



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier Berylcoat D

Other means of identification
SDS number M05

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

Acute toxicity, oral	Category 4
Acute toxicity, inhalation	Category 2
Skin corrosion/irritation	Category 1A
Serious eye damage/eye irritation	Category 1
Sensitization, respiratory	Category 1
Sensitization, skin	Category 1A
Germ cell mutagenicity	Category 1
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1
Specific target organ toxicity, repeated exposure	Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 3
Hazardous to the aquatic environment, long-term hazard	Category 3

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Toxic if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response

If swallowed: Immediately call a poison center/doctor. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Collect spillage.

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	%
Phosphoric Acid		7664-38-2	31 - 50
Potassium Dichromate		7778-50-9	2 - 4

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Difficulty in breathing. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

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. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

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

Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
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

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapors or spray mist. 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.
Methods and materials for containment and cleaning up	This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Container must be kept tightly closed. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in a dry area.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Potassium Dichromate (CAS 7778-50-9)	TWA	0.005 mg/m3

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

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	PEL	1 mg/m3

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Potassium Dichromate (CAS 7778-50-9)	Ceiling	0.1 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 mg/m3
Potassium Dichromate (CAS 7778-50-9)	TWA	0.0002 mg/m3

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

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	PEL	1 mg/m3
	STEL	3 mg/m3
Potassium Dichromate (CAS 7778-50-9)	Ceiling	0.1 mg/m3
	PEL	0.005 mg/m3
	TWA	0.0025 mg/m3

Biological limit values**ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
Potassium Dichromate (CAS 7778-50-9)	25 µg/l	Total chromium	Urine	*
	10 µg/l	Total chromium	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines**US ACGIH Threshold Limit Values: Skin designation**

Potassium Dichromate (CAS 7778-50-9)

Danger of cutaneous absorption

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. General ventilation normally adequate. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Orange.
Odor	None.
Odor threshold	Not applicable.
pH	> 2
Melting point/freezing point	10.4 - -58 °F (-12 - -50 °C)
Initial boiling point and boiling range	219 - 237 °F (103.89 - 113.89 °C)
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
Vapor pressure	0.02 - 0.02 mm Hg
Vapor density	Not available.
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	100%
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Other information	
Density	1.90 g/cm ³ estimated
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	1.9 estimated

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.
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	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	Causes severe skin burns. Harmful in contact with skin. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Toxic if swallowed. Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Difficulty in breathing.

Information on toxicological effects

Acute toxicity Fatal if inhaled. Toxic if swallowed. Harmful in contact with skin. May cause an allergic skin reaction. May cause respiratory irritation.

Product	Species	Test Results
Berylcoat D		
<u>Acute</u>		
Dermal		
LD50	Rabbit	3549 mg/kg
Inhalation		
LC50	Rat	0.725 mg/l, 4 Hours
Oral		
LD50	Rat	373 mg/kg
Components	Species	Test Results
Phosphoric Acid (CAS 7664-38-2)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	2740 mg/kg
Oral		
LD50	Rat	1530 mg/kg
Potassium Dichromate (CAS 7778-50-9)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	403 mg/kg
Inhalation		
LC50	Rat	0.029 mg/l, 4 Hours

Components	Species	Test Results
Oral LD50	Rat	17 mg/kg

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

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

ACGIH sensitization

HEXAVALENT CHROMIUM WATER SOLUBLE INORGANIC COMPOUNDS, INCLUDING CHROMITE ORE PROCESSING, AS CR (VI), INHALABLE FRACTION (CAS 7778-50-9)

Dermal sensitization

Respiratory sensitization

Respiratory sensitization May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity May cause genetic defects.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Potassium Dichromate (CAS 7778-50-9) 1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Potassium Dichromate (CAS 7778-50-9) Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

Potassium Dichromate (CAS 7778-50-9) Known To Be Human Carcinogen.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Product	Species	Test Results
Berylcoat D		
Aquatic		
Crustacea	EC50 Daphnia	87.4671 mg/l, 48 hours
Fish	LC50 Fish	2081.0178 mg/l, 96 hours
<i>Acute</i>		
Crustacea	EC50 Daphnia	0.46 mg/l, 48 hours estimated
Fish	LC50 Fish	262.425 mg/l, 96 hours estimated

Components	Species	Test Results
Potassium Dichromate (CAS 7778-50-9)		
Aquatic		
<i>Acute</i>		
Crustacea	EC50	Water flea (<i>Moina australiensis</i>) 0.0184 - 0.0258 mg/l, 48 hours
Fish	LC50	Atlantic silverside (<i>Menidia menidia</i>) 10.497 - 14.995 mg/l, 96 hours

* 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	No data available.
Mobility in soil	No data available.
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.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. 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	
UN number	UN3264
UN proper shipping name	Corrosive liquids, toxic, n.o.s. (Phosphoric Acid RQ = 10000 LBS, Potassium Dichromate RQ = 250 LBS)
Transport hazard class(es)	
Class	8
Subsidiary risk	6.1(PGIII)
Label(s)	8, 6.1
Packing group	III
Special precautions for user	Not available.
Special provisions	IB3, T7, TP1, TP28
Packaging exceptions	154
Packaging non bulk	203
Packaging bulk	241
IATA	
UN number	UN3264
UN proper shipping name	Corrosive liquid, toxic, n.o.s. (Phosphoric Acid, Potassium Dichromate)
Transport hazard class(es)	
Class	8
Subsidiary risk	6.1(PGIII)
Packing group	III
Environmental hazards	Yes
ERG Code	8P

Special precautions for user Not available.
Other information
Passenger and cargo aircraft Allowed with restrictions.
Cargo aircraft only Allowed with restrictions.

IMDG

UN number UN3264
UN proper shipping name CORROSIVE LIQUID, TOXIC, N.O.S. (Phosphoric Acid, Potassium Dichromate), MARINE POLLUTANT
Transport hazard class(es)
Class 8
Subsidiary risk 6.1(PGIII)
Packing group III
Environmental hazards
Marine pollutant Yes
EmS F-A, S-B
Special precautions for user Not available.

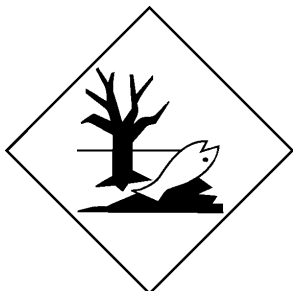
DOT



IATA; IMDG



Marine pollutant



General information IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

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

Potassium Dichromate (CAS 7778-50-9) 0.1 % Annual Export Notification required.

CERCLA Hazardous Substance List (40 CFR 302.4)

Phosphoric Acid (CAS 7664-38-2) Listed.

Potassium Dichromate (CAS 7778-50-9) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)Potassium Dichromate (CAS 7778-50-9) Cancer
Eye irritation
Skin sensitization**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical Yes**Classified hazard categories** Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Potassium Dichromate	7778-50-9	2 - 4

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

Potassium Dichromate (CAS 7778-50-9)

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

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace**

Phosphoric Acid (CAS 7664-38-2) High priority

US state regulations**California Proposition 65****WARNING:** WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Potassium Dichromate (CAS 7778-50-9) Listed: February 27, 1987

California Proposition 65 - CRT: Listed date/Developmental toxin

Potassium Dichromate (CAS 7778-50-9) Listed: December 19, 2008

California Proposition 65 - CRT: Listed date/Female reproductive toxin

Potassium Dichromate (CAS 7778-50-9) Listed: December 19, 2008

California Proposition 65 - CRT: Listed date/Male reproductive toxin

Potassium Dichromate (CAS 7778-50-9) Listed: December 19, 2008

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

Phosphoric Acid (CAS 7664-38-2)

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

Issue date 12-16-2015

Revision date 01-13-2020

Version # 02

Disclaimer This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

Revision information Hazard(s) identification: Prevention
Hazard(s) identification: Supplemental information
Composition/information on ingredients: Component information
Exposure controls/personal protection: Appropriate engineering controls
Exposure controls/personal protection: General hygiene considerations
Physical & Chemical Properties: Multiple Properties
Transport Information: Proper Shipping Name/Packing Group