

Acetone

Date of Preparation: November 2003

Revision: 1

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: Acetone
Chemical Formula: CH₃COCH₃
Other Designations: Dimethyl ketone; ketone propane; 2-propanone; acetone; dimethylketal; proacetic ether; beta-ketopropane; proacetic ether.
General Use: Solvent, manufacturing of plastics, fibers, and chemicals.
Manufacturer: Kanto Corporation, 13424 N. Woodrush Way, Portland, OR 97203
Non-Emergency Contact: Customer Service, Phone (503) 283-0405, FAX (503) 240-0409

For All Transportation Emergencies Call CHEMTREC at 1-800-424-9300

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
Acetone	67-64-1	>99.5

Occupational Exposure Limits

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Acetone	1000 ppm 2380 mg/m ³	None established	750 ppm 1785 mg/m ³	1000 ppm 2380 mg/m ³	250 ppm 595 mg/m ³	750 ppm 1785 mg/m ³	2500 ppm (10% LEL)

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Highly flammable. Colorless, highly volatile liquid with a sweet odor.
 Can cause eye, skin, and respiratory system damage.

HMIS
H 1
F 3
R 0
PPE †
†Sec. 8

Potential Health Effects

Primary Entry Routes: Inhalation, ingestion, skin and eye contact.

Target Organs: Skin, eyes, respiratory system, central nervous system.

Acute Effects

Inhalation: Nose, throat, and mucous membrane irritation, which is increased at higher temperatures. Pulmonary congestion and edema is possible for extended exposures due to rapid absorption into the blood. High concentrations can produce headaches, confusion, vertigo, and loss of coordination, narcosis, heart failure, narcosis, central nervous system depression, and coma; can shorten menstrual cycle in women.

Eye: Discomfort, temporary eye inflammation or blindness, and ulcerations. Repeated contact may produce conjunctivitis and corneal damage.

Skin: Irritation and damage to the skin with contact absorption into the blood stream. Continued or repeated exposure may cause dermatitis characterized by skin redness and swelling due to degenerate changes in the epidermis.

Ingestion: Damage to the inside of the mouth, nausea, vomiting, and unconsciousness. The body can absorb small doses; large doses are mildly toxic and extremely uncomfortable. Aspiration into the lungs can produce severe lung damage.

Carcinogenicity: IARC, NTP, and OSHA do not list acetone as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Exposure may increase the toxic potential of chlorinated hydrocarbons. Use of alcoholic beverages enhances the toxic effect.

Chronic Effects: Kidney, liver, and nerve damage, increase in birth defects, and lower fertility in males (based on animal tests). Prolonged contact with the skin may cause drying, cracking, and irritation with dermatitis. Long-term exposure can cause inflammation of the respiratory tract, stomach, and duodenum, and loss of strength. Exposure may enhance liver toxicity of chlorinated solvents. May also have effects on the blood and bone marrow.

Section 4 - First Aid Measures

Inhalation: Remove exposed person to an uncontaminated atmosphere and support breathing. If not breathing, give artificial respiration. Seek medical attention immediately.

Eye Contact: Gently lift eyelids and flush immediately and continuously with copious amounts of water for at least 15 minutes. Do not allow the victim to rub or keep eyes tightly shut. Consult an ophthalmologist immediately.

Skin Contact: Rinse with flooding amounts of water for at least 15 minutes, while removing contaminated clothing. Seek medical attention immediately.

Ingestion: If victim is conscious, give large quantities of water. Seek medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

After first aid, seek appropriate in-plant, paramedic, or community medical support.

Section 5 - Fire-Fighting Measures

Flash Point: -4°F (-20°C)

Flash Point Method: CC

Auto Ignition Temperature: 869°F (465°C)

LEL: 2.5% v/v

UEL: 12.8% v/v

Flammability Classification: Class IB Flammable Liquid

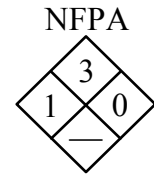
Extinguishing Media: Dry chemical, carbon dioxide, foam, alcohol resistant foam, or water spray.

Unusual Fire or Explosion Hazards: Extreme heat or contact with ignition source may cause explosion and violent rupture of containers. Static discharge may ignite material. Vapors may drift causing flash back possibilities. Dilution to 10% acetone in water lowers the flash point below 20°C. Thermal oxidative decomposition of acetone can produce carbon dioxide and carbon monoxide gases, irritating and toxic gases.

Fire Incompatibility: Avoid contamination with oxidizing agents such as nitrates, oxidizing acids, and chlorine solutions as ignition may result.

Fire-Fighting Instructions: If possible without risk, move container from fire area. Apply cooling water to container side until well after fire is out. Stay away from ends of tanks. Use monitor nozzles or unmanned hose holders; if impossible, withdraw and let fire burn. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire. Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full-face piece operated in pressure-demand or positive-pressure mode.



Section 6 - Accidental Release Measures

Small Spills: Shut off all ignition sources. Wear proper protective equipment. Use non-sparking tools and equipment. Take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers.

Large Spills: Notify safety personnel and deny entry. Isolate and ventilate area and stay upwind. Shut off all ignition sources and remove any heat sources. Use non-sparking tools and equipment. Cleanup personnel should wear proper protective equipment and respiratory protection. Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for later disposal.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Always electrically ground all equipment before handling. Use non-sparking tools to open containers. Avoid contact with eyes and skin. Avoid prolonged inhalation of vapors or mists. Use only in areas with adequate ventilation.

Storage Requirements: Store in a cool, dry, well-ventilated area out of direct sunlight. Separate from incompatibles. Bond and ground containers to avoid static sparks. Empty container may still contain hazardous product residue, observe all warnings and precautions. Use only undamaged, DOT-approved containers.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 8 - Exposure Controls / Personal Protection

Engineering Controls

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance and Odor: Clear, colorless with characteristic sweet odor.

Odor Threshold: ~60 ppm

Vapor Pressure: 180 mmHg (24 kPa) at 20°C

Vapor Density (Air=1): 2

Formula Weight: 58.1

Density: 0.79 g/cc (0.029 lb/in³) at 20°C

Specific Gravity (H₂O=1, at 4 °C): 0.79 at 20°C

Water Solubility: Miscible

Other Solubility: Mixes in alcohol, ether, most hydrocarbons and oils.

Boiling Point: 133.2°F (56.2°C)

Freezing: -139.6°F (-95.35°C)

% Volatile: 100

Evaporation Rate (n-butyl alcohol =1): 7.7

pH: 6

Section 10 - Stability and Reactivity

Stability: Acetone is stable when properly handled and stored at room temperature.

Polymerization: Hazardous polymerization will not occur.

Chemical Incompatibilities: Oxidizers, strong acids, strong alkalis, hydrogen peroxide, acetic acid, nitric acid, nitrosyl chloride and perchlorate, hexachloromelamine. Acetone reacts vigorously with oxidizing materials to form explosive peroxides and ignites on contact with activated carbon and chromium trioxide. Acetone reacts violently with bromoform and chloroform in the presence of alkalis or in contact with alkaline surfaces. Attacks and degrades plastic.

Conditions to Avoid: Ignition sources, static discharge, open flames, and contact with heat.

Section 11- Toxicological Information*

Irritation:

Rabbit, eye, 20mg: Severe

Rabbit, skin, 500mg/24hr: Mild

Rabbit, skin, open irritation test: Mild

Acute Oral Effects:

Rat, oral, LD₅₀: 5800 mg/kg

Man, oral, LD_{LO}: 2857 mg/kg

Chronic Effects: Kidney, liver, and nerve damage, increased birth defects and lower fertility in males (based on animal tests).

Drying, cracking, and irritation with dermatitis of the skin.

Inflammation of the respiratory tract, stomach, and duodenum, and loss of strength. May enhance liver toxicity of chlorinated solvents, bone and bone marrow.

Carcinogenicity: Not listed

Acute Inhalation Effects:

Rat, inhalation, TC₅₀: 44 mg/m³/4hr

Human, inhalation, TC_{LO}: 500 ppm

* See NIOSH, *RTECS (AL3150000)*, for additional toxicity data.

Section 12 - Ecological Information

Ecotoxicity: Rainbow trout, LC₅₀: 5540 mg/L/96hr. Sunfish, death: 14,250 ppm/24hr.

Environmental Fate: Volatizes and leaches into the soil and water where biodegradation occurs with little to no bioaccumulation. In the air, the average half-life of acetone is 22 days.

Section 13 - Disposal Considerations

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. Incinerate residue at an approved site.

Container Cleaning and Disposal: Recycle containers where possible, or dispose of in an authorized landfill. Follow all applicable federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Acetone Hazard Class: 3 ID No.: UN1090 Packing Group: II Label: 3 Special Provisions (172.102): IB2, T4, TP1	Packaging Authorizations a) Exceptions: 173.150 b) Non-bulk Packaging: 173.202 c) Bulk Packaging: 173.242	Quantity Limitations a) Passenger, Aircraft, or Railcar: 5L b) Cargo Aircraft Only: 60L Vessel Stowage Requirements a) Vessel Stowage: B Emergency Response Guidebook # 127
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Section 15 - Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number (40 CFR 261.21): U002
 RCRA Hazardous Waste Classification: Ignitable waste
 CERCLA Hazardous Substance (40 CFR 302.4) listed specific per RCRA, Sec. 3001
 CERCLA Reportable Quantity (RQ): 5000 lb (2270 kg)
 SARA 311/312 Codes: Acute, Chronic, Flammable
 SARA Toxic Chemical (40 CFR 372.65): Not listed
 SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed
 TSCA: Listed

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): 1000ppm (2400mg/m³)
 OSHA criteria (29 CFR 1910.1200) for hazardous material: Listed

Section 16 - Other Information

Revision Notes: Revised to 16 Sections.

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