

# SAFETY DATA SHEET

## 1. Identification

|  |  |              |  |
|--|--|--------------|--|
| Product identifier                                     | Molybdenum Boride (Mo2B)   |              |  |
| Other means of identification                          |  |              |  |
| SDS number   | 1VU  |              |  |
| Materion Code  | 1VU  |              |  |
| CAS number   | 12006-99-4   |              |  |
| Manufacturer/Importer/Supplier/Distributor information |  |              |  |
| Manufacturer   |  |              |  |
| Company name   | Materion Advanced Chemicals Inc.   |              |  |
| Address  | 407 N 13th Street<br>1316 W. St. Paul Avenue<br>Milwaukee, WI 53233<br>United States |              |  |
| Telephone  | 414.212.0290   |              |  |
| E-mail   | advancedmaterials@materion.com   |              |  |
| Contact person   | Laura Hamilton   |              |  |
| Emergency phone number                                 | Chemtrec   | 800.424.9300 |  |

## 2. Hazard(s) identification

|                       |                 |
|-----------------------|-----------------|
| Physical hazards      | Not classified. |
| Health hazards        | Not classified. |
| Environmental hazards | Not classified. |
| OSHA defined hazards  | Not classified. |

### Label elements

|                  |  |
|------------------|--|
| Hazard symbol    | None.  |
| Signal word      | None.  |
| Hazard statement | The substance does not meet the criteria for classification. |

### Precautionary statement

|            |  |
|------------|--|
| Prevention | Observe good industrial hygiene practices.                                     |
| Response   | Wash hands after handling.   |
| Storage    | Store away from incompatible materials.  |
| Disposal   | Dispose of waste and residues in accordance with local authority requirements. |

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

|                          |   |
|--------------------------|---|
| Supplemental information | 100% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown acute oral toxicity. 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown acute dermal toxicity. |
|--------------------------|---|

## 3. Composition/information on ingredients

### Substances

| Chemical name            | Common name and synonyms | CAS number | %   |
|--------------------------|--------------------------|------------|-----|
| Molybdenum Boride (Mo2B) |                          | 12006-99-4 | 100 |

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

## 4. First-aid measures

|   |   |
|---|---|
| <b>Inhalation</b>   | If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist. |
| <b>Skin contact</b>   | Rinse skin with water/shower. Get medical attention if irritation develops and persists.  |
| <b>Eye contact</b>  | Rinse with water. Get medical attention if irritation develops and persists.  |
| <b>Ingestion</b>  | Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.   |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Direct contact with eyes may cause temporary irritation.  |
| <b>Indication of immediate medical attention and special treatment needed</b> | Treat symptomatically.  |
| <b>General information</b>  | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.  |

## 5. Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).                      |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire fighting equipment/instructions</b>                          | Use water spray to cool unopened containers.  |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>  | No unusual fire or explosion hazards noted.   |

## 6. Accidental release measures

|  |  |
|--|--|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away.   |
| <b>Methods and materials for containment and cleaning up</b>               | Stop the flow of material, if this is without risk. Following product recovery, flush area with water. |
| <b>Environmental precautions</b>   | Avoid discharge into drains, water courses or onto the ground.   |

## 7. Handling and storage

|   |   |
|---|---|
| <b>Precautions for safe handling</b>                                | Avoid prolonged exposure. Use care in handling/storage. |
| <b>Conditions for safe storage, including any incompatibilities</b> | Store in original tightly closed container.             |

## 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)

| Material  | Type | Value                | Form        |
|---|------|----------------------|-------------|
| Molybdenum Boride (Mo <sub>2</sub> B)<br>(CAS 12006-99-4) | PEL  | 15 mg/m <sup>3</sup> | Total dust. |

#### US. ACGIH Threshold Limit Values

| Material  | Type | Value               | Form                 |
|---|------|---------------------|----------------------|
| Molybdenum Boride (Mo <sub>2</sub> B)<br>(CAS 12006-99-4) | TWA  | 3 mg/m <sup>3</sup> | Respirable fraction. |

## US. ACGIH Threshold Limit Values

| Material | Type | Value                | Form                |
|----------|------|----------------------|---------------------|
|          |      | 10 mg/m <sup>3</sup> | Inhalable fraction. |

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

| Material  | Type | Value                | Form                 |
|---|------|----------------------|----------------------|
| Molybdenum Boride (Mo <sub>2</sub> B)<br>(CAS 12006-99-4) | PEL  | 3 mg/m <sup>3</sup>  | Respirable fraction. |
|   |      | 10 mg/m <sup>3</sup> | Total dust.          |

|  |   |
|--|---|
| <b>Biological limit values</b>   | No biological exposure limits noted for the ingredient(s).  |
| <b>Appropriate engineering controls</b>                                      | 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. |
| <b>Individual protection measures, such as personal protective equipment</b> |   |
| <b>Eye/face protection</b>   | Wear safety glasses with side shields (or goggles).   |
| <b>Skin protection</b>   |   |
| <b>Hand protection</b>   | Wear appropriate chemical resistant gloves.   |
| <b>Other</b>   | Wear suitable protective clothing.  |
| <b>Respiratory protection</b>  | In case of insufficient ventilation, wear suitable respiratory equipment.   |
| <b>Thermal hazards</b>   | Wear appropriate thermal protective clothing, when necessary.   |
| <b>General hygiene considerations</b>  | 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

|   |                |
|---|----------------|
| <b>Physical state</b>                               | Solid.         |
| <b>Form</b>   | Solid.         |
| <b>Color</b>  | Not available. |
| <b>Odor</b>   | Not available. |
| <b>Odor threshold</b>                               | Not available. |
| <b>pH</b>   | Not available. |
| <b>Melting point/freezing point</b>                 | Not available. |
| <b>Initial boiling point and boiling range</b>      | Not available. |
| <b>Flash point</b>                                  | Not available. |
| <b>Evaporation rate</b>                             | Not available. |
| <b>Flammability (solid, gas)</b>                    | Not available. |
| <b>Upper/lower flammability or explosive limits</b> |                |
| <b>Flammability limit - lower (%)</b>               | Not available. |
| <b>Flammability limit - upper (%)</b>               | Not available. |
| <b>Explosive limit - lower (%)</b>                  | Not available. |
| <b>Explosive limit - upper (%)</b>                  | Not available. |
| <b>Vapor pressure</b>                               | Not available. |
| <b>Vapor density</b>                                | Not available. |
| <b>Relative density</b>                             | Not available. |

|  |                |
|--|----------------|
| <b>Solubility(ies)</b>                         |                |
| <b>Solubility (water)</b>                      | Not available. |
| <b>Partition coefficient (n-octanol/water)</b> | Not available. |
| <b>Auto-ignition temperature</b>               | Not available. |
| <b>Decomposition temperature</b>               | Not available. |
| <b>Viscosity</b>                               | Not available. |
| <b>Other information</b>                       |                |
| <b>Explosive properties</b>                    | Not explosive. |
| <b>Molecular formula</b>                       | BMo2           |
| <b>Oxidizing properties</b>                    | Not oxidizing. |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.   |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.                                   |
| <b>Conditions to avoid</b>                | Contact with incompatible materials.  |
| <b>Incompatible materials</b>             | Strong oxidizing agents.  |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |  |
|---------------------|--|
| <b>Inhalation</b>   | Prolonged inhalation may be harmful.                     |
| <b>Skin contact</b> | No adverse effects due to skin contact are expected.     |
| <b>Eye contact</b>  | Direct contact with eyes may cause temporary irritation. |
| <b>Ingestion</b>    | Expected to be a low ingestion hazard.                   |

**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation.

### Information on toxicological effects

|  |  |
|--|--|
| <b>Acute toxicity</b>                    | Not known.   |
| <b>Skin corrosion/irritation</b>         | Prolonged skin contact may cause temporary irritation.   |
| <b>Serious eye damage/eye irritation</b> | Direct contact with eyes may cause temporary irritation.   |
| <b>Respiratory or skin sensitization</b> |  |
| <b>Respiratory sensitization</b>         | Not a respiratory sensitizer.  |
| <b>Skin sensitization</b>                | This product is not expected to cause skin sensitization.  |
| <b>Germ cell mutagenicity</b>            | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| <b>Carcinogenicity</b>                   | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.                                  |

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

#### US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

|   |   |
|---|---|
| <b>Specific target organ toxicity - single exposure</b>   | Not classified.   |
| <b>Specific target organ toxicity - repeated exposure</b> | Not classified.   |
| <b>Aspiration hazard</b>                                  | Not an aspiration hazard.                                 |
| <b>Chronic effects</b>                                    | Prolonged inhalation may be harmful.                      |
| <b>Further information</b>                                | This product has no known adverse effect on human health. |

## 12. Ecological information

|                                      |  |
|--------------------------------------|--|
| <b>Ecotoxicity</b>                   | The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. |
| <b>Persistence and degradability</b> | No data is available on the degradability of this product.   |
| <b>Bioaccumulative potential</b>     | No data available.   |
| <b>Mobility in soil</b>              | No data available.   |
| <b>Other adverse effects</b>         | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.            |

## 13. Disposal considerations

|  |  |
|--|--|
| <b>Disposal instructions</b>                 | Collect and reclaim or dispose in sealed containers at licensed waste disposal site.   |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.   |
| <b>Hazardous waste code</b>                  | The waste code should be assigned in discussion between the user, the producer and the waste disposal company.   |
| <b>Waste from residues / unused products</b> | 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). |
| <b>Contaminated packaging</b>                | 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

|             |                                   |
|-------------|-----------------------------------|
| <b>DOT</b>  | Not regulated as dangerous goods. |
| <b>IATA</b> | Not regulated as dangerous goods. |
| <b>IMDG</b> | Not regulated as dangerous goods. |

## 15. Regulatory information

|   |  |
|---|--|
| <b>US federal regulations</b>   | This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. |
| <b>Toxic Substances Control Act (TSCA)</b>                            |  |
| <b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>  | Not regulated.   |
| <b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>                 | Not listed.  |
| <b>SARA 304 Emergency release notification</b>                        | Not regulated.   |
| <b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)</b> | Not listed.  |

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**      No

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations**

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

Not regulated.

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

Not regulated.

**Safe Drinking Water Act (SDWA)**      Not regulated.

**US state regulations**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

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

**Issue date**      03-08-2017

**Revision date**      01-12-2018

**Version #**      02

**Disclaimer**

Materion Advanced Chemicals 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. The information in the sheet was written based on the best knowledge and experience currently available.