Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
Ultra Blak 407

Product Use
Hot Black Oxide.

Details of the supplier of the safety data sheet
Electrochemical Products Inc.
17000 West Lincoln Ave
New Berlin, WI 53151
Phone: 262-786-9330
Emergency Phone #: NCEC (#EPI-29003) +1 202 464 2554, +44 1865 407333
E-mail: us-sales@epi.com
www.epi.com
Fax: 262-786-9403

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Oxidizing Liquids - Category 3
Acute Toxicity - Oral - Category 4
Acute Toxicity - Dermal - Category 4
Skin Corrosion/Irritation - Category 1
Serious Eye Damage/Eye Irritation - Category 1
Carcinogenicity - Category 1A
Hazardous to the Aquatic Environment - Acute - Category 3
Hazardous to the Aquatic Environment - Chronic - Category 3

GHS Label Elements

Symbol(s)

Signal Word
Danger

Hazard Statement(s)
May intensify fire; oxidizer.
Harmful if swallowed.
Harmful in contact with skin.
Causes severe skin burns and eye damage.
May cause cancer.
Harmful to aquatic life with long lasting effects.

**Precautionary Statement(s)**

**Prevention**

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flame/hot surfaces - No smoking.
Keep/Store away from clothing/combustible materials.
Take any precaution to avoid mixing with combustibles.
Take any precaution to avoid mixing with combustibles.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Do not breathe dusts or mists.

**Response**

In case of fire: Use appropriate media to extinguish.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy
to do. Continue rinsing.
IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with
water/shower.
Take off contaminated clothing and wash before reuse.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call a POISON CENTER or doctor.
Specific treatment (see label).

**Storage**

Store locked up.

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Statement of Unknown Toxicity**

0% of the mixture consists of ingredient(s) of unknown acute toxicity.

**Other Hazards**

Breathing mist or spray of this product may cause damage to the upper respiratory tract and lung tissue
which can cause chemical pneumonia, depending upon severity of exposure. This product is destructive to
skin and eye tissues on contact. Will cause severe burns. It may cause eye damage or blindness. If
swallowed, can cause severe burns and complete tissue perforation of mucous membranes of the mouth,
throat, esophagus and stomach.
Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1310-73-2</td>
<td>Sodium Hydroxide</td>
<td>78-88</td>
</tr>
<tr>
<td>7631-99-4</td>
<td>Sodium nitrate</td>
<td>8-15</td>
</tr>
<tr>
<td>7778-50-9</td>
<td>Potassium dichromate</td>
<td>0.1-0.14</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

**Inhalation**
If inhaled, immediately remove the affected person to fresh air. If breathing is irregular or stopped, administer artificial respiration.

**Skin**
For skin contact flush with large amounts of water while removing contaminated clothing.

**Eyes**
Flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation persists, get medical attention.

**Ingestion**
If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

**Most Important Symptoms/Effects**
**Acute**
Breathing dust, mist or spray of this product may cause damage to the upper respiratory tract and lung tissue which can cause chemical pneumonia, depending on the severity of exposure.

Section 5 - FIRE FIGHTING MEASURES

**Extinguishing Media**
**Suitable Extinguishing Media**
Water spray, dry chemical, carbon dioxide.

**Unsuitable Extinguishing Media**
None known.
**Hazardous Combustion Products**
Decomposition of this product may emit oxides of nitrogen and carbon monoxide.

**Fire Fighting Measures**
Firefighters should wear full protective clothing including self contained breathing apparatus.

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**Section 6 - ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment and Emergency Procedures**
Isolate area. Keep unnecessary personnel away. Wear appropriate protective equipment during cleanup.

**Methods and Materials for Containment and Cleaning Up**
Wear appropriate protective equipment and clothing during clean-up. Material is corrosive; avoid contact during clean up. Avoid the generation of dusts during clean-up. Scoop up gross quantities of spilled material. Sweep up remaining material and dispose of contaminated material. After containment, it should be shoveled up or removed by vacuum truck (if liquid) to chemical waste area. Neutralize residue with dilute acid. Flush spill area with water followed by liberal coverage of Sodium Bicarbonate.

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**Section 7 - HANDLING AND STORAGE**

**Precautions for Safe Handling**
Wash thoroughly after handling.

**Conditions for Safe Storage, Including any Incompatibilities**
Store locked up.
Keep container tightly closed.

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**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Component Exposure Limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
</tr>
<tr>
<td>ACGIH:</td>
<td>2 mg/m³ Ceiling</td>
</tr>
<tr>
<td>NIOSH:</td>
<td>2 mg/m³ Ceiling</td>
</tr>
<tr>
<td></td>
<td>10 mg/m³ IDLH</td>
</tr>
<tr>
<td>OSHA (US):</td>
<td>2 mg/m³ TWA</td>
</tr>
<tr>
<td>Mexico:</td>
<td>2 mg/m³ Ceiling</td>
</tr>
</tbody>
</table>
EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures
There are no biological limit values for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
There are no biological limit values for any of this product's components.

Engineering Controls
Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear safety glasses with side shields or chemical goggles.

Skin Protection
Use of protective coveralls and long sleeves is recommended.

Respiratory Protection
If ventilation is not sufficient to effectively prevent buildup of vapor/mist/fume/dust, appropriate NIOSH/MSHA respiratory protection must be provided.

Glove Recommendations
Wear impervious gloves.

Protective Materials
Eye wash fountain and emergency showers are recommended. Use good industrial hygiene practices in handling this material.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th>White to Light Tan Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>NA</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling Point Range</td>
<td>Not available</td>
</tr>
<tr>
<td>Autoignition</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical State</th>
<th>solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>White to light tan</td>
</tr>
<tr>
<td>pH</td>
<td>12 , conc: 0.05 % (Solution)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>NA</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Reactivity
Contact with some metals, particularly magnesium, aluminum, zinc (galvanized) can rapidly generate hydrogen which can be explosive.

Chemical Stability
Stable under normal conditions.

Possibility of Hazardous Reactions
Will not occur.

Conditions to Avoid
Avoid contact with acids.

Incompatible Materials
This product may react with strong acids.

Hazardous decomposition products
None identified.

Thermal decomposition products
Upon thermal decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Sodium Hydroxide (1310-73-2)
Dermal LD50 Rabbit 1350 mg/kg
Sodium nitrate (7631-99-4)
Oral LD50 Rat 1267 mg/kg
Potassium dichromate (7778-50-9)
Oral LD50 Rat 48 mg/kg
Dermal LD50 Rabbit 1150 mg/kg

Immediate Effects
No information on significant adverse effects.

Delayed Effects
No information on significant adverse effects.

Irritation/Corrosivity Data
No data available.

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Component Carcinogenicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
</tr>
</tbody>
</table>

IARC:
Supplement 7 [1987]; Monograph 23 [1980]; Monograph 2 [1973] (Group 1 (carcinogenic to humans))

NTP: Known Human Carcinogen

OSHA: Present

Germ Cell Mutagenicity
No data available.

Tumorigenic Data
No data available

Reproductive Toxicity
No data available.

Specific Target Organ Toxicity - Single Exposure
No data available.

Specific Target Organ Toxicity - Repeated Exposure
No data available.

Aspiration hazard
No data available.
Medical Conditions Aggravated by Exposure
No data available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

<table>
<thead>
<tr>
<th>Sodium Hydroxide</th>
<th>1310-73-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish:</td>
<td>LC50 96 h Oncorhynchus mykiss 45.4 mg/L [static]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium nitrate</th>
<th>7631-99-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish:</td>
<td>LC50 96 h Lepomis macrochirus 2000 mg/L [static]; LC50 96 h Oncorhynchus mykiss 994.4 - 1107 mg/L [static]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potassium dichromate</th>
<th>7778-50-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish:</td>
<td>LC50 96 h Cyprinus carpio &gt;139 mg/L [static]; LC50 96 h Lepomis macrochirus 113.6 - 155.7 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 320 mg/L; LC50 96 h Lepomis macrochirus 65.6 - 137.6 mg/L [static]; LC50 96 h Oncorhynchus mykiss 12.3 mg/L [semi-static]; LC50 96 h Oryzias latipes 21.209 - 30.046 mg/L [semi-static]; LC50 96 h Pimephales promelas 15.41 - 30.36 mg/L [flow-through]; LC50 96 h Pimephales promelas 14 - 20.9 mg/L [static]; LC50 96 h Poecilia reticulata 24.81 - 34.55 mg/L [semi-static]; LC50 96 h Poecilia reticulata 23 - 41.2 mg/L [static]</td>
</tr>
</tbody>
</table>

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of waste material in accordance with all applicable Federal, State or provincial and local environmental regulations. See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations. In case of large spills, follow all facility emergency response procedures. As shipped, this product would be considered a D002 (corrosive) waste.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: Sodium hydroxide, solid
Hazard Class: 8
Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERCLA:</td>
<td>1000 lb final RQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERCLA:</td>
<td>10 lb final RQ</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TSCA 12b:</td>
<td>Section 6, 0.1 % de minimus concentration (see 40 CFR 749.68)</td>
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</tbody>
</table>

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>7631-99-4</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Not listed under California Proposition 65

Canada Regulations
This material is a controlled product under Canadian WHMIS regulations.

Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in
products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>7631-99-4</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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**Section 16 - OTHER INFORMATION**

**HMIS Rating**

Health: 3 Fire: 0 Reactivity: 1
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

**NFPA Ratings**

Health: 3 Fire: 0 Reactivity: 1
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; JP - Japan; Kow - Octanol/water partition coefficient; KECI - Korea Existing Chemicals Inventory; KECL – Korea Existing Chemicals List; KR - Korea; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR’s Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH-Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TSCA – Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Other Information

Disclaimer:
Reasonable care has been taken in the preparation of this information; however, the manufacturer makes no warranty whatsoever including the warranty of merchantability, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental, consequential, or other such damages resulting from its use or misuse.