



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier C10200/S31603 Bond Product

Other means of identification
SDS number R15

Manufacturer/Importer/Supplier/Distributor information
Manufacturer

Company name Materion Technical Materials Inc.
Address 5 Wellington Road
Lincoln, RI 02865
United States

Telephone 1.401.333.1700
Website www.materion.com
E-mail Mia.DeCelles@materion.com
Contact person Mia DeCelles

Emergency phone number Chemtrec 1.703.527.3887

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. Suspected of causing cancer. Causes damage to organs (respiratory system) through prolonged or repeated exposure by inhalation.

Precautionary statement

Prevention 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. In case of inadequate ventilation wear respiratory protection.

Response If on skin: Wash with plenty of water. If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice (show the label where possible).

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	%
Copper		7440-50-8	51
Iron		7439-89-6	30
Chromium		7440-47-3	9
Nickel		7440-02-0	7
Molybdenum		7439-98-7	1.5
Manganese		7439-96-5	1
Silicon		7440-21-3	0.5

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 you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media	Powder. Dry sand. Water Spray or Fog.
Unsuitable extinguishing media	Carbon dioxide (CO2).
Specific hazards arising from the chemical	No unusual fire or explosion hazards noted.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment.
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. 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

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear appropriate personal protective equipment. Wash hands thoroughly after handling.
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
Chromium (CAS 7440-47-3)	PEL	1 mg/m ³	
Copper (CAS 7440-50-8)	PEL	1 mg/m ³	Dust and mist.
		0.1 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m ³	Fume.
Molybdenum (CAS 7439-98-7)	PEL	15 mg/m ³	Total dust.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Silicon (CAS 7440-21-3)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	Inhalable fraction.
Copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0.2 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m ³	Inhalable fraction.
		0.02 mg/m ³	Respirable fraction.
Molybdenum (CAS 7439-98-7)	TWA	3 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m ³	
Copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
		0.1 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.
Nickel (CAS 7440-02-0)	TWA	0.015 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Total

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

Components	Type	Value	Form
Chromium (CAS 7440-47-3)	PEL	0.5 mg/m ³	
Copper (CAS 7440-50-8)	PEL	1 mg/m ³	Dust and mist.
		0.1 mg/m ³	Fume.
Manganese (CAS 7439-96-5)	PEL	0.2 mg/m ³	Fume.
		0.2 mg/m ³	

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

Components	Type	Value	Form
Molybdenum (CAS 7439-98-7)	STEL	3 mg/m ³	Fume.
	PEL	3 mg/m ³	Respirable fraction.
		10 mg/m ³	Total dust.
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 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	Use personal protective equipment as required.
Respiratory protection	In case of inadequate ventilation, use respiratory protection.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Copper. Silver.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	1981.4 °F (1083 °C) estimated / Not applicable.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	None known.
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 8.66 g/cm³ estimated
Explosive limit Not applicable.
Explosive properties Not explosive.
Oxidizing properties Not oxidizing.
Partition coefficient (oil/water) Not applicable.

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 Hazardous polymerization does not occur.
Conditions to avoid Contact with incompatible materials.
Incompatible materials Strong acids. Strong oxidizing agents.
Hazardous decomposition products No hazardous decomposition products are known.

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

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

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.
Nickel (CAS 7440-02-0) 2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

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.

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

Specific target organ toxicity - single exposure Not classified.

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

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity 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.

Persistence and degradability

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. 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

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)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Chromium (CAS 7440-47-3) Listed.

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 1910.1001-1052)

Not regulated.

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.
Chromium	7440-47-3	9
Copper	7440-50-8	51
Manganese	7439-96-5	1
Nickel	7440-02-0	7

Other federal regulations

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

Chromium (CAS 7440-47-3)
Manganese (CAS 7439-96-5)
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))

Chromium (CAS 7440-47-3)
Copper (CAS 7440-50-8)
Iron (CAS 7439-89-6)
Manganese (CAS 7439-96-5)
Molybdenum (CAS 7439-98-7)
Nickel (CAS 7440-02-0)

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

Issue date 08-13-2018

Revision date 01-21-2019

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.

Other information

Revised information in Section 2.
Revised information in Section 4.
Revised information in Section 5.
Revised information in Section 6.
Revised information in Section 8.
Revised information in Section 9.
Revised information in Section 11.
Revised information in Section 15.