

UN38.3 Test Summary CMC batteries

The MC-BATTERY3 is a CMC battery that can be forwarded alone and inside equipment. The marking of the shipment must be as follows:

- UN3480 for batteries shipped by themselves.
- UN3481 for batteries shipped inside equipment.
- For shipments with batteries by themselves and inside equipment, both markings shall be added.

Appendix 1 to this declaration is the Test Summary. The form is provided by www.lithium-battery-service.com and used to give the necessary information that is required by Sub-section 38.3 of Manual of Tests and Criteria.

Appendix 2 is the SDS given by the manufacturer of the battery cells used inside the MC-BATTERY3. The two cells are connected in series.

Hell

(Place)

7/1-20

(Date)

Stian Arntsen



Stian Arntsen

Technical Manager

LITHIUM BATTERY TEST SUMMARY AND SUPPLIER INQUIRY

IN ACCORDANCE WITH SUB-SECTION 38.3
OF MANUAL OF TESTS AND CRITERIA

N/A = Not Applicable

1. Name/Description of battery	
MC-BATTERY3, M5-1051-3600	

1a. Name/Description of the cells inside the battery	
2x Shenzhen BAK Technology Co., Ltd. 103450AR2 3,7V 1800mAh 6.66WH Li ion	

The test summary of the cells inside the battery must either be presented or under checkpoint 9 and 9a it must be confirmed that the UN 38.3 test summary for the cells is available.

2. Manufacturer of battery	
Name	HansaMatrix, AS
Address	Akmenu iela 72, LV-5001 Ogre, Latvia
Phone	+371 6504 9088
Email	info@hansamatrix.com
Website	www.hansamatrix.com

2a. Manufacturer of the equipment (if the battery is contained in equipment)	
Name	Cavotec Germany GmbH
Address	Gewerbering 3, DE-93345, Hausen, Germany
Phone	+ 49 9448 90120 0
Email	purchase.hausen@cavotec.com
Website	www.cavotec.com

3. Test laboratory of battery	
Name	Cavotec Micro-control AS
Address	Gevinglia 112, 7517 Hell, Norway
Phone	+47 74 84 31 00
Email	mc@cavotec.com
Website	www.cavotec.com

4. ID-number and date			
Unique test report identification number	TRP-3014-0003	Date of test report	07.01.2020

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Name/Description of battery (taken from field 1)

MC-BATTERY3, M5-1051-3600

DESCRIPTION OF BATTERY

5. Mark the type of battery with an "•"	
<input checked="" type="radio"/> Lithium ion battery	Lithium metal battery <input type="radio"/>
<input type="radio"/> Lithium hybrid battery	

6. Parameters	
Mass in gram (g):	120
Lithium ion: Indicate watt-hour rating (Wh):	13.4
Lithium metal: Indicate lithium metal content in gram (g):	N/A
Lithium hybrid: Indicate lithium metal content in gram (g) and watt-hour rating (Wh):	N/A g N/A Wh

7. Physical description of battery
92x41x27mm black battery with quick snap-in/out.

8. Model numbers
MC-BATTERY3, MP-09-014.

TESTS AND RESULTS

9. List of tests conducted and results - Mark N/A, pass or fail with an "•"	N/A	pass	fail
T1 - Altitude simulation	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
T2 - Thermal Test	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
T3 - Vibration	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
T4 - Shock	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
T5 - External Short Circuit	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
T6 - Impact - for cylindrical cells having a diameter of at least 18 mm See check point 1a and 9a.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
T6 - Crush - for prismatic cells, pouch cells, button cells and cylindrical cells having a diameter of less than 18 mm. See check point 1a and 9a.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
T7 - Overcharge	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
T8 - Forced Discharge, only valid for cells. See check point 1a and 9a.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Name/Description of battery (taken from field 1)
MC-BATTERY3, M5-1051-3600

9a. UN 38.3 Test Confirmation for the Cells inside the battery When no separate document for the cells is provided, this confirms that the cells inside the battery (see checkpoint 1.a.) have successfully passed the UN 38.3 test. In this case under checkpoint 9 the T.6 and T.8 must be marked as „passed“ and here under 9.a. „Cell UN 38.3 Test confirmed“ needs to be ticked.	<input checked="" type="radio"/>	Cell UN 38.3 Test confirmed	<input type="radio"/>	Cell UN 38.3 Test NOT confirmed	<input checked="" type="radio"/>
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10. Reference to assembled battery testing requirements		
TP-07-005 Test procedure for Battery MC-3 series.pdf TPR-2014-0002 Maintenance and SoC for batteries on stock.pdf		N/A

11. Reference to the revised edition of the Manual of Tests and Criteria used and to amendments thereto		
Sixth Revised Edition, Sub-Section 38.3.		

ADDITIONAL SUPPLIER INQUIRY

12. Quality management system for manufacturing batteries Does the manufacturer of the battery manufacture the products based on a documented quality management system according to transport regulations?	<input type="radio"/>	YES	<input type="radio"/>	NO	<input checked="" type="radio"/>
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13. Are the following parameters exceeded? Lithium ion battery: more than 100 Wh Lithium metal battery: more than 2 g Lithium Lithium hybrid Battery: more than 1,5 g Lithium and/or more than 10 Wh	<input type="radio"/>	YES	<input type="radio"/>	NO	<input checked="" type="radio"/>
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Check point 14 – 16 need to be answered when 13 has been ticked "YES":					
14. Does each battery incorporates a safety venting device or is designed to preclude a violent rupture under normal conditions of carriage?	<input type="radio"/>	YES	<input type="radio"/>	NO	<input checked="" type="radio"/>
15. Is each battery equipped with an effective means of preventing external short circuits?	<input checked="" type="radio"/>	YES	<input type="radio"/>	NO	<input type="radio"/>
16. Is each battery containing cells or series of cells connected in parallel equipped with effective means as necessary to prevent dangerous reverse current flow (e.g. diodes, fuses, etc.)?	<input type="radio"/>	N/A	<input checked="" type="radio"/>	YES	<input type="radio"/>

17. Only in air transport: State of Charge (SoC) for UN 3480 Lithium ion batteries and lithium polymer batteries					
State of Charge (SoC) max. 30 %	<input type="radio"/>	N/A	<input checked="" type="radio"/>	YES	<input type="radio"/>




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BATTERIES INSTALLED IN EQUIPMENT

18. Check point 18 needs to be answered when the batteries are installed in articles:					
18.a) Only button cells enclosed?	<input type="radio"/>	YES	<input type="radio"/>	NO	<input checked="" type="radio"/>
18.b) Number of enclosed batteries per equipment					max 2
When the equipment is intentionally active/switched on during transport e.g. data loggers:					
18.c) Confirmation that no dangerous amount of heat is emitted from the equipment	<input checked="" type="radio"/>	N/A	<input type="radio"/>	YES	<input type="radio"/>
18.d) Confirmation that the equipment when transported by air fulfills the defined air transport standards for electromagnetic radiation according to DO-160	<input checked="" type="radio"/>	N/A	<input type="radio"/>	YES	<input type="radio"/>

19. Place, Date	20. Title, Surname, First name	21. Company stamp and signature
Hell, 2020-01-07	Technical Manager, Arntsen, Stian	



BAK TECHNOLOGY(HK) CORPORATION LTD.

MATERIAL SAFETY DATA SHEET

Reference No.: 20160102001

Issued date: Jan. 01, 2016

Section 1: Chemical Product and Company Identification

Product Identification:

Trade Name: lithium ion battery (UN Number: UN3480)

Model: 103450AR2 7.4V 1800mAh 13.32Wh

Watt-hour Rating: 13.32Wh

Manufacture information:

Manufacturer: SHENZHEN BAK TECHNOLOGY CO., LTD

No.1706, Tianan Cyber Times Town, Tianan Cyber Park, Chegongmiao, FFutian, Shenzhen, China.

TEL: (86)755-83475268

FAX: (86)755-83475228

Section 2 Composition/Information on Ingredients

INGREDIENTS	Weight Percentage%(about)	CAS NO.
Cobaltic lithium oxide	35.05%	12190-79-3
Graphite powder	15.98%	7782-42-5
Rubber	10.36%	69028-37-1
Carbon black	0.79%	1333-86-4
Styrene-butadiene rubber(SBR)	0.71%	61789-96-6
Polypropylene	1.74%	9003-07-0
Polyethylene	1.27%	9002-88-4
Lithium hexafluorophosphate	1.27%	21324-40-3
Ethylene carbonate(EC)	6.34%	96-49-1
Diethyl carbonate(DEC)	4.76%	105-58-8
Propylene carbonate(PC)	1.11%	108-32-7
Polycaprolactam(NYLON6)	1.11%	25038-54-4
Copper	8.39%	7440-50-8
Aluminium	11.12%	7429-90-5

Section 3: Hazards Identification

The lithium-ion batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's risk of explode rupture, fire, heat, leakage of internal components, which could cause casualty loss. Abuses include but not limited to the following cases: charge for a long time, short circuit, put into fire, whack with hard object, puncture with acute object, crush, break.

Section 4: First-Aid Measures

The lithium batteries are not hazardous with eye and skin contact under normal circumstance, In case of fire or rupture, the leakage of internal hazardous substance and formation of hazardous substance would occur, take the following measures if contact with it:

Eye: Check for and remove any contact lenses. Immediately flush with plenty of clean water for at least 15 minutes; seek medical assistance;

Skin: Immediately flush with plenty of clean water for 15 minutes; seek medical assistance if severe;

Inhalation: If inhaled, remove to fresh air immediately, seek medical assistance, and ventilate the contaminated area.

Ingestion: Rinse mouth with clean water immediately, activate vomit under the direction of expert, and seek medical assistance.

Section 5: Fire- Fighting Measures

Extinguish with plenty of water, dry powder extinguishers, sands, earth. Combustion products and decomposed products by contact of water or air with internal substance include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

Section 6: Accidental Release Measures

When leakage of batteries happens, liquid could be absorbed with sands, earth or other inert substance, and the contaminated area should be ventilated meantime.

Section 7: Handling and storage

Don't handle and store battery with metalwork, Store and use far away from hest, sparks, open flame, or any other ignition sources, and under room temperature (<30⁰C) in ventilating and dehumidifying environments.

Section 8: Exposure Controls/Personal Protection

There is no need for protect under normal conditions. In engineering aspect, ventilation equipment should be installed. Gas mask, blinkers, gloves enduring chemical erosion and exposure suit are required when dealing with fire and leakage.

Section 9: Physical and Chemical properties

Batteries are not single chemical material; there are no specific physical and chemical properties such as melting point and boiling point.

Main purpose of lithium ion battery: used in portable and digital products.

Section 10: Stability and Reactivity

Batteries are safe under normal conditions. The following substance might appear after catching fire or leakage: organic carbonate, hydrogen fluoride, carbon monoxide, carbon dioxide, phosphorus fluoride.

Section 11: Toxicological Information

Batteries are not hazardous when used properly. If the Battery catch fire or the internal substance leaks, combustion products and decomposed products might have irritation and toxicity to skin, eye and respiratory systems, Toxicity data of some substance are listed following;

Hydrogen fluoride:

Extremely toxic, May be fatal if inhaled or ingested. Readily absorbed through the skin-skin contact may be fatal. Possible mutagen. LCL₀:50 ppm/30m (human beings), LC50; 1276 ppm/1h(rats).

Carbon and graphite:

Slightly hazardous in case of skin contact(irritant), of ingestion, of inhalation. Cause chronic damage to upper respiratory tract and cardiovascular system.

Copper:

Dust may cause respiratory irritation. LD50:3.5 mg kg⁻¹(mouse).

AI: There is on hazard.

Section 12: Ecological Information

There is no influence to ecology and environment when used properly.

Section 13: Disposal

Deserted battery couldn't be treated as ordinary trash. Be put to garbage box which recycle battery after being placed into plastic bags or be dealt as special trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly, The package and plastic box used for containing battery could be treated as ordinary trash. Best way is recycling.

Section 14: Transport Information

For the international transport of lithium battery, they must comply with these regulations. the international Maritime dangerous Goods (IMDG) Code by international Maritime Organization(IMO),Dangerous Goods Regulations(DGR) by international Air Transport Association(IATA) and Technical instructions for the safe Transport of Dangerous Goods by Air(TI) by international Civil Aviation Organization(ICAO).These regulations are based on the UN recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.

Lithium battery which meet the requirements of UN38.3(UN Manual of Tests and Criteria, Part III, subsection 38.3)could be transported by air and by sea. if the package meets the instruction of IATA-DGR, could be transported as ordinary goods, otherwise should be transported according to Class 9, Packing Group 1 hazardous goods.

According to UN classification: However this product's shipping name is "lithium ion battery"(or "lithium ion battery packed with equipment "or "lithium ion battery contained in equipment"),it is not recognized as "DANGROUS GOODS" when its transport condition accords with "packing instruction 965 section II of IATA-DGR"(or "Packing instruction 966 section II" or "Packing instruction 967 section II") or "special provision 188 of IMO-IMDG Code", it could be transported as ordinary goods.

1. For lithium ion battery, UN ID number is 3480.For lithium ion battery contained in equipment or lithium ion battery packed with equipment UN ID number is 3481.
2. The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the IATA 57th Effective 01 January 2016, Dangerous goods regulation and applicable carrier and government regulations.
3. For transported by air, Lithium-ion Battery shipped as "Not Restricted"
Cargo: Must comply with Part II of PI 965-PI967 accordingly; For cell, the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour rating should not be more than 100Wh.Watt-hour rating must be marked on the outside of the battery case (marked by manufacturer),
4. Each consignment must be accompanied with a document such as an air waybill with an indication. For those Lithium ion battery contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for BAK battery is 86-755-83476578.
5. For very small battery, up to 2.7Wh for lithium ion, the limit quantity per package shall not exceed 2.5kg. For 2.7Wh to 100Wh batteries, the limit quantity per package shall not exceed 2pcs.

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6. For lithium ion battery contained in equipment or lithium ion batteries packed with equipment, the battery limit quantity per package shall not exceed 5kg.
 7. Each package must be capable of withstanding a 1.2m drop test in any orientation without damage of battery contained therein.
 8. Lithium battery which meet the requirements of A154 could be transported by air ,and the battery manufactured by BAK meet these requirements (A154 Lithium batteries identified by the manufacturer as being defective for safety reasons, or that have been damaged, that have the potentially of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)
 9. Battery 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 short circuit.
 10. Transport condition should accord with “special provision 188 of IMO-IMDG Code”.

Section 15: Regulatory Information

OSHA hazard communication standard (20 CFR 1910.1200)

_____ Hazardous __________ Non-hazardous

Section 16: Other Information

This information is not effective to all battery manufactured by BAK, This information comes from reliable sources, but no warranty is made to the completeness and accuracy of information contained. BAK doesn't assume responsibility for any damage or loss because of misuse of batteries. Users should grasp the correct use method and be responsible for the use of battery.

深圳市比克科技有限公司
SHENZHEN BAK TECHNOLOGY CO.,LTD *Eddy*