1. Identification

Product Identifier: HEAVY DUTY DESCALER
Application or recommended use: Acidic metal cleaner/descaler
Restrictions on use: Do not use in any fashion not specified on the product label.
Manufacturer / supplier: Canberra Corporation
3610 N. Holland-Sylvania Rd.
Toledo, Ohio 43615 USA
Telephone: 419-841-6616  Emergency phone: 800-832-8992 National Poison Center: 800-222-1222

2. Hazards Identification

GHS Classification: Classification of this mixture in accordance with paragraph (d) of §1910.1200.
- Skin Corrosion/Irritation - Category 1C
- Eye Damage/Irritation - Category 1
- Corrosive to Metals - 1

Label Elements:
- Symbol: DANGER
- Signal word: DANGER
- Hazard statements: Causes severe skin burns and serious eye damage.
- May be corrosive to metals.
- Precautionary statements: Do not breathe mist/vapors/spray.
  - Wash hands, face and any skin contact thoroughly after handling.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - Keep only in original container.
  - Absorb spillage to prevent material damage.
  - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
  - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
  - 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.
  - Immediately call a POISON CENTER or doctor/physician.
  - Store locked up in corrosive resistant container.
  - Dispose of contents/container to an approved disposal facility.

Other Hazards: Harmful if swallowed.

3. Composition / Information on Ingredients

Chemical characterization: Blended acid solution, with detergents and auxiliary agents.
Hazardous ingredients: The exact percentage of composition has been withheld as a trade secret.
- 20 - 25% Phosphoric acid
- 5 - 10% Hydrochloric Acid (Muriatic Acid)
- 1 - 5% C₉₋₁₁ Alcohol ethoxylate
Other ingredients (> 1%):
- > 60% Water

4. First-Aid Measures

Symptoms: Causes irritation or burning sensation. Causes severe skin burns and serious eye damage.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Inhalation: Move person to fresh air. If respiratory irritation or dizziness occurs, seek immediate medical assistance.
Skin Contact: Remove contaminated clothing and wash before reuse. Wash contaminated area with soap and water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Eye Contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
4. First-Aid Measures (cont.)
Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to a person who is unconscious or convulsing. If vomiting occurs, keep head below hips to reduce risk of aspiration. Probable mucosal damage may contraindicate the use of gastric lavage.
Note to Physician: Treat exposed patients symptomatically.

5. Fire-Fighting Measures
Suitable Extinguishing Media: Not applicable. Product is not a fire hazard.
Unsuitable Extinguishing Media: High pressure water jet.
Specific hazards in case of fire: Hydrogen chloride gas may be generated at high temperatures.
Special Fire Fighting Precautions: Fire fighters should wear appropriate protective equipment, including self-contained breathing apparatus and impervious clothing.

6. Accidental Release Measures
Emergency Procedures: Depending on the extent of release, consider the need for emergency responders with adequate personal protective equipment for clean up, need for evacuation or restriction of access to spill area.
Personal Precautions: Provide adequate ventilation. Do not eat, drink or smoke during clean up. If necessary, use self-contained respirator, or filtered mask. Wear protective clothing, eye protection and impervious gloves (e.g. neoprene). Wash thoroughly after clean up.
Environmental Precautions: Prevent spills from entering storm sewers/drainage or contact with soil.
Clean up Methods: Small spills may be wiped up and rinsed with water. For larger spills, neutralize with sodium carbonate or absorb on inert material (e.g. sand). Pick up absorbent and dispose of at an appropriate waste disposal facility.

7. Handling and Storage
Precautions for Safe Handling: Never use with chlorine products. Can react to give chlorine gas. If this occurs, flush toilet to remove chemicals and leave area. Do not return for half hour. Ventilate if possible. Never use or mix with other cleaners or chemicals. Do not use on any surface that can be damaged by acid materials. Do not breathe mist/vapors. Wash hands, face and any skin contact thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves, protective clothing, eye protection, face protection. Use product only according to label directions. If unsure about safe use, contact your supervisor immediately. Provide adequate ventilation in use.
Conditions for Safe Storage: Keep out of reach of children. Do not contaminate water, food or feed by storage and disposal. Store locked up in tightly closed, original, corrosive resistant container in a cool (10° - 30°C), dry, well-ventilated area.
Incompatibility: Chlorine bleach, alkali.

8. Exposure Controls / Personal Protection
Components with occupational exposure limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>Reference</th>
<th>TWA</th>
<th>PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid</td>
<td>ACGIH</td>
<td>1 mg/M³</td>
<td>1 mg/M³</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>ACGIH</td>
<td>2 ppm (C)</td>
<td>5 ppm (C)</td>
</tr>
</tbody>
</table>

Engineering Controls: Proper ventilation in accordance with good industrial hygiene should be provided.
Personal Protective Equipment
Respiratory: Respiratory protection is not necessary under normal conditions of use. If necessary to prevent exposure above occupational limits, use an approved cartridge style respirator.
Gloves: Use water impervious gloves (latex or neoprene rubber). No breakthrough time has been established.
Eye Protection: Chemical resistant goggles and face protection.
Other: Protective clothing (long sleeves, pants), eyewash, safety shower are always advisable when working with chemicals.

9. Physical and Chemical Properties

| Physical State - | Liquid                      | Auto-ignition temperature - Not applicable |
| Color -          | None                        | Flash Point - None                  |
| Odor -           | Acidic                      | Flammability - Not applicable       |
| Odor Threshold - | No data available          | Flammability Limits - Not applicable |
| Boiling Point -  | 212°F                      | Partition coefficient - Not applicable |
| Decomposition temperature - | No data available | Solubility (Water) - Complete |
| Freezing Point - | 0°F                        | Vapor Density - No data available  |
| pH (Neat) -      | < 1                        | Vapor Pressure - No data available |
| Relative Density - | 1.17                      | Viscosity - Water thin              |
| Evaporation Rate - | Similar to water         | % VOC - 0 (Excluding LVP material)  |

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10. Stability and Reactivity
Reactivity: No specific reactivity test data is available. Under normal conditions of storage and use, hazardous reactions are not expected. Incompatible materials: Mixing with bleach, alkali, or oxidizers may generate toxic gases.
Chemical stability: This product is stable at ambient temperatures and pressures.
Conditions to avoid: Temperatures above 50°C or below 10°C.
Hazardous decomposition products: Hydrogen chloride

11. Toxicological Information
Acute Toxicity: Toxicity data is not available for this mixture. Data below are estimates based on summation methods.

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Classification (A.0.4.1(c))</th>
<th>Basis (A.1.3.6.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>&gt; 2000mg/kg</td>
<td>Not applicable</td>
<td>Ingredient literature (Additive formula)</td>
</tr>
<tr>
<td>Dermal</td>
<td>&gt; 2000mg/kg</td>
<td>Not applicable</td>
<td>Ingredient literature (Additive formula)</td>
</tr>
<tr>
<td>Inhalation</td>
<td>&gt; 20 mg/L</td>
<td>Not applicable</td>
<td>Ingredient literature (Additive formula)</td>
</tr>
<tr>
<td>Eye Damage/Irritation</td>
<td>Corrosion</td>
<td>Category 1</td>
<td>Ingredient literature</td>
</tr>
<tr>
<td>Skin Damage/Irritation</td>
<td>Corrosion</td>
<td>Category 1A</td>
<td>Ingredient literature</td>
</tr>
</tbody>
</table>

Summary: Skin and eye contact are most likely routes of exposure. Exposure causes skin burns and serious eye damage.

Subchronic/Chronic Toxicity:

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Classification</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Sensitization</td>
<td>Not a sensitizer</td>
<td>Not applicable</td>
<td>Ingredient literature</td>
</tr>
</tbody>
</table>

Summary: Repeated or prolonged contact causes skin burns and eye damage.

Carcinogens - Ingredients are not listed on the NTP Report on Carcinogens, IARC Monographs or by OSHA
Other data - No other toxicological information is available for this mixture.

12. Ecological Information
This material has not been tested for acute environmental effects.
Persistence and degradability: Material is not persistent. All organic components > 1% are readily biodegradable.
Bio-accumulative potential: No evidence to suggest bio-accumulation will occur.
Mobility: Accidental spillage may lead to penetration of soil and groundwater. However, due to degradability, no evidence suggests this would cause adverse ecological effects. Material will lower pH of affected area.

13. Disposal Considerations
RCRA Class - D002. Do not contaminate water, food or feed by disposal. If material cannot be disposed of by use according to label directions, contact your State Environmental Control Agency, or the hazardous waste representative at the nearest EPA Regional Office for guidance. Rinse container promptly after emptying. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill. If container is one gallon or less, wrap empty container in plastic bag and discard in trash.

14. Transport Information
Proper Shipping Name: UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Phosphoric acid, Hydrochloric acid)
RQ - 5000 Lbs. (Phosphoric Acid); 5000 Lbs. (Hydrochloric Acid)
Shipping emergency phone: 800-424-9300
Transport hazard class: 8  Corrosive (When shipped as a Limited Quantity, labeling is not required.)
Transport hazard class: 8  Corrosive (When shipped as a Limited Quantity, labeling is not required.)
Packing Group: II  Emergency Guide No.: 154  Marine Pollutant: No

15. Regulatory Information
Inventory status: All components are listed on TSCA(US), EINECS/ELINCS(EU), DSL(Canada), AICS(Australia), ENCS(Japan).
OSHA Hazard Communication Standard: This product meets the §1910.1200 definition of a "Hazardous Chemical".
Superfund Amendments and Reauthorization Act of 1986 Title III (EPCRA) Sections 311 and 312
Immediate (Acute) Health Hazard: Yes  Delayed (Chronic) Health Hazard No
Fire Hazard: No  Reactive Hazard No
Sudden Release of Pressure Hazard: No

Superfund Amendments and Reauthorization Act of 1986 Title III (EPCRA) Section 313
*Chemicals marked with an asterisk in “3. Composition/Information on Ingredients” are subject to reporting requirements for Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40CFR Part 372.

Pennsylvania/New Jersey/Massachusetts Right to Know
See “3. Composition/Information on Ingredients” for hazardous and top five ingredients over 1%.
California Proposition 65: This product does not contain a listed substance known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.
16. Other information

Date issued: 11. 06. 2018 F450-015 Revision: N/A

Disclaimer: No representation or warranty, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature, is made with respect to information concerning the product referred to in this document. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, it is impossible to foresee every health effect or exposure risk incurred by the use of this product. All chemicals present some degree of hazard and should be used with caution. The information and recommendations contained herein are presented in good faith. The user should review this information in conjunction with their knowledge of the application intended to determine the suitability of this product for such purpose. In no event will the supplier be responsible for any damages of any nature whatsoever, resulting from the use, reliance upon, or the misuse of this information. Furthermore, it is the direct responsibility of the user to comply with all applicable regulations governing the use and disposal of this material. Prepared by: R&D, Canberra Corporation