



中国认可  
国际互认  
检测  
TESTING  
CNAS L4136



WTH23H06134181C



# Verification Report

**Report No.** : WTH23H06134181C  
**Applicant** : Zhengzhou BAK Battery CO.,LTD  
**Address** : 300 Meters of North Road,West Conjunction of Zhongxing Road and BAK Road,Zhongmou County,Zhengzhou City, Henan,P.R.China  
**Sample Name** : Cylindrical Lithium-ion Rechargeable Cell  
**Sample Model** : N18650CR-35E  
**Test Requested** : Refer to next page (s)  
**Test Conclusion** : Refer to next page (s)  
**Date of Receipt sample** : 2023-6-25  
**Testing period** : 2023-6-25 ~ 2023-6-30  
**Date of Issue** : 2023-6-30  
**Test Result** : Refer to next page (s)

**Prepared By:**

**Shenzhen Hongcai Testing Technology Co., Ltd.**

Address: Building B,Tianji Industrial Park,Floor 1&2&3 No.30-9 Laiyin Road, Xinsheng Community, Longgang Street, Longgang District,Shenzhen,Guangdong,China

Tel:+86-755-84616666/400-0066-989

E-mail:service@hct-test.com

Signed for and on behalf of  
Shenzhen Hongcai Testing Technology Co., Ltd.



Michael Huang

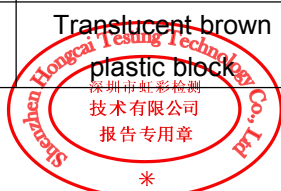
Shenzhen Hongcai Testing Technology Co., Ltd.

<http://www.hct-test.com>

Test Requested	Test Conclusion
Verify the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the sample with reference to EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863.	PASS

**Test Result(s):**

No.	Sample Description	Test Item(s)	ED-XRF Result(s) (1)	Chemical Result(s) (2)	Received Sample(s) Date	Note
1-1	Black printed purple plastic outer sheet	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-2	White plastic ring	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-3	Silver metal shell	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-4	Translucent brown plastic block	Pb	BL	---	2023-6-25	•
		Cd	BL	---		



No.	Sample Description	Test Item(s)	ED-XRF Result(s) (1)	Chemical Result(s) (2)	Received Sample(s) Date	Note
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-5	Silver white metal shell	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-6	Silver white metal cover	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-7	Translucent white plastic ring	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-8	Silver metal head	Pb	IN	ND	2023-6-25	•



No.	Sample Description	Test Item(s)	ED-XRF Result(s) (1)	Chemical Result(s) (2)	Received Sample(s) Date	Note
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-9	Blue plastic sheet	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
1-10	Black plastic sheet	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
1-11	Translucent green plastic sticker	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
		Pb	BL	---		
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		



No.	Sample Description	Test Item(s)	ED-XRF Result(s) (1)	Chemical Result(s) (2)	Received Sample(s) Date	Note
1-12	White plastic film	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-13	Silver, copper metal sheet	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-14	Silver white metal sheet	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-15	Translucent yellow adhesive tape	Pb	BL	---	2023-6-25	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		



No.	Sample Description	Test Item(s)	ED-XRF Result(s) (1)	Chemical Result(s) (2)	Received Sample(s) Date	Note
		DIBP	NA	ND		
1-16	Copper metal foil with black substance	Pb	BL	---	2023-6-25	●
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
1-17	Silver metal foil with black substance	DIBP	NA	ND	2023-6-25	●
		Pb	BL	---		
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		

**Note:**

●=Actual tested sample



### Remark:

(1): ED-XRF test

(a) For the restricted substances PBBs/PBDEs, the ED-XRF results show the total Br content; for the restricted substance Cr(VI), the ED-XRF results show the total Cr content.

(b) Results were obtained by ED-XRF for primary screening, and further chemical testing are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Unit: mg/kg

Elements	Polymers	Metals	Composite material
Pb	$BL \leq 100 < X < 1200 \leq OL$	$BL \leq 100 < X < 1200 \leq OL$	$BL \leq 80 < X < 1300 \leq OL$
Cd	$BL \leq 30 < X < 120 \leq OL$	$BL \leq 30 < X < 120 \leq OL$	$BL \leq 30 < X < 120 \leq OL$
Hg	$BL \leq 100 < X < 1200 \leq OL$	$BL \leq 100 < X < 1200 \leq OL$	$BL \leq 80 < X < 1300 \leq OL$
Cr	$BL \leq 200 < X$	$BL \leq 200 < X$	$BL \leq 150 < X$
Br	$BL \leq 200 < X$	---	$BL \leq 200 < X$

(c) BL=Below Limit by ED-XRF analysis, OL=Over Limit by ED-XRF analysis, IN=Inconclusive, NA=Not Applicable, --- = Not regulated, X=need further chemical analysis

(d) For composite material, the ED-XRF results may be different to the actual content in the sample.

(2): Chemical test and regulatory limits

Test Items		Test Method	Test Equipment	MDL	Limit(by weight in homogeneous materials)
Pb		IEC 62321-5:2013	ICP-OES/AAS	2mg/kg	1000mg/kg
Cd		IEC 62321-5:2013	ICP-OES/AAS	2mg/kg	100mg/kg
Hg		IEC 62321-4:2013+AMD1:2017	ICP-OES	2mg/kg	1000mg/kg
Cr(VI)	Metal	IEC 62321-7-1:2015	UV-VIS	0.10 $\mu$ g/cm <sup>2</sup>	1000mg/kg
	Others	IEC 62321-7-2:2017	UV-VIS	8mg/kg	
PBBs		IEC 62321-6:2015	GC-MS	5mg/kg(Each)	1000mg/kg(Sum)
PBDEs		IEC 62321-6:2015	GC-MS	5mg/kg(Each)	1000mg/kg(Sum)
DBP		IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
BBP		IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
DEHP		IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
DIBP		IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg

(a) Unit of Chemical test result: Cr(VI) of metal: $\mu$ g/cm<sup>2</sup>, Other:mg/kg;

$\mu$ g/cm<sup>2</sup> (microgram per square centimeter)

1mg/kg=1ppm=0.0001%, mg/kg (milligram per kilogram) = ppm (parts per million)

ND=not detected (less than method detection limit),

MDL=Method Detection Limit, --- =Not Conducted

(b) For corrosion-protected coatings on metals

a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu$ g/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI);



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b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than  $0.10\mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) based coating;

c. The result between  $0.10\mu\text{g}/\text{cm}^2$  and  $0.13\mu\text{g}/\text{cm}^2$  is considered to be inconclusive -unavoidable coating variations may influence the determination;

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

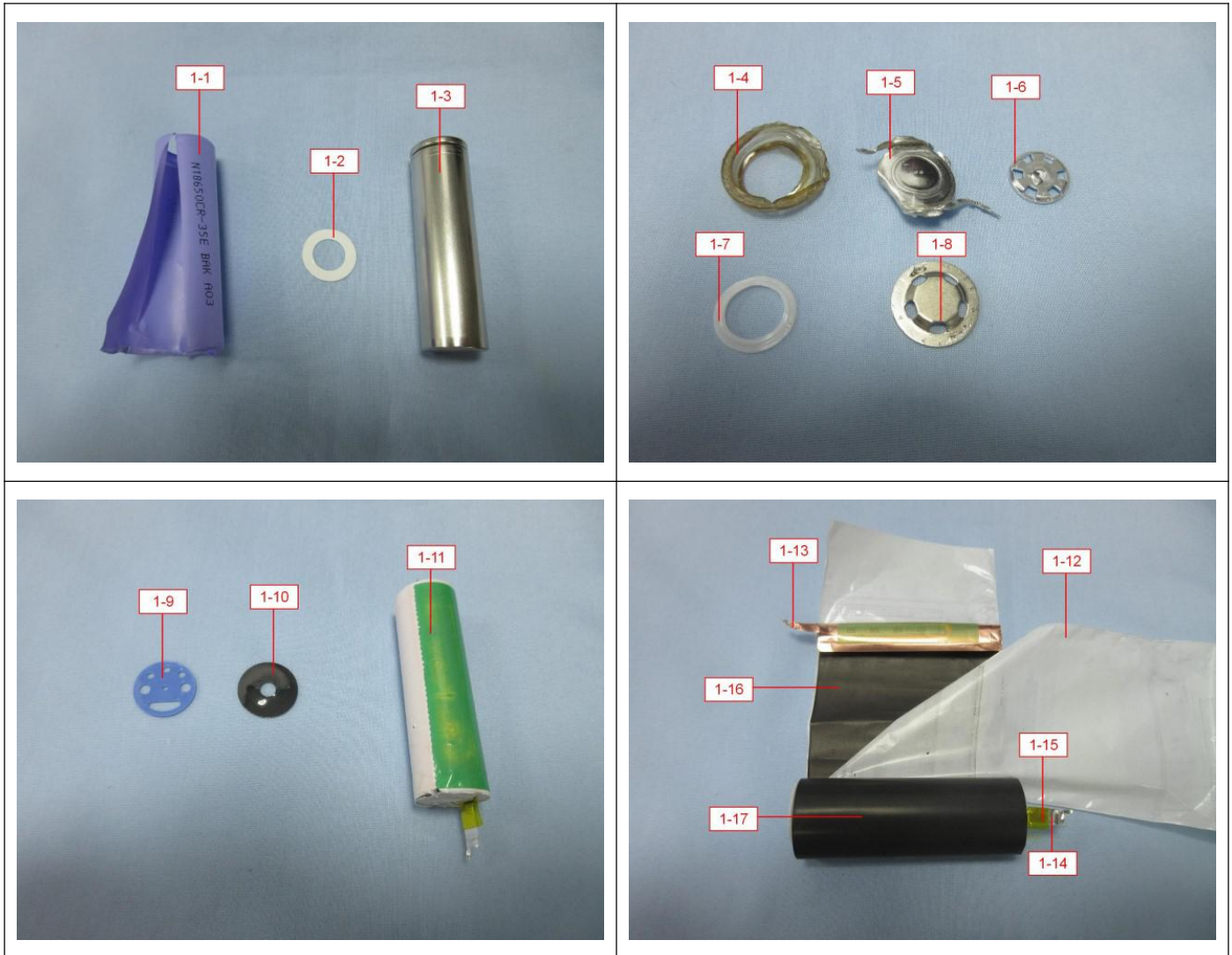
(3): Screening and chemical tests were performed for the samples indicated by the photo in this report.

The photo of the sample



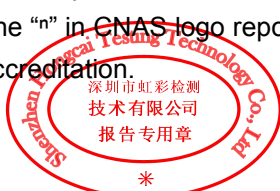


**The photo of Disassembly**



**Statement:**

1. This report is considered invalid without approved signature and special seal.
2. The Applicant name and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which HCT hasn't verified.
3. The result(s)(conclusion) shown in this report refer(s) only to the sample(s) tested.
4. Without written approval of HCT, this report can't be reproduced except in full.
5. The result(s) in no CMA logo report shall only be used for client's scientific research, teaching, internal quality control, product research and development, etc..and just for internal reference.
6. The "n" in CNAS logo report means that the test item(s) was (were) currently not applying for CNAS accreditation.



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7. Decision rules used in this report:

(1) According to the Decision rules in the regulations/standards listed in the Test Requested;

(2) If there is no Decision rules specified in the regulations listed in the Test Requested, then according to CNAS-GL015 Guidelines on Decision Rules and Statements of Conformity, 6.2.1, Simple Acceptance ( $w=0$ ) of The binary Decision rule:

PASS (Accepted) - The measured value is within the tolerance interval.

FAIL (Rejected) - The measured value is outside the tolerance interval.

===== End of Report =====

