



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 1/10

Applicant : META SYSTEMS CO.,LTD

Address : #1214-18 Sicox tower 12F, 484 Dunchon-daero, Jungwon-gu,  
Seongnam-si, Gyeonggi-do, 13229, korea

Model Name : 1BL80META (EQM)

Manufacturer : MKB CO.,LTD

Address : 7F, 703-1ho, Gwangmyeong, TechnoTown, 15,Anyanchunro 502 beongil  
Gwangmyeong City, Gyeonggi-do, korea

Signed for and on Behalf of MK

APPROVED



**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022


Page 2/10

## Section 1 - Chemical Product and Company Identification

### Product Identification

Product Name:	Lithium ion battery
Model Name:	1BL80META (EQM)
Applicant:	META SYSTEMS CO.,LTD
Address:	#1214-18 Sicox tower 12F, 484 Dunchon-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, 13229, korea
Manufacturer:	MKB CO.,LTD
Address:	7F, 703-1ho, Gwangmyeong, TechnoTown, 15,Anyanchunro 502 beongil Gwangmyeong City, Gyeonggi-do, korea
Contact Person:	Kim do young
E-mail:	kdy@mkbt.co.kr
TEL :	02-3666-1239
FAX:	0303-3448-8100

## Section 2- Hazard identification

Classification of the substance or mixture:	Flammable liquids (Category 3), H226 Flammable solids (Category 1), H228 Acute toxicity, Oral (Category 4), H302 Skin corrosion (Category 1A), H314 Specific target organ toxicity - repeated exposure (Category 1), H372 Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 3), H412 Skin sensitisation (Category 1), H317 Carcinogenicity (Category 1B), H350
GHS label elements, including precautionary statements :	

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 3/10

GHS label elements, including precautionary statements :	<p>Hazard statement(s) :</p> <p>H226 Flammable liquid and vapour.</p> <p>H228 Flammable solid.</p> <p>H302 Harmful if swallowed.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H372 Causes damage to organs through prolonged or repeated exposure.</p> <p>H410 Very toxic to aquatic life with long lasting effects.</p> <p>H317 May cause an allergic skin reaction.</p> <p>H350 May cause cancer.</p> <p>H351 Suspected of causing cancer.</p> <p>Precautionary statement(s) :</p> <p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking P201 Obtain special instructions before use.</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P273 Avoid release to the environment P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.</p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove P370 + P378 In case of fire: Use dry powder or dry sand to extinguish P308 + P313 IF exposed or concerned: Get medical advice/ attention.</p> <p>Supplemental Hazard :none</p>
Other hazards which do not result in classification	<p>This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.</p>

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 4/10

## Section 3 - Composition/Information on Ingredients

Chemical Composition	CAS NO.	Weight(%)
Cobalt compound	182442-959-1	28
Styrene-Butadiene-Rubber	27288-99-9	1
Polypropylene	9003-07-0	2
Aluminum Foil	7429-90-5	2.5
Copper Foil	7440-50-8	5
Graphite	7782-42-5	17
Electrolyte(Et carbonate)	96-49-1	13
Lithium hexafluorophosphate	21324-40-3	1
steel	7439-89-6	30
Poly(Bisphenol A carbonate)	25037-45-0	0.5

## Section 4 - First-aid Measures

General Advice	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused
Eyes	If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical advice
Skin	If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice
Inhaled	If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical advice.
Swallowed	If battery is swallowed seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. If mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Do not give ipecac.

Page 5/10

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

## Section 5 - Fire Fighting Measures

Fire and Explosion Hazards	Batteries may burst and release hazardous decomposition products when exposed to a fire situation.
Extinguishing Media	Use any extinguishing media that is appropriate for the surrounding fire.
Special Fire Fighting Procedures	Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Fight fire from a distance or protected area. Cool fire exposed batteries to prevent rupture. Use caution when handling fire-exposed containers (batteries may explode in heat of fire).
Hazardous Combustion Products	Thermal degradation may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.

## Section 6 - Accidental Release Measures

Notify safety personnel of large spills. Irritating vapors and flammable may be released from leaking or ruptured batteries. Eliminate all ignition sources. Evacuate the area and allow the vapors to dissipate.

Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal. Remove spilled liquid with absorbent and contain for disposal.

## Section 7 –Handling And Storage

Handling	Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly.  Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag.
Storage	Store batteries in a dry place at normal room temperature



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

## Section 8 - Exposure Controls/Personal Protection

Respiratory Protection	In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.
Ventilation	Not necessary under conditions of normal use
Other Protective Clothing or Equipment	Not necessary under conditions of normal use.
Personal Protection is recommended for venting battery	Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

## Section 9 - Physical and Chemical Properties

Appearance	Solid state
Odour	Odorlessness
Colour	Black or blue
pH	Not applicable
Flash Point	Not applicable
Flammability	Not applicable
Relative density	Not applicable
Solubility (water)	Not applicable
Solubility (other)	Not applicable

## Section 10 - Stability and Reactivity

Stability	This product is stable.
incompatibility/ Conditions to Avoid	Contents are incompatible with strong oxidizing agents. Do not heat, crush, disassemble, short circuit or recharge.
Hazardous Decomposition Products	Thermal decomposition may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.
Hazardous Polymerization	Will not occur



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

## Section 11 - Toxicological Information

Potential Health Effects	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.
Eye Contact	Contact with battery contents may cause irritation.
Skin Contact	Contact with battery contents may cause irritation.
Inhalation	Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.
Ingestion	Swallowing is not anticipated for larger batteries due to battery size. Smaller batteries may be swallowed. If battery is swallowed, seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas, may occur following exposure to a leaking battery.
Chronic Effects	The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.
Target Organs	Skin, eyes and respiratory system.
Carcinogenicity	None of the components of this product are listed as carcinogens by the EU Directive on the classification and labeling of substances.

## Section 12 - Ecological Information

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

## Section 13 - Disposal

Do not incinerate or subject cells to temperature in excess of 80°C. Dispose of in accordance with local regulations.

## Section 14 - Transport Information

All lithium, lithium ion and lithium polymer cells and batteries must be tested in accordance with

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 8/10

the "UN Manual of Tests and Criteria, Part III, Subsection 38.3 2017.

The 61th edition of the IATA Dangerous Goods Regulations incorporates all amendments made by the ICAO Dangerous Goods Panel in developing the content of the 2019 edition of the ICAO Technical Instructions as well as changes adopted by the IATA Dangerous Goods Board.

Their regulations are based on the UN Recommendations. The UN Recommendations require that lithium ion cells and batteries shall be manufactured under a quality management program and this requirement is adopted by IMDG Code and ICAO TI/IATA DGR.

The following list is intended to assist the user to identify the main changes introduced in this edition and must not be considered an exhaustive listing. The changes have been prefaced by the section or subsection in which the change occurs.

**UN number. PI** (Proper shipping name)

**UN3480. PACKING INSTRUCTION 965** I B ,SECTION II (Lithium-ion Batteries)

**UN3481. PACKING INSTRUCTION 966** SECTION II (Lithium-ion batteries packed with equipment)

**UN3481. PACKING INSTRUCTION 967** SECTION II (lithium-ion batteries contained in equipment)

Hazard Classification : Class 9 (Miscellaneous)

Organizations governing the transport of lithium batteries are as follows,

Area	Method	Organization	Packing Instruction of Special Provision
International	Air	IATA, ICAO	PI 965 Section I B, SECTION II PI 966 SECTION II PI 967 SECTION II
International	Maritime	IMO	SP 188
U.S.A	Air, Rail, Road, Maritime	DOT	49 CFR Section 105-185

Cells and batteries must be packed in inner packaging that completely encloses the cell or battery. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to a short circuit. Each consignment must be accompanied with a document such as an air waybill with an indication that:

- the package contains lithium ion cells or batteries;
- the package must be handled with care, and that a flammability hazard exists if the package is damaged

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr





# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 9/10

- special procedures should be followed in the event the package is damaged, to include inspection and repacking if necessary; and a telephone number for additional information.

Each package must be labelled with a lithium battery handling label;

Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.

## Section 15 - Regulatory Information

Special requirement be according to the local regulations.

《Dangerous Goods Regulations》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Technical Instructions for the Safe Transport of Dangerous Goods》

《Classification and code of dangerous goods 》

《Occupational Safety and Health Act 》(OSHA)

《Toxic Substance Control Act》(TSCA)

《Consumer Product Safety Act 》(CPSA)

《Federal Environmental Pollution Control Act》(FEPCA)

《The Oil Pollution Act》(OPA)

《Superfund Amendments and Reauthorization Act TitleⅢ(302/311/312/313) 》(SARA)

《Resource Conservation and Recovery Act》(RCRA)

《Safety Drinking Water Act》(CWA)

《California Proposition 65》

《Code of Federal Regulations》(CFR)

《2019 Lithium battery guidance document, revision 1》

**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr



# MSDS

Doc No. : MK2203000007b-MKB

Issue Date : March. 10, 2022

Page 10/10

## Section 16 - Other Information

Note	<p>This Sheet is provided as technical information only. The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation.</p> <p>MKB,. Ltd.. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.</p>
------	--

Photo(s) of Sample:



**MKB CO.,LTD**

Tel : 82-02-3666-1239

Fax : 0303-3448-8100

E-mail : kdy@mkbt.co.kr