



Safety Data Sheet (SDS) North American (U.S. and Canada)

Revision date: 2018-10-24

SECTION 1: Identification

Product identifiers:

Product trade name: CURE-RITE* BBTS Accelerator
Company product number: BBTSPEL
Other means of identification: Not Available

Recommended use of the chemical and restrictions on use:

Uses: Cure accelerator for rubber.
Restrictions on use: None identified

Details of the supplier:

Manufacturer/Supplier: Emerald Performance Materials, LLC
1499 SE Tech Center Place, Suite 300
Vancouver, WA 98683
United States
Telephone: +1-360-954-7100
FAX: +1-360-954-7201
For further information about this SDS: Email: product.compliance@emeraldmaterials.com

Emergency telephone number:

ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA);
1-300-954-583 (Australia); 000-800-100-4086 (India).

SECTION 2: Hazard(s) identification

Information in accordance with U.S. 29 CFR 1910.1200 (Hazcom 2012) and Canada Hazardous Products Regulations (WHMIS 2015):

Classification of the product:

Skin Sensitizer, category 1
Combustible Dust

Label elements:

Hazard pictogram(s):



Signal word:

Warning

Hazard statements:

H317 May cause an allergic skin reaction.
USH001 May form combustible dust concentrations in air.

Precautionary statements:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P501 Dispose of contents/container in accordance with local, regional and international regulations.

Supplemental information: Hazardous to the aquatic environment - Acute Category 1, Very toxic to aquatic life.

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Hazardous to the aquatic environment - Chronic Category 1, Very toxic to aquatic life with long lasting effects.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

Hazards not otherwise classified:

Physical hazards not otherwise classified: No Additional Information

Health hazards not otherwise classified: No Additional Information

See Section 11 for toxicological information.

SECTION 3: Composition/information on ingredients

Mixture:

<u>CAS-No.</u>	<u>Chemical Name</u>	<u>Weight%</u>
0000095-31-8	N-tert-Butylbenzothiazole-2-sulphenamide	95-100

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

SECTION 4: First-aid measures

Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

Skin contact: Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation: If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

Most important symptoms and effects, both acute and delayed: Irritation. Preexisting sensitization, skin and/or respiratory disorders or diseases may be aggravated. See section 11 for additional information.

Indication of any immediate medical attention and special treatment needed, if necessary: Treat symptomatically.

SECTION 5: Fire-fighting measures

NFPA flammability class: N/A (Combustible solid)

Extinguishing media:

Suitable: Use water spray, dry chemical, or foam. Carbon dioxide may be ineffective on larger fires due to a lack of cooling capacity which may result in reignition.

Unsuitable: Avoid hose streams or any method which will create dust clouds.

Special hazards arising from the chemical:

Unusual fire/explosion hazards: Concentrated dust/air combinations may produce explosive conditions. As with all organic dusts, fine particles suspended in air in critical proportions and in the presence of an ignition source may ignite and/or explode. Dust may be sensitive to ignition by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. As a precaution, implement standard safety measures for handling finely divided organic powders. See Section 7 for suggested measures.

Hazardous combustion products: Irritating or toxic substances will be emitted upon burning, combustion or decomposition. See section 10 (Hazardous decomposition products) for additional information.

Special protective equipment and precautions for fire-fighters: Avoid hose streams or any method which will create dust clouds.

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Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during clean-up immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Avoid raising powdered material due to explosion hazard. Use spark-proof and explosion-proof equipment. If inhalation of dust cannot be avoided, wear an approved particulate respirator. Personal Protective Equipment must be worn.

Environmental precautions: Do not flush product into public sewer, water systems or surface waters.

Methods and materials for containment and cleaning up: Contain spill. Wear proper personal protective clothing and equipment. Using care to avoid dust generation, vacuum or sweep into a closed container for reuse or disposal. Use approved industrial vacuum cleaner for removal. Avoid causing dust. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

SECTION 7: Handling and storage

Precautions for safe handling: As with any chemical product, use good laboratory/workplace procedures. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid drinking, tasting, swallowing or ingesting this product. Avoid routine inhalation of dust of any kind. Exercise care when emptying containers, sweeping, mixing or doing other tasks which can create dust. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area. As a precaution to control dust explosion potential, implement the following safety measures: Eliminate ignition sources (e.g., sparks, static buildup, excessive heat, etc.). In general, dust of organic materials is a static charge generator which may be ignited by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. Use spark-proof tools and equipment. Bond, ground and properly vent conveyors, dust control devices and other transfer equipment. Prohibit flow of polymer, powder or dust through non-conductive ducts, vacuum hoses or pipes, etc.; only use grounded, electrically conductive transfer lines when pneumatically conveying product. Good housekeeping and controlling of dusts are necessary for safe handling of product. Prevent accumulation of dust (e.g., well-ventilated conditions, promptly vacuuming spills, cleaning overhead horizontal surfaces, etc.). A properly engineered explosion suppression system must be considered. See standards such as the National Fire Protection Association NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids"; NFPA 69, "Standard on Explosion Prevention Systems"; NFPA 68, "Standard on Explosion Protection by Deflagration Venting"; NFPA 77, "Recommended Practice on Static Electricity" and other standards as the need exists.

Conditions for safe storage, including any incompatibilities: Store cool and dry, under well-ventilated conditions. Store this material away from incompatible substances (see section 10). Product may degrade under warm and humid conditions. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use.

SECTION 8: Exposure controls / personal protection

Control parameters:

Occupational exposure limits (OEL):

<u>Chemical Name</u>	<u>ACGIH - TWA/Ceiling</u>	<u>ACGIH - STEL</u>		
N-tert-Butylbenzothiazole-2-sulphenamide	N/E			
<u>Chemical Name</u>	<u>OSHA - PEL</u>	<u>OSHA - STEL</u>	<u>OSHA - Ceiling</u>	<u>AIHA - WEEL</u>
N-tert-Butylbenzothiazole-2-sulphenamide	N/E	N/E	N/E	N/E

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

PNOS: ACGIH has recommended the following exposure limits for Particulates (insoluble or poorly soluble) not otherwise specified (PNOS): 10 mg/m³ TWA (inhalable particles), 3 mg/m³ TWA (respirable particles). OSHA exposure limits for Particulates not otherwise regulated are 15 mg/m³ TWA (total dust) and 5 mg/m³ TWA (respirable fraction).

Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw dust away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS. Eliminate ignition sources (e.g., sparks, static buildup, excessive heat, etc.). Prohibit flow of powder or dust through non-conductive ducts, vacuum hoses, or pipes, etc. Bond, ground, and properly vent conveyors, dust control devices and other transfer equipment. (Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation: American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Drive, Cincinnati, OH, 45240-1634, USA.) (<http://www.acgih.org/home.htm>).

Individual protection measures, such as personal protective equipment (PPE):

Eye/face protection: Wear eye protection.

Skin and body protection: Wear chemical resistant (impervious) gloves. Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. If inhalation of dust cannot be avoided, wear an approved particulate respirator. Use respirator in accordance with manufacturer's use limitations and OSHA standard 1910.134 (29CFR).

Further information: Eyewash fountains and safety showers are recommended in the work area.

SECTION 9: Physical and chemical properties
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Form:	Pellet	pH:	Not Available
Appearance:	Light Tan	Relative density:	1.26-1.32
Odor:	Slight amine	Partition coefficient (n-octanol/water):	3.4-4.5
Odor threshold:	Not Available	% Volatile by weight:	<0.5%
Solubility in water:	0.3 mg/L	VOC:	Not Available
Evaporation rate:	Not Available	Boiling point °C:	Not Available
Vapor pressure:	Negligible	Boiling point °F:	Not Available
Vapor density:	Not Available	Flash point:	166 °C (331 °F)
Viscosity:	Not Available	Auto-ignition temperature:	350°C (662°F) (dust cloud)
Melting point/Freezing point:	104-110 °C (219-230 °F)	Flammability (solid, gas):	May form combustible dust concentrations in air.
Oxidizing properties:	Not oxidizing	Flammability or explosive limits:	LFL/LEL Not Available
Explosive properties:	Not explosive		UFL/UEL Not Available
Decomposition temperature:	Not Available		

Other information: Amounts specified are typical and do not represent a specification.

Dust combustibility data: The following characteristics apply to powder and are expected to apply to dust from pastilles, flakes or pellets if these forms are reduced to a powder:

- Minimum explosive concentration: 0.035 oz/ft³ (35 g/m³)
- Minimum ignition energy (dust cloud): 0.25 Joules
- Ignition temperature of dust cloud: ~ 662 F (350 C)
- Maximum rate of pressure rise: 12,400 psi/sec @ 0.1 oz/ft³ (855 bars/sec @ 120 g/m³)
- Maximum pressure of explosion: 76 psig @ 1.0 oz/ft³ (5.2 bars-gauge @ 1001 g/m³)
- Explosion severity: 3.8 (severe)
- Volume resistivity: 1.30 x 10¹⁴ ohm-cm
- National Electrical Code (NFPA 70): Group G dust.

SECTION 10: Stability and reactivity

Reactivity: None known.

Chemical stability: This product is stable. Product rapidly decomposes above 150°C (302°F).

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Contact with water or moist air. Avoid static discharge. Avoid dust formation.

Incompatible materials: Avoid contact with strong acids. Avoid contact with strong oxidizing agents and reducing agents. Depending on the amount and specific materials involved, contact can result in intense heat, boiling, flame development, explosion or toxic gas generation.

Hazardous decomposition products: Carbon dioxide, carbon monoxide, hydrocarbons, oxides of nitrogen, and oxides of sulfur. The following materials are also potential decomposition products: t-Butylamine, Benzothiazole, 2-Mercaptobenzothiazole.

SECTION 11: Toxicological information

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Eyes: Solid particles on the eye (powder/dust) may cause pain and be accompanied by irritation.

Skin: May cause skin irritation. May cause allergic skin reaction.

Inhalation: Dust inhalation may cause respiratory irritation.

Ingestion: Ingestion may cause irritation.

Symptoms/effects, acute and delayed: Irritation

Acute toxicity information: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Inhalation LC50</u>	<u>Species</u>	<u>Oral LD50</u>	<u>Species</u>	<u>Dermal LD50</u>	<u>Species</u>
N-tert-Butylbenzothiazole-2-sulphenamide	N/E	N/E	>6310 mg/kg	Rat/ adult	>7940 mg/kg	Rabbit/ adult

Skin corrosion/irritation: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Skin Irritation</u>	<u>Species</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Slight irritant	Rabbit/ adult

Serious eye damage/irritation: Not classified (based on available data, the classification criteria are not met).

<u>Chemical Name</u>	<u>Eye irritation</u>	<u>Species</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Slight irritant	Rabbit/ adult

Respiratory or skin sensitization: Skin sensitization (Category 1).

<u>Chemical Name</u>	<u>Skin sensitisation</u>	<u>Species</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Sensitizer	Guinea pig and Human Patch

Carcinogenicity: Not classified.

Carcinogenic status: The components of this mixture are not known to be listed or regulated by IARC (Group 1 or 2), NTP, OSHA or ACGIH.

Germ cell mutagenicity: Not classified (based on available data, the classification criteria are not met). N-tert-BUTYLBENZOTHIAZOLE-2-SULFENAMIDE: No mutagenic activity was observed in the Ames test, E. Coli WP2 uvr A, E. Coli Pol A+/ Pol A- or CHO chromosoma aberration assays. Mutagenic responses (positive) were seen in the mouse lymphoma and cell transformation (BALB/ 3T3) assays. Mutagenicity was negative in in-vivo genotoxicity assay.

Reproductive toxicity: Not classified (based on available data, the classification criteria are not met). N-tert-BUTYLBENZOTHIAZOLE-2-SULFENAMIDE: Not teratogenic in rats.

Specific target organ toxicity (STOT) - single exposure: Not classified (based on available data, the classification criteria are not met).

Specific target organ toxicity (STOT) - repeated exposure: Not classified (based on available data, the classification criteria are not met). N-tert-BUTYLBENZOTHIAZOLE-2-SULFENAMIDE: Repeated dose study, 90 Day gavage, rat: NOAEL (no-observed-adverse-effect-level)=100 mg/kg/day, LOAEL (lowest-observed-adverse-effect-level)=300 mg/kg/day. Liver, kidney and hemolytic

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anemia effects observed.

Aspiration hazard: Not classified (technical impossibility to obtain the data).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

Ecotoxicity:

<u>Chemical Name</u>	<u>Species</u>	<u>Acute</u>	<u>Acute</u>	<u>Chronic</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Fish	LC50 1.38 mg/L (96 hours)	LC50 >0.3 mg/L(96 hours)	NOEC 0.041 mg/L (89 days) (similar materials)
N-tert-Butylbenzothiazole-2-sulphenamide	Invertebrates	EC50 1.3 mg/L (48 hours)	EC50 >0.3 mg/L(48 hours)	NOEC >0.16 mg/L (21 days)
N-tert-Butylbenzothiazole-2-sulphenamide	Algae	EC50 0.071 mg/L (72 hours)	EC50 >0.3 mg/L(96 hours) (>water solubility)	NOEC 0.023 mg/L(72 hours)

Persistence and degradability: N-tert-BUTYLBENZOTHIAZOLE-2-SULFENAMIDE: Not readily biodegradable but does rapidly degrade via hydrolysis.

<u>Chemical Name</u>	<u>Biodegradation</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Not readily biodegradable (OECD 301C)

Bioaccumulative potential:

<u>Chemical Name</u>	<u>Bioconcentration Factor (BCF)</u>	<u>Log Kow</u>
N-tert-Butylbenzothiazole-2-sulphenamide	Low potential for bioaccumulation	3.36-4.67

Mobility in soil:

<u>Chemical Name</u>	<u>Mobility in soil (Koc/Kow)</u>
N-tert-Butylbenzothiazole-2-sulphenamide	N/E

Other adverse effects: No additional information available.

SECTION 13: Disposal considerations

Although this product is not defined or designated as hazardous by current provisions of the Federal (EPA) Resource Conservation and Recovery Act (RCRA, 40CFR261), recognize that in appropriate dust/air ratio, dust cloud in air may have explosion potential. Incinerate or landfill waste in a properly permitted facility in accordance with federal, state and local regulations.

See Section 8 for recommendations on the use of personal protective equipment.

SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

UN number: UN3077

UN proper shipping name:

Environmentally hazardous substance, solid, n.o.s. (N-tert-Butylbenzothiazole-2-sulphenamide)

Transport hazard class(es):

U.S. DOT hazard class: N/A
Canada TDG hazard class: N/A
Europe ADR/RID hazard class: 9
IMDG Code (ocean) hazard class: 9
ICAO/IATA (air) hazard class: 9

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

Packing group: III

Environmental hazards:

Marine pollutant: Marine Pollutant (IMDG code 2.9.3).

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Hazardous substance (USA): Not Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:

Not Applicable

Special precautions for user: Not Applicable

Notes: For surface shipments within the United States: Not regulated.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question:

U.S. federal and state regulations/legislation:

This SDS has been prepared in accordance with the hazard criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

U.S. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Reportable Quantity (RQ):

Not Applicable

U.S. Superfund Amendments and Reauthorization Act (SARA) - SARA Section 313:

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR 372:

None known

U.S. TSCA Section 12(b) Export Notification:

This product is not subject to TSCA 12(b) reporting requirements.

California Proposition 65:

The following ingredient(s) present in the product is [are] known to the State of California to cause cancer:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

The following ingredient(s) present in the product is [are] known to the State of California to cause birth defects or other reproductive harm:

None known to be present or none in reportable amounts for occupational exposure as per OSHA's approval of the California Hazard Communication Standard, Federal Register, page 31159 ff, 6 June 1997.

Notes: No additional information

Canada regulations/legislation:

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

Notes: No additional information

Chemical inventories:

<u>Regulation</u>	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	Y
Japan Industrial Safety and Health Law (ISHL):	Y
Korean Existing and Evaluated Chemical Substances (KECL):	N
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	N
U.S. Toxic Substances Control Act (TSCA):	Y

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Europe REACH (EC) 1907/2006: One or more applicable components of this mixture are not registered. Please contact your sales representative for further information regarding REACH compliance. REACH is only relevant to substances either manufactured or imported into the EU. REACH information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACH obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

SECTION 16: Other information

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HMIS (Hazardous Materials Identification System) Ratings:

Health: 2 **Flammability:** 1 **Physical hazard:** 0 **Personal Protection:** X

NFPA (National Fire Protection Association) Ratings:

Health: 2 **Flammability:** 1 **Instability:** 0

Key: 0=Insignificant; 1=Slight; 2=Moderate; 3=High; 4=Extreme. An asterisk appearing after the HMIS Health numerical rating denotes a chronic hazard.

Hazardous Materials Identification System (HMIS), National Paint and Coating Association, rating applies to product "as packaged" (i.e., ambient temperature). Ratings are based upon HMIS® III and NFPA 704 (2007). An asterisk appearing after the HMIS Health® III numerical rating denotes a chronic hazard. National Fire Protection Association (NFPA) rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").

Legend:

* : Trademark owned by Emerald Performance Materials, LLC.

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA WEEL: American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Level (WEEL)

N/A: Not Applicable

N/E: None Established

STEL: Short Term Exposure Limit

TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.

Safety Data Sheet Preparer:

Product Compliance Department

Emerald Performance Materials, LLC

1499 SE Tech Center Place, Suite 300

Vancouver, WA 98683

United States