1. Product and Company Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Spa Metal Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #</td>
<td>Mixture</td>
</tr>
<tr>
<td>Product use</td>
<td>Deactivates iron, copper, and other trace metals. Prevents stains and water discoloration.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Natural Chemistry, Inc.</td>
</tr>
<tr>
<td></td>
<td>40 Richards Ave.</td>
</tr>
<tr>
<td></td>
<td>Norwalk, CT 06854 US</td>
</tr>
<tr>
<td></td>
<td>Phone: (800) 753-1233</td>
</tr>
<tr>
<td></td>
<td>Emergency Phone: CHEMTREC (800) 424-9300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEGEND HMIS/NFPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health  / 1</td>
</tr>
<tr>
<td>Flammability 0</td>
</tr>
<tr>
<td>Physical Hazard 0</td>
</tr>
<tr>
<td>Personal Protection B</td>
</tr>
</tbody>
</table>

2. Hazards Identification

Emergency overview
CAUTION
EYE AND SKIN IRRITANT.

Potential short term health effects
Routes of exposure
Eye, Skin contact, Inhalation, Ingestion.

Eyes
May cause irritation.

Skin
May cause irritation.

Inhalation
May cause respiratory tract irritation.

Ingestion
May cause stomach distress, nausea or vomiting.

Target organs
Eyes. Skin.

Chronic effects
Prolonged or repeated exposure can cause drying, defatting and dermatitis.

Signs and symptoms
Symptoms may include redness, edema, drying, defatting and cracking of the skin.
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td>77-92-9</td>
<td>0.5 - 1.5</td>
</tr>
</tbody>
</table>

4. First Aid Measures

First aid procedures

Eye contact
Flush with cool water. Remove contact lenses, if applicable, and continue flushing. Obtain medical attention if irritation persists.

Skin contact
Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.

Inhalation
If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.

Ingestion
Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

Notes to physician
Symptoms may be delayed.
5. Fire Fighting Measures

**Flammable properties**

- Not flammable by WHMIS/OSHA criteria.

**Extinguishing media**

- Unsuitable extinguishing media: Not available

**Protection of firefighters**

- Specific hazards arising from the chemical: Not available
- Protective equipment for firefighters: Firefighters should wear full protective clothing including self contained breathing apparatus.

**Hazardous combustion products**

- May include and are not limited to: Oxides of carbon. Oxides of nitrogen.

**Explosion data**

- Sensitivity to mechanical impact: Not available
- Sensitivity to static discharge: Not available

6. Accidental Release Measures

**Personal precautions**

- Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.

**Methods for containment**

- Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.

**Methods for cleaning up**

- Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.

7. Handling and Storage

**Handling**

- Use good industrial hygiene practices in handling this material.

**Storage**

- Keep out of reach of children. Store in a closed container away from incompatible materials.

8. Exposure Controls / Personal Protection

**Exposure limits**

**Ingredient(s)**

- **Citric acid**
  - ACGIH-TLV
    - TWA: 10 mg/m³
  - OSHA-PEL
    - TWA: 10 mg/m³

**Engineering controls**

- General ventilation normally adequate.

**Personal protective equipment**

- **Eye / face protection**: Wear safety glasses with side shields.
- **Hand protection**: Rubber gloves. Confirm with a reputable supplier first.
- **Skin and body protection**: As required by employer code.
- **Respiratory protection**: Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.

**General hygiene considerations**

- Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.
### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>pH</td>
<td>4 - 5</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>Pour point</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability limits in air, lower, % by volume</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability limits in air, upper, % by volume</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.01 - 1.03</td>
</tr>
<tr>
<td>Relative density</td>
<td>8.39 - 8.42</td>
</tr>
<tr>
<td>Octanol/water coefficient</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>Not available</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Do not mix with other chemicals.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>May include and are not limited to: Oxides of carbon. Oxides of nitrogen.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
</tbody>
</table>

### 10. Stability and Reactivity

- **Chemical stability**: Stable under recommended storage conditions.
- **Conditions to avoid**: Do not mix with other chemicals.
- **Hazardous decomposition products**: May include and are not limited to: Oxides of carbon. Oxides of nitrogen.
- **Possibility of hazardous reactions**: Hazardous polymerization does not occur.

### 11. Toxicological Information

#### Component analysis - LC50

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td>Not available</td>
</tr>
</tbody>
</table>

#### Component analysis - Oral LD50

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td>5040 mg/kg mouse; 3000 mg/kg rat</td>
</tr>
</tbody>
</table>

#### Effects of acute exposure

- **Eye**: May cause irritation.
- **Skin**: May cause irritation.
- **Inhalation**: May cause respiratory tract irritation.
- **Ingestion**: May cause stomach distress, nausea or vomiting.
- **Sensitization**: Non-hazardous by WHMIS/OSHA criteria.
- **Chronic effects**: Non-hazardous by WHMIS/OSHA criteria.
- **Carcinogenicity**: Non-hazardous by WHMIS/OSHA criteria.
- **Mutagenicity**: Non-hazardous by WHMIS/OSHA criteria.
- **Reproductive effects**: Non-hazardous by WHMIS/OSHA criteria.
- **Teratogenicity**: Non-hazardous by WHMIS/OSHA criteria.
12. Ecological Information

Components of this product have been identified as having potential environmental concerns.

Ecotoxicity - Freshwater Fish Species Data
Citric acid 77-92-9 96 Hr LC50 Lepomis macrochirus: 1516 mg/L [static]

Ecotoxicity - Microtox Data
Citric acid 77-92-9 15 Min EC50 Photobacterium phosphoreum: 14 mg/L

Ecotoxicity - Water Flea Data
Citric acid 77-92-9 72 Hr EC50 Daphnia magna: 120 mg/L

Environmental effects Not available
Aquatic toxicity Not available
Persistence / degradability Not available
Bioaccumulation / accumulation Not available
Partition coefficient Not available
Mobility in environmental media Not available
Chemical fate information Not available
Other adverse effects Not available

13. Disposal Considerations

Waste codes Not available
Disposal instructions Review federal, state/provincial, and local government requirements prior to disposal.
Waste from residues / unused products Not available
Contaminated packaging Not available

14. Transport Information

U.S. Department of Transportation (DOT)
Not regulated as dangerous goods.

Transportation of Dangerous Goods (TDG - Canada)
Not regulated as dangerous goods.

15. Regulatory Information

Canadian federal regulations
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canada - WHMIS - Ingredient Disclosure List
Citric acid 77-92-9 1 %

US Federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.

Occupational Safety and Health Administration (OSHA)
29 CFR 1910.1200 hazardous chemical Yes

CERCLA (Superfund) reportable quantity
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No
Section 311 hazardous chemical Yes
Clean Air Act (CAA)  Not available
Clean Water Act (CWA)  Not available
WHMIS status  Controlled
WHMIS classification  Class D - Division 2B

State regulations  This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Inventory name

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Disclaimer  Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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Effective date  15-Feb-2010
Expiry date  15-Feb-2013
Prepared by  Dell Tech Laboratories Ltd. (519) 858-5021
Other information  For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.