1 Identification

- Product identifier
  - Trade name: Reagent - Kleenflow Basic
  - Part number: A002294
  - Application of the substance / the mixture: Laboratory chemicals

- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier:
    ULTRA Scientific, Inc.
    250 Smith Street
    North Kingstown, RI 02852
    USA

- Information department:
  - Telephone: (401) 294-9400
  - Fax: (401) 295-2300
  - E-mail: regulatory@ultrasci.com

- Emergency telephone number:
  - US: +1-800-424-9300
  - Outside US: +1-703-527-3887

2 Hazard(s) identification

- Classification of the substance or mixture
  - Health hazard: Carc. 1A H350 May cause cancer.
  - 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 Health hazard
  - GHS08 Health hazard

- Signal word: Danger

- Hazard-determining components of labeling:
  - Sodium hydroxide
  - Ethanol

- Hazard statements:
  - Causes severe skin burns and eye damage.
  - May cause cancer.

- Precautionary statements:
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
Trade name: Reagent - Kleenflow Basic

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

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:
  - 64-17-5 ethanol 3.991%
  - 1310-73-2 sodium hydroxide 3.8017%

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.
Trade name: Reagent - Kleenflow Basic

- Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture: No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

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>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanal</td>
<td>1,800 ppm</td>
</tr>
<tr>
<td>1310-73-2 sodium hydroxide</td>
<td>0.5 mg/m³</td>
</tr>
<tr>
<td>76-59-5 bromothymol blue</td>
<td>30 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanal</td>
<td>3300* ppm</td>
</tr>
<tr>
<td>1310-73-2 sodium hydroxide</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>76-59-5 bromothymol blue</td>
<td>330 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanal</td>
<td>15000* ppm</td>
</tr>
<tr>
<td>1310-73-2 sodium hydroxide</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>76-59-5 bromothymol blue</td>
<td>2,000 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
- Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.
- 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.
8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>1900 mg/m³, 1000 ppm</td>
<td>PEL</td>
</tr>
<tr>
<td></td>
<td>1900 mg/m³, 1000 ppm</td>
<td>REL</td>
</tr>
<tr>
<td></td>
<td>1880 mg/m³, 1000 ppm</td>
<td>TLV</td>
</tr>
<tr>
<td>1310-73-2 sodium hydroxide</td>
<td>2 mg/m³</td>
<td>PEL</td>
</tr>
<tr>
<td></td>
<td>2 mg/m³</td>
<td>REL</td>
</tr>
<tr>
<td></td>
<td>2 mg/m³</td>
<td>TLV</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.
  Store protective clothing separately.
  Avoid contact with the eyes.
  Avoid contact with the eyes and skin.

- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:

  Protective gloves

- 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.
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - **Form:** Fluid
    - **Color:** According to product specification
  - **Odor:** Characteristic
  - **Odor threshold:** Not determined.
  - **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.
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)
- **Density:** Not determined.
- **Relative density**
- **Vapor density**
- **Evaporation rate**
- **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:** 4.0 %
  - **Water:** 92.2 %
  - **VOC content:** 3.99 %
  - **39.9 g/l / 0.33 lb/gl**
  - **Solids content:** 3.8 %
Trade name: Reagent - Kleenflow Basic

- 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 Estimate)
      | Type     | LD50     |
      |----------|----------|
      | Oral     | 35,510 mg/kg (rat) |
      | Dermal   | 35,510 mg/kg (rat) |
      64-17-5 ethanol
      | Type     | LD50     |
      | Oral     | >5,000 mg/kg (rat) |
      | Inhalative | LC50/4 h  | 20,000 mg/L (rat) |
      1310-73-2 sodium hydroxide
      | Type     | LD50     |
      | Oral     | 1,350 mg/kg (rat) |
      | Dermal   | 1,350 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)
    64-17-5 ethanol
    | IARC     |
    | 1        |
  - NTP (National Toxicology Program)
    None of the ingredients is listed.
12 Ecological information

- **Toxicity**
  - No further relevant information available.
- **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 1 (Self-assessment): slightly hazardous for water.
  - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **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**
  - UN3266
- **UN proper shipping name**
  - **DOT**
  - **IMDG, IATA**
  - Corrosive liquid, basic, inorganic, n.o.s. (Sodium hydroxide)
  - CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE)
- **Transport hazard class(es)**
  - **DOT**
  - **Class**: 8 Corrosive substances
### Trade name: Reagent - Kleenflow Basic

- **Label**
  - 8
- **IMDG, IATA**
  - Class 8 Corrosive substances
  - Label 8
- **Packing group**
  - DOT, IMDG, IATA III
- **Environmental hazards:**
  - Not applicable.
- **Special precautions for user**
  - Warning: Corrosive substances
- **Danger code (Kemler):**
  - 80
- **EMS Number:**
  - F-A,S-B
- **Segregation groups**
  - Alkalis
- **Stowage Category**
  - A
- **Segregation Code**
  - SG22 Stow "away from" ammonium salts
  - SG35 Stow "separated from" acids.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.
- **Transport/Additional information:**
  - **DOT**
    - Quantity limitations
      - On passenger aircraft/rail: 5 L
      - On cargo aircraft only: 60 L
  - **IMDG**
    - Limited quantities (LQ) 5L
    - Excepted quantities (EQ)
      - Code: E1
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 1000 ml
- **UN "Model Regulation":**
  - UN 3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM HYDROXIDE), 8, III

### 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):**
    - None of the ingredients is listed.
  - **TSCA (Toxic Substances Control Act):**
    - All ingredients are listed.
Trade name: Reagent - Kleenflow Basic

- **Proposition 65**
  - **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:**
    - 64-17-5 ethanol

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    None of the ingredients is listed.
  - **TLV (Threshold Limit Value established by ACGIH)**
    - 64-17-5 ethanol A3
  - **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
    - GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - sodium hydroxide
  - ethanol

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

- **Precautionary statements**
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Do not breathe dusts or mists.
  - Wash thoroughly after handling.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - If swallowed: Rinse mouth. Do NOT induce vomiting.
  - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - 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.
  - IF exposed or concerned: Get medical advice/attention.
  - Specific treatment (see on this label).
  - Wash contaminated clothing before reuse.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.
· National regulations:
  · Additional classification according to Decree on Hazardous Materials:
    Carcinogenic hazardous material group III (dangerous).

· Information about limitation of use:
  Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
  Exceptions can be made by the authorities in certain cases.

· 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.

· Date of preparation / last revision 06/18/2018 / -
· 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
  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
  Carc. 1A: Carcinogenicity – Category 1A