1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name United 688 HOT SHOT

Other means of identification
SDS # UNITED-688
UN/ID No UN3264

Recommended use of the chemical and restrictions on use
Recommended Use Heavy Duty Descaler/Renovator.
Uses Advised Against For industrial and institutional use only.

Details of the supplier of the safety data sheet
Supplier Address United Laboratories, Inc.
320 37th Avenue
St. Charles, IL 60174
www.unitedlabsinc.com
www.unitedlabsinc.ca

Emergency Telephone Number
Company Phone Number 800-323-2594 (to reorder)
Emergency Telephone (24 hr) INFOTRAC 1-800-535-5053 (North America)
1-352-323-3500 (International)

2. HAZARDS IDENTIFICATION

Appearance Clear liquid
Physical State Liquid
Odor Slight acidic

Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1, Sub-category B</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Signal Word
Danger

Hazard Statements
Harmful if swallowed. Causes severe skin burns and eye damage.
Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Immediately call a poison center or doctor/physician. 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. If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician. If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting.

Precautionary Statements - Storage
Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride</td>
<td>1341-49-7</td>
<td>10-20</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>1-10</td>
</tr>
</tbody>
</table>

*If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.*

4. FIRST-AID MEASURES

First Aid Measures

**General Advice**
Immediately call a poison center or doctor/physician.

**Eye Contact**
Flush eyes thoroughly with boric acid followed by cold water for 15 minutes. Hold eyelids open to ensure thorough rinsing. Immediately call a poison center or doctor/physician.

**Skin Contact**
Alkaline soap may be used. Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Immediately call a poison center or doctor/physician.

**Ingestion**
Rinse mouth. Do not induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects**

**Symptoms**
Harmful if swallowed. Causes severe skin burns and eye damage. May cause blindness. May be absorbed through the skin with possible systemic effects. Vapors or mists may cause damage to the upper respiratory tract and to the lung tissue. May cause severe burns, intense vomiting and diarrhea, muscle weakness and/or tremors may follow CNS depression leading to shock and cardiac failure. Chronic overexposure to hydrofluoric acid may result in weight loss, brittle bones, anemia, weakness, stiffness of joints and mottled teeth.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician**
Unless vomiting has been extensive, perform gentle gastric lavage with lime water or 1% solution calcium chloride or milk. Then give lime water of aluminum hydroxide gel orally at frequent intervals.
5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**
Water. Dry chemical. Carbon dioxide (CO2).

**Unsuitable Extinguishing Media**  No information available.

**Specific Hazards Arising from the Chemical**
None known.

**Hazardous Combustion Products**  When strongly heated, as in a fire, this product may produce carbon monoxide, carbon dioxide, hydrogen chloride, hydrofluoric acid, ammonia and other toxic fumes.

**Protective equipment and precautions for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. All containers should be cooled with water to prevent vapor pressure build up.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions**  Use personal protective equipment as required.

**Methods and material for containment and cleaning up**

**Methods for Containment**  Prevent further leakage or spillage if safe to do so.

**Methods for Clean-Up**  Small spills: Spills up to one gallon may be diluted with plenty of water and flushed to sewage drain. Rinse area thoroughly. Small spills: Soak up with an inert absorbent and place in designated disposal container.

7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on Safe Handling**  Handle in accordance with good industrial hygiene and safety practice. Wash face, hands, and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing and eye/face protection.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**  Store locked up. Keep containers tightly closed when not in use. Store in a cool, dry well-ventilated area. Do not allow this product to freeze, as the container may split or rupture.

**Incompatible Materials**  Do not mix this product with other cleaning materials, especially acids or strong oxidizing agents such as bleach.
### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride</td>
<td>TWA: 2.5 mg/m^3 F</td>
<td>TWA: 2.5 mg/m^3 F</td>
<td>TWA: 2.5 mg/m^3 F</td>
</tr>
<tr>
<td>1341-49-7</td>
<td></td>
<td>TWA: 2.5 mg/m^3 dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vacated) TWA: 2.5 mg/m^3</td>
<td></td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>Ceiling: 2 ppm</td>
<td>Ceiling: 5 ppm</td>
<td>IDLH: 50 ppm</td>
</tr>
<tr>
<td>7647-01-0</td>
<td></td>
<td>(vacated) Ceiling: 7 mg/m^3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceiling: 5 ppm</td>
<td>Ceiling: 7 mg/m^3</td>
</tr>
<tr>
<td>Ammonium fluoride</td>
<td>TWA: 2.5 mg/m^3 F</td>
<td>TWA: 2.5 mg/m^3 F</td>
<td>TWA: 2.5 mg/m^3 F</td>
</tr>
<tr>
<td>12125-01-8</td>
<td></td>
<td>TWA: 2.5 mg/m^3 dust</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vacated) TWA: 2.5 mg/m^3</td>
<td></td>
</tr>
</tbody>
</table>

#### Appropriate engineering controls

**Engineering Controls**

Provide adequate ventilation. Mechanical ventilation recommended when handling in enclosed, tight spaces.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection**

Wear chemical goggles.

**Skin and Body Protection**

Chemical resistant protective gloves.

**Respiratory Protection**

Ensure adequate ventilation, especially in confined areas. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment.

**General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Slight acidic</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>100 °C / 212 °F</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Flammability (Solid, Gas)</td>
<td>Liquid- Not applicable</td>
<td></td>
</tr>
<tr>
<td>Upper Flammability Limits</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.07</td>
<td>Water = 1</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Completely soluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>No information available.</td>
<td></td>
</tr>
<tr>
<td>Dynamic Viscosity</td>
<td>No information available.</td>
<td></td>
</tr>
</tbody>
</table>
Explosive Properties  
No information available.

Oxidizing Properties  
No information available.

VOC Content  
None.

**10. STABILITY AND REACTIVITY**

**Reactivity**
Not reactive under normal conditions.

**Chemical Stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to Avoid**
Keep out of reach of children.

**Incompatible Materials**
Do not mix this product with other cleaning materials, especially acids or strong oxidizing agents such as bleach.

**Hazardous Decomposition Products**
When strongly heated, as in a fire, this product may produce oxides of carbon, hydrogen chloride, hydrofluoric acid and ammonia.

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

**Product Information**

**Eye Contact**
Causes severe eye damage.

**Skin Contact**
Causes severe skin burns.

**Inhalation**
Do not inhale.

**Ingestion**
Harmful if swallowed.

**Component Information**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50 (mg/kg)</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride</td>
<td>130 (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>700 (Rat)</td>
<td>&gt;5010 (Rabbit)</td>
<td>3124 ppm (Rat) 1 h</td>
</tr>
<tr>
<td>Alcohol Ethoxylate</td>
<td>1378 (Rat)</td>
<td>&gt;2 (Rabbit)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Information on physical, chemical and toxicological effects**

**Symptoms**
Please see section 4 of this SDS for symptoms.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Carcinogenicity**
Group 3 IARC components are "not classifiable as human carcinogens".
Hydrochloric acid
7647-01-0
Group 3

Legend
IARC (International Agency for Research on Cancer)
Group 3 IARC components are "not classifiable as human carcinogens"

Numerical measures of toxicity
No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity
No information available.

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility
No information available.

Other Adverse Effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note
Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT
UN/ID No
UN3264
Proper Shipping Name
Corrosive liquid, acidic, inorganic, n.o.s. (Ammonium hydrogen difluoride, hydrochloric acid)
Hazard Class
8
Packing Group
II

IATA
UN/ID No
UN3264
Proper Shipping Name
Corrosive liquid, acidic, inorganic, n.o.s. (Ammonium hydrogen difluoride, hydrochloric acid)
Hazard Class
8
Packing Group
II

IMDG
UN/ID No
UN3264
Hazard Class
8
Packing Group
II
## 15. REGULATORY INFORMATION

### International Inventories

**TSCA**

Listed.

Legend:

* TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

### US Federal Regulations

#### CERCLA

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride 1341-49-7</td>
<td>100 lb</td>
<td></td>
<td>RQ 100 lb final RQ</td>
</tr>
<tr>
<td>Hydrochloric acid 7647-01-0</td>
<td>5000 lb</td>
<td>5000 lb</td>
<td>RQ 45.4 kg final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 5000 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 2270 kg final RQ</td>
</tr>
</tbody>
</table>

#### SARA 313

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride - 1341-49-7</td>
<td>1341-49-7</td>
<td>10-20</td>
<td>1.0</td>
</tr>
<tr>
<td>Hydrochloric acid - 7647-01-0</td>
<td>7647-01-0</td>
<td>1-10</td>
<td>1.0</td>
</tr>
<tr>
<td>Ammonium fluoride - 12125-01-8</td>
<td>12125-01-8</td>
<td>&lt;1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride 1341-49-7 (10-20)</td>
<td>100 lb</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hydrochloric acid 7647-01-0 (1-10)</td>
<td>5000 lb</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### US State Regulations

#### California Proposition 65

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

#### U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium bifluoride 1341-49-7</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hydrochloric acid 7647-01-0</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ammonium fluoride 12125-01-8</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
### 16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>N+P</td>
</tr>
</tbody>
</table>

**Issue Date:** 09-Sep-2014  
**Revision Date:** 09-Sep-2015  
**Revision Note:** New format

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**