Article Information Sheet

Product name: Carbon Zinc Battery **Printing date:** 14-Jan-2020

Article Information Sheet (AIS)

This Article Information Sheet (AIS) provides relevant battery information to retailers, consumers, OEMs and other users requesting a GHS‐compliant SDS. Articles, such as batteries, are exempt from GHS SDS classification criteria. The GHS criteria is not designed or intended to be used to classify the physical, health and environmental hazards of an article. Branded consumer batteries are defined as electro‐technical devices. The design, safety, manufacture, and qualification of Energizer branded consumer batteries follow ANSI and IEC battery standards.

1. DOCUMENT INFORMATION

Product name:	Carbon Zinc Battery
Model:	R6P
Issue Date:	14-Jan-2020

2. COMPANY INFORMATION

Company name(China)	Guangdong Liwang New Energy Co.,Ltd.
Address:	shima District,Tangxia Town,Dongguan City ,Guangdong Province,China
E-mail:	qa1@liwangbattery.com
Telephone:	+86-769-86201111-8062

3. ARTICLE INFORMATION

Description	Carbon Zinc Battery
Use	Carbon Zinc Battery.
Brand	----

Fiche d'information Article

Nom du produit: Batterie carbone-zinc **Date d'impression:** 14-Jan-2020

Article Feuillet d'information (AIS)

Cette fiche d'information Article (AIS) fournit des informations sur la batterie correspondant aux détaillants, aux consommateurs, aux OEM et aux autres utilisateurs qui demandent un SDS SGH-conforme. Les articles, tels que les piles, sont exemptés de critères de classification SGH SDS. Les critères du SGH ne sont pas conçus ou destinés à être utilisés pour classer les risques physiques, la santé et l'environnement d'un article. batteries de consommation de marque sont définis comme des dispositifs électro-technique. La conception, la sécurité, la fabrication, et la qualification des batteries de consommation de marque Energizer sont conformes aux normes de la batterie ANSI et IEC.

1. DOCUMENT D'INFORMATION

Produit Nom:	Batterie carbone-zinc
Modèle:	R6P
Date d'émission:	14-Jan-2020

2. INFORMATIONS SUR LA SOCIÉTÉ

Nom de l'entreprise (Chine)	Guangdong Liwang New Energy Co., Ltd.
Adresse:	Shima District, Tangxia Town, la ville de Dongguan, province du Guangdong, en Chine
Email:	qa1@liwangbattery.com
Téléphone:	+ 86-769-86201111-8062

3. ARTICLE D'INFORMATION

La description	Batterie carbone-zinc
Utilisation	Batterie carbone-zinc
Marque	----

Article Information Sheet

Product name: Carbon Zinc Battery **Printing date:** 14-Jan-2020

Image	

4. ARTICLE CONSTRUCTION

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Chemical name	CAS No.	Concentration%
Manganese dioxide	1313-13-9	37.5
Zinc	7440-66-6	33.0
Carbon black	1333-86-4	10.0
Water	7732-18-5	14.2
Ammonium chloride	12125-02-9	0.6
Iron	7439-89-6	2.0
Polypropylene	9003-07-0	1.5
Zinc chloride	7646-85-7	1.2

5. HEALTH AND SAFETY

Ingestion: Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Inhalation: Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.

Fiche d'information Article

Nom du produit: Batterie carbone-zinc **Date d'impression:** 14-Jan-2020

Image	

4. ARTICLE CONSTRUCTION

REMARQUE IMPORTANTE: La batterie ne doit pas être ouvert ou brûlé. L'exposition aux ingrédients contenus dans leurs produits ou de combustion pourrait être nocif.

Nom chimique	N ° CAS.	Concentration%
Dioxyde de manganèse	1313-13-9	37.5
Zinc	7440-66-6	33,0
Noir carbone	1333-86-4	10.0
Eau	7732-18-5	14.2
Chlorure d'ammonium	12125-02-9	0,6
Le fer	7439-89-6	2.0
polypropylène	9003-07-0	1.5
chlorure de zinc	7646-85-7	1.2

5. SANTÉ ET SÉCURITÉ

Ingestion: Ne pas faire vomir. Se rincer la bouche et boire beaucoup d'eau. Ne portez rien à la bouche d'une personne inconsciente. Appeler un centre de contrôle médecin ou de poison immédiatement.

Skin contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. May cause an allergic skin reaction.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Self-protection of the first aider:	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

6. FIRE HAZARD & FIREFIGHTING

Fire Hazard	Batteries may rupture or leak if involved in a fire.
Extinguishing Media	Use any extinguishing media appropriate for the surrounding area.
Special hazards arising from the chemical	Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO2, Metal oxides, Irritating fumes
Precautions for fire-fighters	Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as

Inhalation:	À l'air frais. Si la respiration est arrêtée, pratiquer la respiration artificielle. Consulter un médecin immédiatement. Ne pas utiliser le bouche-à-bouche si la victime a ingéré ou inhalé la substance; pratiquer la respiration artificielle à l'aide d'un masque de poche muni d'une valve à une voie ou d'un autre appareil médical approprié. Si la respiration est difficile, (du personnel qualifié devrait) donner de l'oxygène. œdème pulmonaire retardé peut se produire. Consulter un médecin si des symptômes apparaissent.
Contact avec la peau:	Laver immédiatement avec du savon et beaucoup d'eau tout en enlevant les vêtements contaminés et les chaussures. Une attention médicale immédiate est nécessaire. Peut provoquer une réaction allergique cutanée.
Lentilles de contact:	Rincer immédiatement et abondamment avec de l'eau, y compris sous les paupières, pendant au moins 15 minutes. Gardez l'œil ouvert pendant le rinçage. Ne pas frotter les zones touchées. lentilles de contact Retirer, si elle est présente et facile à faire. Continuer à rincer. Consulter un / des conseils médicaux immédiats.
Auto-protection du secouriste:	Veiller à ce que le personnel médical sont au courant de la matière (s) impliqués, prendre des précautions pour se protéger et prévenir la propagation de la contamination. Éviter tout contact avec la peau, les yeux ou les vêtements. Éviter tout contact direct avec la peau. Utilisez barrière pour donner la respiration artificielle bouche-à-bouche. Utiliser un équipement de protection individuel requis. Porter des vêtements de protection individuelle (voir la section 8).

6. RISQUE D'INCENDIE & POMPIERS

Risque d'incendie	Les piles peuvent se rompre ou fuir si elle est impliquée dans un incendie.

possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

7. HANDLING AND STORAGE

Storage	Don't handling Carbon Zinc Battery with metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace. Prevent formation of dust. Information about protection against explosions and fires: Keep ignition sources away- Do not smoke. Recommended at 0℃~+35℃ for long period storage. Do not storage Carbon Zinc Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Keep out of reach of children. Do not expose Carbon Zinc Battery to heat or fire. Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials.
Handling	Avoid mechanical and electrical abuse. Do not short circuit or install incorrectly. Batteries may rupture or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions.
Spills of Large Quantities Batteries (unpackaged)	Notify spill personnel of large spills. Irritating and flammable vapors may be released from leaking or ruptured batteries. Spread batteries apart to stop shorting. Eliminate all ignition sources. Evacuate area and allow vapors to dissipate. Clean-up personnel should wear appropriate PPE to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place

Moyens d'extinction	Utilisez tous les moyens d'extinction appropriés pour la région environnante.
Dangers particuliers résultant de la substance chimique	En cas d'incendie, les piles peuvent éclater et libérer des produits de décomposition dangereux lorsqu'ils sont exposés à une situation d'incendie. Cela pourrait entraîner le rejet de matières inflammables ou corrosifs. Produits de combustion dangereux: CO, CO2, des oxydes métalliques, des vapeurs irritantes
Précautions à prendre pour les pompiers	Les pompiers doivent porter un équipement de protection résistant au feu et un appareil respiratoire approprié. Le personnel doit équiper avec filtermask (masque complet) ou un appareil respiratoire isolé. Le personnel doit porter les vêtements qui peuvent défendre le feu et le gaz toxique. Mettre le feu dans la direction face au vent. Retirez le récipient à l'espace ouvert le plus tôt possible. Pulvériser de l'eau sur les récipients dans la cheminée pour les garder au frais jusqu'à ce que l'extinction d'arrivée.

7. MANIPULATION ET STOCKAGE

in appropriate container for disposal. Remove any spilled liquid with absorbent material and contain for disposal.

8. DISPOSAL CONSIDERATIONS

Dispose of used (or excess) batteries in compliance with federal, state/provincial and local regulations. Do not accumulate large quantities of used batteries for disposal as accumulations could cause batteries to short-circuit. Do not incinerate. In countries, such as Canada and the EU, where there are regulations for the collection and recycling of batteries, consumers should dispose of their used batteries into the collection network at municipal depots and retailers. They should not dispose of batteries with household trash.

9. Transport information

UN NumberIATA, IMDG	N/A
UN Proper shipping name IATA, IMDG	N/A
Transport hazard class(es) IATA, IMDG	N/A
Packing group IATA, IMDG	N/A
Packaging Sign IATA, IMDG	N/A
Environmental hazards Marine pollutant	No
Special precautions for user	Not applicable

Espace de rangement	Ne pas manipuler le carbone zinc batterie avec ferronnerie. Ne pas ouvrir, dissemble, écraser ou brûler la batterie. Veiller à une bonne ventilation / aspiration du poste de travail. Eviter la formation de poussière. Informations sur la protection contre les incendies et les explosions: Tenir les sources d'inflammation de ne pas fumer. Recommandé à 0 ℃ ~ 35 ℃ pour le stockage de longue période. Ne pas le stockage de carbone de zinc batterie au petit bonheur dans une boîte ou un tiroir où ils peuvent court-circuiter l'autre ou être court-circuité par d'autres objets métalliques. Tenir hors de portée des enfants. Ne pas exposer le carbone zinc à la chaleur ou le feu. Éviter le stockage en plein soleil. Ne pas stocker avec des produits oxydants et acides.
Manipulation	Éviter les abus mécaniques et électriques. Ne pas court-circuiter ou installer correctement. Les piles peuvent se rompre ou de ventilation si elles sont démontées, écrasées, rechargées ou exposé à une forte températures. Installez les piles conformément aux instructions du fabricant.
Déversements de grandes quantités	Informer le personnel de déversement de grands déversements. Irritant et vapeurs inflammables peuvent être libérés de
Batteries (non emballés)	fuites ou les piles endommagées. piles écartez pour arrêter les courts-circuits. éliminer tous les sources d'allumage. Évacuer la zone et laisser les vapeurs se dissipent. Le personnel de nettoyage devrait porter des EPI appropriés pour éviter les yeux et contact avec la peau et l'inhalation des vapeurs ou fumées. Augmenter la ventilation. batteries cueillent et les placer dans un récipient approprié pour

Transport information: Alkaline battery is exempt from dangerous goods. It is considered non-dangerous goods by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) DGR 56th, International Martine Dangerous Goods Regulations (IMDG)(36-12)

Alkaline battery batteries or Alkaline battery battery- powered devices, equipment or vehicles having the potential of a dangerous evolution of heat are not subject to these Regulations provided they are prepared for transport so as to prevent:

(a) a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals； or, in the case of equipment, by disconnection of the battery and protection of exposed terminals); and
(b) unintentional activation.
The word “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued

Separate batteries when shipping to prevent short-circuiting. They should be packed in strong packaging for support during transport

Transport Fashion: Air, Rail, Road, Marine

10. REGULATORY INFORMATION

(a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA TSCA	EU EINECS	Japan ENCS	Korea ECL	China IECSC	Canada DSL
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed

disposition. Retirez tout liquide déversé avec une matière absorbante et contiennent pour l'élimination.

8. CONSIDERATIONS RELATIVES À L'ÉLIMINATION

Jetez les piles usagées (ou excédent) conformément aux règlements fédéraux, provinciaux / provinciaux et locaux. Ne pas accumuler de grandes quantités de piles usagées pour l'élimination comme accumulations pourraient provoquer un court-circuit. Ne pas incinérer. Dans les pays, comme le Canada et l'Union européenne, où il existe des règlements pour la collecte et le recyclage des batteries, les consommateurs devraient disposer de leurs piles usagées dans le réseau de collecte dans les dépôts municipaux et les détaillants. Ils ne doivent pas jeter les piles avec les ordures ménagères.

9. Informations de transport

ONU NumberIATA, IMDG	N / A
ONU Nom d'expédition IATA, IMDG	N / A
Transport classe de danger (s) IATA, IMDG	N / A
Groupe d'emballage IATA, IMDG	N / A
Emballage Connexion IATA, IMDG	N / A
Dangers pour l'environnement Polluant marin	Non
Précautions particulières pour l'utilisateur	N'est pas applicable

1333-86-4	Listed	Listed	Listed	Listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
12125-02-9	Listed	Listed	Listed	Listed	Listed	Listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed
7646-85-7	Listed	Listed	Listed	Listed	Listed	Listed

11. OTHER INFORMATION

TSCA: Toxic Substances Control Act, The American chemical inventory.
DSL Domestic Substances List
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS Japanese Existing and New Chemical Substances
ECL: Existing Chemicals List, the Korean chemical inventory.
IECSC: Inventory of existing chemical substances in China.

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this AIS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This AIS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this AIS should make independent judgment for the applicability of this AIS under special conditions. In these special cases, we do not assume responsibility for the damage.

---------- End of the AIS ----------

Informations relatives au transport: piles alcalines est exempt de marchandises dangereuses. Il est considéré comme non dangereuses par l'Organisation internationale de l'aviation civile (OACI), l'Association internationale du transport aérien (IATA) DGR 56e, marchandises dangereuses internationales Martine (IMDG) (36-12)

Pile alcaline batteries ou Pile alcaline dispositifs alimentés par batterie, l'équipement ou les véhicules ayant le potentiel d'une évolution dangereuse de la chaleur ne sont pas soumis au présent règlement à condition qu'ils soient préparés pour le transport de manière à éviter:

1. un court-circuit (par exemple dans le cas des batteries, par l'isolation efficace des bornes exposées; ou, dans le cas d'un équipement, par déconnexion de la batterie et la protection des bornes exposées); et
2. activation involontaire.

Le mot « Non restreint » et le numéro de la disposition spéciale doit être inclus dans la description de la substance sur la lettre de transport aérien tel que requis par 8.2.6, lorsqu'une lettre de transport aérien est délivré

batteries séparées lors de l'expédition pour éviter un court-circuit. Ils doivent être emballés dans un emballage solide pour le soutien pendant le transport

Transport Mode: Aérien, ferroviaire, routier, maritime

10. INFORMATIONS RÉGLEMENTAIRES

(A) la sécurité, de santé et de l'environnement spécifique pour le produit en question

N ° CAS.	Etats-Unis TSCA	UE Einecs	Japon ENCS	Corée ECL	Chine IECSC	Canada DSL
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
7440-66-6	Listed	Listed	Non listé	Listed	Listed	Non listé

1333-86-4	Listed	Listed	Listed	Listed	Listed	Non listé
7732-18-5	Listed	Listed	Listed	Listed	Listed	Non listé
12125-02-9	Listed	Listed	Listed	Listed	Listed	Listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Non listé
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed
7646-85-7	Listed	Listed	Listed	Listed	Listed	Listed

11. LES AUTRES INFORMATIONS

TSCA: Toxic Substances Control Act, l'inventaire chimique américain.

DSL Liste intérieure

Einecs: Inventaire européen des substances chimiques existantes commerciales

ENCS Existantes et nouvelles substances chimiques japonaises

ECL: Liste des produits chimiques existants, l'inventaire chimique coréenne.

IECSC: Inventaire des substances chimiques existantes en Chine.

Parce que toutes nos batteries sont définis comme des « articles », ils sont exemptés des exigences de la norme de communication des risques. Les informations contenues dans ce AIS est fourni tous les pleinement et véritablement les données pertinentes. Cependant, les informations sont fournies sans aucune garantie sur leur extensification absolue et la précision. Cet AIS a été préparé à des mesures préventives de sécurité pour les utilisateurs qui ont obtenu la formation professionnelle. L'utilisateur personnel qui a obtenu ce SIA devrait porter un jugement indépendant pour l'applicabilité de cette AIS dans des conditions particulières. Dans ces cas particuliers, nous n'assumons la responsabilité pour les dommages.

---------- Fin de l'AIS ---------- ----

Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN
Product name: Carbon Zinc Battery

Revision date: 19/03/2015
Printing date: 19/03/2015

1. Identification

(a) Product identifier

Product name: Carbon Zinc Battery

(b) Other means of identification

Product description: Model: R03&R03P
Nominal Voltage: 1.5V
Weight: 7.0g
Dimension: 10.5mm×44.5mm (DxH)

(c) Recommended use of the chemical and restrictions on use

Recommended use: Battery.
Restriction on use: No information available.

(d) Details of the supplier of the product

Company name(China) Guangdong Liwang New Energy Co., Ltd
Address: Liwang Industrial Estate, Shima Village, Tangxia Town, Dongguan City, GuangDong Province, CHINA
E-mail: Liwang@Liwangbattery.com
Telephone: +86-769-87888653

(e) Emergency phone number

+86-769-87888653

2. Hazard(s) identification

(a) Classification of the chemical

The batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. A sealed Carbon Zinc Battery is not hazardous in normal use.

(b) Label elements

Pictogram(s): No pictogram.
Signal word: No signal word.
Hazard statements: No hazard statement.
Precautionary statements: No precautionary statement.

(c) Description of any hazards not otherwise classified

In case of mistreatment (abusive over charge, reverse charge, external short circuit…) and in case of fault some electrolyte can leak from the cell through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the cell or if exposed to fire.

Skin touch: Contact with battery electrolyte may cause burns and skin irritation.

Eyes touch: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

(d) Ingredient with unknown acute toxicity

No information available.

3. Composition/information on ingredients

(a) Mixtures information

Chemical name	CAS No.	Concentration%
Manganese dioxide	1313-13-9	37
Zinc	7440-66-6	33
Carbon black	1333-86-4	10
Water	7732-18-5	14.2
Ammonium chloride	12125-02-9	0.6
Iron	7439-89-6	2
Paper	RR-01108-5	0.5
Polypropylene	9003-07-0	1.5
Zinc chloride	7646-85-7	1.2

4. First-aid measures

(a) Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.

Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing. Get medical advice / attention if you feel unwell.

Ingestion: Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

(b) Most important symptoms/effects, acute and delayed

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

(c) Immediate medical attention and special treatment

No information available.

5. Fire-fighting measures

(a) Extinguishing media

Suitable extinguishing media: Use foam, dry powder or dry sand, CO_2 as appropriate.

Unsuitable extinguishing media: No information available.

(b) Special hazards arising from the chemical

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO,

CO_2, Metal oxides, Irritating fumes

(c) Special protective equipment and precautions for fire-fighters

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

6. Accidental release measures

(a) Personal precautions, protective equipment and emergency procedures

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

(b) Methods and materials for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

7. Handling and storage

(a) Precautions for safe handling

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

(b) Conditions for safe storage, including any incompatibilities

Don’t handling Carbon Zinc Battery with metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

Recommended at 0℃~+35℃ for long period storage.

Do not storage Carbon Zinc Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose Carbon Zinc Battery to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

8. Exposure controls/personal protection

(a) Control parameters

Not established.

(b) Appropriate engineering controls

Under normal conditions (during charge and discharge) release of ingredients does not occur.

(c) Personal protective equipment

Respiratory protection:	No personal respiratory protective equipment normally required. In case of inadequate ventilation wear respiratory protection.
Hand protection:	Wear protective gloves.
Eye/face protection:	No personal protective equipment normally required.
Skin/body protection:	Wear protective clothing to prevent contact.

9. Physical and chemical properties

(a) Appearance	Cylindrical solid
(b) Odor	Monotony
(c) Odor threshold	Not available.
(d) pH	Not available.
(e) Melting point/freezing point	Not available.
(f) Initial boiling point and boiling range	Not available.
(g) Flash point	Not applicable.
(h) Evaporation rate	Not applicable.
(i) Flammability	Non flammable.
(j) Upper/lower flammability or explosive limits	Not available.
(k) Vapor pressure	Not applicable.
(l) Vapor density	Not available.
(m) Relative density	Not available.
(n) Solubility(ies)	Insoluble in water.
(o) Partition coefficient: n-octanol/water	Not available.
(p) Auto-ignition temperature	130℃
(q) Decomposition temperature	Not available.
(r) Viscosity	Not available.

10. Stability and reactivity

(a) Reactivity

Stable under recommended storage and handling conditions.

(b) Chemical stability

Stable under normal conditions.

(c) Possibility of hazardous reactions

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies controlled release of pressure without ignition.

(d) Conditions to avoid

Do not subject Carbon Zinc Battery to mechanical shock. Keep away from open flames, high temperature.

(e) Incompatible materials

Strong oxidizer, strong acid.

(f) Hazardous decomposition products

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

11. Toxicological information

(a) Information on the likely routes of exposure

Inhalation:	Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.
Ingestion:	Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.
Skin contact:	Contact with battery electrolyte may cause burns and skin irritation.
Eye contact:	Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, 3, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

(b) Information on toxicological characteristics

Acute toxicity:	No data available.
Skin corrosion/irritation:	The liquid in the battery irritates.
Serious eye damage/irritation:	The liquid in the battery irritates.
Respiratory sensitization:	The liquid in the battery may cause sensitization to some person.
skin sensitization:	The liquid in the battery may cause sensitization to some person.
Carcinogenicity:	Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).
Germ Cell Mutagenicity:	No data available.
Reproductive Toxicity:	No data available.
STOT-Single Exposure:	No data available.
STOT-Repeated Exposure:	No data available.
Aspiration Hazard:	No data available.

12. Ecological information

(a) Ecotoxicity

Water hazard class 1(Self-assessment): slightly hazardous for water.

(b) Persistence and Degradability

No information available.

(c) Bioaccumulative potential

No information available.

(d) Mobility in soil

No information available.

(e) Other adverse effects

No information available.

13. Disposal considerations

(a) Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations.
Local regulations may be more stringent than regional or national requirements.

14. Transport information

According to PACKING INSTRUCTION 965 ~ 970 of IATA DGR 56rd Edition for transportation, the special provision 188 of IMDG (inc Amdt 35-10). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

(a) UN number	3480&3481
(b) UN Proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries) or; LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
(c) Transport hazard class(es)	9
(d) Packing group (if applicable)	II
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.

15. Regulatory information

(a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA	EU	Japan	Korea	China	Canada

	TSCA	EINECS	ENCS	ECL	IECSC	DSL
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
1333-86-4	Listed	Listed	Listed	Listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
12125-02-9	Listed	Listed	Listed	Listed	Listed	Listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
RR-01108-5	Listed	Listed	Listed	Listed	Listed	Listed
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed
7646-85-7	Listed	Listed	Listed	Listed	Listed	Listed

16. Other information, including date of preparation or last revision

(a) Preparation and revision information

Date of previous revision: Not applicable. Date of this revision: 19/03/2015

Revision summary: The first New SDS

(b) Abbreviations and acronyms

TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL	Domestic Substances List
EINECS:	European Inventory of Existing Commercial chemical Substances
ENCS	Japanese Existing and New Chemical Substances
ECL:	Existing Chemicals List, the Korean chemical inventory.
IECSC:	Inventory of existing chemical substances in China.

(c) Disclaimer

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

---------- End of the SDS ----------

Article Information Sheet

Product name: Alkaline batteries **Printing date:** 14-Jan-2020

Article Information Sheet (AIS)

This Article Information Sheet (AIS) provides relevant battery information to retailers, consumers, OEMs and other users requesting a GHS‐compliant SDS. Articles, such as batteries, are exempt from GHS SDS classification criteria. The GHS criteria is not designed or intended to be used to classify the physical, health and environmental hazards of an article. Branded consumer batteries are defined as electro‐technical devices. The design, safety, manufacture, and qualification of Energizer branded consumer batteries follow ANSI and IEC battery standards.

1. DOCUMENT INFORMATION

Product name:	Alkaline batteries
Model:	LR6
Issue Date:	14-Jan-2020

2. COMPANY INFORMATION

Company name(China)	Guangdong Liwang New Energy Co.,Ltd.
Address:	shima District,Tangxia Town,Dongguan City ,Guangdong Province,China
E-mail:	qa1@liwangbattery.com
Telephone:	+86-769-86201111-8062

3. ARTICLE INFORMATION

Description	Alkaline batteries
Use	Alkaline Battery.
Brand	----

Fiche d'information Article

Nom du produit: Piles alcalines **Date d'impression:** 14-Jan-2020

Article Feuillet d'information (AIS)

Cette fiche d'information Article (AIS) fournit des informations sur la batterie correspondant aux détaillants, aux consommateurs, aux OEM et aux autres utilisateurs qui demandent un SDS SGH-conforme. Les articles, tels que les piles, sont exemptés de critères de classification SGH SDS. Les critères du SGH ne sont pas conçus ou destinés à être utilisés pour classer les risques physiques, la santé et l'environnement d'un article. batteries de consommation de marque sont définis comme des dispositifs électro-technique. La conception, la sécurité, la fabrication, et la qualification des batteries de consommation de marque Energizer sont conformes aux normes de la batterie ANSI et IEC.

1. DOCUMENT D'INFORMATION

Produit Nom:	Piles alcalines
Modèle:	LR6
Date d'émission:	14-Jan-2020

2. INFORMATIONS SUR LA SOCIÉTÉ

Nom de l'entreprise (Chine)	Guangdong Liwang New Energy Co., Ltd.
Adresse:	Shima District, Tangxia Town, la ville de Dongguan, province du Guangdong, en Chine
Email:	qa1@liwangbattery.com
Téléphone:	+ 86-769-86201111-8062

3. ARTICLE D'INFORMATION

La description	Piles alcalines
Utilisation	Pile alcaline.

Image	

4. ARTICLE CONSTRUCTION

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Chemical name	CAS No.	Concentration%
Iron	7439-89-6	18
Manganese dioxide	1313-13-9	40
Potassium hydroxide	1310-58-3	8
Water	7732-18-5	10
Zinc	7440-66-6	16
Copper	7440-50-8	3
Nylon	9008-75-7	2
Graphite	7782-42-5	3

5. HEALTH AND SAFETY

Ingestion: Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Inhalation: Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed

Marque	----
Image	

4. ARTICLE CONSTRUCTION

REMARQUE IMPORTANTE: La batterie ne doit pas être ouvert ou brûlé. L'exposition aux ingrédients contenus dans leurs produits ou de combustion pourrait être nocif.

Nom chimique	N ° CAS.	Concentration%
Le fer	7439-89-6	18
Dioxyde de manganèse	1313-13-9	40
L'hydroxyde de potassium	1310-58-3	8
Eau	7732-18-5	10
Zinc	7440-66-6	16
Cuivre	7440-50-8	3
Nylon	9008-75-7	2
Graphite	7782-42-5	3

5. SANTÉ ET SÉCURITÉ

Ingestion: Ne pas faire vomir. Se rincer la bouche et boire beaucoup d'eau. Ne portez rien à la bouche d'une personne inconsciente. Appeler un centre de contrôle médecin ou de poison immédiatement.

	pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Skin contact:	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. May cause an allergic skin reaction.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Self-protection of the first aider:	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

6. FIRE HAZARD & FIREFIGHTING

Fire Hazard	Batteries may rupture or leak if involved in a fire.
Extinguishing Media	Use any extinguishing media appropriate for the surrounding area.
Special hazards arising from the chemical	Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO2, Metal oxides, Irritating fumes
Precautions for fire-fighters	Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire

Inhalation:	À l'air frais. Si la respiration est arrêtée, pratiquer la respiration artificielle. Consulter un médecin immédiatement. Ne pas utiliser le bouche-à-bouche si la victime a ingéré ou inhalé la substance; pratiquer la respiration artificielle à l'aide d'un masque de poche muni d'une valve à une voie ou d'un autre appareil médical approprié. Si la respiration est difficile, (du personnel qualifié devrait) donner de l'oxygène. œdème pulmonaire retardé peut se produire. Consulter un médecin si des symptômes apparaissent.
Contact avec la peau:	Laver immédiatement avec du savon et beaucoup d'eau tout en enlevant les vêtements contaminés et les chaussures. Une attention médicale immédiate est nécessaire. Peut provoquer une réaction allergique cutanée.
Lentilles de contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Self-protection of the first aider:	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

6. FIRE HAZARD & FIREFIGHTING

Fire Hazard	Batteries may rupture or leak if involved in a fire.
Extinguishing Media	Use any extinguishing media appropriate for the surrounding area.

and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

7. HANDLING AND STORAGE

Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.
Handling	Avoid mechanical and electrical abuse. Do not short circuit or install incorrectly. Batteries may rupture or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions.
Spills of Large Quantities Batteries (unpackaged)	Notify spill personnel of large spills. Irritating and flammable vapors may be released from leaking or ruptured batteries. Spread batteries apart to stop shorting. Eliminate all ignition sources. Evacuate area and allow vapors to dissipate. Clean-up personnel should wear appropriate PPE to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in appropriate container for disposal. Remove any spilled liquid with absorbent material and contain for disposal.

8. DISPOSAL CONSIDERATIONS

Dispose of used (or excess) batteries in compliance with federal, state/provincial and local regulations. Do not accumulate large quantities of used batteries for disposal as accumulations could cause batteries to

Special hazards arising from the chemical	Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO, CO2, Metal oxides, Irritating fumes
Precautions for fire-fighters	Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

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short-circuit. Do not incinerate. In countries, such as Canada and the EU, where there are regulations for the collection and recycling of batteries, consumers should dispose of their used batteries into the collection network at municipal depots and retailers. They should not dispose of batteries with household trash.

9. Transport information

DOT	NOT REGULATED
Proper Shipping Name	NON REGULATED
Hazard Class	N/A
TDG	Not regulated
MEX	Not regulated
ICAO	Not regulated
IATA	Not regulated
Proper Shipping Name	NON REGULATED
Hazard Class	N/A
IMDG/IMO	Not regulated
Hazard Class	N/A
Marine Pollutant	Product is a marine pollutant according to the criteria set by IMDG/IMO
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

10. REGULATORY INFORMATION

(a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA TSCA	EU EINECS	Japan ENCS	Korea ECL	China IECSC	Canada DSL
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed

appropriate container for disposal. Remove any spilled liquid with absorbent material and contain for disposal.

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Proper Shipping Name	NON REGULATED
Hazard Class	N/A
IMDG/IMO	Not regulated
Hazard Class	N/A
Marine Pollutant	Product is a marine pollutant according to the criteria set by IMDG/IMO
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

1310-58-3	Listed	Not listed	Listed	Not listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
9008-75-7	Not listed	Listed	Listed	Listed	Listed	Not listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed

11. OTHER INFORMATION

TSCA: Toxic Substances Control Act, The American chemical inventory.
DSL Domestic Substances List
EINECS: European Inventory of Existing Commercial chemical Substances
ENCS Japanese Existing and New Chemical Substances
ECL: Existing Chemicals List, the Korean chemical inventory.
IECSC: Inventory of existing chemical substances in China.

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this AIS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This AIS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this AIS should make independent judgment for the applicability of this AIS under special conditions. In these special cases, we do not assume responsibility for the damage.

---------- End of the AIS ----------

10. REGULATORY INFORMATION

(a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA TSCA	EU EINECS	Japan ENCS	Korea ECL	China IECSC	Canada DSL
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
1310-58-3	Listed	Not listed	Listed	Not listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
9008-75-7	Not listed	Listed	Listed	Listed	Listed	Not listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed

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---------- End of the AIS ----------

Safety Data Sheet

According to HCS-2012 APPENDIX D TO §1910.1200

Version: 1.0/EN
Product name: ALKALINE BATTERY

Revision date: 19/03/2015
Printing date: 19/03/2015

1. Identification

(a) Product identifier

Product name: ALKALINE BATTERY

(b) Other means of identification

Product description: Model: LR03
Nominal Voltage: 1.5V
Weight: 11.3g
Dimension: 10.5mm×44.5mm (DxH)

(c) Recommended use of the chemical and restrictions on use

Recommended use: Battery.
Restriction on use: No information available.

(d) Details of the supplier of the product

Company name(China) Guangdong Liwang New Energy Co., Ltd
Address: Liwang Industrial Estate, Shima Village, Tangxia Town, Dongguan City, GuangDong Province, CHINA
E-mail: Liwang@Liwangbattery.com
Telephone: +86-769-87888653

(e) Emergency phone number

+86-769-87888653

2. Hazard(s) identification

(a) Classification of the chemical

The batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. A sealed ALKALINE BATTERY is not hazardous in normal use.

(b) Label elements

Pictogram(s): No pictogram.
Signal word: No signal word.
Hazard statements: No hazard statement.
Precautionary statements: No precautionary statement.

(c) Description of any hazards not otherwise classified

In case of mistreatment (abusive over charge, reverse charge, external short circuit…) and in case of fault some electrolyte can leak from the cell through the safety device. In these cases refer to the risk of the electrolyte. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. The electrode materials are only hazardous, if the materials are released by mechanical damaging of the cell or if exposed to fire.

Skin touch: Contact with battery electrolyte may cause burns and skin irritation.

Eyes touch: Contact with battery electrolyte may cause burns. Eye damage is possible.

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

(d) Ingredient with unknown acute toxicity

No information available.

3. Composition/information on ingredients

(a) Mixtures information

Chemical name	CAS No.	Concentration%
Manganese dioxide	1313-13-9	40
Zinc	7440-66-6	16
Potassium hydroxide	1310-58-3	8
Water	7732-18-5	10
Iron	7439-89-6	17
Paper	RR-01108-5	1
Copper	7440-50-8	3
Nylon-6	25038-54-4	2
Graphite	7782-42-5	3

4. First-aid measures

(a) Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice / attention if you feel unwell.

Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing. Get medical advice / attention if you feel unwell.

Ingestion: Have victim drink 60 to 240 mL (2-8 oz.) of water. and DO NOT induce vomiting. Get medical aid.

(b) Most important symptoms/effects, acute and delayed

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

(c) Immediate medical attention and special treatment

No information available.

5. Fire-fighting measures

(a) Extinguishing media

Suitable extinguishing media: Use foam, dry powder or dry sand, CO_2 as appropriate.

Unsuitable extinguishing media: No information available.

(b) Special hazards arising from the chemical

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials. Hazardous combustion products: CO,

CO_2, Metal oxides, Irritating fumes

(c) Special protective equipment and precautions for fire-fighters

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

6. Accidental release measures

(a) Personal precautions, protective equipment and emergency procedures

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area, dispose the case after the batteries cool and vapors dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors.

(b) Methods and materials for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters.

7. Handling and storage

(a) Precautions for safe handling

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries Use recommended charging time and current.

(b) Conditions for safe storage, including any incompatibilities

Don’t handling ALKALINE BATTERY with metalwork. Do not open, dissemble, crush or burn battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

Recommended at 0℃~+35℃ for long period storage.

Do not storage ALKALINE BATTERY haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

Keep out of reach of children.

Do not expose ALKALINE BATTERY to heat or fire. Avoid storage in direct sunlight.

Do not store together with oxidizing and acidic materials.

8. Exposure controls/personal protection

(a) Control parameters

Not established.

(b) Appropriate engineering controls

Under normal conditions (during charge and discharge) release of ingredients does not occur.

(c) Personal protective equipment

Respiratory protection:	No personal respiratory protective equipment normally required. In case of inadequate ventilation wear respiratory protection.
Hand protection:	Wear protective gloves.
Eye/face protection:	No personal protective equipment normally required.
Skin/body protection:	Wear protective clothing to prevent contact.

9. Physical and chemical properties

(a) Appearance	Cylindrical solid
(b) Odor	Monotony
(c) Odor threshold	Not available.
(d) pH	Not available.
(e) Melting point/freezing point	Not available.
(f) Initial boiling point and boiling range	Not available.
(g) Flash point	Not applicable.
(h) Evaporation rate	Not applicable.
(i) Flammability	Non flammable.
(j) Upper/lower flammability or explosive limits	Not available.
(k) Vapor pressure	Not applicable.
(l) Vapor density	Not available.
(m) Relative density	Not available.
(n) Solubility(ies)	Insoluble in water.
(o) Partition coefficient: n-octanol/water	Not available.
(p) Auto-ignition temperature	130℃
(q) Decomposition temperature	Not available.
(r) Viscosity	Not available.

10. Stability and reactivity

(a) Reactivity

Stable under recommended storage and handling conditions.

(b) Chemical stability

Stable under normal conditions.

(c) Possibility of hazardous reactions

When heated above 150°C the risk of rupture occurs. Due to special safety construction, rupture implies controlled release of pressure without ignition.

(d) Conditions to avoid

Do not subject ALKALINE BATTERY to mechanical shock. Keep away from open flames, high temperature.

(e) Incompatible materials

Strong oxidizer, strong acid.

(f) Hazardous decomposition products

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

11. Toxicological information

(a) Information on the likely routes of exposure

Inhalation:	Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.
Ingestion:	Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.
Skin contact:	Contact with battery electrolyte may cause burns and skin irritation.
Eye contact:	Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur. If accidental release occurs see information in section 2, 3, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

(b) Information on toxicological characteristics

Acute toxicity:	No data available.
Skin corrosion/irritation:	The liquid in the battery irritates.
Serious eye damage/irritation:	The liquid in the battery irritates.
Respiratory sensitization:	The liquid in the battery may cause sensitization to some person.
skin sensitization:	The liquid in the battery may cause sensitization to some person.
Carcinogenicity:	Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).
Germ Cell Mutagenicity:	No data available.
Reproductive Toxicity:	No data available.
STOT-Single Exposure:	No data available.
STOT-Repeated Exposure:	No data available.
Aspiration Hazard:	No data available.

12. Ecological information

(a) Ecotoxicity

Water hazard class 1(Self-assessment): slightly hazardous for water.

(b) Persistence and Degradability

No information available.

(c) Bioaccumulative potential

No information available.

(d) Mobility in soil

No information available.

(e) Other adverse effects

No information available.

13. Disposal considerations

(a) Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations.
Local regulations may be more stringent than regional or national requirements.

14. Transport information

According to PACKING INSTRUCTION 965 ~ 970 of IATA DGR 56rd Edition for transportation, the special provision 188 of IMDG (inc Amdt 35-10). The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

(a) UN number	3480&3481
(b) UN Proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries) or; LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
(c) Transport hazard class(es)	9
(d) Packing group (if applicable)	II
(e) Marine pollutant (Yes/No)	No
(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	No information available.
(g) Special precautions	No information available.

15. Regulatory information

(a) Safety, health and environmental regulations specific for the product in question

CAS No.	USA	EU	Japan	Korea	China	Canada

	TSCA	EINECS	ENCS	ECL	IECSC	DSL
1313-13-9	Listed	Listed	Listed	Listed	Listed	Listed
7440-66-6	Listed	Listed	Not listed	Listed	Listed	Not listed
1310-58-3	Listed	Not listed	Listed	Not listed	Listed	Not listed
7732-18-5	Listed	Listed	Listed	Listed	Listed	Not listed
7439-89-6	Listed	Listed	Listed	Listed	Listed	Not listed
RR-01108-5	Listed	Listed	Listed	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Listed	Listed	Listed	Not listed
25038-54-4	Listed	Not listed	Listed	Not listed	Not listed	Not listed
7782-42-5	Listed	Listed	Not listed	Listed	Listed	Listed

16. Other information, including date of preparation or last revision

(a) Preparation and revision information

Date of previous revision: Not applicable. Date of this revision: 19/03/2015

Revision summary: The first New SDS

(b) Abbreviations and acronyms

TSCA:	Toxic Substances Control Act, The American chemical inventory.
DSL	Domestic Substances List
EINECS:	European Inventory of Existing Commercial chemical Substances
ENCS	Japanese Existing and New Chemical Substances
ECL:	Existing Chemicals List, the Korean chemical inventory.
IECSC:	Inventory of existing chemical substances in China.

(c) Disclaimer

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.

---------- End of the SDS ----------

Alkaline Zn-Mn Dry Battery

Safety Data Sheet

According to OSHA Hazard Communication Standard 29 CFR 1910.1200

Date of issue: 09/01/2017 Supersedes: 09/01/2017 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form	:	Article
Trade name	:	Alkaline Zn-Mn Dry Battery
Voltage	:	1.5 V
Watt-Hour	:	3.9 Wh
Battery Weight	:	23 g

1.2. Recommended use and restrictions on use

Main use category	:	Power supply provide low voltage and low current
Restrictions on use	:	No information available.

1.3. Supplier

Manufacturer	:	Hangzhou Powerpack Battery Co.,Ltd
Address	:	Rm 1611 Qianjiang Intel Business Center, Qianjiang Road, Hangzhou, Zhejiang Province, China.
Postal code	:	310008
Phone	:	+86-571-87831186
FAX	:	+86-571-87831187
E-mail	:	jim@cnpowerpack.com

1.4. Emergency telephone number

+86-13858182676

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US labelling

No labelling applicable

Hazard pictograms (GHS-US)	:	None
Signal word (GHS-US)	:	None
Hazard statements (GHS-US)	:	Not applicable
Precautionary statements (GHS-US)	:	Not applicable

2.3. Other hazards which do not result in classification

Batteries contain manganese dioxide which may boost combustion of other substances that may vent, ignite and produce sparks when subjected to high temperature, when damaged or abused (e.g., mechanical damage); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

This product should not present a health hazard when used under reasonable conditions. If contact with the internal components of the battery may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Burning batteries may produce toxic hydrogen fluoride gas.

Fumes may cause dizziness or suffocation. If the battery is discarded into the environment, the harmful contents inside may be dangerous

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Manganese oxide	(CAS-No.) 1313-13-9	42 - 48
Zinc	(CAS-No.) 7440-66-6	15 - 25
Steel	(CAS-No.) 12597-69-2	15 - 22
Potassium hydroxide	(CAS-No.) 1310-58-3	12 - 18
Vinyl acetal polymers, formals	(CAS-No.) 63148-64-1	1 - 3

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : No hazards which require special first aid measures.

If you feel unwell, seek medical advice (show directions for use or safety data sheet if possible).

First-aid measures after inhalation : Not an expected route of exposure.

First-aid measures after skin contact : Not expected to present a skin hazard under anticipated conditions of normal use. No special technical protective measures are necessary.

First-aid measures after eye contact : Not an expected route of exposure.

First-aid measures after ingestion : Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after ingestion : Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Dry sand or Class D extinguishing agents. If the battery is burning, water can also be submerged ignition ground.

Unsuitable extinguishing media : No information available.

5.2. Specific hazards arising from the chemical

Fire hazad : Battery can be overheated by an external source or by internal shorting and develop metal hydroxide mist.

In fire situations fumes containing manganese, Zinc, etc. may evolved.

Toxic vapor may release in case of fire.

Thermal shock may cause battery case to crack open.

Containers may explode when heated.

Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

On some bad using conditions (e.g., mechanical damage, external short circuit.) and in case of a bad functioning, some electrolyte can be removed from the cell by the security vent.

Exposure to the ingredients contained within the battery pack could be harmful under some circumstances.

Hazardous decomposition products in case of fire : Thermal decomposition can lead to release of irritating and toxic gases and vapors

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Other information : Evacuate personnel to a safe area. Move containers from fire area if it can be done without personal risk. Cool tanks/drums with water spray/remove them into safety. Stay upwind.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate personnel to a safe area;Ensure adequate ventilation, especially in confined areas;No flames, no sparks. Eliminate all sources of ignition. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes and inhalation of vapors

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment. Avoid dispersal of spilled material and runoff and contact with soil, water ways, drains and sewers.

6.3. Methods and material for containment and cleaning up

For containment	:	Sweep or shovel spills into appropriate container for disposal. Move containers from spill area. If electrolyte leaks or spills, collect all released material in an appropriate container before proper disposal.
Methods for cleaning up	:	Mechanically recover the product.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Do not dispose in fire, mix with other battery types, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture of the battery cell case Do not use organic solvents or other chemical cleaners on battery. Do not disassembly or decompose. Avoid contacting with water, avoid straight sunlight. Handle in accordance with good industrial hygiene and safety practice Ensure adequate ventilation, especially in confined areas Wash contaminated clothing before reuse Keep away from heat, sparks, flame and other sources of ignition
Hygiene measures	:	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Store in a cool and dry area, but prevent condensation on cell or battery terminals. High temperature may damage the performance of the battery. Protect from physical damage and short circuits. To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery. Do not allow metal objects to simultaneously contact both positive and negative terminal of batteries. Do not stack battery directly on another battery. Do not store batteries on electrically conductive surfaces. Keep containers tightly closed in a dry, cool and well-ventilated place Keep locked up and out of reach of children Keep away from food, drink and animal feeding stuffs Store in accordance with local regulations

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Manganese oxide (1313-13-9)
Not applicable

Steel (12597-69-2)
Not applicable

Zinc (7440-66-6)
Not applicable

Potassium hydroxide (1310-58-3)		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
NIOSH	NIOSH REL (ceiling) (mg/m³)	2 mg/m³

Vinyl acetal polymers, formals (63148-64-1)
Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Remove all sources of ignition. Do not install these batteries in sealed, unventilated areas. Remove jewelry, rings, watches and any other metallic objects while working on battery. All tools should insulate to avoid the possibility of shorting connections. DO NOT lay tools on top of the battery. The work area should be equipped with the corresponding species and quantity of fire equipment and leakage emergency equipment

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Under normal condition of use and handling no special protection is required for sealed battery. In the event of battery case breakage, should be wear appropriate safety gloves

Eye protection:

Under normal condition of use and handling no special protection is required for sealed battery. Use appropriate safety glasses when there is the risk of splash

Skin and body protection:

Under normal condition of use and handling no special protection is required for sealed battery. It is recommended to wear appropriate protective clothing when the battery case is broken.

Respiratory protection:

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Colour	:	No data available
Odour	:	No data available
Odour threshold	:	No data available
pH	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability (solid, gas)	:	Not flammable
Vapour pressure	:	Not applicable
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Insoluble in water
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive limits	:	No data available

Explosive properties : Not an explosive

Oxidising properties : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Fire hazard. Risk of explosion by shock, friction, fire or other sources of ignition

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Risk of explosion if heated under confinement.

When a battery cell is exposed to an external short-circuit, crushed, modification, high temperature, open flames, it will be the cause of heat generation and ignition.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with incompatible materials

10.5. Incompatible materials

Conductive materials, water, seawater, strong oxidants, strong acid, strong bases, etc.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

In case of a fire or high temperature, metal oxides and irritating/harmful fumes/smoke may be generated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Manganese oxide (1313-13-9)	
LD50 oral rat	> 3480 mg/kg

Potassium hydroxide (1310-58-3)	
LD50 oral rat	333 mg/kg

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/effects after ingestion : Risk of lung oedema.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Manganese oxide (1313-13-9)	
LC50 fish 96h	> 100 % (v/v)
EC50 crustacea 48h	> 100 % (v/v)
EC50 Algae 72h	> 100 % (v/v)

Zinc (7440-66-6)	
LC50 fish 96h	0.211 - 0.269 mg/L

Zinc (7440-66-6)	
EC50 crustacea 48h	0.068 mg/L

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Manganese oxide (1313-13-9)	
Log Pow	< 0 (at 20 °C)

Potassium hydroxide (1310-58-3)	
Log Pow	0.83

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not applicable

Transportation of Dangerous Goods

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Steel	CAS-No. 12597-69-2	15 - 22%
Vinyl acetal polymers, formals	CAS-No. 63148-64-1	1 - 3%

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Zinc	CAS-No. 7440-66-6	15 - 25%

Zinc (7440-66-6)	
CERCLA RQ	454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm

Potassium hydroxide (1310-58-3)	
CERCLA RQ	1000 lb

15.2. International regulations

CANADA

Manganese oxide (1313-13-9)

Listed on the Canadian DSL (Domestic Substances List)

Zinc (7440-66-6)

Listed on the Canadian DSL (Domestic Substances List)

Potassium hydroxide (1310-58-3)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Manganese oxide (1313-13-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Zinc (7440-66-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Potassium hydroxide (1310-58-3)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Manganese oxide (1313-13-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Steel (12597-69-2)

Listed on the TCSI (Taiwan Chemical Substance Inventory)

Zinc (7440-66-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Potassium hydroxide (1310-58-3)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Vinyl acetal polymers, formals (63148-64-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Issue date	:	1-Sep-2017
Revision date	:	1-Sep-2017

Full text of H- and EUH-phrases

None :

Key or legend to abbreviations and acronyms used in the safety data sheet

TDG		Transport of Dangerous Goods
ADR	:	European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMDG	:	International Maritime Dangerous Goods
IATA	:	International Air Transport Association
ADN	:	European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway
RID	:	Regulations Concerning the International Carriage of Dangerous Godds by Rail
PBT	:	Persistent, Bioaccumulative and Toxic
vPvB	:	Very Persistent and Very Bioaccumulative
DNEL	:	Derived No Effect Level
PNEC	:	Predicted No Effect Concentration
LC50	:	Lethal Concentration 50
LD50	:	Lethal Dose 50
EC50	:	Effective Concentration 50
TWA	:	Time Weighted Average
STEL	:	Short Term Exposure Limit

Key literature references and sources for data

ECHA: http://echa.europa.eu/

IFA GESTIS: http://gestis-en.itrust.de/nxt/gateway.dll?f=templates$fn=default.htm$vid=gestiseng:sdbeng

HSDB: http://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

ICSC: http://www.ilo.org/dyn/icsc/showcard.home

eChemPortal: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

NITE-CHRIP: http://www.nite.go.jp/en/chem/chrip/chrip_search/srhInput

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Alkaline Zn-Mn Dry Battery

Safety Data Sheet

According to OSHA Hazard Communication Standard 29 CFR 1910.1200

Date of issue: 09/01/2017 Supersedes: 09/01/2017 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form	:	Article
Trade name	:	Alkaline Zn-Mn Dry Battery
Voltage	:	1.5 V
Watt-Hour	:	3.9 Wh
Battery Weight	:	23 g

1.2. Recommended use and restrictions on use

Main use category	:	Power supply provide low voltage and low current
Restrictions on use	:	No information available.

1.3. Supplier

Manufacturer	:	Hangzhou Powerpack Battery Co.,Ltd
Address	:	Rm 1611 Qianjiang Intel Business Center, Qianjiang Road, Hangzhou, Zhejiang Province, China.
Postal code	:	310008
Phone	:	+86-571-87831186
FAX	:	+86-571-87831187
E-mail	:	jim@cnpowerpack.com

1.4. Emergency telephone number

+86-13858182676

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US labelling

No labelling applicable

Hazard pictograms (GHS-US)	:	None
Signal word (GHS-US)	:	None
Hazard statements (GHS-US)	:	Not applicable
Precautionary statements (GHS-US)	:	Not applicable

2.3. Other hazards which do not result in classification

Batteries contain manganese dioxide which may boost combustion of other substances that may vent, ignite and produce sparks when subjected to high temperature, when damaged or abused (e.g., mechanical damage); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

This product should not present a health hazard when used under reasonable conditions. If contact with the internal components of the battery may be irritating to skin, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Burning batteries may produce toxic hydrogen fluoride gas.

Fumes may cause dizziness or suffocation. If the battery is discarded into the environment, the harmful contents inside may be dangerous

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
Manganese oxide	(CAS-No.) 1313-13-9	42 - 48
Zinc	(CAS-No.) 7440-66-6	15 - 25
Steel	(CAS-No.) 12597-69-2	15 - 22
Potassium hydroxide	(CAS-No.) 1310-58-3	12 - 18
Vinyl acetal polymers, formals	(CAS-No.) 63148-64-1	1 - 3

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : No hazards which require special first aid measures.

If you feel unwell, seek medical advice (show directions for use or safety data sheet if possible).

First-aid measures after inhalation : Not an expected route of exposure.

First-aid measures after skin contact : Not expected to present a skin hazard under anticipated conditions of normal use. No special technical protective measures are necessary.

First-aid measures after eye contact : Not an expected route of exposure.

First-aid measures after ingestion : Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after ingestion : Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Dry sand or Class D extinguishing agents. If the battery is burning, water can also be submerged ignition ground.

Unsuitable extinguishing media : No information available.

5.2. Specific hazards arising from the chemical

Fire hazad : Battery can be overheated by an external source or by internal shorting and develop metal hydroxide mist.

In fire situations fumes containing manganese, Zinc, etc. may evolved.

Toxic vapor may release in case of fire.

Thermal shock may cause battery case to crack open.

Containers may explode when heated.

Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

On some bad using conditions (e.g., mechanical damage, external short circuit.) and in case of a bad functioning, some electrolyte can be removed from the cell by the security vent.

Exposure to the ingredients contained within the battery pack could be harmful under some circumstances.

Hazardous decomposition products in case of fire : Thermal decomposition can lead to release of irritating and toxic gases and vapors

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Other information : Evacuate personnel to a safe area. Move containers from fire area if it can be done without personal risk. Cool tanks/drums with water spray/remove them into safety. Stay upwind.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate personnel to a safe area;Ensure adequate ventilation, especially in confined areas;No flames, no sparks. Eliminate all sources of ignition. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes and inhalation of vapors

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment. Avoid dispersal of spilled material and runoff and contact with soil, water ways, drains and sewers.

6.3. Methods and material for containment and cleaning up

For containment	:	Sweep or shovel spills into appropriate container for disposal. Move containers from spill area. If electrolyte leaks or spills, collect all released material in an appropriate container before proper disposal.
Methods for cleaning up	:	Mechanically recover the product.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Do not dispose in fire, mix with other battery types, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture of the battery cell case Do not use organic solvents or other chemical cleaners on battery. Do not disassembly or decompose. Avoid contacting with water, avoid straight sunlight. Handle in accordance with good industrial hygiene and safety practice Ensure adequate ventilation, especially in confined areas Wash contaminated clothing before reuse Keep away from heat, sparks, flame and other sources of ignition
Hygiene measures	:	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Store in a cool and dry area, but prevent condensation on cell or battery terminals. High temperature may damage the performance of the battery. Protect from physical damage and short circuits. To avoid risk of fire or explosion, keep sparks and other sources of ignition away from the battery. Do not allow metal objects to simultaneously contact both positive and negative terminal of batteries. Do not stack battery directly on another battery. Do not store batteries on electrically conductive surfaces. Keep containers tightly closed in a dry, cool and well-ventilated place Keep locked up and out of reach of children Keep away from food, drink and animal feeding stuffs Store in accordance with local regulations

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Manganese oxide (1313-13-9)
Not applicable

Steel (12597-69-2)
Not applicable

Zinc (7440-66-6)
Not applicable

Potassium hydroxide (1310-58-3)		
ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³
NIOSH	NIOSH REL (ceiling) (mg/m³)	2 mg/m³

Vinyl acetal polymers, formals (63148-64-1)
Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Remove all sources of ignition. Do not install these batteries in sealed, unventilated areas. Remove jewelry, rings, watches and any other metallic objects while working on battery. All tools should insulate to avoid the possibility of shorting connections. DO NOT lay tools on top of the battery. The work area should be equipped with the corresponding species and quantity of fire equipment and leakage emergency equipment

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Under normal condition of use and handling no special protection is required for sealed battery. In the event of battery case breakage, should be wear appropriate safety gloves

Eye protection:

Under normal condition of use and handling no special protection is required for sealed battery. Use appropriate safety glasses when there is the risk of splash

Skin and body protection:

Under normal condition of use and handling no special protection is required for sealed battery. It is recommended to wear appropriate protective clothing when the battery case is broken.

Respiratory protection:

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Colour	:	No data available
Odour	:	No data available
Odour threshold	:	No data available
pH	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	Not applicable
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability (solid, gas)	:	Not flammable
Vapour pressure	:	Not applicable
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	No data available
Solubility	:	Insoluble in water
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive limits	:	No data available

Explosive properties : Not an explosive

Oxidising properties : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Fire hazard. Risk of explosion by shock, friction, fire or other sources of ignition

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Risk of explosion if heated under confinement.

When a battery cell is exposed to an external short-circuit, crushed, modification, high temperature, open flames, it will be the cause of heat generation and ignition.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid contact with incompatible materials

10.5. Incompatible materials

Conductive materials, water, seawater, strong oxidants, strong acid, strong bases, etc.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

In case of a fire or high temperature, metal oxides and irritating/harmful fumes/smoke may be generated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Manganese oxide (1313-13-9)	
LD50 oral rat	> 3480 mg/kg

Potassium hydroxide (1310-58-3)	
LD50 oral rat	333 mg/kg

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/effects after ingestion : Risk of lung oedema.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Manganese oxide (1313-13-9)	
LC50 fish 96h	> 100 % (v/v)
EC50 crustacea 48h	> 100 % (v/v)
EC50 Algae 72h	> 100 % (v/v)

Zinc (7440-66-6)	
LC50 fish 96h	0.211 - 0.269 mg/L

Zinc (7440-66-6)	
EC50 crustacea 48h	0.068 mg/L

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Manganese oxide (1313-13-9)	
Log Pow	< 0 (at 20 °C)

Potassium hydroxide (1310-58-3)	
Log Pow	0.83

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.

GWPmix comment : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not applicable

Transportation of Dangerous Goods

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Steel	CAS-No. 12597-69-2	15 - 22%
Vinyl acetal polymers, formals	CAS-No. 63148-64-1	1 - 3%

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Zinc	CAS-No. 7440-66-6	15 - 25%

Zinc (7440-66-6)	
CERCLA RQ	454 kg no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm

Potassium hydroxide (1310-58-3)	
CERCLA RQ	1000 lb

15.2. International regulations

CANADA

Manganese oxide (1313-13-9)

Listed on the Canadian DSL (Domestic Substances List)

Zinc (7440-66-6)

Listed on the Canadian DSL (Domestic Substances List)

Potassium hydroxide (1310-58-3)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Manganese oxide (1313-13-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Zinc (7440-66-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Potassium hydroxide (1310-58-3)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Manganese oxide (1313-13-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Steel (12597-69-2)

Listed on the TCSI (Taiwan Chemical Substance Inventory)

Zinc (7440-66-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Potassium hydroxide (1310-58-3)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Vinyl acetal polymers, formals (63148-64-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Issue date	:	1-Sep-2017
Revision date	:	1-Sep-2017

Full text of H- and EUH-phrases

None :

Key or legend to abbreviations and acronyms used in the safety data sheet

TDG		Transport of Dangerous Goods
ADR	:	European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMDG	:	International Maritime Dangerous Goods
IATA	:	International Air Transport Association
ADN	:	European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterway
RID	:	Regulations Concerning the International Carriage of Dangerous Godds by Rail
PBT	:	Persistent, Bioaccumulative and Toxic
vPvB	:	Very Persistent and Very Bioaccumulative
DNEL	:	Derived No Effect Level
PNEC	:	Predicted No Effect Concentration
LC50	:	Lethal Concentration 50
LD50	:	Lethal Dose 50
EC50	:	Effective Concentration 50
TWA	:	Time Weighted Average
STEL	:	Short Term Exposure Limit

Key literature references and sources for data

ECHA: http://echa.europa.eu/

IFA GESTIS: http://gestis-en.itrust.de/nxt/gateway.dll?f=templates$fn=default.htm$vid=gestiseng:sdbeng

HSDB: http://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

ICSC: http://www.ilo.org/dyn/icsc/showcard.home

eChemPortal: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

NITE-CHRIP: http://www.nite.go.jp/en/chem/chrip/chrip_search/srhInput

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product