



Zeon Chemicals L. P.

**Material Safety Data Sheet**

Form: 376  
 Issue Date: 08/02/01  
 Supersedes: 05/11/99  
 MSDS Number: Z02501

**Section 1 - PRODUCT AND COMPANY IDENTIFICATION**

**Manufacturer / Importer:**  
 Zeon Chemicals L.P.  
 4111 Bells Lane  
 Louisville, Kentucky 40211

**Telephone Number:**  
 1-800-735-3388  
 (502)-775-2000

**Emergency Telephone Number:**  
 1-800-776-2460 Ext 7650  
 (502) 774-8126

**Chemical Family:**  
 N,N-Dimethylacetamide  
 C<sub>4</sub>H<sub>9</sub>NO

**Uses:**  
 Electronic Applications

This MSDS applies to the following product(s):

**ZDMAC****Section 2 - COMPOSITION / INFORMATION ON INGREDIENTS**

| Hazardous Ingredients | CAS #    | Amount | Exposure Limits |           |           |                  |
|-----------------------|----------|--------|-----------------|-----------|-----------|------------------|
|                       |          |        | OSHA PEL        |           | ACGIH TLV |                  |
| N,N-Dimethylacetamide | 127-19-5 | >99 %  | 10 ppm          | TWA, Skin | 10 ppm    | TWA,<br>Skin, A4 |

| Other Ingredients | CAS # | Amount | Notes   |
|-------------------|-------|--------|---|
|                   |       |        | TWA = Time Weighted Average TLV = Threshold Limit Value<br>AL = Action Level RD = Respirable Dust TD = Total Dust<br>STEL = Short Term Exposure Limit Skin = Skin contact may be a<br>significant route of exposure A2 = ACGIH Suspected Human Carcinogen<br>A3 = ACGIH Animal Carcinogen A4 = ACGIH Not Classifiable as a<br>Human Carcinogen PNOC = Particulates Not Otherwise Classified |

**Section 3 - HAZARDS IDENTIFICATION****Emergency Overview:**

This material is a clear, colorless liquid with a faint ammonia odor. Combustible liquid and vapors. Harmful if ingested, inhaled, or absorbed through the skin. May produce vapors or mists that can cause eye, skin, and respiratory tract irritation. Prolonged or repeated exposure to vapors may cause drowsiness, nausea, dizziness, or headaches. Toxic combustion products may be released under fire conditions.

**Potential Health Effects From Overexposure:** Possible routes of entry include skin & eye contact and process vapor or mist inhalation.

Contact with liquid, vapors, or mists may cause irritation to the eyes, skin, nose, throat, and respiratory tract. May be absorbed through skin. Inhalation of high vapor or mist concentrations may produce narcotic effects and unconsciousness. Accidental ingestion may cause gastrointestinal irritation and may result in aspiration into the lungs causing chemical pneumonia. Prolonged or repeated exposure may cause liver and reproductive effects. Processing under conditions of inadequate ventilation may produce symptoms of drowsiness, nausea, dizziness, or headaches.

Appropriate precautions should be taken to minimize potential exposure to accidental ingestion, inhalation of process vapors or mists, and skin contact.

Overexposure to decomposition or combustion products may cause irritation of the eyes, skin, and respiratory tract. Symptoms such as coughing, tearing, and irritation should be regarded as potentially hazardous and measures taken to avoid exposure. See Section 10 for information on combustion products.

**Section 4 - FIRST AID MEASURES**

If irritation occurs or persists from any route of exposure, remove the affected individual from the area and seek medical assistance.

**Ingestion:** If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Seek medical assistance immediately.

**Vapor Inhalation:** Remove the affected individual to fresh air. If breathing has stopped, administer artificial respiration and seek medical assistance immediately.

**Eye Contact:** Flush eyes with running water for several minutes while holding eyelids open. Consult a physician if irritation persists.

**Skin Contact:** Remove contaminated clothing and shoes. Wash contact area with soap and water for 15 minutes. Seek medical attention if irritation / allergic skin reaction develops. Launder contaminated clothing before reuse.

**Section 5 - FIRE FIGHTING MEASURES**

**Extinguishing Media:** Carbon dioxide, dry chemical, or alcohol resistant foam is recommended. Use water spray or fog to extinguish surrounding fire, and cool fire exposed containers. Do not use halogenated extinguishing media.

**Special Firefighting Procedures:** Wear positive pressure self-contained breathing apparatus (SCBA) during the attack phase of firefighting operations and during cleanup in enclosed or poorly ventilated areas immediately after a fire. Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic combustion gases from any source.

**Unusual Fire and Explosion Hazards:** Combustible liquid and vapors. Explosive vapor - air mixtures may form above the flash point. Vapor can flow along surfaces to distant ignition sources and flash back. Closed containers may rupture due to pressure buildup under fire conditions. Toxic gases may be formed upon combustion and represents a hazard to firefighters. See Section 10 for additional information on combustion products.

### Section 6 - ACCIDENTAL RELEASE MEASURES

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Provide adequate ventilation. Remove all ignition sources. Wear respiratory protection and protective clothing to contain spill. Use non-sparking tools in recovery operations. Contain and collect as much of the release as possible. Absorb remaining residue with inert material and place into closed containers to await disposal. Do not allow product to enter municipal sewers or waterways.

### Section 7 - HANDLING AND STORAGE

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Use only in well ventilated areas. Avoid contact with eyes, skin, and clothing. Store in a well ventilated location away from heat, sparks, flame, and direct sunlight. Keep container closed when not in use. Evaluate transfer operations for potential static charge buildup and ground and bond accordingly. Use non-sparking tools and equipment. Empty containers may retain product residue (liquid and / or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, open flames, or incompatible materials.

### Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Ventilation:** Enclose operations and / or provide local exhaust ventilation to draw fumes, vapors, or mists away from workers. Ventilation must be adequate to maintain the ambient workplace atmosphere below the limits listed in Section 2.

**Respiratory Protection:** For protection against process vapors or mists, wear a NIOSH approved respirator suitable for the anticipated airborne concentration. Wear a positive pressure air-supplied respirator in situations where there may be potential for elevated airborne exposure.

**Protective Equipment:** During processing operations, splash proof goggles or safety glasses with face shield suitable for keeping liquid material out of the eyes should be worn when potential exists for eye contact. Rubber gloves and apron should be worn when skin contact is anticipated. Provide an eye wash facility and safety shower.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Specific Gravity (H<sub>2</sub>O=1): 0.94

Flash Point: 151° F (66° C)

Vapor Pressure: 1.5 @ 68° F (20° C)

Evaporation Rate (Bu Ac=1): <0.17

Solubility in Water: Miscible

Boiling Point: 331° F (166° C) @ 760 mm Hg

Autoignition Temperature: 914° F (490° C)

% Volatile by Weight: 100

Vapor Density (Air =1): 3.0

Lower Explosion Limit: 1.8%

Upper Explosion Limit: 11.5%

Appearance and Odor: Clear, colorless liquid with a faint ammonia odor.

### Section 10 - STABILITY AND REACTIVITY

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**Stability:** Stable under ordinary conditions of use and storage.

**Conditions to Avoid:** Overheating, open flames, sparks, and contact with ignition sources.

**Materials to Avoid:** Carbon tetrachloride, oxidizing agents, halogenated compounds. Attacks rubber and plastic material.

**Hazardous Decomposition Products:** Fumes produced when heated to decomposition temperatures may contain carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen. Combustion products must be considered toxic.

### Section 11 - TOXICOLOGICAL INFORMATION

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Oral LD<sub>50</sub> (rat) - 4300 mg/kg

Inhalation LC<sub>50</sub> (rat) - 2475 ppm / 1hr

Skin LD<sub>50</sub> (rabbit) - 2240 mg/kg

Dimethylacetamide has been reported to show evidence of reproductive effects in laboratory tests with animals.

**Section 12 - ECOLOGICAL INFORMATION**

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When released into the soil, DMAC is expected to leach into groundwater. This material is miscible in water and would be expected to evaporate slowly when released to water. DMAC is not expected to significantly bioaccumulate. When released to air, this material is expected to readily degrade by reaction with photochemically produced hydroxyl radicals. DMAC has a half-life of less than 1 day.

**Section 13 - DISPOSAL CONSIDERATIONS**

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Waste resulting from this product as supplied is not known to be classified as a hazardous waste per the current listings and characteristics contained in 40 CFR Part 261, and its Appendices. It is the generator's responsibility to determine, per the regulation, the applicability of the Resource Conservation and Recovery Act (RCRA), as well as all state, local, or other governmental agency waste disposal regulations, to the particular waste materials prior to treatment or disposal. Disposal of liquid wastes and solids containing free liquids by land filling is prohibited in most jurisdictions. Incinerate or use biological treatment in accordance with federal, state, and local regulations. Containers of this product may be hazardous when emptied. Empty containers may retain product liquid and vapors.

**Section 14 - TRANSPORTATION INFORMATION**

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For domestic transportation purposes, this product is defined or designated as a hazardous material by the U.S. Department of Transportation under Title 49 of the Code of Federal Regulations.

|                          |  |
|--------------------------|--|
| DOT Hazard Class         | Combustible liquid   |
| DOT Proper Shipping Name | Combustible liquid, n.o.s., (Dimethylacetamide), NA 1993, PG III |
| DOT Label                | None   |
| UN/NA Hazard No.         | NA 1993  |

**Section 15 - REGULATORY INFORMATION**

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**TSCA Inventory Status:** This product and all components are listed on the U.S. EPA Toxic Substances Control Act Inventory.

**TSCA 12(b) Export Notification Status:** This product does not contain any components subject to export notification requirements.

**SARA 313 Status:** This product does not contain any components exceeding the *de minimis* amount subject to reporting under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 372.

**Additional Right-to-Know Information on Components:**

| Component         | CAS #    | Key (See below) |
|-------------------|----------|-----------------|
| Dimethylacetamide | 127-19-5 | 5, 9, 10, 14 *  |

| Key | Description                                | Key | Description   |
|-----|--|-----|---|
| 1.  | Reserved                                   | 8.  | MA Extraordinary Hazardous Substance above 1 ppm    |
| 2.  | CA Listed Carcinogen                       | 9.  | MA Toxic or Hazardous Substance above 1%            |
| 3.  | CA Listed Reproductive Toxin               | 10. | NJ Hazardous Substance above 1%                     |
| 4.  | PA Special Hazardous Substance above 0.01% | 11. | NJ Special Health Hazard Substance above 0.1%       |
| 5.  | PA Hazardous Substance above 1%            | 12. | NJ Environmental Hazardous Substance above 1%       |
| 6.  | PA Non-Hazardous Substance above 3%        | 13. | NJ Non-Hazardous Substance above 1%                 |
| 7.  | PA Non-Hazardous Substance above 5%        | 14. | Canadian WHMIS Ingredient Disclosure List Substance |

**Section 16 - ADDITIONAL INFORMATION****Hazard Rating System Classifications:**

|              | NFPA | HMIS | Key: 0=least; 1=slight; 2=moderate; 3=high; 4=extreme                                   |
|--------------|------|------|---|
| Health       | 2    | 2    | National Fire Protection Association rating identifies hazards during a fire emergency. |
| Flammability | 2    | 2    | Hazardous Materials Identification System rating applies to products as packaged.       |
| Reactivity   | 0    | 0    |   |

It may be possible under certain processing and handling conditions, e.g. processes that create vapors, mists, or dust, to release unreacted monomers and other substances in airborne concentrations in excess of their established exposure limits or guidelines. Customers and processors should do sufficient in-house industrial hygiene monitoring to assure compliance of their operations.

**Reason for (Re)issue:** New

**User's Responsibility**

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation must be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin must be provided to your employees or customers. It is your responsibility to use this information to develop appropriate work practice guidelines and employee instructional programs for your operation.

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