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

1.1. Product identifier

Trade name/designation : ALUMINIUM PASTE IS4
Product code : R280, 02, 04, Z/04, 06, 08, 880, 880, 8880, 8980, 024, 030, 032, 76000, 80000, 80000/A, 90000/A, 30/Z, 40/Z, 80/Z, A8, A88, A888, Silver
Imitation* / IS4 / 65-35, 70-30, 75-25, 80-20, 85-15
* = also valid for leafing (L) and non-leafing (NL)

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

Main use category : Industrial uses, Professional uses .

1.3. Details of the supplier of the safety data sheet

Company : AVL METAL POWDERS n.v.
Elleboogstraat 7
B-8500 Kortrijk , Belgium, Europe
Telephone +32 (0)56 22 00 21
Telefax: +32 (0)56 22 64 14
E-mail: sales@avlmetalpowders.com
Website: www.avlmetalpowders.com
VAT: BE 0405 375 371 - RPR Kortrijk

1.4. Emergency telephone number

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

IRELAND (REPUBLIC OF)

National Poisons Information Centre
Beaumont Hospital

+353 18 37 99 64/+353 1 809 21 66

UNITED KINGDOM

National Poisons Information Service
(Newcastle Centre)
Regional Drugs and Therapeutics Centre,
Wolfson Unit

0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EU) 1272/2008

CLP-Classification : This substance is classified as not hazardous according to regulation (EC) No. 1272/2008 [CLP].

Not classified

2.1.2. Classification according to EU Directives 67/548/EEC or 1999/45/EC


Classification : This mixture is classified as hazardous according to 1999/45/EC.
R66

Full text of R-phrases: see section 16

2.2. Label elements

2.2.1. Labelling according to Regulation (EU) 1272/2008

Extra phrases : EUH066 - Repeated exposure may cause skin dryness or cracking.

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2.2.2. Labelling according to Directives (67/548 - 1999/45)

Not relevant

2.3. Other hazards

Other hazards : PBT/vPvB data
 Not applicable
 In dry state:
 Risk of dust explosion.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Substance name	Product identifier	%	Classification according to Directive 67/548/EEC
Aluminium (1)	(CAS No.) 7429-90-5 (EC No) 231-072-3 (EC Index) 013-002-00-1 (REACH-no) 01-2119529243-45-0146, 01-2119529243-45-XXXX	65 - 85	F; R11
Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics	(EC No) 921-050-8 (REACH-no) 01-2119485032-45-XXXX	15 - 35	Xn; R65 R66

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) 013-002-00-1 (REACH-no) 01-2119529243-45-0146, 01-2119529243-45-XXXX	65 - 85	Flam. Sol. 1, H228
Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics	(EC No) 921-050-8 (REACH-no) 01-2119485032-45-XXXX	15 - 35	Asp. Tox. 1, H304


Full text of R- and H-phrases: see section 16

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.)

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation : Provide fresh air.
 Keep at rest.
 When in doubt or if symptoms are observed, get medical advice.

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- Skin contact : Remove contaminated clothing and shoes.
Wash with plenty of water/.
When in doubt or if symptoms are observed, get medical advice.
Wash contaminated clothing before reuse.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Call a physician if irritation develops or persists.
- In case of ingestion : Rinse mouth immediately and drink plenty of water.
Do NOT induce vomiting
Get medical advice/attention.
- Additional advice : First aider: Pay attention to self-protection!
See also section 8
Treat symptomatically.
Show this safety data sheet to the doctor in attendance.
When in doubt or if symptoms are observed, get medical advice.
Never give anything by mouth to an unconscious person or a person with cramps.

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

- Inhalation : Inhalation of vapours in high concentration may cause irritation of respiratory system.
- Skin contact : Repeated exposure may cause skin dryness or cracking.
- Eye contact : Dust contact with the eyes can lead to mechanical irritation.
- Ingestion : May be irritating.
- Other adverse effects : none.

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.
- Extinguishing media which must not be used for safety reasons: : Water
Foam

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Non-flammable.
- Specific hazards : In dry state:
Dust may form explosive mixture in air.
Burning produces noxious and toxic fumes.
Hazardous decomposition products
aldehydes
Do not allow run-off from fire-fighting to enter drains or water courses.
Dispose according to legislation.

5.3. Advice for firefighters

- Advice for firefighters : Special protective equipment for firefighters.
In case of fire: Wear self-contained breathing apparatus.
Cool closed containers exposed to fire with water spray
Evacuate area.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel :
- Evacuate area.
 - Provide adequate ventilation.
 - Use personal protective equipment as required.
 - Personal protection equipment: see section 8
 - Avoid contact with skin, eyes and clothes.
 - Avoid generation of dust.
 - Do not breathe vapours/dust.
 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - Take precautionary measures against static discharges.
- For emergency responders :
- Ensure procedures and training for emergency decontamination and disposal are in place.
 - Personal protection equipment: see section 8.

6.2. Environmental precautions

- Environmental precautions :
- Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up :
- Stop leak if safe to do so.
 - Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).
 - Collect in closed and suitable containers for disposal.
 - Dispose according to legislation.
 - 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

- Personal protection equipment: see section 8
Disposal: see section 13.


SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Handling :
- Use only in well-ventilated areas.
 - Provide adequate ventilation.
 - Use personal protective equipment as required.
 - Personal protection equipment: see section 8 .
 - Avoid contact with skin, eyes and clothes.
 - Avoid generation of dust.
 - Do not breathe vapours/dust.
 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - Take precautionary measures against static discharges.
 - Take any precaution to avoid mixing with incompatible materials.
 - See also section 10
 - Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time).
 - Do not allow to enter into surface water or drains.
- Advices on general occupational hygiene :
- Keep good industrial hygiene.
 - When using do not eat, drink or smoke.
 - Wash hands before breaks and immediately after using the product.
 - Take off contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

- Storage :
- Keep container tightly closed in a cool, well-ventilated place.
 - Keep away from heat, hot surfaces, sparks, open flames and other

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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 (time) :
12 months.

Packaging materials : Keep/Store only in original container.

7.3 Specific end use(s)


No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values :

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)	10,0 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)
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)
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (respirable fraction)
Latvia	OEL TWA (mg/m ³)	2 mg/m ³
Spain	VLA-ED (mg/m ³)	10 mg/m ³ (dust)
Switzerland	VME (mg/m ³)	3 mg/m ³ (respirable)
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)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	10,0 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)
Hungary	AK-érték	6 mg/m ³ (respirable dust)
Ireland	OEL (8 hours ref) (mg/m ³)	1 mg/m ³ (respirable dust)
Ireland	OEL (15 min ref) (mg/m ³)	3 mg/m ³ (calculated-respirable dust)
Lithuania	IPRV (mg/m ³)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction) 1 mg/m ³
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	5 mg/m ³ (pyrotechnical-powder)
Norway	Gjennomsnittsverdier (Kortidsverdi) (mg/m ³)	10 mg/m ³ (pyrotechnical-powder)
Poland	NDS (mg/m ³)	2,5 mg/m ³ (inhalable fraction) 1,2 mg/m ³ (respirable fraction)
Romania	OEL TWA (mg/m ³)	3 mg/m ³ (dust) 1 mg/m ³ (fume)

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Aluminium (7429-90-5)		
Romania	OEL STEL (mg/m ³)	10 mg/m ³ (powder) 3 mg/m ³ (fume)
Slovakia	NPHV (priemerná) (mg/m ³)	1,5 mg/m ³ (metal) 6 mg/m ³ (total aerosol)
Sweden	nivågränsvärde (NVG) (mg/m ³)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable dust)

Recommended monitoring procedures : Concentration measurement in air
Personal air monitoring

8.2. Exposure controls

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

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

Hand protection : The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal protection), and the instructions/specification of the supplier of gloves.,Wear chemically resistant gloves (tested to EN374) .,NBR (Nitrile rubber)

Eye protection : Tightly fitting safety goggles (EN 166)

Body protection : Wear suitable protective clothing.

Thermal hazard protection : Not required under normal use.

Engineering control measures : Provide adequate ventilation.
Use only in area provided with appropriate exhaust ventilation.
A washing facility/water for eye and skin cleaning purposes should be present.
Ensure that the equipment is adequately grounded.
Take precautionary measures against static discharges.
Organisational measures to prevent/limit releases, dispersion and exposure
See also section 7

Environmental exposure controls : Do not allow to enter into surface water or drains.
Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Paste

Colour : silver


Odour : sweet, Paraffin

Odour threshold: : No data available

pH : Not applicable

Melting point/freezing point : 620 °C aluminium

Initial boiling point and boiling range : 2500 °C aluminium
238 - 257 °C Solvent

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Flash point	:	> 105 °C Solvent
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Non flammable
Upper/lower flammability or explosive limits	:	LEL: 0,5 vol % Solvent UEL: 5,5 vol % Solvent
Vapour pressure	:	(20 °C) < 4 Pa Solvent
Vapour density	:	No data available
Density	:	(Al) 2 kg/l bulk (15°C) 797 kg/m ³ Solvent (ASTM D-4052)
Relative density	:	No data available
Water solubility	:	(Al) Insoluble
Solubility in different media	:	No data available
Partition coefficient n-octanol/water	:	> 7 - 8,7 Solvent
Auto-ignition temperature	:	232 °C Solvent (ASTM E-659) 215 °C Solvent (DIN 51794)
Decomposition temperature	:	No data available
Viscosity	:	(25 °C) 3,2 mm ² /s Solvent Kinematic viscosity
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.

9.2. Other information

Other information	:	Mineral oil (<3% DMSO) (Solvent)
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	:	None under normal processing. Reference to other sections: 10.5
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10.2. Chemical stability


Stability	:	The product is stable under storage at normal ambient temperatures.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	:	In contact with water releases flammable gases. In dry state: Risk of dust explosion. Reference to other sections: 10.4 & 10.5
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10.4. Conditions to avoid

Conditions to avoid	:	Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Avoid generation of dust. See also section 7 Handling and storage
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10.5. Incompatible materials

Incompatible materials : Oxidising substances,, Acids and bases, Halogens, Halogenated compounds, See also section 7, Handling and storage

10.6. Hazardous decomposition products

Hazardous decomposition products : Hazardous decomposition products formed under fire conditions. Reference to other sections: 5.2

SECTION 11: Toxicological information

11.1. Information on toxicological effects

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

Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics	
LD50/oral/rat	> 5000 mg/kg
LD50/dermal/rabbit	> 2000 mg/kg

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met.)
pH: Not applicable

Serious eye damage/eye irritation : Not classified (Based on available data, the classification criteria are not met.)
pH: Not applicable

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.)

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.)

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

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

Other information


Symptoms related to the physical, chemical and toxicological characteristics,Reference to other sections: 4.2

SECTION 12: Ecological information

12.1. Toxicity

Toxicity : Ecological injuries are not known or expected under normal use.

Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics	
LC50 fish 1	> 100 mg/l
EC50 other aquatic organisms 1	> 100 mg/l crustaceans
EC50 other aquatic organisms 2	> 100 mg/l microorganisms
ErC50 (algae)	> 100 mg/l
NOEC chronic fish	> 100 mg/l
NOEC chronic crustacea	> 100 mg/l

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12.2. Persistence and degradability

Persistence and degradability : Solvent
Readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation : No data available
Partition coefficient n-octanol/water : > 7 - 8,7 Solvent

12.4. Mobility in soil

Mobility : No data available

12.5. Results of PBT and vPvB assessment

PBT/vPvB data : PBT/vPvB data
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

Other information :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product waste: : Handle with care.
Safe handling: see section 7
Handling and storage
Collect and dispose of waste product at an authorised disposal facility.
Refer to manufacturer/supplier for information on recovery/recycling.
If recycling is not practicable, dispose of in compliance with local regulations.
Dispose according to legislation.

Contaminated packaging : If recycling is not practicable, dispose of in compliance with local regulations.
Empty containers should be taken to local recyclers for disposal.
Do not burn, or use a cutting torch on, the empty drum.
Do not puncture or incinerate.

Further ecological information : Do not allow to enter into surface water or drains.

List of proposed waste codes/waste designations in accordance with EWC : Classified as hazardous waste according to European Union regulations.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

14.1. UN number

UN number : NA

14.2. UN proper shipping name

Proper Shipping Name : NA


14.3. Transport hazard class(es)

14.3.1. Overland transport

ADR/RID : Not classified for this transport way.
Class(es) : Not applicable

14.3.2. Inland waterway transport (ADN)

ADN : Not classified for this transport way.

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14.3.3. Transport by sea

IMDG : Not classified for this transport way.
Class or Division : Not applicable

14.3.4. Air transport

ICAO/IATA : Not classified for this transport way.
Class or Division : Not applicable

14.4. Packing group

Packing group : NA

14.5. Environmental hazards

Other information : Not applicable.

14.6. Special precautions for user

Special precautions for user : Not applicable.

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

Code: IBC : 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

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 : Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics

3.a. 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 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F : Aluminium

40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not. : Aluminium


This product contains an ingredient according to the candidate list of Annex XIV of the REACH Regulation 1907/2006/EC. : None

Authorisations : Not applicable

15.1.2. National regulations

DE : WGK : 1

NL : ABM : 11 - Weinig schadelijk voor in het water levende organismen (B)

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15.2. Chemical safety assessment

Chemical Safety Assessment

: For the following substances of this preparation a chemical safety assessment has been carried out:

aluminium

Hydrocarbons, C13-C18, n-alkanes, isoalkanes, cyclics, < 2% aromatics

SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Asp. Tox. 1	: Aspiration hazard, Category 1
Flam. Sol. 1	: Flammable solids, Hazard Category 1
H228	: Flammable solid.
H304	: May be fatal if swallowed and enters airways.
R11	: Highly flammable.
R65	: Harmful: may cause lung damage if swallowed.
R66	: Repeated exposure may cause skin dryness or cracking.
F	: Highly flammable
Xn	: Harmful


Key literature references and sources for data : European Metal Particulate Association (EMPA)
Supplier SDS

Other information : CLP, Article 9.; Calculation method.

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
EC50 = Median Effective Concentration
EWC = European Waste Catalogue
LC50 = Median lethal concentration
LD50 = Median lethal dose
NOELR = No observed effect loading rate
NA = Not applicable
Occupational Exposure Limits - Short Term Exposure Limits (STELs)
PBT = persistent, bioaccumulating and toxic (PBT).
STEL = Short term exposure limit
TWA = time weighted average
vPvB = very persistent and very bioaccumulating
WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this

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product. If the product is used as a component in another product, this SDS information may not be applicable.
