



DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)

Safety Data Sheet OMAL021.2

Date of issue: 15/11/2017

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Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixture
Physical state	: Liquid
Product name	: DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)
Product code	: OMAL021.2
Formula	: C ₈ H ₁₉ Al
Synonyms	: DIBAL-H in heptane BIS(ISOBUTYL)HYDROALUMINUM in heptane HYDROBIS(2-METHYLPROPYL)ALUMINUM in heptane
Chemical family	: METAL ALKYL IN SOLVENT

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 2	H225
Substances and Mixtures which, in contact with water, emit flammable gases, Category 1	H260
Skin corrosion/irritation, Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318
Specific target organ toxicity — Single exposure, Category 3, Narcosis	H336
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400
Hazardous to the aquatic environment — Chronic Hazard, Category 1	H410
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

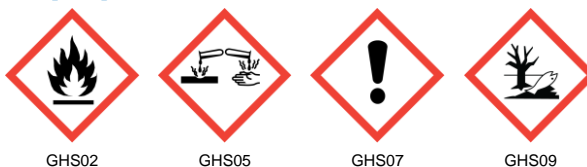
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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazardous ingredients :

Diisobutylaluminum hydride; n-Heptane

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour.
H260 - In contact with water releases flammable gases which may ignite spontaneously.
H314 - Causes severe skin burns and eye damage.
H336 - May cause drowsiness or dizziness.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P223 - Do not allow contact with water.
P231+P232 - Handle and store contents under nitrogen. Protect from moisture.
P264 - Wash hands thoroughly after handling.
P240 - Ground and bond container and receiving equipment.
P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
n-Heptane	(CAS-No.) 142-82-5 (EC-No.) 205-563-8 (EC Index-No.) 601-008-00-2	79 - 82	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Diisobutylaluminum hydride	(CAS-No.) 1191-15-7 (EC-No.) 214-729-9	18 - 21	Pyr. Liq. 1, H250 Water-react. 1, H260 Skin Corr. 1B, H314 Eye Dam. 1, H318

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

First-aid measures after skin contact :

Wash with plenty of water/.... Get immediate medical advice/attention.

First-aid measures after eye contact :

Immediately flush eyes thoroughly with water for at least 15 minutes. Get immediate medical advice/attention.

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects :

Causes severe skin burns and eye damage.

Symptoms/effects after inhalation :

May cause drowsiness or dizziness. Direct respiratory contact is usually not possible, but will cause burns. Inhalation of combustion products can cause irritation. The solvent, heptane, is mildly toxic by inhalation.

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Symptoms/effects after skin contact	: Causes (severe) skin burns.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed. Presumed to be a poison.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Dry chemical powder followed by sand or dolomite.
Unsuitable extinguishing media	: Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Highly flammable liquid and vapour. In contact with water releases flammable gases which may ignite spontaneously.
Explosion hazard	: Container explosion may occur during fire conditions. May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Firefighting instructions	: If material is ignited, allow to burn. Exercise caution when fighting any chemical fire. In case of fire: stop leak if safe to do so.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Eliminate every possible source of ignition. Use special care to avoid static electric charges. Laboratory and production areas must be equipped with special fire-extinguishing media for pyrophorics.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear protective equipment as described in Section 8.
Emergency procedures	: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Collect spillage. Concentrate containment efforts to adjacent combustibles.
Methods for cleaning up	: Cover with dry chemical extinguishing powder, lime, sand or soda ash. Do not use water. Remove combustible materials in the vicinity of the spill. Allow time for decomposition or fire to burn out, then sweep material and transfer to a suitable container for disposal. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Handle empty containers with care because residual vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not allow contact with water.
Precautions for safe handling	: Avoid all eye and skin contact and do not breathe vapour and mist. Do not allow contact with water. Handle under inert gas. Protect from moisture. Laboratory and production areas must be equipped with special fire-extinguishing media for pyrophorics. Take precautionary measures against static discharge. Ground/bond container and receiving equipment. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
Hygiene measures	: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
Storage conditions	: Keep container tightly closed. Store in a dry place. Store in a closed container. Store locked up. Keep in a cool place. Store in sealed containers under nitrogen or argon with <10ppm oxygen.

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Incompatible materials	: Alkalis. Bromine. Chlorine. Metal salts. Oxidizing agent. Water. Dry residue has been reported to explode. While this material is not classified as pyrophoric, spontaneous ignition can occur if exposed to air at elevated temperatures or dispersed on high surface area combustibles.
Information on mixed storage	: Flammable and combustible materials should not be stored in or near working areas for pyrophorics.
Storage area	: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Diisobutylaluminum hydride (1191-15-7)		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2 mg/m ³
n-Heptane (142-82-5)		
EU	IOELV TWA (mg/m ³)	2085 mg/m ³
EU	IOELV TWA (ppm)	500 ppm
Austria	MAK (mg/m ³)	2000 mg/m ³ (all isomers)
Austria	MAK (ppm)	500 ppm (all isomers)
Austria	MAK Short time value (mg/m ³)	8000 mg/m ³ (all isomers)
Austria	MAK Short time value (ppm)	2000 ppm (all isomers)
Belgium	Limit value (mg/m ³)	1664 mg/m ³
Belgium	Limit value (ppm)	400 ppm
Belgium	Short time value (mg/m ³)	2085 mg/m ³
Belgium	Short time value (ppm)	500 ppm
Bulgaria	OEL TWA (mg/m ³)	1600 mg/m ³
Cyprus	OEL TWA (mg/m ³)	2085 mg/m ³
Cyprus	OEL TWA (ppm)	500 ppm
France	VLE (mg/m ³)	2085 mg/m ³ (restrictive limit)
France	VLE (ppm)	500 ppm (restrictive limit)
France	VME (mg/m ³)	1668 mg/m ³ (restrictive limit)
France	VME (ppm)	400 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	2100 mg/m ³ (all isomers)
Germany	TRGS 900 Occupational exposure limit value (ppm)	500 ppm (all isomers)
Gibraltar	Eight hours mg/m ³	2085 mg/m ³
Gibraltar	Eight hours ppm	500 ppm
Greece	OEL TWA (mg/m ³)	2000 mg/m ³
Greece	OEL TWA (ppm)	500 ppm
Greece	OEL STEL (mg/m ³)	2000 mg/m ³
Greece	OEL STEL (ppm)	500 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	400 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	500 ppm
Italy	OEL TWA (mg/m ³)	2085 mg/m ³
Italy	OEL TWA (ppm)	500 ppm
Latvia	OEL TWA (mg/m ³)	350 mg/m ³
Latvia	OEL TWA (ppm)	85 ppm
USA IDLH	US IDLH (ppm)	750 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	350 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	85 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	1800 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (ppm)	440 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	2000 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
Spain	VLA-ED (mg/m ³)	2085 mg/m ³ (indicative limit value)
Spain	VLA-ED (ppm)	500 ppm (indicative limit value)
Switzerland	KZGW (mg/m ³)	1600 mg/m ³
Switzerland	KZGW (ppm)	400 ppm

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n-Heptane (142-82-5)		
Switzerland	MAK (mg/m ³)	1600 mg/m ³
Switzerland	MAK (ppm)	400 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	1200 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	1600 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	2085 mg/m ³
United Kingdom	WEL TWA (ppm)	500 ppm
United Kingdom	WEL STEL (mg/m ³)	6255 mg/m ³ (calculated)
United Kingdom	WEL STEL (ppm)	1500 ppm (calculated)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1000 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	820 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	200 ppm
Finland	HTP-arvo (8h) (mg/m ³)	1200 mg/m ³
Finland	HTP-arvo (8h) (ppm)	300 ppm
Finland	HTP-arvo (15 min)	2100 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	500 ppm
Hungary	AK-érték	2000 mg/m ³
Hungary	CK-érték	8000 mg/m ³ (Substances with European indicative limits (96/94/EC, 2000/39/EC, 2006/15/EC, 2009/161/EU), which currently has no peak limit concentration. In these cases, Annex 3.1. should be used exercised)
Ireland	OEL (8 hours ref) (mg/m ³)	2085 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	500 ppm
Ireland	OEL (15 min ref) (mg/m ³)	6255 mg/m ³ (calculated)
Ireland	OEL (15 min ref) (ppm)	1500 ppm (calculated)
Lithuania	IPRV (mg/m ³)	2085 mg/m ³
Lithuania	IPRV (ppm)	500 ppm
Lithuania	TPRV (mg/m ³)	3128 mg/m ³
Lithuania	TPRV (ppm)	750 ppm
Malta	OEL TWA (mg/m ³)	2085 mg/m ³
Malta	OEL TWA (ppm)	500 ppm
Norway	Grenseverdier (AN) (mg/m ³)	800 mg/m ³
Norway	Grenseverdier (AN) (ppm)	200 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	800 mg/m ³
Norway	Grenseverdier (Korttidsverdi) (ppm)	200 ppm
Poland	NDS (mg/m ³)	1200 mg/m ³
Poland	NDSCh (mg/m ³)	2000 mg/m ³
Romania	OEL TWA (mg/m ³)	2085 mg/m ³
Romania	OEL TWA (ppm)	500 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	2085 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	500 ppm
Sweden	nivågränsvärde (NVG) (mg/m ³)	800 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	200 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	1200 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	300 ppm
Canada (Quebec)	VECD (mg/m ³)	2050 mg/m ³
Canada (Quebec)	VECD (ppm)	500 ppm
Canada (Quebec)	VEMP (mg/m ³)	1640 mg/m ³
Canada (Quebec)	VEMP (ppm)	400 ppm
Australia	TWA (mg/m ³)	1640 mg/m ³
Australia	TWA (ppm)	400 ppm
Australia	STEL (mg/m ³)	2050 mg/m ³
Australia	STEL (ppm)	500 ppm

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n-Heptane (142-82-5)		
Portugal	OEL TWA (mg/m ³)	2085 mg/m ³ (indicative limit value)
Portugal	OEL TWA (ppm)	500 ppm (indicative limit value)
Portugal	OEL STEL (ppm)	500 ppm

8.2. Exposure controls

Appropriate engineering controls:

Glove box or sealed system under inert atmosphere is required. Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Fire resistant gloves

Eye protection:

Full face shield with chemical workers goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing. Fire resistant laboratory jacket or apron should be worn.

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid. Fumes and ignites in air.
Molecular mass	: 142.22 g/mol
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -80 °C
Freezing point	: No data available
Boiling point	: 98 °C initial (heptane)
Flash point	: -4 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour, In contact with water releases flammable gases which may ignite spontaneously.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: > 1
Relative density	: 0.731
Solubility	: Reacts violently with water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable in sealed containers under dry inert atmosphere.

10.3. Possibility of hazardous reactions

The product can generate small amounts of hydrogen when exposed to alkalis and protic materials such as water and alcohol.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Alkalis. Bromine. Chlorine. Metal salts. Oxidizing agent. Water. While this material is not classified as pyrophoric, spontaneous ignition can occur if exposed to air at elevated temperatures or dispersed on high surface area combustibles.

10.6. Hazardous decomposition products

Aluminium oxides. Carbon monoxide. Formaldehyde. Hydrogen. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

n-Heptane (142-82-5)	
LD50 oral mouse	5000 mg/kg
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (mg/l)	103 g/m ³ (Exposure time: 4 h)
Toxicity information	1000 ppm Inhalation (heptane)-human, TCLo

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: The solvent, heptane affects liver and kidney function.
Symptoms/effects after inhalation	: May cause drowsiness or dizziness. Direct respiratory contact is usually not possible, but will cause burns. Inhalation of combustion products can cause irritation. The solvent, heptane, is mildly toxic by inhalation.
Symptoms/effects after skin contact	: Causes (severe) skin burns.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed. Presumed to be a poison.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	: Very toxic to aquatic life.
Chronic aquatic toxicity	: Very toxic to aquatic life with long lasting effects.

n-Heptane (142-82-5)	
LC50 fish 1	375 mg/l (Exposure time: 96 h - Species: Cichlid fish)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

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n-Heptane (142-82-5)

Log Pow 4.66

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility. This is a RCRA hazardous waste: 40 CFR 261.21 (i.e. ignitable) 40 CFR 261.23 (i.e. reactive).
Additional information : Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 3399
UN-No. (IMDG) : 3399
UN-No. (IATA) : 3399
UN-No. (ADN) : 3399
UN-No. (RID) : 3399

14.2. UN proper shipping name

Proper Shipping Name (ADR) : ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Proper Shipping Name (IMDG) : ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Proper Shipping Name (IATA) : Organometallic substance, liquid, water-reactive, flammable
Proper Shipping Name (ADN) : ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE
Proper Shipping Name (RID) : ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Transport document description (ADR) : UN 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)), 4.3 (3), II, (D/E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG) : UN 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)), 4.3 (3), II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Transport document description (IATA) : UN 3399 Organometallic substance, liquid, water-reactive, flammable (DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)), 4.3, II, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN) : UN 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE (DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)), 4.3 (3), II, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID) : UN 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)), 4.3 (3), II, ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 4.3 (3)
Danger labels (ADR) : 4.3, 3



IMDG

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Transport hazard class(es) (IMDG) : 4.3 (3)

Danger labels (IMDG) : 4.3, 3



IATA

Transport hazard class(es) (IATA) : 4.3 (3)

Hazard labels (IATA) : 4.3, 3



ADN

Transport hazard class(es) (ADN) : 4.3 (3)

Danger labels (ADN) : 4.3, 3



RID

Transport hazard class(es) (RID) : 4.3 (3)

Danger labels (RID) : 4.3, 3



14.4. Packing group

Packing group (ADR) : II

Packing group (IMDG) : II

Packing group (IATA) : II

Packing group (ADN) : II

Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : WF1

Special provisions (ADR) : 274

Limited quantities (ADR) : 500ml

Excepted quantities (ADR) : E2

Packing instructions (ADR) : P001, IBC01

Mixed packing provisions (ADR) : MP15

Portable tank and bulk container instructions (ADR) : T7

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Portable tank and bulk container special provisions (ADR)	: TP2, TP7, TP36
Tank code (ADR)	: L4DH
Tank special provisions (ADR)	: TU4, TU14, TU22, TE21, TM2
Vehicle for tank carriage	: FL
Transport category (ADR)	: 0
Special provisions for carriage - Packages (ADR)	: V1
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV23
Special provisions for carriage - Operation (ADR)	: S2
Hazard identification number (Kemler No.)	: 323
Orange plates	:

323

3399

Tunnel restriction code (ADR)	: D/E
EAC code	: 4W
APP code	: A(fl)

- Transport by sea

Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 500 ml
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
Special packing provisions (IMDG)	: PP31
IBC packing instructions (IMDG)	: IBC01
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP2, TP7, TP36, TP41
EmS-No. (Fire)	: F-G
EmS-No. (Spillage)	: S-N
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: SW2, H1
Segregation (IMDG)	: SG35, SG26
Properties and observations (IMDG)	: Flammable liquid. Reacts violently with moisture, water and acids evolving flammable gas.

- Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: 493
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 494
CAO max net quantity (IATA)	: 5L
Special provisions (IATA)	: A3
ERG code (IATA)	: 4FW

- Inland waterway transport

Classification code (ADN)	: WF1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 500 ml
Excepted quantities (ADN)	: E2
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01
Provisions for handling and stowage of the cargo (ADN)	: HA08
Number of blue cones/lights (ADN)	: 1

- Rail transport

Classification code (RID)	: WF1
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DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)

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Special provisions (RID)	: 274
Limited quantities (RID)	: 500ml
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC01
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP2, TP7, TP36, TP41
Tank codes for RID tanks (RID)	: L4DH
Special provisions for RID tanks (RID)	: TU4, TU14, TU22, TE21, TM2
Transport category (RID)	: 0
Special provisions for carriage – Packages (RID)	: W1
Special provisions for carriage - Loading, unloading and handling (RID)	: CW23
Colis express (express parcels) (RID)	: CE7
Hazard identification number (RID)	: 323

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

Contains no REACH Annex XIV substances

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) nwg, Non-hazardous to water (Classification according to AwSV, Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

Denmark

Classification remarks : Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)

Safety Data Sheet

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information

: Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Pyr. Liq. 1	Pyrophoric Liquids, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
Water-react. 1	Substances and Mixtures which, in contact with water, emit flammable gases, Category 1
H225	Highly flammable liquid and vapour.
H250	Catches fire spontaneously if exposed to air.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II) - Custom

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