

## 1 Identification

- **Product identifier**
- **Trade name:** MicroChem 303A Developer
- **Product number:** L409017
- **Application of the substance / the mixture** Photoresist developer
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 Kayaku Advanced Materials  
 200 Flanders Road  
 Westborough, MA 01581  
 Tel: (617) 965-5511  
 Fax: (617) 965-5818
- **Information department:**  
 Product Safety  
 Email: [productsafety@kayakuAM.com](mailto:productsafety@kayakuAM.com)
- **Emergency telephone number:**  
 Kayaku Advanced Materials : 617-965-5511  
 Chemtrec USA Emergency : 800-424-9300  
 Chemtrec International Emergency : 703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corr. 1A      H314 Causes severe skin burns and eye damage.

Eye Dam. 1      H318 Causes serious eye damage.

Aquatic Chronic 3      H412 Harmful to aquatic life with long lasting effects.

- **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:**  
 Sodium hydroxide  
 Proprietary surfactant
- **Hazard statements**  
 H314 Causes severe skin burns and eye damage.  
 H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**  
 P261      Avoid breathing dust/fume/gas/mist/vapors/spray  
 P280      Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+P310      If swallowed: Immediately call a poison center.

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- P302+P352 If on skin: Wash with plenty of soap and water.  
 P304+P341 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.  
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**· Classification system:**
**· NFPA ratings (scale 0 - 4)**

**· HMIS-ratings (scale 0 - 4)**

**· 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:**

1310-73-2	Sodium hydroxide	5-15%
	⚠ Skin Corr. 1A, H314; ⚠ Acute Tox. 4, H302	
	Proprietary surfactant	1-5%
	⚠ Eye Dam. 1, H318; ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315	

**· Additional Components:**

7732-18-5	Water	80-95%
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### 4 First-aid measures

**· Description of first aid measures**

· General information: Immediately remove any clothing soiled by the product.

**· After inhalation:**

Inhalation is not an expected route of exposure. If respiratory irritation or distress occurs remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

**· After eye contact:**

Wash eyes immediately with a large amount of water or normal saline, occasionally lifting upper and lower eye lids until no evidence of chemical remains (about 20 minutes). Remove contact lenses if present and easy to remove. Seek immediate medical attention.

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- **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** Treat symptomatically.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
  - Foam
  - Alcohol resistant foam
  - Carbon dioxide
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear SCBA.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Wear protective equipment. Keep unprotected persons away.
  - Ensure adequate ventilation
- **Environmental precautions:**
  - Inform respective authorities in case of seepage into water course or sewage system.
  - 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.
  - 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.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
  - Ensure good ventilation/exhaust at the workplace.
  - Prevent formation of aerosols.
- **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 containers:** No special requirements.
- **Information about storage in one common storage facility:**
  - Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**
  - Keep container well-sealed in cool, dry location.
  - Store receptacle in a well ventilated area.

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 · **Specific end use(s)** No further relevant information available.

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## 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:**

### 1310-73-2 Sodium hydroxide

PEL	Long-term value: 2 mg/m <sup>3</sup>
REL	Ceiling limit value: 2 mg/m <sup>3</sup>
TLV	Ceiling limit value: 2 mg/m <sup>3</sup>

 · **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 food and beverages.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

 · **Respiratory equipment:**

In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.

 · **Protection of hands:**


Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

 · **Material of gloves** Neoprene gloves

 · **Penetration time of glove material** Contact glove manufacture for break-through time.

 · **Eye protection:**


Tightly sealed goggles

Face protection

 · **Body protection:** Apron

## 9 Physical and chemical properties

 · **Information on basic physical and chemical properties**

 · **General Information**

 · **Appearance:**

Form:

Fluid

Color:

Clear

 · **Odor:**

Odorless

 · **Odor threshold:**

Not determined.

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· <b>pH-value at 20 °C (68 °F):</b>	>13
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	129 °C (264.2 °F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure at 20 °C (68 °F):</b>	23 hPa (17.3 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	1.05 g/cm <sup>3</sup> (8.76225 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	1.6-2.3 (BuAc=1)
· <b>Solubility in / Miscibility with Water:</b>	Water miscible No
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Solids content:</b>	11.0 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Contact with incompatible materials.
- **Incompatible materials:**
  - Strong oxidizing agents
  - Acids, aromatic hydrocarbons, aldehydes, aluminum, tin, zinc and alloys of these metals.
- **Hazardous decomposition products:** No dangerous decomposition products known.

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## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

 · **LD/LC50 values that are relevant for classification:**
**1310-73-2 Sodium hydroxide**

Oral	LD50	500 mg/kg (rabbit)
Dermal	LD50	1350 mL/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Corrosive  
 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 are listed.

 · **NTP (National Toxicology Program)**

None of the ingredients are listed.

 · **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

## 12 Ecological information

- **Toxicity**

 · **Aquatic toxicity:**
**1310-73-2 Sodium hydroxide**

EC50	25 mg/l (daphnia magna)
LC50	18 mg/l (fish)

- **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.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **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.  
 Harmful to aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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 · **Other adverse effects** No further relevant information available.

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### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
 Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.  
 Disposal must be made in accordance with Federal, State, and Local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

### 14 Transport information

- |   |                               |
|---|-------------------------------|
| · <b>UN-Number</b>  | UN1824                        |
| · <b>DOT, ADR, IMDG, IATA</b>   |                               |
| · <b>UN proper shipping name</b>  | Sodium hydroxide solution     |
| · <b>DOT, ADR</b>   | SODIUM HYDROXIDE SOLUTION     |
| · <b>IMDG, IATA</b>   |                               |
| · <b>Transport hazard class(es)</b>   |                               |
| · <b>DOT</b>  |                               |
|  |                               |
| · <b>Class</b>  | 8 Corrosive substances        |
| · <b>Label</b>  | 8                             |
| · <b>ADR, IMDG, IATA</b>  |                               |
|  |                               |
| · <b>Class</b>  | 8 Corrosive substances        |
| · <b>Label</b>  | 8                             |
| · <b>Packing group</b>  | II                            |
| · <b>DOT, ADR, IMDG, IATA</b>   |                               |
| · <b>Environmental hazards:</b>   |                               |
| · <b>Marine pollutant:</b>  | No                            |
| · <b>Special precautions for user</b>   | Warning: Corrosive substances |
| · <b>Danger code (Kemler):</b>  | 80                            |
| · <b>EMS Number:</b>  | F-A,S-B                       |
| · <b>Segregation groups</b>   | Alkalis                       |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>    | Not applicable.               |

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· UN "Model Regulation": UN1824, Sodium hydroxide solution, 8, II

## 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 are listed.

· Section 313 (Specific toxic chemical listings):

67-56-1 | Methanol

· TSCA (Toxic Substances Control Act): All ingredients are listed or comply with TSCA regulations.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

67-56-1 | Methanol

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients are listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients are listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

· Massachusetts State Right To Know List

1310-73-2 | Sodium hydroxide

· New Jersey State Right To Know List

1310-73-2 | Sodium hydroxide

· Pennsylvania Hazardous Substances List

1310-73-2 | Sodium hydroxide

· California SCAQMD Rule 443.1 VOC's: No information available.

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

· Hazard pictograms



GHS05

· Signal word Danger

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**· Hazard-determining components of labeling:**

Sodium hydroxide  
 Proprietary surfactant

**· Hazard statements**

H314 Causes severe skin burns and eye damage.  
 H412 Harmful to aquatic life with long lasting effects.

**· Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+P310 If swallowed: Immediately call a poison center.  
 P302+P352 If on skin: Wash with plenty of soap and water.  
 P304+P341 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.  
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 P501 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:** Product safety department
- **Contact:** Tom Cole, EHS Manager (tcole@kayakuAM)

**· Revision History:**

The manufacturer's information in Section 1, the product hazard information in Section 2 and the component hazard information in Section 3 have been updated.

- **Date of preparation / last revision** 09/06/2019 / 1

**· 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)  
 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  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Corr. 1A: Skin corrosion/irritation – Category 1A  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2

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**Trade name: MicroChem 303A Developer***Eye Dam. 1: Serious eye damage/eye irritation – Category 1**Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2**Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3*

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US