



Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name	Acetone
Synonyms	2-propanone; dimethyl ketone;
CAS#	67-64-1
Europe EC#	200-662-2
Product Uses	fast evaporating solvent in coatings & adhesives; chemical intermediate; reagent

2. HAZARDS

Canada – WHMIS
Key:

B 2, D 2B
B 2 – Flash Point <38°C, B 3 – Flash Point >38°C & <93°C
D 1 – Immediately Toxic, D 2 – Chronic Toxicity
C – Oxidising Substance, E – Corrosive, F – Reactive Substance



GHS Class & Category

Flam Liq. (2)

Eye Irrit. (2)

GHS Symbols

STOT (3)

Signal Words

DANGER

WARNING

WARNING



Hazard Statements

highly flammable
liquid & vapour
(H225)

causes serious
eye irritation
(H319)

may cause dizziness
or drowsiness
(H336)

flam. liq.

eye irritant

STOT

3. COMPOSITION

Dimethyl Ketone

%	TWAEV / TLV mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
100%	500 / 1190	>3000	>7400	18,600

4. FIRST AID

SKIN:	Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION:	Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION:	Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. FIRE FIGHTING & FLAMMABILITY

Flash Point	-20°C / -4°F (closed cup); also reported as -18°C / 0°F
Autoignition Temperature	465°C / 869°F; also reported as 538-540°C / 1000-1004°F
Flammable Limits	2.5% – 12.8%
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	alcohol-resistant foam, dry chemical, CO ₂ ; water fog or spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
Static Charge Accumulation	cannot accumulate a static charge on agitation or pumping

Please ensure that this MSDS is given to, and explained to people using this product.

6. ACCIDENTAL RELEASE MEASURES

Serious Fire Potential: blanket spill with foam as a precaution against accidental ignition. Take extreme care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.

Leak Precaution dyke to control spillage and prevent environmental contamination
 Handling Spill ventilate contaminated area; recover free liquid with explosion-proof pumps; absorb residue on an inert sorbent,
 sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal

7. HANDLING & STORAGE

Store in a cool environment, away from sources of ignition, heat & substances named in Part 10. **Do not store in direct sun – heating may pressurize drums! Always use non-sparking bronze or aluminium hand tools. All electrical & mechanical equipment (including lighting, switchgear & forklift trucks) used with or around this product must be explosion-proof.**

Although acetone cannot retain a static charge on agitation or on transfer from one container to another, it is **extremely flammable**. It is prudent to ground or electrically bond the source container, the receiving container, and the transfer pump before transferring contents. **Never transfer by pressurising containers with air!** Nitrogen or carbon dioxide pressurization – **after flushing air from the headspace** – is acceptable. Avoid splashing by keeping the product nozzle below the surface in the receiving container. Empty containers may contain a flammable/explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use. Bulk storage tank vents should have flame arrestors

Avoid breathing product vapour. Use with adequate ventilation. If dealing with a spill, and ventilation is impossible or impractical, wear a suitable respirator with an organic vapour canister.

Never cut, drill, weld or grind on or near this container. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	500ppm / 1187mg/m ³	Ontario STEV	750ppm / 1780mg/m ³
ACGIH TLV	500ppm / 1187mg/m ³	ACGIH STEL	750ppm / 1780mg/m ³
OSHA PEL	750ppm / 1780mg/m ³	OSHA STEL	1000ppm / 2400mg/m ³
Ventilation	mechanical ventilation may be required to maintain airborne titre below regulated limits		
Hands	butyl rubber gloves recommended – <i>other types may also protect; consult supplier to confirm suitability</i>		
Eyes	safety glasses with side shields – <i>always protect the eyes</i>		
Clothing	wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing,		

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless liquid with sharp ketone (<i>nail-polish remover</i>) odour
Odour Threshold	~60ppm – <i>varies widely among individuals</i>
Vapour Pressure	185mmHg / 24.7kPa (20°C / 68°F)
Evaporation Rate (<i>Butyl Acetate = 1</i>)	5.6
Vapour Density (air = 1)	2
Boiling Range	56°C / 133°F
Freezing Point	-95°C / -138°F
Specific Gravity	0.792 (20/20°C)
Water Solubility	complete
Also soluble in	most organic solvents
Partition Coefficient (Octanol/H ₂ O)	-0.24 & -0.27
Viscosity	0.32centipoise (25°C / 77°F) – <i>very thin, mobile liquid</i>
pH	none – (<i>does not liberate hydrogen ions when dissolved</i>)
Conversion Factor	1ppm = 2.37mg/m ³
Molecular Weight	58grams per mole

Please ensure that this MSDS is given to, and explained to people using this product.

10. REACTIVITY

Dangerously Reactive With	strong oxidising agents; strong reducing agents; hexachloromelamine or trichloromelamine mixture of nitric acid & acetic acid explodes with acetone; ignites on contact with activated carbon
Also Reactive With may	hydrogen peroxide causes formation of explosive cyclic peroxidases; isoprene & acetone form peroxides; combination of alkalis & chlorinated solvents; sulphur dichloride; attacks polyvinyl chloride, ABS, & some other elastomers (<i>check materials for resistance to acetone</i>)
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact	no

11. TOXICITY**Effects, Acute Exposure**

Skin Contact	may be slightly irritating; powerful solvent for skin oils; irritating if contact is prolonged
Skin Absorption	yes; no toxic effects likely by this route <i>except possibly in very young children</i>
Eye Contact	vapour slightly irritating at 500ppm; very irritating at 1000ppm; liquid severely irritating
Inhalation	slight toxicity at 250-500ppm; irritating above 1000ppm; above 2000ppm dizziness, intoxication, nausea, vomiting; over 10,000ppm is life threatening
Ingestion	irritating to mouth & throat; dizziness, intoxication, nausea; <i>200ml taken deliberately by an adult: intoxication, 12 hour coma, 4 weeks of diabetic symptoms, & complete recovery</i>

Effects, Chronic Exposure

General	prolonged exposure may cause dermatitis; <i>systemic effects of prolonged inhalation are minor & subtle</i>
Sensitising	not a sensitiser in humans or animals
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect in animals; one human study suggested sperm abnormality may occur on prolonged exposure, but simultaneous exposure to styrene makes acetone's contribution impossible to ascertain
Mutagen	no known effect on humans or animals
Synergistic With	potentiates toxic effects of halogenated hydrocarbons; may potentiate toxicity of ethanol
LD ₅₀ (oral) (mouse),	5240, 5800, 6700 & 9750mg/kg (rat), 5340 & 5600-8000mg/kg (rabbit), 3000 & 5250mg/kg >8000mg/kg (dog),
LD ₅₀ (skin)	>16,000mg/kg (rabbit), 7400mg/kg (guinea pig)
LC ₅₀ (inhalation)	21,000 & 30,000ppm (rat), 18,600ppm (mouse) – <i>very low toxicity by inhalation</i>

12. ECOLOGICAL INFORMATION

Bioaccumulation	rapidly excreted and/or metabolised by living creatures; cannot bioaccumulate
Biodegradation	biodegrades readily & rapidly in the presence of oxygen; 76% & 84% in 20 days, >90% in 28 days
Abiotic Degradation	reacts slowly with atmospheric hydroxyl radicals; estimated ½-life in air is ~80 days
Mobility in soil, water	acetone moves readily in soil & water; volatilisation is rapid, mitigating mobility
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	11,000mg/litre (Alburnus alburnus), 6210-8120mg/litre (Pimephales promelas), 5540mg/litre (Salmo gairdneri)
EC ₅₀ (Crustacea, 48hr)	7635mg/litre (Daphnia cucullata), 12,600mg/litre (Daphnia magna), 8800mg/litre (Daphnia pulex), 16,700mg/litre (Nitocra spinipes, 96hr)
EC ₅₀ (Algae, 14 day)	2844mg/litre (Anabena cylindrica), 21,725mg/litre (Anabena inaequalis), 29,151mg/litre (Anabena variabilis), 11,798mg/litre (Skeletonema costatum)
NOEC (Algae) (No Observed Effect Conc.)	3400mg/litre (Chlorella pyrenoidosa), 4740mg/litre (Selenastrum capricornutum), 6000mg/litre (Skeletonema costatum)
EC ₅₀ (Bacteria)	59-67mg/litre (“domestic activated sewage sludge”), 14,500mg/litre (Photobacterium phosphoreum), & others
Chronic Aquatic Toxicity	<i>not applicable due to rapid biodegradation</i>

Please ensure that this MSDS is given to, and explained to people using this product.

13. DISPOSAL

Waste Disposal Containers **do not flush to sewer**; may be incinerated in approved facility with flue gas monitoring & scrubbing
Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.
Pails must be vented and thoroughly dried prior to crushing and recycling.
IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years.
Never cut, drill, weld or grind on or near this container, even if empty

14. TRANSPORT CLASSIFICATION

Canada TDG	PIN	UN - 1090
AND	Shipping Name	acetone
U.S.A. 49 CFR	Class & Packing Group	3 (II)
Marine Pollutant		not a marine pollutant
ERAP Required		NO

**EMERGENCY INFORMATION**

Canada	Call CANUTEC (collect)	(613) 996-6666
U.S.A.	Call CHEMTREC	(800) 424-9300

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

This common substance is on most national chemical inventories.

Europe Classification

Flammable
Irritant

**Europe Risk Phrases**

R: 11, 36, 66, 67 – Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness & dizziness.

Europe Safety Phrases

S: 9, 16, 26 – Keep container in a well ventilated place. Keep away from source s of ignition – No Smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

U.S.A. Regulations:

Dangerous to Life or Health: 2500 ppm (IDLH based on a 10% of the lower explosive limit for safety considerations even though the relevant toxicological data indicated that irreversible health effects or impairment of escape existed only at higher concentrations.)

Allowable Tolerances: Residues of acetone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest.

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 1000 ppm (2400 mg/cu m). Vacated 1989 OSHA PEL TWA 750 ppm (1800 mg/cu m); STEL 1000 ppm (2400 mg/cu m) is still enforced in some states.

NIOSH Recommendations: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 250 ppm (590 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 500 ppm; 15 min Short Term Exposure Limit: 750 ppm. A4; Not classifiable as a human carcinogen. Biological Exposure Index (BEI): Determinant: acetone in urine; Sampling Time: end of shift; BEI: 50 mg/L. The determinant is nonspecific, since it is also observed after exposure to other chemicals.

Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Acetone is produced, as an intermediate or a final product, by process units covered under this subpart.

State Drinking Water Guidelines: Florida 700 ug/l, Massachusetts 6,300 ug/L, Maine 6,300 ug/l, Minnesota 700 ug/l, New Hampshire 6,000 ug/L, Wisconsin 1000 ug/l

Please ensure that this MSDS is given to, and explained to people using this product.

15. REGULATIONS, cont'd

CERCLA Reportable Quantities: Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3.b).

RCRA Requirements: When acetone is a spent solvent, it is classified as a hazardous waste from a nonspecific source, as stated in 40 CFR 261.31, and must be managed according to State and/or Federal hazardous waste regulations. As stipulated in 40 CFR 261.33, when acetone, as a commercial chemical product or manufacturing chemical intermediate or an off-specification commercial chemical product or a manufacturing chemical intermediate, becomes a waste, it must be managed according to Federal and/or State hazardous waste regulations. Also defined as a hazardous waste is any residue, contaminated soil, water, or other debris resulting from the cleanup of a spill, into water or on dry land, of this waste. Generators of small quantities of this waste may qualify for partial exclusion from hazardous waste regulations (40 CFR 261.5).

FIFRA Requirements: Residues of acetone are exempted from the requirement of a tolerance when used as a solvent, cosolvent in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their future use. Under this pesticide reregistration program, EPA examines health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether they are eligible for reregistration. In addition, all pesticides must meet the new safety standard of the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern and List D pesticides of less concern. Acetone is found on List D. Case No: 4002; Case Status: No products containing the pesticide are actively registered. Therefore, we are characterizing the case as "cancelled." Under FIFRA, pesticide producers may voluntarily cancel their registered products. EPA also may cancel pesticide registrations if registrants fail to pay required fees or make/meet certain reregistration commitments, or if EPA reaches findings of unreasonable adverse effects.; Active ingredient (AI): acetone; AI Status: The active ingredient is no longer contained in any registered products. Thus, we characterize it as "cancelled."

FDA Requirements: A tolerance of 30 parts per million is established for acetone in spice oleoresins when present therein as a residue from the extraction of spice. Acetone is an indirect food additive for use only as a component of adhesives. Drug products containing certain active ingredients offered over-the-counter (OTC) for certain uses. A number of active ingredients have been present in OTC drug products for various uses, as described below. However, based on evidence currently available, there are inadequate data to establish general recognition of the safety and effectiveness of these ingredients for the specified uses: acetone is included in skin protectant drug products.

16. OTHER INFORMATION

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577

Data from **RTECS**, **HSDB** (Haz. Substance Data Base), **Cheminfo** (CCOHS), **IUCLID** Datasheets (ESIS – European Chem. Substance Info. System), & others.

Preparation Date: **March 2004** Revision Date: **April 2007, April 2010, April 2013**

Please ensure that this MSDS is given to, and explained to people using this product.