



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Page: 1/4

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12763, Umber

Type: Powder

Chemical class: Synthetic iron oxide alpha-FeOOH

Synthetic iron oxide Fe₂O₃. α H₂O

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeooH), C. I. Pigment YELLOW D-315 60%, CAS. No. 1310-14-1

Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 40%, CAS. No. 1309-37-1

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If

breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Orange

Odor: odorless

Content Fe₃O₄ % 88.0

Content SiO₂+Al₂O₃ % 1.0

Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120° C
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which cannot be re-used should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport:	ADR/RID/GGVS/GGVE:	Not Regulated
Sea transport:	IMDG/GGV See UN-No.:	Not Regulated
Air transport:	ICAO/IATA UN/ID-No.:	Not Regulated

U.S.	D.O.T. Classification:	Not Regulated
CANADA	Transport of dangerous goods:	Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard; however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Vertical markings at left margin denote alterations of previous issue.

The information contained herein is based on the present state of our knowledge, but without liability, which is furnished without warranty, express or implied, except that it is accurate to the best knowledge of the manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material responsibility to verify suitability and completeness of this information for its own particular use. The manufacturer assumes no legal responsibility for use or reliance upon these data.

Department issuing this data sheet: Product Safety Department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014-1

Page: 1/4

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12715, Charcoal

Type: Powder

Chemical class: Synthetic iron oxide Fe₃O₄

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₃O₄, C. I. Pigment BLACK 330, CAS. No. 1317-61-9

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: black

Odor: odorless

Content Fe₃O₄ % 90.0

Content SiO₂+Al₂O₃ % 3.0

Tamped Density g/ml 0.8-1.2

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbar	
Density:	(20°C)	4,1	g/cm ³ DIN/ISO 787 part 10 B
Solubility in water:	(20°C)	<0,5	% DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C)	ca.3.5-7	DIN/ISO 787 part 9
10. <u>Stability and reactivity</u>			
Hazardous Polymerization: Will not occur.			
Stability: Stable Material.			
Incompatibilities: None known.			
Instability conditions: None known.			
Decomposition temperature: Greater than 120°C.			
Decomposition products: None known.			
11. <u>Toxicological Information</u>			
Acute Toxicity:			
LD50/oral/rat: Not tested.			
LD50/inhal/rat: Not tested.			
Sensitizing: None expected.			
Primary skin irritation/rabbit: No data available.			
Primary mucous membrane irritation/rabbit' eyes: No data available.			
Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.			
12. <u>Ecological information</u>			
Mobility: No data available.			
Degradability: No data available.			
Accumulation: No data available.			
Short and long term effects on:			
Eco-toxicity: No data available.			
Other adverse effects: No data available.			
13. <u>Disposal considerations</u>			
Product:			
Material which cannot be reused should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)			
Waste Code No.:			
Check re-use as alternative.			
Contaminated packages and containers:			
Emptied, but contaminated packages and containers may be recycled.			
Waste Code No.: 18715 (Germany)			
14. <u>Transport information</u>			

International:**Land transport:** ADR/RID/GGVS/GGVE: Not Regulated**Sea transport:** IMDG/GGV See UN-No.: Not Regulated**Air transport:** ICAO/IATA UN/ID-No.: Not Regulated**U.S.** D.O.T. Classification: Not Regulated**CANADA** Transport of dangerous goods: Not Regulated**DOT Shipping Name:** None**Technical Shipping Name:** Inorganic Oxide**DOT Hazardous Classification:** Non-Regulated. This product is not classified as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.**DOT Hazard Class:** Non-Regulated.**DOT Identification Number:** None**DOT Labels required:** None**DOT Placards required:** None. No specific transportation precautions required.**UN Class:** None.**UN/NA Number:** None.**15. Regulatory information****Labeling according to EEC Directives:** Not Regulated.**SARA****SARA 312:**

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard; however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

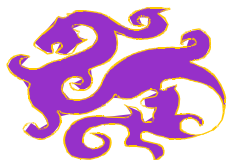
16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

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The information contained herein is based on the present state of our knowledge, but without liability, which is furnished without warranty, express or implied, except that it is accurate to the best knowledge of the manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material responsibility to verify suitability and completeness of this information for their own particular use. The manufacturer assumes no legal responsibility for use or reliance upon these data.

Department issuing this data sheet: Product Safety Department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014-1

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12723, Moss

Type: Powder

Chemical class: Synthetic iron oxide Fe₃O₄

Chrome oxide Cr₂O₃

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₃O₄, C. I. Pigment BLACK 330 12% , CAS No. 1317-61-9
CHROMIUM (III) OXIDE 100 215-160-9 , C. I. Pigment GREEN BG5100 88%, CAS NO. 1308-38-9

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If

breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Brown

Odor: odorless

Content Fe₂O₃ % 88.0

Content SiO₂+Al₂O₃ % 3.0

Tamped Density g/ml 0.8-1.2

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120°C.
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit' eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which cannot be re-used should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport: ADR/RID/GGVS/GGVE: Not Regulated

Sea transport: IMDG/GGV See UN-No.: Not Regulated

Air transport: ICAO/IATA UN/ID-No.: Not Regulated

U.S. D.O.T. Classification: Not Regulated

CANADA Transport of dangerous goods: Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard, however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

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Department issuing this data sheet: Product safety department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12738, Sand

Type: Powder

Chemical class: Synthetic iron oxide alpha-FeOOH

Synthetic iron oxide Fe₃O₄

Synthetic iron oxide Fe₂O₃. α H₂O

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeOOH), C. I. Pigment YELLOW D-315 57%, CAS. No. 1310-14-1

Synthetic iron oxide Fe₃O₄, C. I. Pigment BLACK 330 17% , CAS No. 1317-61-9

Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 26%, CAS. No. 1309-37-1

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Brown

Odor: odorless

Content Fe₂O₃ % 88.0

Content SiO₂+Al₂O₃ % 1.0
Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120 C.
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit' eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which cannot be re-used should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport: ADR/RID/GGVS/GGVE: Not Regulated

Sea transport: IMDG/GGV See UN-No.: Not Regulated

Air transport: ICAO/IATA UN/ID-No.: Not Regulated

U.S. D.O.T. Classification: Not Regulated

CANADA Transport of dangerous goods: Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard, however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Vertical markings at left margin denote alterations of previous issue.

The information contained herein is based on the present state of our knowledge, but without liability, which is furnished without warranty, express or implied, except that it is accurate to the best knowledge of the manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material responsibility to verify suitability and completeness of this information for its own particular use. The manufacturer assumes no legal responsibility for use or reliance upon these data.

Department issuing this data sheet: Product safety department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12739, Cordova

Type: Powder

Chemical class: Synthetic iron oxide alpha-FeOOH

Synthetic iron oxide Fe₃O₄

Synthetic iron oxide Fe₂O₃. α H₂O

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC

3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeOOH), C. I. Pigment YELLOW D-315 28%, CAS. No. 1310-14-1

Synthetic iron oxide Fe₃O₄, C. I. Pigment BLACK 330 41% , CAS No. 1317-61-9

Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 31%, CAS. No. 1309-37-1

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Brown

Odor: odorless

Content Fe₂O₃ % 88.0

Content SiO₂+Al₂O₃ % 1.0
Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120 C.
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhale/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which can not be re-used should be disposed in according with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport: ADR/RID/GGVS/GGVE: Not Regulated

Sea transport: IMDG/GGV See UN-No.: Not Regulated

Air transport: ICAO/IATA UN/ID-No.: Not Regulated

U.S. D.O.T. Classification: Not Regulated

CANADA Transport of dangerous goods: Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard, however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

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Department issuing this data sheet: Product Safety Department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Page: 1/4

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12742, Rust

Type: Powder

Chemical class: Synthetic iron oxide alpha-FeOOH

Synthetic iron oxide Fe₂O₃. α H₂O

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeooH), C. I. Pigment YELLOW D-315 35%, CAS. No. 1310-14-1

Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 65%, CAS. No. 1309-37-1

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If

breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Orange

Odor: odorless

Content Fe₃O₄ % 88.0

Content SiO₂+Al₂O₃ % 1.0

Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120 C.
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which cannot be re-used should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport:	ADR/RID/GGVS/GGVE:	Not Regulated
Sea transport:	IMDG/GGV See UN-No.:	Not Regulated
Air transport:	ICAO/IATA UN/ID-No.:	Not Regulated

U.S.	D.O.T. Classification:	Not Regulated
CANADA	Transport of dangerous goods:	Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute):	No*	Fire:	None
Delayed (Chronic):	No**	Reactivity:	None
		Sudden release of pressure:	None

Not an acute hazard, however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

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The information contained herein is based on the present state of our knowledge, but without liability, which is furnished without warranty, express or implied, except that it is accurate to the best knowledge of the manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material responsibility to verify suitability and completeness of this information for its own particular use. The manufacturer assumes no legal responsibility for use or reliance upon these data.

Department issuing this data sheet: Product Safety Department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Page: 1/4

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12744, Sandalwood
Type: Powder
Chemical class: Synthetic iron oxide alpha-FeOOH
Synthetic iron oxide Fe₃O₄
Synthetic iron oxide Fe₂O₃. α H₂O
Application: Colorants (pigments and dyestuffs), inorganic
Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377
Telephone: (909) 349-3383
Fax: (909) 349-3385
Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeOOH), C. I. Pigment YELLOW D-315 62%, CAS. No. 1310-14-1
Synthetic iron oxide Fe₃O₄, C. I. Pigment BLACK 330 25% , CAS No. 1317-61-9
Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 12%, CAS. No. 1309-37-1

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable.

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Brown

Odor: odorless

Content Fe₂O₃ % 88.0

Content SiO₂+Al₂O₃ % 1.0
Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120°C
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

12.Ecological information

Mobility: No data available.
Degradability: No data available.
Accumulation: No data available.
Short and long term effects on:
Eco-toxicity: No data available.
Other adverse effects: No data available.

13.Disposal considerations

Product:

Material which cannot be re-used should be disposed of in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. This product when discarded as sold is not a RCRA hazardous waste. 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. (40CFR 261.20-24)

Waste Code No.:

Check re-use as alternative.

Contaminated packages and containers:

Emptied, but contaminated packages and containers may be recycled.

Waste Code No.: 18715 (Germany)

14. Transport information

International:

Land transport: ADR/RID/GGVS/GGVE: Not Regulated

Sea transport: IMDG/GGV See UN-No.: Not Regulated

Air transport: ICAO/IATA UN/ID-No.: Not Regulated

U.S. D.O.T. Classification: Not Regulated

CANADA Transport of dangerous goods: Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute): No*

Delayed (Chronic): No**

Fire: None

Reactivity: None

Sudden release of pressure: None

Not an acute hazard; however may cause irritation due to abrasiveness.

These products are not classified as Carcinogens by the National Toxicology Program, the International Agency for Research on Cancer or the Occupational Safety and Health Administration. We do not know of any chronic health effect from these products. The finished pigment is a fine powder and may increase the risk of respiratory and skin disorders aggravated by dust.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/548/EEC or amendments.

Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

16. Further information:

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Vertical markings at left margin denote alterations of previous issue.

The information contained herein is based on the present state of our knowledge, but without liability, which is furnished without warranty, express or implied, except that it is accurate to the best knowledge of the manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material responsibility to verify suitability and completeness of this information for its own particular use. The manufacturer assumes no legal responsibility for use or reliance upon these data.

Department issuing this data sheet: Product Safety Department



Material Safety Data Sheet

According to 91/155/EEC and ISO 11014- 1

Revision Date: Aug. 20, 2006

Replaced issue dd.:---

1. Identification of substance and of the company

Product Name: Iron Oxide Blend 12757, Cedar

Type: Powder

Chemical class: Synthetic iron oxide alpha-FeOOH

Synthetic iron oxide Fe₂O₃. α H₂O

Titanium Dioxide

Application: Colorants (pigments and dyestuffs), inorganic

Company : MANDARIN INDUSTRIES, LLC
3546 N. Riverside Avenue, Rialto, CA 92377

Telephone: (909) 349-3383

Fax: (909) 349-3385

Emergency Information: Telephone: (909) 349-3383

2. Composition/Data on components

Chemical characterization:

Synthetic iron oxide Fe₂O₃.H₂O (α -FeOOH), C. I. Pigment YELLOW D-315 33%, CAS. No. 1310-14-1

Synthetic iron oxide Fe₂O₃. α H₂O, C. I. Pigment RED B110 17%, CAS. No. 1309-37-1

Titanium Dioxide Rutile grade 50%, CAS. No. 13463-67-7

Dangerous components:

None

3. Hazards identification

*****Emergency Overview*****

May cause mechanical irritation to the eyes, skin and respiratory tract, Irritating gases/fumes may be given off during burning or thermal decomposition.

HMIS Codes: H=0,F=0,R=0,P=0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and /or cause unpleasant deposits.

Skin: will not irritate skin and is not likely to cause allergic skin reaction. Injury to the skin or mucus membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Other effects: none known.

Not a hazard in normal industrial use. No harmful effects observed.

The product is not a substance subject to mandatory marking in accordance with the EEC Directive 67/584/EEC

Or amendments.

4. First Aid measures

First aid for skin: In case of skin contact, immediately flush skin with water. Wash clothing before reuse. Call a physician if irritation occurs.

First aid for ingestion: Immediately contact a physician.

First aid for eyes: Flush eyes with plenty of water, lifting lids periodically for at least 15 minutes. Consult a physician if irritation persists.

First aid for inhalation: Remove from dusty area to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

5. Fire fighting measures

Product is non-combustible.

Upper Explosive Limit (UEL): Will not explode.

Lower Explosive Limit (LEL): Will not explode.

Fire Fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

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

Special hazards caused by the material, its combustion products or resultant gases: none

Flash point: Not applicable.

Auto-ignition temperature: Not applicable.

6. Accidental release measures

Small spill: if dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.

Large spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. Spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches, which lead to natural waterways.

Environmental protection conduct: Do not sweep or wash into public stretches of water, sewers or sites of unknown discharge paths.

After spillage/leakage/gas leakage:

Clean up immediately with wetting or absorbent material avoiding dusting.

7. Handling and storage

Storage:

Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.) store away from substances subject to catalytic decomposition by dust e.g. peroxides.

Handling:

Usual precautions for nuisance dust should be observed.

Protection against fire and explosion:

The product is non-flammable

Flammability Class: not applicable

8. Exposure controls/personal protection

Additional notes for design of plant equipment:

No further details, see sec. 7

Components with workplace-related limits to be monitored:

<u>Designation</u>	<u>%</u>	<u>Type of data</u>	<u>Unit</u>
Nuisance dust	100	MAK	6 mg/m ³
		TLV/TWA(USA)	10 mg/m ³

Additional protective measures: Eye wash stations and washing facilities should be available. Employees should wash their hands and face before eating, drinking or using tobacco products.

Respiratory protection: An appropriate dust filter has to be used if a breathable dust is liberated.

Eye protection requirements: Safety glasses are recommended.

Skin protection requirements: Rubber, cloth, or plastic gloves are recommended to reduce skin contact where appropriate for job conditions.

9. Physical and chemical properties

Form: powder

Color: Orange

Odor: odorless

Content Fe₃O₄ % 88.0

Content SiO₂+Al₂O₃ % 1.0
Tamped Density g/ml 0.3-0.5

	<u>Value/Area</u>	<u>Unit</u>	<u>Method</u>
Change in physical state			
Thermal Decomposition:	n/a	°C	Lit.
Flash point: not flammable			
Flammable properties: The product is not flammable under standardized conditions.			
Explosion risks: The product is not explosive			
Specific Gravity: Greater than 1			
Viscosity: Not applicable.			
Vapor pressure: Not applicable.	n/a	mbcar	
Density:	(20°C) 4,1	g/cm ³	DIN/ISO 787 part 10 B
Solubility in water:	(20°C) <0,5	%	DIN/ISO 787 part 3
PH-Value: (at 100 g/l H ₂ O)	(20°C) ca.3.5-7		DIN/ISO 787 part 9

10.Stability and reactivity

Hazardous Polymerization: Will not occur.
Stability: Stable Material.
Incompatibilities: None known.
Instability conditions: None known.
Decomposition temperature: Greater than 120 C.
Decomposition products: None known.

11.Toxicological Information

Acute Toxicity:

LD50/oral/rat: Not tested.
LD50/inhal/rat: Not tested.
Sensitizing: None expected.
Primary skin irritation/rabbit: No data available.
Primary mucous membrane irritation/rabbit' eyes: No data available.

Because of experiences with the product mentioned, there are no recognizable hazards for human beings, if it is correctly used and applied.

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Mobility: No data available.
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Short and long term effects on:
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Other adverse effects: No data available.

13.Disposal considerations

Product:

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U.S. D.O.T. Classification: Not Regulated

CANADA Transport of dangerous goods: Not Regulated

DOT Shipping Name: None

Technical Shipping Name: Inorganic Oxide

DOT Hazardous Classification: Non-Regulated. This product is not classed as a dangerous substance under the Classification, Packaging and Labeling of Dangerous Goods Act.

DOT Hazard Class: Non-Regulated.

DOT Identification Number: None

DOT Labels required: None

DOT Placards required: None. No specific transportation precautions required.

UN Class: None.

UN/NA Number: None.

15. Regulatory information

Labeling according to EEC Directives: Not Regulated.

SARA

SARA 312:

Health: Immediate (Acute): No*

Fire: None

Delayed (Chronic): No**

Reactivity: None

Sudden release of pressure: None

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Water risk class: WGK 0 (Self-assessment, acc. to § § 7a 19,19a-1 of German Water Utilization Act (WHG))

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Department issuing this data sheet: Product Safety Department