



PRODUCT INFORMATION SHEET

MATERION

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

1.1. Product identifier

Trade name or designation of the mixture Metallized Alumina Ceramic
Registration number -
Document number C22
Synonyms Aluminum Oxide, Alumina, Al₂O₃, Durox AL, Durox UHP
Issue date 22-August-2018
Version number 03
Revision date 28-April-2021

1.3. Details of the supplier of the product information sheet

Supplier

Company name Materion Brush Inc.
Address 6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States

Division

Telephone 1.216.383.4019
e-mail ehs@materion.com
Contact person Theodore Knudson

1.4. Emergency telephone number 1.216.383.4019

Supersedes date 13-January-2021

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

Identified uses Not available.

Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Brush Inc.
Address 6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States

Division

Telephone 1.216.383.4019
e-mail ehs@materion.com
Contact person Theodore Knudson

1.4. Emergency telephone number 1.216.383.4019

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

| | | |
|-----------------------------------|-------------|---|
| Serious eye damage/eye irritation | Category 2 | H319 - Causes serious eye irritation. |
| Respiratory sensitisation | Category 1 | H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Skin sensitisation | Category 1 | H317 - May cause an allergic skin reaction. |
| Carcinogenicity | Category 1A | H350 - May cause cancer. |

| | | |
|--|---|---|
| Reproductive toxicity | Category 2 | H361 - Suspected of damaging fertility or the unborn child. |
| Specific target organ toxicity - single exposure | Category 3 respiratory tract irritation | H335 - May cause respiratory irritation. |
| Specific target organ toxicity - repeated exposure | Category 2 (Respiratory system) | H373 - May cause damage to organs through prolonged or repeated exposure. |

Hazard summary May cause damage to organs through prolonged or repeated exposure. May cause cancer. May cause an allergic skin reaction. Possible reproductive hazard. Prolonged exposure may cause chronic effects. Occupational exposure to the substance or mixture may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Aluminium oxide, Gold, Molybdenum, NICKEL POWDER; [PARTICLE DIAMETER < 1MM], Silica, Titanium, Tungsten

Hazard pictograms



Signal word

Danger

Hazard statements

| | |
|------|--|
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H335 | May cause respiratory irritation. |
| H350 | May cause cancer. |
| H361 | Suspected of damaging fertility or the unborn child. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |

Precautionary statements

Prevention

| | |
|------|--|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| P272 | Contaminated work clothing should not be allowed out of the workplace. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P284 | Wear respiratory protection. |

Response

| | |
|-------------|--|
| P302 + P352 | IF ON SKIN: Wash with plenty of water. |
| P304 + P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P308 + P313 | IF exposed or concerned: Get medical advice/attention. |
| P333 + P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P342 + P311 | If experiencing respiratory symptoms: Call a poison centre/doctor. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

2.3. Other hazards

Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | Index No. | Notes |
|-----------------|---------|------------------------|------------------------|-----------|-------|
| Aluminium oxide | 80 - 95 | 1344-28-1 215-691-6 | - | - | |

Classification: -

| Chemical name | % | CAS-No. / EC No. | REACH Registration No. | Index No. | Notes |
|--|--------|-------------------------|------------------------|--------------|-------|
| Molybdenum | 0 - 10 | 7439-98-7 231-107-2 | - | - | |
| Classification: - | | | | | |
| NICKEL POWDER; [PARTICLE DIAMETER < 1MM] | 0 - 10 | 7440-02-0 231-111-4 | 01-2119438727-29-0049 | 028-002-00-7 | |
| Classification: Skin Sens. 1;H317, STOT SE 3;H335, Carc. 2;H351, STOT RE 2;H373 | | | | | 7,S |
| Silica | 0 - 4 | 14808-60-7 238-878-4 | - | - | # |
| Classification: Carc. 1A;H350 | | | | | |
| Manganese | 0 - 2 | 7439-96-5 231-105-1 | - | - | # |
| Classification: - | | | | | |
| Titanium | 0 - 2 | 7440-32-6 231-142-3 | - | - | |
| Classification: - | | | | | |
| Tungsten | 0 - 2 | 7440-33-7 231-143-9 | - | - | |
| Classification: - | | | | | |
| Gold | 0 - 1 | 7440-57-5 231-165-9 | - | - | |
| Classification: - | | | | | |

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

SECTION 4: First aid measures

General information

If exposed or concerned: get medical attention/advice. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

4.1. Description of first aid measures

Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. Get medical attention if symptoms occur.

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

May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

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

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards

No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Dry sand. Carbon dioxide (CO₂).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire. Carbon dioxide (CO₂).

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

| | |
|--|---|
| Special protective equipment for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Special firefighting procedures | Move containers from fire area if you can do so without risk. |

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

For emergency responders Keep unnecessary personnel away.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Put material in suitable, covered, labeled containers.

6.4. Reference to other sections Not available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container.

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

| Components | Type | Value | Form |
|--|------|------------------------|------------------------|
| Aluminium oxide (CAS 1344-28-1) | TWA | 6 mg/m ³ | Decomposition aerosol. |
| | | 4 mg/m ³ | |
| Manganese (CAS 7439-96-5) | TWA | 0,2 mg/m ³ | Inhalable fraction. |
| | | 0,1 mg/m ³ | Welding fume. |
| | | 0,05 mg/m ³ | |
| NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0) | TWA | 0,05 mg/m ³ | |
| Titanium (CAS 7440-32-6) | TWA | 10 mg/m ³ | |

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

| Components | Type | Value | Form |
|---------------------------|------|------------------------|----------------------|
| Manganese (CAS 7439-96-5) | TWA | 0,2 mg/m ³ | Inhalable fraction. |
| | | 0,05 mg/m ³ | Respirable fraction. |

EU. OELs, Directive 2004/37/EC on carcinogen and mutagens from Annex III, Part A

| Components | Type | Value | Form |
|-------------------------|------|-----------------------|------------------------------|
| Silica (CAS 14808-60-7) | TWA | 0,1 mg/m ³ | Respirable fraction and dust |

| | |
|--|--|
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Recommended monitoring procedures | <p>VENTILATION: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.</p> <p>Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users. Use qualified professionals to design and install ventilation systems. Follow standard monitoring procedures.</p> |
| Derived no effect levels (DNELs) | Not available. |
| Predicted no effect concentrations (PNECs) | Not available. |
| Exposure guidelines | Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. |
| 8.2. Exposure controls | |
| Appropriate engineering controls | Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. |
| Individual protection measures, such as personal protective equipment | |
| General information | Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. |
| Eye/face protection | If contact is likely, safety glasses with side shields are recommended. Wear approved safety glasses, goggles, face shield and/or welder's helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume. |
| Skin protection | |
| - Hand protection | Wear appropriate chemical resistant gloves. Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling. |
| - Other | Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities. |
| Respiratory protection | Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit. When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device. |
| Thermal hazards | Not applicable. |
| Hygiene measures | Observe any medical surveillance requirements. Contaminated work clothing should not be allowed out of the workplace. |
| Environmental exposure controls | Environmental manager must be informed of all major releases. |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

| | |
|------------------------|-------------------------------|
| Physical state | Solid. |
| Form | Solid. Various shapes. |
| Colour | White. Off-white. Grey. Gold. |
| Odour | None. |
| Odour threshold | Not applicable. |

| | |
|---|---|
| pH | Not applicable. |
| Melting point/freezing point | 2050 °C (3722 °F) estimated / Not applicable. |
| Initial boiling point and boiling range | Not applicable. |
| Flash point | Not applicable. |
| Evaporation rate | Not applicable. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not applicable. |
| Flammability limit - lower (%) temperature | Not applicable. |
| Flammability limit - upper (%) | Not applicable. |
| Flammability limit - upper (%) temperature | Not applicable. |
| Vapour pressure | Not applicable. |
| Vapour density | Not applicable. |
| Relative density | Not applicable. |
| Solubility(ies) | |
| Solubility (water) | Insoluble. |
| Partition coefficient (n-octanol/water) | Not applicable. |
| Auto-ignition temperature | Not applicable. |
| Decomposition temperature | Not applicable. |
| Viscosity | Not applicable. |
| Explosive properties | Not explosive. |
| Oxidising properties | Not oxidising. |
| 9.2. Other information | |
| Density | 3,95 g/cm ³ estimated |
| Flammability | Not applicable. |

SECTION 10: Stability and reactivity

| | |
|---|---|
| 10.1. Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| 10.2. Chemical stability | Material is stable under normal conditions. |
| 10.3. Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| 10.4. Conditions to avoid | Contact with incompatible materials. |
| 10.5. Incompatible materials | Strong acids. Strong oxidising agents. |
| 10.6. Hazardous decomposition products | No hazardous decomposition products are known. |

SECTION 11: Toxicological information

| | |
|---|---|
| General information | Occupational exposure to the substance or mixture may cause adverse effects. |
| Information on likely routes of exposure | |
| Inhalation | Prolonged inhalation may be harmful. |
| Skin contact | May cause an allergic skin reaction. |
| Eye contact | Direct contact with eyes may cause temporary irritation. |
| Ingestion | May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure. |
| Symptoms | May cause an allergic skin reaction. Dermatitis. Rash. |
| 11.1. Information on toxicological effects | |
| Acute toxicity | Not known. |
| Skin corrosion/irritation | Due to partial or complete lack of data the classification is not possible. |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. |

| | |
|----------------------------------|--|
| Respiratory sensitisation | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Skin sensitisation | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Due to partial or complete lack of data the classification is not possible. |
| Carcinogenicity | In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. May cause cancer. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. |

IARC Monographs. Overall Evaluation of Carcinogenicity

| | |
|---|-------------------------------------|
| NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0) | 2B Possibly carcinogenic to humans. |
| Silica (CAS 14808-60-7) | 1 Carcinogenic to humans. |

| | |
|---|--|
| Reproductive toxicity | Suspected of damaging fertility or the unborn child. |
| Specific target organ toxicity - single exposure | Not classified. |
| Specific target organ toxicity - repeated exposure | May cause damage to organs through prolonged or repeated exposure. |
| Aspiration hazard | Not an aspiration hazard. |
| Mixture versus substance information | No information available. |
| Other information | Not available. |

SECTION 12: Ecological information

12.1. Toxicity Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

| Product | Species | | Test Results |
|----------------------------|---------|---------|-----------------------------------|
| Metallized Alumina Ceramic | | | |
| Aquatic | | | |
| Crustacea | EC50 | Daphnia | 2000 mg/l, 48 hours estimated |
| Fish | LC50 | Fish | 897,9192 mg/l, 96 hours estimated |

| Components | Species | | Test Results |
|--|---------|--|-------------------|
| NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0) | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Fish | LC50 | Rainbow trout,donaldson trout (Oncorhynchus mykiss) | 0,06 mg/l, 4 days |

* Estimates for product may be based on additional component data not shown.

12.2. Persistence and degradability No data is available on the degradability of this product.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|-------------------------------------|--|
| Residual waste | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |
| EU waste code | The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Disposal methods/information | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Special precautions | Dispose in accordance with all applicable regulations. |

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Aluminium oxide (CAS 1344-28-1)

NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

NICKEL POWDER; [PARTICLE DIAMETER < 1MM] (CAS 7440-02-0)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Silica (CAS 14808-60-7)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

Pregnant women should not work with the product, if there is the least risk of exposure. The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

National regulations

Follow national regulation for work with chemical agents. Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculator methods and test data, if available.

Training information

Follow training instructions when handling this material.

Further information

Transportation Emergency
Call Chemtrec at:
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059

Disclaimer

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