

**MATERIAL SAFETY DATA SHEET**

Page 1 of 1

<b>PRODUCT NAME:</b> ULTRA STAINS - US113	<b>ISSUED:</b> JUNE 2007
---	--------------------------

<b>UN NO:</b>	None Allocated	<b>D.G. CLASS:</b>	None Allocated	<b>CAS NO:</b>	67186-97-0
<b>HAZCHEM:</b>	None Allocated	<b>SUB. RISK:</b>	None Allocated	<b>SUSDP:</b>	None Allocated
<b>G.T.EPG:</b>	None Allocated	<b>SPEC.EPG:</b>	None Allocated	<b>PACK.GRP:</b>	None Allocated

**OTHER NAMES:**

Ultra Stain, Ceramic Pigment, Ceramic Stain, Metal Oxide.

**INGREDIENTS:**

<b>CHEMICAL ENTITY:</b>	<b>CAS NO:</b>	<b>PROPORTION:</b>
Cobalt Oxide	1308-06-1	-
Chromium Oxide	1308-38-9	-
Iron Oxide	1309-37-1	-
Nickel Oxide	1313-99-1	-

**USE:**
**MAJOR:**

Colorant in glaze, underglaze and other kiln fired media.

**PHYSICAL DESCRIPTION/PROPERTIES:**

<b>APPEARANCE:</b>	Black Powder.
<b>ODOUR:</b>	Odourless
<b>BOILING POINT:</b>	Not Applicable
<b>MELTING POINT:</b>	> 1000°C
<b>VAPOUR PRESSURE:</b>	Not Applicable
<b>SPECIFIC GRAVITY:</b>	No Data
<b>FLASH POINT:</b>	Not Applicable
<b>FLAMMABILITY LIMITS:</b>	No Data
<b>SOLUBILITY IN WATER:</b>	Negligible
<b>VISCOSITY:</b>	No Data
<b>pH:</b>	Neutral
<b>VOLATILE ORGANIC COMP:</b>	None

**HEALTH HAZARD INFORMATION:**
**COBALT OXIDE**

Chronic exposure may affect thyroid, lungs, heart and kidneys. May act as carcinogen.

**ACUTE:**

<b>SWALLOWED:</b>	May be harmful if swallowed.
<b>EYE:</b>	Dust or powder irritates eyes. Rubbing may cause abrasion of cornea.
<b>SKIN:</b>	Causes irritation to skin. Symptoms include redness, itching, and pain.
<b>INHALED:</b>	Causes irritation of the nose, throat, and respiratory tract.

**CHRONIC:**

<b>SWALLOWED:</b>	-
<b>EYE:</b>	-
<b>SKIN:</b>	Prolonged or repeated skin contact may produce severe irritation or dermatitis

This MSDS is for information only. Recipients will not receive updated copies unless requested –

**"UNCONTROLLED COPY".**

## MATERIAL SAFETY DATA SHEET

Page 2 of 2

**INHALED:** Lungs may be affected by repeated or prolonged exposure to the dust or powder of this material.

### CHROMIUM OXIDE

ACGIH: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of carcinogenicity in humans/animals.

#### ACUTE:

**SWALLOWED:** Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhoea.

**EYE:** Dust or powder may irritate eye tissue. Rubbing may cause abrasion of cornea.

**SKIN:** Causes irritation to skin. Symptoms include redness, itching, and pain.

**INHALED:** Dust or powder of this material may cause irritation of the nose, throat, and respiratory tract.

#### CHRONIC:

**SWALLOWED:** -

**EYE:** -

**SKIN:** Prolonged or repeated skin contact may produce severe irritation or dermatitis

**INHALED:** Lungs may be affected by repeated or prolonged exposure to the dust or powder of this material.

### IRON OXIDE

ACGIH: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans/animals. The value is for particulate matter containing no asbestos and 1% crystalline silica.

#### ACUTE:

**SWALLOWED:** Extremely large oral dosages may produce gastrointestinal disturbances.

**EYE:** Dust or powder may irritate eye tissue. Rubbing may cause abrasion of cornea.

**SKIN:** No adverse effects expected.

**INHALED:** May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath.

#### CHRONIC:

**SWALLOWED:** -

**EYE:** Long term eye exposures may stain the eyes and leave a "rust ring".

**SKIN:** -

**INHALED:** Long-term inhalation exposure to iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered a benign pneumoconiosis and does not ordinarily cause significant physiological impairment.

### NICKLE OXIDE

ACGIH: Inhalable fraction, the concentration of inhalable particulate for application of this TLV is to be determined from the fraction passing a size-selector with characteristics defined in (A1). (A1) – Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence, in exposed humans. (Ca) Carcinogen.

#### ACUTE:

**MATERIAL SAFETY DATA SHEET**

Page 3 of 3

<b>SWALLOWED:</b>	The U.S. National Institute for Occupational Safety and Health (NIOSH) concluded there is no evidence that nickel and its inorganic compounds are carcinogenic when ingested. The U.S. Food and Drug Administration has affirmed that nickel is generally recognized as safe (GRAS) as a direct human food ingredient
<b>EYE:</b>	Dust or powder may irritate eye tissue. Rubbing may cause abrasion of cornea.
<b>SKIN:</b>	Nickel oxide has caused tumors at the site of injection in rodents. Prolonged and intimate skin contact can cause an allergic skin rash in previously sensitized individuals.
<b>INHALED:</b>	Evidence for the association of <b>nickel</b> compound exposures and cancer risk comes mainly from workers in now obsolete <b>nickel</b> refining operations. The studies of <b>nickel</b> workers suggest that respiratory cancer risks are primarily related to exposure to relatively insoluble forms of <b>nickel</b> notably sulphidic and oxidic <b>nickel</b> at concentrations greater than 10mg/m <sup>3</sup> . Toxic respiratory effects in animals may be caused by reduced particle clearance capacity. The International Agency for Research on Cancer (IARC) (ref. 4) in 1990 and the U.S. Tenth Report on Carcinogens (ref. 5) in 2002 concluded there was sufficient evidence that <b>nickel</b> compounds are carcinogenic to humans. The Report of the International Committee on <b>Nickel</b> Carcinogenesis in Man reported that workers who have been primarily exposed to <b>nickel oxide</b> showed some evidence of increased lung cancer.
<b>CHRONIC:</b>	
<b>As Above.</b>	
<b>COMPOUND</b>	
<b>ACUTE:</b>	
<b>SWALLOWED:</b>	Large amounts may cause irritation of the gastrointestinal tract, nausea, vomiting and diarrhoea.
<b>EYE:</b>	Prolonged or repeated contact may result in mild irritation or mechanical irritation.
<b>SKIN:</b>	Prolonged contact may result in mild irritation or mechanical irritation.
<b>INHALED:</b>	Dust from this product may cause irritation of the respiratory system. Overexposure may cause lung damage.
<b>FIRST AID:</b>	
<b>SWALLOWED:</b>	Rinse mouth with water and drink large amounts of water. Induce vomiting only in conscious person. Seek medical attention.
<b>EYE:</b>	Irrigate with copious amounts of water for at least 15 minutes. Do not rub eyes. Seek medical attention if irritation persists.
<b>SKIN:</b>	Wash thoroughly with soap and water. Remove contaminated clothing and wash before re-use. If irritation occurs, seek medical attention.
<b>INHALED:</b>	Remove victim immediately from exposure. If breathing has stopped, apply artificial respiration. Seek medical attention.

---

This MSDS is for information only. Recipients will not receive updated copies unless requested –

"UNCONTROLLED COPY".

**MATERIAL SAFETY DATA SHEET**

Page 4 of 4

**ADVICE TO DOCTOR:**

Treat symptomatically.

**COMPONENT ANALYSIS LD50/LC50:**Oral LD50 (Rat): 5mg/kg  
Dermal LD50 (rabbit 4 hr): Non Irritant  
Inhalation LC50 (Rat): Non Irritant  
Acute Irritation to eye in rabbits: N/A

The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

**PRECAUTIONS FOR USE:****EXPOSURE STANDARDS:**

Exposure Standards (air)

CAS#: 1308-06-1	Cobalt Oxide	CoO
	ACGIH-TLVs	0.02mg/m <sup>3</sup> Respirable
	OSHA PELs	0.1mg/m <sup>3</sup> Respirable
	NOISHA	-
CAS#: 1308-38-9	Chromium Oxide	Cr <sub>2</sub> O <sub>3</sub>
	ACGIH-TLVs	0.5mg/m <sup>3</sup> Respirable
	OSHA PELs	0.5mg/m <sup>3</sup> Respirable
	NOISHA	-
CAS#: 1314-13-2	Iron Oxide	Fe <sub>2</sub> O <sub>3</sub>
	ACGIH-TLVs	5 mg/m <sup>3</sup> Respirable
	OSHA PELs	10 mg/m <sup>3</sup> Respirable
	NOISHA	-
CAS#: 1313-99-1	Nickel Oxide	NiO
	ACGIH-TLVs	0.2 mg/m <sup>3</sup> Respirable
	OSHA PELs	1 mg/m <sup>3</sup> Respirable
	NOISHA	-

**ENGINEERING CONTROLS:**

Ventilation should effectively remove and prevent build-up of any dust generated from the handling of this product. Local exhaust ventilation is recommended when generating excessive levels of airborne dust or vapours from handling or thermal processing. Use explosion-proof equipment if high dust/air concentrations are possible.

**PERSONAL PROTECTION:**

PERSONAL PROTECTION GUIDE: COTTON OVERALLS, GLOVES & GLASSES. Avoid eye contact and repeated or prolonged skin contact. Wear overalls, safety glasses and impervious gloves. If ventilation is not sufficient to effectively prevent build-up of dusts, appropriate NIOSH/MSHA respiratory protection must be provided. Always wash hands before smoking, eating, drinking or using the toilet.

**FLAMMABILITY:**Flash Point: N/A  
Method Used: N/A  
Flammability Classification: N/A

---

This MSDS is for information only. Recipients will not receive updated copies unless requested –

"UNCONTROLLED COPY".

## MATERIAL SAFETY DATA SHEET

Page 5 of 5

### ENVIRONMENT:

Slightly water soluble inorganic product. It can be eliminated mechanically from water in purification tanks.

Toxicity to fish:

(Oncorhynchus mykiss): LC50 (96hr): >1,000 mg/l. Nominal concentration.

Aquatic invertebrates:

Daphnia magna/EC50(48 hr): > 1.000 mg/l.

Daphnia magna/No observed effect concentration: 1.000 mg/l

The product has not been tested. The statement has been derived from products of a similar structure and composition.

### SAFE HANDLING INFORMATION:

#### STORAGE:

Keep container dry. Store away from excessive heat and away from strong oxidizing agents, strong acids, food and feedstuffs. Keep container tightly closed to prevent contamination.

#### HANDLING:

Remove all ignition sources from material handling, transfer, and processing areas where dust may be present. Local exhaust ventilation should be provided in work areas. Ensure that airborne dust concentrations are controlled within regulatory dust standards.

#### TRANSPORT:

**Not a hazardous material for transportation.**

#### DOT REGULATIONS:

Hazard Class: None

#### Land transport ADR/RID (cross-border)

ADR/RID Class: None

#### Maritime transport IMDG:

IMDG Class: None

#### Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: None

#### SPILLS & DISPOSAL:

Sweep spilled substance into containers and if appropriate, moisten first to minimize or prevent dusting and the generation of airborne particulates, then move to a safe place. Do not let the spilled substance enter the environment. Avoid the generation of dust during clean-up. Collect dust or powder using a vacuum cleaner with a HEPA filter. Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering.

### FIRE/EXPLOSION HAZARD:

#### HAZARDS OF USE/STORAGE:

Dust accumulation from this product may present an explosion hazard in the presence of an ignition source.

#### DANGEROUS DECOMPOSITION/COMBUSTION PRODUCTS:

Product is not considered combustible. Toxic and irritating fumes are given off of unknown composition if burned. If the substance is heated, it will decompose producing toxic and irritating fumes.

## MATERIAL SAFETY DATA SHEET

Page 6 of 6

### PERSONAL PROTECTION:

Wear a NIOSH approved positive pressure self-contained breathing apparatus and fire fighter turnout gear.

### REACTIVITY:

#### Chemical Stability

This is a stable material.

#### Chemical Stability: Conditions to Avoid

Avoid contact with strong oxidizers, acids, excessive heat, sparks or open flame or dust accumulation.

#### Incompatibility

Strong oxidizing agents, acids, and heat.

#### Hazardous Decomposition

Produces toxic and irritating fumes.

#### Hazardous Polymerization

Will not occur.

### FIRE EXTINGUISHING AGENTS:

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

### REGULATORY INFORMATION:

#### COMPONENT CLASSIFICATION AND LABELLING (EEC)

##### Cobalt Oxide (1308-06-1)

Annex #: - EINECS #: 215-157-2

##### Classification:

N/A

##### Label Information:

R-20 Harmful by inhalation.

R-22 Harmful if swallowed.

R-36/37/38 Irritating to eyes, respiratory system and skin.

S-7 Keep container tightly closed.

S-22 Do not breath dust.

S-24/25 Avoid contact with skin and eyes.

S-28 After contact with skin, wash immediately with plenty of water.

S-51 Use only in well ventilated areas.

##### Chromium Oxide (1308-38-9)

Annex #: - EINECS #: 215-160-9

##### Classification:

N/A

##### Label Information:

R-20 Harmful by inhalation.

R-22 Harmful if swallowed.

R-36/37/38 Irritating to eyes, respiratory system and skin.

S-7 Keep container tightly closed.

S-22 Do not breath dust.

S-24/25 Avoid contact with skin and eyes.

S-28 After contact with skin, wash immediately with plenty of water.

S-51 Use only in well ventilated areas.

##### Iron Oxide (1309-37-1)

Annex #: - EINECS #: 215-168-2

##### Classification:

---

This MSDS is for information only. Recipients will not receive updated copies unless requested –

"UNCONTROLLED COPY".

**MATERIAL SAFETY DATA SHEET**

Page 7 of 7

N/A

**Label Information:**

R-36 Irritating to eyes.

R-37 Irritating to respiratory system.

R-38 Irritating to skin.

S-26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Nickel Oxide (1313-99-1)**

Annex #: - EINECS #: 028-003-00-2

**Classification:**

Carcinogenic Category 1

**Label Information:**

R-53 May cause long term adverse effects in the aquatic environment

R-49 May cause cancer by inhalation.

R-43 May cause sensitization by skin contact.

S-53 Avoid exposure – obtain special instructions before use.

S-45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S-41 Avoid release to the environment. Refer special instructions/Safety data sheets.

**COMPONENT ANALYSIS - INVENTORY**

Component	CAS #	TSCA	DSL	EINECS
Cobalt Oxide	1308-06-1	Yes	Yes	Yes
Chromium Oxide	1308-38-9	Yes	Yes	Yes
Iron Oxide	1309-37-1			No
Nickel Oxide	1313-99-1	Yes	Yes	Yes

**OTHER INFORMATION:**

*This product is a blend of various metal oxides, salts and some compounds which are interfused by high calcination to form the finished product. The document deals with the individual components and the finished product..*

**DISCLAIMER:**

Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Material Safety Data Sheet before handling product.

**KEY/LEGEND:**

NA = Not available or Not Applicable. ACGIH = American Conference of Governmental Industrial Hygienists. TLV = Threshold Limit Value. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration.

**END OF MATERIAL SAFETY DATA SHEET**