SAFETY DATA SHEET

1. Identification

Product Name: Acetone

Cat No.: A9-4; A9-20; A9-200; A11-1; A11-4; A11-20; A11-200; A11S-4; A13-20; A13-200; A16F-1GAL; A16P-1GAL; A16P-4; A16S-4; A16S-20; A18-1; A18-4; A18-20; A18-20LC; A18-200; A18-200LC; A18-500; A18CU1300; A18FB-19; A18FB-50; A18FB-115; A18FB-200; A18P-4; A18POP-19; A18POPB-50; A18RB-19; A18RB-50; A18RB-115; A18RB-200; A18RS-28; A18RS-50; A18RS-115; A18RS-200; A18S-4; A18SK-4; A18SS-19; A18SS-28; A18SS-50; A18SS-115; A18SS-200; A19-1; A19-4; A19RS-115; A19RS-200; A40-4; A928-4; A929-1; A929-4; A929-4LC; A929RS-19; A929RS-50; A929RS-200; A929SK-4; A929SS-28; A929SS-50; A929SS-115; A929SS-200; A946-4; A946-4LC; A946FB-200; A946RB-19; A946RB-50; A946RB-115; A946RB-200; A949-1; A949-4; A949-4LC; A949CU-50; A949N-119; A949N-219; A949POP-19; A949RS-28; A949RS-50; A949RS-115; A949SK-1; A949SK-4; A949SS-19; A949SS-28; A949SS-50; A949SS-115; A949SS-200; BP2403-1; BP2403-4; BP2403-20; BP2404-1; BP2404-4; BP2404-SK1; BP2404-SK4; HC300-1GAL; S70091; 22050131; 22050295

CAS-No: 67-64-1

Synonyms: 2-Propanone; Dimethyl ketone; (Certified ACS, HPLC, OPTIMA, Histological, Spectranalyzed, NF/FCC/EP, Pesticide, Electronic, GC Resolv, SAFE-COTE)

Recommended Use: Laboratory chemicals.

Uses advised against: Food, drug, pesticide or biocidal product use

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
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

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

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Central nervous system (CNS).</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - (repeated exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Target Organs - Kidney, Liver, spleen, Blood.</td>
<td></td>
</tr>
<tr>
<td>Health Hazards Not Otherwise Classified</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Prolonged or repeated contact may dry skin and cause irritation or cracking

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness and dizziness
May cause damage to organs through prolonged or repeated exposure
Prolonged or repeated contact may dry skin and cause irritation or cracking

Precautionary Statements

Prevention
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharges
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection

Response
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
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
Call a POISON CENTER/ doctor if you feel unwell
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

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

Disposal
Dispose of contents/container to an approved waste disposal plant
3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms/effects
None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media
Water may be ineffective

Flash Point
-20 °C / -4 °F

Method
Closed cup

Autoignition Temperature
465 °C / 869 °F

Explosion Limits

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>12.8 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>2.5 vol %</td>
</tr>
</tbody>
</table>

Oxidizing Properties
Not oxidising

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO2) Formaldehyde Methanol

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.

NFPA
6. Accidental release measures

Personal Precautions: Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions: Should not be released into the environment.


7. Handling and storage

Handling: Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage: Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

<table>
<thead>
<tr>
<th>Component</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario TWAEV</th>
<th>Quebec</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TW: 1200 mg/m³</td>
<td>STEL: 500 ppm</td>
<td>TWA: 1190 mg/m³</td>
<td>STEL: 1000 ppm</td>
<td>STEL: 500 ppm</td>
<td>(Vacated) TWA: 1800 mg/m³</td>
<td>TW: 1800 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 750 ppm</td>
<td>STEL: 500 ppm</td>
<td>STEL: 2380 mg/m³</td>
<td>STEL: 2380 mg/m³</td>
<td>STEL: 500 ppm</td>
<td>(Vacated) STEL: 2400 mg/m³</td>
<td>TW: 2400 mg/m³</td>
</tr>
</tbody>
</table>

Legend
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.
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.

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl rubber</td>
<td>&gt; 480 minutes</td>
<td>0.5 mm</td>
<td>As tested under EN374-3 Determination of Resistance to Permeation by Chemicals</td>
</tr>
</tbody>
</table>
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**
Do not allow material to contaminate ground water system.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>Colorless</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>sweet</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>19.8 ppm</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>7</td>
</tr>
<tr>
<td><strong>Melting Point/Range</strong></td>
<td>-95 °C / -139 °F</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>56 °C / 132.8 °F</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>-20 °C / -4 °F</td>
</tr>
<tr>
<td><strong>Method - Evaporation Rate</strong></td>
<td>Closed cup</td>
</tr>
<tr>
<td><strong>Flammability (solid,gas)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Flammability or explosive limits</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Upper</strong></td>
<td>12.8 vol %</td>
</tr>
<tr>
<td><strong>Lower</strong></td>
<td>2.5 vol %</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>247 mbar @ 20 °C</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>0.790</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Soluble in water</td>
</tr>
<tr>
<td><strong>Partition coefficient; n-octanol/water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Autoignition Temperature</strong></td>
<td>465 °C / 869 °F</td>
</tr>
<tr>
<td><strong>Decomposition Temperature</strong></td>
<td>&gt; 4°C</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>0.32 mPa.s @ 20 °C</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>C3 H6 O</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>58.08</td>
</tr>
<tr>
<td><strong>Refractive index</strong></td>
<td>1.358 - 1.359</td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reactive Hazard</strong></td>
<td>None known, based on information available</td>
</tr>
<tr>
<td><strong>Stability</strong></td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td><strong>Conditions to Avoid</strong></td>
<td>Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.</td>
</tr>
<tr>
<td><strong>Incompatible Materials</strong></td>
<td>Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated</td>
</tr>
</tbody>
</table>
compounds, Alkali metals, Amines

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO₂), Formaldehyde, Methanol

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

### 11. Toxicological information

#### Acute Toxicity

**Product Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>5800 mg/kg (Rat)</td>
<td>&gt; 15800 mg/kg (rabbit)</td>
<td>76 mg/l, 4 h, (rat)</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**
- Carbon tetrachloride; Chloroform; Trichloroethylene; Bromodichloromethane;
- Dibromochloromethane; N-nitrosodimethylamine; 1,1,2-Trichloroethane; Styrene;
- Acetonitrile, 2,5-Hexanediene; Ethanol; 1,2-Dichlorobenzene

**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.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects**
- No information available

**Reproductive Effects**
- No information available.

**Developmental Effects**
- No information available.

**Teratogenicity**
- No information available.

**STOT - single exposure**
- Central nervous system (CNS)

**STOT - repeated exposure**
- Kidney Liver spleen Blood

**Aspiration hazard**
- No information available

**Symptoms / effects, both acute and delayed**
- Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting:
- May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information**
- No information available

**Other Adverse Effects**
- The toxicological properties have not been fully investigated.

### 12. Ecological information

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>NOEC = 430 mg/l (algae; 96 h)</td>
<td>Oncorhynchus mykiss: LC50 = 6540 mg/l 96h</td>
<td>EC50 = 14500 mg/L/15 min</td>
<td>EC50 = 8800 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td>Alburnus alburnus: LC50 = 11000 mg/l 96h</td>
<td>Leuciscus idus: LC50 =</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leuciscus idus: LC50 =</td>
<td></td>
<td>EC50 = 12700 mg/L/48h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EC50 = 12600 mg/L/48h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Page 6 / 8
Acetone

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>-0.24</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone - 67-64-1</td>
<td>U002</td>
<td></td>
</tr>
</tbody>
</table>

14. Transport information

DOT
- UN-No: UN1090
- Proper Shipping Name: ACETONE
- Hazard Class: 3
- Packing Group: II

TDG
- UN-No: UN1090
- Proper Shipping Name: ACETONE
- Hazard Class: 3
- Packing Group: II

IATA
- UN-No: UN1090
- Proper Shipping Name: ACETONE
- Hazard Class: 3
- Packing Group: II

IMDG/IMO
- UN-No: UN1090
- Proper Shipping Name: ACETONE
- Hazard Class: 3
- Packing Group: II

15. Regulatory information

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>DSL</th>
<th>NDSL</th>
<th>TSCA</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>200-662-2</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-2936</td>
<td>7</td>
</tr>
</tbody>
</table>

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)).

<table>
<thead>
<tr>
<th>Component</th>
<th>Canada - National Pollutant Release Inventory (NPRI)</th>
<th>Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances</th>
<th>Canada’s Chemicals Management Plan (CEPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>Part 4 Substance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16. Other information

Prepared By  Regulatory Affairs
     Thermo Fisher Scientific
     Email: EMSDS.RA@thermofisher.com

Creation Date  28-April-2009
Revision Date  25-April-2019
Print Date  25-April-2019
Revision Summary  This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

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