

## SAFETY DATA SHEET

Creation Date 20-Oct-2009

Revision Date 14-Feb-2020

Revision Number 3

### 1. Identification

**Product Name** Chloroform, HPLC Grade

**Cat No. :** 43685

**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

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 (866) 928-0789.

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|                                                      |            |
|------------------------------------------------------|------------|
| Acute oral toxicity                                  | Category 4 |
| Acute Inhalation Toxicity - Vapors                   | Category 3 |
| Skin Corrosion/Irritation                            | Category 2 |
| Serious Eye Damage/Eye Irritation                    | Category 2 |
| Carcinogenicity                                      | Category 2 |
| Reproductive Toxicity                                | Category 2 |
| Specific target organ toxicity (single exposure)     | Category 3 |
| Target Organs - Central nervous system (CNS).        |            |
| Specific target organ toxicity - (repeated exposure) | 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  
 Suspected of causing cancer  
 Suspected of damaging the unborn child  
 May cause respiratory irritation  
 May cause drowsiness or dizziness  
 May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 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  
 Wear eye/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

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

**Eyes**

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

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 Rinse mouth

**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

**Hazards not otherwise classified (HNOC)**

WARNING. Cancer and Reproductive Harm - <https://www.p65warnings.ca.gov/>.

### 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 and 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

**Health**  
2

**Flammability**  
0

**Instability**  
0

**Physical hazards**  
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</b> | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.                                                                      |

Up

## 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  | ACGIH TLV   | OSHA PEL                                                                                                           | NIOSH IDLH                                                   | Mexico OEL (TWA)                                                                        |
|------------|-------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Chloroform | 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> | TWA: 10 ppm<br>TWA: 50 mg/m <sup>3</sup><br>STEL: 50 ppm<br>STEL: 225 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.

### Personal Protective Equipment

|                                 |                                                                                                                                                                                                                                                   |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye/face Protection</b>      | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.                                                                       |
| <b>Skin and body protection</b> | Wear appropriate protective gloves and clothing to prevent skin exposure.                                                                                                                                                                         |
| <b>Respiratory Protection</b>   | 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. |
| <b>Hygiene Measures</b>         | 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         |

|                                        |                           |
|----------------------------------------|---------------------------|
| Vapor Density                          | No information available  |
| Specific Gravity                       | 1.480                     |
| Solubility                             | Slightly soluble in water |
| Partition coefficient; n-octanol/water | No data available         |
| Autoignition Temperature               | No information available  |
| Decomposition Temperature              | No information available  |
| Viscosity                              | 0.56 mPa s at 20 °C       |
| Molecular Formula                      | C H Cl <sub>3</sub>       |
| Molecular Weight                       | 119.38                    |
| VOC Content(%)                         | 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 Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                        |                                                                                          |
|------------------------|------------------------------------------------------------------------------------------|
| <b>Irritation</b>      | Irritating to eyes and skin                                                              |
| <b>Sensitization</b>   | No information available                                                                 |
| <b>Carcinogenicity</b> | 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)

NTP: (National Toxicity Program)

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)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

**Carcinogen**

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

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

|                                                  |                                                                                                                                                        |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mutagenic Effects</b>                         | No information available                                                                                                                               |
| <b>Reproductive Effects</b>                      | Experiments have shown reproductive toxicity effects on laboratory animals.                                                                            |
| <b>Developmental Effects</b>                     | Developmental effects have occurred in experimental animals.                                                                                           |
| <b>Teratogenicity</b>                            | Study result . negative.                                                                                                                               |
| <b>STOT - single exposure</b>                    | Central nervous system (CNS)                                                                                                                           |
| <b>STOT - repeated exposure</b>                  | Liver Kidney                                                                                                                                           |
| <b>Aspiration hazard</b>                         | No information available                                                                                                                               |
| <b>Symptoms / effects,both acute and delayed</b> | Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression |
| <b>Endocrine Disruptor Information</b>           | No information available                                                                                                                               |
| <b>Other Adverse Effects</b>                     | 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 flow-through (Oncorhynchus mykiss)<br>LC50: = 71 mg/L, 96h flow-through (Pimephales promelas) | Photobacterium phosphoreum: EC50 = 520 mg/L/5 min<br>Photobacterium phosphoreum: EC50 = 670 mg/L/15 min<br>Photobacterium phosphoreum: EC50 = 670 mg/L/30min | EC50 = 28.9 mg/L/48h |

**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

### United States of America Inventory

| Component  | CAS-No   | TSCA | TSCA Inventory notification - Active/Inactive | TSCA - EPA Regulatory Flags |
|------------|----------|------|-----------------------------------------------|-----------------------------|
| Chloroform | 67-66-3  | X    | ACTIVE                                        | -                           |
| 1-Pentene  | 109-67-1 | X    | ACTIVE                                        | -                           |

#### Legend:

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export      Not applicable

### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

| Component  | CAS-No   | DSL | NDSL | EINECS    | PICCS | ENCS | AICS | IECSC | KECL     |
|------------|----------|-----|------|-----------|-------|------|------|-------|----------|
| Chloroform | 67-66-3  | X   | -    | 200-663-8 | X     | X    | X    | X     | X        |
| 1-Pentene  | 109-67-1 | X   | -    | 203-694-5 | X     | X    | X    | X     | KE-28027 |

### U.S. Federal Regulations

#### SARA 313

| Component  | CAS-No  | Weight % | SARA 313 - Threshold Values % |
|------------|---------|----------|-------------------------------|
| Chloroform | 67-66-3 | >99      | 0.1                           |

**SARA 311/312 Hazard Categories**      See section 2 for more information

**CWA (Clean Water Act)**

| Component  | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Chloroform | X                          | 10 lb                       | X                      | X                         |

**Clean Air Act**

| Component  | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|------------|-----------|-------------------------|-------------------------|
| Chloroform | X         |                         | -                       |

**OSHA** - Occupational Safety and Health Administration Not applicable

**CERCLA** This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component  | Hazardous Substances RQs | CERCLA EHS RQs |
|------------|--------------------------|----------------|
| Chloroform | 10 lb 1 lb               | 10 lb          |

**California Proposition 65** This product contains the following Proposition 65 chemicals.

| Component  | CAS-No  | California Prop. 65         | Prop 65 NSRL           | Category                    |
|------------|---------|-----------------------------|------------------------|-----------------------------|
| Chloroform | 67-66-3 | Carcinogen<br>Developmental | 20 µg/day<br>40 µg/day | Developmental<br>Carcinogen |

**U.S. State Right-to-Know Regulations**

| Component  | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|------------|---------------|------------|--------------|----------|--------------|
| Chloroform | X             | X          | X            | X        | X            |
| 1-Pentene  | X             | X          | X            | -        | -            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product contains the following DHS chemicals:  
**Legend** - STQs = Screening Threshold Quantities, APA = A placarded amount

| Component  | DHS Chemical Facility Anti-Terrorism Standard |
|------------|-----------------------------------------------|
| Chloroform | Release STQs - 20000lb                        |
| 1-Pentene  | Release STQs - 10000lb                        |

**Other International Regulations**

**Mexico - Grade** No information available

## 16. Other information

**Prepared By** Health, Safety and Environmental Department  
Email: tech@alfa.com  
www.alfa.com

**Creation Date** 20-Oct-2009  
**Revision Date** 14-Feb-2020  
**Print Date** 14-Feb-2020  
**Revision Summary** SDS authoring systems update, replaces 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**