

ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol

Safety Data Sheet AKZ938.6

Date of issue: 19/10/2016 Version: 1.0

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

1.1. Product identifier

Product form	: Mixture
Physical state	: Liquid
Product name	: ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol
Product code	: AKZ938.6
Formula	: C ₂₆ H ₄₄ O ₁₆ Zr
Synonyms	: ZIRCONIUM ETHYLCITRATE BIS[1,3-DIETHYL 2-(HYDROXY-KO)-1,2,3-PROPANETRICARBOXYLATO-KO ₂]DIPROPOXYZIRCONIUM ZIRCONIUM, BIS[1,3-DIETHYL 2-(HYDROXY-KO)-1,2,3-PROPANETRICARBOXYLATO-KO ₂]DIPROPOXY-
Chemical family	: METAL ALKOXIDE

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

GELEST, INC.

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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

Serious eye damage/eye irritation, Category 1 H318

Specific target organ toxicity — Single exposure, Category 3, Narcosis H336

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02



GHS05



GHS07

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Signal word (CLP)	: Danger
Hazardous ingredients	: n-Propanol
Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour. H318 - Causes serious eye damage. H336 - May cause drowsiness or dizziness.
Precautionary statements (CLP)	: P280 - Wear protective gloves/protective clothing/eye protection/face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P240 - Ground/bond container and receiving equipment. P261 - Avoid breathing vapours. P310 - Immediately call a POISON CENTER or doctor/physician P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards

Other hazards not contributing to the classification	: Material may form zirconium oxides or zirconate polymers on the skin, eyes or in the lungs. Prolonged exposure to zirconium compounds can induce formation of granulomatous lesions in the lungs or on the skin.
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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]
Zirconium bis(diethylcitrate)di-n-propoxide	(CAS-No.) 308847-92-9	75	Eye Irrit. 2, H319
n-Propanol	(CAS-No.) 71-23-8 (EC-No.) 200-746-9 (EC Index-No.) 603-003-00-0	10 - 25	Flam. Liq. 2, H225 Eye Dam. 1, H318 STOT SE 3, H336
Ethanol	(CAS-No.) 64-17-5 (EC-No.) 200-578-6 (EC Index-No.) 603-002-00-5	5 - 10	Flam. Liq. 2, H225

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. If you feel unwell, seek medical advice.
First-aid measures after skin contact	: Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after eye contact	: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

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	: Water spray. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media	: Do not use straight streams.

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5.2. Special hazards arising from the substance or mixture

- Fire hazard : Flammable liquid and vapour. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
- Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
- 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.

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".

6.2. Environmental precautions

- 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 : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. 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.
- Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Provide good ventilation in process area to prevent formation of vapour. Take precautionary measures against static discharge. 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. Keep in a cool place.
- Incompatible materials : Water.
- 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

n-Propanol (71-23-8)		
Austria	MAK (mg/m ³)	500 mg/m ³
Austria	MAK (ppm)	200 ppm
Belgium	Limit value (mg/m ³)	250 mg/m ³
Belgium	Limit value (ppm)	100 ppm
Bulgaria	OEL TWA (mg/m ³)	300 mg/m ³
Bulgaria	OEL STEL (mg/m ³)	500 mg/m ³
France	VME (mg/m ³)	500 mg/m ³

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n-Propanol (71-23-8)		
France	VME (ppm)	200 ppm
Greece	OEL TWA (mg/m ³)	500 mg/m ³
Greece	OEL TWA (ppm)	200 ppm
Greece	OEL STEL (mg/m ³)	625 mg/m ³
Greece	OEL STEL (ppm)	250 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	100 ppm
Latvia	OEL TWA (mg/m ³)	10 mg/m ³
USA IDLH	US IDLH (ppm)	800 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	500 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	625 mg/m ³
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	500 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm
Spain	VLA-ED (mg/m ³)	500 mg/m ³ (it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound)
Spain	VLA-ED (ppm)	200 ppm (it is prohibited the partial or complete commercialization or use of this substance as a phytosanitary or biocide compound)
Spain	VLA-EC (mg/m ³)	1000 mg/m ³
Spain	VLA-EC (ppm)	400 ppm
Switzerland	MAK (mg/m ³)	500 mg/m ³
Switzerland	MAK (ppm)	200 ppm
United Kingdom	WEL TWA (mg/m ³)	500 mg/m ³
United Kingdom	WEL TWA (ppm)	200 ppm
United Kingdom	WEL STEL (mg/m ³)	625 mg/m ³
United Kingdom	WEL STEL (ppm)	250 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	500 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	500 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	200 ppm
Finland	HTP-arvo (8h) (mg/m ³)	500 mg/m ³
Finland	HTP-arvo (8h) (ppm)	200 ppm
Finland	HTP-arvo (15 min)	620 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	250 ppm
Ireland	OEL (8 hours ref) (ppm)	100 ppm
Ireland	OEL (15 min ref) (ppm)	300 ppm (calculated)
Norway	Grenseverdier (AN) (mg/m ³)	245 mg/m ³
Norway	Grenseverdier (AN) (ppm)	100 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	245 mg/m ³
Norway	Grenseverdier (Korttidsverdi) (ppm)	100 ppm
Poland	NDS (mg/m ³)	200 mg/m ³
Poland	NDSch (mg/m ³)	600 mg/m ³
Romania	OEL TWA (mg/m ³)	200 mg/m ³
Romania	OEL TWA (ppm)	81 ppm
Romania	OEL STEL (mg/m ³)	500 mg/m ³
Romania	OEL STEL (ppm)	203 ppm
Sweden	nivågränsvärde (NVG) (mg/m ³)	350 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	150 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	600 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	250 ppm

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n-Propanol (71-23-8)		
Canada (Quebec)	VECD (mg/m ³)	614 mg/m ³
Canada (Quebec)	VECD (ppm)	250 ppm
Canada (Quebec)	VEMP (mg/m ³)	492 mg/m ³
Canada (Quebec)	VEMP (ppm)	200 ppm
Australia	TWA (mg/m ³)	492 mg/m ³
Australia	TWA (ppm)	200 ppm
Australia	STEL (mg/m ³)	614 mg/m ³
Australia	STEL (ppm)	250 ppm
Portugal	OEL TWA (ppm)	200 ppm
Portugal	OEL STEL (ppm)	400 ppm
Portugal	OEL chemical category (PT)	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
Ethanol (64-17-5)		
Austria	MAK (mg/m ³)	1900 mg/m ³
Austria	MAK (ppm)	1000 ppm
Austria	MAK Short time value (mg/m ³)	3800 mg/m ³
Austria	MAK Short time value (ppm)	2000 ppm
Belgium	Limit value (mg/m ³)	1907 mg/m ³
Belgium	Limit value (ppm)	1000 ppm
Bulgaria	OEL TWA (mg/m ³)	1000 mg/m ³
France	VLE (mg/m ³)	9500 mg/m ³
France	VLE (ppm)	5000 ppm
France	VME (mg/m ³)	1900 mg/m ³
France	VME (ppm)	1000 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	960 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Germany	TRGS 900 Occupational exposure limit value (ppm)	500 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Greece	OEL TWA (mg/m ³)	1900 mg/m ³
Greece	OEL TWA (ppm)	1000 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	1000 ppm
Latvia	OEL TWA (mg/m ³)	1000 mg/m ³
USA IDLH	US IDLH (ppm)	3300 ppm (10% LEL)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1900 mg/m ³
USA NIOSH	NIOSH REL (TWA) (ppm)	1000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1900 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
Spain	VLA-EC (mg/m ³)	1910 mg/m ³
Spain	VLA-EC (ppm)	1000 ppm
Switzerland	KZGW (mg/m ³)	1920 mg/m ³
Switzerland	KZGW (ppm)	1000 ppm
Switzerland	MAK (mg/m ³)	960 mg/m ³
Switzerland	MAK (ppm)	500 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	260 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	1900 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	1920 mg/m ³
United Kingdom	WEL TWA (ppm)	1000 ppm
United Kingdom	WEL STEL (mg/m ³)	5760 mg/m ³ (calculated)
United Kingdom	WEL STEL (ppm)	3000 ppm (calculated)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1000 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	1900 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	1000 ppm
Finland	HTP-arvo (8h) (mg/m ³)	1900 mg/m ³
Finland	HTP-arvo (8h) (ppm)	1000 ppm

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Ethanol (64-17-5)		
Finland	HTP-arvo (15 min)	2500 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	1300 ppm
Hungary	AK-érték	1900 mg/m ³
Hungary	CK-érték	7600 mg/m ³
Ireland	OEL (15 min ref) (ppm)	1000 ppm
Lithuania	IPRV (mg/m ³)	1000 mg/m ³
Lithuania	IPRV (ppm)	500 ppm
Lithuania	TPRV (mg/m ³)	1900 mg/m ³
Lithuania	TPRV (ppm)	1000 ppm
Norway	Grenseverdier (AN) (mg/m ³)	950 mg/m ³
Norway	Grenseverdier (AN) (ppm)	500 ppm
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	950 mg/m ³
Norway	Grenseverdier (Korttidsverdi) (ppm)	500 ppm
Poland	NDS (mg/m ³)	1900 mg/m ³
Romania	OEL TWA (mg/m ³)	1900 mg/m ³
Romania	OEL TWA (ppm)	1000 ppm
Romania	OEL STEL (mg/m ³)	9500 mg/m ³
Romania	OEL STEL (ppm)	5000 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	960 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	500 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	1920 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	1000 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	500 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	1900 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	1000 ppm
Canada (Quebec)	VEMP (mg/m ³)	1880 mg/m ³
Canada (Quebec)	VEMP (ppm)	1000 ppm
Australia	TWA (mg/m ³)	1880 mg/m ³
Australia	TWA (ppm)	1000 ppm
Portugal	OEL TWA (ppm)	1000 ppm
Portugal	OEL chemical category (PT)	A4 - Not Classifiable as a Human Carcinogen

8.2. Exposure controls

Appropriate engineering controls:

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:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

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

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Viscous liquid.
Molecular mass	: 703.84 g/mol
Colour	: Colourless.
Odour	: No data available
Odour threshold	: No data available
Refractive index	: 1.451
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 97 °C - initial (n-propanol)
Flash point	: 14 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: ~ 20 mm Hg @ 25°C
Relative vapour density at 20 °C	: 2.1 (n-propanol)
Relative density	: 1.14
% Volatiles	: > 30 %
Solubility	: Reacts 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	: 2.2 - 13.7 vol % (lower; upper: n-propanol)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Material decomposes slowly in contact with water.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Water.

10.6. Hazardous decomposition products

Organic acid vapors. Zirconium oxide fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

n-Propanol (71-23-8)

LD50 oral rat	1870 mg/kg
LD50 dermal rabbit	4049 mg/kg
LC50 inhalation rat (ppm)	> 13548 ppm/4h

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n-Propanol (71-23-8)	
ATE CLP (oral)	1870 mg/kg bodyweight
ATE CLP (dermal)	4049 mg/kg bodyweight
Zirconium bis(diethylcitrate)di-n-propoxide (308847-92-9)	
LD50 oral rat	> 3000 mg/kg
Ethanol (64-17-5)	
LD50 oral rat	7060 mg/kg
LC50 inhalation rat (mg/l)	124.7 mg/l/4h
LC50 inhalation rat (ppm)	20000 ppm 10 hrs.
LDLo oral rat	1400 mg/kg (Human)
ATE CLP (oral)	7060 mg/kg bodyweight
ATE CLP (vapours)	124.7 mg/l/4h
ATE CLP (dust,mist)	124.7 mg/l/4h

Skin corrosion/irritation	: Not classified
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.

Ethanol (64-17-5)	
IARC group	1 - Carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

n-Propanol (71-23-8)	
LC50 fish 1	4480 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3642 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Daphnia 2	3339 - 3977 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Ethanol (64-17-5)	
LC50 fish 1	> 10000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [rainbow trout])
LC50 fish 2	> 13400 mg/l (Exposure time: 96 h - Species: Pimephales promelas [fathead minnow])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

n-Propanol (71-23-8)	
Log Pow	0.25 - 0.34
Ethanol (64-17-5)	
Log Pow	-0.32

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

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12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
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) : 1993
UN-No. (IMDG) : 1993
UN-No. (IATA) : 1993
UN-No. (ADN) : 1993
UN-No. (RID) : 1993

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IATA) : Flammable liquid, n.o.s.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (RID) : FLAMMABLE LIQUID, N.O.S.
Transport document description (ADR) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol), 3, II, (D/E)
Transport document description (IMDG) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol), 3, II
Transport document description (IATA) : UN 1993 Flammable liquid, n.o.s. (ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol), 3, II
Transport document description (ADN) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol), 3, II
Transport document description (RID) : UN 1993 FLAMMABLE LIQUID, N.O.S. (ZIRCONIUM BIS(DIETHYLCITRATO)DI-n-PROPOXIDE, 75% in n-propanol/ethanol), 3, II

14.3. Transport hazard class(es)

ADR

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



IMDG

Transport hazard class(es) (IMDG) : 3
Danger labels (IMDG) : 3



IATA

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Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3



ADN

Transport hazard class(es) (ADN) : 3
Danger labels (ADN) : 3



RID

Transport hazard class(es) (RID) : 3
Danger labels (RID) : 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 : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : F1
Special provisions (ADR) : 274, 601, 640C
Limited quantities (ADR) : 11
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T7
Portable tank and bulk container special provisions (ADR) : TP1, TP8, TP28
Tank code (ADR) : L1.5BN
Vehicle for tank carriage : FL
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2, S20
Hazard identification number (Kemler No.) : 33

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Orange plates :

33
1993

Tunnel restriction code (ADR) : D/E
EAC code : •3YE

- Transport by sea

Special provisions (IMDG) : 274
Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T7
Tank special provisions (IMDG) : TP1, TP8, TP28
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-E
Stowage category (IMDG) : B

- Air transport

PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 353
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A3
ERG code (IATA) : 3H

- Inland waterway transport

Classification code (ADN) : F1
Special provisions (ADN) : 274, 601, 640C
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

- Rail transport

Classification code (RID) : F1
Special provisions (RID) : 274, 601, 640C
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T7
Portable tank and bulk container special provisions (RID) : TP1, TP8, TP28
Tank codes for RID tanks (RID) : L1.5BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE7
Hazard identification number (RID) : 33

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

Not applicable

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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

% Volatiles : > 30 %

15.1.2. National regulations

Germany

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 : Ethanol is listed

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

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : Ethanol is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : Ethanol is listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : Ethanol is listed

Denmark

Class for fire hazard : Class I-1

Store unit : 1 liter

Classification remarks : F <Flam. Liq. 2>; 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:

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:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

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SDS EU (REACH Annex II) - Custom

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