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® 1237**
Chemical Family: Polymer Additive
Chemical Name: Barium, Cadmium, Zinc Complex Mixture
CAS-No.: Mixture

Date of Preparation: 12/17/2003

2. COMPOSITION/INFORMATION ON INGREDIENTS

Exposure limits

Components	CAS-No	Weight %	OSHA	ACGIH
Hydrocarbon Process Oil	64742-53-6	5 - 10%	5 mg/m³ (oil mist)	5 mg/m³ (oil mist) TWA 10 mg/m³ (oil mist) STEL
Mineral Spirits	64742-47-8	5 - 10%	Not established	200 mg/m³ TWA
Barium compounds, as Ba		5 - 10%	0.5 mg/m³ TWA	0.5 mg/m³ TWA
Hexylene Glycol	107-41-5	1 - 5%	Not established	25 ppm Ceiling
Triphenyl phosphite	101-02-0	1 - 5%	Not established	Not established
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: Dark amber
Physical state: Liquid
Odor: 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.

Potential Health Effects

Principle routes of exposure: Inhalation, ingestion, skin and eye contact.

Eye contact:
Moderately irritating to the eyes.

Skin contact:
Moderately irritating to the 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 diarrhoea.

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

Physical state:	Liquid
Color:	Dark amber
Odor:	Solvent-like
pH:	No data available
Molecular weight:	No data available
Boiling point/range (°C):	No data available
Specific gravity (Water =1):	1.030

Vapor pressure (mmHg):	No data available
Evaporation rate (Water =1):	No data available
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 vapors. Vapors may be explosive. Possible decomposition products in case of hydrolysis are:. 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. Prolonged skin contact may cause skin irritation and/or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage.

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:
Kidney. Lungs. Liver. Barium compound:. Heart. Gastrointestinal tract.

Component Information
Component information, if any, is listed below

Cadmium compound

ACGIH - Carcinogens: A2 - Suspected Human Carcinogen (as Cd)
OSHA - Specifically Regulated Chemicals: 2.5 ug/m^3 action level (as Cd); 5 ug/m^3 TWA (as Cd)
OSHA - Select Carcinogens: Present
NTP: Known Carcinogen
IARC - Group 1: Monograph 58, 1993; (Evaluated as a group)

Mineral Spirits

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

Benzyl alcohol

NIOSH - LD50s and LC50s:
= 1230 mg/kg Oral LD50 Rat
= 1360 mg/kg Oral LD50 Mouse
= 2 g/kg Dermal LD50 Rabbit

Hexylene Glycol

NIOSH - LD50s and LC50s:
= 3097 mg/kg Oral LD50 Mouse
= 3700 mg/kg Oral LD50 Rat
= 8560 µL/kg Dermal LD50 Rabbit
> 310 mg/m^3 Inhalation LC50 Rat 1 h

Diphenyl isodecyl phosphite

NIOSH - LD50s and LC50s:
= 2370 µL/kg Oral LD50 Rat

Triphenyl phosphite

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

12. ECOLOGICAL INFORMATION

No data is available on the product itself.

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)

Cadmium compound

DOT regulated severe marine pollutant

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

Barium Compound (20 - 30%)
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 (1 - 5%)
SARA 313: form R reporting required for 1.0% de minimis concentration (only fume or dust); Chemical Category N982

Zinc Compound (10 - 20%)
SARA 313: 1.0 percent de minimis concentration (Chemical Category N982)

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.
Benzyl alcohol
PARTK: Listed
Hexylene Glycol
NJRTK: sn 1003
PARTK: Listed
Barium Compound
NJRTK: 2146
PARTK: Listed
Cadmium compound
NJRTK: 2199
PARTK: Listed
Cal Prop65: carcinogen; developmental toxicity.
Zinc Compound
NJRTK: 3012
PARTK: Listed

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

Components	WHMIS Ingredient Disclosure List:
Benzyl alcohol	1%
Hexylene Glycol	1%
Cadmium compound	1%
Triphenyl phosphite	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): Listed.
Australia (AICS): 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 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