



MATERIAL SAFETY DATA SHEET

Hoppecke Batteries, Inc. Potassium Hydroxide Electrolyte – UN# 2797

Date Prepared: January, 2005

Hoppecke Batteries, Inc. 1960 Old Cuthbert Rd., Suite 130 Cherry Hill, NJ 08034 Phone: 856-616-0032 / Fax: 856-616-0132	For Chemical Emergency: Spill, Leak, Fire, Exposure or Accident Call CHEMTREC – Day or Night (800) 424-9300		
HMIS Ratings	3 Health	0 Flammability	2 Reactivity

Battery Fluid, alkali, Class 8, UN# 2797 Pkg Group II

INGREDIENTS

EXPOSURE LIMITS

% BY WEIGHT

Water	None Established	78%
Potassium hydroxide (KOH) 20-30% (Also known as caustic potash)	2.0 mg/m ³ , ceiling	20%
Lithium Hydroxide (LiOH) 20 g/l	1.0 mg/m ³ , ceiling	2.0%

PHYSICAL/CHEMICAL CHARACTERISTICS

	<u>20% Concentration</u>	<u>30% Concentration</u>
Boiling Point (KOH) @ 760 mm Hg, °C	104	113
Freezing Point °C	-23	-89
Specific Gravity	1.18	1.29
Density lb/gal @ 15.6°C	9.84	10.75
Solution in H ₂ O % by weight	Completely Soluble	
PH	0.01 moles/liter has pH of 12.0	
Appearance and Odor:	Clear liquid with no distinct odor.	

FIRE AND EXPLOSION HAZARD DATA

Flash Point - Non-Flammable

Extinguishing Media

Non-flammable/ Non-combustible – Use extinguishing medium as appropriate for surrounding fire.

Special Fire Fighting Procedures

Use water to cool containers but avoid getting water into containers. Wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing to prevent potential body contact with electrolyte solution.

Unusual Fire and Explosion Hazards

Electrolyte solution is corrosive to all human tissues. It will react violently with many organic chemicals, especially nitro-carbons and chlorocarbons. Electrolyte solution reacts with zinc, aluminum, tin and other active materials releasing flammable hydrogen gas.



REACTIVITY DATA -

Stable under normal conditions.

Reacts with: Air, water, acids, metals, other. Avoid direct contact with water. Product is corrosive to tin, aluminum, zinc and alloys containing these metals and will react with these metals in powder form. Avoid contact with leather, wool, acids, organic halogen compounds, or organic nitro compounds. Hazardous carbon monoxide gas can form upon contact with reducing sugars, food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures. (See handling and storage (section 7))

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: None

HEALTH HAZARD INFORMATION – EFFECTS OF OVEREXPOSURE

Eye Effects: Contact with electrolyte solution inside battery causes very rapid, severe damage. Extremely corrosive to eye tissues. May result in permanent blindness. The severity of effect depends on how soon after exposure the eyes are washed.

Inhalation: Exposure to vapor, mist or liquid can produce burns of the nasal mucous membranes and respiratory tract tissues. Severe exposure could result in chemical pneumonia.

Skin Effects: Contact with electrolyte solution inside battery may cause serious burns to skin tissues. Note that the irritation may follow an initial latency (delay between the time exposure occurs and when sense of irritation results). The latent period can vary from minutes to hours. Severity of effect depends on how soon after exposure the area is washed.

Carcinogenicity: None known.

Ingestion: Ingestion of electrolyte solution causes tissue damage to mucous membranes of mouth, throat area and gastrointestinal tract



EMERGENCY FIRST AID – BATTERY ELECTROLYTE AND NICKEL HYDROXIDE

	<u>BATTERY</u>	<u>ELECTROLYTE</u>
Eye Contact	Flush with plenty of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within several seconds is essential to achieve maximum effectiveness. Get immediate medical attention.	Skin Contact Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. Get medical attention as soon as possible.
Ingestion	Do not induce vomiting. Dilute by giving large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear and give more water. Get immediate medical attention. Do not give anything by mouth to an unconscious person.	Inhalation: Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If breathing stops, have a trained person administer artificial respiration. Get immediate medical attention.
Note to Physician:	No specialized procedures. Treat for clinical symptoms	

PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL MANAGEMENT PROCEDURES - ELECTROLYTE SOLUTION SPILLS

Small: (up to 5 gallons) - Flush with water and neutralize with dilute acid.

Large: Contain material in suitable containers or holding area. DO NOT allow material to enter sewers, streams, or storm conduits. Recover material with vacuum truck and dispose of properly. Reportable Quantity: 1000 pounds or more must be reported the National response center 1-800-424-8802. State and local regulations may have additional reporting requirements. Check with the proper state and local authorities.

DISPOSAL INFORMATION

Electrolyte solution is corrosive. Dispose of in accordance with all federal, state and local regulations. A spill or release of this material may trigger the emergency release reporting requirements under SARA, Title III (40 CFR, Part 355) and/or CERCLA (40 CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

Material that cannot be reused or chemically reprocessed should be disposed of in a manner meeting government regulations. Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Appropriate disposal should be done by a competent and properly permitted contractor.



ACCIDENTAL RELEASE MEASURE

PERSONAL PRECAUTIONS

Evacuate unnecessary personnel.

Follow protective measures provided under Personal Protection section.

ENVIRONMENTAL PRECAUTIONS:

According to 40 CFR 302 Table 302.4 (CERCLA), environmental releases that exceed the RQ must be reported to the National Response Center by calling 800-424-8002 (202-426-2675) and the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40) as appropriate.

Contain liquids and prevent discharges to streams or sewers, control or stop the loss of volatile materials to the atmosphere. Large leaks may require environmental consideration and possible evacuation. Do not apply water to the leak. Spills or releases should be reported, if required, to the appropriate local, state and federal agencies.

Contain spill with dike to prevent entry into sewers or waterways.

CAUTION: This product may react strongly with acids and water.

NEVER FLUSH TO SEWER.

METHODS FOR CLEANING UP:

Dry material can be shoveled up, liquid material can be removed with a vacuum truck. Neutralize remaining traces with any dilute inorganic acid (hydrochloric, sulfuric or acetic acid). Flush spill area with water followed by a liberal covering of sodium carbonate. All clean-up material should be removed for proper treatment or disposal. Spills on other than pavement (eg. dirt or sand) may be handled by removing the affected soil and placing in approved containers.

PRECAUTIONS AND COMMENTS

CONTROL MEASURES

Respiration Protection: Use NIOSH approved mist respirator, if necessary during activation and actual usage.

Other Precautions: Perform activation procedures in a well ventilated area

Eye Protection: Use splash goggles or face shields whenever handling a battery.

Hand Protection: If exposed to electrolyte solution use any water-insoluble, non-permeable glove, i.e. synthetic rubber, i.e. DO NOT use leather or wool.

Other Protective Equipment: Eye goggles, face shield, rubber boots, rubber aprons, rainwear or equivalent.



ECOLOGICAL INFORMATION

AQUATIC ECOTOX DATA

Fish:		
LC50 (96 hr)	Fathead Minnow	179 mg/L*
Invertebrate:		
EC50 (48 hr)	Water Flea	60 mg/L*
Plant:		
EC50 (96 hr)	Green Algae	61 mg/L*

*data represents 45.25% KOH in aqueous solution.

TERRESTRIAL ECOTOX DATA - No Data Available

ENVIRONMENTAL FATE DATA

Biotic:

Biodeg: Inorganic, not subject to biodegradation

This material has produced slight toxicity in laboratory tests with aquatic organisms. This material is strongly alkaline. If released to surface water, this compound will cause the pH to rise dependent on the buffering capacity of the waterbody. Aquatic organisms become increasingly stressed as pH exceeds 9, with many aquatic species being intolerant of pH in excess of 10. This compound does not bioaccumulate in organisms. Due caution should be exercised to prevent the accidental release of this material to the environment.

WARNING LABEL INFORMATION

SIGNAL WORD : DANGER

HAZARD WARNING:

May cause burns to the eyes, skin and mucous membranes.

May cause permanent eye damage.

Inhalation of dust, mist, or spray can cause severe lung damage.

Can react violently with water, acids and other substances.

PRECAUTIONS:

Avoid contact with eyes, skin and clothing.

Avoid breathing dust, vapors or mist.

Do not swallow

Use with adequate ventilation and wear respiratory protection when exposure to dust, mist or spray is possible.

Wear full face shields or chemical splash goggles, protective clothing and chemical resistant gloves.



PRECAUTIONS: (cont)

Wash thoroughly after handling, exposure can cause burns, which are not immediately painful or visible.

Keep container tightly closed and properly labeled.

Product can react violently with water, acids and other substances. See Handling and Storage of the MSDS for instructions.

Avoid contact with aluminum, tin, zinc, and alloys containing these metals. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI Z117.1)

HANDLING AND STORAGE:

Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

ALWAYS wear ALL protective clothing described above. NEVER add water to product. ALWAYS add product, with constant stirring, slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals. Add product VERY gradually, while stirring constantly. If product is added too rapidly, or without stirring and becomes concentrated at bottom of mixing vessel, excessive heat may be generated resulting in DANGEROUS boiling and spattering and a possible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.

ALWAYS empty and clean containers of all residues before adding product to avoid possible EXPLOSIVE reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state and DOT regulations. All residue should be removed from containers prior to disposal.

Containers that have been emptied will retain product residue and vapor and should be handled as if they were full.

Disclaimer: This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. We do not accept liability for any loss or damage that may occur, whether direct, indirect, incidental or consequential, from the use of this information nor do we offer warranty against patent infringement. Additional information is available by calling the telephone number above designated for this purpose.