

ECTIVE AccuBox

Material Safety Data Sheet

ECTIVE AccuBox

Model	Nominal Capacity	Battery Capacity	Cell Technology	Weight	Dimensions (mm)
AccuBox 80	80 Ah	1024 Wh	LiFePO ₄	15 kg	455 × 250 × 330
AccuBox 120	120 Ah	1536 Wh	LiFePO ₄	18 kg	455 × 250 × 330
AccuBox 150	150 Ah	1920 Wh	LiFePO ₄	21 kg	455 × 250 × 330
AccuBox 180	180 Ah	2304 Wh	LiFePO ₄	24 kg	455 × 250 × 330
AccuBox 120s	120 Ah	1536 Wh	LiFePO ₄	25 kg	420 × 250 × 330
AccuBox 240s	240 Ah	3072 Wh	LiFePO ₄	40 kg	420 × 250 × 430

1. Product and Company Identification

Brand: ECTIVE
Series name: ECTIVE AccuBox
Manufacturer: batterium GmbH
 Robert-Bosch-Straße 1, 71691 Freiberg am Neckar, Germany
 T: +49 7141 - 1410870 | F: +49 7141 / 560 90 49 | info@ective.de
 ECTIVE.DE



2. Chemical Composition

AccuBox 80, AccuBox 120, AccuBox 150, AccuBox 180

Chemical Composition	CAS No.*	Percentage of weight
Ethylene carbonate	96-94-1	3.6 %
Dimethyl carbonate	616-38-6	3.65 %
Graphite	7782-42-5	5.84 %
Copper	7440-50-8	14.6 %
Nickel	7440-02-0	2.20 %
Aluminium foil	7429-90-5	3.60 %
Lithium hexafluorophosphate	21324-40-3	11.0 %
Lithium metal	7439-93-2	2.20 %
Polyvinylidene Fluoride (PVDF)	24937-79-9	4.40 %
Iron lithium phosphate	15365-14-7	30.0 %
Acrylonitrile-butadiene-styrene terpolymer	9003-56-9	17.6 %
Polypropylene	9003-07-0	0.26 %
Polyvinyl chloride	9002-86-2	1.00 %

AccuBox 80, AccuBox 120, AccuBox 150, AccuBox 180

Chemical Composition	CAS No.*	EC No.*	Percentage of weight
LiFePo ₄	15365-14-7	-	25 to 30 %
LiPF ₆	21324-40-3	244-334-7	15 to 22 %
Aluminium	7429-90-5	231-072-3	5 to 8 %
Copper	7440-50-8	231-159-6	10 to 15 %
Graphite	7782-42-5	231-955-3	8 to 12 %
High molecular polymer	-	-	3 to 5 %
Nickel	7440-02-0	231-853-9	0.5 to 1 %
Iron	7439-89-6	231-096-4	22 to 30 %

* CAS No. = Chemical Abstract Service Registry Number.

EC No. = European Inventory of Existing Commercial Chemical Substances.

Labeling according to EC directives. No symbols and risk phrases are required.

3. Hazards Summary

Danger type:	Not dangerous under normal conditions. Do not dismantle, open or damage the battery. Exposure to the battery's contents may be harmful.
Appearance, odor:	Solid object, odorless.
Routes of exposure:	<ol style="list-style-type: none"> 1. Eyes and Skin: In case of leakage, the electrolyte solution contained in the battery may irritate ocular tissues and skin. 2. Inhalation: Respiratory irritation may occur if fumes are released due heat or a leakage. 3. Ingestion: In case of ingestion, the battery's contents cause serious chemical burns of the mouth, esophagus and gastrointestinal tract.
Potential health effects:	<p>Exposure the contained electrolyte of a ruptured or leaking battery can cause:</p> <ol style="list-style-type: none"> 1. Inhalation: Burns and irritation of the respiratory system, coughing, wheezing, and shortness of breath. 2. Eyes: Redness, tearing, burns. The electrolyte is corrosive to all ocular tissues. 3. Skin: The electrolyte is corrosive and causes skin irritation and burns. 4. Ingestion: The electrolyte solution causes tissue damage to throat and gastrointestinal tract.
Explosion danger:	The battery may be explosive at high temperature (above 150°C) or when exposed to fire.
Environmental harm:	Not applicable under normal conditions of use.
Medical conditions aggravated by exposure:	Not applicable.
Reported as carcinogen:	Not applicable.

4. First Aid Measures

Skin contact: If the battery is leaking and the contained material contacts the skin, wash the affected area with copious amounts of clear water and soap. Wash clothing and shoes before reuse. In case of continued irritation, consult a physician.

Eye contact: If the battery is leaking and the contained material comes into contact with eyes, flush with copious amounts of clear water or a neutral saline solution for at least 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Seek medical attention at once.

Inhalation: Seek fresh air. In case of breathing difficulties, consult a physician.

Ingestion: If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water at once. Do not induce vomiting. Consult a physician immediately for treatment.

5. Fire Fighting Measures

Unusual Fire and Explosion Hazards: Battery may rupture when subjected to excessive heat, exposing flammable battery contents.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

Suitable Extinguishing Agents: Dry powder, CO₂

Explosion Data: Strong mechanical impacts may result in battery rupture.

Fire Fighting Procedures: Use a positive pressure self-contained breathing apparatus if batteries are involved in a fire. Full protective clothing is necessary. When water is used as an extinguishing agent, hydrogen gas may develop, which may form an explosive gas mixture. During the application of water, caution is advised as burning pieces of flammable particles may be emitted from the fire.

NFPA: Health: 0, Flammability: 0, Instability: 0

6. Accidental Release Measures

In the event of a battery rupture or leakage, provide maximum ventilation to dissipate fumes and hazardous gases. Contain the spilled materials with dry sand or earth. Collect all the released materials that are not hot or burning in an appropriate waste disposal container while wearing proper protective clothing. Place in an approved container and dispose in accordance with the local regulations. Avoid contact with skin and eyes as well as the inhalation of vapors.

Do not allow battery contents to enter sewage systems, ground water or water courses. In case of seepage into water courses or sewage system, inform the respective authorities.

Restrict access to affected area until completion of clean-up. Wear adequate personal protective equipment.

7. Handling and Storage

Handling:

1. These batteries are designed to be recharged. However, improper charging may cause a battery to ignite. When charging the battery, use dedicated chargers and follow the specified instructions.
2. Never disassemble, open, damage or otherwise modify a battery.
3. Do not immerse a battery in water.
4. Should a battery unintentionally be damaged, thus releasing its contents, rubber gloves must be used to handle all battery components. Avoid the inhalation of any vapors that may be emitted.
5. Short-circuiting a battery causes heating. In addition, a short circuit reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short-circuited battery can cause skin burns.
6. Avoid reversing the battery polarity. This can damage the battery or cause it to ignite.
7. In the event of skin or eye exposure to the electrolyte, refer to Section 4, "First Aid Measures".
8. Ensure good ventilation at the workplace and prevent the formation of dust.

Storage:

1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks. Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.
2. Eliminate any risk of accidental short circuits due to metal objects during storage.

3. Store the batteries at temperatures between 0°C and 35°C for longer periods (-10°C and 40°C when storing less than 3 months). Store batteries in a dry and ventilated area that is subject to little temperature change. Elevated temperatures can result in reduced battery cycle life.
4. Keep batteries in the original packaging until use. Keep them protected from physical damage.
5. When storing the AccuBox for an extended period of time, it is recommended to recharge it regularly.
6. Keep out of reach of children.

Precautions:

Batteries may explode or cause burns if disassembled, crushed or exposed to fire or high temperatures. Avoid short circuits and reversed polarity.

8. Exposure Controls/Personal Protection

Engineering Controls:

Keep away from heat and open fire. Store in a cool, dry place. Use local exhaust ventilation or other means to control sources of dust, mist, fumes and vapor.

Respiratory Protection:

Not necessary under conditions of normal use. If a battery is burning, avoid inhalation of generated gases and fumes. During fire fighting, self-contained breathing, full-face respiratory equipment should be used. Fires must be fought only from safe fire fighting distance. Evacuate all persons from the area of fire immediately.

Eye Protection:

Not necessary under conditions of normal use. Use safety glasses with side shields if handling a leaking or ruptured battery.

Body Protection:

Not necessary under conditions of normal use. Use a rubber apron when handling a leaking or ruptured battery.

Protective Gloves:

Not necessary under conditions of normal use. Use chemical resistant rubber gloves when handling a leaking or ruptured battery.

Others:

Use good chemical hygiene practice. Wash hands thoroughly after cleaning-up a battery spill caused by leaking battery. Do not eat, drink, or smoke in the battery storage area. Have a safety shower and eye rinsing fountain readily available at your work area.

9. Physical and Chemical Properties

State:	Solid
Odour:	Odourless
pH:	N/A
Melting/freezing point:	N/A
Boiling point / range:	N/A
Flash point:	N/A
Upper/lower flammability:	N/A
Vapor pressure:	N/A
Vapor density:	N/A
Relative density:	N/A
Solubility in water:	Insoluble
Auto-ignition temperature:	130°C
Decomposition temperature:	N/A
Odour threshold:	N/A
Evaporation rate:	N/A
Flammability:	N/A
Viscosity:	N/A

10. Stability and Reactivity

Stability:	Stable under normal conditions.
Conditions to avoid:	Do not heat, throw into fire, disassemble, short circuit, immerse in water or overcharge. Protect from sparks, flames and heat.
Incompatibilities:	Avoid exposure to heat, open flames, corrosives, oxidizing agents, acids, bases.
Hazardous decomposition products:	The battery may release irritative gas upon electrolyte leakage. Carbon monoxide, carbon dioxide, lithium oxide fumes.

11. Toxicological Information

The battery does not elicit toxicological properties during routine handling and use. If the battery is opened through misuse or damage, discard immediately. The internal components of battery cells cause irritations.

Irritancy:	The electrolytes contained in this battery can irritate eyes upon any contact. Prolonged contact with the skin or mucous membranes may cause irritation.
Sensitization:	No information is available.
Neurological effects:	No information is available.
Teratogenicity:	No information is available.
Synergistic toxicity:	No information is available.
Mutagenicity:	No information is available.
Reproductive toxicity:	No information is available.

12. Ecological Information

Water hazard class 1 (self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to enter ground water, water courses or sewage systems.

Ecological toxicity:	N/A
Mobility in soil:	N/A
Persistence and degradability:	N/A
Bioaccumulation potential:	N/A
Other adverse effects:	N/A

13. Disposal Considerations

1. Disposal of the battery should be performed by authorized, professional disposal firms knowledgeable in Federal, State or Local requirements of hazardous waste treatment and hazardous waste transportation.
2. The battery should be completely discharged prior to disposal and/or the terminals taped or capped to prevent short circuits. When completely discharged, the battery is not considered hazardous.
3. The battery contains recyclable materials. Recycling options available in your local area should be considered when disposing of this product, through licensed waste carrier.

14. Transport Information

The ECTIVE AccuBox has passed the UN 38.3 test and is classified as dangerous goods and complies with the UN Recommendations on the Transport of Dangerous Goods; IATA Dangerous Good Regulations, and applicable U.S. DOT Regulations for the safe transport of portable Lithium power stations.

The AccuBox is transported according to the New Packing Instruction PI965 Section IA of IATA DGR 60th edition.

Each package must be labeled with a Hazard Class 9 label.

With regard to transport, the following regulations are cited and considered:

- International Civil Aviation Organization (ICAO) Technical Instructions
- International Air Transport Association (IATA) Dangerous Goods Regulations
- International Maritime Dangerous Goods (IMDG) Code
- US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportation (DOT)
- Research and Special Programs Administration (RSPA)

UN number: 3480, 3481

UN Proper shipping name: LITHIUM ION BATTERIES (including lithium ion polymer batteries)

Transport hazard class(es): 9

Packing group: II

Marine pollutant: No

15. Regulatory Information

OSHA hazard communication standard (29 CFR 1910.1200) : Non-hazardous.

16. Other Information

The information given above is provided in good faith based on present knowledge and does not constitute an assurance of safety under all conditions. It's the users responsibility to observe all laws and regulations applicable. We make no warranty of merchantability or any other warranty, expressed or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or expemplary damages, howsoever arising, even if we have been advised of the possibilty of such damages. If there are any queries, the supplier should be consulted. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.