

**MATERIAL SAFETY  
 DATA SHEET**

Date of Issue: February 2005  
 Revision: 05/002  
 ID: dezn

**DIETHYLZINC**
**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY.**

Product Name  
 Diethylzinc  
 Formula  
 $(C_2H_5)_2Zn$   
 Company Identification  
 See footer

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance/Preparation  
 Diethylzinc  
 Components/Impurities  
 None  
 EC No.  
 209-161-3  
 CAS No.  
 557-20-0

**3. HAZARDS IDENTIFICATION**

Pyrophoric liquid, decomposes violently in water. Skin contact can cause severe burns. Fumes may cause Zinc Fume Fever (ZnFF) and a hypothermic reaction. Fumes may cause skin and eye irritation. Avoid inhalation of fumes.

**4. FIRST AID MEASURES**

Prompt medical attention is required in all cases of exposure to Diethylzinc and its by-products. Rescue personnel should be equipped with appropriate protective equipment (e.g. Self-contained breathing apparatus) to prevent unnecessary exposure and must be aware of the fire and explosion potential of Diethylzinc.

**Skin**

Contact may cause severe burns. Fumes may cause irritation. Immediately flush affected areas with large quantities of water. Remove affected clothing as rapidly as possible only if not stuck to skin.

**Eyes**

Contact may cause severe burns. Fumes may cause irritation. Persons with potential exposure to Diethylzinc should not wear contact lenses. Flush contaminated eyes with large quantities of water for at least 15 minutes. Hold eyelids open to ensure complete flushing.

**Inhalation**

May cause ZnFF. Move exposed personnel to an uncontaminated area quickly using self-contained breathing apparatus. If breathing is difficult, give oxygen. If breathing has stopped, apply artificial respiration. Medical assistance should be sought immediately. Keep victim warm and quiet.

**Ingestion**

Do not induce vomiting. Wash mouth with water if the person is conscious. Seek medical advice.

**5. FIRE-FIGHTING MEASURES**
**Extinguishing Media**

Always use dry powder, soda ash or lime. Never use water, foam or halogenated compounds to fight fires involving organometallic materials. Without risk, stop flow of this compound to the fire. Without risk, and if safe to do so, move container(s) away from fire area.

**Exposure Hazards**

In a controlled fire any unreacted Diethylzinc may re-ignite when contact with air or water is renewed.

**Special Protective Equipment for Fire-Fighters**

Fire resistant clothing, self-contained breathing apparatus, face shield and safety goggles, safety shoes and fire resistant gloves.

**6. ACCIDENTAL RELEASE MEASURES**
**Personal Precautions**

Evacuate area. Use appropriate protective equipment. Purge equipment with inert gas before attempting repairs. Ensure adequate ventilation. If leak is in container call one of the emergency numbers as appropriate (See footer).

**Environmental Precautions**

Try to stop release if safe to do so. For fire-fighting measures see section 5.

**Clean up methods**

Contact Nata for specific advice.

**7. HANDLING AND STORAGE**
**Handling**

Valve outlet seals must remain in place unless container is secured and valve outlet piped to use point. Use a check valve or trap to prevent hazardous back flow into the container. Any equipment used for Diethylzinc service must be thoroughly cleaned and prepared to eliminate contamination and must be maintained in a leak-free state. All air and moisture in the system must be eliminated before use.

**Storage**

Protect containers from physical damage. Do not allow temperatures to exceed (125F)51C. Store away from flammable material.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**
**Exposure Controls**
**OSHA or ACGIH:**

TLV(TWA) = 5mg/m<sup>3</sup> (Zinc Oxide Fume)

TLV(STEL/CEIL) = 10mg/m<sup>3</sup> (Zinc Oxide Fume)

PEL(TWA) = 5mg/m<sup>3</sup> (Zinc Oxide Fume)

OES and MEL: None established

**Zinc oxide fume:**

Long term exposure limit (8 hr TWA reference period) 5mgm<sup>-3</sup>

Short term exposure limit (15 minute reference period) 10mgm<sup>-3</sup>

Ensure adequate ventilation.

**Personal Protection**

Self-contained breathing apparatus, fire resistant gloves, face shield and safety goggles, safety shoes, fire-resistant garments. Safety shower and eyewash.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Mwt: 123.49  
 Boiling Point: 118C (244F)  
 Vapour Pressure: log<sub>10</sub> P(mmHg) = 8.280- 2109/T(K)  
 Freezing Point: -28C (-18F)  
 Liquid Density: 1.206g/ml @ 20C  
 Solubility in water: reacts violently  
 Appearance: Colourless liquid which is pyrophoric.

## 10. STABILITY AND REACTIVITY

### Conditions to avoid

Reacts pyrophorically in air. Light sensitive. Do not heat.

Note: Diethylzinc is stable indefinitely in an inert atmosphere at room temperature.

### Materials to avoid

Avoid water, air or other oxidisers.

Hazardous Decomposition Products

Zinc Oxide fumes, CO, CO<sub>2</sub>

## 11. TOXICOLOGICAL INFORMATION

Zinc Oxide dust formed when this compound is oxidised can cause ZnFF. Symptoms include dryness and irritation of the throat, cough, breathing difficulties, pain in muscles and joints, fever, nausea, fatigue and heavy perspiration. It appears to cause change in the blood proteins, leading to a hypothermic reaction.

Diethylzinc is not listed in the IARC, NTP or OSHA Subpart Z as a carcinogen or potential carcinogen.

Diethylzinc is listed on the TSCA inventory

## 12. ECOLOGICAL INFORMATION

This product does not contain any class I or class II ozone depleting chemicals.

## 13. DISPOSAL CONSIDERATIONS

Regional and National regulations should be followed during waste disposal. Contact an Nata representative for disposal of container and any unused quantities.

## 14. TRANSPORT INFORMATION

### ADR

UN No: 3394

CLASS: 4.2, 4.3

PG I

ECCN#: EAR99

IMDG Code: 4230

Proper Shipping Name: Diethylzinc

### IMDG

UN No: 3394

CLASS: 4.2, 4.3

PG I

Proper Shipping Name: Diethylzinc

### IATA

UN No: 3394

CLASS: 4.2, 4.3

PG I

Proper Shipping Name: Diethylzinc

FORBIDDEN

## 15. REGULATORY INFORMATION

### Classification

F +, C Highly Flammable, Corrosive, N Dangerous to the environment

### Risk and Safety Phrases

R14: Reacts violently with water

R17: Spontaneously flammable in air.

R51/53 Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment

R34: Causes burns

S16: Keep away from sources of ignition – no smoking

S43a: In case of fire use dry powder or lime - Never use water

S45: In case of accident or if you feel unwell seek medical advice immediately. (Show label where possible)

S61 Avoid release to the environment – refer to SDS

## 16. OTHER INFORMATION

Ensure operators understand the pyrophoric nature of the product. Before using this product, it is recommended that a risk assessment and safety study be carried out. Further information on the use of this product can be obtained from the Technical Product Manager at the nearest Nata facility.

*The information contained in this material safety data sheet is, to the best of our knowledge and belief, reliable, but the accuracy and completeness thereof is not guaranteed. Since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Final determination of suitability of the chemical is the sole responsibility of the user.*

NATA OPTO-ELECTRONIC MATERIAL CO. LTD.  
328# AIRPORT ROAD ON SUZHOU INDUSTRIAL PARK, P.R.CHINA  
Tel: 0086 512 62520998  
Fax: 0086 512 62527116  
**Emergency Phone: 0086 512 62520550**