

BFGoodrich

PDCN: 88940000162

The BFGoodrich Company
3925 Embassy Parkway
Akron, Ohio 44333-1799

RECEIVED
OBT 0810

Carl A. Mattia
Vice President
Environmental Health and
Safety Management Systems

94 JUN -7 PM 2:28

~~Confidential to CBI~~



8EHQ-94-12920
SP001 C 06/10/94

8EHQ-0694-12920

(B)

May 31, 1994



89940000216

Terry R. O'Bryan
Risk Analysis Branch
Document Processing Center (7407)
Attn: TSCA Section 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
Washington, D.C. 20460-0001

RE: 8EHQ-0394-12920

ORIGINAL

Dear Mr. O'Bryan:

The B.F. Goodrich Company is submitting information on Cure-rite® OBTS, also known as Goodrite® OBTS, in response to your request dated May 5, 1994. Subsequent to our submission under TSCA 8(e), we have reviewed our MSDS and label. A copy of the new MSDS and of the label which is being provided to our customers and workers is enclosed.

If you have any questions regarding this submission, please contact Dr. Robert K. Hinderer at (216) 447-5181.

Sincerely,

THE B.F. GOODRICH COMPANY

Carl A. Mattia
Vice President, Environmental Health
and Safety Management Systems

CAM/jk

Enclosures

RECEIVED
6/20/94

Cure-rite^(R) OBTS
Accelerator

N-Oxydiethylene-2-Benzothiazole Sulfenamide
C.A.S. 102-77-2

WARNING!. CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION. MAY CAUSE SENSITIZATION. DUST FORMS EXPLOSIVE MIXTURE WITH AIR. MAY LIBERATE MORPHOLINE VAPOR WHEN HEATED ABOVE 266°F (130°C) WHICH MAY CAUSE RESPIRATORY IRRITATION. MAY REACT WITH NITROSATING AGENTS SUCH AS N-NITRISO COMPOUNDS, NITRATES AND NITRITES TO FORM NITROSAMINES, WHICH ARE SUSPECT CARCINOGENS. Avoid eye contact, breathing dust or vapor, and repeated or prolonged skin contact. Wear protective gloves and goggles. Use under well-ventilated conditions. Wear respirator if inhalation of dust or vapors cannot be avoided. Avoid contact with nitrosating agents. Wash thoroughly after handling.

Eye contact: treat as any foreign matter in the eye. Wash skin with plenty of soap and water. If inhaled, remove from exposure. If irritation develops, see a physician.

Sweep spill into a closed, labeled container. Avoid dust generation. Incinerate or landfill waste obeying all federal, state and local health and pollution regulations. Do not flush into public sewer or water system.

IN CASE OF TRANSPORTATION EMERGENCY (U.S.A.) CALL CHEMTREC: 1-800-424-9300

For industrial/professional use only. Before use, read material safety data sheet available from your employer or from The BFGoodrich Company, Specialty Polymers & Chemicals Division, Polymer Chemicals Dept., 9911 Brecksville Road, Brecksville, OH 44141-3247. 1-800-331-1144.

Label: G015-4/90



MATERIAL SAFETY DATA SHEET

CURE-RITE^(R) OBTS ACCELERATOR

U.S. DOT: Not regulated

MSDS Number: 94073
Issue date: MARCH, 1994
Supersedes: MSDS #90013 (6/90)

SECTION I

Manufacturer

BFGoodrich Specialty Chemicals
9911 Brecksville Road
Cleveland, OH 44141-3247
Telephone: (216) 447-5000

Chemical Name/Synonyms

- Cure-rite^(R) 3331 Accelerator.
- N-Oxydiethylene-2-Benzothiazole Sulfenamide.
- Morpholine, 4-(2-benzothiazolylthio)-2-(morpholiniothio) benzothiazole.

Transportation Emergency

Telephone
CHEMTREC: (800) 424-9300

TSCA Status

On EPA Inventory (CAS 102-77-2)

SECTION II - INGREDIENTS INFORMATION

- This product is not known to contain a substance subject to Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40CFR372 at or above de minimus amounts.
- Product contains:

<u>Ingredient</u>	<u>CAS Number</u>	<u>Amount in Product*</u>	<u>ACGIH TLV TWA/PNOC/STEL</u>	<u>OSHA PEL TWA/STEL</u>
• Morpholine	110-91-8	0.1-0.2%	TWA 20 ppm skin	TWA 20 ppm skin STEL 30 ppm skin
• OBTS	102-77-2	>99%	PNOC 10 mg/m ³	None established**
• N-nitrosomorpholine	59-89-2	<0.005%	----- None Established -----	

* Typical amount - not a specification.

** As a guide, use 10 mg/m³ (ACGIH value).

- Notes: - TLV: Threshold Limit Value. American Conference of Governmental Industrial Hygienists, 1993/1994 Edition.
- PEL: OSHA Permissible Exposure Limit, 29CFR1910.1000.
 - TWA: Time Weighted Average for amount of chemical substance in the ambient workplace air for a normal 8-hour workday, 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect.
 - STEL: Short Term Exposure Limit, 15-minute TWA.
 - PNOC: Particulates Not Otherwise Classified (ACGIH).
 - The "skin" notation calls attention to the skin as an additional significant route of absorption of the listed chemical.

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The BFGoodrich Company, Specialty Polymers & Chemicals Division/9911 Brecksville Road, Cleveland, Ohio 44141-3247, 216-447-5000, 800-331-1144

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direct control. The SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendation, nor as an inducement to practice any patented invention without permission of the patent owner.

SECTION III - PHYSICAL DATA (Typical data, not specifications)

<u>Boiling Point</u> Not applicable (NA)	<u>Melt Point</u> 172-190°F (78-88°C)	<u>Specific Gravity (H₂O=1)</u> 1.34
<u>Solubility in Water</u> Insoluble	<u>Heat Loss (Moisture)</u> 0.5% maximum	<u>pH</u> NA
<u>Appearance and Odor</u> Tan flakes or pellets. Slight odor.		<u>Molecular Weight</u> 252

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

<u>Flash Point</u> ~350°F (177°C), COC method	<u>Ignition Temperature</u> ~660°F (349°C), dust cloud.	<u>Flammable Limits in Air</u> See "Unusual Explosion and Fire Hazards."
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Extinguishing Media

Water, ABC dry chemical, protein type air foams. CO₂ may be ineffective on larger fires due to a lack of cooling capacity which may result in reignition.

Special Firefighting Procedure

Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode or other positive-pressure mode and protective clothing. Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic gases from combustion, burning, or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

Unusual Fire and Explosion Hazards

Dust suspended in air in critical proportions and in the presence of ignition source presents an explosion hazard. These data apply to powder and are expected to apply to dust from pellets or flakes reduced to a powder or dust:

- Minimum explosive concentration: 0.15 oz/ft³
- Minimum ignition energy (dust cloud): 0.25 joules @ 1.5 oz/ft³
- Maximum rate of pressure rise: 3360 psi/sec. @ 1.0 oz/ft³
- Maximum pressure of explosion: 74 psig @ 2.0 oz/ft³
- Explosion severity: 1.3 (strong)

- Dust is sensitive to ignition by electrostatic discharge. Dust is a static charge generator. Dust can be ignited by electrostatic discharge, electrical arcs, sparks, welding torches, cigarettes, open flame, or other significant heat sources. Bond, ground and properly vent containers, conveyors, dust control devices and other transfer equipment. Prohibit flow of powder or dust through non-conductive ducts, vacuum hoses or pipes, etc. Only use grounded, electrically conductive transfer lines when pneumatically conveying product.
- Prevent accumulation of dust (well-ventilated conditions, promptly vacuuming spills, cleaning overhead horizontal surfaces, etc.) Eliminate ignition sources and static buildup (e.g. humidification).
- Do not pour product directly from its container into any flammable or combustible solvent. Electrostatic build-up/discharge may ignite vapors.

- 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 Dust Explosions in the Plastics Industry; NFPA 69, Explosion Prevention Systems; NFPA 68, Explosion Venting Protection; NFPA 77, Static Electricity; and NFPA 650, pneumatic conveying systems for handling combustible materials; and other standards as the need exists.

SECTION V - REACTIVITY DATA

<u>Stability</u>	<u>Hazardous Polymerization</u>	<u>Hazardous Decomposition Products</u>
Stable	Will not occur	Combustion: CO, CO ₂ , oxides of nitrogen and sulfur. Pyrolysis: morpholine.

Incompatibility (conditions/materials to avoid)

- OBTS decomposes at 280°F (138°C). When heated above 265°F (138°C), OBTS may liberate morpholine vapor which may cause eye and respiratory irritation.
- Avoid contact with nitrosating agents. Heating OBTS in the presence of nitrites, nitrates or other nitrosating agents (e.g. N-nitrosodiphenylamine) may lead to the formation of nitrosamines, which may cause cancer.
- Avoid contact with strong oxidizing agents such as hydrogen peroxide, permanganates and perchlorates. Contact can result in intense heat, boiling, flame development, explosion or toxic gas generation depending on the amount and specific materials involved.

SECTION VI - HEALTH HAZARD DATA

AVOID EYE CONTACT AND REPEATED OR PROLONGED SKIN CONTACT. AVOID INHALING, INGESTING, TASTING, OR SWALLOWING THIS SUBSTANCE. USE UNDER WELL-VENTILATED CONDITIONS. WEAR EYE PROTECTION AND PROTECTIVE GLOVES. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER CLOSED WHEN NOT IN USE.

Acute and Chronic Health Effects

- OBTS is an eye (moderate), skin (slight), and upper respiratory tract irritant. Prolonged or repeated skin contact may cause sensitization.
- Animal studies indicate that OBTS is slightly to practically non-toxic via oral, dermal, and inhalation exposure. However, forced-feeding animals high levels of OBTS produced varying effects, such as hypoactivity, ruffled fur, salivation, labored breathing, muscular weakness, prostration, diuresis, diarrhea, lacrimation, and tremors depending on the dose.
 - Oral LD₅₀, rats: 12,560 mg/kg
 - Dermal LD₅₀, rabbits: >3,000 mg/kg
 - Inhalation LC₂₀: 151 mg/l
 - Inhalation LC₀: 0.09 mg/l
- Overexposure to vapors from heating the product may cause eye and/or skin irritation, and respiratory tract irritation with symptoms such as, but not limited to, dizziness and flu-like symptoms.

Medical Conditions Aggravated by Exposure

None known specific to the product. Individuals with sensitive airways (eg., asthmatics) may react to airborne vapors. Pre-existing skin problems may be aggravated by prolonged or repeated contact.

Routes of Exposure

Eye/skin contact, ingestion, dust inhalation.

Signs and Symptoms of Exposure

Irritation

Emergency and First Aid Procedure

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

If irritation occurs or persists from any route of exposure, remove the affected individual from the area. See a physician.

- Eye Contact: Treat as any foreign particulate matter in the eye.
- Skin Contact: Wash the affected area with plenty of soap and water.
- Ingestion: Induce vomiting by sticking finger down throat or by giving Syrup of Ipecac. See a physician.
- Inhalation: No applicable information found. If particulate, processing vapors or decomposition products are inhaled, remove individual(s) to fresh air. Provide protection before allowing reentry.

Carcinogenicity

- OBTS is not regulated or listed as a carcinogen by IARC, NTP, or OSHA.
- Groups of rats were administered OBTS in their diet so that doses of 0, 5, 50 and 400 mg/kg/day were achieved over a 113 week period. No evidence was observed of any treatment-related effect on hematology, clinical chemistry, urine analysis, or on the incidence and causes of morbidity or mortality. The pattern of non-neoplastic pathology was consistent with that expected in aging rats of the strain used. There was no difference between the control and high dose groups in overall incidence of tumor types to indicate an oncogenic effect. The only compound related effects were reduced weight gains which were associated with slight reductions in food consumption and a slight increase in liver and kidney weights. Changes in the weights of other organs were considered to be secondary effects reflecting interference in the normal growth pattern.

Mutagenicity

OBTS accelerator was evaluated in a battery of short term in vitro mutagenic screening assays and in an in vivo study. No mutagenic activity was observed in the Ames test CHO/HGPRT, CHO Sister Chromatid Exchange, E. coli WP2 uvrA, or CHO chromosome aberration assays. No mutagenic response was observed in vivo using a dominant lethal test. Mutagenic responses were observed in the mouse lymphoma L5178YTK+ assay, E. coli pol A+/A- (with preincubation), and cell transformation BALB/3T3 assays. Equivocal results were obtained in Drosophila.

Reproduction/Developmental Effects

Although some investigators have reported embryotoxicity in rodents which were force-fed high levels of OBTS, other investigators have not found any evidence of teratogenic effects associated with this substance. However, OBTS has been reported to cause malformations in chicken embryos.

Metabolism

Metabolism studies with 2,2'-dibenzothiazyl disulfide (MBTS) indicate that it is converted to 2-mercaptobenzothiazole (MBT). These studies suggest that MBT may be a common metabolite for other sulfenamide accelerators such as OBTS.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled

Using care to prevent dust generation, sweep into a closed container for reuse or disposal. Store in a safe location to await disposal. Do not flush chemical into public sewer or water system.

Waste Disposal Method

Incinerate or landfill waste in a properly permitted facility in accordance with federal, state and local regulations. 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 has explosion potential. Land disposal should be in closed containers.

Precautions to be taken in handling and storage

- Avoid breathing dust or ingesting product.
- Avoid eye contact and repeated or prolonged skin contact.
- Avoid inhaling processing vapors.
- Use under well-ventilated conditions.
- Wash thoroughly after handling product. Always wash up before eating, smoking or using toilet facilities.
- Wash contaminated clothing (separate from other laundry) before reuse.
- Keep container closed when not in use.
- Do not store in open, unlabeled or mislabeled containers.
- Store in a dry, well ventilated area at a temperature below 110°F (43°C). Prolonged storage at warmer temperatures will initiate chemical changes resulting in a loss of accelerator functionality.

SECTION VIII - CONTROL MEASURES

Ventilation

Always provide effective general and, when necessary, local exhaust ventilation to draw dust, fumes, and vapors away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the limits listed in Section II. Ventilation guidelines/techniques may be found in publications such as Industrial Ventilation American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Bldg. D-7, Cincinnati, OH 45211-4438.

Respiratory Protection

Not typically required. If inhalation of dust cannot be avoided, wear a particulate respirator approved by NIOSH/MSHA. Wear an organic vapor respirator approved by NIOSH/MSHA whenever exposure to fumes or vapors exceed the limits listed in Section II. Respirator use must be in accordance with the manufacturer's limitations and OSHA standard 29CFR1910.134.

Protective Equipment

- Wear appropriate eye protection if dust exposure to the eyes is likely.
- Wear protective gloves and other equipment as needed to prevent skin contact.

SECTION IX - TRANSPORTATION

Domestic Transportation (U.S.A.)

Not regulated

International Transportation

Not regulated

SECTION X - HAZARD CLASSIFICATIONS

Federal

- SARA Title III (40CFR311/312) Hazard Category: Immediate (acute) health hazard (irritant, may cause sensitization).
- SARA Title III Section 313 chemical substance(s) present at or above de minimus concentrations: none known.

State

While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge no such substances are present in reportable amounts except those specifically listed below:

- California Proposition 65 "substances known to the State of California to cause cancer, birth defects or other reproductive harm": N-nitrosomorpholine is present at <50 ppm.
- Massachusetts Substance List: none known.
- New Jersey Workplace Hazardous Substance List: N-oxydiethylene-2-benzothiazole sulfenamide (CAS 102-77-2).
- Pennsylvania Right to Know Act: N-oxydiethylene-2-benzothiazole sulfenamide.

International

- Canadian Controlled Products hazard classification (WHMIS): Class D, Division 2B (irritant).
- Canadian Ingredient Disclosure List (WHMIS): None in reportable amounts
- Canadian Domestic Substance List (DSL): Listed.
- European Economic Community hazard classification: Xi (irritant). R 43; S 24, 28.
- European Economic Community EINECS: 2030524.

Hazard Rating Systems

NEPA 704*

Health: 2
Flammability: 1 (dust 2)
Reactivity: 0
Special: None

HMIS **

Health: 1
Flammability: 1 (dust: 2)
Reactivity: 0
Personal Protection: B

Key: 0 = Insignificant; 1 = Slight; 2 = Moderate; 3 = High; 4 = Extreme.

* National Fire Protection Association rating identifies the severity of hazards of material during a fire emergency (i.e., "on fire").

** Hazardous Materials Identification System, National Paint and Coatings Association rating applies to product "as packaged" (i.e., ambient temp.).

USER'S RESPONSIBILITY

A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. It is your responsibility to utilize the information we have supplied to develop work practice guidelines and employee instructional programs for the individual operation.

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 material. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, express 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 regulations remains the responsibility of the user.

Waste Disposal Method

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