MATERIAL SAFETY DATA SHEET
GENIUM PUBLISHING CORPORATION
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From Genium's MSDS Collection, to be used as a reference.

SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: ACETONE
OTHER DESIGNATIONS: Dimethylformaldehyde, Dimethylketal, Dimethyl Ketone, Ketone Propane, Pyroacetic Acid, Pyroacetic ether, C₆H₁₂O, CAS #000 067 641
MANUFACTURER/SUPPLIER: Available from many suppliers, including:
Dow Chemical USA
2020 Dow Center
Midland, MI 48640 (517) 636-1000

SECTION 2. INGREDIENTS AND HAZARDS

ACETONE

\[
\begin{align*}
\text{CH}_3 & \quad \text{C} \quad \text{-CH}_3 \\
0 & \quad \text{1} \\
\end{align*}
\]

* Current (1985-86) ACGIH TLV/STEL.
The OSHA PEL is 1,000 ppm, 2,400 mg/m³.
NIOSH recommends a 10-hr TWA or 250 ppm or 590 mg/m³ and defines the "action level" at half this exposure. This recommendation is based largely on complaints of workers with exposures of 1000 ppm or less, together with human subject experiments of Nelson et al.


<table>
<thead>
<tr>
<th>%</th>
<th>HAZARD DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ca 100</td>
<td>8 hr. TWA: 750 ppm, 1,780 mg/m³</td>
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<tr>
<td></td>
<td>STEL: 1,000 ppm</td>
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<tr>
<td></td>
<td>2,375 mg/m³*</td>
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<tr>
<td></td>
<td>Rat, oral LD50:</td>
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<tr>
<td></td>
<td>9,750 mg/kg</td>
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<tr>
<td></td>
<td>Rabbit, skin LD50:</td>
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<tr>
<td></td>
<td>20 g/kg</td>
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<tr>
<td></td>
<td>Human, Inhalation:</td>
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<tr>
<td></td>
<td>12,000 ppm/4 hrs.: CNS</td>
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<tr>
<td></td>
<td>TCLO: 500 ppm, eye irritation &amp; systemic effect</td>
</tr>
</tbody>
</table>

SECTION 3. PHYSICAL DATA

Boiling point, 1 atm .............. 133°F, (56°C) Specific gravity (20/4°C) ........ 0.79
Vapor pressure, mmHg, @ 20°C ... 180 Volatiles, % ............... ca 100
@ 25°C ................ 226 Melting point .................. -70.6°F, (-59°C)
Vapor density (Air=1) .......... 2.0 Evaporation rate (n-ButAc=1) ...... 7.7
Water Solubility @ 25°C ........ Complete Molecular weight ................ 58.09

APPEARANCE & ODOR: A clear, colorless, volatile liquid with a characteristic, pleasant sweetish odor. Odor recognition threshold (100% of test panel) is 100-150 ppm (also reported between 200 and 400 ppm); odor is distinct at 680 ppm.

SECTION 4. FIRE AND EXPLOSION DATA

<table>
<thead>
<tr>
<th>Flash Point and Method</th>
<th>Autoignition Temp.</th>
<th>Flammability Limits in Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4°F (-20°C) T.C.C.**</td>
<td>&gt;1000°F (558°C)</td>
<td>% by volume**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.6 12.8</td>
</tr>
</tbody>
</table>

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, alcohol foam. Use water spray to cool fire-exposed containers and to dilute and reduce fire intensity. Water may not be effective in extinguishing fires involving acetone.* Acetone is a dangerous fire hazard and moderate explosion hazard when exposed to heat, flame and oxidizers. Vapors are heavier than air and may travel a considerable distance to an ignition source and flashback. Use a blanket of water to smother flame. Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting fires involving acetone.

* 10% solution of acetone in water is reported to have a flash point of -80°F.
** Higher closed cup flash points and lower LEL and lower UEL also are reported.

SECTION 5. REACTIVITY DATA

This OSHA Class IB flammable liquid is stable in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization. Acetone reacts vigorously with strong oxidizing agents, such as nitrates, perchlorates, and concentrated sulfuric acid. It is incompatible with chronic anhydride, chromyl chloride, hexachloroethane, hydrogen peroxide, nitrosyl chloride, permonosulfuric acid, mixtures of nitric acid and sulfuric acid, and mixtures or nitric acid and acetic acid. It ignites when reacted with potassium tert-butoxide.

Thermal decomposition or burning produces carbon monoxide and carbon dioxide.

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SECTION 6. HEALTH HAZARD INFORMATION

Acetone is a low toxicity solvent. Inhalation of small quantities of acetone vapors over long periods causes irritation of the respiratory tract, coughing and headache. Inhalation of acetone vapors in high concentrations produces dryness of the mouth and throat, dizziness, nausea, incoordinated movements, loss of coordinated speech, drowsiness, and in extreme cases, coma. Prolonged or repeated skin contact has a defatting effect causing drying, irritation, and mild dermatitis. Under normal circumstances, the amount of acetone that is absorbed through the skin is quite small. Although systemic injury is unlikely, possible skin absorption should be considered in meeting the TLV requirements. Vapors of acetone may cause eye irritation while the liquid will cause severe irritation and possibly eye damage. Ingestion of acetone may cause irritation of the gastrointestinal tract and narcosis. The TLV is set to prevent eye and respiratory irritation. FIRST AID: EYE CONTACT: Promptly flush eyes, including under eyelids, with running water for at least 15 minutes. Get medical attention if irritation persists. SKIN CONTACT: Flush exposed skin with running water while removing contaminated clothing. Get medical attention if irritation persists or if exposure is severe. INHALATION: Remove to fresh air. Restore and/or support breathing if required. If effects are more severe than a headache, contact a physician. Consider oxygen therapy. INGESTION: Give victim milk or water. If victim is alert and large amounts have been ingested, induce vomiting by sticking finger to back of throat. Contact a physician or Poison Control Center.

SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES

Notify safety personnel of large spills or leaks. Remove all sources of heat and ignition. Provide maximum explosion-proof ventilation. Evacuate all personnel from the area, except for those involved in clean-up. Remove leaking container to safe place, if feasible. Absorb small spills on paper towels or vermiculite, evaporate in a fume hood, and place in closed container for disposal. Flush large spills with water spray to clear area of acetone (flush to open ground, not to drains, sewers, or surface water courses) or dilute with >200 parts water and pick up with non-sparking tools for disposal.

DISPOSAL: Place in closed containers for disposal by licensed contractor or burn in an approved incinerator. Reduce burning hazards by mixing acetone with a less flammable liquid. Consider reclaiming large quantities of waste acetone, if feasible. Follow all Federal, State and Local regulations.

Acetone is considered a hazardous waste by the EPA. The EPA (RCRA) HW No. is: U002 (40 CFR 261).

SECTION 8. SPECIAL PROTECTION INFORMATION

Provide general and local exhaust ventilation (explosion-proof) to meet TLV requirements. For emergency or nonroutine exposures where the TLV may be exceeded, use an approved chemical cartridge or canister, gas mask (up to 5000 ppm) or self-contained respirator with full face piece (up to 20,000 ppm). All electrical service in use or storage areas should have an explosion-proof design. Wear safety glasses and butyl rubber natural rubber gloves to prevent liquid contact with the eyes and skin. Additional protective clothing and equipment (boots, apron, face shield, respirator) may be necessary to prevent exposure depending on work conditions. Remove contaminated clothing promptly and launder before reuse. An eyewash station and safety shower should be available in use and handling areas. Sprinkler fire protection is desirable in areas of storage, handling and use.

NIOSH recommends preplacement and medical exams for those regularly exposed above "action level."

Contact lenses pose a special hazard; soft lenses may absorb and all lenses concentrate irritants.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers (carbon steel recommended) in a cool, dry, well-ventilated area away from oxidizing agents, heat, sparks, and open flame. Protect containers from physical damage. Use only with adequate ventilation. Avoid inhalation of vapors and repeated or prolonged contact with the skin. Do not eat or smoke in areas where acetone is being used or handled. Use non-sparking tools. Ground and bond containers and equipment when transferring or pouring acetone to prevent static sparks. Use labeled safety cans when handling small amounts of liquid. Consider storing under a nitrogen pad.

DOT CLASSIFICATION: Flammable liquid, UN1090
DOT LABEL: FLAMMABLE LIQUID

DATA SOURCE(S) CODE (See Glossary) 1-12, 14, 16, 19-21, 23-26, 31, 38, 47, 59, 79, R.