1. CHEMICAL, PRODUCT AND COMPANY IDENTIFICATION:

Product Code(s): **C1472, C1530, C1586, 3649, 3685, 30144**
Product Name: Chromium/Iron Oxide Green
Chemical Family: Inorganic Metal Oxide
Synonyms: Chrome (III) Oxide (Trivalent), ChromiumGreen-Black Hematite
C.A.S. Number: Mixture of 1308-38-9+1317-61-9
Color Index Name: Pigment Green 17
Color Index Number: 77288

Manufacturer's Name/Address:
Huntsman, 7011 Muirkirk Road, Beltsville, Maryland, USA 20705
Business Tel: (301) 210-7800 9a-5p (0900-1700) EST M-F
Huntsman, 3700 East Olympic Boulevard, Los Angeles, California, USA 90023
Business Tel: (323) 269-7311 9am-5pm (0900-1700) PST M-F

24 Hour Emergency (Chemtrec): 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA Hazardous Ingredients (29CFR1910.1200):			Exposure Limits (8 Hrs.TWA)	
Components:	C.A.S.	%	OSHA PEL	ACGIH TLV
Chrome (III) Oxide	1308-38-9	(25-75%)	0.5 mg/m^3*	0.5 mg/m^3*
Chromic Acid & Chromate		(<500ppm)	0.1 mg/m^3 (Table Z-2)	
Silicon Dioxide	7631-86-9	(<1)	6 mg/m^3	10 mg/m^3
Calcium Carbonate $CaCO_3$	1317-65-3	(<5)	15 mg/m^3	10 mg/m^3

*Time Weighted Average (TWA) for Chrome (III) compounds (as Cr).

Non-Hazardous Ingredients:			Exposure Limits (8 Hrs.TWA)	
Components:	C.A.S.	%	OSHA PEL	ACGIH TLV
Iron Oxide (Black)	1317-61-9	(5-50%)	Not established	Not established

3. HAZARDS IDENTIFICATION

********** EMERGENCY OVERVIEW **********

Dry, green/black powder with little to no odor. Will not burn or react, but the black iron oxide portion of this product may auto-oxidize if exposed to heat in excess of 176 F (80 C) causing additional heat which may be sufficient to cause packaging to smoulder or ignite. Long-term inhalation can cause lung irritation or chronic respiratory effects. Packaging material can burn or melt in fire, producing toxic smoke and fumes.

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

Potential Health Effects:

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. Irritation to skin or mucous membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Ingestion: Small amount (less than one ounce/30 grams) swallowed is not likely to cause injury. If large amount ingested, may cause gastric irritation, nausea and diarrhea. Seek medical attention.

Inhalation: Not a hazard in normal industrial use. Wear respirator and avoid breathing dust. As with all dusty materials, inhalation may cause respiratory irritation, sneezing, coughing, and runny nose.

Human Effects and symptoms of overexposure:

Acute: On the basis of Animal Toxicity Data we would expect this product to be non-irritating to the eyes and skin and to be essentially non-toxic by ingestion. However, excessive exposure to airborne dust may reduce visibility and/or cause unpleasant deposits in the eyes, ears, and nose. Irritation to skin or mucous membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust. As with all dusty materials, inhalation may cause respiratory

irritiation, sneezing, coughing and runny nose. Good personal hygiene and the use of protective creams will minimize this effect. To date, adverse health effects from exposure have not been reported among workers using this pigment.

Chronic: Repeated or Prolonged inhalation of trivalent chromium compounds may cause chronic respiratory effects. (ACGIH "Documentation of the Threshold Limit Values").

Other Effects: None known. No chronic effects are known from repeated exposure to iron oxide PIGMENT. 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 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 pigment. There is no Iron Oxide FUME contained in this product and none should be generated under normal use.

Medical Conditions Aggravated by Exposure: Persons with pre-existing eye conditions or impaired pulmonary function may be more susceptible to the effects of this product.

Carcinogenicity: IARC: Not Listed NTP: Not Listed OSHA: Not regulated

Other: NTP, IARC and ACGIH found "there is sufficient evidence for the carcinogenicity of Chromium and Certain Chromium Compounds both in humans and experimental animals." The Chromium compounds that are considered carcinogenic are Hexavalent chromium compounds. This product is a trivalent chromium compound that contains less than 500 ppm (0.050%) leachable hexavalent chromium. Trivalent chromium is not specifically listed as a carcinogen by NTP, IARC or ACGIH.

4. FIRST AID MEASURES

Eyes: Flush eyes with water, lifting eyelids periodically. Remove contact lenses. Continue flushing for 15 minutes or until eyes return to normal. Get medical attention if irritation develops or persists.

Skin: Wash with soap and water. Get medical attention if irritation develops or persists. Wash clothing before re-use.

Ingestion: Swallowing less than an ounce (less than 30 grams) will not cause harm. For larger amounts, do not induce vomiting, but give one or two glasses of water to drink and Contact medical personnel or poison control center immediately. Do not give anything by mouth to an unconscious person.

Inhalation: Move from dusty area to fresh air and get medical attention for any breathing difficulty. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties: Not Flammable.

Flash Point: Will not flash.

Upper Explosive Limit (UEL): Will not explode

Lower Explosive Limit (LEL): Will not explode

Auto-ignition Temperature: Will not auto ignite. Exposure to excessive heat greater than 176F (80C) can cause the portion of Iron Oxide Black contained in this product to slowly auto-oxidize, which generates additional heat. Under certain conditions, this heat may be sufficient to cause the bag or combustible materials stored nearby to ignite.

Extinguishing Media: This product is not combustible or flammable. Use extinguishing agents that are suitable for the surrounding fire: water spray, dry chemical, foam, or CO_2.

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

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.

7. HANDLING AND STORAGE

Storage: Store dry at ambient temperature away from food and beverages, excessive heat or flame sources

(furnace, kilns, boilers etc.). Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling.

Handling: Avoid breathing dust. Avoid getting in eyes or on skin. Wash thoroughly after handling. Avoid contact with moisture. Re-seal bag immediately after use. Pallets are wrapped in polyethylene plastic. Removal may cause an electrostatic spark; therefore removal of the wrap should not be in the presence of flammable vapors.

Storage Temperature (Min/Max)	:	Ambient/50°C (122°F)
Shelf Life	:	Unlimited in closed container
Special Sensitivity	:	Excessive Heat
Other Precautions	:	None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Maintain air levels below the recommended exposure limit using exhaust ventilation if necessary.
Eyes:	Safety Glasses.
Skin:	Body-covering clothing. Rubber, Plastic, Leather or cloth gloves are suggested to facilitate personal hygiene.
Respiratory Protection:	Workplace ambient dust concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved respirator with dust prefilter should be worn.
Other:	Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous chemicals.
Work/Hygiene Practices:	Employees should wash their hands and face before eating, drinking or using tobacco products.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Solid Black/Green Powder
Odor	:	Odorless
Physical State	:	Dry Powder
pH	:	4 - 8 in 50 gr/l H_2O aqueous suspension; DIN 787/9
Vapor Pressure	:	Not a vapor
Vapor Density	:	Not a vapor
Boiling Point	:	Not applicable
Freezing Point	:	Not applicable
Melting Point	:	Greater than 1000°C (1832°F)
Solubility in Water	:	Insoluble
Specific Gravity (g/ml)	:	5.0 to 5.5 @ 20°C (68°F); DIN 787/10
Bulk Density (kg/m^3)	:	800 @ 20°C (68°F)
Particle Size (microns)	:	0.3-0.6
Volatile Organic Compounds (VOC)	:	None
Chemical Formula	:	Cr2O3 + Fe_3O_4 + $CaCO_3$
C.A.S. Number	:	mixture

10. STABILITY AND REACTIVITY

Chemical Stability (Conditions to Avoid):	Stable. Keep away from flames and heat. Exposure to excessive heat greater than 176°F (80°C) can cause the portion of black iron oxide contained in this product to slowly auto-oxidize, which generates additional heat. Under certain conditions, this heat may be sufficient to cause the bag or combustible materials stored nearby to ignite.
Incompatibility (materials to avoid):	No known material incompatibilities
Decomposition Temperature Cº (Fº):	Greater than 176°F (80°C)
Hazardous Decomposition Products:	None
Hazardous Polymerization:	Will not occur

11. TOXICOLOGICAL INFORMATION

Eyes:	Not irritating to rabbit eyes. Mechanical irritant only.
Skin:	Not irritating to rabbit skin Dermal, LD 50 not established for product

Ingestion:	Non irritating. The oral, LD50 for rats is greater than 10000 mg/l
Inhalation:	Non irritating. LC 50 not established for product
Subchronic:	Data not established for product
Chronic/Carcinogenicity:	Data not established for product
Other (Mutagenic, Teratogenic, Reproductive Tests):	Information not available..

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: Fish toxicity: Golden Orfe (Leuciscus idus) LCo greater than 1000 mg/l. No harmful effects on Escherichia Coli at 1000mg/l. Nor harmful effects on Pseudomoras Fluoresceus at 10,000mg/l.

Chemical Fate Info.: No appreciable bioconcentration is expected in the environment.

13. DISPOSAL CONSIDERATIONS

Material which cannot be re-used should be disposed in accordance with federal, state and local environmental control regulations at an authorized site. This product when discarded as sold meets the criteria of EP toxicity, and should be managed as 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). Average leachable hexavalent chromium content is less than 500 ppm.

14. TRANSPORT INFORMATION

DOT Shipping Name	:	None
Technical Shipping Name	:	Inorganic Oxide
DOT Hazardous Classification	:	Non-Regulated
DOT Hazard Class	:	Non-Regulated
DOT Identification Number	:	None
DOT Labels required	:	None
DOT Placards required	:	None
UN Class	:	None
UN/NA Number	:	None
Freight Class	:	Chromium Compound; NOI

15. REGULATORY INFORMATION

********** U.S. Federal Regulations **********

OSHA: This product is considered Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200) due to potential of the Black Iron Oxide component of this product to auto-oxidize (self-heat). See section 5.

CERCLA/SUPERFUND: (40 CFR 117,302) Reportable Quantity (RQ):
Chromium and compounds. No Reportable Quantity (RQ) has been established for this generic class. However, we recommend you contact local authorities to verify requirements for your site.

Superfund Amendments and Reauthorization Act (SARA), Title III:

Section 302 (Extremely Hazardous Substances): None

Section 311/312 (Hazard Categories): Immediate (acute) health hazard, Delayed (chronic) health hazard

Section 313 (Reportable Toxic Ingredients):

Chemical Name:	C.A.S.	Concentration
Chrome Compound		Less than 70% total Chrome (Cr)

T.S.C.A.: This product is listed on TSCA Inventory.

********** International Regulations **********

Canadian WHMIS:	Chrome (III) Oxide	1308-38-9	Approximately 25-75%

Canadian Environmental Protection Act (CEPA): All components of this product are on the Domestic Substances List (DSL) and acceptable for use under CEPA provisions.

EINECS: All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).

********** State Regulations **********

California Proposition 65 Warning: This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

CA = California Safe Drinking Water and Toxic Enforce Act (Proposition 65)
MA = Massachusetts Hazardous Substance List
NJ4 = New Jersey Other- included in 5 predominant ingredients >1%
PA3 = Pennsylvania Non-hazardous present at 3% or greater
CN1 = Canada WHMIS Ingredient Disclosure List over 1%

Chemical Name:	C.A.S.	Concentration	State Code
Chrome (III) Oxide	1308-38-9	25 to 75%	PA3,MA,NJ4,CN1
Hexavalent Chromium (Cr+6) Leachable hexavalent chromium	18540-29-9	<500 ppm	CA,MA
Black Iron Oxide	1317-61-9	5 to 50%	PA3,N4J
Calcium Carbonate $CaCO_3$	1317-65-3	<5%	PA3,N4J
Arsenic	7440-38-2	<100 ppm	CA,MA
Cadmium	7440-43-9	<5 ppm	CA,MA
Mercury	7439-97-6	<1 ppm	CA
Nickel	7440-02-0	<400 ppm	CA,MA
Lead	7439-92-1	<100 ppm	CA,MA
Silicon Dioxide	7631-86-9	<1%	PA3,N4J

Note: This information based on random sample analyses. Actual content may vary from batch to batch.

16. OTHER INFORMATION

Reason for revision:

- 7/18/2003 - Remove aniline from trace content table because it is not contained in product.
- 11/29/2004 - Removed Iron Oxide Fume from ingredients, Section 2, as it is not contained in this product.
- 11/29/2004 - Moved Calcium Carbonate $CaCO_3$ to Hazardous Ingredients, Section 2.
- 1/11/2006 - Updated review date.
- 08/07/2008 - Added C1530 and C1586 to list of products in section 1.
- 05/18/2010 - Update review date.
- 10/01/2014 - Adapt MSDS format to Huntsman.

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