Revision date: 01th March 2022

Safety Data Sheet (SDS)

Section1: Product and company identification

Name of Product:	Rechargeable Lithium-Ion battery pack					
Issue date	March 2022					
Battery Model	Voltage	Capacity	Wh	Chemistry	Equivalent Lithium Content	Total battery cell weight (g)
DV PowerPacks						
BMNPF970	7.2V	10.05Ah	72Wh	Lithium Ion	6.03g	270g
BMBPU90	14.4V	6.7Ah	96Wh	Lithium Ion	8.00g	360g
BMBPA60	14.4V	6.7Ah	96Wh	Lithium Ion	8.00g	360g
BMBP955	7.2V	5.0Ah	36Wh	Lithium Ion	3.00g	192g
BMBP955plus	7.2V	6.4Ah	46Wh	Lithium Ion	3.84g	192g
BMBP975	7.2V	7.5Ah	54Wh	Lithium Ion	4.50g	270g
BMBP975plus	7.2V	9.6Ah	69Wh	Lithium Ion	5.76g	270g
BMLPE6	7.2V	2.0Ah	14Wh	Lithium Ion	1.20g	70g
BMVBD78	7.2V	10.05Ah	72Wh	Lithium Ion	6.03g	270g
BMJVC70	7.2V	7.5Ah	54Wh	Lithium Ion	4.50g	270g
GRANITE MINI series						
BV095HDmini	14.4V	6.4Ah	92Wh	Lithium Ion	7.68g	360g
BV140HDmini	14.4V	9.9Ah	140Wh	Lithium Ion	10.88g	588g
BG095HDmini	14.4V	6.4Ah	92Wh	Lithium Ion	7.68g	360g
BG140HDmini	14.4V	9.9Ah	140Wh	Lithium Ion	10.88g	588g
GRANITE TWO series						
BV090two	14.4V	6.6Ah	95Wh	Lithium Ion	7.92g	336g
BG090two	14.4V	6.6Ah	95Wh	Lithium Ion	7.92g	336g
BV100HDtwo / SPLASH	14.4V	6.4Ah	92Wh	Lithium Ion	7.68g	540g
BV100HDplus	14.4V	6.7Ah	96Wh	Lithium Ion	8.00g	336g
BG100HDplus	14.4V	6.7Ah	96Wh	Lithium Ion	8.00g	336g
BV150two	14.8V	10.0Ah	150Wh	Lithium Ion	12.00g	672g
BG150two	14.8V	10.0Ah	150Wh	Lithium Ion	12.00g	672g
BV180two	14.4V	12.0Ah	180Wh	Lithium Ion	14.88g	672g
BG180two	14.4V	12.0Ah	180Wh	Lithium Ion	14.88g	672g
BV190Hdtwo / SPLASH	14.4V	13.2Ah	190Wh	Lithium Ion	15.84g	1008
BV190HDplus	14.4V	13.4Ah	193Wh	Lithium Ion	16.08g	672g
BG190HDplus	14.4V	13.4Ah	193Wh	Lithium Ion	16.08g	672g
BV270HDtwo / SPLASH	14.4V	18.6Ah	268Wh	Lithium Ion	22.30g	1080g
BV290HDplus	14.4V	20.2Ah	290Wh	Lithium Ion	24.24g	1008g
BG290HDplus	14.4V	20.2Ah	290Wh	Lithium Ion	24.24g	1008g

OTHER BATTERY PRODUCTS						
BUBBLEPACK	14.8V	4.4Ah	65Wh	Lithium Ion	5.28g	328g
MVQUICK	14.4V	1.5Ah	22Wh	Lithium Ion	1.80g	180g
MVQUICKAB	14.4V	1.5Ah	22Wh	Lithium Ion	1.80g	180g
MVQUICKAL	14.4V	1.5Ah	22Wh	Lithium Ion	1.80g	180g
MVQUICKR	14.4V	1.5Ah	22Wh	Lithium Ion	1.80g	180g
UN Classification:	UN3480 (standalone battery pack) UN3481 (contained in equipment or packed with equipment)					
Class:	9 – Miscellaneous Dangerous Goods					
Name of company:	New Cell Top srl dba BLUESHAPE					
Address:	Via Liguria 4-6, 42124 Reggio Emilia, Italy www.blueshape.net					
Tel. number:	+39-0522-518556					
Fax number:	+39-0522-277084					
Emergency Contact:	International: 1-703-527-3887 US and Canada: 1-800-424-9300					

Section 2: Hazards identification

The cells inside the battery pack store the chemical materials 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 and the product is safe.

However, mishandling or exposure to a fire, abnormal mechanical shock, decomposition or added electric stress by misuse can result in gas release, flaming, acrid gas emission or electrolyte leakage as the vents operate.

GHS Classification: No applicable labelling

Most important hazard and effects
Human health effects:

- Inhalation: the vapour of the electrolyte has an anaesthetic effect and stimulates the respiratory tract.
- Skin contact: the vapour of the electrolyte stimulates the skin. An electrolyte/skin contact can cause sores and stimulation of the skin.
- Eye contact: the vapour of the electrolyte irritates eyes. An electrolyte-eye contact can cause sores and irritation of the eye. In particular, substances that cause a strong inflammation of the eyes are contained within.

Environmental effects: A battery pack is to be disposed of according to regulatory procedures.

Specific hazards:
If the electrolyte comes into contact with water, it can generate detrimental hydrogen fluoride.
Since the leaked electrolyte is an inflammable liquid it should not be brought close to fire.

Section 3: Composition and information on ingredients

Substance or preparation: Preparation
Information about the chemical nature of product: *1

Element	Material	Cas No.	Concentration range (Total battery cell wt %)
Positive	Lithium transition metal oxide ($Li[M]_m[O]_n$ *2)	12190-79-3 12057-17-9 182442-95-1	20 ~ 60
Positive electrode's base	Aluminum	7429-90-5	1 ~ 10
Negative	Carbon	7782-42-5 7440-44-0	10 ~ 30
Negative electrode's base	Copper	7440-50-8	1 ~ 15
Electrolyte	Ethyl Methyl carbonate Diethyl carbonate Ethylene carbonate	623-53-0 105-58-8 96-49-1	5 ~ 25
Outer case	Iron	7439-89-6	1 ~ 30

*1 Not every product may include 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 letters $_m$ and $_n$ mean the number of atoms.

Section 4: First-aid measures

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

Eye contact: Flush the eyes with plenty of clean water, such as tap water, immediately without rubbing. Seek medical treatment. If appropriate procedures are not taken, loss of sight may result.

Skin contact: Wash the contacted areas off immediately with plenty of clean water such as tap water, otherwise irritation of the skin may result. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water promptly. If irritation persists after washing, seek immediate medical attention.

Inhalation: Move the exposed person to an area with fresh air immediately and seek medical treatment.

Ingestion: Seek medical attention immediately

Section 5: Fire-fighting measures

Clear fire area of all non-emergency personnel. Clear away any combustible substances from the fire area.

Extinguishing method: Since vapour generated from burning battery packs causes irritation of the eyes, nose and throat, make sure to extinguish any fire, noting the direction of the wind.
Wear respiratory protection equipment in when the situation demands.
Wear protective gloves
Wear goggle or protective glasses designed to protect against liquid splashes
Use skin and body protection clothing

Fire extinguishing agent: Plenty of water, CO2, chemical powder and alcohol-resistant foam are recommended.

Section 6: Accidental release measures

In case of accidental electrolyte leakage, move the battery packs away from the fire immediately. Avoid contact with spilled or released material. Immediately remove any contaminated clothing.

Personal precautions:	Remove any ignition sources nearby. Control any dust generation. You may consider wearing sufficient ventilation/respiratory protection. Prevent any skin and eye contact with the chemical.
Environmental precautions:	Do not dispose of in drains, surface and ground water and soil. Alert the neighbourhood if possible.
Method for cleaning up:	Use of absorbent material (e.g. sand, sawdust, etc.). Reduction of gases/fumes with water dilution. Put spillage in container. Use of dry cloth to wipe off leakage.
Prevention of secondary hazards:	Avoid re-scattering. Do not bring the collected materials close to fire.
Note:	Refer to Section 8 for exposure control Refer to Section 13 for disposal consideration

Section 7: Handling and storage

Handling:

- When packing the battery packs, do not allow terminals to contact each other, or contact with other metals.
- Avoid improper handling of the packaging box, so as not to drop or damage it.
- Do not disassemble or reconstruct, swallow, incinerate or heat the product.
- Avoid use or leave product in the vicinity of fire, stove or heated place.
- Do not immerse the product in water or seawater.
- Dispose of or recycle the product according to your local government legislation/regulations.

Storage:

- Do not store the battery packs in places with temperature exceeding 35° or under direct sunlight as this can affect the battery performance.
- Avoid places of high humidity and be sure not to expose the battery pack to condensation or water drops and do not store it in frozen environments.
- When piling the pallets up or placing them in parallel, appropriate space between each pallet should be allocated.
- Be sure to install suitable fire extinguishing equipment, such as automatic fire extinguishers.
- Avoid storing the battery pack in places where it can be exposed to static electricity so as not to damage the protection circuit of the battery pack.

SECTION 8: Exposure controls (in case of electrolyte leakage from the battery)

Personal protective equipment:

- Respiratory protection: Respirator with air cylinder, dust mask
- Hand protection: Protective gloves
- Eye protection: Goggles 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

- Physical state: Solid
- Form: generally shape is a rectangular volume - size may vary
- Colour: generally black or dark blue / grey but can vary
- Odour: No odour

SECTION 10: Stability and reactivity

Since batteries function by chemical reaction, they are considered a chemical product.
As such, battery 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. if not maintained within the specified ranges, may shorten the life expectancy of the battery, or the device in which the battery is used may be damaged by electrolyte leakage.

Stability:
- Stable under normal use

Hazardous reactions occurring under specific conditions:
- Conditions to avoid: Avoid impact, deconstruction, direct sunlight, high temperature, high humidity, sparks, open flames and other ignition sources
- Materials to avoid: Conductive materials, water, seawater, strong oxidisers and strong acids.
- Hazardous decomposition products: Acrid or harmful gas is emitted during fire.

SECTION 11: Toxicological information

In case of electrolyte leakage from the battery:
- Acute toxicity: LD_{50} oral-Rat 2,000mg/kg or more
- Irritation: Irritation to eyes, skin and throat
- Sensitivity: Sensitivity to skin
- Respiratory irritation: Inhalation of vapours may cause irritation to the respiratory system

SECTION 12: Ecological information

Persistence / degradability:
- Since a battery cell and the internal materials remain in the environment, do not bury or dispose into the environment.
- Heavy metals in battery:- Mercury(Hg) and Cadmium(Cd) are neither contained nor used in batteries.

SECTION 13: Disposal considerations

Recommended method 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 countries. Collection or recycle of the battery is mainly imposed on battery’s manufacture or importer in the countries where recycle is required
- Contaminated packaging:
  Neither a container nor packing is contaminated during normal use. When internal material leaked from a battery pack contaminates, dispose as an industrial waste subject to special control.

SECTION 14: Transport information

During the transportation of a large amount of battery packs by sea, air, trailer, or railway, do not leave these in a location of high temperature and do not allow them to be exposed to condensation. Confirm there is no leakage or spillage from the container. Properly store cargo to prevent falling, dropping and breakage. Prevent collapse of cargo piles and exposure to rain. The container must be handled carefully. Do not give shocks that result in dents on the product.
Please also refer to Section 7-HANDLING AND STORAGE

UN regulation

UN Classification:	UN3480 (standalone battery pack) UN3481 (contained in equipment or packed with equipment)
Proper shipping name:	Lithium ion batteries Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment
Class:	9 – Miscellaneous Dangerous Goods
Packing group:	II

Regulation depends on region and transportation mode

Worldwide, air transportation:
- IATA-DGR: packing instruction 965 Section II, if conditions are met.
- IATA-DGR: packing instruction 965 Section IB, if conditions are met.
- IATA-DGR: packing instruction 965 Section IA, if conditions are met.
- When batteries are packaged with equipment or contained in equipment, refer to 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

- UN (United Nations): Recommendations on the Transportation of Dangerous Goods Model Regulations
- ICAO (International Civil Aviation Organisation): Technical Instructions for the safety transport of dangerous goods by air.
- IATA (International Air Transport Organisation) : Dangerous Goods Regulations
- IMO (International Maritime Organisation) : International Maritime Dangerous Goods (IMDG) Code

SECTION 16: Other information

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.