

Test Report

No.: HKGEC25002163702

Date: Jan 07, 2026

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Client Name:

Client Address:

Sample Name: ALKALINE ZINC MANGANESE DIOXIDE BUTTON CELL

Manufacturer:

Origin of the Product(s): CHINA

Destination of the Product(s): EUROPE, USA

Item No.: L521C (AG0, 379, LR63, LR521) L621C (AG1, 364, LR60, LR621) L726C (AG2, 396, LR59, LR726) L736C (AG3, 392, LR41, LR736) L626C (AG4, 377, LR66, LR626) L754C (AG5, 393, LR48, LR754) L921C (AG6, 370, LR69, LR921) L926C (AG7, 395, LR57, LR926) L1121C (AG8, 391, LR55, LR1121) L936C (AG9, 394, LR45, LR936) L1131C (AG10, 390, LR54, LR1131, LR1130) L721C (AG11, 344, LR58, LR721) L1142C (AG12, 386, LR43, LR1142) L1154C (AG13, LR44, 357, LR1154) L416C (LR416, 416) L516C (LR516, 317, 516) L616C (LR616, LR65, 321, 616) LR932 LR732

Colour: SILVERY

The above sample(s) and information were provided by the client.

SGS Job No.: 5670677

Reference No.: 2512107

Sample Receiving Date: Dec 18, 2025

Testing Period: Dec 18, 2025 ~ Jan 02, 2026

Test Requested: Select test(s) as requested by the client.

Test Method(s): Please refer to next page(s).

Test Result(s): Please refer to next page(s).

Test Requirement	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	See Results

Signed for and on behalf of
SGS Hong Kong Limited



Lam Ka Yung, Allen
Approved Signatory

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Test Requirement	Conclusion
US Mercury-Containing Battery Management Act Public Law 104-142(1996)-Mercury (Hg)	Pass
Canadian Environmental Protection Act (S.C. 1999, c. 33), Mercury Regulations (SOR/2024-109 amending SOR/2014-254) - Mercury (Hg)	Pass
Annex I of Regulation (EU) 2023/1542– Heavy Metals Content in batteries and waste batteries	Pass

Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A13	HKG25-0021637-0001.C013	Button cell
SN2	A14	HKG25-0021637-0001.C014	Silver metal - Case
SN3	A15	HKG25-0021637-0001.C015	Core

Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A13
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit(s)	MDL	A13
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis(2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Diisobutyl phthalate (DIBP)	1000	mg/kg	50	ND

Notes:

- (1) Quoted limit is referred to RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU. According to the document of Frequently Asked Questions on RoHS and WEEE published from European Commission in May 2005, the battery does not apply to RoHS Directive.
- (2) The measurement report of the expanded uncertainty with confident level 95% by coverage factor k=2, is 20% for each analyte of for Cd, Pb, Hg and Cr(VI).
- (3) The measurement report of the expanded uncertainty with confident level 95% by coverage factor k=2, is 30% for each analyte of for PBBs and PBDEs.
- (4) The measurement report of the expanded uncertainty with confident level 95% by coverage factor k=2, is 25% for each analyte of for DBP, BBP, DEHP and DIBP.

US Mercury-Containing Battery Management Act Public Law 104-142(1996)-Mercury (Hg)

Test Method: SGS In House Method, analysis was performed by ICP-OES or Hg-analyzer.

Test Item(s)	Limit	Unit(s)	MDL	A13
Mercury(Hg)	*	mg/cell	0.1	ND
Conclusion				Pass

Notes:

- (1) *Limit shown is with reference to the US Mercury - Containing Battery Management Act Public Law No 104-142 (1996).
- (2) Mercury Reference Information: (requirement of the US Mercury – Containing Battery Management Act Public Law No. 104-142 (1996)).
 - a) No person shall sell, offer for sale, or offer for promotional purposes any alkaline-manganese battery manufactured on or after the date of enactment of this Act, with a mercury content that was intentionally introduced (as distinguished from mercury that may be incidentally present in other materials), except that the limitation on mercury content in alkaline-manganese button cells shall be 25 milligrams of mercury per button cell.

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b) No person shall sell, offer for sale, or offer for promotional purposes any zinc-carbon battery manufactured on or after the date of enactment of this Act, that contains mercury that was intentionally introduced.

c) No person shall sell, offer for sale, or offer for promotional purposes any button cell mercuric-oxide battery for use in the United States on or after the date of enactment of this Act.

d) On or after the date of enactment of this Act, no person shall sell, offer for sale, or offer for promotional purposes a mercuric-oxide battery for use in the United States.

Table 1

	MDL	Limit*
Alkaline-manganese button cell	0.1mg/cell	25mg/cell
Zinc-Carbon battery	0.1mg/kg	ND
Alkaline-manganese battery	0.1mg/kg	ND
Other battery	0.1mg/kg	-

Canadian Environmental Protection Act (S.C. 1999, c. 33), Mercury Regulations (SOR/2024-109 amending SOR/2014-254) - Mercury (Hg)

Test Method: SGS In House Method, analysis was performed by ICP-OES or AAS or Hg-analyzer.

Test Item(s)	Limit	Unit(s)	MDL	A14	A15
Mercury(Hg)	5	mg/kg	1	ND	ND
Conclusion				Pass	Pass

Annex I of Regulation (EU) 2023/1542– Heavy Metals Content in batteries and waste batteries

Test Method: SGS In House Method, analysis was performed by ICP-OES or AAS or Hg-analyzer.

Test Item(s)	Limit	Unit(s)	MDL	A13
Lead(Pb)	0.01	%	0.0010	ND
Cadmium(Cd)	0.002	%	0.0010	ND
Mercury(Hg)	0.0005	%	0.0001	ND
Conclusion				Pass

Notes:

(1) Restriction on substances

Column 1 Designation of the substance or group of substances	Column 2 Conditions of restriction
1. Mercury CAS No 7439-97-6 EC No 231-106-7 and its compounds	Batteries, whether or not incorporated into appliances, light means of transport or other vehicles, shall not contain more than 0,0005 % of mercury (expressed as mercury metal) by weight
2. Cadmium CAS No 7440-43-9 EC No 231-152-8 and its compounds	Portable batteries, whether or not incorporated into appliances, light means of transport or other vehicles, shall not contain more than 0,002 % of cadmium (expressed as cadmium metal) by weight

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3. Lead CAS No 7439-92-1 EC No 231-100-4 and its compounds	1. From 18 August 2024, portable batteries, whether or not incorporated into appliances, shall not contain more than 0,01 % of lead (expressed as lead metal) by weight. 2. The restriction set out in point 1 shall not apply to portable zinc-air button cells until 18 August 2028.
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(2) According to the EU New Battery Regulation (EU) 2023/1542, portable batteries (non portable zinc-air button cells) containing between 0,004 %-0.01 % lead, shall be marked with the chemical symbol for the metal concerned: Pb.

Unless otherwise stated, the decision rule for conformity reporting is based on the non-binary statement with guard band (is equal to the expanded measurement uncertainty with a 95% coverage probability, $w = U95$) in ILAC-G8:09/2019 Clause 4.2.3.

A. "Pass - the measured value is within (or below / above) the acceptance limit, where the acceptance limit is below / above to the guard band." or "Pass - The measured values were observed in tolerance at the points tested. The specific false accept risk is up to 2.5%."

B. "Conditional Pass - The measured values were observed in tolerance at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values exceeded / out of tolerance. When the measured result is close to the tolerance, the specific false accept risk is up to 50%."

C. "Conditional Fail - One or more measured values were observed out of tolerance at the points tested. However, a portion of the expanded measurement uncertainty intervals about one or more measured values were in tolerance. When the measured result is close to the tolerance, the specific false reject risk is up to 50%."

D. "Fail - the measured value is out of (or below / above) the tolerance limit added / subtracted to the guard band." or "Fail - One or more measured values were observed out of tolerance at the points tested". The specific false reject risk is up to 2.5%.

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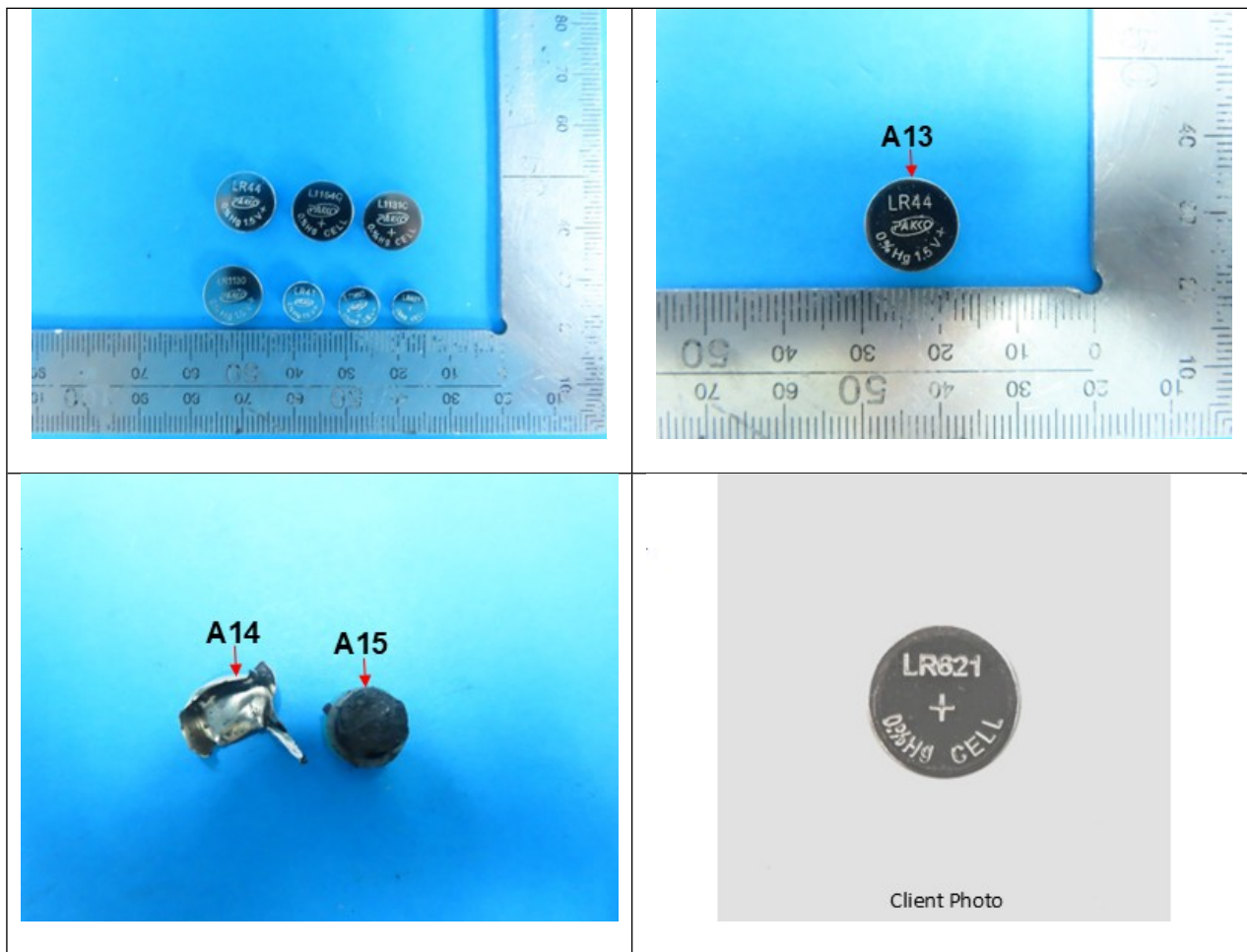
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