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

1.1. Product identifier

Product form : Mixture
Trade name/designation : ALUMINIUM PASTE DEG4A, DEG4B & DEG4C
Product code : AM(x) - AD(x)* / DEG4A, DEG4B & DEG4C / 70-30
* x = number

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

1.2.1. Relevant identified uses

Main use category : Industrial uses, Professional uses

1.2.2. Uses advised against

No data available

1.3. Details of the supplier of the safety data sheet

AVL METAL POWDERS n.v.
Elleboogstraat 7
B-8500 Kortrijk - Belgium, Europe
T +32 (0)56 22 00 21 - F +32 (0)56 22 64 14
BE 0405 375 371 - RPR Kortrijk
sales@avlmetalpowders.com - www.avlmetalpowders.com

1.4. Emergency telephone number

Emergency number : +32 (0)475 38 36 83
This telephone number is available 24 hours per day, 7 days per week.

Country	Official advisory body	Address	Emergency number
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	+353 1 809 21 66 (public, 8am - 10pm, 7/7) +353 01 809 2566 (Professionals, 24/7)
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle	0844 892 0111 (UK only, 24/7, healthcare professionals only)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute Tox. 4 (Oral) H302
Eye Dam. 1 H318
STOT RE 2 H373

Full text of hazard classes and H-statements : see section 16

2.2. Label elements

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

Hazard pictograms (CLP) :



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Signal word	: Danger
Hazardous ingredients	: 2,2' -oxybisethanol, diethylene glycol; Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-, mono-C11-15-alkyl ethers, phosphates
Hazard statements (CLP)	: H302 - Harmful if swallowed. H318 - Causes serious eye damage. H373 - May cause damage to organs through prolonged or repeated exposure.
Precautionary statements (CLP)	: P260 - Do not breathe vapours, dust. P280 - Wear protective gloves, protective clothing, eye protection, face protection. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor. P501 - Dispose of contents and container to an approved waste disposal plant.

2.3. Other hazards

Other hazards	: Results of PBT and vPvB assessment : Not applicable. In dry state: Risk of dust explosion.
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SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Comments	: (1) The substance or mixture does not emit flammable gases in contact with water. UN Test N.5: Test method for substances which in contact with water emit flammable gases (Note T : This substance may be marketed in a form which does not have the physical hazards as indicated by the classification in the entry in Part 3. If the results of the relevant method or methods in accordance with Part 2 of Annex I of this Regulation show that the specific form of substance marketed does not exhibit this physical property or these physical hazards, the substance shall be classified in accordance with the result or results of this test or these tests. Relevant information, including reference to the relevant test method(s) shall be included in the safety data sheet.)
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Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aluminium (1)	(CAS-No.) 7429-90-5 (EC-No.) 231-072-3 (EC Index) 013-001-00-6 (REACH-no) 01-2119529243-45-0146, 01-2119529243-45-XXXX	70	Flam. Sol. 1, H228
2,2' -oxybisethanol, diethylene glycol	(CAS-No.) 111-46-6 (EC-No.) 203-872-2 (EC Index) 603-140-00-6 (REACH-no) 01-2119457857-21-XXXX	20 - 40	Acute Tox. 4 (Oral), H302 STOT RE 2, H373
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-, mono-C11-15-alkyl ethers, phosphates	(CAS-No.) 68511-36-4	< 5	Skin Irrit. 2, H315 Eye Dam. 1, H318

Full text of H-statements: see section 16

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SECTION 4: First aid measures

4.1. Description of first aid measures

- Additional advice : First aider: Pay attention to self-protection. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person or a person with cramps. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance. Treat symptomatically.
- Inhalation : Remove person to fresh air and keep comfortable for breathing. In case of doubt or persistent symptoms, consult always a physician.
- Skin contact : Take off contaminated clothing. Gently wash with plenty of soap and water. In case of doubt or persistent symptoms, consult always a physician.
- Eyes contact : Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
- Ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Get medical advice/attention.

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

- Inhalation : May cause respiratory irritation. The following symptoms may occur: At high concentrations: Central nervous system depression. Nausea. Dizziness. Drowsiness. Weakness. Excitement.
- Skin contact : May be irritating. The following symptoms may occur: Redness.
- Eyes contact : Causes serious eye damage. The following symptoms may occur: Redness, pain. Blurred vision.
- Ingestion : Harmful if swallowed. The following symptoms may occur: Abdominal pain, nausea. Headache. Dizziness. Unconsciousness.
- Chronic symptoms : May cause damage to organs through prolonged or repeated exposure.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Special powder against metal fire. Dry sand. ABC-powder. Co-ordinate fire-fighting measures to the fire surroundings.
- Unsuitable extinguishing media : water. Foam.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Non flammable. In dry state: Dust may form explosive mixture in air. Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.
- Hazardous decomposition products in case of fire : Metal oxides. Carbon oxides (CO, CO₂).

5.3. Advice for firefighters

- Firefighting instructions : Evacuate area. Cool closed containers exposed to fire with water spray. Contain the extinguishing fluids by bunding. Prevent fire fighting water from entering the environment.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.
- Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Do not breathe dust, vapours. Avoid contact with skin, eyes and clothing. Avoid dust formation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure equipment is adequately earthed.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite or powdered limestone. Keep in suitable, closed containers for disposal. Dispose of contaminated materials in accordance with current regulations. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Provide adequate ventilation. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Avoid contact with skin, eyes and clothing. Do not breathe dust, vapours. Avoid dust formation. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment.

Hygiene measures : Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from moisture. Do not store near or with any of the incompatible materials listed in section 10. Maximum storage period : 12 months.

Packaging materials : Keep only in the original container.

7.3. Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2,2'-oxybisethanol, diethylene glycol (111-46-6)		
Austria	MAK (mg/m ³)	44 mg/m ³
Austria	MAK (ppm)	10 ppm
Austria	MAK Short time value (mg/m ³)	176 mg/m ³



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2,2' -oxybisethanol, diethylene glycol (111-46-6)

Austria	MAK Short time value (ppm)	40 ppm
Bulgaria	OEL TWA (mg/m ³)	10 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	101 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	23 ppm
Denmark	Grænseværdie (langvarig) (mg/m ³)	11 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	2,5 ppm
Estonia	OEL TWA (mg/m ³)	45 mg/m ³
Estonia	OEL TWA (ppm)	10 ppm
Estonia	OEL STEL (mg/m ³)	90 mg/m ³
Estonia	OEL STEL (ppm)	20 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	44 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)	10 ppm (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Ireland	OEL (8 hours ref) (mg/m ³)	100 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	23 ppm
Ireland	OEL (15 min ref) (mg/m ³)	300 mg/m ³ (calculated)
Ireland	OEL (15 min ref) (ppm)	69 ppm (calculated)
Latvia	OEL TWA (mg/m ³)	10 mg/m ³
Lithuania	IPRV (mg/m ³)	45 mg/m ³
Lithuania	IPRV (ppm)	10 ppm
Lithuania	TPRV (mg/m ³)	90 mg/m ³
Lithuania	TPRV (ppm)	20 ppm
Poland	NDS (mg/m ³)	10 mg/m ³ (inhalable fraction)
Romania	OEL TWA (mg/m ³)	500 mg/m ³
Romania	OEL TWA (ppm)	115 ppm
Romania	OEL STEL (mg/m ³)	800 mg/m ³
Romania	OEL STEL (ppm)	184 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	44 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	10 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	90 mg/m ³
Slovenia	OEL TWA (mg/m ³)	44 mg/m ³
Slovenia	OEL TWA (ppm)	10 ppm
Slovenia	OEL STEL (mg/m ³)	176 mg/m ³
Slovenia	OEL STEL (ppm)	40 ppm
Sweden	nivågränsvärde (NVG) (mg/m ³)	45 mg/m ³ (the limit value applies to the combined concentration of vapour and aerosol)
Sweden	nivågränsvärde (NVG) (ppm)	10 ppm (the limit value applies to the combined concentration of vapour and aerosol)
Sweden	kortidsvärde (KTV) (mg/m ³)	90 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	20 ppm
United Kingdom	WEL TWA (mg/m ³)	101 mg/m ³



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2,2' -oxybisethanol, diethylene glycol (111-46-6)

United Kingdom	WEL TWA (ppm)	23 ppm
United Kingdom	WEL STEL (mg/m ³)	303 mg/m ³ (calculated)
United Kingdom	WEL STEL (ppm)	69 ppm (calculated)
Switzerland	MAK (mg/m ³)	44 mg/m ³
Switzerland	MAK (ppm)	10 ppm
Switzerland	KZGW (mg/m ³)	176 mg/m ³
Switzerland	KZGW (ppm)	40 ppm
Australia	TWA (mg/m ³)	100 mg/m ³
Australia	TWA (ppm)	23 ppm

Aluminium (7429-90-5)

Austria	MAK (mg/m ³)	10 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	20 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	1 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	10 mg/m ³ (metal dust) 1,5 mg/m ³ (respirable fraction)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	10 mg/m ³ (dust)
Denmark	Grænseværdie (langvarig) (mg/m ³)	5 mg/m ³ (dust, fume and powder, total) 2 mg/m ³ (dust and powder, respirable)
Estonia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
France	VME (mg/m ³)	10 mg/m ³ (metal) 5 mg/m ³ (dust)
Greece	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Hungary	AK-érték	6 mg/m ³ (respirable dust)
Ireland	OEL (8 hours ref) (mg/m ³)	1 mg/m ³ (respirable fraction)
Ireland	OEL (15 min ref) (mg/m ³)	3 mg/m ³ (calculated-respirable dust)
Latvia	OEL TWA (mg/m ³)	2 mg/m ³
Lithuania	IPRV (mg/m ³)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction) 1 mg/m ³
Poland	NDS (mg/m ³)	2,5 mg/m ³ (inhalable fraction) 1,2 mg/m ³ (respirable fraction)
Portugal	OEL TWA (mg/m ³)	10 mg/m ³ (metal dust)
Romania	OEL TWA (mg/m ³)	3 mg/m ³ (dust) 1 mg/m ³ (fume)
Romania	OEL STEL (mg/m ³)	10 mg/m ³ (dust) 3 mg/m ³ (fume)
Slovakia	NPHV (priemerná) (mg/m ³)	1,5 mg/m ³ (metal) 6 mg/m ³ (total aerosol)
Spain	VLA-ED (mg/m ³)	10 mg/m ³ (dust)
Sweden	nivågränsvärde (NVG) (mg/m ³)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable dust)
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
United Kingdom	WEL STEL (mg/m ³)	30 mg/m ³ (calculated-inhalable dust) 12 mg/m ³ (calculated-respirable dust)

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Aluminium (7429-90-5)		
Norway	Grenseverdier (AN) (mg/m ³)	5 mg/m ³ (pyrotechnical-powder)
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	10 mg/m ³ (pyrotechnical, value calculated-powder)
Switzerland	MAK (mg/m ³)	3 mg/m ³ (respirable dust)
Australia	TWA (mg/m ³)	10 mg/m ³ (dust) 5 mg/m ³ (welding fume)
Canada (Quebec)	VEMP (mg/m ³)	10 mg/m ³
USA - ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (respirable particulate matter)
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)

Additional information : Personal air monitoring :. Room air monitoring. Recommended monitoring procedures

8.2. Exposure controls

Engineering measure(s) : Provide adequate ventilation. Organisational measures to prevent /limit releases, dispersion and exposure. Safe handling: see section 7 . Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protective equipment : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hand protection : Wear chemically resistant gloves (tested to EN374) . Suitable material: NBR (Nitrile rubber). Thickness > 0,3 mm. Breakthrough time : >8h. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Eye protection : Use suitable eye protection. (EN166): Goggles. face shield

Body protection : Wear suitable protective clothing. Use chemically protective clothing

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Half-face mask (DIN EN 140). full face mask (DIN EN 136). Filter type: A/P (EN 141)

Thermal hazard protection : Not required for normal conditions of use. Use dedicated equipment.

Environmental exposure controls : Avoid release to the environment. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Paste

Appearance : Paste.

Colour : No data available.

Odour : No data available.

Odour threshold : No data available

pH : No data available

Relative evaporation rate (butylacetate=1) : No data available

Melting / freezing point : 660 °C (Aluminium)
-7°C (2,2' -oxybisethanol, diethylene glycol)

Freezing point : No data available

Initial boiling point and boiling range : 2450 °C (Aluminium)
245 °C (2,2' -oxybisethanol, diethylene glycol)

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Flash point	: ≈ 123 °C 2,2' -oxybisethanol, diethylene glycol
Auto-ignition temperature	: > 229 °C 2,2' -oxybisethanol, diethylene glycol
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: 0,0013 hPa (974 °C) (Aluminium) 0,0013 kpa (20°C) (2,2' -oxybisethanol, diethylene glycol)
Vapour density	: No data available
Relative density	: 2,7 (20 °C) (Aluminium) 1 (2,2' -oxybisethanol, diethylene glycol)
Solubility	: Water: 0,00002 g/l (Aluminium) completely soluble (2,2' -oxybisethanol, diethylene glycol)
Partition coefficient n-octanol/water	: No data available
Log Kow	: -1,98 2,2' -oxybisethanol, diethylene glycol (calculated value) (20°C)
Kinematic viscosity	: 33 mm ² /s 2,2' -oxybisethanol, diethylene glycol
Dynamic viscosity	: 42 mPa.s 2,2' -oxybisethanol, diethylene glycol
Explosive properties	: Not applicable. The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidising properties	: Not applicable. The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.
Explosive limits	: No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

None under normal processing. Exothermic reaction with: oxidising substances. 2,2' -oxybisethanol, diethylene glycol : Reference to other sections: 10.5.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures. 2,2' -oxybisethanol, diethylene glycol : May form explosive peroxides.

10.3. Possibility of hazardous reactions

In dry state: Risk of dust explosion. Reference to other sections 10.4 & 10.5.

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Extremely high temperatures. Avoid dust formation. See also section 7. Handling and storage.

10.5. Incompatible materials

oxidising substances. Strong acids. Strong bases. Halogens. Halogenated compounds. zinc. Synthetic material. See also section 7. Handling and storage.

10.6. Hazardous decomposition products

Reference to other sections: 5.2.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

ATE CLP (oral)	1724 mg/kg bodyweight
2,2' -oxybisethanol, diethylene glycol (111-46-6)	
LD50/oral/rat	300 - 2000 mg/kg

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2,2' -oxybisethanol, diethylene glycol (111-46-6)	
LD50/dermal/rabbit	> 5000 mg/kg
LC50/inhalation/4h/rat	> 4,6 mg/l/4h

Aluminium (7429-90-5)	
LD50/oral/rat	> 2000 mg/kg
LC50/inhalation/4h/rat	> 888 mg/m ³

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met.)
pH: No data available

Serious eye damage/irritation : Causes serious eye damage.
pH: No data available

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met.)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met.)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met.)

2,2' -oxybisethanol, diethylene glycol (111-46-6)	
NOAEL, male, female, long term, oral, Rat	1160 - 1210 mg/kg bw/day (108 weeks)

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met.)

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met.)

2,2' -oxybisethanol, diethylene glycol (111-46-6)	
NOAEL (oral, rat)	100 mg/kg bodyweight
NOAEL (dermal, rat/rabbit)	3549 mg/kg bodyweight Mouse

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

2,2' -oxybisethanol, diethylene glycol (111-46-6)	
NOAEL, mammalian, long term, oral, Rat	100 mg/kg bw (225 days)

Aluminium (7429-90-5)	
NOAEL, subchronic, oral, Rat	30 mg/kg bw/day
LOAEC, subchronic, Inhalation, Rat	50 mg/m ³

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met.)

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Kinematic viscosity	33 mm ² /s 2,2' -oxybisethanol, diethylene glycol

Other adverse effects : May cause damage to organs through prolonged or repeated exposure.

Other information : Symptoms related to the physical, chemical and toxicological characteristics. For further information see section 4.

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties : According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

2,2' -oxybisethanol, diethylene glycol (111-46-6)	
NOEC chronic crustacea	8590 mg/l EPA 600/4-90/027
NOEC chronic algae	2700 mg/l OECD 201
EC50, aquatic invertebrates, acute, daphnia	> 10000 mg/l (24 hours, DIN 38414-11)
EC20, aqua FW	> 1995 mg/l (30, ISO 8192)

Aluminium (7429-90-5)	
LC50 fish 1	1,16 mg/l (96 h)
EC50 Daphnia 1	0,72 mg/l (48 h)
NOEC chronic fish	751,7 µg/L (7 d)

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Aluminium (7429-90-5)	
NOEC chronic crustacea	76 µg/L

12.2. Persistence and degradability

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Persistence and degradability	No data available.

12.3. Bioaccumulative potential

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Partition coefficient n-octanol/water	No data available
Log Kow	-1,98 2,2' -oxybisethanol, diethylene glycol (calculated value) (20°C)
Bioaccumulative potential	No data available.

2,2' -oxybisethanol, diethylene glycol (111-46-6)	
Bioconcentration factor (BCF)	100 (3d, Leuciscus melatonus)
Partition coefficient n-octanol/water	LogPow -1,98

Aluminium (7429-90-5)	
Partition coefficient n-octanol/water	study scientifically unjustified

12.4. Mobility in soil

ALUMINIUM PASTE DEG4A, DEG4B & DEG4C	
Mobility in soil	No data available

12.5. Results of PBT and vPvB assessment

ALUMINIUM PASTE DEG4A, DEG4B & DEG4C	
Results of PBT assessment	No data available

12.6. Other adverse effects

Other adverse effects : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. Safe handling: see section 7. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations.

European waste catalogue (2001/573/EC, 75/442/EEC, 91/689/EEC) : This material and its container must be disposed of as hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

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ADR	IMDG	IATA	ADN	RID
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
No supplementary information available				

14.6. Special precautions for user

Special precautions for user : No data available

- Overland transport

Not applicable

- Transport by sea

Not applicable

- Air transport

Not applicable

- Inland waterway transport

Not applicable

- Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Code: IBC : No data available.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	2,2' -oxybisethanol, diethylene glycol
3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	2,2' -oxybisethanol, diethylene glycol - Poly(oxy-1,2-ethanediyl), -alpha.-hydro.-omega.-hydroxy-, mono-C11-15-alkyl ethers, phosphates

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

France

Installations classées :

Not applicable.

Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 4)

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

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TA Luft : Not determined

Netherlands

Waterbezwaarlijkheid : 11 - Weinig schadelijk voor in het water levende organismen
Saneringsinspanningen : B - Lozing minimaliseren; toepassen van best uitvoerbare technieken
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

15.2. Chemical safety assessment

Not applicable

SECTION 16: Other information

Abbreviations and acronyms:

ABM = Algemene beoordelingsmethodiek
ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin
ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods Code
LEL = Lower Explosive Limit/Lower Explosion Limit
UEL = Upper Explosion Limit/Upper Explosive Limit
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
BTT = Breakthrough time (maximum wearing time)
DMEL = Derived Minimal Effect level
DNEL = Derived No Effect Level
EC50 = Median Effective Concentration
EL50 = Median effective level
ErC50 = EC50 in terms of reduction of growth rate
ErL50 = EL50 in terms of reduction of growth rate
EWC = European waste catalogue
LC50 = Median lethal concentration
LD50 = Median lethal dose
LL50 = Median lethal level
NA = Not applicable
NOEC = No observed effect concentration
NOEL: no-observed-effect level
NOELR = No observed effect loading rate
NOAEC = No observed adverse effect concentration
NOAEL = No observed adverse effect level
N.O.S. = Not Otherwise Specified
OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
PNEC = Predicted No Effect Concentration
Quantitative structure-activity relationship (QSAR)
STOT = Specific Target Organ Toxicity
TWA = time weighted average
VOC = Volatile organic compounds

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WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)
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Sources of key data used to compile the datasheet : European Metal Particulate Association (EMPA) Supplier MSDS CSR.

Training advice : Training staff on good practice. Manipulations are to be done only by qualified and authorised persons.

Other information : CLP, Article 9: Calculation method.

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity Category 4
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Sol. 1	Flammable solids, Hazard Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H228	Flammable solid
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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

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

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