Section 1 - Product and Company Information

Product Name                        ACETONE, 99.9+% , HPLC GRADE
Product Number                      270725
Brand                               ALDRICH
Company                             Sigma-Aldrich
Street Address                      3050 Spruce Street
City, State, Zip, Country          SAINT LOUIS MO 63103 US
Technical Phone:                    314 771 5765
Emergency Phone:                   414 273 3850 Ext. 5996
Fax:                                800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name                      CAS #       SARA 313
ACETONE                             67-64-1     No

Formula                             C3H6O
Synonyms                            Aceton (German, Dutch, Polish),
                                    Acetone (ACGIH:OSHA), Chevron acetone,
                                    Dimethylformaldehyde, Dimethylketal,
                                    Dimethyl ketone, Ketone, dimethyl, Ketone propane,
                                    beta-Ketopropane, Methyl ketone, Propanone,
                                    2-Propanone, Pyroacetic acid, Pyroacetic ether,
                                    RCRA waste number U002
RTECS Number:                      AL3150000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Flammable (USA) Highly Flammable (EU). Irritant.
Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
Target organ(s): Liver. Kidneys.

HMIS RATING
HEALTH: 2*
FLAMMABILITY: 3
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 3
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
Flammable Hazards: Yes

EXPLOSION HAZARDS
Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

FLASH POINT
1 °F   -17 °C   Method: closed cup

EXPLOSION LIMITS
Lower: 2 %   Upper: 13 %

AUTOIGNITION TEMP
465 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.
Section 7 - Handling and Storage

**HANDLING**
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

**STORAGE**
Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

**ENGINEERING CONTROLS**
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

**PERSONAL PROTECTIVE EQUIPMENT**
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

**GENERAL HYGIENE MEASURES**
Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

**SPECIAL PRECAUTIONS**
The material may slowly penetrate protective gloves; therefore in case of spills, discard gloves after use.

**EXPOSURE LIMITS, RTECS**

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>STEL</td>
<td>750 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>500 PPM</td>
</tr>
<tr>
<td>USA</td>
<td>MSHA Standard-air</td>
<td>TWA</td>
<td>1000 PPM (2400 MG/M3)</td>
</tr>
<tr>
<td>USA</td>
<td>OSHA.</td>
<td>PEL</td>
<td>8H TWA 1000 PPM (2400 MG/M3)</td>
</tr>
</tbody>
</table>

New Zealand OEL
Remarks: check ACGIH TLV

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>NIOSH</td>
<td>TWA</td>
<td>250 PPM</td>
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</table>

**EXPOSURE LIMITS**

<table>
<thead>
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<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poland</td>
<td>NDS</td>
<td></td>
<td>600 MG/M3</td>
</tr>
<tr>
<td>Poland</td>
<td>NDSc</td>
<td></td>
<td>1800 MG/M3</td>
</tr>
<tr>
<td>Poland</td>
<td>NDSP</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

Section 9 - Physical/Chemical Properties

**Appearance**
Physical State: Clear liquid
Color: Colorless

**Property**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>58.08 AMU</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>BP/BP Range</td>
<td>56 °C</td>
<td>760 mmHg</td>
</tr>
<tr>
<td>MP/MP Range</td>
<td>-94 °C</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>-94.7 °C</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>184 mmHg</td>
<td>20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>2 g/l</td>
<td></td>
</tr>
<tr>
<td>Saturated Vapor Conc.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>SG/Density</td>
<td>0.79 g/cm3</td>
<td></td>
</tr>
<tr>
<td>Bulk Density</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
Odor Threshold          100 - 140 ppm
Volatile%               N/A
VOC Content             N/A
Water Content           N/A
Solvent Content         N/A
Evaporation Rate        N/A
Viscosity               0.303 Pas           25 °C
Surface Tension         23.2 mN/m           20 °C
Partition Coefficient   Log Kow: -0.24
Decomposition Temp.     N/A
Flash Point             1 °F -17 °C         Method: closed cup
Explosion Limits        Lower: 2 %
                        Upper: 13 %
Flammability            N/A
Autoignition Temp       465 °C
Refractive Index        1.359
Optical Rotation        N/A
Miscellaneous Data      N/A
Solubility              Solubility in Water:miscible
                        Other Solvents: MISCIBLE WITH ALCOHOL, DMF
                        CHLOROFORM, ETHER

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Bases, Oxidizing agents, Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

SENSITIZATION
Sensitization: Causes dermatitis.

TARGET ORGAN(S) OR SYSTEM(S)
Liver. Kidneys.

TOXICITY DATA

Oral
Rat
5800 mg/kg
LD50

Inhalation
Rat
50,100 mg/m3
LC50

Intravenous
Rat
5500 MG/KG
LD50

Oral
Mouse
3000 mg/kg
LD50

Inhalation
Mouse
44,000 mg/m3
LC50

Intraperitoneal
Mouse
1297 MG/KG
LD50

Oral
Rabbit
5340 mg/kg
LD50

Skin
Guinea pig
>9400 UL/KG
LD50

IRRITATION DATA

Eyes
Human
500 ppm

Skin
Rabbit
395 mg
Remarks: Open irritation test

Skin
Rabbit
500 mg
24H
Remarks: Mild irritation effect

Eyes
Rabbit
20 mg
Remarks: Severe irritation effect

Eyes
Rabbit
20 mg
24H
Remarks: Moderate irritation effect
CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

ACGIH CARCINOGEN LIST

Rating: A4

CHRONIC EXPOSURE - MUTAGEN

Species: Hamster
Dose: 40 GM/L
Cell Type: fibroblast
Mutation test: Cytogenetic analysis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 273 GM/KG
Route of Application: Oral
Exposure Time: (13W MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Species: Mammal
Dose: 31500 UG/M3/24H
Route of Application: Inhalation
Exposure Time: (1-13D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 5,540 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 13,500 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Acetone
UN#: 1090
Class: 3
Packing Group: Packing Group II
Hazard Label: Flammable liquid
PIH: Not PIH

IATA
Proper Shipping Name: Acetone
IATA UN Number: 1090
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: F Xi
Indication of Danger: Highly Flammable. Irritant.
R: 11 36 66 67
Risk Statements: Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
S: 9 16 26
Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

US CLASSIFICATION AND LABEL TEXT
Risk Statements: Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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