

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200
BiCLEAN-B1.0

Date of issue: 2018-08-17

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Version: 5.0

1. IDENTIFICATION

A. Product name

- BiCLEAN-B1.0

B. Recommended use and restriction on use

- General use : Cleaning detergent (Alkaline detergent)
- Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information

o Manufacturer information

- Company name : BiOCS CO.,LTD.
- Address : HA : S-3102~3103, 32, Songdogwahak-ro, Yeonsu-gu, Incheon,21984, Korea
MA : 66, Sandan-7ro, Seongmun-myeon, Dangjin-si, Chungcheongnam-do, Korea
- Emergency telephone number : +82-32-271-3611/ +82-41-970-3101

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2. HAZARD IDENTIFICATION

A. GHS Classification

- Corrosive to metals : Category1
- Acute toxicity (oral) : Category4
- Skin corrosion/irritation : Category1A
- Serious eye damage/irritation : Category1

B. GHS label elements

o Hazard symbols



o Signal words

- Danger

o Hazard statements

- H290 May be corrosive to metals
- H302 Harmful if swallowed
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage

o Precautionary statements

1) Prevention

- P234 Keep only in original packaging.
- P260 Do not breathe the gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

2) Response

- P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: 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.
- P310 Immediately call a POISON CENTER or doctor/physician.
- P321 Specific treatment
- P330 Rinse mouth.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.

3) Storage

- P405 Store locked up.
- P406 Store in corrosion resistant container with a resistant inner liner.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Potassium hydroxide	Potassium hydrate	1310-58-3	17~25
Ethylenediaminetetraacetic acid tetrasodium salt	(Ethylenedinitrilo)tetraacetic acid tetrasodium salt	64-02-8	1~10
Sodium gluconate	Sodium D-gluconate , Monosodium gluconate	527-07-1	1~10

* Ingredients not listed are non-hazardous ingredients according to the GHS classification.

4. FIRST AID MEASURES**A. Eye contact**

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- In the case of hot substances, soak or rinse affected area with large amounts of cold water to dissipate heat.
- Wash contaminated clothing thoroughly before re-using.
- In case of slight skin contact, prevent the spread of the contaminated area.
- Get medical attention immediately.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

D. Ingestion contact

- If swallowed and you feel uncomfortable, seek medical advice (physician).
- Do not induce vomiting.
- If the substance is ingested or inhaled, do not perform artificial respiration by mouth-to-mouth method and use appropriate respiratory medical equipment.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES**A. Suitable (Unsuitable) extinguishing media**

- Alcohol foam, carbon dioxide or water spray
- For suffocation extinguishing, use dry sand or soil.
- Avoid use of water jet for extinguishing
- When extinguishing a fire, wear fire protection clothing, rescue helmet for firefighting, safety boots for firefighting, safety gloves for firefighting, and respirator.

B. Specific hazards arising from the chemical

- May be corrosive to metals
- During burning, pyrolysis or combustion may generate irritating and very toxic gases.
- Container may explode when heated.
- Some can burn but do not ignite easily
- Some may generate flammable hydrogen gas when in contact with metals.

C. Special protective actions for firefighters

- Wear suitable protective equipment.
- Extinguish fire from the safe distance.
- Keep unauthorized personnel out.
- Dig a ditch so that fire water treatment can be collected separately so that it does not scatter.
- Move containers from fire area if you can do it without risk.
- In case of tank fire, extinguish at the maximum distance or use unmanned fire extinguishing equipment.
- Do not allow water to enter the container.
- Cool containers with water until well after fire is out.
- In case of tank fire, if there is a high-pitched sound from the pressure relief device or if the tank is discolored, leave immediately.
- Do not approach the tank surrounded by fire until it is extinguished.
- Notify the fire department, the location of the fire and its hazardous characteristics.
- In case of a large-scale fire, use an unmanned waterproofing device. If this is not possible, step back and let it burn.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.

B. Environmental precautions

- If large amounts have been spilled, inform the relevant authorities.
- Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

- Absorb the spillage with inert material (dry sand or earth).
- Notify the central and local government if the emission reach the standard threshold.
- Collect spilled material in a suitable container (chemical waste container) for disposal.
- Absorb liquid and wash contaminated area with detergent and water.
- Wipe off the solvent.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Handle only outdoors or in a well-ventilated area.
- Do not take contaminated clothing out of the work area.
- Follow all MSDS and label precautions as product residues (vapors, liquids, solids) may remain after the container is empty.
- Use with caution in handling/storage.
- Carefully open the cap before opening.
- Avoid prolonged or repeated skin contact.
- Work with reference to engineering controls and personal protective equipment.
- Do not handle until all safety precautions have been read and understood.
- Get the instruction manual before use.

B. Conditions for safe storage, including any incompatibilities

- Store only in original container.
- Store in a locked storage area.
- As it is a metal corrosive material, store it in a corrosion-resistant container (as determined by the manufacturer or administrative authority).
- Empty drums should be completely drained and properly closed, immediately returned to drum control unit or properly placed.
- Keep away from food and drink.
- Check regularly for leaks.
- Store in a cool, dry and well-ventilated place.
- Do not use damaged containers.
- Do not apply any physical shock to container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**A. Exposure limits**

- **ACGIH TLV**
 - [Potassium hydroxide] : Ceiling 2 mg/m³
- **OSHA PEL**
 - Not applicable

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

- **Respiratory protection**
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Consider warning properties before use.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- **Eye protection**
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- **Hand protection**
 - Wear appropriate chemical resistant glove.
- **Skin protection**
 - Wear appropriate chemical resistant protective clothing.
- **Others**
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Colorless to pale straw
B. Odor	Slight chemical odor
C. Odor threshold	Not available
D. pH	12.3~12.8 (1%Soln.)
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	>206°F (96.7°C)
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Water Completely soluble
M. Vapour density	Not available
N. Specific gravity(Relative density)	About 1.26g/mL
O. Partition coefficient of n-octanol/water	Not available

P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- Stable under normal conditions of use and storage.

B. Possibility of hazardous reactions

- May be corrosive to metals.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid contact with metals.

D. Incompatible materials

- Avoid contact with flammable substances, strong oxidizing agent and strong reducing agent.

E. Hazardous decomposition products

- May irritate, corrosive and toxic gas in case of fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- **Respiratory tracts**
 - Not available
- **Oral**
 - Harmful if swallowed
- **Eye/Skin**
 - Causes serious eye damage
 - Causes severe skin burns and eye damage

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- **Acute toxicity**
 - * **Oral**
 - BiCLEAN-B1.0(ATEmix) : 874.5 mg/kg (Manufacturer's test data)
 - [Potassium hydroxide] : LD50 333 ~ 338 mg/kg Rat (OECD TG 425)(ECHA)
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : LD50 = 1780 mg/kg Rat (IUCLID)
 - [Sodium gluconate] : LD50 6060 mg/kg Rat (SIDS)
 - * **Dermal**
 - BiCLEAN-B1.0(ATEmix) : Not available
 - * **Inhalation**
 - BiCLEAN-B1.0(ATEmix) : Not available
- **Skin corrosion/irritation**
 - Causes severe skin burns and eye damage
 - [Potassium hydroxide] : It was reported to be corrosive in rabbits and humans. (SIDS, NITE)
- **Serious eye damage/irritation**
 - Causes serious eye damage
 - [Potassium hydroxide] : As classified as skin corrosion/irritation category 1, serious eye damage/eye irritation category 1.
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : Category 2 as it is a strong irritant to rabbits(NITE), Rabbit - irritation (IUCLID), As a result of the eye irritation test using rabbits, the conjunctiva score was 1/3 and the corneal opacity score was 1.5/4, indicating irreversible damage within 8 days, classifying it as Category 1 (ECHA)
- **Respiratory sensitization**
 - Not available
- **Skin sensitization**
 - Not available
- **Carcinogenicity**
 - * **IARC**
 - Not available
 - * **OSHA**

- Not available
- * **ACGIH**
 - Not available
- * **NTP**
 - Not available
- * **EU CLP**
 - Not available
- **Germ cell mutagenicity**
 - Not available
- **Reproductive toxicity**
 - Not available
- **STOT-single exposure**
 - Not available
- **STOT-repeated exposure**
 - Not available
- **Aspiration hazard**
 - Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- **Fish**
 - [Potassium hydroxide] : LC50 660 mg/L 96hr Fathead Minnow, LC50 56 ppm 24hr bluegil (NIER)
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : LC50 = 41 mg/l 96 hr Lepomis macrochirus (EPA)
- **Crustaceans**
 - [Potassium hydroxide] : EC50 660 mg/L 48hr Daphnia magna (NIER)
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : EC50 = 610 mg/l 24 hr Daphnia magna (ISO, IUCLID)
- **Algae**
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : EC50 = 100 mg/l 72 hr Scenedesmus subspicatus (IUCLID)
 - [Sodium gluconate] : EC50 >1000 mg/l 96 hr, (NOEC(24d-72h)=560mg/L (OECD SIDS)

B. Persistence and degradability

- **Persistence**
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : log Kow = -13.17 (Estimate) (ChemIDplus)
 - [Sodium gluconate] : log Kow -5.99 (estimate) (ICSC)
- **Degradability**
 - Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - Not available
- **Biodegradation**
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : Biodegradability = 9.9 (%) 28 day

D. Mobility in soil

- Not available

E. Other adverse effects

- [Ethylenediaminetetraacetic acid tetrasodium salt] : ENVIRONMENTAL SUMMARY: Harmful to aquatic life

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- Minimize the discharge of waste by minimizing the generation of waste and recycling the generated waste by itself.
- After treatment using the reaction of neutralization, oxidation, and reduction, treat by coagulation, precipitation, filtration, and dehydration.
- Treat by evaporation/concentration.
- Purify by separation, distillation, extraction and filtration.

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 1814

B. Proper shipping name

- POTASSIUM HYDROXIDE SOLUTION

C. Hazard Class

- 8

D. IMDG CODE/IATA DGR Packing group

- II

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-B (Corrosive substances)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- o **POPs Management Law**
 - [Potassium hydroxide] : Not applicable
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : Not applicable
 - [Sodium gluconate] : Not applicable
- o **Information of EU Classification**
 - * **Classification**
 - [Potassium hydroxide] : H302(Acute Tox.4), H314(Skin Corr.1A)
 - [Ethylenediaminetetraacetic acid tetrasodium salt] : H302(Acute Tox.4), H318(Eye Dam.1)
- o **U.S. Federal regulations**
 - * **OSHA PROCESS SAFETY (29CFR1910.119)**
 - Not applicable
 - * **CERCLA Section 103 (40CFR302.4)**
 - [Potassium hydroxide] : 453.599 kg 1000 lb
 - * **EPCRA Section 302 (40CFR355.30)**
 - Not applicable
 - * **EPCRA Section 304 (40CFR355.40)**
 - Not applicable
 - * **EPCRA Section 313 (40CFR372.65)**
 - Not applicable
- o **Rotterdam Convention listed ingredients**
 - Not applicable
- o **Stockholm Convention listed ingredients**
 - Not applicable
- o **Montreal Protocol listed ingredients**
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: Manufacturer's data, KOSHA, NITE, ECHA, NLM, SIDS, IPCS

B. Issue date

- 2018-08-17

C. Revision number and Last date revised

- Revision Number : 5.0

- Last date revised : 2024.-02-13

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).