

MB31 认证报告

Product Certification

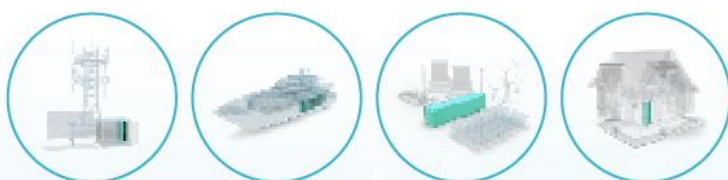
Liquid Cooling Battery Cluster

ROHS、新电池法规、REACH

版本 Version V1.0

编制：解决方案中心

Prepared by: ESS Solution Centre



武汉亿纬储能有限公司

EVE Energy Storage Co., Ltd.

地址：武汉东湖新技术开发区光谷大道 77 号

Address: No. 77, Guanggu Avenue, East Lake High-Tech Development Zone, Wuhan, Hubei, China

Website: www.evebattery.com

武汉亿纬储能有限公司

EVE Energy Storage Co., Ltd.

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修订履历 Change history

序号 No.	版本 Version	修订日期 Date	修订内容 Contents	修订人 Revised by
1	1.0	2024-02-19	首版发行 First release	/

1. ROHS、新电池法规、REACH 报告

Test Report -
Products

Report No.: 168460155a 001

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Client: EVE POWER CO., LTD.

Contact Information: No. 68, Jingnan Avenue, Jingmen Hi-tech Zone, Jingmen City, Hubei,
P.R. China

Test item(s): 26 materials

Identification/
Model No(s): MB31

Sample obtaining method: Sending by customer

Condition at delivery: Test item complete and undamaged.

Sample Receiving date: 2023-12-27

Testing Period: 2024-01-05 to 2024-01-15

Place of testing: Chemical laboratory Shenzhen

Test Specification:

1. Cadmium, Lead, Chromium (VI), Mercury, Polybrominated biphenyls (PBB) and Polybrominated diphenyl ethers (PBDE), ROHS Phthalates (BBP, DBP, DEHP, DIBP)
According to RoHS(recast): Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, 2011/65/EU Annex II and its amendment Directive (EU) 2015/863

Test result:

PASS

2. Heavy Metal Test for Battery - according to Annex I of Regulation (EU) 2023/1542

PASS

3. Risk Assessment of Articles: Screening of substances of very high concern (SVHC) subject to the candidate list by European Chemical Agency (ECHA) according to Regulation (EC) No 1907/2006 of REACH and its amendments

SVHC concentration(s) <
0.1%For and on behalf of
TÜV Rheinland (Shenzhen) Co., Ltd.

2024-01-16

Grid Guo / Engineer

Date

Name/Position

Sample information is provided by customer. Test result is drawn according to the kind and extent of tests performed.
This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.
"Decision Rule" document announced in our website (<https://www.tuv.com/landingpages/en/qm-gm/>) describes the statement of conformity and its rule of enforcement for test results are applicable throughout this test report.

TÜV Rheinland (Shenzhen) Co., Ltd. - 1F East & 3F West - 4F, Cybio Technology Building No.1, No. 16 Kejiwei 2nd Road,
High-Tech Industry Park North Nanshan District, 518057, Shenzhen, China
Tel.: (86) 755 8288 1188 Fax: (86) 755 2603 7102 Mail: service-sz@tuv.com Web: www.tuv.com

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Material List:

Item: MB31

Material No.	Material	Color	Location
M001	Plastic + adhesive	Blue	Refer to photo
M002	Plastic + adhesive	Black	Refer to photo
M003	Metal	Silver	Refer to photo
M004	Plastic	Beige	Refer to photo
M005	Plastic	Transparent Blue	Refer to photo
M006	Metal	Silver	Refer to photo
M007	Plastic	Black	Refer to photo
M008	Metal	Silver	Refer to photo
M009	Plastic	Black	Refer to photo
M010	Metal	Silver	Refer to photo
M011	Metal	Silver	Refer to photo
M012	Glue	Beige	Refer to photo
M013	Metal	Silver	Refer to photo
M014	Metal	Copper	Refer to photo
M015	Metal	Copper	Refer to photo
M016	Metal	Copper	Refer to photo
M017	Metal + plastic	Silver	Refer to photo
M018	Plastic	Transparent	Refer to photo
M019	Plastic	Transparent	Refer to photo
M020	Plastic + adhesive	Green	Refer to photo
M021	Plastic + adhesive	Transparent Yellow	Refer to photo
M022	Plastic + adhesive	Blue	Refer to photo
M023	Component(s)	Black	Refer to photo
M024	Component(s)	Black	Refer to photo
M025	Plastic	White	Refer to photo
M026	Battery	Multicolor	Refer to photo

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1. Screening Test by XRF spectroscopy

Test Method: Cadmium, Lead, Mercury, Chromium, Bromine
– With reference to IEC 62321-3-1:2013

Test Result:

Material No.	Cd	Cr	Pb	Hg	Br
M001	BL	BL	BL	BL	BL
M002	BL	BL	BL	BL	BL
M003	BL	BL	BL	BL	n.a.
M004	BL	BL	BL	BL	BL
M005	BL	BL	BL	BL	BL
M006	BL	BL	BL	BL	n.a.
M007	BL	BL	BL	BL	BL
M008	BL	BL	BL	BL	n.a.
M009	BL	BL	BL	BL	BL
M010	BL	BL	BL	BL	n.a.
M011	BL	BL	BL	BL	n.a.
M012	BL	BL	BL	BL	BL
M013	BL	BL	BL	BL	n.a.
M014	BL	BL	BL	BL	n.a.
M015	BL	BL	BL	BL	n.a.
M016	BL	BL	BL	BL	n.a.
M017	BL	BL	BL	BL	n.a.
M018	BL	BL	BL	BL	BL
M019	BL	BL	BL	BL	BL
M020	BL	BL	BL	BL	BL
M021	BL	BL	BL	BL	BL
M022	BL	BL	BL	BL	BL
M023	BL	BL	BL	BL	BL
M024	BL	BL	BL	BL	BL
M025	BL	BL	BL	BL	BL

Abbreviation: Pb = Lead
Cd = Cadmium
Hg = Mercury
Cr = Chromium
Br = Bromine
n.a. = Not applicable
BL = Below limit
OL = Over limit
d. = Detected

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Remark:

- (*1) The screening result was detected in the inconclusive region or over limits, thus the further wet chemistry tests are suggested.
- (*2) Component(s)/ materials(s) with an area of less than 2 mm x 2 mm will not be selected for testing according to RoHS Directive 2011/65/EU due to technical reason.
For the test sample does not have detail materials information provided by client, visually identical materials (e.g. wire insulation, solder points, etc.) will be considered as the same material.
Solder points on a printing circuit board will be examined several times based on optical anomalies or discoloration of the solder point(s) unless the solder point(s) is obviously generated automatically during production.
All other materials will be sampled and tested at one test point representatively.

XRF Screening limits for different matrices :

Material	Concentration (%)				
	Cd	Cr	Pb	Hg	Br
Polymeric	BL≤0.008<X<0.014≤ OL	BL≤0.064<X	BL≤0.067<X<0.133≤ OL	BL≤0.066<X< 0.134≤OL	BL≤0.029<X
Metallic	BL≤0.008<X<0.014≤ OL	BL≤0.064<X	BL≤0.067<X<0.133≤ OL	BL≤0.066<X< 0.134≤OL	n.a.
Composite materials	BL≤0.004<X<0.016≤ OL	BL≤0.044<X	BL≤0.047<X<0.153≤ OL	BL≤0.046<X< 0.154≤OL	BL≤0.024<X

Remark: The symbol "X" marks the region where further investigation is necessary.

	Cd	Cr(VI)	Pb	Hg	PBBs	PBDEs
Maximum permissible Limit (%)	0.01	0.1	0.1	0.1	0.1	0.1

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BBP, DBP, DEHP, DIBP content

Test Method: ref. to IEC 62321-8:2017

Test Result:

	BBP	DBP	DEHP	DIBP
Maximum permissible Limit (%)	0.1	0.1	0.1	0.1

Test No.	Material No.	RL (%)			
		BBP	DBP	DEHP	DIBP
		RL (%)			
		0.005	0.005	0.005	0.005
T001	M001 + M002 + M009	< RL	< RL	< RL	< RL
T002	M004 + M007 + M012	< RL	< RL	< RL	< RL
T003	M018 + M019 + M025	< RL	< RL	< RL	< RL
T004	M020 + M021 + M022	< RL	< RL	< RL	< RL
T005	M005 + M017	< RL	< RL	< RL	< RL

Abbreviation: BBP= Benzylbutyl phthalate
DBP= Dibutyl phthalate
DEHP= Bis(2-ethylhexyl) phthalate
DIBP= Diisobutyl phthalate
< = less than
RL = Reporting Limit
%= percentage

Remark:

- * The maximum permissible limit is required from the amendment (EU) 2015/863 of RoHS Directive 2011/65/EU.

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2.Heavy Metal Test for Battery - according to Annex I of Regulation (EU) 2023/1542

Test Method: Acid digestion, analyzed by ICP-OES/AAS

Test result

Test No.	Material No.	Test Parameter	Unit	RL	Regulatory requirement		Test Result
					Maximum Permissible Limit	Labelling Limit	
T001	M026	Cadmium	%	0.001	Portable batteries: 0.002	0.002	< RL
		Lead	%	0.001	Portable batteries: 0.01#	0.004	< RL
		Mercury	%	0.0005	0.0005	n.a.	< RL

Abbreviation: Pb = Lead
Cd = Cadmium
Hg = Mercury
n.a.= not applicable
RL = Reporting Limit
< = Less than

Remark:

- # According to Annex I of the Regulation (EU) 2023/1542, the Lead restriction shall apply to portable batteries and portable zinc-air button cells from 18 August 2024 and 18 August 2028 respectively.
- * According to Article 13(4) and 13(5) of the Regulation (EU) 2023/1542, all batteries shall be marked with the symbol indicating 'separate collection'; and all batteries containing more than 0.002% cadmium or more than 0.004% lead shall be marked with the chemical symbol for the metal concerned.

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3. Screening of Substances of Very High Concern (SVHC) subject to the Candidate List by European Chemical Agency (ECHA) according to Regulation (EC) No 1907/2006 of REACH and its amendments.

Obligation of Importer is necessary if the detected SVHC concentration in article level is >0.1%:
 To communicate information down the supply chain according to article. 33 of Regulation(EC) No 1907/2006. OR

1. Notification to ECHA, if the quantities of SVHC in the produced/imported articles are above 1 ton in total per year per company.
2. Provide sufficient information to ensure safe use of the article and, as a minimum, include the name of the substance, to their customers and on request to consumers within 45 days of the receipt of this request.

Test Method:

- 1) SVOC: organic solvent extraction, determination by GC-MS/ECD
- 2) VOC: organic solvent extraction, determination by GC-MS
- 3) VVOC: headspace-GC/MS analysis
- 4) non-VOC: organic solvent extraction, determination by LC-MS/MS.
- 5) inorganics: acid digestion, determination by ICP-OES

Test Result:

Test No.	Material No.	Result (%)
T001	M026	NMP:0.0301; Others:<RL

Abbreviation:

- < = Less than
- RL =Reporting Limit
- % =Percentage