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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 BG9B
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* / BG9B / 65-35
* = 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

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 : The product is classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

Acute Tox. 4 (Oral) H302
Skin Irrit. 2 H315
Eye Irrit. 2 H319


Full text of H-phrases: see section 16

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.

Xn; R20/21/22
Xi; R36/38

Full text of R-phrases: see section 16

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2.2. Label elements

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

Hazard pictograms :



GHS07

Signal word : Warning
 Contains : 2-butoxyethanol
 Hazard statements : H302 - Harmful if swallowed.
 H315 - Causes skin irritation.
 H319 - Causes serious eye irritation.
 Precautionary statements : P280 - Wear protective gloves/protective clothing and eye/face protection.
 P301+P312 - IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell.
 P302+P352 - IF ON SKIN: Wash with plenty of water/
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes.
 Remove contact lenses, if present and easy to do. Continue rinsing.
 P330 - Rinse mouth.

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	F; R11
2-butoxyethanol	(CAS No.) 111-76-2 (EC No) 203-905-0 (EC Index) 603-014-00-0 (REACH-no) 01-2119475108-36-XXXX	33	Xn; R20/21/22 Xi; R36/38
xylene	(CAS No.) 1330-20-7 (EC No) 215-535-7 (EC Index) 601-022-00-9	< 0,2	R10 Xn; R20/21 Xi; R38

Substance name	Product identifier	%	Classification (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	Flam. Sol. 1, H228
2-butoxyethanol	(CAS No.) 111-76-2 (EC No) 203-905-0 (EC Index) 603-014-00-0 (REACH-no) 01-2119475108-36-XXXX	33	Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Skin Irrit. 2, H315

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Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
xylene	(CAS No.) 1330-20-7 (EC No) 215-535-7 (EC Index) 601-022-00-9	< 0,2	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315

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.

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 : May be harmful if inhaled.

Skin contact : Causes skin irritation. The following symptoms may occur: erythema (redness).

Eye contact : Causes serious eye irritation. The following symptoms may occur: erythema (redness), Pain, Causes tears., Corneal opacity.

Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Harmful if swallowed.

Other adverse effects : none.

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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
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.
Cool closed containers exposed to fire with water spray
Use water spray jet to protect personnel and to cool endangered containers.
Evacuate area.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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.

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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 ignition sources. No smoking.
 - Protect from sunlight.
 - Protect from moisture.
 - Do not store near or with any of the incompatible materials listed in section 10.
 - Maximum storage period (time) :
6 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 :


xylene (1330-20-7)		
EU	IOELV TWA (mg/m ³)	221 mg/m ³ (pure)
EU	IOELV TWA (ppm)	50 ppm (pure)
EU	IOELV STEL (mg/m ³)	442 mg/m ³ (pure)
EU	IOELV STEL (ppm)	100 ppm (pure)
Austria	MAK (mg/m ³)	221 mg/m ³ (all isomers)
Austria	MAK (ppm)	50 ppm (all isomers)
Austria	MAK Short time value (mg/m ³)	442 mg/m ³ (all isomers)
Austria	MAK Short time value (ppm)	100 ppm (all isomers)

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xylylene (1330-20-7)		
Belgium	Limit value (mg/m ³)	221 mg/m ³
Belgium	Limit value (ppm)	50 ppm
Belgium	Short time value (mg/m ³)	442 mg/m ³
Belgium	Short time value (ppm)	100 ppm
Bulgaria	OEL TWA (mg/m ³)	221,0 mg/m ³ (pure)
Bulgaria	OEL TWA (ppm)	50 ppm (pure)
Bulgaria	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Bulgaria	OEL STEL (ppm)	100 ppm (pure)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	221 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	50 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	442 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	100 ppm
Cyprus	OEL TWA (mg/m ³)	221 mg/m ³
Cyprus	OEL TWA (ppm)	50 ppm
Cyprus	OEL STEL (mg/m ³)	442 mg/m ³
Cyprus	OEL STEL (ppm)	100 ppm
France	VLE (mg/m ³)	442 mg/m ³ (restrictive limit)
France	VLE (ppm)	100 ppm (restrictive limit)
France	VME (mg/m ³)	221 mg/m ³ (restrictive limit)
France	VME (ppm)	50 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	440 mg/m ³ (all isomers)
Germany	TRGS 900 Occupational exposure limit value (ppm)	100 ppm (all isomers)
Germany	TRGS 903 (BGW)	1,5 mg/l (Medium: whole blood - Time: end of shift - Parameter: Xylene (all isomers) 2000 mg/l (Medium: urine - Time: end of shift - Parameter: Methylhippuric(tolur-)acid (all isomers)
Gibraltar	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Gibraltar	OEL TWA (ppm)	50 ppm (pure)
Gibraltar	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Gibraltar	OEL STEL (ppm)	100 ppm (pure)
Greece	OEL TWA (mg/m ³)	435 mg/m ³
Greece	OEL TWA (ppm)	100 ppm
Greece	OEL STEL (mg/m ³)	650 mg/m ³
Greece	OEL STEL (ppm)	150 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	100 ppm
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	150 ppm
Italy	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Italy	OEL TWA (ppm)	50 ppm (pure)
Italy	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Italy	OEL STEL (ppm)	100 ppm (pure)
Latvia	OEL TWA (mg/m ³)	221 mg/m ³
Latvia	OEL TWA (ppm)	50 ppm
Spain	VLA-ED (mg/m ³)	221 mg/m ³ (indicative limit value)

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xylene (1330-20-7)		
Spain	VLA-ED (ppm)	50 ppm (indicative limit value)
Spain	VLA-EC (mg/m ³)	442 mg/m ³
Spain	VLA-EC (ppm)	100 ppm
Switzerland	VLE (mg/m ³)	870 mg/m ³
Switzerland	VLE (ppm)	200 ppm
Switzerland	VME (mg/m ³)	435 mg/m ³
Switzerland	VME (ppm)	100 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	210 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	442 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	220 mg/m ³
United Kingdom	WEL TWA (ppm)	50 ppm
United Kingdom	WEL STEL (mg/m ³)	441 mg/m ³
United Kingdom	WEL STEL (ppm)	100 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	200 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	109 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	25 ppm
Finland	HTP-arvo (8h) (mg/m ³)	220 mg/m ³
Finland	HTP-arvo (8h) (ppm)	50 ppm
Finland	HTP-arvo (15 min)	440 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	100 ppm
Hungary	AK-érték	221 mg/m ³
Hungary	CK-érték	442 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	221 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	50 ppm
Ireland	OEL (15 min ref) (mg/m ³)	442 mg/m ³
Ireland	OEL (15 min ref) (ppm)	100 ppm
Lithuania	IPRV (mg/m ³)	200 mg/m ³
Lithuania	IPRV (ppm)	50 ppm
Lithuania	TPRV (mg/m ³)	450 mg/m ³
Lithuania	TPRV (ppm)	100 ppm
Malta	OEL TWA (mg/m ³)	221 mg/m ³ (pure)
Malta	OEL TWA (ppm)	50 ppm (pure)
Malta	OEL STEL (mg/m ³)	442 mg/m ³ (pure)
Malta	OEL STEL (ppm)	100 ppm (pure)
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	108 mg/m ³
Norway	Gjennomsnittsverdier (AN) (ppm)	25 ppm
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	135 mg/m ³
Norway	Gjennomsnittsverdier (Korttidsverdi) (ppm)	37,5 ppm
Poland	NDS (mg/m ³)	100 mg/m ³
Romania	OEL TWA (mg/m ³)	221 mg/m ³
Romania	OEL TWA (ppm)	50 ppm
Romania	OEL STEL (mg/m ³)	442 mg/m ³
Romania	OEL STEL (ppm)	100 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	221 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	50 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	442 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	221 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	50 ppm

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xylene (1330-20-7)		
Sweden	kortidsvärde (KTV) (mg/m ³)	442 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	100 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)	10,0 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)
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)


2-butoxyethanol (111-76-2)		
EU	IOELV TWA (mg/m ³)	98 mg/m ³
EU	IOELV TWA (ppm)	20 ppm

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2-butoxyethanol (111-76-2)		
EU	IOELV STEL (mg/m ³)	246 mg/m ³
EU	IOELV STEL (ppm)	50 ppm
Austria	MAK (mg/m ³)	98 mg/m ³
Austria	MAK (ppm)	20 ppm
Austria	MAK Short time value (mg/m ³)	200 mg/m ³
Austria	MAK Short time value (ppm)	40 ppm
Belgium	Limit value (mg/m ³)	98 mg/m ³
Belgium	Limit value (ppm)	20 ppm
Belgium	Short time value (mg/m ³)	246 mg/m ³
Belgium	Short time value (ppm)	50 ppm
Bulgaria	OEL TWA (mg/m ³)	20 mg/m ³
Bulgaria	OEL TWA (ppm)	98 ppm
Bulgaria	OEL STEL (mg/m ³)	246 mg/m ³
Bulgaria	OEL STEL (ppm)	50 ppm
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	98 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (ppm)	20 ppm
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	246 mg/m ³
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (ppm)	50 ppm
Cyprus	OEL TWA (mg/m ³)	98 mg/m ³
Cyprus	OEL TWA (ppm)	20 ppm
Cyprus	OEL STEL (mg/m ³)	246 mg/m ³
Cyprus	OEL STEL (ppm)	50 ppm
France	VLE (mg/m ³)	246 mg/m ³ (restrictive limit)
France	VLE (ppm)	50 ppm (restrictive limit)
France	VME (mg/m ³)	49 mg/m ³ (restrictive limit)
France	VME (ppm)	10 ppm (restrictive limit)
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	49 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)
Germany	TRGS 903 (BGW)	100 mg/l (Medium: urine - Time: end of several shifts - Parameter: Butoxyacetic acid (for long-term exposures) 200 mg/l (Medium: urine - Time: end of several shifts - Parameter: Butoxyacetic acid (after hydrolysis))
Gibraltar	OEL TWA (mg/m ³)	98 mg/m ³
Gibraltar	OEL TWA (ppm)	20 ppm
Gibraltar	OEL STEL (mg/m ³)	246 mg/m ³
Gibraltar	OEL STEL (ppm)	50 ppm
Greece	OEL TWA (mg/m ³)	120 mg/m ³
Greece	OEL TWA (ppm)	25 ppm
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	20 ppm
Italy	OEL TWA (mg/m ³)	98 mg/m ³
Italy	OEL TWA (ppm)	20 ppm

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2-butoxyethanol (111-76-2)		
Italy	OEL STEL (mg/m ³)	246 mg/m ³
Italy	OEL STEL (ppm)	50 ppm
Latvia	OEL TWA (mg/m ³)	98 mg/m ³
Latvia	OEL TWA (ppm)	20 ppm
Spain	VLA-ED (mg/m ³)	98 mg/m ³ (indicative limit value)
Spain	VLA-ED (ppm)	20 ppm (indicative limit value)
Spain	VLA-EC (mg/m ³)	245 mg/m ³
Spain	VLA-EC (ppm)	50 ppm
Switzerland	VLE (mg/m ³)	98 mg/m ³
Switzerland	VLE (ppm)	20 ppm
Switzerland	VME (mg/m ³)	49 mg/m ³
Switzerland	VME (ppm)	10 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	100 mg/m ³
Netherlands	Grenswaarde TGG 15MIN (mg/m ³)	246 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	123 mg/m ³
United Kingdom	WEL TWA (ppm)	25 ppm
United Kingdom	WEL STEL (mg/m ³)	246 mg/m ³
United Kingdom	WEL STEL (ppm)	50 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	100 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	98 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	20 ppm
Finland	HTP-arvo (8h) (mg/m ³)	98 mg/m ³
Finland	HTP-arvo (8h) (ppm)	20 ppm
Finland	HTP-arvo (15 min)	250 mg/m ³
Finland	HTP-arvo (15 min) (ppm)	50 ppm
Hungary	AK-érték	98 mg/m ³
Hungary	CK-érték	246 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	98 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	20 ppm
Ireland	OEL (15 min ref) (mg/m ³)	246 mg/m ³
Ireland	OEL (15 min ref) (ppm)	50 ppm
Lithuania	IPRV (mg/m ³)	50 mg/m ³
Lithuania	IPRV (ppm)	10 ppm
Lithuania	TPRV (mg/m ³)	100 mg/m ³
Lithuania	TPRV (ppm)	20 ppm
Malta	OEL TWA (mg/m ³)	98 mg/m ³
Malta	OEL TWA (ppm)	20 ppm
Malta	OEL STEL (mg/m ³)	246 mg/m ³
Malta	OEL STEL (ppm)	50 ppm
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	50 mg/m ³
Norway	Gjennomsnittsverdier (AN) (ppm)	10 ppm
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m ³)	75 mg/m ³
Norway	Gjennomsnittsverdier (Korttidsverdi) (ppm)	20 ppm
Poland	NDS (mg/m ³)	98 mg/m ³
Poland	NDSch (mg/m ³)	200 mg/m ³
Romania	OEL TWA (mg/m ³)	150 mg/m ³
Romania	OEL TWA (ppm)	30 ppm

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2-butoxyethanol (111-76-2)		
Romania	OEL STEL (mg/m ³)	250 mg/m ³ 246 mg/m ³ (regulated under 2-Butoxyethanol)
Romania	OEL STEL (ppm)	50 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	98 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	20 ppm
Slovakia	NPHV (Hraničná) (mg/m ³)	246 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	50 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	10 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	100 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	20 ppm

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., Breakthrough time (maximum wearing time) : >480', Wear chemically resistant gloves (tested to EN374) ., Viton ®, Viton ® / butyl-rubber, Barrier® (PE/PA/PE)

Eye protection : Tightly fitting safety goggles (EN166). Wear eye glasses with side protection according to 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

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Colour	:	silver
Odour	:	mild
Odour threshold:	:	No data available
pH	:	neutral
Melting point/freezing point	:	620 °C aluminium 70 - 75 °C Solvent
Freezing point	:	70 - 75 °C Solvent
Initial boiling point and boiling range	:	2500 °C aluminium (1013 hPa) 168 - 173 °C Solvent
Flash point	:	> 60 °C Solvent
Evaporation rate	:	0,08 (n-butyl acetate = 1) Solvent 160 (Ether = 1) Solvent
Flammability (solid, gas)	:	Non-flammable.
Upper/lower flammability or explosive limits	:	LEL: 1,1 vol % Solvent UEL: 10,6 vol % Solvent
Vapour pressure	:	(20 °C) 0,117 kPa Solvent
Vapour density	:	4,1 (Air = 1.0) Solvent
Density	:	(Al) 2 kg/l bulk
Relative density	:	No data available
Water solubility	:	(Al) Insoluble
Solubility in different media	:	Acetone Ethanol Ether Solvent
Partition coefficient n-octanol/water	:	0,81 Solvent
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	(20 °C) 3,3 mPa.s 2-butoxyethanol
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

No data available


SECTION 10: Stability and reactivity

10.1. Reactivity

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

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

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

10.5. Incompatible materials

Incompatible materials : Oxidising substances, Strong bases, 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 : Oral: Harmful if swallowed.
2-butoxyethanol :
Harmful if swallowed.


xylene (1330-20-7)	
LD50/oral/rat	3500 mg/kg
LC50/inhalation/4h/rat	29,08 mg/l/4h
ATE CLP (oral)	3500 mg/kg bodyweight
ATE CLP (dermal)	1100 mg/kg bodyweight
ATE CLP (gases)	4500,000 ppmv/4h
ATE CLP (vapours)	11 mg/l/4h
ATE CLP (dust,mist)	1,5 mg/l/4h

2-butoxyethanol (111-76-2)	
LD50/oral/rat	300 - 2000 mg/kg
LD50/dermal/rabbit	1000 - 2000 mg/kg
LC50/inhalation/4h/rat	> 2 mg/l/4h
ATE CLP (oral)	500 mg/kg bodyweight
ATE CLP (dermal)	1100 mg/kg bodyweight
ATE CLP (dust,mist)	1,5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
2-butoxyethanol :
Causes skin irritation.
pH: neutral

Serious eye damage/eye irritation : Causes serious eye irritation.
2-butoxyethanol :
Causes serious eye irritation.
pH: neutral

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

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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.

xylene (1330-20-7)	
LC50 fish 1	13,4 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3,82 mg/l (Exposure time: 48 h - Species: water flea)
LC50 fish 2	2,661 - 4,093 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 2	0,6 mg/l (Exposure time: 48 h - Species: Gammarus lacustris)

2-butoxyethanol (111-76-2)	
LC50 fish 1	1474 mg/l Oncorhynchus mykiss (Rainbow trout)
EC50 Daphnia 1	1550 mg/l
ErC50 (algae)	(72h) 1840 mg/l Pseudokirchneriella subcapitata
NOEC chronic fish	(21d) > 100 mg/l Brachydanio rerio (zebra-fish)
NOEC chronic crustacea	(21d) 100 mg/l Daphnia magna (Big water flea)

12.2. Persistence and degradability

Persistence and degradability : Solvent
Readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation : Solvent
Bioaccumulation is unlikely.


Partition coefficient n-octanol/water : 0,81 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

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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.

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.

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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 : xylene - 2-butoxyethanol

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 - xylene

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


15.2. Chemical safety assessment

Chemical Safety Assessment : For the following substances of this preparation a chemical safety assessment has been carried out:
aluminium
2-butoxyethanol

SECTION 16: Other information

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

Acute Tox. 4 (Dermal) : Acute toxicity (dermal), Category 4
 Acute Tox. 4 (Inhalation) : Acute toxicity (inhal.), Category 4
 Acute Tox. 4 (Oral) : Acute toxicity Category 4
 Eye Irrit. 2 : Serious eye damage/eye irritation Category 2
 Flam. Liq. 3 : Flammable liquids, Category 3
 Flam. Sol. 1 : Flammable solids, Hazard Category 1
 Skin Irrit. 2 : Skin corrosion/irritation, Category 2
 H226 : Flammable liquid and vapour.
 H228 : Flammable solid.
 H302 : Harmful if swallowed.
 H312 : Harmful in contact with skin.
 H315 : Causes skin irritation.
 H319 : Causes serious eye irritation.

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H332 : Harmful if inhaled.
 R10 : Flammable.
 R11 : Highly flammable.
 R20/21 : Harmful by inhalation and in contact with skin.
 R20/21/22 : Harmful by inhalation, in contact with skin and if swallowed.
 R36/38 : Irritating to eyes and skin.
 R38 : Irritating to skin.
 F : Highly flammable
 Xi : Irritant
 Xn : Harmful

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

Abbreviations and acronyms : 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 Explosive Limit/Upper Explosive Limit
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
TWA = time weighted average
STEL = Short term exposure limit
PBT = persistent, bioaccumulating and toxic (PBT).
vPvB = very persistent and very bioaccumulating
EWC = European Waste Catalogue
NA = Not applicable
LC50 = Median lethal concentration
LD50 = Median lethal dose
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.

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