FERRO

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

Plant Number: 1-216-750-6708

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

Product Name: **Therm-Chek® 5918**
Chemical Family: Polymer Additive
Chemical Name: Barium, Cadmium, Zinc Complex Mixture
CAS-No.: Mixture
Product code: 1035487

Date of Preparation: 08/27/2004

2. COMPOSITION/INFORMATION ON INGREDIENTS

Exposure limits

Components	CAS-No	Weight %	OSHA	ACGIH
Mineral Spirits	64742-47-8	20 - 30%	Not established	200 mg/m³ TWA
Petroleum based hydrocarbon		5 - 10%	5 mg/m³ TWA (oil mist)	10 mg/m³ TWA (oil mist)
Triphenyl phosphite	101-02-0	5 - 10%	Not established	Not established
Aromatic solvent	64742-95-6	5 - 10%	Not established	Not established
1,2,4-trimethylbenzene	95-63-6	1 - 5%	Not established	25 ppm TWA
xylene	1330-20-7	1 - 5%	100 ppm TWA 435 mg/m³ TWA	100 ppm TWA 150 ppm STEL
Phenol	108-95-2	0.1 - 0.5%	19 mg/m³ TWA 5 ppm TWA prevent or reduce skin absorption	5 ppm TWA skin - potential for cutaneous absorption
Barium compounds, as Ba		1 - 5%	0.5 mg/m³ TWA	0.5 mg/m³ TWA
Cadmium compounds, as Cd		1 - 5%	2.5 ug/m³ action level (as Cd); 5 ug/m³ TWA (as Cd)	0.002 mg/m³ TWA 0.01 mg/m³ TWA

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

3. HAZARDS IDENTIFICATION

Emergency Overview
Warning

Color: Light amber
Physical state: Liquid
Odour: Solvent-like

NFPA 704

Health:	2
Fire:	2
Instability:	0

WARNING COMBUSTIBLE! Vapors may travel to a source and flash back. Avoid breathing vapors or mists. Irritating to eyes. Irritating to respiratory system and skin. May cause cancer. May be harmful if absorbed through skin.

Potential Health Effects

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

Eye contact: Moderately irritating to the eyes.

Skin contact: Moderately irritating to the skin. May be harmful if absorbed through skin.

Inhalation: Over-exposure by inhalation may cause respiratory irritation. Inhalation of high vapor concentrations can cause CNS-depression and narcosis. The effects of overexposure to cadmium may include decreased stamina, fatigue, sleep distrubance, headaches, aching bones and muscles, constipation, abdominal pains and decreased appetite. Existing lung or pulmonary conditions may be aggravated by exposure.

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. Cadmium is a cumulative poison and can build up in the body over time to toxic levels. Cadmium causes lung damage and kidney disfunction and may cause lung or prostate cancer.

HMIS
Health: *2
Fire: 2
Physical hazard: 0
PPE: X

4. FIRST AID MEASURES

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

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 not breathing, give artificial respiration. If symptoms persist, call a physician.

Ingestion: Clean mouth with water and drink afterwards plenty of water. Consult a physician.

Notes to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point: 49 °C (120°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. CdO. BaO.

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: Flash back possible over considerable distance. Vapors can form explosive mixtures at temperatures at or above the flash point. Risk of explosion if heated under confinement. 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. 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.

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: 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. Wear personal protective equipment. In case of insufficient ventilation, wear suitable respiratory equipment.

Storage: Keep product and empty container away from heat and sources of ignition. Take precautionary measures against static discharges. Keep tightly closed in a dry, cool and well-ventilated place. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Respiratory protection: Use NIOSH approved respirator when ventilation is inadequate.

Hand protection: Impervious gloves.

Skin and body protection: Long sleeved clothing.

Eye protection: Safety glasses with side-shields. If splashes are likely to occur, wear:. Face-shield.

Exposure limits: See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Light amber	**Appearance:**	Clear
Physical state:	Liquid	**Odour:**	Solvent-like
Molecular weight:	No data available	**Boiling point/range (°C):**	No data available
pH:	No data available	**Specific gravity (Water =1):**	0.978
Vapor pressure (mmHg):	No data available	**Evaporation rate (Water =1):**	> 1.00
Water solubility (mg/l):	Insoluble	**VOC content (%)**	No data available

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Polymerization: Will not occur.

Hazardous decomposition products: Carbon oxides. hydrocarbons. Thermal decomposition can lead to release of irritating gases and vapours. Vapors may be explosive. Possble 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. Extremes of temperature and direct sunlight. Exposure to moisture.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

No data is available on the product itself.

Chronic toxicity: Repeated and prolonged exposure to solvents may cause brain and nervous system damage.. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood.. Chronic exposure may cause dermatitis..

Carcinogenic effects: Cadmium and cadmium compounds (as respirable dust/aerosols) have proven to be carcinogenic. Listed by IARC, NTP and OSHA as a carcinogen.

Target Organ Effects: Barium compound: Heart, gastrointestinal tract. Cadmium compound: Liver, Kidney.

Component Information

Component information, if any, is listed below

Mineral Spirits

ACGIH - Carcinogens: A3 - Animal Carcinogen (as total hydrocarbon vapor)

Aromatic solvent

NIOSH - LD50s and LC50s: = 8400 mg/kg Oral LD50 Rat

xylene

NIOSH - LD50s and LC50s: = 4300 mg/kg Oral LD50 Rat
= 5000 mg/kg Inhalation LC50 Rat 4 h
> 1700 mg/kg Dermal LD50 Rabbit

ACGIH - Carcinogens: A4 - Not Classifiable as a Human Carcinogen

1,2,4-trimethylbenzene

NIOSH - LD50s and LC50s: = 18 g/m³ Inhalation LC50 Rat 4 h
= 5 g/kg Oral LD50 Rat
= 8970 mg/kg Oral LD50 Rat

Cadmium compound

ACGIH - Carcinogens: A2 - Suspected Human Carcinogen (as Cd)
OSHA - Specifically Regulated Chemicals: 2.5 ug/m³ action level (as Cd); 5 ug/m³ TWA (as Cd)
OSHA - Select Carcinogens: Present
IARC - Group 1: Monograph 58, 1993 (Evaluated as a group)

Triphenyl phosphite

NIOSH - LD50s and LC50s: = 1080 mg/kg Oral LD50 Mouse
= 444 mg/kg Oral LD50 Rat

Barium carbonate

NIOSH - LD50s and LC50s: = 200 mg/kg Oral LD50 Mouse
= 418 mg/kg Oral LD50 Rat
ACGIH - Carcinogens: A4 - Not Classifiable as a Human Carcinogen
A4 - Not Classifiable as a Human Carcinogen (as Ba)

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No information available

Persistence and degradability: No information available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Dispose of according to all federal, state and local applicable regulations. Where possible recycling is preferred to disposal or incineration.

14. TRANSPORT INFORMATION

DOT:

UN/ID No: UN1993
Proper shipping name: Flammable liquid, n.o.s. (naphtha)
U.S. DOT - Hazard Class: 3
Packing group: III
Subsidiary risk: 9 Marine pollutant (cadmium compound)

cumene (0.1 - 0.5%)
DOT regulated marine pollutant
Cadmium compound (10 - 20%)
DOT regulated severe marine pollutant
cumene (0.1 - 0.5%)
CERCLA/DOT RQ: 5000 lb 2270 kg
Phenol (0.1 - 0.5%)
CERCLA/DOT RQ: 1000 lb 454 kg
xylene (1 - 5%)
CERCLA/DOT RQ: 100 lb 45.4 kg

TDG (Canada):

Proper shipping name: Flammable liquid, n.o.s. (naphtha)
Hazard class: 3
Packing group: III
Subsidiary risk: 9 Marine pollutant (cadmium compound)

15. REGULATORY INFORMATION

U.S. Regulations:

Not subject to TSCA 12(b) Export Notification

Barium compounds, as Ba (1 - 5%)
SARA 313: form R reporting required for 1.0% de minimis concentration; Chemical Category N040

Barium Compound (5 - 10%)
SARA 313: form R reporting required for 1.0% de minimis concentration; Chemical Category N040

Cadmium compounds, as Cd (1 - 5%)
SARA 313: form R reporting required for 0.1% de minimis concentration; Chemical Category N078

Cadmium compound (10 - 20%)
SARA 313: 0.1 percent de minimis concentration (Chemical Category N078)

Zinc compounds, as Zn (0.5 - 1%)
SARA 313: form R reporting required for 1.0% de minimis concentration (only fume or dust); Chemical Category N982

Zinc Compound (1 - 5%)
SARA 313: 1.0 percent de minimis concentration (Chemical Category N982)

1,2,4-trimethylbenzene (1 - 5%)
SARA 313: 1.0 percent de minimis concentration

xylene (1 - 5%)
SARA 313: 1.0 percent 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.

Barium carbonate (5 - 10%)
NJRTK: sn 0180
PARTK: Listed

xylene (1 - 5%)
NJRTK: sn 2014
PARTK: Listed

1,2,4-trimethylbenzene (1 - 5%)
NJRTK: sn 1929; sn 2716
PARTK: [present]; environmental hazard

Barium Compound (5 - 10%)
NJRTK: 2146 (1.0%)
PARTK: Listed

Cadmium compound (10 - 20%)
NJRTK: 2199 (0.1%)
PARTK: Listed
Cal Prop65: carcinogen; developmental toxicity.

Zinc Compound (1 - 5%)
NJRTK: 3012
PARTK: Listed

Canadian WHMIS
WHMIS hazard class: B3 Combustible liquid. D2B Toxic materials. D2A Very toxic materials.

Components	**WHMIS Ingredient Disclosure:**
Triphenyl phosphite (5 - 10%)	1%
Barium carbonate (5 - 10%)	0.1%
1,2,4-trimethylbenzene (1 - 5%)	0.1%
Cadmium compound (10 - 20%)	1%

International Inventories

TSCA 8(b): All the ingredients are on the TSCA list.
Canadian DSL: All the ingredients are on the DSL.
EINECS: All the ingredients are on the EINECS list.
Phillipines (PICCS): Listed.
Japan (ENCS): Not listed.
Korea (KECL): Not listed.
China (IECS): Not listed.
Australia (AICS): Not listed.

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 abne 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