

**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

**SECTION 1. IDENTIFICATION**

Product name : PURELL® Healthcare Advanced Hand Sanitizer Gel

**Manufacturer or supplier's details**

Company name of supplier : GOJO Industries, Inc.

Address : One GOJO Plaza, Suite 500  
Akron, Ohio 44311

Telephone : 1 (330) 255-6000

Emergency telephone number : 1-800-424-9300 CHEMTREC

**Recommended use of the chemical and restrictions on use**

Recommended use : Hand Sanitizer

Restrictions on use : This is a personal care or cosmetic product that is safe for consumers and other users under normal and reasonably foreseeable use. Cosmetics and consumer products, specifically defined by regulations around the world, are exempt from the requirement of an SDS for the consumer. While this material is not considered hazardous, this SDS contains valuable information critical to the safe handling and proper use of the product for industrial workplace conditions as well as unusual and unintended exposures such as large spills. This SDS should be retained and available for employees and other users of this product. For specific intended-use guidance, please refer to the information provided on the package or instruction sheet.

**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Flammable liquids : Category 3

Eye irritation : Category 2A

**GHS label elements**

Hazard pictograms :



Signal word : Warning

Hazard statements : H226 Flammable liquid and vapour.


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

H319 Causes serious eye irritation.

Precautionary statements : **Prevention:**  
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P280 Wear eye protection/ face protection.  
**Response:**  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
**Storage:**  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
**Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**
**Hazardous components**

Chemical name	CAS-No.	Concentration (%)
Ethyl Alcohol	64-17-5	>= 50 - < 70
Isopropyl Alcohol	67-63-0	>= 1 - < 5

**SECTION 4. FIRST AID MEASURES**

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.  
 If symptoms persist, call a physician.

In case of skin contact : Wash with water and soap as a precaution.  
 Get medical attention if irritation develops and persists.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
 If easy to do, remove contact lens, if worn.  
 Seek medical advice.


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

- If swallowed : If swallowed, DO NOT induce vomiting.  
Rinse mouth with water.  
Obtain medical attention.
- Most important symptoms and effects, both acute and delayed : Causes serious eye irritation.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Dry chemical  
Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.  
Cool closed containers exposed to fire with water spray.  
Flash back possible over considerable distance.  
May form explosive mixtures in air.  
Exposure to decomposition products may be a hazard to health.  
Carbon oxides
- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Ensure adequate ventilation.  
Remove all sources of ignition.  
Evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Material can create slippery conditions.


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 40000005370

Revision Date: 05/23/2017

- Environmental precautions : Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
Keep in suitable, closed containers for disposal.  
Clean contaminated floors and objects thoroughly while observing environmental regulations.

**SECTION 7. HANDLING AND STORAGE**

- Advice on safe handling : For personal protection see section 8.  
Keep away from heat.  
Use with local exhaust ventilation.  
Avoid contact with eyes.
- Conditions for safe storage : Take measures to prevent the build up of electrostatic charge.  
Keep in properly labelled containers.  
Keep container tightly closed in a dry and well-ventilated place.  
Store in accordance with the particular national regulations.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**
**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethyl Alcohol	64-17-5	TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	NIOSH REL
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	OSHA Z-1
		STEL	1,000 ppm	ACGIH
Isopropyl Alcohol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m <sup>3</sup>	NIOSH REL
		ST	500 ppm 1,225 mg/m <sup>3</sup>	NIOSH REL
		TWA	400 ppm 980 mg/m <sup>3</sup>	OSHA Z-1

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

Isopropyl Alcohol	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI
-------------------	---------	---------	-------	---------------------------------	---------	-----------

**Personal protective equipment**

- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection  
Remarks : No special protective equipment required.
- Eye protection : Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : No special measures necessary provided product is used correctly.
- Protective measures : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.  
Ensure that eye flushing systems and safety showers are located close to the working place.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.  
Avoid contact with eyes.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance : liquid
- Colour : clear, colourless, light yellow
- Odour : citrus
- Odour Threshold : No data available
- pH : 6.5 - 8.5
- Melting point/freezing point : No data available
- Boiling point/boiling range : 70.00 °C
- Flash point : 25.00 °C
- Evaporation rate : No data available
- Flammability (solid, gas) : Not applicable
- Upper explosion limit : No data available
- Lower explosion limit : No data available


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

Vapour pressure	: No data available
Relative vapour density	: No data available
Density	: 0.8743 g/cm <sup>3</sup>
Solubility(ies)	
Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: not determined
Thermal decomposition	: The substance or mixture is not classified self-reactive.
Viscosity	
Viscosity, kinematic	: 3500 - 23000 mm <sup>2</sup> /s (20 °C)
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Vapours may form explosive mixture with air.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Oxidizing agents
Hazardous decomposition products	: No hazardous decomposition products are known.

**SECTION 11. TOXICOLOGICAL INFORMATION**
**Information on likely routes of exposure**

Inhalation  
 Skin contact  
 Eye contact

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate : > 5,000 mg/kg  
 Method: Calculation method

**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

**Components:****Ethyl Alcohol:**

Acute oral toxicity : LD50 (Rat): &gt; 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 124.7 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour**Isopropyl Alcohol:**

Acute oral toxicity : LD50 (Rat): &gt; 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 72.6 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rat): &gt; 5,000 mg/kg

**Skin corrosion/irritation**

Not classified based on available information.

**Components:****Ethyl Alcohol:**Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation**Isopropyl Alcohol:**Species: Rabbit  
Result: No skin irritation**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:****Ethyl Alcohol:**Species: Rabbit  
Result: Irritation to eyes, reversing within 21 days  
Method: OECD Test Guideline 405**Isopropyl Alcohol:**Species: Rabbit  
Result: Irritation to eyes, reversing within 21 days**Respiratory or skin sensitisation**Skin sensitisation: Not classified based on available information.  
Respiratory sensitisation: Not classified based on available information.**Components:****Ethyl Alcohol:**Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Result: negative**Isopropyl Alcohol:**

**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

Test Type: Buehler Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Ethyl Alcohol:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Test species: Mouse  
Application Route: Ingestion  
Result: negative

**Isopropyl Alcohol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Test species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:****Isopropyl Alcohol:**

Species: Rat  
Application Route: inhalation (vapour)  
Exposure time: 104 weeks  
Method: OECD Test Guideline 451  
Result: negative

**IARC** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.



**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

**Components:****Ethyl Alcohol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative

**Isopropyl Alcohol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**STOT - single exposure**

Not classified based on available information.

**Components:****Isopropyl Alcohol:**

Assessment: May cause drowsiness or dizziness.

**STOT - repeated exposure**

Not classified based on available information.

**Repeated dose toxicity****Components:****Ethyl Alcohol:**

Species: Rat  
NOAEL: 2,400 mg/kg  
Application Route: Ingestion  
Exposure time: 2 y

**Isopropyl Alcohol:**

Species: Rat  
NOAEL: 5000 ppm  
Application Route: inhalation (vapour)  
Exposure time: 104 w  
Method: OECD Test Guideline 413

**Aspiration toxicity**

Not classified based on available information.

---

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Ethyl Alcohol:**


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h
Toxicity to algae	: EC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 9.6 mg/l Exposure time: 9 d
Toxicity to bacteria	: EC50 (Photobacterium phosphoreum): 32.1 mg/l Exposure time: 0.25 h

**Isopropyl Alcohol:**

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 10,000 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 24 h
Toxicity to bacteria	: EC50 (Pseudomonas putida): > 1,050 mg/l Exposure time: 16 h

**Persistence and degradability**
Components:
**Ethyl Alcohol:**

Biodegradability	: Result: Readily biodegradable. Biodegradation: 84 % Exposure time: 20 d
------------------	---

**Isopropyl Alcohol:**

Biodegradability	: Result: rapidly degradable
------------------	------------------------------

**Bioaccumulative potential**
Components:
**Ethyl Alcohol:**

Partition coefficient: n-octanol/water	: log Pow: -0.35
--	------------------

**Isopropyl Alcohol:**

Partition coefficient: n-octanol/water	: log Pow: 0.05
--	-----------------

**Mobility in soil**

No data available

**Other adverse effects**

No data available


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

**Product:**

Regulation 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

---

**SECTION 13. DISPOSAL CONSIDERATIONS**
**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.

---

**SECTION 14. TRANSPORT INFORMATION**
**International Regulation****IATA-DGR**

UN/ID No. : UN 1987  
 Proper shipping name : Alcohols, n.o.s.  
 (Ethanol, Propan-2-ol)  
 Class : 3  
 Packing group : III  
 Packing instruction (cargo aircraft) : 366  
 Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1987  
 Proper shipping name : ALCOHOLS, N.O.S.  
 (Ethanol, Propan-2-ol)  
 Class : 3  
 Packing group : III  
 Labels : 3  
 EmS Code : F-E, S-D  
 Marine pollutant : no

**National Regulations****49 CFR**

UN/ID/NA number : UN 1987  
 Proper shipping name : Alcohols, n.o.s.  
 (Ethanol, Propan-2-ol)  
 Class : 3  
 Packing group : III  
 ERG Code : 127  
 Marine pollutant : no


**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

**SECTION 15. REGULATORY INFORMATION**
**EPCRA - Emergency Planning and Community Right-to-Know Act**
**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard

**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Isopropyl Alcohol	67-63-0	3.4086 %
-------------------	---------	----------

**Clean Air Act**

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Ethyl Alcohol	64-17-5	65.2821 %
Isopropyl Alcohol	67-63-0	3.4086 %

This product does not contain any VOC exemptions listed under the U.S. Clean Air Act Section 450.

**Clean Water Act**

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**Massachusetts Right To Know**

Ethyl Alcohol	64-17-5	50 - 70 %
Isopropyl Alcohol	67-63-0	1 - 5 %

**Pennsylvania Right To Know**

Ethyl Alcohol	64-17-5	50 - 70 %
Water (Aqua)	7732-18-5	20 - 30 %
Isopropyl Alcohol	67-63-0	1 - 5 %

**New Jersey Right To Know**

Ethyl Alcohol	64-17-5	50 - 70 %
Water (Aqua)	7732-18-5	20 - 30 %
Isopropyl Alcohol	67-63-0	1 - 5 %

**California Prop 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

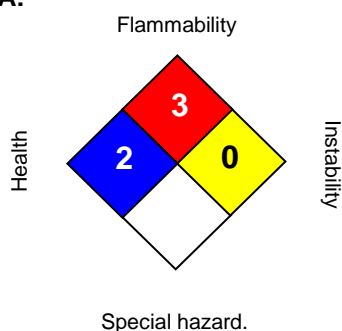
Revision Date: 05/23/2017

**The components of this product are reported in the following inventories:**

CH INV	: On the inventory, or in compliance with the inventory
TSCA	: On TSCA Inventory
DSL	: On the inventory, or in compliance with the inventory
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory

**Inventories**

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

**SECTION 16. OTHER INFORMATION**
**Further information**
**NFPA:**

**HMIS III:**

<b>HEALTH</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>3</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Revision Date : 05/23/2017

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to



**PURELL® Healthcare Advanced Hand Sanitizer Gel**

Version 1.0

SDS Number: 400000005370

Revision Date: 05/23/2017

the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

# TECHNICAL DATA SHEET

---

---

## Manufacturer

Name of Company : Changzhou Anyida Power Technology Co. Ltd  
Address : No.60 Tianshan Road, Xinbei Area,  
Changzhou, China  
Tel. No : 051983270441  
Ref. No. : MSDS2017CR  
Issued : 01/JAN/2017

---

---

Name of Product : Lithium/ Manganese Dioxide Cell.  
Chemical System : MnO<sub>2</sub>/Li  
Volts : 3V.  
Model no. & Composition : PLEASE SEE PAGE 7

---

---

## Substance Identification

Substance : Lithium Metal Cell.  
UN Class : Even classified as Lithium Metal Cell, 2017 IATA  
dangerous Goods Regulations 58<sup>th</sup> Edition Packing  
Instruction (PI) 970 section I/II UN3091 is complied.  
The product is handled as Non-Dangerous Goods  
by meeting the following requirements.  
1) for Cells, the aggregate lithium content is not  
more than 1g,  
2) each cell is of the type proven to meet the  
requirement of each test in the UN Manual of Test  
and Criteria Part III subsection 38.3.  
3) they are out of scope for IATA SP A154 and  
comply with IATA SP A164. Cells must be packed  
in strong outer packagings that conform to  
4.1.1.1, 1.1.3.1 and 1.1.10 (except 1.1.10.1)

---

---

## Hazardous and Toxicity Class

Class Name	: Not applicable for regulated class.
Hazard	: It may cause heat generation or electrolyte leakage If battery terminate contact with other metals, Electrolyte is flammable. In case of electrolyte Leakage, move the cell from fire immediately.
Toxicity	: Vapor generated from burning cells, may make Eyes, skin and throat irritate.

---

---

## First Aid Measures

The product contains organic electrolyte, in case of electrolyte leakage from the cell, actions described below are required.

Eye contact	: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a Medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.
Skin contact	: Wash this contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.
Inhalation	: Remove to fresh air immediately. Taken a medical treatment.

## Fire Fighting Measures

Extinguishing method	: Since vapor, generated from burning cells may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.
Fire extinguishing agent	: Dry chemical, alcohol-resistant form, carbon dioxide and plenty of water area effective.

---

---



## Measures for electrolyte leakage from cell

- Take up with absorbent cloth.
- Move the cell away from the fire.

---

---

## Handling and Storage

1. When packing the cells, do not allow cell terminals to contact each other, or contact with other metals. Be sure to pack cells by providing in the packaging box, or in a separate plastic bag so that the single cells are not mixed together.
2. Use strong materials for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation. (1) (2) (3)
3. Do not let water penetrate into packaging boxes during their storage and transportation.
4. The cells will be stored at room temperature.
5. Do not store the cell in places of the high temperature exceeding 35 deg. C or under direct sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the cell to condensation, water drop or not to store it under frozen condition.
6. Cells are sure to be packed in such a way to prevent short circuits under conditions normally encountered in transport. (1) (2) (3)
7. Please avoid storing the cell in the places where it is exposed to the electricity so that no damage will not be caused to the protection circuit of the cell pack.

## Accidental release measures

Personal precautions: Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured cells. Avoid eye or skin contact and inhalation of vapours.

Increase ventilation. Clean up personnel should wear appropriate protective gear.

Environmental precautions: Not applicable

Methods for cleaning up: Not applicable

## Physical and chemical properties

Form and Colour: Lithium Metal Cell. Contents dark in colour.

Odour: Not applicable

Change in physical state  
Melting point/melting range: Not available  
Boiling point/boiling range: Not available  
Flash point: Not applicable  
Explosion limits: Not available  
Ignition temperature: Not available  
Vapour pressure: Not available  
Specific Gravity: Not available  
% Volatiles: Not available  
Solubility in water: Not applicable  
Solubility in other solvents: Not applicable  
pH value: Not applicable  
Octanol/water partition coefficient (log POW): Not available  
Viscosity: Not available

### **Toxicological information**

Toxicity information is available on the cell ingredients noted in Substance Identification but, generally not applicable to intact cells. Chronic Health Effects: Not applicable to intact cell.

### **Ecological information**

None available regarding product. The cells are non-dangerous goods (Non-hazardous & Non-flammable).

---

### **Exposure Control (in case of electrolyte leakage from the battery)**

Acceptable concentration	: Not specified in ACGIH (4)
Facilities	: Provide appropriate ventilation system such as local ventilator in the storage place.
Protective safety gloves.	: Gas mask for organic gases, safety goggles,

---

## **Stability and Reactivity**

Since cells utilize a chemical reaction they are actually considered a chemical product. As such, cell performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature etc are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the cell is used may be damaged by electrolyte leakage.

---

---

## **Disposal Considerations (Precautions for recycling)**

- When the cell is worn out, dispose of it under the ordinance of each local government or the law issued by relating government.
  - Disposal of the worn-out cell may be subjected to Collection and Recycling Regulation.
- 
- 

## **Transportation Information**

- During the transportation of a large amount of cells by ship, trailer or railway, do not leave them in the place of high temperatures and do not allow them to be exposed to condensation.
- During the transportation do not allow packages to be fallen down or damaged.
- Lithium metal cells identified by manufacturer as being defective for safety reasons, or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport (e.g. those being returned to the manufacturer for safety reasons).
- Except when installed in equipment, for air shipment that contain one or more cells, they are necessary to meet the following items
  1. Each consignment must be accompanied with a document such as air waybill with an indication that:
    - the package contains lithium metal cell.
    - the package must be handled with care and that a flammability hazard exists if the package is damaged:
- special procedures should be followed in the event the package is damaged, to

- include inspection and repacking necessary; and
- a telephone number for additional information.
  - 2. Each package must be labeled with a lithium metal cell handling label and a cargo aircraft only label.
    - \*The width 120mm\*length 110mm sized lithium metal cell handling label must be labeled onto the side of a package without bending it.
  - 3. Each package must be capable of withstanding a 1.2m drop test in any orientation.
    - damage to cells contained therein:
    - shifting of the contents so as to allow cell to cell contact:
    - release of contents.
  - 4. Quantity per package shall not exceed 2.5kg.
  - 5. Each package containing more than four cells installed in equipment must be complied with above item 1 and 2.
  - each cell is of the type proven to meet the requirement of each test in tge UN Manual of Test and Criteria Par III subsection 38.3. The goods are packaged according to the packaging instruction 970 section I / II on Cargo Aircraft Only. Recommendations on the transport of dangerous goods –Model Regulations , IATA-DGR(58th Edition-P1970) or IMDG Special Provision 188:
- 
- 

### **Regulatory information**

- IATA DANGEROUS GOODS REGULATIONS 58th Edition 2017.
  - IMDG Dangerous Goods Regulations
  - ICAO Technical Instructions for the safe transport of dangerous goods by air, 2017 edition.
- 
-

## Others

### References

1. UN Recommendations on the Transportation of Dangerous Model Regulations (ST/SG/AC.10/1/Rev.11)
2. Federal Register/Vol.65, No. 174/Thursday,September 7,2000/ Notice.
3. IATA DANGEROUS GOODS REGULATIONS 58th Edition 2017,
4. TLVs and BELs 1999 ACGIH

If transport condition accords with special provision A154& A164 of IATA-DGR or special provision 188 of IMO-IMDG, it is not recognized as Dangerous Goods,This shipment does not contain recalled/defective battery or cell and meeting special provision A154& A164 of DGR.

**REMARK:** Consignments have to be handled with care. Flammability Hazard exists if the package is damaged, to include inspection and repacking if necessary; Special Procedure should be followed in the event the package is damaged. In case of fire in an adjacent area,use water,CO2 or dry chemical. (Measures for electrolyte leakage from cell: take up with absorbent cloth & move the cell away from the fire)

---

