ADVANCED CERAMICS MANUFACTURING

7800 South Nogales Highway || Tucson, AZ 85756
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# SAFETY DATA SHEET

## SECTION 1 — IDENTIFICATION

**Product Identifier**

| | |
|---|---|
| **Product Name** | **RTMcore™- BMOD-1** |
| **Product Code** | NA |

**Relevant identified uses of the substance or mixture and uses advised against**

| | |
|---|---|
| Recommended use | Water soluble material for forming molds and cores. |

**Details of the supplier of the safety data sheet**

| | |
|---|---|
| **Manufacturer** | Advanced Ceramics Manufacturing, LLC. |
| | 7800 South Nogales Highway |
| | Tucson, AZ 85756 |
| Telephone (General) | 520.547.0850 |

**Emergency Telephone Number**

| | |
|---|---|
| | 800.554.9964 - Hazardous Materials Support Center |
| | 800.424.9300 - CHEMTREC (Spill related emergencies) |

## SECTION 2 — HAZARD(S) IDENTIFICATION

**United States (US)**

| | |
|---|---|
| According to OSHA 29 CFR 1910.1200 HCS | Contains a soluble salt that is listed as hazardous per OSHA 29 CFR |

**Classification of the substance or mixture**

| | |
|---|---|
| OSHA HCS 2012 | RTMcore™ has no known hazardous properties.<br>Skin Irritation 2 - H315<br>The formula is proprietary information and is the property of Advanced Ceramics Manufacturing. |

**Label Components**

The product does not require a danger label.

**Other Dangers**

OSHA HCS 2012

Eye Contact – Direct contact may cause irritation.

Skin Contact – Direct contact may cause irritation.

Inhalation – When machining in the cured state, repeated exposure to dust may cause delayed lung injury.

Ingestion – Direct contact may cause irritation.

Signs & Symptoms of Exposure to Airborne Dust – May result in cough, dyspnea, wheezing, or impaired pulmonary functions.

## SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

| | |
|---|---|
| Chemical Characterization | Mixture (water-soluble core material) |

Mixtures

| **Materials:** | **Identifiers** | **WT%** | **TLV (mg/m³)** | **PEL (mg/m³)** |
|---|---|---|---|---|
| Proprietary soluble polymers | N/A | 10%-40% | (NE) | (NE) |
| Proprietary Salts of Ca and Cl | 10043-52-4 / 7647-14-5 | 60%-90% | (NE) | (NE) |

( T ) - Total ( R ) - Respirable ( I ) - Inhalable ( NE ) - Not Established

## SECTION 4 — FIRST-AID MEASURES

| | |
|---|---|
| Contact with Eyes | Flush eyes with running water for 15 minutes — lift upper and lower eyelids. |
| Contact with Skin | Wash skin thoroughly with mild soap and water. |
| Inhalation | Move the injured person to fresh air. If not breathing, initiate pulmonary resuscitation. Get medical attention. |
| Ingestion | Rinse mouth with water. Consult a physician. |

**Most important symptoms and effects, both acute and delayed**

Refer to section 11 - Toxicological Information.

**Indication of any immediate medical attention and special treatment needed**

| | |
|---|---|
| | Refer to section 4. |

## SECTION 5 — FIRE-FIGHTING MEASURES

**Extinguishing Media**

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|---|---|
| Suitable Extinguishing Media | Use fire nature appropriate extinguishing media. For example: foam, carbon dioxide, extinguishing powder |
| Unsuitable Extinguishing Media | Avoid the use of streaming water, as this may spread the fire. |

**Special hazards arising from the substance or mixture**

| | |
|---|---|
| Unusual Fire and Explosion Hazards | The product is not flammable. |
| Advice for Firefighters | Always wear full fire prevention gear: hardhat with visor, fireproof clothing, work gloves and a respirator. |

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| Personal Precautions | Ensure an adequate ventilation |
| Emergency Procedures | Ensure an adequate ventilation |

**Environmental Precautions**

No specific requirement

**Methods and material for containment and cleaning up**

| | |
|---|---|
| Containment/Clean-up Measures | Take up by mechanical means and pour it into a container properly labeled. Dispose of in accordance with local and national legislation. |

## SECTION 7 — HANDLING AND STORAGE

**Precautions to be taken in Handling and Storing**

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|---|---|
| Handling | Keep container closed to avoid hydration. |

**Conditions for safe storage, including any incompatibilities**

| | |
|---|---|
| Storage | Store in tightly closed containers in a dry, cool and well-ventilated place. Keep away from sources of heat, sparks and flame. |

**Specific End Use**

Not indicated.

## SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

| | |
|---|---|
| PNOS | TLV-TWA$_{ACGIH}$= No exposure limit value known.<br>TLV-TWA$_{ACGIH}$ = No exposure limit value known. |

**Exposure Control**

| | |
|---|---|
| **Engineering Measures/Controls** | Adequate ventilation systems as needed to control concentrations of airborne contaminates below applicable exposure limit values |
| **Personal Protective Equipment Pictograms** |  |
| Respiratory Protection | Use of a Class NIOSH N95 respirator where dust is generated is recommended. Follow the OSHA respirator regulations found in 29 CFR 1910.134. |
| Eye Protection | Chemical resistant safety glasses or goggles as a minimum. |
| Skin Protection | Rubber gloves should be worn to prevent excessive or repeated skin contact. |
| Other Clothing & Equipment | Work clothing or coveralls to minimize skin contact. |
| General Industrial Hygiene Considerations | Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Do not eat, drink or smoke during use. Keep away from food and feedstuffs. Do not breathe dust. Avoid creating dust. |
| Ventilation | Maintain positive ventilation. |
| Environmental Exposure Controls | Follow best practice for site management and disposal of waste. |

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

**Information on Physical and Chemical Properties**

| | |
|---|---|
| Appearance: | Red/white granular solid |
| Smell: | no detectable odor |
| Odor threshold: | not available |
| pH: | not available |
| Melting point / freezing point: | not available |
| Initial boiling point and boiling range: | not available |
| Flash point: | noncombustible |
| Evaporation rate: | not available |
| Flammability (solid, gas): | not available |
| Upper / lower flammability or explosive limits: | not available |

| | |
|---|---|
| Vapor pressure: | not available |
| Vapor density: | not available |
| Relative density (cast and dried): | 1.7-1.86 g/cm3 (when dense) |
| Solubility: | Soluble in water |
| Partition coefficient n-octanol/water: | not available |
| Auto-ignition temperature: | not applicable |
| Decomposition temperature: | not available |
| Viscosity: | not applicable |
| Explosive properties: | not applicable |
| Oxidising properties: | not applicable |

## SECTION 10 — STABILITY AND REACTIVITY

| | |
|---|---|
| Reactivity | The product is not reactive under normal conditions of use and storage. Will absorb water from atmosphere. |
| Chemical stability | The product is stable under normal conditions of use and storage. Will absorb water from atmosphere. Store in sealed container with dessicant. |
| Possiblity of hazardous reactions | Water reaction may produce mild exotherm. |
| Conditions to avoid | Not known |
| Incompatible materials | Avoid contact with: acid soutions strong oxidizing agents, bromide trifluoride, 2-furan percarboxylic acid. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. |
| Hazardous decomposition products | Formed under fire conditions: hydrogen chloride gas, calcium oxide, sodium oxide, Nitrogen oxides, carbon monoxide, carbon dioxide |
| TSCA Listing | All ingredients are on the TSCA inventory, or exempt. |

## SECTION 11 — TOXICOLOGY INFORMATION

| | |
|---|---|
| Information on toxicological effects | No toxicological effects acute and / or chronic known as a result of exposure to the product. Contact with eyes may cause mechanical irritation. The frequent and prolonged contact with skin may cause irritation and defatting. |

## SECTION 12 - ECOLOGICAL INFORMATION

| | |
|---|---|
| Toxicity | No effect eco-toxicological acute and / or chronic known as a result of exposure to the product. |
| Persistence and degradability | Information not available. |
| Bioaccumulative potential | Information not available. |
| Mobility in Soil | Information not available. |
| Other adverse effects | Information not available. |
| Other Information | Information not available. |

## SECTION 13 - DISPOSAL CONSIDERATIONS

| | |
|---|---|
| Waste treatment methods | Disposal must be made according to national or local law. These provisions shall also apply to contaminated containers. It is therefore recommended to make contact with the authorities in charge or approved specialist companies that can give you guidance on how to prepare for disposal. Appropirate disposal could be combustion, recycling, disposal site. |

## SECTION 14 - TRANSPORT INFORMATION

The product is not classified as dangerous according to the provisions of existing legislation on the transport of dangerous goods by road (ADR) and by Rail (RID), by sea (IMDG Code) and by air (IATA).

| | |
|---|---|
| UN Number | Not applicable. |
| UN Proper shipping name | Not applicable. |
| Transport hazard class(es) | Not applicable. |
| Packing group | Not applicable. |
| Environmental hazards | Not applicable. |
| Special precautions for user | Not applicable. |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not applicable. |

## SECTION 15 - REGULATORY INFORMATION

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

- OSHA 29 CFR 1910.1200 HCS - Consolidated Safety at the workplace
- OSHA 29 CFR 1910.120 HCS - Hazardous Waste Operations and Emergency Response

## SECTION 16 — OTHER INFORMATION

| | |
|---|---|
| Last Revision Date | 12/12/2023 |
| Preparation Date | 6/13/2019 |

| | |
|---|---|
| Key literature references and sources for data: | ・ 29 CFR 1910.1200(f) and Appendix C of 29 CFR 1910.1200 (and subsequent amendments and adjustments)<br>・ OSHA GHS (and subsequent amendments and adjustments)<br>・ OSHA Hazard Communication Standard (HCS) (and subsequent amendments and adjustments)<br>・ 1910 Subpart G - Occupational Health and Environmental Control (and subsequent amendments and adjustments)<br>・ Safety data sheet of the supplier of the product |

Acronyms:

| | |
|---|---|
| ACGIH: | American Conference of Governmental Industrial Hygienists |
| ADR: | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| CAS: | Chemical Abstracts Service |
| CFR: | Code of Federal Regulations |
| CLP: | Classification, Labeling and Packaging |
| EINECS: | European Inventory of Existing Chemical Substances |
| GHS: | Globally Harmonized System |
| HCS: | Hazard Communication Standard |
| IATA: | International Air Transport Association |
| IMDG Code: | International Maritime Code for Dangerous Goods |
| OSHA: | Occupational Safety and Health Administration |
| PBT: | Persistent, Bioaccumulative, Toxic |
| PEL: | Permissible Exposure Limit |
| PNOS: | Particles Not Otherwise Specified |
| REACH: | Registration, Evaluation, Authorization and Restriction of Chemicals |
| RID: | Regulation on the Inland transport of Dangerous goods by rail |
| TLV: | Threshold Limit Value |
| TSCA: | Toxic Substances Control Act |
| TWA: | Time-Weighted Average |
| vPvB: | very Persistent, very Bioaccumulative |
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