

Aluminium Powder

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| substance/mixture and of the company/undertaking | | | |
|--|--|--|--|
| | | | |
| : Aluminium Powder | | | |
| : Aluminium | | | |
| : 013-002-00-1 | | | |
| : 231-072-3 | | | |
| : 7429-90-5 | | | |
| : 01-2119529243-45-0146 | | | |
| : 880 - 8880 - 8980 - 024 - 030 - 032 - 76000 - 80000 - 80000/A - 90000/A - 30/Z - 40/Z - 80/Z - A8 - A88 - A888 - Silver Imitation, also valid for leafing (L) and non-leafing (NL) | | | |
| 1.2. Relevant identified uses of the substance or mixture and uses advised against | | | |
| : Industrial uses ., Professional use . | | | |
| afety data sheet | | | |
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| | | | |
| : +32 (0)475 38 36 83 (This telephone number is available 24 hours per day, 7 days per week.) | | | |
| +353 18 37 99 64/+353 1 809 21 66 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. This substance does not emit flammable gases in contact with water according to test N. 5 in Part III, sub-section 33.4.1.4 of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria |
|--------------------|---|
| Flam. Sol. 1 H228 | |

Full text of H-phrases: see section 16



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

Classification

: This substance is classified as hazardous according to 67/548/EEC.

F; R11

Full text of R-phrases: see section 16

2.2. Label elements

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

Hazard pictograms



:

:

| | | GH502 |
|--------------------------|---|---|
| Signal word | : | Danger |
| Hazard statements | : | H228 - Flammable solid. |
| Precautionary statements | : | P210 - Keep away from heat, hot surfaces, sparks, open flames and other |
| | | ignition sources. No smoking. |
| | | P240 - Ground/bond container and receiving equipment. |
| | | P241 - Use explosion-proof electrical/ ventilating/ lighting/ / equipment. |
| | | P280 - Wear protective gloves/protective clothing/eye protection/face protection. |
| | | P370+P378 - In case of fire: Use to extinguish |

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

Not relevant

<u>2.</u>3. Other hazards

Other hazards

PBT/vPvB data Not applicable Risk of dust explosion.

SECTION 3: Composition/information on ingredients

3.1. Substances

| Substance name | Product identifier | % | Classification according to Directive 67/548/EEC |
|-------------------------------|--|-----|---|
| Aluminium powder (stabilised) | (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 | 100 | F; R11 |
| Substance name | Product identifier | % | Classification according to Regulation (EC) No. |

| | | | Regulation (EC) No. 1272/2008 [CLP] |
|-------------------------------|--|-----|--|
| Aluminium powder (stabilised) | (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 | 100 | Flam. Sol. 1, H228 |

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

3.2. Mixtures

Not applicable



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| SECTION 4: First aid measures | | | | |
|--|--|--|--|--|
| 4.1. Description of first aid measures | <u>s</u> | | | |
| Inhalation | : Provide fresh air. When in doubt or if symptoms are observed, get medical advice. | | | |
| Skin contact | : Wash with plenty of water/. | | | |
| Eye contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician. | | | |
| In case of ingestion | : Rinse mouth thoroughly with water. Rinse mouth immediately and drink plenty of water. Get medical advice/attention. | | | |
| Additional advice | Treat symptomatically. See also section 8 First aider: Pay attention to self-protection! When in doubt or if symptoms are observed, get medical advice. | | | |
| 4.2. Most important symptoms and effects, both acute and delayed | | | | |
| Inhalation | Repeated or prolonged exposure: (dust) : May cause respiratory impairment and lung damage. | | | |
| Skin contact | : No adverse effects are expected. | | | |
| 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

| : Special powder against metal fire . Dry sand . Co-ordinate fire-fighting measures to the fire surroundings. |
|---|
| : Water |
| Foam |
| Carbon dioxide |
| ABC-powder |
| substance or mixture |
| : Flammable solid |
| : Dust may form explosive mixture in air. |
| |
| : Special protective equipment for firefighters. In case of fire: Wear self-contained breathing apparatus. |
| |

6.1. Personal precautions, protective equipment and emergency procedures

| For non-emergency personnel | : Evacuate area. |
|-----------------------------|---|
| | Prevent unauthorised persons entering the zone. |
| | Provide adequate ventilation. |
| | Use personal protective equipment as required. |
| | Personal protection equipment: see section 8 |
| | Avoid generation of dust. |



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| For emergency responders | Keep away from sources of ignition No smoking. Use only non-sparking tools. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. 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 contain | ment and cleaning up |
| Methods for cleaning up | Stop leak if safe to do so. Dam up. Take up mechanically. Do not rinse down with water. / Water (with cleaning agent) Dispose according to legislation. |
| 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 | Provide adequate ventilation. Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Personal protection equipment: see section 8 Dust may form explosive mixture in air. Avoid generation of dust. Remove dust regularly from electrical supply and distribution points. Keep away from sources of ignition No smoking. Ensure that the equipment is adequately grounded. Use only non-sparking tools. Take any precaution to avoid mixing with incompatible materials. Contact with water liberates highly flammable gases. (H2) See also section 10 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, inclu | ding any incompatibilities |
| Storage | Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10. Protect against water. / Humidity |
| Packaging materials | : Keep/Store only in original container. |
| 7.3Specific end use(s)No data available. | |
| SECTION 8: Exposure controls/pe | rsonal protection |
| 8.1. Control parameters | |

8.1. Control parameters

Exposure limit values

:



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| 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) |
| Duigana | OEL TWA (mg/ms) | 1,5 mg/m ³ (respirable fraction) |
| Croatia | GVI (granična vrijednost izloženosti) (mg/m ³) | 10 mg/m ³ (total dust) |
| orodila | | 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/m³) | 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/m3) | 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 (Korttidsverdi) (mg/m3) | 10 mg/m ³ (pyrotechnical-powder) |
| Poland | | |
| 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) |

Recommended monitoring procedures

DNEL PNEC : Concentration measurement in air Personal air monitoring

: 3 mg/m³ : 46 - 17800 µg/l

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



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| Respiratory protection | : | workplace. : dust Use appropriate respiratory protection. Effective dust mask. (EN 149) Respirator with a particle filter (EN 143) Filter type: P1 |
|---------------------------------|---|--|
| Hand protection | | Wear gloves in accordance with EN 388 as a protection against mechanical risks.,Leather gloves,Gloves with long cuffs,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. |
| Eye protection | : | Dust protection eye glasses (EN 166) |
| Body protection | - | Antistatic boots Flame-retardant protective clothing (EN ISO 11612 / EN 1149) |
| Thermal hazard protection | : | Use dedicated equipment. |
| Engineering control measures | | Use only in area provided with appropriate exhaust ventilation. Apply measures to prevent dust explosions. 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 |
|--|

| Appeorance | | Powder |
|--|---|------------------------------|
| Appearance | • | |
| Colour | : | silver |
| Odour | : | odourless |
| Odour threshold: | : | No data available |
| Odour threshold: | : | No data available |
| рН | : | Not applicable |
| Melting point/freezing point | : | 660 °C |
| Initial boiling point and boiling range | : | > 999 °C |
| Flash point | : | Not applicable |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | Flammable. |
| Upper/lower flammability or explosive limits | : | No data available |
| Vapour pressure | : | No data available |
| Vapour density | : | No data available |
| Density | : | 2,7 g/cm ³ @ 20°C |
| Relative density | : | No data available |
| Water solubility | : | Insoluble |
| Solubility in different media | : | No data available |
| Partition coefficient n-octanol/water | : | No data available |
| Auto-ignition temperature | : | Not applicable |
| Decomposition temperature | : | No data available |
| Viscosity | : | No data available |

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| | | |
| Explosive properties | : Not applicable The study does not need to be conducted bec chemical groups associated with explosive pro molecule. | |
| Oxidising properties | Not applicable The classification procedure needs not to be a no chemical groups present in the molecule w oxidising properties. | |
| 9.2. Other information | | |
| Other information | Dust may form explosive mixture in air. Lower explosion limit (g/m³) : 30 Ignition temperature : > 400°C Minimum ignition temperature of a 5 mm dust temperature) : > 230°C (Apparent) Density : 0,10 - 0,35 g/cm³ @ 20°C | |

| SECTION 10: Stability and reactivity | | | |
|--------------------------------------|------------------------------------|---|---|
| 10.1. | Reactivity | | |
| Reactiv | ity | : | None under normal processing. UN Test N.5: Test method for substances which in contact with water emit flammable gases The substance or mixture does not emit flammable gases in contact with water. Reference to other sections: 10.5 |
| 10.2. | Chemical stability | | |
| Stability | , | : | The product is stable under storage at normal ambient temperatures. |
| 10.3. | Possibility of hazardous reactions | | |
| Possibil | ity of hazardous reactions | : | Risk of dust explosion. 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) Reference to other sections: 10.4/10.5 |
| <u>10.4.</u> | Conditions to avoid | | |
| Conditio | ons to avoid | : | Remove all sources of ignition. See also section 7 |
| <u>10.5.</u> | Incompatible materials | | |
| Incomp | atible materials | : | Reacts with the following substances:, Acids and bases,, Halogens,, Halogenated compounds,, Oxidising substances |
| <u>10.6.</u> | Hazardous decomposition products | | |
| Hazardo | ous decomposition products | : | none |

SECTION 11: Toxicological information 11.1. Information on toxicological effects Acute toxicity : Not classified (Based on available data, the classification criteria are not met.)

 Actual toxicity
 Not classified (Based on available data, the classification chiena are not met.)

 Aluminium Powder (7429-90-5)
 > 2000 mg/kg

 LD50/oral/rat
 > 2000 mg/kg

 LC50/inhalation/4h/rat
 > 888 mg/l



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| 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 | | |
|--|-----------------|---|
| <u>12.1. Toxicity</u> Toxicity | : | Ecological injuries are not known or expected under normal use. |
| 12.2. Persistence and degradability Persistence and degradability | : | Not applicable |
| 12.3. Bioaccumulative potential Bioaccumulation Partition coefficient n-octanol/water | : | No data available No data available |
| 12.4. Mobility in soil Mobility | : | No data available |
| <u>12.5.</u> Results of PBT and vPvB assessed PBT/vPvB data | <u>mer</u> : | <u>nt</u> PBT/vPvB data : Not applicable |
| 12.6. Other adverse effects Other information | : | |

| SECTION 13: Disposal considerations | | |
|-------------------------------------|---|--|
| 13.1. Waste treatment methods | | |
| Product waste: | : Do not dispose of together with household waste. If recycling is not practicable, dispose of in compliance with local regulations. | |
| Contaminated packaging | : Delivery to an approved waste disposal company. | |
| Further ecological information | : Do not allow to enter into surface water or drains. | |



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List of proposed waste codes/waste designations in accordance with EWC

 Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
 The following Waste Codes are only suggestions: 12 01 04

SECTION 14: Transport information

14.1. UN number

UN number

: 1309

14.2. UN proper shipping name

Proper Shipping Name Proper shipping name IATA/IMDG

- : ALUMINIUM POWDER, COATED : ALUMINIUM POWDER, COATED

14.3. Transport hazard class(es)

14.3.1. Overland transport

| ADR/RID |
|---|
| Class(es) |
| Hazard identification number (Kemler No.) |
| Classification code |
| ADR/RID-Labels |
| |

tunnel restriction code : E 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives 40 F3

: 4.1 - Flammable solid



| | ▼ |
|---|--|
| 14.3.2. Inland waterway transport (ADN) | |
| ADN Class (UN) | : Not classified for this transport way. : 4.1 |
| 14.3.3. Transport by sea | |
| Class or Division | : 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives |
| 14.3.4. Air transport | |
| Class or Division | : 4.1 - Flammable solids, self-reactive substances and solid desensitized explosives |
| 14.4. Packing group | |
| Packing group | : II |
| 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



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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.
This product contains an ingredient according to the candidate list of Annex XIV of the REACH Regulation 1907/2006/EC.
Authorisations
Not applicable

15.1.2. National regulations

| 45.0 | | | |
|------|---|---|--|
| NL : | NeR (Nederlandse emissie Richtlijn) | : | Inorganic substances in powdered form |
| NL : | ABM | : | Weinig schadelijk voor in het water levende organismen (B) |
| FR : | Installations classées | : | 1450 |
| DE : | Technische Regeln für Gefahrstoffe (TRGS) | : | applicable |
| DE : | TA-Luft | : | Total dust |
| DE : | German storage class (LGK) | : | LGK 4.1B - Flammable solids |
| DE : | WGK | : | nwg |

: For this substance a chemical safety assessment has been carried out.

15.2. Chemical safety assessment

Chemical Safety Assessment

SECTION 16: Other information

| H228 R11 | : | Flammable solids, Hazard Category 1 Flammable solid. Highly flammable. Highly flammable |
|---|---|---|
| Key literature references and sources for data | : | European Metal Particulate Association (EMPA) |
| Safety datasheet sections which have been updated | : | 8 |
| 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 Explosion 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 |



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DNEL = Derived No Effect Level PNEC = Predicted No Effect Concentration

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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