



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier LM105

Other means of identification
SDS number N08

Manufacturer/Importer/Supplier/Distributor information
Manufacturer

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

Telephone 1.800.862.4118
Website www.materion.com
E-mail ehs@materion.com
Contact person Theodore Knudson
Emergency phone number 1.800.862.4118

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Sensitization, skin Category 1
Carcinogenicity Category 2
Specific target organ toxicity, repeated exposure Category 1 (Respiratory system)

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement May cause an allergic skin reaction. May cause cancer. Causes damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response If exposed or concerned: Get medical advice/attention. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor.

Storage Store locked up.

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

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information For further information, please contact the Product Stewardship Department at +1.800.862.4118.

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|---------------|--------------------------|------------|---------|
| Zirconium | | 7440-67-7 | 56 - 73 |
| Copper | | 7440-50-8 | 15 - 20 |
| Nickel | | 7440-02-0 | 10 - 14 |
| Aluminum | | 7429-90-5 | 1 - 5 |
| Titanium | | 7440-32-6 | 1 - 5 |

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. 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. |
| Most important symptoms/effects, acute and delayed | May cause an allergic skin reaction. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed. |
| General information | If exposed or concerned: get medical attention/advice. 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. |

5. Fire-fighting measures

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| Suitable extinguishing media | Dry powder. Dry sand. |
| Unsuitable extinguishing media | Do not use water as an extinguisher. |
| Specific hazards arising from the chemical | None known. |
| Special protective equipment and precautions for firefighters | Use protective equipment appropriate for surrounding materials. |
| Fire fighting equipment/instructions | 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. |
| General fire hazards | No unusual fire or explosion hazards noted. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS. |
| Methods and materials for containment and cleaning up | Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. |

7. Handling and storage

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| Precautions for safe handling | Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Observe good industrial hygiene practices. |
| Conditions for safe storage, including any incompatibilities | Store locked up. Store away from incompatible materials (see Section 10 of the SDS). |

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|----------------------|
| Aluminum (CAS 7429-90-5) | PEL | 5 mg/m ³ | Respirable fraction. |
| | | 15 mg/m ³ | Total dust. |
| Copper (CAS 7440-50-8) | PEL | 1 mg/m ³ | Dust and mist. |
| | | 0.1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | PEL | 1 mg/m ³ | |

US. OSHA Table Z-3 (29 CFR 1910.1000)

| Components | Type | Value | Form |
|--------------------------|------|----------------------|----------------------|
| Aluminum (CAS 7429-90-5) | TWA | 5 mg/m ³ | Respirable fraction. |
| | | 15 mg/m ³ | Total dust. |
| | | 50 mppcf | Total dust. |
| | | 15 mppcf | Respirable fraction. |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|---------------------------|------|-----------------------|----------------------|
| Aluminum (CAS 7429-90-5) | TWA | 1 mg/m ³ | Respirable fraction. |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0.2 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 1.5 mg/m ³ | Inhalable fraction. |
| Zirconium (CAS 7440-67-7) | STEL | 10 mg/m ³ | |
| | TWA | 5 mg/m ³ | |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|---------------------------|------|-------------------------|------------------------------------|
| Aluminum (CAS 7429-90-5) | TWA | 5 mg/m ³ | Respirable. |
| | | 5 mg/m ³ | Welding fume or pyrophoric powder. |
| | | 10 mg/m ³ | Total |
| Copper (CAS 7440-50-8) | TWA | 1 mg/m ³ | Dust and mist. |
| | | 0.1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | TWA | 0.015 mg/m ³ | |
| Zirconium (CAS 7440-67-7) | STEL | 10 mg/m ³ | |
| | TWA | 5 mg/m ³ | |

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

| Components | Type | Value | Form |
|--------------------------|------|-----------------------|----------------------|
| Aluminum (CAS 7429-90-5) | PEL | 5 mg/m ³ | Respirable fraction. |
| | | 5 mg/m ³ | Pyrophoric powder. |
| | | 5 mg/m ³ | Welding fume. |
| | | 10 mg/m ³ | Total dust. |
| Copper (CAS 7440-50-8) | PEL | 1 mg/m ³ | Dust and mist. |
| | | 0.1 mg/m ³ | Fume. |
| Nickel (CAS 7440-02-0) | PEL | 0.5 mg/m ³ | |

Biological limit values

No biological exposure limits noted for the ingredient(s).

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

Eye/face protection If contact is likely, safety glasses with side shields are recommended.

Skin protection

Hand protection Wear gloves to prevent metal cuts and skin abrasions during handling.

Other Wear suitable protective equipment.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not applicable. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Various shapes.

Color Metallic.

Odor Not applicable.

Odor threshold Not applicable.

pH Not applicable.

Melting point/freezing point 1560 - 1650 °F (848.89 - 898.89 °C) / 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

Explosive limit - lower (%) Not applicable.

Explosive limit - upper (%) Not applicable.

Vapor pressure Not applicable.

Vapor 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.

Other information

Density 7.71 g/cm³ estimated

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

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| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Contact with incompatible materials. |
| Incompatible materials | Strong oxidizing agents. |
| Hazardous decomposition products | Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition. |

11. Toxicological information

Information on likely routes of exposure

| | |
|---------------------|---|
| Inhalation | Prolonged inhalation may be harmful. |
| Skin contact | May cause an allergic skin reaction. |
| Eye contact | Not likely, due to the form of the product. |
| Ingestion | Expected to be a low ingestion hazard. |

| | |
|---|--------------------------------------|
| Symptoms related to the physical, chemical and toxicological characteristics | May cause an allergic skin reaction. |
|---|--------------------------------------|

Information on toxicological effects

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|--|--|
| Acute toxicity | None known. |
| Skin corrosion/irritation | Prolonged skin contact may cause temporary irritation. |
| Serious eye damage/eye irritation | Not likely, due to the form of the product. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Not a respiratory sensitizer. |
| Skin sensitization | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Not classified. |
| Carcinogenicity | Suspected of causing cancer. |

IARC Monographs. Overall Evaluation of Carcinogenicity

Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Nickel (CAS 7440-02-0) Known To Be Human Carcinogen.
Reasonably Anticipated to be a Human Carcinogen.

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|---|---|
| Reproductive toxicity | Not classified. |
| Specific target organ toxicity - single exposure | Not classified. |
| Specific target organ toxicity - repeated exposure | May cause damage to organs (respiratory system) through prolonged or repeated exposure. |
| Aspiration hazard | Not an aspiration hazard. |
| Chronic effects | Prolonged exposure may cause chronic effects. |

12. Ecological information

Ecotoxicity

| Product | Species | Test Results |
|----------------|---------|---------------------------------|
| LM105 | | |
| Aquatic | | |
| <i>Acute</i> | | |
| Fish | LC50 | 0.1581 mg/l, 96 hours estimated |

| Components | Species | | Test Results |
|------------------------|---------|--|--------------------------------|
| Copper (CAS 7440-50-8) | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Crustacea | EC50 | Blue crab (<i>Callinectes sapidus</i>) | 0.0031 mg/l |
| Fish | LC50 | Fathead minnow (<i>Pimephales promelas</i>) | 0.0219 - 0.0446 mg/l, 96 hours |
| Nickel (CAS 7440-02-0) | | | |
| Aquatic | | | |
| <i>Acute</i> | | | |
| Fish | LC50 | Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>) | 0.06 mg/l, 4 days |

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

| | |
|--------------------------------------|--|
| Persistence and degradability | No data is available on the degradability of this product. |
| Bioaccumulative potential | Not available. |
| Mobility in soil | Not available. |
| Other adverse effects | Not available. |

13. Disposal considerations

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|--|--|
| Disposal instructions | 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. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Waste from residues / unused products | 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. |

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

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|-------------------------------|---|
| US federal regulations | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List. |
|-------------------------------|---|

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8) Listed.

Nickel (CAS 7440-02-0)

Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Respiratory or skin sensitization
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|----------------------|-------------------|-----------------|
| Aluminum | 7429-90-5 | 1 - 5 |
| Copper | 7440-50-8 | 15 - 20 |
| Nickel | 7440-02-0 | 10 - 14 |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel (CAS 7440-02-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

California Proposition 65



WARNING: This product can expose you to Nickel, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Nickel (CAS 7440-02-0)

Listed: October 1, 1989

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Aluminum (CAS 7429-90-5)

Copper (CAS 7440-50-8)

Nickel (CAS 7440-02-0)

16. Other information, including date of preparation or last revision

Issue date 10-09-2017

Revision date 10-08-2021

Version # 03

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

Other information Revised information in Section 16.

Disclaimer Materion Brush Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use.