1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name
Chlorinated Machine Dishwashing Liquid

Other Means of Identification
UN/ID No
UN1814
Product Code
112

Recommended Use of the Chemical and Restrictions on Use
Recommended Use
Machine dishwashing, injector fed systems only

Details of the Supplier of the Safety Data Sheet
Manufacturer Address
Arrow Chemical Products, Inc.
2067 Sainte Anne St.
Detroit, Michigan 48216

Emergency Telephone Number
Company Phone Number
313-237-0277
Emergency Telephone
INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Classification

<table>
<thead>
<tr>
<th>Hazard Classification</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 1</td>
<td>Sub-category B</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</td>
<td></td>
</tr>
</tbody>
</table>

Signal Word
DANGER

Hazard Statements
Harmful if swallowed
Causes severe skin burns and eye damage

Appearance
Clear liquid
Physical State
Liquid
Odor
Chlorine
Precautionary Statements - Prevention
Keep in original container.
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe fumes/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 immediately for treatment advice.

Precautionary Statements - Storage
Store locked up and in original container.

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>Potassium hydroxide</td>
<td>7732-18-5</td>
<td>15 - 35</td>
</tr>
<tr>
<td>Sodium Tripolyphosphate</td>
<td>7758-29-4</td>
<td>10 - 15</td>
</tr>
<tr>
<td>Sodium hypochlorite</td>
<td>7681-52-9</td>
<td>0 - 10</td>
</tr>
</tbody>
</table>

The balance of ingredients are not hazardous by GHS and are being withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Eye Contact
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.

Ingestion
Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician for treatment advice.

Skin Contact
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Discard contaminated leather goods.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms
Skin exposures: may cause burns, blisters, tissue destruction, drying or defatting of the skin. Eye exposures may cause damage to internal contents of the eye, permanent visual defects, and blindness and/or loss of eye. Inhalation: exposure to airborne material may cause severe irritation to mucous membranes, and upper respiratory tract. Swallowing: exposure by ingestion may cause severe and permanent damage.
5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Extinguish all nearby sources of ignition since flammable hydrogen gas will be liberated from contact with some metals. May react violently with many organic chemicals, especially nitrocarbons and chlorocarbons. Potassium hydroxide reacts with zinc, aluminum, tin, and other active metals liberating flammable hydrogen gas.

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.

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. Absorb spill with inert material (e.g. dry sand or earth).

Methods for Cleaning Up Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling 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 appropriate personal protective equipment.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Store locked up and in original container. Store in a cool, dry place away from heat and incompatible materials. Keep out of the reach of children.

Incompatible Materials Acids. Combustible material. Organic compounds such as leather and wool. Contact with metals may evolve flammable hydrogen gas.

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>Potassium hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td>(vacated) Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appropriate Engineering Controls

Engineering Controls
Apply technical measures to comply with the occupational exposure limits. Showers.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection
Chemical safety goggles/faceshield.

Skin and Body Protection
Rubber gloves. Suitable protective clothing.

Respiratory Protection
Ensure adequate ventilation, especially in confined areas.

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 to yellowish liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Clear to pale yellow</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Chlorine</td>
<td></td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>13.0 – 14.0</td>
<td></td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Upper Flammability Limits</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.26</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions. Reacts with acids, giving off heat.

Chemical Stability
Stable under recommended storage conditions.

Conditions to Avoid
Mixing with acids or incompatible materials may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas. Carbon monoxide may form upon contact with reducing agents.

Incompatible Materials
Acids. Combustible material. Organic compounds such as leather and wool. Contact with metals may evolve flammable hydrogen gas.

Hazardous Decomposition Products
Reactions with metals may produce hydrogen gas.
11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation  Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

Eye Contact  Causes severe eye damage.

Skin Contact  Causes severe skin burns.

Ingestion  Harmful if swallowed.

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>= 284 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium hypochlorite</td>
<td>= 8200 mg/kg (Rat)</td>
<td>&gt; 10000 mg/kg (Rabbit)</td>
<td>-</td>
</tr>
<tr>
<td>7681-52-9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on Physical, Chemical and Toxicological Effects

Symptoms of Exposure  This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Signs and symptoms vary, and are dependent on the route of exposure, and the duration of exposure. Aspirating this material may cause signs and symptoms that are similar to those experienced as a result of breathing or inhaling this material. Skin exposure may cause severe burns, blisters, tissue destruction, drying or defatting of the skin.

Carcinogenicity  Not classified as a carcinogen per GHS criteria. Not classified by NTP, IARC or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>0.095; 24 h Skeletonema costatum mg/L EC50</td>
<td>0.06 - 0.11; 96 h Pimephales promelas mg/L LC50 flow-through 4.5 - 7.6: 96 h Pimephales promelas mg/L LC50 static 0.4 - 0.8: 96 h Lepomis macrochirus mg/L LC50 static 0.28 - 1: 96 h Lepomis macrochirus mg/L LC50 flow-through 0.05 - 0.771: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.03 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 0.18 - 0.22: 96 h Oncorhynchus mykiss mg/L LC50 static</td>
<td>2.1: 96 h Daphnia magna mg/L EC50 0.033 - 0.044: 48 h Daphnia magna mg/L EC50 Static</td>
<td></td>
</tr>
<tr>
<td>1310-58-3</td>
<td>80: 96 h Gambusia affinis mg/L LC50 static</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium hypochlorite</td>
<td>0.095; 24 h Skeletonema costatum mg/L EC50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7681-52-9</td>
<td>2.1: 96 h Daphnia magna mg/L EC50 0.033 - 0.044: 48 h Daphnia magna mg/L EC50 Static</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability  Not determined

Bioaccumulation  Not determined
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  UN1814
Proper Shipping Name  Potassium hydroxide, solution
Hazard Class  8
Packing Group  II

IATA

UN/ID No  UN1814
Proper Shipping Name  Potassium hydroxide, solution
Hazard Class  8
Packing Group  II

IMDG

UN/ID No  UN1814
Proper Shipping Name  Potassium hydroxide, solution
Hazard Class  8

15. REGULATORY INFORMATION

International Inventories

TSCA  Listed
DSL  Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

CERCLA Reportable Quantity  The following components are listed:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>CERCLA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hypochlorite</td>
<td>7681-52-9</td>
<td>100 lbs.</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>1310-58-3</td>
<td>1000 lbs.</td>
</tr>
</tbody>
</table>

SARA 313  No chemical (s) components of this product are subject to reporting levels established by SARA Title III, Section 313.
US State Regulations

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>Potassium hydroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>1310-58-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium hypochlorite</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7681-52-9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Hazards</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Reactivity</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Hazards</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>B</td>
</tr>
</tbody>
</table>

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