1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Chromium(VI) oxide

Product Number: 675644
Brand: Aldrich
Index-No.: 024-001-00-0

CAS-No.: 1333-82-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA

Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing solids (Category 1), H271
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Respiratory sensitisation (Category 1), H334
Skin sensitisation (Category 1), H317
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1A), H350
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger
Hazard statement(s)
H271 May cause fire or explosion; strong oxidizer.
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H330 Fatal if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat.
P220 Keep/Store away from clothing/ combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P283 Wear fire/ flame resistant/ retardant clothing.
P284 Wear respiratory protection.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P306 + P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P371 + P380 + P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P391 Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances
Synonyms : Chromic anhydride
Formula: \(\text{CrO}_3\)
Molecular weight: 99.99 g/mol
CAS-No.: 1333-82-0
EC-No.: 215-607-8
Index-No.: 024-001-00-0

**Hazardous components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (VI) oxide</td>
<td>Ox. Sol. 1; Acute Tox. 3; Acute Tox. 2; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; Muta. 1B; Carc. 1A; Repr. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H271, H301 + H311, H314, H317, H330, H334, H340, H350, H361, H372, H410</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

---

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### 4.3 Indication of any immediate medical attention and special treatment needed
No data available

### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### 5.2 Special hazards arising from the substance or mixture
No data available

#### 5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information
Use water spray to cool unopened containers.
6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Strongly oxidizing hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (VI) oxide</td>
<td>1333-82-0</td>
<td>TWA</td>
<td>0.001000 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potential Occupational Carcinogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Appendix C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Appendix A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Remarks</td>
<td>See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in § 1910.1026 is stayed or is otherwise not in effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Substance listed; for more information see OSHA document 1910.1026</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA</td>
<td>0.050000 mg/m³ USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cancer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Confirmed human carcinogen varies</td>
<td></td>
</tr>
</tbody>
</table>
This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen

<table>
<thead>
<tr>
<th>PEL</th>
<th>0.005000 mg/m³</th>
<th>OSHA Specifically Regulated Chemicals/Carcinogens</th>
</tr>
</thead>
</table>

| 1910.1026 | This standard applies to occupational exposures to chromium (VI) in all forms and compounds in general industry, except: (a) Exposures that occur in the application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); (b) Exposures to portland cement; or (c) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µgm/m³ as an 8-hour time-weighted average (TWA) under any expected conditions of use. Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound OSHA specifically regulated carcinogen |
|----------|--------------------|---------------------------------------------------|

<table>
<thead>
<tr>
<th>TWA</th>
<th>0.000200 mg/m³</th>
<th>USA, NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Upper Respiratory Tract irritation
Cancer
Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Confirmed human carcinogen
varies

<table>
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<th>PEL</th>
<th>0.005 mg/m³</th>
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</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>1910.1026</th>
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</table>
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release dusts, fumes, or mists of chromium (VI) in concentrations at
or above 0.5 µgm/m³ as an 8-hour time-weighted average (TWA)
under any expected conditions of use.
Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium
with a valence of positive six, in any form and in any compound
OSHA specifically regulated carcinogen

<table>
<thead>
<tr>
<th>TWA</th>
<th>0.0002 mg/m³</th>
<th>USA, NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
</table>

Potential Occupational Carcinogen
See Appendix C
See Appendix A

<table>
<thead>
<tr>
<th>PEL</th>
<th>0.005 mg/m³</th>
<th>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.1 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

see Sections 1532.2, 5206 & 8359
see Sections 1532.2, 5206 & 8359

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium (VI) oxide</td>
<td>1333-82-0</td>
<td>Total chromium</td>
<td>25.0000 µg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td>Remarks</td>
<td>End of shift at end of workweek</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total chromium</td>
<td>10.0000 µg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
<td></td>
</tr>
<tr>
<td>Increase during shift</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total chromium</td>
<td>25 µg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
<td></td>
</tr>
<tr>
<td>End of shift at end of workweek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total chromium</td>
<td>10 µg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
<td></td>
</tr>
<tr>
<td>Increase during shift</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

**Appropriate engineering controls**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Personal protective equipment**

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

a) Appearance
   - Form: powder, flakes
   - Colour: violet

b) Odour
   - No data available

c) Odour Threshold
   - No data available

d) pH
   - No data available

e) Melting point/freezing point
   - Melting point/range: 196 °C (385 °F) - dec.

f) Initial boiling point and boiling range
   - No data available

g) Flash point
   - Not applicable

h) Evaporation rate
   - No data available

i) Flammability (solid, gas)
   - No data available

j) Upper/lower flammability or explosive limits
   - No data available

k) Vapour pressure
   - No data available

l) Vapour density
   - No data available

m) Relative density
   - 2.700 g/cm³

n) Water solubility
   - 1.667 g/l - soluble

o) Partition coefficient: n-octanol/water
   - No data available
9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat Avoid moisture.

10.5 Incompatible materials
Organic materials, Phosphorus, Powdered metals

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Chromium oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 52 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male - 4 h - 217 mg/m3
LD50 Dermal - Rabbit - male and female - 57 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Corrosive - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Corrosive to eyes

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
May alter genetic material.
In vivo tests showed mutagenic effects

Carcinogenicity
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.
Human carcinogen.
IARC: 1 - Group 1: Carcinogenic to humans (Chromium (VI) oxide)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: OSHA specifically regulated carcinogen (Chromium (VI) oxide)

**Reproductive toxicity**
Suspected human reproductive toxicant
May cause reproductive disorders.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**Additional Information**
RTECS: GB6650000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

**12. ECOLOGICAL INFORMATION**

**12.1 Toxicity**
Toxicity to fish
LC50 - Tilapia mossambica - 21.05 - 141.38 mg/l - 96.0 h
LC0 - Leuciscus idus (Golden orfe) - 100 mg/l - 48.0 h
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 0.8 mg/l - 48 h

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.
14. TRANSPORT INFORMATION

DOT (US)
UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II
Proper shipping name: Chromium trioxide, anhydrous
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II EMS-No: F-A, S-Q
Proper shipping name: CHROMIUM TRIOXIDE, ANHYDROUS
Marine pollutant: yes

IATA
UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II
Proper shipping name: Chromium trioxide, anhydrous

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
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<th>Revision Date</th>
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</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>1993-04-24</td>
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</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>1993-04-24</td>
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</tbody>
</table>

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>2014-06-06</td>
</tr>
</tbody>
</table>

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1333-82-0</td>
<td>2014-06-06</td>
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16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

<table>
<thead>
<tr>
<th>Acute Tox.</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute</td>
<td>Acute aquatic toxicity</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>Chronic aquatic toxicity</td>
</tr>
<tr>
<td>Carc.</td>
<td>Carcinogenicity</td>
</tr>
</tbody>
</table>
Eye Dam.  Serious eye damage
H271  May cause fire or explosion; strong oxidizer.
H301  Toxic if swallowed.
H301 + H311  Toxic if swallowed or in contact with skin
H311  Toxic in contact with skin.
H314  Causes severe skin burns and eye damage.
H317  May cause an allergic skin reaction.
H318  Causes serious eye damage.
H330  Fatal if inhaled.
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340  May cause genetic defects.
H350  May cause cancer.
H361  Suspected of damaging fertility or the unborn child.
H372  Causes damage to organs through prolonged or repeated exposure if inhaled.

**HMIS Rating**
Health hazard:  4
Chronic Health Hazard:  *
Flammability:  0
Physical Hazard  2

**NFPA Rating**
Health hazard:  4
Fire Hazard:  0
Reactivity Hazard:  2
Special hazard.I:  OX

**Further information**
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**Preparation Information**
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