



Section 01 Identification

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| Product Identifier | Clean Plus |
| Other Means of Identification | Not available |
| Product Use and Restrictions on Use | Liquid detergent for commercial dishwashers with feed systems. |
| Initial Supplier Identifier | ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7 Phone: 800.387.7503 Fax: 888.281.8109 www.cleartech.ca |
| Prepared By | ClearTech Industries Inc. technical writer |
| 24-Hour Emergency Phone | 306.664.2522 |

Section 02 Hazard Identification

Physical Hazards

Corrosive to metals Category 1

Health Hazards

Skin corrosion / irritation Category 1A

Serious eye damage / eye irritation Category 1

Signal Word

Danger

Hazard Statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Pictograms



Precautionary Statements

Prevention

P234 Keep only in original packaging.

P260 Do not breathe vapours, fumes, or mists.

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P264 Wash affected body parts thoroughly after handling.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

Response

P301 P330 P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 P361 P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse.
P363

P304 P340 P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

P305 P351 P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P390 Absorb spillage to prevent material damage.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents / container in accordance with all federal, provincial and / or local regulations including the Canadian Environmental Protection Act.

Hazards Not Otherwise Classified

Not available

Supplemental Information

Not available

Section 03 Composition / Information on Ingredients

Hazardous Ingredients:

| Chemical name | Common name(s) | CAS number | Concentration (w/w%) |
|---------------------|----------------|------------|----------------------|
| Potassium Hydroxide | Caustic Potash | 1310-58-3 | 10-30%* |
| Sodium Hydroxide | Caustic Soda | 1310-73-2 | 1-5%* |

*Exact concentration withheld as a trade secret.

Section 04 First-Aid Measures

Description of necessary first-aid measures

Inhalation Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. If breathing has stopped, trained personnel should begin rescue breathing or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth to mouth contact by using a barrier device.

Ingestion Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor. If vomiting occurs naturally, lie on your side, in the recovery position.

Skin contact Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Rinse skin with lukewarm, gently flowing water / shower for 60 minutes. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before re-use, or discard.

Eye contact Avoid direct contact. Wear chemical protective gloves, if necessary. Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 60 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor.

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Most important symptoms and effects, both acute and delayed

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|----------------------------|---|
| Inhalation | Causes severe burns to the mouth and throat (mist). |
| Ingestion | Causes burns to the mouth and throat. |
| Skin contact | Causes severe skin burns. |
| Eye contact | Causes serious eye damage. |
| Further information | For further information see Section 11 Toxicological Information. |

Section 05 Fire Fighting Measures

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| Suitable extinguishing media | Extinguish fire using extinguishing agents suitable for the surrounding fire. |
| Unsuitable extinguishing media | Water jets are not recommended in fires involving chemicals. |
| Specific hazards arising from the chemical | Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. In the event of a fire oxides of carbon, phosphorous, and nitrogen may be released. May release toxic or irritating fumes at high temperatures. |
| Special protective equipment for fire-fighters | Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing. |

Section 06 Accidental Release Measures

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| Personal Precautions / Protective Equipment / Emergency Procedures | Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Stay upwind, ventilate area. Do not breathe vapours, fumes, or mists. Do not use material handling equipment with exposed metal surfaces. |
| Environmental Precautions | Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes. |
| Methods and Materials for Containment and Cleaning Up | SMALL SPILLS: Stop or reduce leak if safe to do so. Clean up spill with non-reactive absorbent and place in suitable, covered, labeled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency services and supplier for advice. |

Section 07 Handling and Storage

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| Precautions for Safe Handling | Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Prevent the release of vapours, fumes, or mists into the workplace air. Inspect containers for damage or leaks before handling. If the original label is damaged or missing replace with a workplace label. Have suitable emergency equipment for fires, spills and leaks readily available. Never return contaminated material to its original container. |
| Conditions for Safe Storage | Store in a cool, dry, well-ventilated area, away from heat sources and incompatible materials. Always store in original labeled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it visible. Do not transfer to metal containers. |
| Incompatibilities | Acids, such as sulphuric, nitric, hydrochloric, phosphoric, fluosilicic (HFSA), sulphonic, acetic, citric, oxalic, and formic. Metals, such as aluminum and brass. Chlorinated hydrocarbons, flammable liquids, and nitrous compounds. |

Section 08 Exposure Controls and Personal Protection

Exposure limits

Customer Service: 800.387.7503
Revision Date: August 30, 2023

www.cleartech.ca

Emergency: 306.664.2522

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| Component | Regulation | Type of listing | Value |
|---------------------|------------|-----------------|---------------------|
| Sodium Hydroxide | ACGIH | STEL/Ceiling | 2 mg/m ³ |
| Potassium Hydroxide | ACGIH | STEL/Ceiling | 2 mg/m ³ |

Engineering controls

- Ventilation Requirements** Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.
- Other** An emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.

Protective equipment

The following are recommendations only. It is the responsibility of the employer / user to conduct a hazard assessment of the process in which this product being used and determine the proper engineering controls and PPE for their process. Additional regulatory and safety information should be sought from local authorities and, if needed, a professional industrial hygienist.

- Eye and face protection** Where there is potential eye or face exposure, tightly fitting safety goggles and a face shield or a full face respirator or similar protective equipment which protects the wearer's face and eyes are recommended. Contact lenses are not recommended; they may contribute to severe eye injury.
- Hand and body protection** Disposable latex or nitrile gloves are recommended to prevent incidental contact. Butyl rubber, neoprene, or PVC skin protection is recommended for extended contact. Leather gloves are not recommended for chemical protection. Refer to manufacturer's specifications for breakthrough times and permeability information; note that breakthrough times and permeability vary with temperature, application and age of material. Continued use of contaminated safety gear or clothing is not recommended; wash before reuse or discard.
- Respiratory protection** In case of insufficient ventilation wear suitable respiratory equipment.

NIOSH respirator recommendations for: Sodium hydroxide

Up to: 10 mg/m³

- (APF = 25) Any supplied-air respirator operated in a continuous-flow mode
- (APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter
- (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted N100, R100, or P100 filter.
- (APF = 50) Any self-contained breathing apparatus with a full facepiece.
- (APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

- (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
- (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

- (APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Any appropriate escape-type, self-contained breathing apparatus

Thermal hazards Not available

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Section 09 Physical and Chemical Properties

Appearance

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|-----------------|----------------|
| Physical state | Liquid |
| Colour | Red |
| Odour | Odourless |
| Odour threshold | Not applicable |

Property

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|---|--------------------------|
| pH | >14 |
| Melting point / freezing point | Not available |
| Initial boiling point and boiling range | Not available |
| Flash point | Not applicable |
| Evaporation rate | Not available |
| Flammability | Not applicable |
| Upper flammable limit | Not applicable |
| Lower flammable limit | Not applicable |
| Vapour pressure | Not available |
| Vapour density | Not available |
| Relative density | Not applicable |
| Solubility | Soluble in water |
| Partition coefficient: n-octanol/water | Not available |
| Auto-ignition temperature | Not applicable |
| Decomposition temperature | Not available |
| Viscosity | Not available |
| Specific gravity | 1.200-1.220 g/mL @ 20 °C |
| Particle characteristics | Not applicable |
| Formula | Not applicable (mixture) |
| Molecular weight | Not applicable (mixture) |

Section 10 Stability and Reactivity

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| Reactivity | May be corrosive to metals. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. Reacts violently with acids. |
| Stability | This product is stable if stored according to the recommendations in Section 07. |
| Possibility of hazardous reactions | Hazardous polymerization is not known to occur. |
| Conditions to avoid | Avoid contact with incompatible materials. |
| Incompatible materials | Acids, such as sulphuric, nitric, hydrochloric, phosphoric, fluosilicic (HFSA), sulphonic, acetic, citric, oxalic, and formic. Metals, such as aluminum and brass. Chlorinated hydrocarbons, flammable liquids, and nitrous compounds. |
| Hazardous decomposition products | Thermal decomposition may produce oxides of carbon, phosphorous, and nitrogen. |

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Section 11 Toxicological Information

Acute Toxicity (LD50 / LC50 values)

| Component | Route | Species | Value | Exposure time |
|-------------------------|--------|---------|----------------|---------------|
| Acute toxicity estimate | Oral | Rat | 1600 mg/kg bw | |
| | Dermal | Rabbit | >2000 mg/kg bw | |

Toxic Health Effect Summary

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|---------------------------------|--|
| Chemical characteristics | Potassium and sodium hydroxides dissociates in aqueous conditions, and thus is not bioavailable. All of it's toxic effects are assumed to be related to it's effect on pH. |
| Skin | Causes severe skin burns. |
| Ingestion | Causes burns to the mouth and throat. |
| Inhalation | Causes severe burns to the mouth and throat (mist). |
| Eye contact | Causes serious eye damage. |
| Sensitization | This product and its components at their listed concentration have no known sensitizing effects. |
| Mutagenicity | This product and its components at their listed concentration have no known mutagenic effects. |
| Carcinogenicity | This product and its components at their listed concentration have no known carcinogenic effects. |
| Reproductive toxicity | This product and its components at their listed concentration have no known reproductive effects. |
| Specific organ toxicity | This product and its components at their listed concentration have no known effects on specific organs. |
| Aspiration hazard | Not available |
| Synergistic materials | Not available |

Section 12 Ecological Information

Ecotoxicity

| Component | Type | Species | Value | Exposure Time |
|-------------------------|------|-----------|-----------|---------------|
| Acute toxicity estimate | EC50 | Crustacia | >200 mg/L | 48 hours |
| | LC50 | Fish | >200 mg/L | 96 Hours |
| | EC50 | Algea | >200 mg/L | 72 hours |

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| Biodegradability | The domestic substance list categorizes potassium hydroxide and sodium hydroxide as persistent. |
| Bioaccumulation | The domestic substance list categorizes all of the components of this product as non-bioaccumulative. |
| Mobility | This product is water soluble, is not predicted to adsorb to soil and may contaminate ground water. |
| Other adverse effects | Aquatic toxicity of sodium hydroxide will be highly dependant on the buffering capacity of the body of water it is released into. |

Section 13 Disposal Considerations

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| Waste From Residues / Unused Products | Dispose in accordance with all federal, provincial, and local regulations including the Canadian Environmental Protection Act. |
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Contaminated Packaging Do not remove label, follow label warnings even after the container is empty. Empty containers should be recycled or disposed of at an approved waste handling facility.

Section 14 Transport Information

UN number UN3266
UN proper shipping name and description CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
 Potassium hydroxide
Transport hazard class(es) 8
Packing group II
Excepted quantities 1 L
Environmental hazards Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special precautions No special precautions
Transport in bulk ERAP index: not available

MARPOL 73/78 and IBC Code:

Product name: Potassium hydroxide solution

Pollution category: Y

Hazards: the product is included in the Code because of both its safety and pollution hazards.

Ship type: ship type 3

Tank type: integral gravity tank

Tank vents: open venting

Tank environmental control: no special requirements under this Code

Temperature classes

Electrical equipment: Apparatus group

Flash point non-flammable product

Gauging: open gauging

Vapour detection: no special requirements under this Code

Fire protection: no special requirements under this Code

Emergency equipment no special requirements under this Code

Specific and operational requirements 15.19.6

Additional information Secure containers (full or empty) during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 16 of this SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and published test data regarding the classification of this product are listed in the references at section 16 of this SDS.

Section 15 Regulatory Information.

NOTE: THE PRODUCT LISTED ON THIS SAFETY DATA SHEET HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN HAZARDOUS PRODUCTS REGULATIONS. THIS SAFETY DATA SHEET CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

All components of this product appear on the domestic substance list.

Safety Data Sheet

Section 16 Other Information

Date of latest revision: August 30, 2023

Note: The responsibility to provide a safe workplace remains with the buyer / user. The buyer / user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the buyer / user to comply with all applicable laws and regulations regarding handling, using, reselling and shipping this product.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the RDC Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

- 1) *NIOSH Pocket Guide to Chemical Hazards*; U.S. Department of Health and Human Services, <https://www.cdc.gov/niosh/npg/default.html>
- 2) *WorkSafe BC E-Limit*; Workers' Compensation Foard of British Columbia, <https://elimit.online.worksafebc.com/>
- 3) *ECHA - Registered Substance Dossier*; European Chemicals Agency, <https://echa.europa.eu/information-on-chemicals/registered-substances>
- 4) *Transportation of Dangerous Goods Regulations*; Transport Canada, <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/index.html>
- 5) Globally Harmonized System of Classification and Labeling of Chemicals (GHS) *Seventh revised edition*
- 6) International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) 2007 Edition
- 7) The ACS Style Guide