Gas Measurement Instruments Ltd

# Safety Data Sheet

SDS No. 095 Version 1.0 Revised Date: 20/09/2016

## 1. Identification of the substance/mixture and of the company/undertaking:

**1.1. Product identifier**: Nickel Metal Hydride Battery - NH15AA 2300
Part No: 66701

**1.2. Relevant identified uses of the substance or mixture and uses advised against:**
Industrial and professional use only. Do not dismantle battery.

**Details of the supplier of the safety data sheet, company identification:**

Gas Measurement Instruments Ltd
Inchinnan Business Park
Renfrew
PA4 9RG
Contact No: 0141 812 3211
Email address: sales@gmiuk.com

**1.3. Emergency contact details**:
Opening hrs: 9:00 a.m -5:00 p.m
Contact No: 0141 812 3211

## 2. Hazards Identification:

**2.1. Classification of the substance and mixture:**

All chemical materials of the battery cell are stored in a hermetically sealed metal case which is designed to withstand temperatures and pressures encountered during normal use. Provided there is no mis -use(refer to next section), there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage under normal conditions of use. Contents of an open battery can cause respiratory irritation.

**Risk advice to man and the environment:**

CAUTION: May explode or leak, cause burn injury, if disposed of in fire or mixed with a different battery type, inserted backwards or disassembled. Replace all used batteries at the same time. Do not carry batteries loose in your pocket or purse. Do not remove the battery label.

**2.2. Label elements: Hazard pictograms:**

**Signal word**- Warning

**Precautionary Statements:**

**Precautionary Statement Prevention:**

P103 Read Label before use.

P210 Keep away from heat/sparks/open flames/hot surfaces – No Smoking.

P234 Keep only in original container.

P273 Avoid release to the environment.

**2.3. Other Hazards:**

If the battery is misused, dismantled and is in contact with fire, electric stress, mechanical stress; it may ignite and release hazardous materials.

## 3. Composition/information on ingredients:

**Substance/ Mixture**: Mixture

| Components | CAS No | Concentration |
|---|---|---|
| Aluminium | 7429-90-5 | <2% |
| Cobalt (cobalt metal , cobalt oxide) | 7440-48-4<br>1307-96-6 | 2.5 – 6.0% |
| Lithium Hyrdoxide | 1310-65-2 | Range from 0-4% |
| Manganese | 7439-96-5 | < 3% |
| Mischmetal | | <13% |
| Nickel ( nickel hydroxide, nickel oxide, nickel powder) | 12054-48-7<br>1313-99-1<br>7440-10-0 | 30 – 50% |
| Potassium Hydroxide | 1310-73-2 | < 7% |
| Sodium Hydroxide | 1310-73-2 | Range from 0-4% |
| Zinc (zinc metal, zinc oxide, zinc hydroxide) | 7440-66-6<br>1314-13-2<br>20427-58-1 | < 3% |
| Non-hazardous components-Steel | | 14 -18% |

## 4. First Aid Measures :

**4.1. Skin contact/ Eye contact**:

If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 15 minutes. Seek immediate medical advice.

Skin Contact: If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice.

**Ingestion**:

If battery contents are swallowed, do not induce vomiting and do not give any food or drink. Seek immediate medical attention. Call the national battery ingestion hotline for advice and follow-up (202-625-3333).

**Inhalation**:

In battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical advice.

**General advice:**

The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Damaged battery will release concentrated potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide, sodium hydroxide and other toxic by-products.

**Eye contact:** Immediately flush eyes with water for 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

**Most important symptoms and effects, both acute and delayed**: No data available.

**4.3. Indication of any immediate medical attention and special treatment needed:**

No data available.

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**5. Fire- fighting measures:**

**5.1. Extinguishing media:**

Suitable extinguishing media: use extinguishing media appropriate for Nickel Metal Hydride batteries. Smothering agents such as METL-X, sand, soda ash or water. If water is used on a burning Nickel Metal Hydride battery, hydrogen gas will evolve. Hydrogen gas is dangerous in confined spaces and can form an explosive mixture.

**5.2. Special hazards arising from the substance or mixture**:

Batteries may burst and release hazardous decomposition products when exposed to a fire situation. Thermal degradation may produce hazardous fumes of zinc, nickel and manganese; hydrogen gas, caustic vapors of potassium hydroxide, sodium hydroxide and other toxic by-products.

**5.3 Advice for fire-fighters**:

Special protective equipment for fire-fighters: Normal firefighters' equipment consists of an appropriate SCBA (open-circuit positive pressure compressed air type) in combination with fire kit. Equipment and clothing to the following standards will provide a suitable level of protection for firefighters. Guideline: EN 137 Respiratory protective devices — Self-contained open circuit compressed air breathing apparatus with full face mask — Requirements, testing, marking, EN 15090 Footwear for firefighters, EN 443 Helmets for firefighting in buildings and other structures. EN 469:2005: Protective clothing for firefighters.

**6. Accidental release measures:**

**6.1. Personal precautions, protective equipment and emergency procedures**:

None, if the battery is not dismantled. If the battery is misused or comes in contact with fire, heat, mechanical stress, the following precautions apply: Caustic potassium hydroxide may be released from leaking or ruptured batteries. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal.
Wear safety goggles or visor, neoprene gloves when handling a leaking battery.

**6.2. Environmental precautions**:

Batteries should not be allowed to enter drains and general waste.

**6.3 Methods and material for containment and cleaning up**: If battery is leaking, approach suspected leak with caution.

**6.4 Reference to other sections:** See sections 8 and 13.

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**7. Handling and Storage:**

**7.1. Precautions for safe handling:**

Do not store battery near heat sources or exposure to direct sunlight. Do not throw batteries in fire and keep away from strong oxidizers. Do not wash battery in water or sea water. Do not dismantle the battery under any circumstances. Do not overcharge batteries. If the electrolyte is leaking from the battery, wear protective equipment. Do not handle a leaking battery without safety gloves and safety goggles or a visor.

Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag. Do not remove the battery label.
Do not open the battery, the negative electrode material may be pyrophoric.

**7.2. Conditions for safe storage, including any incompatibilities:**

Battery should not be exposed to high temperatures and mechanical shocks. Exposure to direct sunlight will cause damage to the battery. Store batteries in a dry place at normal room temperature. Do not refrigerate – this will not make them last longer.

**7.3. Specific end use(s):** Refer to section 1 or the extended SDS if applicable.

## 8. Exposure controls / personal protection:

### 8.1 Workplace Exposure Limits=

ACGIH: American Council of Government Industrial Hygienists.

TLV: Threshold Limit Value are Personal exposure limit determined by ACGIH

| Components | Exposure Limits |
|---|---|
| Nickel and its inorganic compounds | 0.1 mg/m3 TWA UK WEL<br>Sk, Carc (nickel oxides and sulphides)<br>Sen (nickel sulphate) |
| Potassium Hydroxide | 2 mg/m3 STEL UK WEL<br>2 mg/m3 VCD Belgium<br>2 mg/m3 Ceiling Denmark LV |
| Sodium Hydroxide | 2 mg/m3 STEL UK WEL |

### 8.2 Exposure controls:

Appropriate engineering controls: No specific ventilation requirements for use of battery under normal use conditions. All products should have a suitable and sufficient risk assessment to assess the risks related to the use of the product. General hygiene practices should be followed. Hands should be washed after using the battery. In case of a leaking battery, do not touch without safety gloves.

**Personal protective equipment:**

Eye and face protection: If in case of a leaking, fuming electrolyte, wear a face-shield (EN166) if there is potential for the battery to explode. Wear protective gloves when handling the leaking battery- neoprene gloves

**Safety Gloves:** Neoprene gloves can be used to handle the battery.

**Respiratory protection:**

Keep self-contained breathing apparatus readily available for emergency use., Use SCBA in the event of high concentrations, The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD., When allowed by a risk assessment Respiratory Protective Equipment (RPE) may be used.

**Guideline:** EN136 Respiratory protective devices. Full face masks in case of battery discharge and fuming.

## 9. Physical and chemical properties:

**9.1 Appearance and Odor:** Cylindrical battery.

**9.2 Water Solubility:** Insoluble

**9.3 Density (g/cm3): 2.5- 3.7**

## 10. Stability and reactivity:

**10.1 Stability:** This product is stable.

**10.2 Incompatibility/Conditions to Avoid:** Contents are incompatible with strong oxidizing agents. Do not heat, crush, and disassemble, short circuit or recharge.

**10.3 Hazardous Decomposition Products:** Thermal decomposition may produce hazardous fumes of zinc and manganese; caustic vapors of potassium hydroxide and other toxic by-products.

**10.4** Hazardous Polymerization: Will not occur

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**11. Toxicological information**:

**11.1.** Information on toxicological effects:

Potential Health Effects:

The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Damaged battery will release concentrated potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 2 to 20 mL, depending on battery size. A similar amount of zinc may also leak.

**Eye Contact:** Contact with battery contents may cause severe irritation and burns. Eye damage is possible.

**Skin Contact:** Contact with battery contents may cause severe irritation and burns.

Inhalation: Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.

**Ingestion:** Swallowing is not anticipated due to battery size. Choking may occur if smaller AAA batteries are swallowed. Ingestion of battery contents (from a leaking battery) may cause mouth, throat and intestinal burns and damage.

**Acute Toxicity Data:** None

**Chronic Effects:** The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.

**Target Organs:** Skin, eyes and respiratory system.

**Carcinogenicity:** None under regular use. If exposed to battery contents, Nickel has carcinogenic effects.

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**12. Ecological information:**

**12.1 Toxicity:**

No known ecological damage caused by this product**.**

**Acute and prolonged toxicity:** Not applicable

**Toxicity:** Not applicable

**12.2. Persistence and degradability:** Not applicable.

**12.3. Bioaccumulative potential:** Not applicable.

**12.4. Mobility in soil:** Not applicable.

**12.5. Results of PBT and vPvB assessment:** Not applicable.

**12.6. Other adverse effects:** Not applicable

**12.7 Effect on the ozone layer:**

**Ozone Depleting**: No data available.

**Global Warming Potential**:

Refer to the Intergovernmental Panel on Climate Change (IPCC) for the latest Direct Global Warming Potential Values.

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**13. Disposal Considerations:**

**13.1 Waste treatment methods**:

Follow national, regional and local waste management regulations. Do not throw into water or general waste. Batteries are to be recycled and treated under the Waste Electrical Electronic Equipment Directive. Batteries should be separated from other electronics so as to avoid contamination of other WEEE products. Contact you Waste Management Company to deal with leaking batteries.

**List of hazardous waste codes**: EWC code 20 01 33-Industrial use of batteries

**Contaminated packaging**: Contact supplier.

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**14. Transport information:**

Energizer nickel metal hydride batteries (referred to as 'Dry cell batteries) are not defined as dangerous goods under the IATA Dangerous Goods Regulations, ICAO Technical instructions and the U.S hazardous materials regulations (49 CFR). Nickel Metal Hydride batteries are defined as dangerous goods under the IMDG code.

Nickel Metal Hydride batteries are complaint with the requirements contained in the following special provisions:

| Regulatory Body | Special Provisions |
|---|---|
| ADR | 295 -304, 598 |
| IMDG | UN3496 SP 963 |
| UN | UN 3028 Provision 295 -304 |
| US DOT | 49 CFR 172.102 Provision 130 |
| IATA | A123, A199 |
| ICAO | UN 3028 Provisions 295 -304 |

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the special provision number A123 be provided on the air waybill.

In case of any doubt, contact GMI customer service representative at 0141 812 3211.

**15. Regulatory information:**

Nickel Metal Hydride battery is not classified as dangerous goods by the US department for transportation or the major international regulatory bodies

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