Material Safety Data Sheet (MSDS)

Section 1, PRODUCT AND COMPANY IDENTIFICATION

1-1 COMPANY IDENTIFICATION

Name of Company: Axcom GmbH
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47877 Willich
Germany
Telephone number: +49 (0) 2154-4838–0
Fax number: +49 (0) 2154-4838-444

1-2 PRODUCTS IDENTIFICATION

Product Name：Rechargeable Battery Pack (Lithium ion), we choose SANYO/JAPAN cells for below items
Recommended use on original device & original charger only
Restrictions on use： Do not disassemble or reconstruct the product
Do not short-circuit; Do not swallow the product
Do not incinerate or heat the product
Do not use or leave product nearby fire, stove, or heated place
Do not immerse the product in water or sea water, or get it wet
Do not give the product impact or throw it
Do not drive a nail into the product, strike it by hammer or tread it
Never transport or store the battery pack with metal objects of any kind.

Lithium ion battery:
Goods describe UN3480 Lithium Ion Battery
UN Class: **UN 3480**
Packing accors with **Packing Insruction 965**
UN tets the cells are tested to requirements in **sub-section 38.3 of UN Manual of Test and Criteria**

Lithium ion batteries Modle list:

Model#	Uses on	Voltage (V)	Capacity (mAh)	Pack Chemistry	Cell number	cell =< 20Wh	Battery pack =< 100wh	Packing
FBSYMMC55	phone	3.7	3600	Lithium ion	3	pass	pass	UN3480 Lithium ion batteries PI965

Section 2, HAZARDS IDENTIFICATION

For the battery cell, chemical materials are stored in a hermetically sealed metal or metal laminated plastic 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.

Product name: Lithium ion rechargeable battery cell
Additional Informat: Safety Instruction
Do not disassemble or reconstruct the product
Do not short-circuit; Do not swallow the product
Do not incinerate or heat the product
Do not use or leave product nearby fire, stove, or heated place
Do not immerse the product in water or sea water, or get it wet
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Battery Technology

Material Safety Data Sheet (MSDS)

Section 3, COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation: Preparation

- Information about the chemical nature of product: *1

Portion	Material name	Concentration
Positive electrode	Lithium transition metal oxidate (Li[M]m[O]n *2)	20~60
Positive electrode's base	Aluminum	1~10
Negative electrode	Carbon	10~30
Negative electrode's base	Copper	1~15
Electrolyte	Organic electrolyte principally involves ester	5~25
Outer case	Aluminum, iron, aluminum laminated plastic	1~30

*1 Not every product includes all of these materials.
*2 The letter M means transition metal and candidates of M are Co, Mn, Ni and Al. One compound includes one or more of these metals and one product includes one or more of the compounds. The letter m and n means the number of atoms.

Section 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.

Section 5, FIRE FIGHTING MEASURES

- 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

Section 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.

Section 7, HANDLING AND STORAGE

- Handling suggestions
  - Do not connect the positive terminal to the negative terminal with electrical wire or chain.
  - Avoid polarity reverse connection when installing the battery to an instrument.
  - Do not wet the battery with water, seawater, drink or acid; or expose to strong oxidizer.
  - Do not damage or remove the external tube.
  - Keep the battery away from heat and fire.
  - Do not disassemble or reconstruct the battery; or solder the battery directly.
  - Do not give a mechanical shock or deform.

Material Safety Data Sheet (MSDS)

- Do not use unauthorized charger or other charging method. Terminate charging when the charging process doesn't end within specified time.
- Storage
  - Do not store the battery with metalware, water, seawater, strong acid or strong oxidizer.
  - Make the charge amount 30~50% then store at room temperature or less (temperature= -20~35 degree C) in a dry (humidity: 45~85%) place. Avoid direct sunlight, high temperature, and high humidity.
  - Use insulative and adequately strong packaging material to prevent short circuit between positive and negative terminal when the packaging breaks during normal handling. Do not use conductive or easy to break packaging material.

Section 8, EXPOSURE CONTROLS / PERSONAL PROTECTION

- Control parameters
  ACGIH has not been mentioned control parameter of electrolyte.
- 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

Section 9, PHYSICAL AND CHEMICAL PROPERTIES

- Appearance
  The product is stored in the plastic resin case / PVC sleeves. Shape, size and color varies.
  Cells physical state: Solid
  Form: Cylindrical or Prismatic or Pouch (laminated)
  Color: Metallic color or black
  Odor: No odor

Section 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: Acrid or harmful gas is emitted during fire.

Section 11, TOXICOLOGICAL INFORMATION

Organic Electrolyte
- Acute toxicity:

LD50, oral - Rat 2,000mg/kg or more
- Irritating nature: Irritative to skin and eye

Section 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.

Section 13. DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal:

Product (waste from residues)
Specified collection or disposal of lithium ion battery is required by the law like as "battery control law" in several nations. Collection or recycle of the battery is mainly imposed on battery's manufacturer or importer in the nations recycle is required.
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.

Section 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
- UN number: 3480
- Proper shipping name: Lithium ion batteries
- Class: 9 *
- Packing group: II *

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Material Safety Data Sheet (MSDS)

* However this product is defined as above, it is not recognized as "DANGEROUS GOODS" or is treated as almost non-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 [As non-DANGEROUS GOODS: "packing instruction 965 section II" /
Almost as above however displayed as DANGEROUS GOODS: "packing instruction 965 section IB"]
(When batteries are packaged with equipments or contained in equipments, refer packing instruction 966 or 967 instead of 965.)
・Worldwide, sea transportation:
IMO-IMDG Code [special provision 188]
・Europe, road transportation:
ADR [special provision 188]

Section 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.

Section 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

Dangerous Goods Regulations – 60th Edition Effective 1 January 2019: International Air Transport Association (IATA)
IMDG Code – 2018 Edition: International Maritime Organization (IMO)
The European Agreement concerning the International Carriage of Dangerous Goods by Road – 2019: The United Nations Economic Commission for Europe (UNECE)
Sanyo Reference number：SDS-IBT-00026
MSDS version : 01 Jan 2019