



Test Report

No.: HKHL1501003815JL-03

Date: APR 24, 2015

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NEW LEADER BATTERY LTD.
FLAT A, 4/F, BLOCK 1, CAMELPAINT BUILDING, 62 HOI YUEN ROAD, KWUN TONG, KOWLOON, HONG KONG

This report supersedes all previous documents bearing the test report number HKHL1501003815JL-02.

The following samples were submitted and identified on behalf of the client as:

ALKALINE MERCURY FREE BUTTON CELL

LR41 (VENC)

LR41 (EXP)

LR41 (HG.PB)

G3/ LR41/ 392/ 192

SGS Case No. : HKHL150100002348
Style / Item No. : NL-0.%HG LR41
Sample Receiving Date : JAN 20, 2015
Test Performing Date : JAN 20 – FEB 02, 2015

Test Requested : Please refer to the result summary.

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

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Result Summary :

Test Requested	Conclusion
1. European Directive 2006/66/EC and its amendments (2013/56/EU) – Lead, Cadmium and Mercury Content (Selected part as specified by client)	PASS
2. US Public Law No 104-142 (1996) Title II – Mercury-Containing Battery Management Act – Mercury Content (Selected part as specified by client)	PASS
3. Mercury requirement in compliance with various USA States requirement (Selected part as specified by client)	PASS
4. Cadmium, Lead, Mercury, Hexavalent Chromium, Polybromobiphenyl (PBB) and Polybromodiphenyl ether (PBDE) content (As per client's request) (Selected part as specified by client)	PASS

Signed for and on behalf of
SGS Hong Kong Ltd.



Che Wai Leuk, Jerry
Section Manager

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Test Results :

1. European Directive 2006/66/EC and its amendments (2013/56/EU) – Lead, Cadmium and Mercury Content

Method : Acid digestion followed by Atomic Absorption Spectrometry analysis.

For button cells:

Test Item	Result (%)	Reporting Limit (%)	Labelling requirement (%)	Permissible Limit (%)
	1			
Lead (Pb)	0.003	0.001	> 0.004	--
Cadmium (Cd)	ND	0.001	> 0.002	0.002
Mercury (Hg)	ND	0.0001	> 0.0005	2 ^{##}
Comment	PASS	--	--	--

Sample Description :

1. ALKALINE MERCURY FREE BUTTON CELL (NL-0.%HG LR41)

Note : 1. % = percentage by weight
 2. > = greater than
 3. ND = Not Detected
 4. ^{##} = According to Directive 2013/56/EU, mercury content in button cell shall not exceed 0.0005% on or after 2 October 2015.

2. US Public Law No 104-142 (1996) Title II – Mercury-Containing Battery Management Act – Mercury Content

Method : Acid digestion followed by Atomic Absorption Spectrometry analysis.

For battery except alkaline manganese button cell :

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Requirement
	1		
Mercury (Hg)	ND	1	Prohibited
Comment	PASS	--	--

Sample Description :

1. ALKALINE MERCURY FREE BUTTON CELL (NL-0.%HG LR41)

Note : 1. mg/cell = milligram per cell
 2. mg/kg = milligram per kilogram
 3. ND = Not Detected

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Test Results (Cont'd) :

3. Mercury requirement in compliance with various USA States requirement

Test Item	Result (mg/kg)	Reporting Limit (mg/kg)	Requirement
	1		
Mercury (Hg)	ND	1	Prohibited
Comment	PASS	--	--

State	Act/Regulation	Scope	Requirement	Effective date
Connecticut	Public Act 06-181 (HB 5446, 2006)	Button cell batteries containing mercury	Prohibited	July 1, 2011
Maine	Public Law, Chapter 86 (LD 1026, 124th Maine State Legislature)	Mercury-added button cell batteries	Prohibited	July 1, 2011
Rhode Island	H 6396, Chapter 387 (2007)	Mercury-added button cell batteries	Prohibited	July 1, 2011

Sample Description :

1. ALKALINE MERCURY FREE BUTTON CELL (NL-0.%HG LR41)

- Note :
1. mg/cell = milligram per cell
 2. mg/kg = milligram per kilogram
 3. ND = Not Detected

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Test Results (Cont'd) :

4. Cadmium, Lead, Mercury, Hexavalent Chromium, Polybromobiphenyl (PBB) and Polybromodiphenyl ether (PBDE) content (As per client's request)

Method : With reference to IEC 62321:2008, IEC 62321-4:2013, IEC62321-5:2013. Lead, Cadmium and Mercury were analyzed by Inductively Coupled Argon Plasma Spectrometry, Chromium (VI) was analyzed by UV-Visible Spectroscopy and PBB, PBDE were analyzed by Gas Chromatography – Mass Spectrometry (GC-MS).

Test Item	Result (mg/kg)		Reporting Limit (mg/kg)	Permissible Limit (mg/kg)
	1			
Cadmium (Cd)	ND		5	100
Lead (Pb)	29		5	1000
Mercury (Hg)	ND		5	1000
Hexavalent Chromium by spot test / boiling (Cr(VI)) water extraction	Negative		#	#
Sum of PBBs	ND		--	1000
Monobromobiphenyl	ND		5	--
Dibromobiphenyl	ND		5	--
Tribromobiphenyl	ND		5	--
Tetrabromobiphenyl	ND		5	--
Pentabromobiphenyl	ND		5	--
Hexabromobiphenyl	ND		5	--
Heptabromobiphenyl	ND		5	--
Octabromobiphenyl	ND		5	--
Nonabromobiphenyl	ND		5	--
Decabromobiphenyl	ND		5	--
Sum of PBDEs	ND		--	1000
Monobromodiphenyl ether	ND		5	--
Dibromodiphenyl ether	ND		5	--
Tribromodiphenyl ether	ND		5	--
Tetrabromodiphenyl ether	ND		5	--
Pentabromodiphenyl ether	ND		5	--
Hexabromodiphenyl ether	ND		5	--
Heptabromodiphenyl ether	ND		5	--
Octabromodiphenyl ether	ND		5	--
Nonabromodiphenyl ether	ND		5	--
Decabromodiphenyl ether	ND		5	--
Comment	PASS		--	--

Sample Description:

1. ALKALINE MERCURY FREE BUTTON CELL (NL-0.%HG LR41)

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Test Results (Cont'd) :

Note : 1. mg/kg = milligram per kilogram
2. ND = Not Detected

Remark : 1.# = Negative means the absence of CrVI on the tested areas; Positive means the presence of CrVI on the tested areas. The detected CrVI concentration in the boiling-water-extraction solution is equal to or greater than 0.02 mg/kg with 50cm² sample surface area.

Photo Appendix



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Sample as received

*** End of Report ***

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