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## MATERIAL SAFETY DATA SHEET

### N,N-DIMETHYLACETAMIDE (DMAC)

(The MSDS format adheres to the standards and regulatory requirements of China and may not meet regulatory requirements in other countries.)

#### SECTION 1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

##### Material Identification

CAS Number: 127-19-5

Formula:  $\text{CH}_3\text{CON}(\text{CH}_3)_2$

Molecular Weight: 87.12

CAS Name: N,N-DIMETHYLACETAMIDE

Grade: TECHNICAL

##### Tradenames and Synonyms

DMAC

N,N-DIMETHYLACETAMIDE

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

##### Components

Material	CAS Number	%
N,N-DIMETHYLACETAMIDE	127-19-5	100

**Label content****Pictogram:****SECTION 3. HAZARDS IDENTIFICATION****Potential Health Effects**

Human experience or case reports have identified the following potential effects from overexposure by skin contact with Dimethylacetamide; slight irritation with itching, redness or swelling. There are no reports of human skin sensitization. Skin permeation may occur in amounts capable of producing the effects of systemic toxicity. Eye contact with Dimethylacetamide may cause eye irritation with tearing, pain or blurred vision. Short-term overexposure to Dimethylacetamide by inhalation, ingestion, or skin contact may cause non-specific effects such as headache, nausea and weakness, dizziness, or drowsiness. Repeated or excessive over- exposure may cause altered liver function or abdominal pain, vomiting or jaundice. Animal data suggests that abnormal kidney function with altered results on blood tests may occur from excessive exposures. Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the liver, or kidneys. If there is significant potential for skin contact with Dimethylacetamide (DMAC), biological monitoring should be done to measure the level of DMAC metabolites in urine specimens collected at the end of the shift. It is a ZHEJIANG COMMUNICATIONS TECHNOLOGY CO.,LTD practice to limit an individual's end-of-shift DMAC metabolites to levels at or below 30 ppm expressed as N-methylacetamide (MMAC).

**Carcinogenicity Information**

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

**SECTION 4. FIRST AID MEASURES****First Aid****INHALATION**

If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

**SKIN CONTACT**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

**EYE CONTACT**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

**INGESTION**

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

**Notes to Physicians**

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5mL/kg, or 350 mL for an average adult. For significant ingestion, gastric lavage may be advisable.

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**SECTION 5. FIRE FIGHTING MEASURES****Flammable Properties**

Flash Point : 63 C (145 F)

Method : TCC

**Flammable limits in Air, % by Volume**

LEL : 1.8 at 100 C (212 F)

UEL : 11.5 at 160 C (320 F)

**Autodecomposition : >350 C (>662 F)**

**Autoignition : 335 C (635 F)**

Actual Autoignition Temperature (AIT) can be affected by the concentration of vapors and oxygen, vapor/air contact time, pressure, volume, catalytic impurities, etc. Process conditions should be analyzed to determine if the AIT's may be higher or lower.

**Combustible liquid.**

Follow appropriate National Fire Protection Association (NFPA) codes.

**Extinguishing Media**

Alcohol Resistant Foam, Dry Chemical, CO<sub>2</sub>.

**Fire Fighting Instructions**

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus (SCBA) and full protective equipment. Cool tank/container with water spray. Water sprays may be used to flush spills away from exposures. If leak has not been ignited, use water spray to disperse vapors and protect personnel attempting to stop leak. Firefighters' protective clothing may not supply chemical resistance to this product. Chemical-resistant suit with hood and self-contained breathing apparatus should be worn where liquid contact with this product could occur. Decontaminate all equipment used in firefighting efforts before returning to service.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Safeguards (Personnel)**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

**Initial Containment**

Dike spill with earth or sand. Follow applicable Federal, State/Provincial and Local laws/regulations.

**Spill Clean Up**

Transfer spilled material and absorbent to metal drums for disposal. Flush away traces with water. Soak up with sand, dirt, or other noncombustible absorbent materials.

**SECTION 7. HANDLING AND STORAGE****Handling (Personnel)**

Do not get on skin. Do not get on clothing. Avoid breathing vapors or mist. Avoid contact with eyes. Wash thoroughly after handling. Discard shoes or other leather clothing if contaminated.

**Handling (Physical Aspects)**

Keep away from heat, sparks and flames. Keep container tightly closed. Do not use pressure to unload drums or containers.

**Storage**

Store in a well ventilated area away from heat and sunlight. Keep container tightly closed. Keep closure (bung) up to prevent leakage.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Engineering Controls**

Use sufficient ventilation to keep employee exposure below recommended limits. Maintain walking and working surfaces free of liquid product.

**Personal Protective Equipment****EYE/FACE PROTECTION**

Wear safety glasses (side shields preferred). Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying materials.

**RESPIRATOR:**

A NIOSH approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a NIOSH approved positive pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

**PROTECTIVE CLOTHING:**

Wear impervious clothing, such as gloves, apron, boots, or whole bodysuit as appropriate. Recommended glove and clothing material: Butyl Rubber. Neoprene gloves are acceptable for short duration tasks such as turning valves and product transfer operations where more durable abrasion-resistant gloves are needed. Gloves should be inspected before

each use and discarded if they show tears, pinholes, or signs of wear. If handling material above its flash point, wear flame resistant clothing.

### **Exposure Guidelines**

#### **Exposure Limits**

Dimethylacetamide

PEL (OSHA) : 10 ppm, 35 mg/m<sup>3</sup>, 8 Hr. TWA, Skin

TLV (ACGIH) : 10 ppm, 36 mg/m<sup>3</sup>, 8 Hr. TWA, Skin, A4

AEL \*: 10 ppm, 8 & 12 Hr. TWA, Skin

#### **BEI:**

Determinant Sampling Time BEI Notation N-Methylacetamide End of Shift at 30 mg/g creatinine in Urine end of workweek N-Methylacetamide End of Shift 30 ppm of MMAC in Urine (Applies to 8 and 12 hour workday) \* AEL is Zhejiang Communications Technology Co.,Ltd's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence

## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

### **Physical Data**

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

Vapor Pressure : 2 mm Hg @ 25 C (77 F)

4 mm Hg @ 38 C (100 F)

Vapor Density : 3 (Air=1.0)

Freezing Point : -20 C (-4 F)

Evaporation Rate : <1

Solubility in Water : 100 WT%

pH : Slightly acidic in aqueous solution

Odor : Faint, ammoniacal odor

Odor Threshold : 47 ppm

Form : Clear liquid

Color : Colorless

Specific Gravity : 0.945 @ 16 C (61 F)

## **SECTION 10. STABILITY AND REACTIVITY**

### **Chemical Stability**

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Strongly exothermic reactions with highly halogenated compounds such as carbon tetrachloride or benzene

hexachloride may occur in the presence of iron, or with strong oxidizing agents.

### **Decomposition**

Decomposition temperature: >350 C (>662 F)

Thermal decomposition may produce Dimethylamine, Acetic Acid.

### **Polymerization**

Polymerization will not occur.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Animal Data

Dimethylacetamide:

Dermal LD50, rabbit: 2,240 mg/kg

Oral LD50, female rat: 4,930 mg/kg

Inhalation 1 hour, LC50, female rat: 8.81 mg/L

Animal testing indicates Dimethylacetamide is a slight to mild skin irritant, and a mild eyeirritant, but is not a skin sensitizer.

Repeated exposure by skin contact caused weakness, degeneration of the liver, central nervous system depression, incoordination, inflammation of the skin, and dry skin.

Repeated exposure to high doses by ingestion caused pathological changes of the stomach, and lungs. Repeated exposure to lower concentrations caused reduced weight gain, diarrhea, anemia, histopathological changes of the liver, kidneys, stomach, and testes. Long-term exposure by ingestion caused increased liver, kidney, and adrenals weight, and altered clinical chemistry.

A near lethal exposure by inhalation produced degeneration of the liver, and kidneys.

Repeated exposure caused liver injury, upper respiratory tract irritation, degeneration of the testes, and pathological changes of the bone marrow.

Long-term exposure by inhalation caused degeneration of the liver, and increased liver and kidney weights.

Long-term exposure by inhalation at even higher concentrations caused degeneration of the kidneys and retinal atrophy in female mice.

In animal testing Dimethylacetamide has not caused carcinogenicity. Most animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal. Dimethylacetamide is not considered a unique developmental hazard to the conceptus.

Some tests in adult animals have shown that Dimethylacetamide may cause changes to the testes only at levels which produce other toxic effects in the adult animal. Reproductive data on adult animals show no change in reproductive performance. Dimethylacetamide is not considered a unique reproductive hazard. Dimethylacetamide has not produced genetic damage in bacterial cultures. It has not produced genetic damage in tests on animals. In animal testing, Dimethylacetamide has not caused permanent genetic damage in reproductive cells of mammals (has not produced heritable genetic damage).

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicological Information

#### Aquatic Toxicity

48 hour TLm - Himedaka: 1,000 mg/L

96 hour LC50 - Fathead minnows: 1500 mg/L

## SECTION 13. DISPOSAL CONSIDERATIONS

**Waste Disposal**

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Incinerate material in accordance with Federal, State/Provincial and Local requirements. If approved, may be disposed of by incineration, bio-oxidation, removal to a licensed hazardous material landfill. Bio-oxidation feasibility may have to be first confirmed in tests using simulated stream and bio-organism conditions, particularly if the product is a new nutrient or is increased to substantial concentrations in a waste stream. Bacteria must be kept acclimated to this product.

**SECTION 14. TRANSPORTATION INFORMATION****Shipping Information****DOT**

Proper Shipping Name : COMBUSTIBLE LIQUID, N.O.S. (DIMETHYLACETAMIDE)

Hazard Class : COMBUSTIBLE LIQUID

I.D. No. (UN/NA) : NONE

DOT Label(s) : NONE

Packing Group :

Special Information : NOT REGULATED BY DOT IN CONTAINERS LESS THAN 119 GALLONS.

**IMO**

Special Information : NOT REGULATED AS A HAZARDOUS MATERIAL BY IMO.

**Shipping Containers**

Tank Cars.

Tank Trucks.

PLASTIC Drums

**SECTION 15. REGULATORY INFORMATION****CHINA'S Federal Regulations**

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes

Chronic : Yes

Fire : Yes

Reactivity : No

Pressure : No

**HAZARDOUS CHEMICAL LISTS**

SARA Extremely Hazardous Substance: No

CERCLA Hazardous Substance : No

**Canadian Regulations**

CLASS B Division 3 - Combustible Liquid.

CLASS D Division 2 Subdivision B - Toxic Material. Chronic Toxic Effects.

## SECTION 16. OTHER INFORMATION

### **NFPA, NPCA-HMIS**

#### **NFPA Rating**

Health : 2

Flammability : 2

Reactivity : 0

#### **NPCA-HMIS Rating**

Health : 1 (Chronic Health Effects)

Flammability : 2

Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

#### **Additional Information**

For further information, see ZHEJIANG COMMUNICATIONS TECHNOLOGY CO.,LTD DMAC "Properties, Uses, Storage, and Handling Bulletin".

The "Skin" notation in the Exposure Limits Section indicates that liquid or vapor may penetrate the skin. Control of vapor and mist inhalation alone may not be sufficient to prevent an excessive dose.



**HOA VIỆT**  
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