1 Identification

- **Product identifier**
  - **Trade name:** Versenate Hardness Buffer Solution
  - **Article number:** 205-04-5
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** OFI Testing Equipment Inc.
    11302 Steeplecrest Dr.
    Houston, TX 77065
    (877) 837-8683
  - **Information department:** techservices@ofite.com
  - **Emergency telephone number:**
    INFOTRAC USA - CANADA: 1-800-535-5053
    INTERNATIONAL: 1-352-323-3500

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - GHS05 Corrosion

  Skin Corr. 1B H314 Causes severe skin burns and eye damage.
  Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
  - **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**

   - GHS05

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - **Ammonium Hydroxide**

- **Hazard statements**
  - Causes severe skin burns and eye damage.

- **Precautionary statements**
  - Do not breathe dusts or mists.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - Wash thoroughly after handling.
  - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - Wash contaminated clothing before reuse.
  - 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/doctor.
  - Specific treatment (see on this label).
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - IF swallowed: Rinse mouth. Do NOT induce vomiting.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)
Trade name: Versenate Hardness
Buffer Solution

- Classification system:
- NFPA ratings (scale 0 - 4)
  - Health = 3
  - Fire = 0
  - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - Health = 3
  - Fire = 0
  - Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

  - Dangerous components:
    - CAS: 1336-21-6 Ammonium Hydroxide 57.2%
    - CAS: 12125-02-9 Ammonium Chloride, Reagent ACS Grade 6.8%
    - Table of Nonhazardous Ingredients
      - CAS: 7732-18-5 Water 36.0%

4 First-aid measures

- Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture: No further relevant information available.
Trade name: Versenate Hardness
Buffer Solution

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
· Environmental precautions: Do not allow to enter sewers/surface or ground water.
· Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
· Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
· Protective Action Criteria for Chemicals

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>CAS: 1336-21-6</td>
<td>Ammonium Hydroxide</td>
<td>61 ppm</td>
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<tr>
<td>CAS: 12125-02-9</td>
<td>Ammonium Chloride, Reagent ACS Grade</td>
<td>20 mg/m³</td>
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</tbody>
</table>

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<thead>
<tr>
<th>PAC-2:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CAS: 1336-21-6</td>
<td>Ammonium Hydroxide</td>
<td>330 ppm</td>
</tr>
<tr>
<td>CAS: 12125-02-9</td>
<td>Ammonium Chloride, Reagent ACS Grade</td>
<td>54 mg/m³</td>
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</table>

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<thead>
<tr>
<th>PAC-3:</th>
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</thead>
<tbody>
<tr>
<td>CAS: 1336-21-6</td>
<td>Ammonium Hydroxide</td>
<td>2,300 ppm</td>
</tr>
<tr>
<td>CAS: 12125-02-9</td>
<td>Ammonium Chloride, Reagent ACS Grade</td>
<td>330 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

· Handling:
  · Precautions for safe handling No special precautions are necessary if used correctly.
  · Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
· Storage:
  · Requirements to be met by storerooms and receptacles: No special requirements.
  · Information about storage in one common storage facility: Not required.
  · Further information about storage conditions: Keep receptacle tightly sealed.
· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
· Control parameters
· Components with limit values that require monitoring at the workplace:
  The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

**CAS: 12125-02-9 Ammonium Chloride, Reagent ACS Grade**

<table>
<thead>
<tr>
<th></th>
<th>REL</th>
<th>Short-term value: 20 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Long-term value: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>TLV</td>
<td>Short-term value: 20 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 10 mg/m³</td>
</tr>
</tbody>
</table>

**Additional information:** The lists that were valid during the creation were used as basis.

**Exposure controls**

**Personal protective equipment:**

**General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

**Breathing equipment:** Not required.

**Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

Tightly sealed goggles

**Body protection:** Protective work clothing

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**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

- Form: Liquid
- Color: Colorless
- Odor: Ammonia-like
- Odor threshold: Not determined.
Trade name: Versenate Hardness Buffer Solution

**pH-value:** Not determined.

**Change in condition**
- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 100 °C (212 °F)

**Flash point:** Not applicable.

**Flammability (solid, gaseous):** Not applicable.

**Ignition temperature:**
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.

**Danger of explosion:**
- **Explosion limits:**
  - Lower: Not determined.
  - Upper: Not determined.
- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17 mm Hg)
- **Density at 20 °C (68 °F):** 0.97108 g/cm³ (8.104 lbs/gal)
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.

**Solubility in / Miscibility with**
- **Water:** Not miscible or difficult to mix.

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**
- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

**Solvent content:**
- **Organic solvents:** 0.0 %
- **Water:** 36.0 %
- **VOC content:** 0.0 g/l / 0.00 lb/gl

**Other information**
- No further relevant information available.

### 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials** No further relevant information available.
- **Hazardous decomposition products** No dangerous decomposition products known.
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      - ATE (Acute Toxicity Estimates)
        - Oral LD50 24265 mg/kg (rat)
    - Primary irritant effect:
      - on the skin: Caustic effect on skin and mucous membranes.
      - on the eye:
        - Strong caustic effect.
        - Strong irritant with the danger of severe eye injury.
    - Sensitization: No sensitizing effects known.
    - Additional toxicological information:
      - The product shows the following dangers according to internally approved calculation methods for preparations:
        - Corrosive
        - Irritant
      - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    - None of the ingredients is listed.
  - NTP (National Toxicology Program)
    - None of the ingredients is listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    - None of the ingredients is listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes:
    - Water hazard class 2 (Self-assessment): hazardous for water
    - Do not allow product to reach ground water, water course or sewage system.
    - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    - Danger to drinking water if even small quantities leak into the ground.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA UN2672

- UN proper shipping name
  - DOT Ammonia Solution
  - IMDG AMMONIA SOLUTION, MARINE POLLUTANT
  - IATA AMMONIA SOLUTION

- Transport hazard class(es)
  - DOT
    - Class 8 Corrosive substances
    - Label 8
  - IMDG
    - Class 8 Corrosive substances
    - Label 8
  - IATA
    - Class 8 Corrosive substances
    - Label 8

- Packing group
  - DOT, IMDG, IATA III

- Environmental hazards:
  - Product contains environmentally hazardous substances: Ammonium Hydroxide
  - Marine pollutant: Yes
    - Symbol (fish and tree)

- Special precautions for user
  - Warning: Corrosive substances
### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
    - **Section 355 (extremely hazardous substances):**
      - None of the ingredients is listed.
    - **Section 313 (Specific toxic chemical listings):**
      - CAS: 1336-21-6 Ammonium Hydroxide
    - **TSCA (Toxic Substances Control Act):**
      - CAS: 1336-21-6 Ammonium Hydroxide
      - CAS: 12125-02-9 Ammonium Chloride, Reagent ACS Grade
    - **Proposition 65**
      - None of the ingredients is listed.

- **Chemicals known to cause cancer:**
  - None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**
  - None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**
  - None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**
  - None of the ingredients is listed.

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - None of the ingredients is listed.
Trade name: Versenate Hardness
Buffer Solution

44.0

· TLV (Threshold Limit Value established by ACGIH)
None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
· Hazard pictograms

GHS05

· Signal word Danger

· Hazard-determining components of labeling:
Ammonium Hydroxide
· Hazard statements
Causes severe skin burns and eye damage.
· Precautionary statements
Do not breathe dusts or mists.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
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/doctor.
Specific treatment (see on this label).
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If swallowed: Rinse mouth. Do NOT induce vomiting.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Environment protection department.
· Contact:
· Date of preparation / last revision
Revision 0.1, 05-15-2015: revised to correct emergency and information contacts.STN
Creation date for SDS 05-06-14 LS
Revision 0.2, 07-03-2017: Reviewed SDS. STN
07/03/2017 / -
· Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances

(Contd. on page 10)
Trade name: Versenate Hardness
Buffer Solution

ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1