SAFETY DATA SHEET

Creation Date 28-Apr-2009       Revision Date 19-Jan-2018       Revision Number 6

1. Identification

Product Name    Acetone
Cat No. :        AC177170000; AC177170010; AC177170025; AC177170050; AC177170100; AC177170250
CAS-No           67-64-1
Synonyms        2-Propanone

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

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

Emergency Telephone Number
For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US:001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US:001-800-424-9300 / Europe:001-703-527-3887

2. Hazard(s) identification

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

Flammable liquids                Category 2
Serious Eye Damage/Eye Irritation 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 - Kidney, Liver, spleen, Blood.

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure
Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - 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 discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
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
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
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
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
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
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

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
Acetone  

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symptoms occur.

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

Most important symptoms and 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  
Upper 12.8 vol %
Lower 2.5 vol %

Oxidizing Properties  
Not oxidising

Sensitivity to Mechanical Impact  
No information available

Sensitivity to Static Discharge  
No information available

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  

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

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.

Methods for Containment and Clean Up  
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

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 only 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.
Acetone

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

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
</table>
| Acetone   | TWA: 250 ppm  
            STEL: 500 ppm | (Vacated) TWA: 750 ppm  
                       (Vacated) STEL: 1000 ppm | IDLH: 2500 ppm  
                     TWA: 1000 ppm | TWA: 1000 ppm  
                     TWA: 2400 mg/m³  
                       STEL: 1260 mg/m³ |

Legend
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and 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.

Personal Protective Equipment

Eye/face Protection
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.

Skin and body protection
Long sleeved clothing.

Respiratory Protection
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.

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

9. Physical and chemical properties

| Physical State | Liquid |
| Appearance     | Colorless |
| Odor           | sweet |
| Odor Threshold | 19.8 ppm |
| pH             | 7 |
| Melting Point/Range | -95 °C / -139 °F |
| Boiling Point/Range | 56 °C / 132.8 °F |
| Flash Point    | -20 °C / -4 °F |
| Method -       | Closed cup |
| Evaporation Rate | 5.6 (Butyl Acetate = 1.0) |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | 12.8 vol % |
| Upper          | 2.5 vol % |
| Lower          | 247 mbar @ 20 °C |
| Vapor Pressure | 2.0 |
| Vapor Density  | 0.790 |
| Specific Gravity | Soluble in water |
| Solubility     | No data available |
| Partition coefficient; n-octanol/water | 0.0 |
Acetone

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Autoignition Temperature 465 °C / 869 °F
Decomposition Temperature > 4°C
Viscosity 0.32 mPa.s @ 20 °C
Molecular Formula C3 H6 O
Molecular Weight 58.08
Refractive index 1.358 - 1.359

10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials
Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated 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

Component 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-Hexanedione; 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 symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting:
delayed

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; 96h)</td>
<td>Oncorhynchus mykiss: LC50 = 5540 mg/l 96h</td>
<td>EC50 = 14500 mg/L/15 min</td>
<td>EC50 = 8800 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Albunsus albunsus: LC50 = 11000 mg/l 96h</td>
<td></td>
<td>EC50 = 12700 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leuciscus idus: LC50 = 11300 mg/L/48h</td>
<td></td>
<td>EC50 = 12600 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salmo gairdneri: LC50 = 6100 mg/L/24h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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>U002</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
All of the components in the product are on the following Inventory lists: X = listed

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCIS</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>X</td>
<td>-</td>
<td>200-662-2</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable
SARA 311/312 Hazard Categories See section 2 for more information
CWA (Clean Water Act) Not applicable
Clean Air Act Not applicable
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)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>5000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>2000 lb STQ</td>
</tr>
</tbody>
</table>
Other International Regulations

Mexico - Grade  Serious risk, Grade 3

<table>
<thead>
<tr>
<th>16. Other information</th>
</tr>
</thead>
</table>
| Prepared By | Regulatory Affairs  
|             | Thermo Fisher Scientific  
|             | Email: EMSDS.RA@thermofisher.com  |
| Creation Date | 28-Apr-2009  |
| Revision Date | 19-Jan-2018  |
| Print Date | 19-Jan-2018  |
| Revision Summary | This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).  |

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