



**MATHESON**

ask...The Gas Professionals™

## Safety Data Sheet

Material Name METHYL CHLOROFORM

SDS ID: MAT14370

### \*\*\*Section 1 - IDENTIFICATION\*\*\*

**Product Identifier:** METHYL CHLOROFORM

**Trade Names/Synonyms**

MTG MSDS 219; 1,1,1-TRICHLOROETHANE; ALPHA-TRICHLOROETHANE; AEROTHENE TT;  
METHYLTRICHLOROMETHANE; METHYLCHLOROFORM; TRICHLOROMETHYLMETHANE;  
TRICHLOROETHANE; ETHANE, 1,1,1-TRICHLOROETHANE; CHLORTEN; 1,1,1-TRICHLOROETHANE; UN  
2831; C2H3Cl3

**Chemical Family**

halogenated, aliphatic

**Recommended Use**

industrial

**Restrictions on Use**

None known.

**Manufacturer Information**

MATHESON TRI-GAS, INC.  
150 Allen Road, Suite 302  
Basking Ridge, NJ 07920

General Information: 1-800-416-2505  
Emergency #: 1-800-424-9300 (CHEMTREC)  
Outside the US: 703-527-3887 (Call collect)

### \*\*\*Section 2 - HAZARDS IDENTIFICATION\*\*\*

**Classification in accordance with 29 CFR 1910.1200**

Acute Toxicity (Inhalation), Category 4  
Skin Corrosion / Irritation, Category 2  
Eye Damage / Irritation, Category 2A  
Toxic to Reproduction, Category 2  
Specific Target Organ Toxicity - Single Exposure, Category 1 (central nervous system and heart)  
Specific Target Organ Toxicity - Single Exposure, Category 3 (respiratory system)  
Specific Target Organ Toxicity - Repeated Exposure, Category 1 (central nervous system, heart, and liver)  
Specific Target Organ Toxicity - Repeated Exposure, Category 2 (brain, lungs, and nervous system)  
Hazardous to the Aquatic Environment - Acute Hazard, Category 2  
Hazardous to the Aquatic Environment - Chronic Hazard, Category 2  
Hazardous for the ozone layer, Category 1

**GHS LABEL ELEMENTS**

**Symbol(s)**



**Signal Word**

DANGER

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## Hazard Statement(s)

Harmful if inhaled  
Causes skin irritation  
Causes serious eye irritation  
Suspected of damaging fertility or the unborn child  
Causes damage to central nervous system and heart.  
May cause respiratory tract irritation.  
Causes damage to central nervous system, heart, and liver through prolonged or repeated exposure.  
May cause damage to brain, lungs, nervous system through prolonged or repeated exposure.  
Toxic to aquatic life with long lasting effects  
Harms public health and the environment by destroying ozone in the upper atmosphere

## Precautionary Statement(s)

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

### Response

IF exposed: Call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage.

### Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

### Disposal

Dispose of in accordance with applicable regulations.  
Refer to manufacturer/supplier for information on recovery/recycling.

## \*\*\*Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS\*\*\*

CAS	Component	Percent
71-55-6	METHYL CHLOROFORM	100

## Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following:  
Trichloroethane (25323-89-1).

## \*\*\*Section 4 - FIRST AID MEASURES\*\*\*

### Description of Necessary Measures

#### Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

#### Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

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## Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

## Ingestion

If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

## Most Important Symptoms/Effects

### Acute

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

### Delayed

central nervous system damage, heart damage, liver damage, reproductive effects, lung damage, brain damage, nervous system damage

## Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

## \* \* \*Section 5 - FIRE FIGHTING MEASURES\* \* \*

### Suitable Extinguishing Media

carbon dioxide, regular dry chemical, water spray

Large fires: Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray.

### Unsuitable Extinguishing Media

Do not scatter spilled material with high-pressure water streams.

### Specific Hazards Arising from the Chemical

Slight fire hazard.

### Hazardous Combustion Products

**Combustion:** hydrogen chloride, phosgene, oxides of carbon

### Fire Fighting Measures

Move container from fire area if it can be done without risk. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

### Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

## \* \* \*Section 6 - ACCIDENTAL RELEASE MEASURES\* \* \*

### Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

### Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. Stop leak if possible without personal risk. **Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. **Large spills:** Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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## \*\*\*Section 7 - HANDLING AND STORAGE\*\*\*

### Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves and eye/face protection. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

### Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in a cool, dry place. Keep separated from incompatible substances.

**Incompatibilities** combustible materials, bases, metals, oxidizing materials

## \*\*\*Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION\*\*\*

### Component Exposure Limits

#### METHYL CHLOROFORM (71-55-6)

**ACGIH:** 350 ppm TWA  
450 ppm STEL

**Europe:** 100 ppm TWA; 555 mg/m<sup>3</sup> TWA  
200 ppm STEL; 1110 mg/m<sup>3</sup> STEL

**OSHA (Final):** 350 ppm TWA; 1900 mg/m<sup>3</sup> TWA

**OSHA (Vacated):** 350 ppm TWA; 1900 mg/m<sup>3</sup> TWA  
450 ppm STEL; 2450 mg/m<sup>3</sup> STEL

**NIOSH:** 350 ppm Ceiling (15 min); 1900 mg/m<sup>3</sup> Ceiling (15 min)

### Component Biological Limit Values

#### METHYL CHLOROFORM (71-55-6)

**ACGIH:** 40 ppm Medium: end-exhaled air Time: prior to last shift of workweek Parameter: Methyl chloroform; 10 mg/L Medium: urine Time: end of workweek Parameter: Trichloroacetic acid (nonspecific, semi-quantitative); 30 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific, semi-quantitative); 1 mg/L Medium: blood Time: end of shift at end of workweek Parameter: Total trichloroethanol (nonspecific)

### IDLH

700 ppm

### Appropriate Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

### Individual Protection Measures, such as Personal Protective Equipment

#### Eyes/Face Protection

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

#### Skin Protection

Wear appropriate chemical resistant clothing.

#### Glove Recommendations

Wear appropriate chemical resistant gloves.

#### Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.  
700 ppm  
Any supplied-air respirator.

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Any self-contained breathing apparatus with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

## \*\*\*Section 9 - PHYSICAL AND CHEMICAL PROPERTIES\*\*\*

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	clear, colorless liquid
<b>Color:</b>	colorless	<b>Physical Form:</b>	volatile liquid
<b>Odor:</b>	sweet odor	<b>Odor Threshold:</b>	44 - 100 ppm
<b>pH:</b>	Not available	<b>Melting/Freezing Point:</b>	-32 °C
<b>Boiling Point:</b>	74 °C	<b>Flash Point:</b>	>93.3 °C
<b>Decomposition:</b>	Not available	<b>Evaporation Rate:</b>	5.0 (butyl acetate=1)
<b>LEL:</b>	7.5 %	<b>UEL:</b>	12.5 %
<b>Vapor Pressure:</b>	100 mmHg @ 20 °C	<b>Henry's Law Constant:</b>	0.072 atm-cu m/mole @ 25°C
<b>Vapor Density (air = 1):</b>	4.55	<b>Specific Gravity (water=1):</b>	1.3390
<b>Water Solubility:</b>	0.078 % @ 25 °C	<b>Log KOW:</b>	2.49
<b>KOC:</b>	17823.79 estimated from water solubility	<b>Auto Ignition:</b>	537 °C
<b>Viscosity:</b>	0.858 cP @20 °C	<b>Volatility:</b>	100%
<b>Molecular Weight:</b>	133.40	<b>Molecular Formula:</b>	C-H3-C-Cl3

### Other Property Information

No additional information is available.

### Solvent Solubility

**Soluble:** acetone, benzene, chloroform, methanol, ethanol, carbon disulfide, ether, carbon tetrachloride, heptane

## \*\*\*Section 10 - STABILITY AND REACTIVITY\*\*\*

### Reactivity

No reactivity hazard is expected.

### Chemical Stability

Stable at normal temperatures and pressure.

### Possibility of Hazardous Reactions

Will not polymerize.

### Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

### Incompatible Materials

combustible materials, bases, metals, oxidizing materials

### Hazardous Decomposition

**Combustion:** hydrogen chloride, phosgene, oxides of carbon

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## \*\*\*Section 11 - TOXICOLOGICAL INFORMATION\*\*\*

### Acute and Chronic Toxicity

#### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

#### **METHYL CHLOROFORM (71-55-6)**

Dermal LD50 Rabbit >15800 mg/kg; Inhalation LC50 Rat 18000 ppm 4 h; Oral LD50 Rat >2000 mg/kg

#### RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### **METHYL CHLOROFORM (71-55-6)**

**Inhalation:** 24400 mg/m<sup>3</sup> Inhalation Cat LC50; 29492 ppm/10 minute(s) Inhalation Mouse LC50; 3911 ppm/2 hour Inhalation Mouse LC50; 20000 ppm/2 hour Inhalation Rat LC50; 14250 ppm/7 hour Inhalation Rat LC50; 17000 ppm/4 hour Inhalation Rat LC50

#### Acute Toxicity Level

#### **METHYL CHLOROFORM (71-55-6)**

**Slightly Toxic:** inhalation, dermal absorption, ingestion

#### Information on Likely Routes of Exposure

##### Inhalation

irritation, changes in blood pressure, nausea, vomiting, diarrhea, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, mood swings, loss of coordination, blood disorders, heart disorders, kidney damage, liver damage, convulsions, unconsciousness, coma, heart damage, reproductive effects

##### Ingestion

irritation, nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, kidney damage, liver damage, convulsions, unconsciousness, coma, reproductive effects

##### Skin Contact

irritation (possibly severe)

##### Eye Contact

irritation

##### Immediate Effects

respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, central nervous system damage, heart damage

##### Delayed Effects

central nervous system damage, heart damage, liver damage, reproductive effects, brain damage, lung damage, nervous system damage

##### Medical Conditions Aggravated by Exposure

heart or cardiovascular disorders, kidney disorders, liver disorders, skin disorders and allergies

##### Irritation/Corrosivity Data

respiratory tract irritation, skin irritation, eye irritation

##### RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### **METHYL CHLOROFORM (71-55-6)**

450 ppm/8 hour Eyes Man; 100 mg Eyes Rabbit mild; 2 mg/24 hour Eyes Rabbit severe; 5 gm/12 day(s) intermittent Skin Rabbit mild; 20 mg/24 hour Skin Rabbit moderate

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## Local Effects

**METHYL CHLOROFORM (71-55-6)**

Irritant: inhalation, skin, eye

## Target Organs

**METHYL CHLOROFORM (71-55-6)**

central nervous system

## Respiratory Sensitization

No data available.

## Dermal Sensitization

No data available.

## Carcinogenicity

### Component Carcinogenicity

**METHYL CHLOROFORM (71-55-6)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 20 [1979] (Group 3 (not classifiable))

## RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

## Reproductive Effects Data

Available data characterizes this substance as a reproductive hazard.

## RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes the following endpoints:

**METHYL CHLOROFORM (71-55-6)**

2100 ppm Inhalation Rat TLo (6 hour, pregnant 1-20 day(s)); 7000 ppm Inhalation Rat TLo (3 hour, pregnant 13-19 day(s)); 43 mg/kg Oral Rat TLo (pregnant 1-22 day(s), 21 day(s))

## RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

## Additional Data

Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

## Specific Target Organ Toxicity - Single Exposure

central nervous system, heart, respiratory system

## Specific Target Organ Toxicity - Repeated Exposure

central nervous system, heart, liver, brain, lungs, nervous system

## Aspiration Hazard

Not expected to be an aspiration hazard.

## \*\*\*Section 12 - ECOLOGICAL INFORMATION\*\*\*

## Ecotoxicity

Toxic to aquatic life with long lasting effects.

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## Component Analysis - Aquatic Toxicity

### METHYL CHLOROFORM (71-55-6)

**Fish:** 96 Hr LC50 Pimephales promelas: 35.2 - 50.7 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 57 - 90 mg/L [static] (juvenile); 96 Hr LC50 Cyprinus carpio: 56 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 52.9 mg/L [flow-through]; 96 Hr LC50 Poecilia reticulata: 69.7 mg/L [static]; 96 Hr LC50 Pimephales promelas: 91 - 126 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 46 - 59 mg/L [static]

**Algae:** 96 Hr EC50 Pseudokirchneriella subcapitata: >500 mg/L

**Invertebrate:** 48 Hr LC50 Daphnia magna: >530 mg/L; 48 Hr EC50 Daphnia magna: 2384 mg/L; 48 Hr EC50 Daphnia magna: 9.7 - 12.8 mg/L [Static]

## Persistence and Degradability

This material may biodegrade in soil and water.

## Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on BCF value of 0.7-4.9.

## Mobility

Expected to have high mobility in soil.

## \*\*\*Section 13 - DISPOSAL CONSIDERATIONS\*\*\*

### Disposal Methods

Dispose in accordance with all applicable regulations.

### Component Waste Numbers

#### METHYL CHLOROFORM (71-55-6)

RCRA: waste number U226

## \*\*\*Section 14 - TRANSPORT INFORMATION\*\*\*

### US DOT Information

**Shipping Name:** 1,1,1-Trichloroethane  
**UN/NA #:** UN2831 **Hazard Class:** 6.1 **Packing Group:** III  
**Required Label(s):** 6.1

### IMDG Information

**Shipping Name:** 1,1,1-Trichloroethane  
**UN #:** UN2831 **Hazard Class:** 6.1 **Packing Group:** III  
**Required Label(s):** 6.1

## \*\*\*Section 15 - REGULATORY INFORMATION\*\*\*

### Component Analysis

#### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

#### METHYL CHLOROFORM (71-55-6)

**SARA 313:** 1.0 % de minimis concentration  
**CERCLA:** 1000 lb final RQ; 454 kg final RQ

#### SARA 311/312 Hazardous Categories

**Acute Health:** Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactive:** No

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## U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
METHYL CHLOROFORM	71-55-6	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

## Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
METHYL CHLOROFORM	71-55-6	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

## \*\*\*Section 16 - OTHER INFORMATION\*\*\*

**NFPA Ratings: Health: 2 Fire: 1 Reactivity: 0**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

### Other Information

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End of Sheet MAT14370