MATERIAL SAFETY DATA SHEET

LANXESS Corporation
Product Safety & Regulatary Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

TRANSPORTATION EMERGENCY
CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION
LANXESS Emergency Phone: (800) 410-3063
LANXESS Information Phone: (800) LANXESS

1. Product and Company Identification

Product Name: BAYFERROX 6530
Material Number: 2461572
Chemical Family: Inorganic Metal Oxide Mixture
Color Index Name: Pigment Red 101 with Yellow 42 and Black 11
Color Index-No.: 77491:77492:77499
Chemical Name: Mixed Iron Oxides
Synonyms: Mixture of hydrated and unhydrated iron oxides
Formula: Mixture of Fe2O3/FeOOH/Fe3O4

2. Hazards Identification

Emergency Overview

Product poses little or no hazard if spilled. May cause mechanical irritation (abrasion).

Potential Health Effects

Primary Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
Medical Conditions Aggravated by Exposure: Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Component: Iron (III) Oxide
May cause mechanical irritation.

For Component: Amorphous Silica
May cause mechanical irritation.
Chronic Inhalation
For Component: Amorphous Silica
Prolonged inhalation of amorphous silica may produce x-ray changes in the lungs without disability.

Skin
Acute Skin
For Component: Iron (III) Oxide
May cause mechanical irritation.

Eye
Acute Eye
For Component: Iron (III) Oxide
May cause mechanical irritation.
For Component: Amorphous Silica
May cause mechanical irritation.

Other Effects of Exposure
For Component: Iron (III) Oxide
Prolonged inhalation (6 to 10 years) of iron oxide fume has been reported to produce changes in lung x-rays of exposed individuals. This condition, siderosis, is considered to be a benign pneumoconiosis that exhibits no adverse health effects. Siderosis has been observed among occupations such as arc-welders where iron oxide fumes are present. To the best of our knowledge, this condition has not been observed after prolonged exposure to iron oxide pigments.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 - 40%</td>
<td>Iron (III) Oxide</td>
<td>1309-37-1</td>
<td></td>
</tr>
<tr>
<td>1 - 5%</td>
<td>Amorphous Silica</td>
<td>7631-86-9</td>
<td></td>
</tr>
<tr>
<td>30 - 40%</td>
<td>Iron (III) Oxide</td>
<td>1309-37-1</td>
<td></td>
</tr>
<tr>
<td>2.02%</td>
<td>Amorphous Silica</td>
<td>7631-86-9</td>
<td></td>
</tr>
</tbody>
</table>

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.
5. Fire-Fighting Measures

Suitable Extinguishing Media: Material is not combustible. Use extinguishing media suitable for other combustible materials in the area.

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

6. Accidental release measures

Spill and Leak Procedures
Spills should be swept up and placed in appropriate containers for disposal. Clean up promptly by scoop or vacuum. Avoid creating dusty conditions.

7. Handling and Storage

Storage Period
If stored under the correct conditions (no climatic influence, kept dry and no extreme fluctuations in temperature) we expect that our products would have a shelf life of 5 years provided, however, the material has been stored correctly and the packaging materials remain unchanged.

Handling/Storage Precautions
Protect against weathering. Store in a dry place and avoid extreme fluctuations in temperature. Special conditions for opened packaging: Close bags after use to prevent the absorption of moisture and contamination.

Further Info on Storage Conditions
Material can be stored safely at ambient temperatures.

8. Exposure Controls / Personal Protection

Iron (III) Oxide (1309-37-1)
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 10 mg/m³ (Fume.)
US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 5 mg/m³ (Respirable fraction.)
US. ACGIH Threshold Limit Values
Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Amorphous Silica (7631-86-9)
US. OSHA Table Z-3 (29 CFR 1910.1000)
Time Weighted Average (TWA): 20 millions of particles per cubic foot of air
US. OSHA Table Z-3 (29 CFR 1910.1000)
Time Weighted Average (TWA): 0.8 mg/m³ The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits.
See regulation for specific equation.

Industrial Hygiene/Ventilation Measures
Under normal conditions of use, special ventilation is not required.

Respiratory Protection
The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying particulate respirator with N-95 filters.

Eye Protection
safety glasses.

Skin and body protection
No special skin protection requirements during normal handling and use.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Color</td>
<td>Brown</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>pH</td>
<td>4 - 8 @ 50 g/l</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Begins at 1,000 °C (1,832 °F)</td>
</tr>
<tr>
<td>Flash Point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>Not Established</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>Not Established</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>4 - 5 @ 20 °C (68 °F)</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Viscosity, Dynamic</td>
<td>not applicable</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>300 - 1,000 kg/m³</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
None known.

Hazardous decomposition products
None known.
11. Toxicological Information

**Toxicity Data for C.I. Pigment Yellow 42**
**Acute Oral Toxicity**  
LD50: > 5,000 mg/kg (Rat)

**Skin Irritation**  
rabbit, Non-irritating

**Eye Irritation**  
rabbit, Non-irritating

**Carcinogenicity**  
Rat, Male/Female, intraperitoneal, 8 w, ambiguous

**Toxicity Data for Iron (III) Oxide**
**Acute Oral Toxicity**  
LD50: > 5,000 mg/kg (Rat)

**Acute dermal toxicity**  
LD50: 5,500 mg/kg (Rat)

**Skin Irritation**  
rabbit, Acute Dermal Irritation, Exposure Time: 24 hrs, Non-irritating

**Eye Irritation**  
rabbit, Acute Eye Irritation Study, Non-irritating

**Toxicity Data for C.I. Pigment Black 11**
**Acute Oral Toxicity**  
LD50: > 5,000 mg/kg (Rat)

**Skin Irritation**  
rabbit, Acute Dermal Irritation, Non-irritating

**Eye Irritation**  
rabbit, Acute Eye Irritation Study, Non-irritating

**Sensitization**  
dermal: non-sensitizer (Guinea pig)

**Mutagenicity**  
Genetic Toxicity in Vitro:  
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

**Toxicity Data for Amorphous Silica**
**Acute Oral Toxicity**  
LD50: > 5,000 mg/kg (Rat)

**Acute Inhalation Toxicity**  
LC50: > 2.2 mg/l, 1 hrs (Rat)

**Acute dermal toxicity**  
LD50: > 5,000 mg/kg (rabbit)
Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, Non-irritating

Sensitization
dermal: non-sensitizer (Guinea pig, Magnusson/Kligmann (Maximization Test))

Repeated Dose Toxicity
90 Days, inhalation: NOAEL: < 0.001 mg/l, (Rat)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Cytogenetic assay: negative (Rat)

Carcinogenicity
Rat, Male/Female, oral, 2 Years, daily
negative

12. Ecological Information

Ecological Data for C.I. Pigment Yellow 42
Acute and Prolonged Toxicity to Fish
EC50: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 h)

Toxicity to Microorganisms
> 10,000 mg/l, (Pseudomonas putida)

Ecological Data for Iron (III) Oxide
Acute and Prolonged Toxicity to Fish
LC0: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Toxicity to Microorganisms
EC0: > 5,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

Toxicity Other Non-Mammal Terrestrial Species
No Harmful effects

Ecological Data for C.I. Pigment Black 11
Acute and Prolonged Toxicity to Fish
LC0: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Toxicity to Microorganisms
EC0: > 1,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

Ecological Data for Amorphous Silica
Biodegradation
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulation
Not expected to bio-accumulate.
Acute and Prolonged Toxicity to Fish
LC50: 5,000 mg/l (Zebra fish (Brachydanio rerio), 96 hrs)
Calculated value

Acute Toxicity to Aquatic Invertebrates
EC0: 10,000 mg/l (Water flea (Daphnia magna), 24 hrs)
EC50: 7,600 mg/l (Ceriodaphnia sp, 48 hrs)
Calculated value

Toxicity to Aquatic Plants
EC50: 440 mg/l, End Point: growth (Green algae (Selenastrum capricornutum), 72 hrs)

Toxicity to Microorganisms
EC50: 8,700 mg/l, (Photobacterium phosphoreum, 15 min)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transport information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None
SARA Section 311/312 Hazard Categories:
Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Potential exposure to some or all of the California Proposition 65 chemicals in this product have been determined to be below the No Significant Risk Level (NSRL). The concentrations reported below in units of parts per million (ppm) or parts per billion (ppb) are maximum values.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

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<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
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<tbody>
<tr>
<td>&gt;=1%</td>
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<td>20344-49-4</td>
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<td>Iron (III) Oxide</td>
<td>1309-37-1</td>
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<tr>
<td>&gt;=1%</td>
<td>C.I. Pigment Black 11</td>
<td>1317-61-9</td>
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MA Right to Know Extraordinarily Hazardous Substance List:

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<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 ppm</td>
<td>Arsenic</td>
<td>7440-38-2</td>
</tr>
<tr>
<td>900 ppm</td>
<td>Chromium</td>
<td>7440-47-3</td>
</tr>
<tr>
<td>300 ppm</td>
<td>Nickel (Ni)</td>
<td>7440-02-0</td>
</tr>
</tbody>
</table>

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.
## 16. Other Information

**NFPA 704M Rating**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
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</table>

0=Insignificant  1=Slight  2=Moderate  3=High  4=Extreme

**HMIS Rating**

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<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

0=Minimal  1=Slight  2=Moderate  3=Serious  4=Severe

*= Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:  Product Safety Department  
Telephone:  (800) LANXESS  
MSDS Number:  R305059  
Version Date:  06/18/2008  
Report Version:  3.0

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