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MSDS CODE: Date Revised: Prepared By: GR2 10/01/2014 Nick Paris

Reason for Revision:

See Section 16

1. CHEMICAL, PRODUCT AND COMPANY IDENTIFICATION:

5376

Product Code(s): Product Name: Chemical Family: Synonyms: C.A.S. Number: Color Index Name: Color Index Number:

Chromium Oxide Green Inorganic Metal Oxide Chrome (III) Oxide (Trivalent), 1308-38-9 Pigment Green 17 77288

Supplier's Name/Address:

Huntsman, 7011 Muirkirk Road, Beltsville, Maryland, USA 20705Business Tel:(301) 210-7800 9a-5p (0900-1700) EST M-FHuntsman, 3700 East Olympic Boulevard, Los Angeles, California, USA 90023Business 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 (29CFR1)				0.1200):		Exposure Limi	ts (8 Hrs.TWA)
Components:			C.A.S.	%	OSHA PEL	ACGIH TLV	
Chrome (III) Oxide			1308-38-9	(98-100)	0.5 mg/m ³ *	0.5 mg/m ³ *	
Chromic Ac	id & Chroma	te (as Cr·	+6)	13530-68-2	(<500 ppm)	0.005 mg/m ³ *	Not established.
*Time Weig	hted Averag	e (TWA) f	or Chron	ne (III) compounds	s (as Cr).	-	
Note: OS Chi Ma Rel	HA issued fi romium on F y 29,2006. R ease: 06-342	nal standa eb 28, 20 efer to O 2-NAT.	ard on He 06. Effect SHA New	tive date is che che	kavalent Chromiu mical under 29 Cl	um is considered t FR 1910.1200.	o be a hazardous
Non-Hazard	dous Ingredie	ents:				Exposure Limi	ts (8 Hrs.TWA)
Components: -None-			C.A.S.	%	OSHA PEL	ACGIH TLV	
3. HAZARD				EMERGENCY		****	*****
Dry, green powder with little to no odor. Will not burn or react. Long-term inhalation can cause lung irritation or chronic respiratory effects. Packaging material can burn or melt in fire, producing toxic smoke and fumes.							
HMIS Code	s: H=1,	F=0,	R=0	(0=Minim	nal, 1=Slight, 2=M	loderate, 3=Serious,	4=Severe)
Potential He	ealth Effects:						
Eyes: Non-irritating to the cause uppleasant			ne eyes. Excessiv deposits.	e exposure to ai	rborne dust may reo	duce visibility and/or	
Skin: Will not irritate skin			n and is not likely	to cause allergic	skin reaction. Irritation	on to skin or mucous	
		membrar removal	nes can o of dust.	occur by direct me	chanical action or	r by rigorous skin cle	eaning necessary for
Ingestion: Ingestion causes st			stomachache, vomiting and diarrhea.				
Inhalation:		Inhalatio	n causes	coughing, sneezir	ng and respiratory	/ problems	
Human Effe	ects and sym	ptoms of	overexpo	sure:			
Acute: On the basis of Ar eyes and skin and airborne dust may		Animal Toxicity Data we would expect this product to be non-irritating to the id to be essentially non-toxic by ingestion. However, excessive exposure to av reduce visibility and/or cause unpleasant deposits in the eves 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



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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.

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 ListedNTP: Not ListedOSHA: Not regulated

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

Other:

- 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: If conscious, give large quantities of water to induce vomiting. Get medical attention.
- Inhalation: If exposed to excessive levels of dust or fumes, 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:	This is a heat stable material. Will not auto ignite.
Extinguishing Media:	This product is not combustible or flammable. Use extinguishing agents that are suitable to 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.



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Storage Temperature (Min/Max)	:	Am
Shelf Life	:	Unli
Special Sensitivity	:	Nor
Other Precautions	:	Nor

bient/50°C (122°F) imited in closed container he Known

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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 : Odor : Physical State : pH : Vapor Pressure : Vapor Density : Boiling Point : Freezing Point : Solubility in Water : Specific Gravity (g/ml) : Bulk Density (kg/m³) : Particle Size (microns) : Volatile Organic Compounds (VOC) : Chemical Formula :	Solid Green Powder Odorless Dry Powder 5 - 7 in 50 gr/l H ₂ O aqueous suspension; DIN 787/9 Not a vapor Not a vapor Not applicable Greater than 1000°C (1832°F) Insoluble 5.2 to 5.5 @ 20°C (68°F); DIN 787/10 800 @ 20°C (68°F) 0.3 None Cr_2O_3
Chemical Formula	Cr ₂ O ₃
C.A.S. Number	1308-38-9

Stable.

10. STABILITY AND REACTIVITY

Eyes:

Skin:

Tests):

Ingestion: Inhalation:

Subchronic:

Chronic/Carcinogenicity:

Chemical Stability (Conditions to Avoid): Incompatibility (materials to avoid): Decomposition Temperature C° (F°): Hazardous Decomposition Products: Hazardous Polymerization:

No known material incompatibilities Does not decompose None Will not occur

11. TOXICOLOGICAL INFORMATION Not irritating to rabbit eyes. Mechanical irritant only. Not irritating to rabbit skin Dermal, LD₅₀ not established for product. Non irritating. The oral, LD₅₀ for rats is greater than 10,000 mg/l. Non irritating. LC₅₀ not established for product. Data not established for product. Data not established for product. Other (Mutagenic, Teratogenic, Reproductive Information not available.



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12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Fish toxicity:

Golden Orfe (Leuciscus idus) LCo greater than 1,000 mg/l. No harmful effects on Escherichia Coli at 1,000 mg/l. Nor harmful effects on Pseudomoras Fluoresceus at 10,000 mg/l.

Chemical Fate Information:

Information not available ...

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 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

Canadian Environmental Protection Act (CEPA):

EINECS:

U.S. Federal Regulations

All components of this product are on the Domestic

Substances List (DSL), and acceptable for use under the

All components of this product are on the European Inventory

of Existing Commercial Chemical Substances (EINECS).

SHA: This product is considered Hazardous by definition of Hazard Communication Star (29 CFR 1910 1200)					
CERCLA/SUPERFUND:	(40 CFR 117,302) Reportabl Chromium and compounds. generic class. However, requirements for your site.	e Quantity (RQ): No Reportable Qua we recommend yo	ntity (RQ) has ou contact loc	been established for this al authorities to verify	
Superfund Amendments a Section 302 (Extrem Section 311/312 (Ha	nd Reauthorization Act (SARA) nely Hazardous Substances): azard Categories):	, Title III: None Immediate (acute) hazard	health hazard,	Delayed (chronic) health	
Section 313 (Report Chemical Name: Chrome Compound	able Toxic Ingredients):	C.A.S.	Less than	Concentration 70% total Chrome (Cr)	
T.S.C.A.: Th	nis product is listed on TSCA In	ventory.			
*******	**** Internation	al Regulations	*****	******	
Canadian WHMIS:		Chrome (III) Oxide 1308-38-9 Approximately 1		Approximately 100%	

provisions of CEPA.



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MA

NJ4

PA3 CN1 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)
 - Massachusetts Hazardous Substance List
 - = New Jersey Other- included in 5 predominant ingredients >1%
 - Pennsylvania Non-hazardous present at 3% or greater
 - Canada WHMIS Ingredient Disclosure List over 1%

Chemical Name: Chrome (III) Oxide	C.A.S. 1308-38-9	Concentration Approximately 100%	State Code PA3,MA,NJ4,CN1
Hexavalent Chromium (Cr+6) Leachable hexavalent chromium	18540-29-9	<500 ppm	CA,MA
Lead	7439-92-1	<1 ppm	CA,MA
Cadmium	7440-43-9	<1 ppm	CA,MA
Arsenic	7440-38-2	<1 ppm	CA,MA

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

16. OTHER INFORMATION

Reason for revision: 1/11/ 3/09/		1/11/2006 3/09/2006	-	Updated review date. OSHA Issues Final Standard on Hexavalent Chromium dated Feb 28, 2006. Cr+6 limits lowered from 0.052 mg to 0.005 mg/m ³ . Revised Ingestion and Inhalation text in sections 3 and 4. Removed Review from HMIS Codes		
			1/20/2009 5/29/2013 10/01/2014	- - -	Updated document revised date Update document review date. Change logo and reviewer name. Adapt MSDS format to Huntsman.	
HMIS Codes:	H=1,	F=0.	R=0		(0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)	

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