

MATERIAL SAFETY DATA SHEET

Ferro Corporation, Polymer Additives Division
Walton Hills Operation
7050 Krick Road
Walton Hills, Ohio 44146-4494 USA

Emergency telephone number
CHEMTREC: 1-800-424-9300
CHEMTREC (outside U.S.): 1-703-527-3887
Plant Number: 1-216-750-6708

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Therm-Chek® BH358 **Date of Preparation:** 06/04/2010
Chemical Family: Polymer Additive
Chemical Name: Barium, Zinc Complex Mixture
CAS-No.: Mixture
Product Code: 1035523

2. HAZARDS IDENTIFICATION

Emergency Overview

Warning

Combustible liquid. Vapors may travel to a source and flash back. May cause respiratory tract, eye and skin irritation.

		HMIS	NFPA 704
Color:	Amber	1	1
Physical state:	Liquid	2	2
Odor:	Characteristic	0	0
		X	

Potential Health Effects

Principle routes of exposure: Eye contact. Skin contact. Inhalation.

Eye contact: May cause irritation.

Skin contact: Prolonged skin contact may cause skin irritation and/or dermatitis.

Inhalation: Inhalation of high vapor concentrations can cause CNS-depression and narcosis. Breathing of mists, vapors, or fumes may irritate the nose, throat and lungs.

Ingestion: May irritate digestive tract. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic toxicity: Repeated and prolonged exposure to solvents may cause brain and nervous system damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Barium compounds		10 - 20%
Zinc compounds		10 - 20%
Organic solvent		5 - 10%
Nonyl phenol	84852-15-3	1 - 5%
Carboxylic acids		1 - 5%
1,2,4-trimethylbenzene	95-63-6	1 - 5%

The specific chemical identities are being withheld as a trade secret (29CFR1910.1200).

4. FIRST AID MEASURES

Eye contact: Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops.

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Skin contact: Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.

Ingestion: Drink plenty of water. Do not induce vomiting. Consult a physician if necessary.

Notes to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point (°C): 64 (147°F) Method: PMCC

Suitable extinguishing media: Use dry chemical, CO₂, water spray or "alcohol" foam. Do not use a solid water stream as it may scatter and spread fire. Cool containers / tanks with spray water.

Hazardous decomposition products: Thermal decomposition can lead to release of irritating gases and vapors. Carbon oxides. Hydrocarbons. Heavy metal compounds.

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent) and full protective gear.

Unusual hazards: Combustible material. Vapor may travel considerable distance to source of ignition and flash back. Material may change or decompose on exposure to moisture.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Combustible material. Remove all sources of ignition. Do not breathe vapors/dust. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up: Wear personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Dispose of promptly. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling: Wear personal protective equipment. Avoid prolonged contact with eyes, skin and clothing. Wash thoroughly after handling. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in area provided with appropriate exhaust ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Storage: Keep product and empty container away from heat and sources of ignition. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Minimize exposure in accordance with good hygiene practice.

Components	OSHA	ACGIH
Barium compounds	0.5 mg/m ³ TWA Ba	0.5 mg/m ³ TWA Ba
Carboxylic acids	Not established	5 mg/m ³ TWA inhalable fraction and vapor
1,2,4-trimethylbenzene	Not established	25 ppm TWA

Engineering measures: Ensure adequate ventilation, especially in confined areas.

Eye protection:	Safety glasses with side-shields. If splashes are likely to occur, wear: Face-shield.
Skin and body protection:	Long sleeved clothing.
Hand protection:	Impervious gloves.
Respiratory protection:	Use NIOSH approved respirator when ventilation is inadequate. In case of insufficient ventilation wear suitable respiratory equipment. Seek professional advise prior to respirator selection and use. NIOSH-approved respirators should be worn where engineering controls and work practices do not reduce exposure to or below the PEL.
Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. Ensure that eyewash stations and safety showers are proximal to the work-station location. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Amber	Physical state:	Liquid
Odor:	Characteristic	Molecular weight:	No data available
Boiling point/range (°C):	No data available	pH:	No data available
Melting point/range (°C):	No data available	Specific gravity (Water =1):	1.03
Vapor pressure (mmHg):	No data available	Evaporation Rate (Water = 1)	< 1.00
Water solubility:	Insoluble	VOC content (%)	No data available

10. STABILITY AND REACTIVITY

Stability:	Stable at normal conditions.
Polymerization	Will not occur.
Hazardous decomposition products:	Thermal decomposition can lead to release of irritating gases and vapours. Carbon oxides. Hydrocarbons. Possible decomposition products from hydrolysis: phenol, aliphatic alcohol, phosphoric acid.
Materials to avoid:	Strong oxidizing agents. Strong acids and strong bases. Water.
Conditions to avoid	Heat, flames and sparks. Exposure to moisture.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	No data is available on the product itself
Target Organ Effects:	Barium compound: Heart, gastrointestinal tract.

Component information, if any, is listed below

Organic solvent

LD50s and LC50s:	Dermal LD50 (Rabbit) = 2000 mg/kg Inhalation LC50 (Rat) = 5.2 mg/L Oral LD50 (Rat) = 5000 mg/kg
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Nonyl phenol

LD50s and LC50s:	Dermal LD50 (Rabbit) = 2031 mg/kg Oral LD50 (Rat) = 580 mg/kg
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Carboxylic acids

LD50s and LC50s:	Dermal LD50 (Rabbit) = 1260 mg/kg Oral LD50 (Rat) = 3000 mg/kg Dermal LD50 (Rat) = 2000 mg/kg
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1,2,4-trimethylbenzene

LD50s and LC50s:	Inhalation LC50 (Rat) = 18 g/m ³ Oral LD50 (Rat) = 3400 mg/kg Dermal LD50 (Rabbit) = 3160 mg/kg
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Organic solvent
Zinc compounds

LD50s and LC50s: Oral LD50 (Rat) = 4920 mg/kg

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No data is available on the product itself. Information given is based on data on the components and the ecotoxicology of similar products.

Organic solvent

Ecotoxicity - Fish Species Data:
96 h LC50 (Lepomis macrochirus) = 2.2 mg/L static
96 h LC50 (Oncorhynchus mykiss) = 2.4 mg/L static
96 h LC50 (Pimephales promelas) = 45 mg/L flow-through
Ecotoxicity - Water Flea Data:
96 h LC50 (Daphnia magna) = 4720 mg/L

Nonyl phenol

Ecotoxicity - Fish Species Data:
96 h LC50 (Pimephales promelas) = 0.135 mg/L flow-through
96 h LC50 (Lepomis macrochirus) = 0.1351 mg/L flow-through
Ecotoxicity - Water Flea Data:
48 h EC50 (Daphnia magna) = 0.14 mg/L
Ecotoxicity - Freshwater Algae Data:
72 h EC50 (Pseudokirchneriella subcapitata) = 0.16 - 0.72 mg/L static
96 h EC50 (Pseudokirchneriella subcapitata) = 0.36 - 0.48 mg/L static
72 h EC50 (Desmodesmus subspicatus) = 1.3 mg/L

Carboxylic acids

Ecotoxicity - Fish Species Data:
96 h LC50 (Pimephales promelas) = 70 mg/L
Ecotoxicity - Water Flea Data:
48 h EC50 (Daphnia magna) = 85.4 mg/L
Ecotoxicity - Freshwater Algae Data:
96 h EC50 (Desmodesmus subspicatus) = 41 mg/L
72 h EC50 (Desmodesmus subspicatus) = 61 mg/L

1,2,4-trimethylbenzene

Ecotoxicity - Fish Species Data:
96 h LC50 (Pimephales promelas) = 7.19-8.28 mg/L flow-through
Ecotoxicity - Water Flea Data:
48 h EC50 (Daphnia magna) = 6.14 mg/L

Persistence and degradability: Not determined

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Waste must be disposed of in accordance with federal, state and local environmental control regulations. Where possible recycling is preferred to disposal or incineration.

14. TRANSPORT INFORMATION

DOT (U.S.)

UN/ID No: NA1993
Proper shipping name: Combustible liquid, n.o.s.
Packing group: III
ERG No: 128

TDG (Canada)

Proper shipping name: Combustible liquid, n.o.s.
Packing group: III

15. REGULATORY INFORMATION

U.S. Regulations:

TSCA: Not subject to TSCA 12(b) Export Notification

SARA 313:

Components	SARA 313:
Barium compounds (10 - 20%)	1.0 % de minimis concentration (Chemical Category N040)
Zinc compounds (10 - 20%)	1.0 % de minimis concentration (Chemical Category N982)
1,2,4-trimethylbenzene (1 - 5%)	1.0 % de minimis concentration

State Regulations

This product or its ingredients have been evaluated for New Jersey, Pennsylvania, and California Prop 65 supplier notification requirements. Substances that are subject to notification requirements, if any, are listed below.

Components	State Regulations - NJ; PA
Barium compounds	Listed (NJRTK) Listed (PARTK)
Zinc compounds	Listed (NJRTK) Listed (PARTK)
Carboxylic acids	Listed (NJRTK)
1,2,4-trimethylbenzene	Listed (NJRTK) Listed (PARTK)

Components	State Regulation - CA Prop65
Ethylbenzene	Carcinogen
2-Ethylhexanoic Acid	Developmental Toxicity

Canadian WHMIS

WHMIS hazard class: B3 Combustible liquid, D2B Toxic materials.

Canadian Ingredient Disclosure List (IDL):

Components	Canada - WHMIS Ingredient Disclosure:
Barium compounds	1
Nonyl phenol	1
Carboxylic acids	1
1,2,4-trimethylbenzene	0.1
1,3,5-Trimethylbenzene	0.1

International Inventories

TSCA 8(b): Listed or exempt.
Canadian DSL: One or more ingredient(s) are not on the DSL list.
EC-No. Listed or exempt.
Philippines (PICCS): One or more ingredient(s) are not on the PICCS list.
Japan (ENCS): One or more ingredient(s) are not on the ENCS list.
Korea (KECL): One or more ingredient(s) are not on the KECL list.
China (IECS): Listed.
Australia (AICS): One or more ingredient(s) are not on the AICS list.
New Zealand (NZIoC): One or more ingredient(s) are not on the NZIoC list.

16. OTHER INFORMATION

For Industrial Use Only

Prepared by: Ferro Technical Center

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

End of Safety Data Sheet