = 20 mg/24H (Moderate).

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity: Fish: Channel catfish: LC50 = 75 ppm; 96 Hr; Unspecified Fish: Rainbow trout: LC50 = 43.8 mg/L; 96 Hr; Static bioassay Fish: Fathead Minnow: LC50 = 129.0 mg/L; 96 Hr; Static bioassay (pH = 7.6-8.3) Fish: Bluegill/Sunfish: LC50 = 100.0 mg/L; 96 Hr; Static bioassay Water flea Daphnia: EC50 = 28.9 mg/L; 48 Hr; Static bioassay The majority of the environmental releases from industrial uses are to the atmosphere; releases to water and land will be primarily lost by evaporation and will end up in the atmosphere. Release to the atmosphere may be transported long distances and will photodegrade with a half-life of a few months. Spills and other releases on land

Other: For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations. RCRA P-Series: None listed. RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT Shipping Name: CHLOROFORM
Hazard Class: 6.1
UN Number: 1888
Packing Group: III
Canadian TD: No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL TSCA

CAS# 75-76-3 is listed on the TSCA inventory. CAS# 865-49-6 is not listed on the TSCA inventory. It is for research and development use only. Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List. Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule. Section 12b: None of the chemicals are listed under TSCA Section 12b. TSCA Significant New Use Rule: None of the chemicals in this material have a SNUR under TSCA.

SARA Section 302 (RQ): None of the chemicals in this material have an RQ. Section 302 (TPQ): None of the chemicals in this product have a TPQ. SARA Codes: CAS # 75-76-3: flammable. Section 313: No chemicals are reportable under Section 313.

Clean Air Act: This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act: None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE Tetramethyl Silane can be found on the following state right to know lists: New Jersey.

Chloroform-D is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:

R 22 Harmful if swallowed.

R 38 Irritating to skin.

R 40 Possible risks of irreversible effects.

R 48/20/22 Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety Phrases:

S 36/37 Wear suitable protective clothing and gloves.

WGK (Water Danger/Protection)

CAS# 75-76-3: No information available.

CAS# 865-49-6: No information available.

United Kingdom Occupational Exposure Limits

Canada

CAS# 75-76-3 is listed on Canada's DSL/NDSL List.

CAS# 865-49-6 is listed on Canada's DSL/NDSL List.

This product has a WHMIS classification of D2A, D2B.

CAS# 75-76-3 is not listed on Canada's Ingredient Disclosure List.

CAS# 865-49-6 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/02/1997 Revision #2 Date: 5/26/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.
