1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name  Chloroform

Other means of identification

Product Code(s)  0757
UN/ID no.  1888
Synonyms  No information available

Recommended use of the chemical and restrictions on use

Recommended Use  For Further Manufacturing Use Only.
Uses advised against  Not for Human or Animal Drug Use

Details of the supplier of the safety data sheet

Company Address  VWR International, LLC
Radnor Corporate Center  28600 Fountain Parkway
100 Matsonford Road  Solon, Ohio 44139
Radnor, PA 19087-8660
Company Phone Number  1-800-448-4442
E-mail Address  info@amresco-inc.com

Emergency Telephone Number  Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

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

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation (Dusts/Mists)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label elements

Emergency Overview

Hazard statements
H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H350 - May cause cancer
H361 - Suspected of damaging fertility or the unborn child
H373 - 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
Wear protective gloves/protective clothing/eye protection/face protection
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
Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see § on this label)
Specific treatment (see § on this label)
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
IF ON SKIN: Wash with plenty of water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
Rinse mouth

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

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not regulated

Other Information
• Harmful to aquatic life with long lasting effects
• Harmful to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>EC No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>67-66-3</td>
<td>200-663-8</td>
<td>95-100</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures
Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact  
Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.

Inhalation  
Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion  
Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical
No information available.


Explosion Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal protection Ensure adequate ventilation, especially in confined areas.

Environmental Precautions

Environmental Precautions See Section 12 for additional Ecological information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling Handle in accordance with good industrial hygiene and safety practice. Protect from light and moisture.

Conditions for safe storage, including any incompatibilities
Storage
Keep container tightly closed in a dry and well-ventilated place. Protect from light.

Incompatible Products
Bases. Aluminium.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>TWA: 10 ppm</td>
<td>Ceiling: 50 ppm Ceiling: 240 mg/m³</td>
<td>IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m³</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Measures
Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Safety glasses with side-shields.

Skin and Body Protection
Wear protective gloves/clothing.

Respiratory Protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td>Odor: No information available</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, colorless</td>
<td>Odor Threshold: No information available</td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-63 °C</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>59.4-61.5 °C</td>
<td></td>
</tr>
<tr>
<td>Flash Point (High in °C)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Very soluble in water</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to Avoid
Protect from light and moisture.

Incompatible Materials
Bases. Aluminium.

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
Toxic by inhalation.

Eye Contact
Irritating to eyes.

Skin Contact
Irritating to skin.

Ingestion
Harmful if swallowed.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>= 450 mg/kg (Rat)</td>
<td>&gt; 20 g/kg (Rabbit)</td>
<td>= 47702 mg/kg (Rat) 4 h = 47702 mg/m^3 (Rat) 4 h</td>
</tr>
<tr>
<td>67-66-3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

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

Sensitization
No information available.

Mutagenic Effects
No information available.

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>A3</td>
<td>Group 2B</td>
<td>Reasonably Anticipated</td>
<td>X</td>
</tr>
<tr>
<td>67-66-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproductive Toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Chronic Toxicity
Suspected carcinogen.

Target Organ Effects
Nerves, Liver, Heart.

Aspiration hazard
No information available.
Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document.

12. ECOLOGICAL INFORMATION

Ecotoxicity

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Toxicity to Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>560: 48 h Desmodesmus subspicatus mg/L EC50</td>
<td>71: 96 h Pimephales promelas mg/L LC50 flow-through 300: 96 h Poecilia reticulata mg/L LC50 static 18: 96 h Lepomis macrochirus mg/L LC50 flow-through 18: 96 h Onchorhynchus mykiss mg/L LC50 flow-through</td>
<td>29: 48 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>

Persistence and Degradability

No information available.

Bioaccumulation/Accumulation

No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>2</td>
</tr>
</tbody>
</table>

Other Adverse Effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method

Dispose of material in accordance with all federal, state, and local regulations.

Contaminated Packaging

Do not re-use empty containers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>Category I - Volatiles</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

California Hazardous Waste Status

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Hazardous Waste Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>Toxic</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN/ID no. 1888
Proper shipping name CHLOROFORM
Hazard Class 6.1
Packing Group III

IATA

UN/ID no. 1888
Proper shipping name CHLOROFORM
Hazard Class 6.1
Packing Group III
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>International Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

Legend:
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Component</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>0.1</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>10 lb</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>10 lb</td>
<td>10 lb</td>
<td>RQ 10 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 4.54 kg final RQ</td>
</tr>
</tbody>
</table>

U.S. State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform 67-66-3</td>
<td>Carcinogen</td>
</tr>
<tr>
<td></td>
<td>Developmental</td>
</tr>
</tbody>
</table>
### U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**U.S. EPA Label Information**

- **EPA Pesticide Registration Number**: Not regulated

### 16. OTHER INFORMATION

- **Issuing Date**: 02-Sep-2009
- **Revision Date**: 08-Jan-2016
- **Revision Note**: No information available

**Disclaimer**

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and its Affiliates shall not be held liable for any damage resulting from handling.

*End of Safety Data Sheet*