

SAFETY DATA SHEET



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N, N-DIMETHYLACETAMIDE

SDS No. M0079

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: N, N-Dimethylacetamide

Synonyms: Acetic Acid, Dimethylamide; Dimethylacetone Dmide; DMAC; Acetyl Dimethylamide

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Flammable Liquids: GHS Category 4

Acute Toxicity, Inhalation: GHS Category 4

Acute Toxicity, Dermal: GHS Category 4

Eye Irritation: GHS Category 2A

Reproductive Toxicity: GHS Category 1B

Label Elements

Signal Word: DANGER!

Hazard Statements:

H227 – Combustible liquid and vapor.

H312+H332 – Harmful in contact with skin or if inhaled.

H319 – Causes serious eye irritation.

H360 – May damage fertility or the unborn child.

Precautionary Statements:

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

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 – IF exposed or concerned: Get medical advice/ attention.

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P403+P235 – Store in a well-ventilated place. Keep cool.
 P405 – Store locked up.
 P501 – Dispose of contents/ container to an approved waste disposal plant.

Emergency Overview

Causes irritation to the respiratory tract. May be harmful to the unborn child. Harmful if absorbed through the skin or inhaled. Hygroscopic. Combustible liquid and vapor. Target Organs: Central nervous system, liver, respiratory system, and reproductive system.

HMIS Rating:

Health – 2* Flammability – 2 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
N, N-Dimethylacetamide	127-19-5	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation. Get medical attention immediately.

Ingestion: Do not induce vomiting. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person. Get medical aid immediately. Call a poison control center.

Skin Contact: Get medical attention immediately. Remove any contaminated clothing. Wash skin with plenty of water for at least 15 minutes.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Combustible liquid and vapor. (GHS Category 4)

Auto-ignition Temperature: 335° C (635° F)

Flash Point: 63° C (145° F)

Flammable Limits: Lower Limit – 1.8 vol %, Upper Limit – 11.5 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (Nitrogen oxides, carbon monoxide, carbon dioxide, acetic acid, dimethylamine).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Do not use straight streams of water.

Specific Explosion Hazards: None.

Fire Fighting Media: Use dry chemical, carbon dioxide, or foam.

National Fire Protective Association: Health - 2, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Use spark-proof tools and explosion-proof equipment. Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Store away from ignition sources. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store under nitrogen blanket.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 10 ppm TWA; Skin – potential significant contribution to overall exposure by cutaneous route

NIOSH – 10 ppm TWA, 35 mg/m³ TWA; 300 ppm IDLH

OSHA Final PELs – 10 ppm TWA, 35 mg/m³ TWA

OSHA Vacated PELs: 10 ppm TWA, 35 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Ammonia like odor

Molecular Formula: CH₃CON(CH₃)₂

Molecular Weight: 87.12

Auto-ignition Temperature: 335° C (635° F)

Flash Point: 63° C (145° F)

Flammable Limits: Lower Limit – 1.8 vol %, Upper Limit – 11.5 vol %

pH: Not available.

Boiling Point: 165° C

Freezing/Melting Point: -20° C

Decomposition Temperature: >350° C.

Specific Gravity: 0.94 @ 20° C

Vapor Density (Air=1): 3.01

Vapor Pressure: 1.5 mm Hg @ 20° C.

Evaporation Rate (Butyl acetate = 1): 0.17.

Viscosity: 1.02 cp @ 27° C.

Solubility: Soluble

Conductivity: Conductive; Conductivity = 1.1x10⁷ pS/m; Dielectric Constant = NA; Relaxation Time Constant = NA

10. STABILITY AND REACTIVITY

Stability: Hygroscopic (absorbs water or moisture from the air).

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, exposure to moist air or water.

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Incompatibility with Various Substances: Ammonia, non-oxidizing mineral acids, strong oxidizing agents, strong acids, phenols, isocyanates, and cresol.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide, acetic acid, diethylamine.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Causes respiratory tract irritation and possible effects similar to ingestions. Inhalation of high concentrations may cause central nervous depression or asphyxiation. DMAC concentrations between 0-2 ppm, with occasional levels between 11-34 ppm, in a polymer manufacturing operation caused dizziness, lethargy, and weakness.

INGESTION HAZARD: Ingestion may cause gastrointestinal irritation with nausea, vomiting, and diarrhea. May cause liver damage. May cause central nervous system depression characterized by excitement followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma, and possible death due to respiratory failure. May cause auditory or visual hallucinations, disorientation, sweating, and weakness.

SKIN CONTACT HAZARD: May cause skin irritation. Harmful if absorbed through the skin.

EYE CONTACT HAZARD: May cause mild eye irritation.

Chronic Exposure Hazards: Chronic ingestion may cause liver damage. May cause reproductive and fetal effects.

Repeated application of DMAC to dogs at 4 mg/kg of body weight for six weeks produced large increase in fatty tissue in the liver. Daily exposure of rats at 195 ppm for six months caused liver damage.

Animal Toxicity:

Draize test, rabbit, eye: 100 mg Mild

Inhalation, mouse: LC50 = 7200 mg/m³;

Inhalation, rat: LC50 = 2475 ppm/1H;

Oral, mouse: LD50 = 4620 mg/kg;

Oral, rat: LD50 = 4300 mg/kg;

Skin, rabbit: LD50 = 2240 mg/kg;

Skin, rat: LD50 = >2 g/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Jaundice was observed in workers as a result of repeated exposures at 20-25 ppm, but appreciable skin penetration undoubtedly contributed to the effect.

Teratogenicity: Effects were reported from dermal application were reported in rats when DMAC was applied on day 10 and 11 of gestation at a total dose of 2400 mg/kg of body weight.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals. Some tests in adult animals have shown changes to the testes at levels that produce other toxic effects. Reproductive data on adult animals show no change in reproductive performance.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead minnow: 1500 mg/L; 96hr LC50; flow through, no data available.

Environmental Fate: Terrestrial: Will display very high mobility. Will not volatilize from moist soil to the atmosphere. Aquatic: Will not absorb to sediment or suspended organic matter. Atmospheric: May undergo a rapid gas-phase reaction with photochemically produced hydroxyl radicals. Half-life: 6.1 hours

Physical: Will biodegrade. Will not bioconcentrate.

Other: Do not empty into drains.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, usage or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is neither a "P" listed nor a "U" listed waste under 40 CFR 261.33.

14. TRANSPORT INFORMATION

Not regulated for transportation.

15. REGULATORY INFORMATION

US Federal Regulations:

CERCLA Hazardous Substances: CAS# 127-19-5 does not have an RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 127-19-5 – immediate, delayed, fire

Section 313: DMAC (127-19-5) is not subject to SARA Title III Section 313 reporting requirements.

US State Regulations:

CAS# 127-19-5 is on state right-to-know lists in California, New Jersey, Pennsylvania, Minnesota, and Massachusetts.

California Prop. 65: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

16. OTHER INFORMATION

Originally Prepared: 1/1/2006

Last Revised: 07/22/2020 – Hazard categories, hazard statements, and precautionary statements were updated in Section 2.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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