1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Names:  Sodium Hypochlorite Solution 16% EP, EPA Reg. No. 33981-10
Sodium Hypochlorite MP 16%, EPA Reg. No. 33981-11
Sodium Hypochlorite Solution, EPA Reg. No. 33891-20001
Sodium Hypochlorite Solution 10%, EPA Reg. No. 33981-20002
Sodium Hypochlorite Solution 9.2%, EPA Reg. No. 33981-20003
Sodium Hypochlorite Solution 5.25%, EPA Reg. No. 33981-20004

Synonyms:  Sodium hypochlorite; bleach; liquid chlorine solution

Product Type:  Disinfectant and Sanitizer

Company Name:  K.A. Steel Chemicals, Inc.
15185 Main Street
Lemont, IL 60439

Telephone Numbers:  Transportation Information: Chemtrec:1.800.424.9300
Medical Emergency: 1.800.222.1222
Product Information: 800.677.8335 (24/7)

Date of Issue:  March 25, 2011
Supersedes:  New
Sections Revised:  New

2. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance and Odor:  Light greenish to yellow colored liquid with a pungent, irritating odor.
Warning Statements:  Danger. Corrosive; may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

Potential Health Effects:
Likely Routes of Exposure:  Inhalation, eye, skin contact and ingestion
Eye Contact:  May cause severe and possible permanent damage to eye.
Skin Contact:  May cause moderate skin irritation. Prolonged exposure may cause burns and/or blistering.
Ingestion:  Ingestion may cause irritation of the membranes of the mouth and throat, stomach pain and possible ulceration.
Inhalation:  Breathing of mist may cause irritation of upper respiratory tract.
Medical Conditions Aggravated by Exposure:  Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:
Sodium hypochlorite is toxic to fish and aquatic organisms.

See Section 12: ECOLOGICAL INFORMATION for more information.
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS NO.</th>
<th>% BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hypochlorite</td>
<td>7681-52-9</td>
<td>5-16</td>
</tr>
<tr>
<td>Other Ingredients Including:</td>
<td></td>
<td>84-95</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Immediately rinse skin with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Swallowed: Immediately call a poison control center or doctor 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 an unconscious person.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Flash Point: Not applicable
Autoignition Temperature: Not applicable
Flammability Limits: Not applicable

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire.
Special Fire Fighting Procedures: Firefighters must wear NIOSH/MSHA-approved self-contained breathing apparatus and full fire-fighting turn-out gear. Dike area to prevent runoff and contamination of water sources; properly dispose of fire control water later.
Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff using dikes to prevent contamination of water supplies. Dispose of fire control water later. Heat and/or acid contamination may generate toxic chlorine gas.
Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as chlorine, sodium chloride, sodium chlorate and oxygen.

National Fire Protection Association (NFPA) Hazard Rating:
Rating for this Product: Health: 3  Flammability: 0  Reactivity: 1
Hazards Scale: 0 = Minimal  1 = Slight  2 = Moderate  3 = Serious  4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.
Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. Remove the affected area and place in an appropriate container for disposal.
Methods for Containment: Dike spill using impervious materials or absorbent materials such as earth, sand or clay; collect and contain contaminated impervious or absorbent materials for disposal.
Methods for Cleanup and Disposal: Pump any free liquid into an appropriate container and seal tightly. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800.424.8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:
Avoid breathing vapors. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Immediately remove clothing/Personal Protective Equipment (PPE) if pesticide gets inside, then thoroughly wash and put on clean clothing. If pesticide gets on skin, immediately wash with soap and water. Immediately remove PPE after handling this product. As soon as possible, thoroughly wash and change into clean clothing.

Storage:
To avoid deterioration, store this product in a cool dry area, away from direct sunlight and heat. In case of spill, flood areas with large quantities of water. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:
Where engineering controls are indicated by specific use conditions or a potential for excessive exposure exists, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:
Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.
Skin Protection: To avoid contact with skin wear long-sleeved shirt, long pants, shoes, socks and rubber gloves. An emergency shower or water supply should be readily accessible to the work area.
Respiratory Protection: Not normally required. If vapors, mists or dusts exceed acceptable levels, wear NIOSH-approved air-purifying respirator with cartridges/canisters approved for use against chlorine gas (acid gas).
General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products or cosmetics in areas where this material is stored; 2) carefully wash hands and face before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
<td>STEL</td>
</tr>
<tr>
<td>Sodium Hypochlorite</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>2</td>
<td>NE</td>
</tr>
</tbody>
</table>

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Light greenish to yellow colored liquid with a pungent, irritating odor.
Boiling Point: Not determined
Solubility in Water: Completely soluble
Density: 10-11 pounds/gallon
Specific Gravity: 1.26 @ 20ºC (68ºF)
10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions. Product slowly decomposes on contact with air. The rate of decomposition increases with product concentration and temperature.

Conditions to Avoid: High heat, sunlight and ultra-violet light.

Incompatible Materials: May react violently with acids, oxidizing materials, reducing agents, ammonia compounds and most organic compounds (including greases, oil and fuels). Reacts rapidly with aluminum, tin, zinc, nickel, copper, bronze and brass.

Hazardous Decomposition Products: Under fire conditions may produce gases such as chlorine, sodium chloride, sodium chlorate and oxygen.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:
Data from laboratory studies conducted on a similar, but not identical, formulation:

- Oral: Rat LD₉₀: >5,000 mg/kg
- Dermal: Rat LD₉₀: >2,000 mg/kg
- Inhalation: Rat 4-hr LC₉₀: No data available
- Eye Irritation: Rabbit: Corrosive
- Skin Irritation: Rabbit: Corrosive
- Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure may cause effects to the upper respiratory tract.

Carcinogenicity/Chronic Health Effects: Sodium hypochlorite has shown not to be carcinogenic in laboratory animals.

Reproductive Toxicity: There are no known or reported effects on reproduction function.

Developmental Toxicity: There are no known or reported effects on fetal development.

Genotoxicity: Sodium hypochlorite has tested positive in in-vitro test systems and negative in in-vivo test systems. These results are consistent with other germicides.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Sodium hypochlorite has a low toxicity to avian wildlife and is highly toxic to freshwater fish and invertebrates.

Environmental Fate:
In fresh water, sodium hypochlorite breaks down rapidly into non-toxic compounds when exposed to sunlight. In seawater, chlorine levels decline rapidly; however, sodium hypochlorite does undergo reaction with bromide ions in
seawater to form hypobromite. Although hypobromite is acutely toxic to aquatic organisms, from a chronic viewpoint, it does not appear to be toxic because it is highly volatile and will not persist in the aquatic environment. The typical aquatic half-life of hypobromite is <96 hours.

13. DISPOSAL CONSIDERATIONS

Residential:
Nonrefillable container. Do not reuse or refill this container.
If empty: Do not reuse this container. Place in trash or offer for recycling if available.
If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

Commercial:
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal:
Nonrefillable Containers 5 Gallons or Less: Nonrefillable container; do not reuse or refill this container. Offer for recycling if available. Triple rinse (or equivalent) container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.
Nonrefillable containers larger than 5 gallons: Nonrefillable container; do not reuse or refill this container. Offer for recycling if available. Triple rinse (or equivalent) container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.
Refillable containers: Refillable container. Refill this container only with sodium hypochlorite. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions in Section 7: HANDLING AND STORAGE.

DOT (Department of Transportation)
Proper Shipping Name: Hypochlorite Solution
Hazard Classification: 8
Identification Number: UN 1791
Packing Group: II or III depending upon concentration
Label Required: Corrosive
Reportable Quantity: 100 pounds (Sodium Hypochlorite)
15. REGULATORY INFORMATION

U.S. Federal Regulations:
TSCA Inventory: This product is exempt from TSCA because it is solely for FIFRA-regulated use.

SARA Hazard Notification/Reporting:
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):
   Acute, Chronic and Reactivity

Section 313 Toxic Chemical(s):
   None

Reportable Quantity (RQ) under U.S. CERCLA:
   Sodium Hypochlorite (CAS No. 7681-52-9): 100 pounds

RCRA Waste Code:
   None

State Information:
Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not listed.

16. OTHER INFORMATION

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, K.A. Steel Chemicals, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, K.A. Steel Chemicals will not be responsible for damages of any kind resulting from the use of or reliance upon such information. No representation, or warranties, either express or implied, of merchantability fitness for a particular purpose or of any nature are made hereunder with respect to the product to which the information refers. It is a violation of Federal law to use this product in a manner inconsistent with applicable law.