



Distributed by:  
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Ferro Corporation  
Performance Pigments & Colors  
251 West Wylie Ave  
Washington, PA 15301 USA  
Emergency telephone number  
CHEMTREC: 1-800-424-9300  
CHEMTREC (outside U.S.): 1-703-527-3887  
Phone Number: 1-724-223-5900

**MATERIAL SAFETY DATA SHEET**

PRODUCT: Powder  
REVISION NUMBER: 1

REVISION DATE: 10/10/2007  
Date Printed: 10/10/2007

**1. PRODUCT AND COMPANY IDENTIFICATION**

MANUFACTURED BY: Ferro Corporation  
251 West Wylie Avenue  
P.O. Box 519  
Washington, PA 15301  
Prod Info 724-223-5900  
CHEMTREC 800-424-9300

Use the CHEMTREC telephone number only in the event of chemical emergencies.

PREPARED BY: Mike Pellegrini  
Environmental Engineer

PRODUCT CODE: 41590

PRODUCT TRADE NAME: 41590 YELLOW

CAS NO: Mixture  
CHEMICAL FAMILY: Decorative Coating  
PRODUCT TYPE: Glass Enamel/Flux

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

This product does not have exposure limit values. Exposure limit values for some of the components are listed below as a guideline for safe use of this product.

**HAZARDOUS COMPONENTS**

INGREDIENTS/CAS #	OSHA PEL:	ACGIH TLV:
Iron Oxide 1309-37-1	TWA 10 mg/m <sup>3</sup>	TWA as Fe: 5 mg/m <sup>3</sup>
Zirconium Compound 1314-23-4	TWA 5.0 mg/m <sup>3</sup>	TWA 5.0 mg/m <sup>3</sup> ; STEL 10.0 mg/m <sup>3</sup>
Titanium Dioxide 13463-67-7	TWA total dust: 15 mg/m <sup>3</sup>	TWA 10 mg/m <sup>3</sup>
Crystalline Silica 14808-60-7	TWA respirable dust: 0.1 mg/m <sup>3</sup>	TWA respirable dust: 0.05 mg/m <sup>3</sup>
Vanadium Compound NONE	Ceiling respirable dust: 0.5 mg/m <sup>3</sup> ; Ceiling fume: 0.1 mg/m <sup>3</sup>	TWA 0.05 mg/m <sup>3</sup>

**3. HAZARDS IDENTIFICATION**

**PRINCIPLE ROUTES OF EXPOSURE:** Inhalation, ingestion and dermal.

**The key immediate hazards are:**

Harmful if swallowed

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**Effects from Acute Exposure:**

**EYE CONTACT :** Causes eye irritation.  
**SKIN CONTACT:** Causes skin irritation.  
**INHALATION:** Causes lung irritation.  
**INGESTION:** Harmful if swallowed

**AGGRAVATED MEDICAL CONDITIONS:**

Respiratory

**Effects from Chronic Exposure:**

**CARCINOGENIC INGREDIENTS:**

This product contains greater than 0.1% crystalline silica. The International Agency for Research on Cancer (IARC) has determined that "there is sufficient evidence for the carcinogenicity of crystalline silica to experimental animals and limited evidence of carcinogenicity in humans. "The National Toxicology Program (NTP) Sixth Annual Report confirms this determination. It has listed crystalline silica as a substance reasonably anticipated to be a carcinogen.

**OVEREXPOSURE EFFECTS:**

**CONTAINS CRYSTALLINE SILICA:**

Crystalline silica can cause silicosis, a lung disease characterized by coughing, wheezing, impaired lung function and increased sputum production. This damage can be progressive and may cause death. May cause cancer following repeated and prolonged inhalation of the fine dust. Smoking aggravates these effects. Skin and eye contact may cause irritation due to mechanical abrasion.

**CONTAINS IRON OXIDE (AS REACTED INTO THE PIGMENT):**

Long-term inhalation of iron oxide dust may lead to siderosis or iron deposition in the lung. This is not considered to be a hazardous condition.

**CONTAINS VANADIUM COMPOUNDS:**

Vanadium compounds are highly toxic by inhalation and ingestion. Breathing the dust or fume may cause coughing, rhinitis, bronchitis, metallic taste, and greenish discoloration of the tongue. Skin and eye irritation as well as nausea, vomiting, and diarrhea are also possible. Animal studies have shown this material to cause adverse effects on the male and female reproductive systems, various fertility measures, and the developing fetus.

**4. FIRST AID MEASURES**

**INGESTION:** If swallowed, give at least 3-4 glasses of water, but do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

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**SKIN:** For skin contact, wash affected areas with plenty of water, and soap if available, for several minutes. Get medical attention if irritation occurs.

**INHALATION:** If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

**EYES:** For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention if irritation develops.

**NOTES TO PHYSICIAN:** None specified.

## **5. FIRE FIGHTING MEASURES**

**OSHA FLAMMABILITY CLASS:** NON-COMBUSTIBLE

**FLASH POINT (°F):** Not Applicable

**Lower Explosive Limit:** Not Applicable

**Upper Explosive Limit:** Not Applicable

**EXTINGUISHING MEDIA:** Water

**FIRE FIGHTING PROCEDURES:** Fire-Fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.

Use water spray to cool nearby containers and structures exposed to fire.

**UNUSUAL HAZARDS:** This product will not burn. Use appropriate techniques for fighting surrounding fire.

## **6. ACCIDENTAL RELEASE MEASURES**

**SPILL PROCEDURES:** Wear appropriate protective equipment. Avoid the generation of dust. Collect material and place in closable container(s) for disposal.

## **7. HANDLING AND STORAGE**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Avoid contact with eyes, skin and clothing.

**NOTES ON HANDLING INFORMATION:** Minimize dust generation during handling. Use adequate ventilation.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**VENTILATION:** Adequate ventilation should be provided to keep concentrations below acceptable Exposure Limits. Discharge from the ventilation system should comply with the applicable air pollution control regulations.

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**EYE PROTECTION:** Wear safety glasses or goggles to protect against exposure.

**PROTECTIVE GLOVES:** Use gloves as a standard industrial handling procedure.

**RESPIRATORY PROTECTION:** Appropriate respiratory protection is required when exposure to airborne contaminant is likely to exceed acceptable limits. Respirators should be selected and used in accordance with OSHA Subpart I (29 CFR 1910.134) and manufacturer's recommendations.

**OTHER PERSONAL PROTECTIVE EQUIPMENT:** None specified.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE:** Yellow powder

**BOILING POINT:** Not Applicable

**VAPOR DENSITY (AIR=1):** Non-Volatile

**EVAP. RATE(BUTYL ACETATE=1):** Non-Volatile

**VOC, Wt.% (EPA METH.24):** 0

**BULK DENSITY:** Not Available

**SOLUBILITY (In water):** Insoluble

## **10. STABILITY AND REACTIVITY**

**STABILITY DATA:** STABLE

**POLYMERIZATION:** WILL NOT OCCUR

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

**INCOMPATIBILITY  
(MATERIALS TO AVOID):** None known.

**CONDITIONS/HAZARDS TO AVOID:** None known.

## **11. TOXICOLOGICAL INFORMATION**

No Toxicological data known.

## **12. ECOLOGICAL INFORMATION**

**ECOTOXICOLOGICAL INFORMATION:** No data at this time

**CHEMICAL FATE INFORMATION:** No data at this time.

**PERSISTENCE/DEGRADABILITY:** No data at this time.

**APPRAISAL:** No data at this time.

**MOBILITY:** No data at this time.

## **13. DISPOSAL CONSIDERATIONS**

**DISPOSAL OF WASTE METHOD:** Dispose in accordance with Federal, State and Local regulations.

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## 14. TRANSPORT INFORMATION

DOT Shipping Name: NON-HAZARDOUS  
DOT HAZARD CLASS: NONE  
DOT LABEL(S): NONE  
UN/NA NUMBER: NONE  
PACKING GROUP: NONE

## 15. REGULATORY INFORMATION

SARA SECTION 302: None Found

SARA (311, 312) HAZARD CLASS: ACUTE HEALTH HAZARD

CHRONIC HEALTH HAZARD

SARA 313 Title III Toxic Chemical List:

The following chemicals are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

93                    % Vanadium                    1                    %

TSCA Inventory Status: This product (and/or all of its components) is in compliance with the U.S. EPA Toxic Substance Control Act, TSCA, (15 U.S.C. 2604).

This product and all of its components is listed on the DSL inventory.

## 16. OTHER INFORMATION

Revisions: The Format has been changed to meet the requirements of the new ANSI Standard Z400.1.

### LABEL INFORMATION:

#### WARNING!

Skin, eye, and respiratory irritant.

Avoid contact with eyes, skin and clothing.

Avoid breathing dust.

Keep away from food products.

Wash thoroughly after handling and before eating, drinking or using cosmetic or tobacco products or toilet facilities.

Use with adequate ventilation.

Keep container closed when not in use.

Do not breathe dust.

Contains crystalline silica which can cause lung damage, including cancer.

Harmful if swallowed.

FIRST AID: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water. Remove contaminated clothing. Get medical attention.

IN CASE OF FIRE: Use water, dry chemical or carbon dioxide.

IN CASE OF SPILL: Collect and dispose in accordance with federal, state and local regulations.

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