

## SAFETY DATA SHEET

Creation Date 20-October-2009

Revision Date 14-February-2020

Revision Number 3

### 1. Identification

**Product Name** Chloroform, ACS

**Cat No. :** 32614

**CAS-No** 67-66-3  
**Synonyms** Methane trichloride; Methenyl trichloride; Formyl trichloride

**Recommended Use** Laboratory chemicals.  
**Uses advised against** .  
**Details of the supplier of the safety data sheet**

#### Company

**Importer/Distributor**  
Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

#### **Manufacturer**

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street, Ward Hill, MA 01835-8099  
**Tel:** 800-343-0660 **Fax:** 800-322-4757  
**Email:** tech@alfa.com  
**www.alfa.com**

#### **Emergency Telephone Number**

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.  
After normal business hours, call Carechem 24 at (800) 579-7421.

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

|   |            |
|---|------------|
| <b>Acute oral toxicity</b>                                  | Category 4 |
| <b>Acute Inhalation Toxicity</b>                            | Category 3 |
| <b>Skin Corrosion/Irritation</b>                            | Category 2 |
| <b>Serious Eye Damage/Eye Irritation</b>                    | Category 2 |
| <b>Carcinogenicity</b>                                      | Category 2 |
| <b>Reproductive Toxicity</b>                                | Category 2 |
| <b>Specific target organ toxicity (single exposure)</b>     | Category 3 |
| Target Organs - Central nervous system (CNS).               |            |
| <b>Specific target organ toxicity - (repeated exposure)</b> | Category 2 |
| Target Organs - Liver, Kidney.                              |            |

#### Label Elements

**Signal Word**  
Danger

**Hazard Statements**

Harmful if swallowed  
 Toxic if inhaled  
 Causes skin irritation  
 Causes serious eye irritation  
 May cause respiratory irritation  
 May cause drowsiness and dizziness  
 Suspected of causing cancer  
 Suspected of damaging the unborn child  
 May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements****Manufacturer**

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**Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fumes/gas/mist/vapours/spray  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Use only outdoors or in a well-ventilated area

**Response**

IF exposed or concerned: Get medical advice/attention  
 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell  
 IF ON SKIN: Wash with plenty of soap and water  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 Rinse mouth  
 If skin irritation occurs: Get medical advice/attention  
 Take off contaminated clothing

**Storage**

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

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

| Component  | CAS-No   | Weight % |
|------------|----------|----------|
| Chloroform | 67-66-3  | >99      |
| 1-Pentene  | 109-67-1 | 0.01     |

### 4. First-aid measures

|  |  |
|--|--|
| <b>General Advice</b>                  | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.  |
| <b>Eye Contact</b>                     | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.   |
| <b>Skin Contact</b>                    | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.  |
| <b>Inhalation</b>                      | Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. |
| <b>Ingestion</b>                       | Do NOT induce vomiting. Call a physician or poison control center immediately.   |
| <b>Most important symptoms/effects</b> | . Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression   |
| <b>Notes to Physician</b>              | Treat symptomatically  |

## 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. |
| <b>Unsuitable Extinguishing Media</b>   | No information available  |
| <b>Flash Point</b>                      | No information available  |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | No information available  |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | No data available   |
| <b>Lower</b>                            | No data available   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

### Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Phosgene. Hydrogen chloride gas.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 2             | 0                   | 0                  | N/A                     |

## 6. Accidental release measures

|   |   |
|---|---|
| <b>Personal Precautions</b>                 | Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. |
| <b>Environmental Precautions</b>            | Should not be released into the environment.  |
| <b>Methods for Containment and Clean Up</b> | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.  |

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. |
| <b>Storage</b>  | Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Store under an inert atmosphere. Protect from moisture.  |

## 8. Exposure controls / personal protection

### Exposure Guidelines

| Component  | Alberta                                  | British Columbia | Ontario TWAEV | Quebec                                    | ACGIH TLV   | OSHA PEL   | NIOSH IDLH   |
|------------|--|------------------|---------------|---|-------------|--|--|
| Chloroform | TWA: 10 ppm<br>TWA: 49 mg/m <sup>3</sup> | TWA: 2 ppm       | TWA: 10 ppm   | TWA: 5 ppm<br>TWA: 24.4 mg/m <sup>3</sup> | TWA: 10 ppm | (Vacated) TWA: 2 ppm<br>(Vacated) TWA: 9.78 mg/m <sup>3</sup><br>Ceiling: 50 ppm<br>Ceiling: 240 mg/m <sup>3</sup> | IDLH: 500 ppm<br>STEL: 2 ppm<br>STEL: 9.78 mg/m <sup>3</sup> |

#### Legend

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

### Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

| Glove material | Breakthrough time | Glove thickness | Glove comments  |
|----------------|-------------------|-----------------|---|
| Viton (R)      | > 480 minutes     | -               | As tested under EN374-3<br>Determination of Resistance to Permeation by Chemicals |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** low boiling organic solvent Type AX Brown conforming to EN371

When RPE is used a face piece Fit Test should be conducted

### Environmental exposure controls

Prevent product from entering drains.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|   |                           |
|---|---------------------------|
| <b>Physical State</b>                         | Liquid                    |
| <b>Appearance</b>                             | Colorless                 |
| <b>Odor</b>                                   | aromatic sweet            |
| <b>Odor Threshold</b>                         | No information available  |
| <b>pH</b>                                     | No information available  |
| <b>Melting Point/Range</b>                    | -63 °C / -81.4 °F         |
| <b>Boiling Point/Range</b>                    | 61 °C / 141.8 °F          |
| <b>Flash Point</b>                            | No information available  |
| <b>Evaporation Rate</b>                       | No information available  |
| <b>Flammability (solid,gas)</b>               | Not applicable            |
| <b>Flammability or explosive limits</b>       |                           |
| <b>Upper</b>                                  | No data available         |
| <b>Lower</b>                                  | No data available         |
| <b>Vapor Pressure</b>                         | 213 mbar @ 20 °C          |
| <b>Vapor Density</b>                          | No information available  |
| <b>Specific Gravity</b>                       | 1.480                     |
| <b>Solubility</b>                             | Slightly soluble in water |
| <b>Partition coefficient; n-octanol/water</b> | No data available         |
| <b>Autoignition Temperature</b>               | No information available  |
| <b>Decomposition Temperature</b>              | No information available  |
| <b>Viscosity</b>                              | 0.56 mPa s at 20 °C       |
| <b>Molecular Formula</b>                      | C H Cl <sub>3</sub>       |
| <b>Molecular Weight</b>                       | 119.38                    |
| <b>VOC Content(%)</b>                         | 100                       |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactive Hazard</b>                  | None known, based on information available   |
| <b>Stability</b>                        | Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR. Light sensitive.      |
| <b>Conditions to Avoid</b>              | Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Alkali metals, Aluminium, Acetone   |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Phosgene, Hydrogen chloride gas               |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.   |
| <b>Hazardous Reactions</b>              | None under normal processing.  |

## 11. Toxicological information

**Acute Toxicity****Product Information****Component Information**

| Component  | LD50 Oral  | LD50 Dermal               | LC50 Inhalation                             |
|------------|--|---------------------------|---|
| Chloroform | LD50 = 695 mg/kg ( Rat )<br>LD50 = 450 mg/kg ( Rat ) | LD50 > 20 g/kg ( Rabbit ) | 47,702 mg/L ( Rat ) 4 h                     |
| 1-Pentene  | >2000 mg/kg (Rat)                                    | >2000 mg/kg (Rabbit)      | LC50 = 175000 mg/m <sup>3</sup> ( Rat ) 4 h |

**Toxicologically Synergistic** No information available

**Products****Delayed and immediate effects as well as chronic effects from short and long-term exposure****Irritation** Irritating to eyes and skin**Sensitization** No information available**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component  | CAS-No   | IARC       | NTP                    | ACGIH      | OSHA       | Mexico     |
|------------|----------|------------|------------------------|------------|------------|------------|
| Chloroform | 67-66-3  | Group 2B   | Reasonably Anticipated | A3         | X          | A3         |
| 1-Pentene  | 109-67-1 | Not listed | Not listed             | Not listed | Not listed | Not listed |

IARC (International Agency for Research on Cancer)

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

A1 - Confirmed Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Confirmed Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen

A5 - Not Suspected as a Human Carcinogen

**Mutagenic Effects** No information available**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.**Developmental Effects** Developmental effects have occurred in experimental animals.**Teratogenicity** Study result . negative.**STOT - single exposure** Central nervous system (CNS)**STOT - repeated exposure** Liver Kidney**Aspiration hazard** No information available**Symptoms / effects, both acute and delayed** Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression**Endocrine Disruptor Information** No information available**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms.

| Component  | Freshwater Algae    | Freshwater Fish   | Microtox  | Water Flea           |
|------------|---------------------|---|---|----------------------|
| Chloroform | EC50 = 560 mg/L/48h | LC50: = 300 mg/L, 96h static (Poecilia reticulata)<br>LC50: = 18 mg/L, 96h flow-through (Lepomis macrochirus)<br>LC50: = 18 mg/L, 96h | Photobacterium phosphoreum: EC50 = 520 mg/L/5 min<br>Photobacterium phosphoreum: EC50 = 670 mg/L/15 min | EC50 = 28.9 mg/L/48h |

|  |  |  |   |  |
|--|--|--|---|--|
|  |  | flow-through (Oncorhynchus mykiss)<br>LC50: = 71 mg/L, 96h<br>flow-through (Pimephales promelas) | Photobacterium phosphoreum: EC50 = 670 mg/L/30min |  |
|--|--|--|---|--|

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its volatility.

| Component  | log Pow |
|------------|---------|
| Chloroform | 2       |
| 1-Pentene  | 2.66    |

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component            | RCRA - U Series Wastes | RCRA - P Series Wastes |
|----------------------|------------------------|------------------------|
| Chloroform - 67-66-3 | U044                   | -                      |

### 14. Transport information

#### DOT

UN-No UN1888  
 Proper Shipping Name CHLOROFORM  
 Hazard Class 6.1  
 Packing Group III

#### TDG

UN-No UN1888  
 Proper Shipping Name CHLOROFORM  
 Hazard Class 6.1  
 Packing Group III

#### IATA

UN-No UN1888  
 Proper Shipping Name Chloroform  
 Hazard Class 6.1  
 Packing Group III

#### IMDG/IMO

UN-No UN1888  
 Proper Shipping Name Chloroform  
 Hazard Class 6.1  
 Packing Group III

### 15. Regulatory information

#### International Inventories

| Component  | DSL | NDSL | TSCA | EINECS    | ELINCS | PICCS | ENCS | AICS | KECL     | IECSC |
|------------|-----|------|------|-----------|--------|-------|------|------|----------|-------|
| Chloroform | X   | -    | X    | 200-663-8 | -      | X     | X    | X    | X        | X     |
| 1-Pentene  | X   | -    | X    | 203-694-5 | -      | X     | X    | X    | KE-28027 | X     |

#### Legend

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances  
IECSC - Chinese Inventory of Existing Chemical Substances

### Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

| Component  | Canada - National Pollutant Release Inventory (NPRI) | Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances | Canada's Chemicals Management Plan (CEPA) |
|------------|--|--|---|
| Chloroform | Part 1, Group A Substance Part 4 Substance           |  |   |
| 1-Pentene  | Part 4 Substance Part 5, Isomer Groups               |  |   |

**Legend** NPRI - National Pollutant Release Inventory

## 16. Other information

**Prepared By** Product Safety Department  
Email: tech@alfa.com  
www.alfa.com

**Creation Date** 20-October-2009  
**Revision Date** 14-February-2020  
**Print Date** 14-February-2020  
**Revision Summary** Mise à jour des systèmes de création SDS, remplace ChemGes SDS No. 67-66-3/1.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**