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24 HOUR EMERGENCY NUMBER (CHEMTREC)

USA: 800-424-9300

International: 703-527-3887

All non-emergency numbers should be directed to Tedia
Customer Service at 800-PURITY1

SAFETY DATA SHEET

Acetone

SDS No. M0003

1 IDENTIFICATION

1.1 Product Identifier:

Chemical Name: Acetone

Synonyms: Dimethyl Ketone, 2-Propanone

CAS No.: 67-64-1

Distributed by:



4621 Technology Drive, Golden, CO 80403

ph: (303) 762-0800 fax: (303) 762-1240

Product #: A1078, A1079, A1080, CSA1079

1.2 Recommended Use and Restrictions:

Use: Laboratory research, analytical applications, and industrial manufacturing. Suitable for use as a solvent in chemical synthesis, cleaning, or processing.

Restrictions: Not for use in food, drugs, cosmetics, medical devices, or household consumer products unless explicitly certified.

Regulatory Note: This product may be subject to TSCA requirements. For commercial/industrial use in the United States, the buyer is responsible for verifying TSCA compliance. Laboratory users should confirm appropriate exemptions apply to their research use.

1.3 Supplier:

Tedia Company LLC, 1000 Tedia Way, Fairfield, Ohio 45014 USA

Phone: 513-874-5340 | Website: www.tedia.com

1.4 Emergency Phone Number:

CHEMTREC (USA): 800-424-9300

CHEMTREC (International): +1-703-527-3887

2 HAZARD IDENTIFICATION

2.1 Classification of the Substance/Mixture

GHS Classification:

Flammable Liquids (Category 2), H225

Eye Irritation (Category 2), H319

Specific Target Organ Toxicity – Single Exposure (Category 3), H336 (central nervous system)

2.2 GHS Label Elements

Hazard Pictograms:





Signal Word: DANGER

Hazard Statements:

H225: Highly flammable liquid and vapor.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

Precautionary Statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233: Keep container tightly closed.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/lighting equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P264: Wash skin thoroughly after handling.

P280: Wear protective gloves/eye protection/face protection.

P303+P361+P353: IF ON SKIN: Remove contaminated clothing. Rinse skin with water/shower.

P304+P340: IF INHALED: Remove to fresh air and keep at rest.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for 15 minutes.

P337+P313: If eye irritation persists: Get medical advice.

P403+P235: Store in a well-ventilated place. Keep cool.

P501: Dispose of contents/container to hazardous waste facility.

2.3 Other Hazards

Highly flammable (flash point: -20°C/-4°F; auto-ignition: 465°C/869°F).

Vapors heavier than air (vapor density: 2.0) – may accumulate in low areas.

Moderate CNS depressant (headache, dizziness at high concentrations).

2.4 Emergency Overview

Highly flammable liquid/vapor.

Causes eye irritation.

May cause drowsiness or dizziness (CNS depression).

2.5 HMIS Rating:

Health – 1 Flammability – 3 Physical Hazard – 0 PPE – F (Gloves, goggles, respirator)

NOTE: HMIS ratings (0–4) reflect hazard severity under normal use. Higher values indicate greater risk. PPE recommendations are minimal; users must assess specific conditions.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance Identification

Chemical Name: Acetone

Hazardous	Ingredient	CAS No.	EC No.	Concentration	Molecular Formula
Yes	Acetone	67-64-1	200-662-2	100%	C ₃ H ₆ O

4 FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation: Immediately move victim to fresh air. Keep at rest in a position comfortable for breathing. If breathing is difficult, administer oxygen (by trained personnel). If unconscious, place in recovery position and seek medical attention.

Skin Contact: Remove contaminated clothing immediately. Wash skin thoroughly with soap and water for at least 15 minutes. If



irritation occurs, seek medical advice.

Eye Contact: Immediately flush eyes with gently flowing water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention if irritation persists.

Ingestion: Rinse mouth with water. Do NOT induce vomiting. If conscious, give small amounts of water to drink. Seek medical attention if large amounts are swallowed or if symptoms appear.

4.2 Most Important Symptoms and Effects

Acute Effects:

Inhalation: Dizziness, headache, nausea, throat irritation

Skin Contact: Mild irritation, redness

Eye Contact: Pain, redness, temporary blurred vision

Ingestion: Nausea, vomiting, abdominal discomfort, drowsiness

Chronic Effects:

Prolonged skin contact may cause dermatitis

Repeated high-level inhalation may cause respiratory irritation

4.3 Indication of Immediate Medical Attention and Special Treatment

Provide symptomatic and supportive treatment

Monitor for central nervous system depression in severe cases

No specific antidote exists

In case of significant inhalation exposure:

Monitor respiratory function

Provide oxygen if needed

For significant ingestion:

Monitor vital signs

Consider gastric lavage only if performed soon after ingestion under medical supervision

Notes for Physicians:

Blood acetone levels may confirm exposure but are not typically clinically useful

Treatment should focus on symptom management

Maintain airway and circulation in severe cases

Consider respiratory support if significant inhalation occurred

5 FIRE-FIGHTING MEASURES

5.1 Suitable Extinguishing Media

Use alcohol-resistant foam, dry chemical powder (ABC or BC), or carbon dioxide (CO₂).

Water spray may be used to cool exposed containers and protect firefighters but avoid direct streams.

5.2 Specific Hazards Arising from the Chemical

Forms explosive vapor-air mixtures (LEL: 2.5%, UEL: 12.8%)

Combustion products: Carbon monoxide (CO), carbon dioxide (CO₂), and irritating fumes

Vapor behavior: Heavy (vapor density 2.0) - accumulates in low areas, creating flashback risks

May flow to ignition sources and flash back

5.3 Protective Equipment for Firefighters

Wear self-contained breathing apparatus (SCBA, NIOSH-approved)

Full protective firefighting gear including chemical-resistant suit



5.4 Additional Firefighting Guidance

Auto-ignition temperature: 465°C (869°F)

Flash point: -20°C (-4°F) - highly flammable at room temperature

Approach fires upwind to avoid vapor inhalation

Prevent runoff from entering drains/waterways

Cool exposed containers with water spray from protected positions

5.5 National Fire Protective Association: Health - 1, Flammability - 3, Reactivity - 0

Note: NFPA ratings are for emergency response only and reflect acute exposure risks.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

Immediately evacuate non-essential personnel upwind.

Eliminate all ignition sources within 50 feet (15 meters).

Wear NIOSH-approved SCBA (for vapors >250 ppm) and chemical-resistant PPE (Viton® gloves + Tychem® suit).

6.2 Environmental Precautions

Prevent entry into sewers/waterways using absorbent booms or dikes.

EPA Reportable Quantity (RQ): 5,000 lbs (2,270 kg) per 40 CFR 302.4.

CERCLA Hazardous Substance: RQ = 5000 lbs (immediate reporting to NRC: 1-800-424-8802).

6.3 Containment and Cleanup Methods

For releases <5,000 lbs:

Contain with inert absorbents (clay, polypropylene pads and booms).

Collect in DOT-approved containers.

Ventilate area with explosion-proof fans to disperse vapors.

For releases ≥5,000 lbs (or any quantity entering waterways):

Notify NRC, EPA, and state/local authorities immediately.

6.4 Reporting Requirements

EPA:

≥5,000 lbs (2,270 kg): to NRC within 15 minutes (40 CFR 302.6).

Any release to waterways: Immediate notification to State and Local agencies (Clean Water Act).

7 HANDLING AND STORAGE

Use only in well-ventilated areas (preferably with local exhaust ventilation)

Ground and bond containers during transfer to prevent static discharge

Avoid contact with:

Strong oxidizers (e.g., peroxides, nitric acid, halogens)

Strong bases (e.g., sodium hydroxide)

Use non-sparking tools and explosion-proof equipment

Do not breathe vapors; use respiratory protection if ventilation is inadequate (see Section 8)

Avoid eye and skin contact

Wash thoroughly with soap and water after handling

Remove contaminated clothing immediately

Empty containers retain residual vapor - do not expose to heat/sparks/open flames

7.2 Storage Conditions

Primary Storage:

Store in approved flammable liquids safety cabinets

Use tightly sealed containers (preferably metal or approved plastic)



Keep in cool, dry, well-ventilated areas away from:
Ignition sources (heat/sparks/open flames)
Incompatible materials (strong oxidizers, strong bases)

Environmental Controls:

Temperature: <30°C (86°F) recommended
Ventilation: Continuous mechanical ventilation (explosion-proof required)
Secondary containment: Recommended for bulk storage
Do not store near reactive metals (e.g., sodium, potassium)

8 EXPOSURE CONTROLS/PPE

8.1 Exposure Limits

OSHA PEL (TWA): 1,000 ppm (2,400 mg/m³)
ACGIH TLV (TWA): 500 ppm (1,200 mg/m³)
NIOSH REL (TWA): 250 ppm (590 mg/m³)
NIOSH IDLH: 2,500 ppm (based on flammability and narcotic effects)

8.2 Engineering Controls

Use local exhaust ventilation (LEV) with explosion-proof fans, ensuring a minimum capture velocity of 100 fpm at the source.
General ventilation must provide at least 6 air changes per hour in storage/handling areas.

8.3 Personal Protective Equipment (PPE)

Respiratory Protection:

<250 ppm: None needed with verified engineering controls
250-2500 ppm: Full-face APR with organic vapor cartridges + P100 filters
≥2500 ppm (IDLH): NIOSH-approved SCBA required

Eye/Face Protection:

Chemical splash goggles
Face shield (when splashing risk exists)

Skin Protection:

Nitrile gloves (≥0.4 mm thickness)
Viton® (≥0.7 mm) or Silver Shield®
Chemical-resistant apron or suit (when splash risk exists)
Closed-toe shoes with chemical-resistant uppers

Other Protection:

Static-dissipative footwear in flammable areas
Safety showers and eye wash stations must be accessible

8.4 General Hygiene Measures

Prohibit eating/drinking/smoking in work areas.
Wash hands/face thoroughly after handling.
Launder contaminated clothing before reuse.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 General Information

- a) Appearance: Clear, colorless liquid
- b) Odor: Characteristic, sweetish odor
- c) Odor threshold: ~62 ppm (varies by individual sensitivity)
- d) pH: ~7.0 (neutral)



- e) Melting point/freezing point: -95°C (-139°F)
- f) Boiling point: 56°C (133°F)
- g) Flash point: -20°C (-4°F) (closed cup)
- h) Evaporation rate: 5.7 (ether = 1.0; faster than water)
- i) Flammability: Highly flammable liquid (GHS Category 1)
- j) Flammability limits:
 - Upper explosive limit (UEL): 12.8%
 - Lower explosive limit (LEL): 2.5%
- k) Vapor pressure: 233 mmHg at 25°C
- l) Vapor density: 2.0 (air = 1; heavier than air)
- m) Relative density: 0.791 at 20°C (water = 1)
- n) Solubility: Fully miscible with water, ethanol, ether, and most organic solvents
- o) Partition coefficient (log Kow): -0.24
- p) Autoignition temperature: 465°C (869°F)
- q) Decomposition temperature: $>500^{\circ}\text{C}$ (forms carbon monoxide, carbon dioxide)
- r) Viscosity: 0.32 mPa·s at 20°C (similar to water)
- s) Explosive properties: None (unless mixed with strong oxidizers)
- t) Oxidizing properties: None

9.2 Other Safety Characteristics

Refractive index: 1.359 at 20°C

Dielectric constant: 20.7 at 25°C

Electrical conductivity: $<1 \times 10^{-7}$ S/m (very low conductivity)

10 STABILITY AND REACTIVITY

10.1 Stability

Stable under normal conditions (temperature, pressure)

Conditions to avoid:

Open flames, sparks, static discharge (flash point: $-20^{\circ}\text{C}/-4^{\circ}\text{F}$)

Temperatures $>30^{\circ}\text{C}$ (accelerates vapor formation)

Confined spaces (vapor density 2.0 - heavier than air)

10.2 Reactive Hazards

Hazardous polymerization: Will not occur

Incompatible materials:

Strong oxidizers (e.g., chromic acid, peroxides - may cause fires/explosions)

Strong bases (e.g., NaOH - may generate heat)

Reactive metals (e.g., lithium, sodium - may produce flammable hydrogen gas)

10.3 Hazardous Decomposition Products

Thermal decomposition ($>465^{\circ}\text{C}$):

Carbon monoxide (CO) (toxic, flammable)

Carbon dioxide (CO₂)

Trace aldehydes (irritating)

11 TOXICOLOGICAL INFORMATION

11.1 Acute Toxicity

Oral (LD₅₀): 5,800 mg/kg (rat) [OECD 401]

Dermal (LD₅₀): $>20,000$ mg/kg (rabbit) [OECD 402]

Inhalation (LC₅₀): 50,100 ppm/4h (rat) [AIHA 2003]

Skin Irritation: Mild (rabbit) [GHS Category 3]



Eye Irritation: Moderate (rabbit) [GHS Category 2A]

11.2 Chronic Toxicity

Carcinogenicity:

IARC: Group 3 (Not classifiable)

NTP: Not listed

ACGIH: A4 (Not suspected)

Reproductive Toxicity:

No developmental effects at $\leq 3,000$ ppm (rat inhalation) [ECHA]

No fertility impairment observed [OECD 422]

Target Organ Effects:

CNS: Drowsiness at $>1,000$ ppm

Liver/Kidney: No significant effects at occupational exposures

Respiratory: Mild irritation at >500 ppm

11.3 Other Effects

Skin Sensitization: Negative [OECD 406]

Mutagenicity: Negative (all standard tests)

Aspiration Risk: Low (viscosity $0.32 \text{ mPa}\cdot\text{s}$)

11.4 Exposure Effects

Inhalation:

250 ppm: Nose/throat irritation

1,000 ppm: Headache, dizziness

IDLH: 2,500 ppm (NIOSH, based on flammability/narcosis)

Skin Contact:

Mild irritation (prolonged contact)

May defat skin (dermatitis with repeated exposure)

Eye Contact:

Reversible irritation (Category 2)

Temporary blurred vision possible

Ingestion:

Low acute toxicity ($\text{LD}_{50} >5 \text{ g/kg}$)

Symptoms: Nausea, drowsiness

12 ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Aquatic Toxicity:

Fish (LC_{50} , 96h): 5,400 mg/L (*Pimephales promelas*) – Practically non-toxic [OECD 203]

Daphnia (EC_{50} , 48h): 7,200 mg/L (*Daphnia magna*) – Practically non-toxic [OECD 202]

Algae (EC_{50} , 72h): 3,800 mg/L (*Pseudokirchneriella subcapitata*) – Low toxicity [OECD 201]

Terrestrial Toxicity:

Earthworm (LC_{50} , 14d): $>1,000 \text{ mg/kg}$ soil (*Eisenia fetida*) – Practically non-toxic [OECD 207]

Avian (LD_{50} , oral): 2,250 mg/kg (*Colinus virginianus*) – Slightly toxic [EPA 850.2100]

12.2 Persistence and Degradability

Biodegradation:



Ready biodegradability: >80% degradation (28d, OECD 301F) – Readily biodegradable
Half-life (water, aerobic): 1–5 days [EPI Suite v4.11]

Abiotic Degradation:

Hydrolysis: Stable at pH 4–9 (no significant degradation) [OECD 111]

Photodegradation (air): Half-life = 22 days (OH radical reaction) [Atkinson 1987]

12.3 Bioaccumulation Potential

Log Kow: -0.24 (low lipophilicity) [ECHA]

BCF (Bioaccumulation Factor): <10 (Oncorhynchus mykiss) – Negligible accumulation [OECD 305]

GHS Classification: Not classified (rapid metabolism/excretion)

12.4 Mobility in Soil

Koc: 2.0 – High mobility [EPA EPI Suite]

Leaching Potential: High (but rapid degradation reduces impact) [USGS Studies]

Volatilization (water): Half-life = 5.3 hours (25°C, 1m depth) [Mackay Model]

13 DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Product Disposal:

Classification: D001 ignitable hazardous waste (40 CFR 261.21)

Incineration: Approved hazardous waste facility at $\geq 850^{\circ}\text{C}$ (1,562°F) with VOC controls

Energy recovery: Permitted in licensed waste-to-energy facilities

Recycling: Preferred method via solvent recovery distillation

Contaminated Packaging:

Triple-rinse with water (acetone is fully water-miscible)

Treat rinseate as hazardous waste (D001)

Crush/puncture containers to prevent reuse [OSHA 1910.1200(f)(9)]

Label as "Acetone Residue" before disposal

13.2 Regulatory Information

US EPA Waste Codes: D001 only (no U/P listing)

RCRA Status: Non-listed hazardous waste (ignitability characteristic)

EU Waste Code: 14 06 02 (non-halogenated solvents)

California: Reportable quantity = 5,000 lbs (22 CCR §66262.34)

13.3 Special Precautions

Never pour into drains/waterways (highly mobile in groundwater)

Use closed transfer systems (vapor density 2.0 > air)

Soil spills require immediate containment (volatilization half-life = 5.3 hours)

Groundwater monitoring recommended for major releases

13.4 Recommended Disposal Methods

Contact licensed waste handlers (e.g., Clean Harbors, Veolia)

Consult local hazardous waste regulations (state/provincial requirements may vary)

13.5 Contaminated Site Remediation

Small Spills (<100 L):

Ventilate area and allow natural evaporation

Absorb with inert material (vermiculite, sand)

Excavate top 6" of affected soil if needed



Large-Scale Contamination:

Soil vapor extraction: Effective for volatile residues
Natural attenuation: Rapid aerobic degradation (half-life 1-5 days)
Thermal treatment: Only for severe cases (rarely needed)

14 TRANSPORT INFORMATION

14.1 DOT (U.S. Department of Transportation)

Proper Shipping Name: Acetone
Hazard Class: 3 (Flammable Liquid)
UN Number: UN1090
Packing Group: II
Special Provisions: 144 (Limited quantities permitted)

14.2 IMDG (International Maritime Dangerous Goods)

Proper Shipping Name: Acetone
Hazard Class: 3 (Flammable Liquid)
UN Number: UN1090
Packing Group: II
Marine Pollutant: No
EMS Code: F-E, S-D (Fire, Spillage)

14.3 IATA (International Air Transport Association)

Proper Shipping Name: Acetone
Hazard Class: 3 (Flammable Liquid)
UN Number: UN1090
Packing Group: II
Passenger Aircraft Max Qty: 1 L per package
Cargo Aircraft Max Qty: 30 L per package

15 REGULATORY INFORMATION

15.1 U.S. Federal Regulations

EPA Regulations:
TSCA: Listed (40 CFR 710.3)
CERCLA RQ: 5,000 lbs (40 CFR 302.4; D001 ignitable characteristic only)
SARA Title III (EPCRA):
 Sections 302/304: Not an Extremely Hazardous Substance (40 CFR 355)
 Sections 311/312: Fire Hazard only (40 CFR 370.21)

RCRA:

Hazardous Waste Number: D001 (Ignitable Waste; flash point -20°C/-4°F)
Not listed as U- or P-waste (40 CFR 261.33)

15.2 U.S. State Regulations

New Jersey: RTK Hazardous Substance (N.J.A.C. 7:1G)
Pennsylvania: Hazardous Substance (35 P.S. § 7302)
Massachusetts: RTK Hazardous Substance (454 CMR 21.00)
California:
Proposition 65: Not listed (no reproductive toxicity or carcinogenicity warnings required)

16 OTHER INFO:

16.1 Document Control

Original Preparation Date: January 1, 2006



Latest Revision Date: April 4, 2025

Revision Summary: Updated to align with GHS Revision 7 standards and current regulatory requirements.

16.2 Disclaimer:

The information contained herein is accurate to the best of TEDIA COMPANY LLC's knowledge and complies with applicable regulations as of the revision date. However, no warranty, express or implied, is made regarding its accuracy, completeness, or fitness for a particular purpose.

16.3 User Responsibility:

It is the responsibility of the user to: Verify compliance with local, state, federal, and international regulations before use. Conduct independent assessments to ensure suitability for intended applications. Implement appropriate safety, health, and environmental controls.