

Material Safety Checklist

Reference No.:80

I. Material and Supplier

Item name: Glass Cleanser
Item number:--
Name, address and contact number of the manufacturer or supplier: Hydrosonic Co., Ltd. Fl.1, No.6-2, Velly. 16, Lane 76, Sec. 2, Hoping E. Rd., Taipei, Taiwan
Emergency contact number/fax: +886-2-27325976

II. Ingredients

Synonym:
Chinese/English Name: anionics/ integrated compound/ deionized water/ high class essence
CAS No.: 67-63-0
Dangerous ingredient (%): 100

III. Danger Identification Reference

Risk and Impact	Health impact: slightly stimulate eyes and upper respiratory track; direct contact of the liquid to eyes will cause serious irritation; expose to high concentration material will cause headache.
	Environmental impact: highly toxic to aquatic life.
	Physical and chemical danger: liquids and gases could be flammable; high temperature will produce toxic gas; container may break or explode during fire; the steam is heavier than air and could spread far away and cause second fire when encountering fire source.
	Special risk:--
	Major symptoms: irritation, dizzy, paralyze, nausea, diarrhea.
Dangerous type: 3 (flammable liquid)	

IV. Emergency Measurement

Emergency measurement for different exposures:
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<p>Inhaling: 1. Remove source and place the patient for fresh air. 2. If the breathing stops, conduct artificial respiration. 3. Take to hospital immediately.</p> <p>Skin contact: 1. Wash with slow flowing water for more than 15mins. 2. Take off dirty clothes and shoes; re-wear before wash. 3. Take to hospital if feeling irritation.</p> <p>Eye contact: 1. Open eyelid and wash for more than 20mins with warm water. 2. Take to hospital immediately.</p> <p>Swallowing: 1. Unless the patient loses conscious or cramps, provide great amount of water as emetic. 2. Take to hospital immediately.</p>
The most serious symptom and impact: Irritation; great exposure will cause unconsciousness and death.
Protection for rescue person: Wear C-class protection equipment and provide first-aid in safe area.
Instruction to doctor:—

V. Fire Fighting Instruction

Proper fire-extinguishing chemical: CO ₂ , dry chemical power, alcohol foam.
<p>Possible danger when putting out fire:</p> <p>1. The steam and liquid is flammable, and the liquid will accumulate electricity; the steam is heavier than air and can spread far away that it may cause second fire when encountering fire source. 2. High temperature will help produce toxic air and the containers at the set may break or explode.</p>
<p>Special instruction: 1. Retrieve to a safe distance or protected area. 2. Move to air circulating area to avoid contact with dangerous steam and toxic element. 3. Prevent leaking before putting out the fire; if the leaking cannot be stopped and there is no dangerous element around, let the fire burn out. If the leaking is not prevented before fire-fighting, the steam and air may form an explosive mixture and cause another fire source. 4. Isolate unfired items and protect onsite people. 5. Remove the container away under safe condition. 6. Cool down tank and container onsite with water spray. 7. The fire might not be put out by water unless the personnel have been trained for fire-fighting with various flammable liquid. 8. If the leaking material is not on fire, spray water and protect leakage-prevent personnel. 9. The fire-fighting fails with water spout. 10. Fire in large area should be put out by automatic water spray or automatic swing water spout. 11. Retrieve from the fire as far as possible and let the fire burn out. 12. Keep distance from the tank. 13. Retrieve once the tank alarm rings or changes color due to fire. 14. People without protecting equipment is not allowed.</p>
Special equipment for fire-fighters: respirator, gloves and fire-fighting coat.

VI. Leakage

Attention to personnel: 1. Before the toxic area is completely cleaned up, the area is restricted. 2. The clean-up work should be done by trained personnel. 3. Proper protecting equipment should be worn.

Attention to the environment: 1. Take air circulation measurement in the area. 2. Put out or remove all fire sources. 3. Report to governmental safety, health, and hygiene and environment unit.

Cleaning procedures: 1. Do not touch the leaking material. 2. Prevent the material from entering to water system or airtight area. 3. Stop or reduce the leakage under safe condition. 4. Put dirt, sand or inflammable substance that will not react with the material around the leakage. 5. When the leakage is small, absorb it with substance that will not react with the material and place it in proper container with mark. Wash the leaking area. 6. When the leakage is big, contact the fire department, emergency unit and supplier for support.

VII. Safe Measurement and Storage

Measurement:

1. If the liquid is flammable and toxic, construction control should be operated and personal protecting equipment should be worn; the personnel should have had proper training for risk awareness and safety instruction. 2. Remove all fire sources and irrelevant materials. 3. Sign of “No Smoking” should be posted in working area. 4. Liquid can accumulate electricity therefore conductance design should be applied. For example, tanks, replaced container and wires have to touch the ground and have contact with naked metal; during operation, the speed of flow should be reduced to increase operation time and the time that the liquid stays in the wire; or the operation can be conducted in low temperature. 5. When the operation is not conducted in sealed system, the container and receive equipment should be electrically connected. 6. There may be residuum in the empty tank, container and wire that no welding, cutting, drilling or other high temperature work should be conducted before the clean-up. 7. The air-circulating system in the work place should not produce fire sparkles and the equipment is explosion-proof. 8. The operation should avoid mist and moisture and should be conducted in air-circulating area with the minimum amount. The operation area should be separated from the storing area. 9. Personal protecting equipment should be worn when necessary to avoid contact with chemical or contaminated equipment. 10. Do not operate with incompatible substance (such as intensifier) to avoid fire and explosion.

Storage:

1. Keep the isle and exit free. 2. In storage place and large operating area, leak prevention, fire detection system, automatic fire-fighting system, or sufficient emergency equipment should be considered. 3. Do not split when sub-packaging into compatible container. 4. Do not deliver liquid from container through compressing air or inert gas. 5. Unless the mixing area is isolated by fire-proof construction, do not operate in storage area. 6. Authorized storing container and mixing

equipment for flammable liquid should be used. 7. Do not place the contaminated liquid back to the storing container. 8. The container should be marked and sealed when unused to avoid damage. 9. The storage should be cool, dry, air-circulated, and avoid direct sunshine and heat, fire source and irrelevant substance. 10. The storage should be constructed by fire-proof material. 11. The floor should be constructed by in-penetrating material to avoid self-absorbent. 12. The entrance should be constructed with slope or ditch to discharge and place leaking material. 13. The storage area should be clearly marked with no obstacle; trained personnel only. 14. The storage should be separated from operating area and kept away from elevator, exit for building, room or main passage. 15. Fire distinguisher and leak cleaning equipment should be properly placed around the storage. 16. Arrange regular check on damage or leakage. 16. Examine marks or damage for new containers. 18. Limit storage quantity. 19. Store the leaking material with compatible substance. 20. Place the container on the ground and connect with other equipment through electricity. 21. Container for flammable liquid should be equipped with release valve and vacuum release valve. 22. Chemical product manufacture or supplier should suggest proper storing temperature and install temperature detective device if necessary to alarm when the temperature is too high or too low. 23. Avoid large amount of storage indoors; store in isolated fire-proof building. 24. Exhaust pipe of the tank should be equipped with fire distinguishing device. 25. The tank should be stored on the ground; the bottom should be sealed to prevent leakage and leaking prevention dike should be constructed around the tank.

VIII. Exposure Prevention Measurement

Construction control: 1. Replace the whole air or equipped with partial exhausting equipment. 2. Solely use non-sparkle and ground touching air circulating system. 3. The exhaust outlet should be in outdoors. 4. Fresh air should be provided to replace the vacuumed air.

Control Variables			
Average Concentration in 8 hours (TWA)	Short-Time Average Concentration(STEL)	Ceiling Concentration	BEIs
400 ppm	500 ppm	—	—

Personal protecting equipment:
 Aspiration equipment: below 2000ppm: Fixed flowing aspiration equipment, mask with automated steamed air-purifying or comprehensive chemical bottle, gas mask with steamed air bottle, respiration equipment with comprehensive and portable style or oxygen providing type.
 -Unknown concentration: Positive pressure and portable aspiration equipment, positive pressure and comprehensive oxygen providing respiration equipment assisted with positive pressure and portable aspiration equipment.
 -Evacuation: Air mask with steamed bottle, portable respiration equipment for evacuation.
 Hand protection: Gloves made of butyl rubber, 類 rubber, Viton, 4H, CPF3, responder and other

non-absorbent material.

Eye protection: Chemistry goggles, full mask.

Skin and body protection: Gloves made of butyl rubber, 類 rubber, Viton, 4H and other non-absorbent material.

Hygiene measurement: 1. Take of the contaminated clothes after work; re-wear or dispose after cleaning. Inform the cleaner the risk of contamination. 2. No smoking and eating onsite. 3. Wash hands after handling the clothes. 4. Keep clean on operating area.

IX. Physical and Chemical Substance

Material: Liquid	Shape: Transparent Liquid
Color: transparent	Smell: Rubber alcohol
pH:—	Boiling point: 82.3°C
Dissolving temperature:—	Burning point: F 12°C Testing method: ()Open (v) Close
Self-burning temperature: 399°C	Exploding range: 2.0%~12%
Density: 0.785 (water=1)	Dissolving degree: 100% (water)

X. Stability and Reaction

Stability: Stable under normal condition; could easily form into peroxide.
Dangerous reaction in special circumstances: 1. Strong intensifiers such as nitrate, perchlorate, and peroxide may increase the danger of fire and explosion. 2. Phosgene may form methylchloroformate and hydrochloric acid. 3. Ferric salt may cause explosive reaction. 4: Hydrogen and palladium may mix and aflame in the air. 5. Strong acid may cause serious reaction. 6. Alkali metal and alkaline-earth metal may release flammable toxic gas.
Should avoid heat, sparkle, static electricity, fire source and light.
Should avoid strong intensifier, phosgene, ferric salt and hydrogen-palladium.
Dangerous dissolvent:—

XI. Toxic Data

Acute toxic: Inhaling: 1. Concentration under 400ppm will stimulate upper respiration track. 2. High concentration will cause dizzy, reduce coordinating function and coma. Skin: 1. Will not stimulate skin in short exposure. Eyes: 1. Concentration under 400ppm will cause slight irritation. 2. Direct with the liquid will cause series irritation. Swallowing: 1. May result in dizzy, stomach ache, aching spasm, nausea, vomit and diarrhea. 2. Large exposure will cause unconscious and death. 3. Estimate mortal quantity for human is 131g.
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LD50 (animal testing, absorbent method): 5045mg/kg (rat; swallowing) LC50 (animal testing, absorbent method): 16000ppm/8H (rat, inhaling)
Partial impact: 500mg (rabbit, skin) slight irritation. 100mg (rabbit, eyes) serious irritation.
Sensitivity:—
Chronic toxic: Skin: Long or frequent exposure may cause dry and crack skin. In-taking: People in-taking 6.4mg/kg isopropanol daily for 6 weeks are not reported special change in blood or urine chemistry or cell.
Special reaction: Pregnant rat for 1 to 19 days inhaling 3500ppm/7H will cause hypoplasia of the embryo. IARC lists it as Group 3: Unidentifiable if it is carcinogenic substance to human.

XII. Ecological Data

Possible environmental impact:
1. Will not store in body.
2. The experiment result shows that 58% of BOD in isopropanol can be dissolve in contaminated water at 20°C for 5 days.
3. When released into soil, the high steam pressure and low absorbent of soil is expected to help evaporate or flow underground.
4. When released into water, it is expected to evaporate (estimation at 5.4 days) or biodegraded (though it is degraded quickly in the lab, no data is revealed when degraded in natural water.)
5. When released into the air, photolysis is expected (in 1 to several days); as it is dissolvable in water, it might be dissolved in rain.
6. Highly toxic to aquatic life.

XIII. Waste Disposal

1. Dispose in authorized burry field or burn in approved incinerator.
2. Wash by large amount of water when small amount of the material flow to underground drainage system to avoid accumulation of steam.
3. Report to environmental unit when large amount of material outflows.

XIV. Delivery Data

International protocol:
1. DOT 49 CFR identified it as 3 rd flammable liquid and the packaging level is II. (American Transportation Bureau).
2. IATA/ICAO level: 3 (International Maritime Organization)
3. IMDG level: 3 (International Maritime Organization)
UN code: 1219

Domestic transport protocol:
1. Article 84, Road Traffic Safety Regulation
2. Embarking Regulation for Dangerous Content
3. Enforcement Rule for Loading and Discharging Dangerous Content, Taiwan Railway Administration
Special Delivery Method and Notice:—

XV. Regulation

Applied regulation:
Enforcement Rule of the Labor Safety and Health Facility Act
Common Regulation for Dangerous and Harmful Substance
Toxic Prevention Regulation for Organic Solvent
Standard Allowance Concentration of Harmful Substance in the Air of Labor Working Environment
Road Safety Traffic Regulation
Enforcement Standard for Professional Waste Storage and Disposal
Safe Management Rules for Public Dangerous Substance and High Pressure Gas Equipment

XVI. Other Data

Reference	1. CHEMINFO database, CCINFO Disc 99-2.	
	2. HAZARDTEXT database, TOMES PLUS DISC , Vol. 41, 1999	
	3. RTECS database, TOMES PLUS DISC , Vol. 41, 1999	
	4. HSDB database, TOMES PLUS DISC , Vol. 41, 1999	
	5. Chinese Database of Dangerous Chemical Substance, Environmental Protection Administration	
Form Maker Unit	Name:—	
	Address/Tel:	
Form Maker	Title:—	Name (sign & stamp):--
Date of Form Making	2000.3.31	
Note	The symbol “—” meaning no relevant document is found; symbol” /” meaning irrelevant to the substance.	

The above data is provided by Industrial Public Health Center, Technology Research Institute of Taiwan, which has carefully reviewed the content. As there might still be inaccurate information, the data is for reference only. The user shall carefully judge the content and the institution is not reliable for any responsibility.

Safety data sheet for chemical products (SDS)

1. PRODUCT AND COMPANY IDENTIFICATION

- Product name: Lithium ion battery cell
- Product code: Prismatic type cell
UF103450P, UF383543F, UF383551F, UF384461F, UF423643F, UF424261F, UF463048F, UF463048P, UF463443F, UF463443G, UF463446S, UF463450F, UF464459F, UF464462F, UF493850S, UF493856S, UF503436F, UF503445S, UF503861F, UF504547F, UF504553F, UF534042F, UF553040P, UF553048F, UF553436F, UF553436G, UF553443F, UF553443R, UF553443S, UF553443Z, UF553446Z, UF553450F, UF553450R, UF553450S, UF553450Z, UF533640S, UF564447F, UF583136R, UF603443S, UF611948P, UF613756F, UF624447F, UF633836S, UF634042F, UF653048P, UF653436S, UF653450R, UF653450S, UF703450F, UF752836F
- Company name: Sanyo Electric Co., Ltd. Mobile Energy Company
- Address: 222-1, Kaminaizen, Sumoto City, Hyogo, Japan
- Telephone number: +81-799-24-4111
- Fax number: +81-799-24-4121
- Emergency telephone number: [Weekday] +81-799-23-3942
[Night and holiday] +81-799-24-4131

2. COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation: Preparation
- Information about the chemical nature of product:

Common chemical name / General name	CAS number	Concentration / Concentration range	Classification and hazard labeling
Lithium Cobaltate (LiCoO_2)	12190-79-3	25-40%	-
Aluminum	7429-90-5	10-40%	-
Graphite (Natural graphite) (Artificial graphite)	7782-42-5 7740-44-0	10-20%	-
Copper	7440-50-8	5-15%	Sensitization of the skin group No.2
Organic electrolyte	-	10-20%	Inflammable liquid

3. HAZARDS IDENTIFICATION

For the battery cell, chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage.

However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by miss-use, the gas release vent will be operated. The battery cell case will be breached at the extreme, hazardous materials may be released.

Moreover, if heated strongly by the surrounding fire, acrid gas may be emitted.

- Most important hazard and effects

Human health effects:

Inhalation: The steam of the electrolyte has an anesthesia action and stimulates a respiratory tract.

Skin contact: The steam of the electrolyte stimulates a skin. The electrolyte skin contact causes a sore and stimulation on the skin.

Eye contact: The steam of the electrolyte stimulates eyes. The electrolyte eye contact causes a sore and stimulation on the eye. Especially, substance that causes a strong inflammation of the eyes is contained.

Environmental effects: Since a battery cell remains in the environment, do not throw out it into the environment.

- Specific hazards:

If the electrolyte contacts with water, it will generate detrimental hydrogen fluoride.

Since the leaked electrolyte is inflammable liquid, do not bring close to fire.

4. FIRST-AID MEASURES

Spilled internal cell materials

- Inhalation:
Make the victim blow his/her nose, gargle. Seek medical attention if necessary.
- Skin contact:
Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.
- Eye contact:
Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and spilled internal cell materials

- Ingestion:
Make the victim vomit. When it is impossible or the feeling is not well after vomiting, seek medical attention.

5. FIRE-FIGHTING MEASURE

- Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Specific hazards: Corrosive gas may be emitted during fire.
- Specific methods of fire-fighting: When the battery burns with other combustibles simultaneously, take fire-extinguishing method which correspond to the combustibles. Extinguish a fire from the windward as much as possible.
- Special protective equipment for firefighters:
 - Respiratory protection: Respiratory equipment of a gas cylinder style or protection-against-dust mask
 - Hand protection: Protective gloves
 - Eye protection: Goggle or protective glasses designed to protect against liquid splashes
 - Skin and body protection: Protective cloth

6. ACCIDENTAL RELEASE MEASURES

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the followings.

- Precautions for human body:
Remove spilled materials with protective equipment (protective glasses and protective gloves). Do not inhale the gas as much as possible. Moreover, avoid touching with as much as possible.
- Environmental precautions: Do not throw out into the environment.
- Method of cleaning up: The spilled solids are put into a container. The leaked place is wiped off with dry cloth.
- Prevention of secondary hazards: Avoid re-scattering. Do not bring the collected materials close to fire.

7. HANDLING AND STORAGE

- Handling
 - Technical measures:
 - Prevention of user exposure: Not necessary under normal use.
 - Prevention of fire and explosion: Not necessary under normal use.
 - Precaution for safe handling: Do not damage or remove the external tube.
 - Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water or seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or fling. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by Sanyo.
- Storage
 - Technical measures:
 - Storage conditions (suitable, to be avoided): Avoid direct sunlight, high temperature, high humidity. Store in cool place (temperature: -20 ~ 35 degree C, humidity: 45 ~ 85%).
 - Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids
 - Packing material (recommended, not suitable): Insulative and tear proof materials are recommended.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

• Engineering measures:

No engineering measure is necessary during normal use. In case of internal cell materials' leakage, operate the local exhaust or improve ventilation.

• Control parameters

Common chemical name / General name	ACGIH (2002)	
	TLV-TWA	BEI
Lithium Cobaltate (LiCoO ₂)	0.02mg/m ³ (as cobalt)	-
Aluminum	10mg/m ³ (metal coarse particulate) 5mg/m ³ (inflammable powder) 5mg/m ³ (weld fume)	-
Carbon (Natural graphite) (Artificial graphite)	2mg/m ³ (inhalant coarse particulate)	-
Copper	0.2mg/m ³ (fume) 1.0mg/m ³ (a coarse particulate, Mist)	-
Organic electrolyte	-	-

ACGIH: American Conference of Governmental Industrial Hygienists, Inc.

TLV-TWA: Threshold Limit Value-Time Weighted Average concentration

BEI: Biological Exposure Indices

• Personal protective equipment

Respiratory protection: Respirator with air cylinder, dust mask

Hand protection: Protective gloves

Eye protection: Goggle or protective glasses designed to protect against liquid splashes

Skin and body protection: Working clothes with long sleeve and long trousers

9. PHYSICAL AND CHEMICAL PROPERTIES

• Appearance

Physical state: Solid

Form: Prismatic

Color: Metallic color (without tube)

Odor: No odor

• pH: NA

• Specific temperatures/temperature ranges at which changes in physical state occur:

There is no useful information for the product as a mixture.

• Flash point: NA

• Explosion properties: NA

• Density: NA

• Solubility ,with indication of the solvent(s): Insoluble in water

10. STABILITY AND REACTIVITY

• Stability: Stable under normal use

• Hazardous reactions occurring under specific conditions

- Conditions to avoid: When a battery cell is exposed to an external short-circuit, crushes, deformation, high temperature above 100 degree C, it will be the cause of heat generation and ignition. Direct sunlight and high humidity.

- Materials to avoid: Conductive materials, water, seawater, strong oxidizers and strong acids.

- Hazardous decomposition products: Acidic or harmful gas is emitted during fire.

11. TOXICOLOGICAL INFORMATION

There is no available data on the product itself. The information of the internal cell materials is as follows.

Lithium cobaltate - LiCoO₂

- Acute toxicity: No applicable data.
Reference cobalt: LDLo, oral - Guinea pig 20mg/kg
- Local effects: Unknown.
- Sensitization:
The nervous system of respiratory organs may be stimulated sensitively.
- Chronic toxicity/Long term toxicity:
By the long-term inhalation of coarse particulate or vapor of cobalt, it is possible to cause the serious respiratory-organs disease. Skin reaction or a lung disease for allergic or hypersensitive person may be caused.
- Skin causticity: Although it is very rare, the rash of the skin and allergic erythema may result.

Aluminum

- Local effects: Aluminum itself has no toxicity. When it goes into a wound, dermatitis may be caused.
- Chronic toxicity/Long term toxicity: By the long-term inhalation of coarse particulate or fume, it is possible to cause lung damage (aluminum lungs).

Graphite

- Acute toxicity: Unknown.
- Local effects: When it goes into one's eyes, it stimulates one's eyes; conjunctivitis, thickening of corneal epithelium or edematous inflammation palpebra may be caused.
- Chronic toxicity/Long term toxicity:
Since the long-term inhalation of high levels of graphite coarse particulate may become a cause of a lung disease or a tracheal disease.
- Carcinogenicity:
Graphite is not recognized as a cause of cancer by research organizations and natural toxic substance research organizations of cancer.

Copper

- Acute toxicity:
60-100mg sized coarse particulate causes a gastrointestinal disturbance with nausea and inflammation.
TDLo, hypodermic - Rabbit 375mg/kg
- Local effects:
Coarse particulate stimulates a nose and a tracheal.
When it goes into one's eyes, the symptom of the reddening and the pain is caused.
- Sensitization: Sensitization of the skin may be caused by long-term or repetitive contact.
- Reproductive effects: TDLo, oral - Rat 152mg/kg

Organic Electrolyte

- Acute toxicity:
LD₅₀, oral - Rat 2,000mg/kg or more
- Local effects: Unknown.
- Skin irritation study: Rabbit - Mild
- eye irritation study: Rabbit - Very severe

12. ECOLOGICAL INFORMATION

- Persistence/degradability:
Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.
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13. DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal:

Product (waste from residues)

Do not throw out a used battery cell. Recycle it through the recycling company.

Contaminated packaging

Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates, dispose as industrial wastes subject to special control.

14. TRANSPORT INFORMATION

In the case of transportation, avoid exposure to high temperature and prevent the formation of any condensation. Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Please refer to Section 7-HANDLING AND STORAGE also.

UN regulation

- ID number: 3480 (or 3481)
- Proper shipping name:
"Lithium ion batteries" (or "Lithium ion Batteries packed with equipment" or "Lithium ion Batteries contained in equipment")
- Class: 9 *
- Packing group: II *

* However this product is defined as above, it is **not** recognized as "DANGEROUS GOODS" when its transport condition accords with instructions or provisions depend on region and transportation mode. About the instructions or provisions, please see descriptions in box brackets of following regulations.

Regulation depends on region and transportation mode

- Worldwide, air transportation:
IATA-DGR ["packing instruction 965 section II" (or "packing instruction 966 section II" or "packing instruction 967 section II")]
 - Worldwide, sea transportation:
IMO-IMDG Code [special provision 188]
 - Europe, road transportation:
ADR [special provision 188]
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15. REGULATORY INFORMATION

- Regulations specifically applicable to the product:
Wastes Disposal and Public Cleaning Law [Japan]
Law for Promotion of Effective Utilization of resources [Japan]
US Department of Transportation 49 Code of Federal Regulations [USA]

* About overlapping regulations, please refer to Section 14-TRANSPORT INFORMATION.

16. OTHER INFORMATION

- This safety data sheet is offered an agency who handles this product to handle it safely.
- The agency should utilize this safety data sheet effectively (put it up, educate person in charge) and take proper measures.
- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
- This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

Reference

Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs): International Occupational Safety and Health Information Centre (CIS)
2002 TLVs and BEIs: American Conference of Governmental Industrial Hygienists (ACGIH)
Dangerous Goods Regulations – 51st Edition Effective 1 January 2010: International Air Transport Association (IATA)
IMDG Code - 2008 Edition: International Maritime Organization (IMO)
The European Agreement concerning the International Carriage of Dangerous Goods by Road - 2009: The United Nations Economic Commission for Europe (UNECE)
RTECS (CD-ROM)
MSDS of raw materials prepared by the manufactures

First edition: Dec. 01 2003
Prepared and approved by
Sanyo Electric Co., Ltd.
Mobile Energy Company
Battery System Development Management Department

Sep.19.2006

Certificate of UN test for Lithium ion cell

Customer Model : UF553450Z
Sanyo Model : UF553450Z-LGN
Sanyo Product Code : 166003122

Sanyo Electric Co., Ltd.

M. Takahashi

M. Takahashi Senior Manager
Ion Engineering Development Department

Manual of Tests and Criteria (38.3 Lithium batteries)		Test results	Note	Number of test cells	
No.	Test item				
T 1	Altitude simulation	Pass		First cycle fully charged 10 cells	First cycle fully Discharged 10 cells
T 2	Thermal test	Pass			
T 3	Vibration	Pass			
T 4	Shock	Pass			
T 5	External short circuit	Pass			
T 6	Impact	Pass		First cycle 50% charged 5 cells for cylindrical cell, 10 cells for prismatic cell.	After 50 cycles, fully discharged 5 cells for cylindrical cell, 10 cells for prismatic cell.
T 7	Overcharge	-	For battery only	For battery only	
T 8	Forced discharge	Pass		First cycle, fully discharged 10 cells	After 50 cycles, fully discharged 10 cells

Lithium ion cell Specification

Item	Nominal value	Note
Nominal voltage	3.7 V	
Rated capacity	1.1 Ah	
Lithium equivalent content	0.33 g	

We declare that the above - mentioned test is the result of being checked according to UNtest
(Manual of Tests and Criteria ST/SG/AC.10/11/Rev.4, PartIII, sub-section 38.3)