

# MATERIAL SAFETY DATA SHEET

## Diethylaluminium cholride

### 1. Identification of the substance/preparation and company/undertaking

#### Identification of the substance or preparation

**Product name** : Diethylaluminium cholride(DEAC)

**Chemical formula** :  $(C_2H_5)_2AlCl$

**Product type** : Liquid.

**Use of the substance/preparation** : Co-Catalyst for olefin polymerization.

**Manufactured/supplied** : SHANGHAIYOUNDNEWMATERIALSCIENCE TECHNOLOGY CO.,LTD  
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**Emergency telephone number (with hours of operation)** : +86-0532-6334166( QINGDAO, China )  
24 hours

### 2. Hazards identification

The substance is classified as dangerous according to Directive 67/548/EEC and its amendments.

**Classification** : F; R17  
R14  
C; R34

**Physical/chemical hazards** : Spontaneously flammable in air. Reacts violently with water.

**Human health hazards** : Causes burns.

See section 11 for more detailed information on health effects and symptoms.

### 3. Composition/information on ingredients

**Substance/preparation** Substance

Ingredient name	CAS number	%	EC number	Classification
Diethylaluminium cholride(DEAC)	96-10-6	MIN99.5	202-619-3	F; R17 [1] [2] R14 C; R34
See section 16 for the full text of the R-phrases declared above				

There are no ingredients or additional ingredients present which, within the current knowledge of the Supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

### 4. First-aid measures

**Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes

with plenty of water for at least 20 minutes. Get medical attention immediately.

**Skin contact** : In case of contact, immediately flush skin copiously with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Protection of first-aiders :**

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

**Notes to physician:** No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**See section 11 for more detailed information on health effects and symptoms.**

## 5. Fire-fighting measures

**Extinguishing media**

**Suitable** : Use dry chemical powder.

**Not suitable** : Do not use water or foam.

**Special exposure hazards:**

Spontaneously flammable in air. Reacts violently with water. May re-ignite itself after fire is extinguished. In a fire or if heated, a pressure increase will occur and the container may burst. Runoff to sewer may create fire or explosion hazard.

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Hazardous combustion products**: Decomposition products may include the following materials:  
carbon oxides  
metal oxide/oxides

**Special protective equipment for fire-fighters** :

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

**Personal precautions :**

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Keep away from water. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

**Environmental precautions:**

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Large spill

:

Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas.

Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

### Small spill

:

Stop leak if without risk. Move containers from spill area. Avoid allowing the spilled material to get wet or using water to clean up spillages or residues, unless the quantity remaining is very small. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

### Handling

:

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Do not allow contact with air. Never add water to this product. Do not allow water to enter container because a violent reaction may occur. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

### Storage

:

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Keep away from water. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

### Packaging materials

#### Recommended

: Use original container.

## 8. Exposure controls/personal protection

### Ingredient name

Diethylaluminium chloride

### Occupational exposure limits

**EH40-WEL (United Kingdom (UK), 9/2006).**

WEL 8 hrs limit: 2 mg/m<sup>3</sup> 8 hour(s).

### Recommended monitoring:

#### procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

### Exposure controls

#### Occupational exposure :

#### Controls

Engineering controls may be required to control the primary or secondary risks associated with this product. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

#### Respiratory protection :

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

#### Hand protection :

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### Eye protection :

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

#### Skin protection :

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### Hygiene measures :

Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. During formulation, follow good industrial hygiene practice.

#### Environmental exposure :

#### Controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

-----2013-12-20

## 9. Physical and chemical properties

### General information

#### Appearance

**Physical state** : Liquid. [Clear.]

**Colour** : Colourless

### Important health, safety and environmental information

**Melting point** : 214°C ( at 760mmHg )

**Flash point** : Nil

**Relative density** : 0.967

## 10. Stability and reactivity

### Stability

:  
The product is stable. Under normal conditions of storage and use, hazardous polymerisation will not occur.

### Conditions to avoid

:  
Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow contact with air.

### Materials to avoid

:  
Reactive or incompatible with the following materials: water air

### Hazardous decomposition:

#### Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11. Toxicological information

### Potential acute health effects

**Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.

**Ingestion** : May cause burns to mouth, throat and stomach.

**Skin contact** : Corrosive to the skin. Causes burns.

**Eye contact** : Corrosive to eyes. Causes burns.

### Acute toxicity

### Potential chronic health effects

**Chronic effects** : No known significant effects or critical hazards.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

### Over-exposure signs/symptoms

**Inhalation** : No specific data.

**Ingestion** : Adverse symptoms may include the following:  
stomach pains

**Skin** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Eyes** : Adverse symptoms may include the following:

pain  
watering  
redness

## 12. Ecological information

**Environmental effects** : No known significant effects or critical hazards.

**Aquatic ecotoxicity**

**Other adverse effects** : No known significant effects or critical hazards.





## 13. Disposal considerations

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

## 14. Transport information

### International transport regulations

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label
<b>ADR/RID Class</b>	UN3394 UN3052	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER REACTIVE (DEAC)	4.2(4.3)	I	
<b>ADNR Class</b>	UN3394 UN3052	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER REACTIVE (DEAC)	4.2(4.3)	I	
<b>IMDG Class</b>	UN3394 UN3052	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER REACTIVE (DEAC)	4.2(4.3)	I	
<b>IATA Class</b>	UN3394 UN3052	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER REACTIVE (DEAC)	4.2(4.3)	I	

PG\* : Packing group

## 15. Regulatory information

### EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

**Hazard symbol or symbols:**



Highly flammable, Corrosive

**Risk phrases** : R17- Spontaneously flammable in air  
R14- Reacts violently with water.  
R34- Causes burns.

**Safety phrases** : S16- Keep away from sources of ignition - No smoking.  
S43- In case of fire, use dry chemical powder.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**Contains** : Diethylaluminiumchloride 202-619-3

**Product use** : Industrial applications.

**Europe inventory** : All components are listed or exempted.

## 16. Other information

**Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK)** : R17- Spontaneously flammable in air.  
R14- Reacts violently with water.  
R34- Causes burns.

**Full text of classifications referred to in sections 2 and 3 - United Kingdom (UK)** : F - Highly flammable  
C - Corrosive

### History

**Date of issue** : 20/12/2013

**Version** : 3

### Notice to reader

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