Safety Data Sheet

Name of Products: **Rechargeable Lithium Iron Phosphate Battery**

Model: **07-56178-501, U1-40, 12V U1-40, 03-56178-501**

Factory： **ICC Electronics (Dongguan) Ltd.**

Identification of the product and supplier

Name of goods	Rechargeable Lithium Iron Phosphate Battery
Type/Model	07-56178-501, U1-40, 12V U1-40, 03-56178-501
Ratings	12.8V,39.24Ah,502.272Wh
Pack Configuration	4S12P
Manufacturer's name	Inventus Power, Inc.
Manufacturer address	1200 Internationale Parkway, Woodridge IL 60517
Factory's name	ICC Electronics (Dongguan) Ltd.
Factory address	No.23, Shang Yuan Road, QingXi Town, Dongguan City, Guangdong Province, China
Inspection according to	OSHA GHS 《A Guide to The Globally Harmonized System of Classification and Labelling of Chemicals》 IATA DGR 《Dangerous Goods Regulations》 IMO IMDG CODE 《INTERNATIONAL MARITIME Dangerous Goods CODE》

Receiving date: 2025-07-18	Effective date: 2025-07-18

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product name：Rechargeable Lithium Iron Phosphate Battery

Model：07-56178-501, U1-40, 12V U1-40, 03-56178-501

Other means of identification

Synonyms：

Recommended use of the chemical and restrictions on use

Recommended Use：LITHIUM-ION BATTERIES

Uses advised against：No information available

a) Do not dismantle, open or shred secondary cells or batteries.

b) Do not expose cells or batteries to heat or fire. Avoid storage in direct sunlight.

c) Do not short-circuit a cell or battery. Do not store cells or batteries outside of recommended guidelines.

where they may short-circuit each other or be short-circuited by other metal objects.

d) Do not remove a cell or battery from its original packaging until required for use.

e) Do not subject cells or batteries to mechanical shock.

f) In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.

g) Do not use any charger other than that specifically provided for use with the equipment.

h) Observe the plus (+) and minus (-) marks on the cell, battery and equipment and ensure correct use.

i) Do not use any cell or battery which is not designed for use with the equipment.

j) Do not mix cells of different manufacturer, model, etc.

k) Battery usage by children should be supervised.

l) Seek medical advice immediately if a cell or a battery has been swallowed.

m) Always purchase the battery recommended by the device manufacturer for the equipment.

n) Keep cells and batteries clean and dry.

o) Wipe the cell or battery terminals with a clean dry cloth if they become dirty.

p) Secondary cells and batteries need to be charged before use. Always use the correct charger and refer to the manufacturer’s instructions or equipment manual for proper charging instructions.

q) Do not leave a battery on prolonged charge when not in use.

r) After extended periods of storage, it may be necessary to charge and discharge the cells or batteries several times to obtain maximum performance.

s) Retain the original product literature for future reference.

t) Use only the cell or battery in the application for which it was intended.

u) When possible, remove the battery from the equipment when not in use.

v) Dispose of properly.

Emergency telephone number

Within the US: 1-800-424-9300

Outside the US: 1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Classification of the substance or mixture

Classification according to GHS

ACUTE TOXICITY-ORAL

Hazard category: 4

Signal word: Warning

Hazard statement: Harmful if swallowed

Pictogram: 

Prevention：Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response：Call a Poison center or doctor/physician if you feel do not feel well.

Storage:

Disposal: Dispose of contents/container in accordance with local/national regulations

ACUTE TOXICITY-DERMAL

Hazard category: 4

Signal word: Warning.

Hazard statement: Harmful in contact with skin

Pictogram: 

Prevention：Wear protective gloves/protective clothing

Response：Call a Poison center or doctor/physician if you do not feel well.

Storage:

Disposal: Dispose of contents/container in accordance with local/national regulations

SKIN CORROSION/IRRITATION

Hazard category: 2

Signal word: Warning.

Hazard statement: Causes skin irritation.

Pictogram: 

Prevention：Wash thoroughly after handing. Wear protective gloves.

Response：Take off contaminated clothing and wash it before reuse.

Storage:

Disposal:

SENSITIZATION-SKIN

Hazard category: 1A

Signal word: Warning

Hazard statement: May cause an allergic skin reaction (Lithium Hexafluorophosphate (LiPF6).

Pictogram: 

Prevention：Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves.

Response：If comes into contact with skin, wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage:

Disposal: Dispose of contents/container in accordance with local/national regulations.

EXPLOSIVES (CONTINUED)

Hazard category: Division 1.4

Signal word: Warning

Hazard statement: Fire or project hazard.

Pictogram: 

Prevention：Keep away from heat/sparks/open flames/hot surfaces.

Response：In case of fire: evacuate area. Explosion risk in case of fire. Do NOT fight fire reaches explosives.

Storage: Store in accordance with local/regional/national/international regulations.

Disposal: Dispose of contents/container in accordance with local/national regulations.

FLAMMABLE SOLIDS

Hazard category: 2

Signal word: Warning

Hazard statement: Flammable solid.

Pictogram: 

Prevention：Keep away from heat/sparks/open flames/hot surfaces.

Response：In case of fire: Use approved extinguisher (reference Section 5).

Storage:

Disposal:

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization: Mixtures

Description:

Product: Consisting of the following components

Common Chemical Name	Chemical Formula	Concentration (%)	CAS Number
Phosphoric acid, iron(2+) lithium salt	LiFePO4	25~33%	15365-14-7
Graphite	C	15~25%	7782-42-5
Ethylene Carbonate	$C_3H_4O_3$	2~5%	96-49-1
Diethyl Carbonate	$C_5H_{10}O_3$	2~5%	105-58-8
Lithium Hexafluorophosphate	$LiPF_6$	15-22%	21324-40-3
Aluminum	Al	5%	7429-90-5
Cupper	Cu	5%	7440-50-8
Iron	Fe	5%	7439-89-6

Note: CAS number is Chemical Abstract Service Registry Number.
N/A=Not apply.

4. FIRST-AID MEASURES

First aid measures

Eye Contact: Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact: Remove contaminated clothing and shoes. Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Inhalation: Move to fresh air. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed

Swallowing Do not induce vomiting. Get medical attention.

Most Important Symptoms/Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Test symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

CO2, dry chemical powder, water spray.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Chemical

Formation of toxic gases is possible during heating or case of fire.

In case of fire, the following can be released:

Carbon monoxide (Co)

Carbon dioxide

Other irritating and toxic gases.

Hazardous Combustion Products

Carbon oxides.

Explosion Date

Sensitivity to Mechanical Impact No

Sensitivity to Static Discharge No

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. For example: Wear self-contained respiratory protective device.

Wear suitable protective clothing and eye/face protection.

Special hazards arising from the substance or mixture:

Battery may burst and release hazardous decomposition products when exposed to fire or flames.
Lithium ion batteries contain flammable electrolytes that may vent, ignite and produce sparks when subjected to high temperature (>150°C), When damaged or abused (e.g. mechanical damage or electrical overcharging may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes.

Refer to section 8 for personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

Evacuate personnel to safe areas.

Environmental Precautions

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Use personal protective equipment. Contain spill. Cover liquid spill with sand,earth or other Non-combustible absorbent material. Pick up and transfer to properly labelled containers.

Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.
Wash thoroughly after handling. Use this material with adequate ventilation.
The Product is not explosive.

Conditions for safe storage, including any incompatibilities

If the Lithium-ion Battery is subject to store for such a long term as more than 3 months, it is recommended to recharge the Lithium-ion Polymer Battery Periodically.
3 months: -20°C~ +45°C, 45 to 75% RH
And recommended at 22°C~ +28°C for long period storage.
The capacity recovery rate in the delivery state (50% capacity of fully charged) after storage is assumed to be 80% or more.
The voltage for a long-time storage shall be 36.0-39V range.
Do not storage Lithium-ion 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 Lithium-ion Battery to heat or fire. Avoid storage in direct sunlight.
Do not store together with oxidizing and acidic materials.
Keep ignition sources away- Do not smoke.
Store in cool, dry and well-ventilated area.

Incompatible Products None known.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Ingredients with limit values that require monitoring at the workplace:
15365-14- Phosphoric acid, iron(2+) lithium salt

TLV(USA)	0.02mg/m³
MAK(Germany)	0.1mg/m³

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible Exposure limits. Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/Face Protection:

Tightly sealed goggles

Body protection:

Personal Protective Equipment (PPE).

Skin protection:

Protective gloves

Material of gloves:

The selection of suitable glove selection. gloves should be onlydepend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is preparation of several substances, the resistance of the glove material cannot to be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

The penetration specifications are determined by manufacturer of the Protective gloves

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good Industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physician State	Form: Approximate Cuboid
	Color: Orange
	Odor: Odorless
	Odor Threshold: No information available

Change in condition:	
pH, with indication of the concentration	Not determined.
Melting Point/freezing point	Not determined.
Initial boiling point and Boiling range:	Not determined.
Flash Point	Not determined.
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapor Pressure:	Not determined.
Vapor Density:	Not determined.
relative density:	Not determined.
Solubility in Water:	Not determined.
Solubility in other solvents	Not determined.
n-octanol/water partition coefficient	Not determined.
Auto-ignition temperature	Product is not self-igniting.
Decomposition temperature	Not determined.
Odor threshold	Not determined.
Evaporation rate	Not determined.
Viscosity	Not determined.
Other Information	No further relevant information available.

10. STABILITY AND REACTIVITY

Reactivity: Stable under recommended storage and handling conditions (see section 7, Handling and storage)

Chemical stability: Stable Under normal conditions of use, storage and transport.

Thermal decomposition/conditions to be avoided: No decomposition if used according to specifications.

Possibility of Hazardous Reactions: None under normal processing.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to avoid: Strong heating, fire, Incompatible materials.

Incompatible materials: Strong oxidizing agents. Strong acids. Base metals.

Hazardous Decomposition Products: Carbon oxides, other irritating and toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute toxiciy: No data available.

LD/LC50 values relevant for classification:
Not available.

Skin corrosion/irritation: No irritation.

Serious eye damage/irritation: May cause serious eye irritation.

Respiratory or skin sensitization: No sensitizing effects known.

Specific target organ toxicity -single exposure
Not classified.

Specific target organ toxicity -repeated exposure
Exposure to contents of an open or damaged battery: Causes damage to organs through prolonged or repeated exposure: Bones. Teeth.
Lithium hexafluorophosphate (CAS# 21324-40-3): Causes damage to organs (bone, teeth) through prolonged or repeated exposure.

12. ECOLOGICAL INFORMATION

Toxicity:

Acquatic toxicity:
No further relevant information available.

Persistence and degradability: No further relevant information available.

Bioaccumulation potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation: Must not be disposed together with household garbage.

Do not allow product to reach sewage system

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

Land transport

ADR/RID class: Not regulated.

UN-Number: UN3480, UN3481.

Maritime transport

IMDG Class: Class 9.

UN Number: UN3480, UN3481.

Marine pollutant: No

Air transport

ICAO/IATA Class: Class 9

UN/ID Number: UN3480, UN3481.

Environmental hazards: Not applicable.

Special precautions for user: Not applicable.

Transport/Additional information: Not restricted goods according to the above specifications.

The Lithium-ion Battery bad was tested according to the requirements of the UN manual of tests and Criteria, Part III, subsection 38.3;

The Lithium-ion batteries according to Section IA of PACKING INSTRUCTION 965 or Section I of Packing Instructions 966~967 of the Dangerous Goods regulations 66th Edition may be transported. IMO IMDG Amendment 41-22 2022 Edition. battery pack complies with packing instruction 903 of the IMDG CODE.

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.

The materials and pack design shall be selected to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

Meets the requirements of 49CFR173.185 to be transported as Class 9 dangerous goods for road, rail, air, and vessel (Effective August 6, 2014 per HM224F)

The package must be handled with care; flammability hazard exists if the package is damaged.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation:

Authorization: No information available.

Restrictions on use: No information available.

Regulatory information

CAS NO.	EU (EINECS)	US (TSCA)	Japan (ENCS)	Canada (DSL/ NDSL)	Australia (AICS)	Korea (ECL)	China (IECSC)
15365-14-7	Listed	Not listed	Not listed	NDSL	Not listed	Not listed	Not listed
7782-42-5	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7439-89-6	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7440-50-8	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
96-49-1	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
623-53-0	Listed	Listed	Listed	DSL	Listed	Listed	Listed
21324-40-3	Listed	Listed	Listed	DSL	Listed	Listed	Listed
114435-02-8	Listed	Listed	Listed	DSL	Listed	Listed	Listed
14283-07-9	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
7440-02-0	Not listed	Listed	Not listed	DSL	Listed	Listed	Listed
1333-86-4	Listed	Listed	Listed	DSL	Listed	Listed	Listed
872-50-4	Listed	Listed	Listed	DSL	Listed	Listed	Listed
7440-47-3	Listed	Listed	Listed	DSL	Listed	Listed	Listed
554-13-2	Listed	Listed	Listed	DSL	Listed	Listed	Listed

Chemical safety assessment A Chemical Safety Assessment has not been carried out

16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant Phrases:

R20/22: Harmful by inhalation and if swallowed.

R36: Irritating to eyes.

H302: Harmful if swallowed.

H332: Harmful if inhaled.

Photos

Figure 1 Overall view I of battery

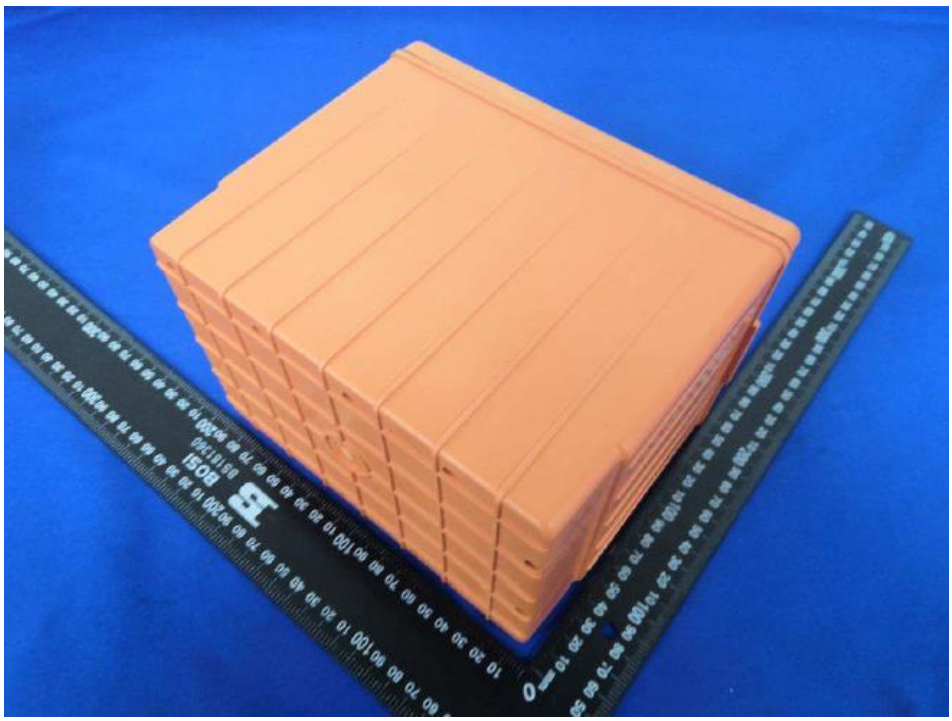

Figure 2 Overall view II of battery