

Test Report

No. SZXEC1800251101

Date: 14 Mar 2018

Page 1 of 8

LONG KE ELECTRONICS (HUIYANG) CO LTD

JIN QIU RD (EAST OF TOWN GOVERNMENT) QIU CHANG TOWN HUIYANG DISTRICT
HUIZHOU GUANGDONG 516221 CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : MOV(Silver electrodes)

SGS Job No. : RP18-002441 - SZ

Date of Sample Received : 08 Mar 2018

Testing Period : 08 Mar 2018 - 13 Mar 2018

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

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

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

Conclusion : Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) do not exceed the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch



Kenny Li
Approved Signatory



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Testing Center Chemical Laboratory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX18-002511.001	Green material 1#
SN2	SZX18-002511.002	Silvery metal pin 2#
SN3	SZX18-002511.003	Silvery metal w/ silver white surface 3#
SN4	SZX18-002511.004	Dk-gray material 4#

Remarks :

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

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001	004
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	14
Mercury (Hg)	1,000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	8	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND
Decabromobiphenyl	-	mg/kg	5	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND



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Test Report

No. SZXEC1800251101

Date: 14 Mar 2018

Page 3 of 8

Test Item(s)	Limit	Unit	MDL	001	004
Dibromodiphenyl ether	-	mg/kg	5	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	002	003
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	27
Mercury (Hg)	1,000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND



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Test Report

No. SZXEC1800251101

Date: 14 Mar 2018

Page 4 of 8

Test Item(s)	Limit	Unit	MDL	002	003
Nonabromobiphenyl	-	mg/kg	5	ND	ND
Decabromobiphenyl	-	mg/kg	5	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND
Dibromodiphenyl ether	-	mg/kg	5	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm2. The sample coating is considered to contain CrVI
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm2). The coating is considered a non-CrVI based coating
 c. The result between 0.10 µg/cm2 and 0.13 µg/cm2 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.



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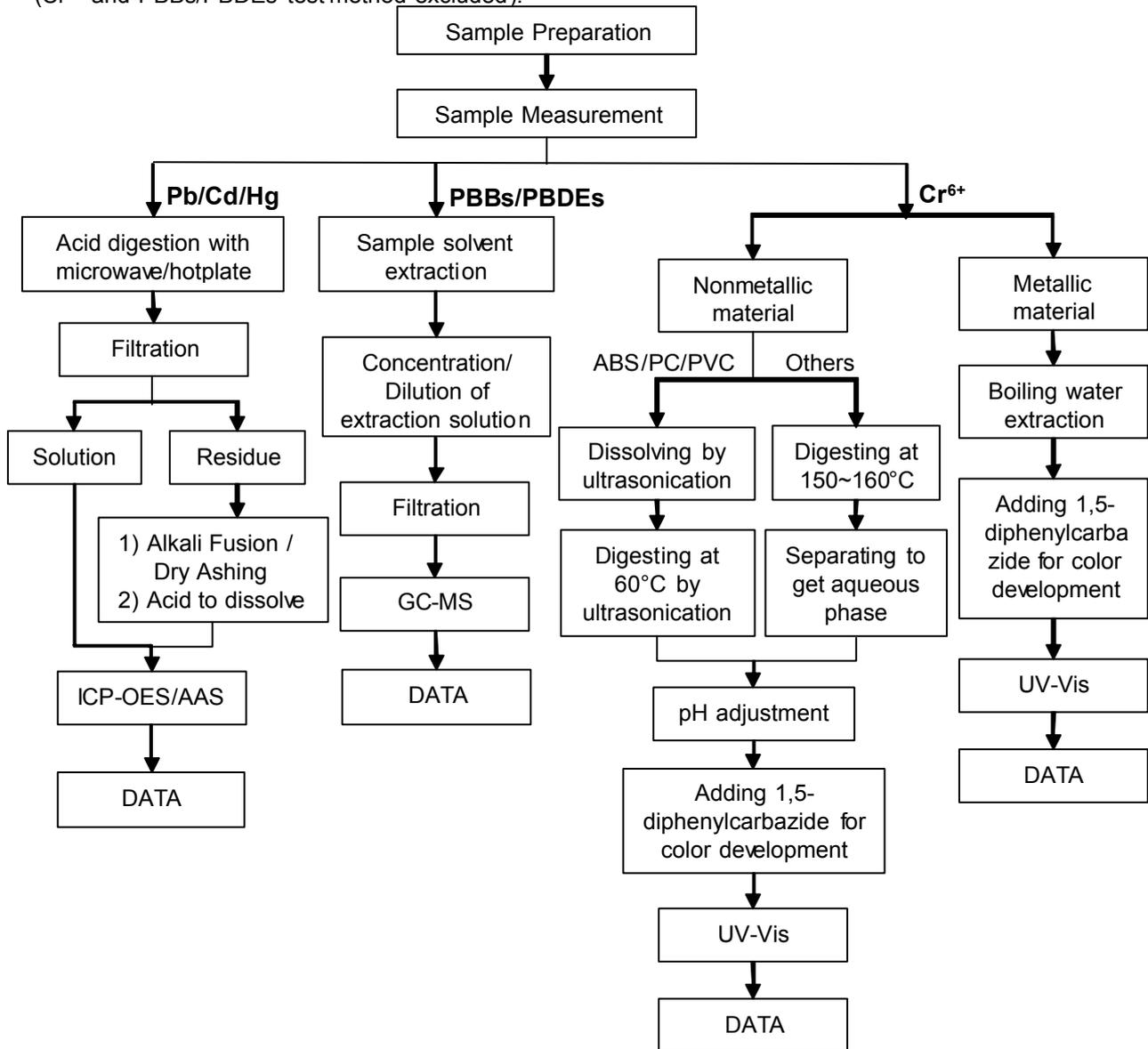
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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Winsen Deng / David Mai / Truly Ren
- 2) Name of the person in charge of testing: Zoe Luo / Roje Zhou / Muky Tong
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded).



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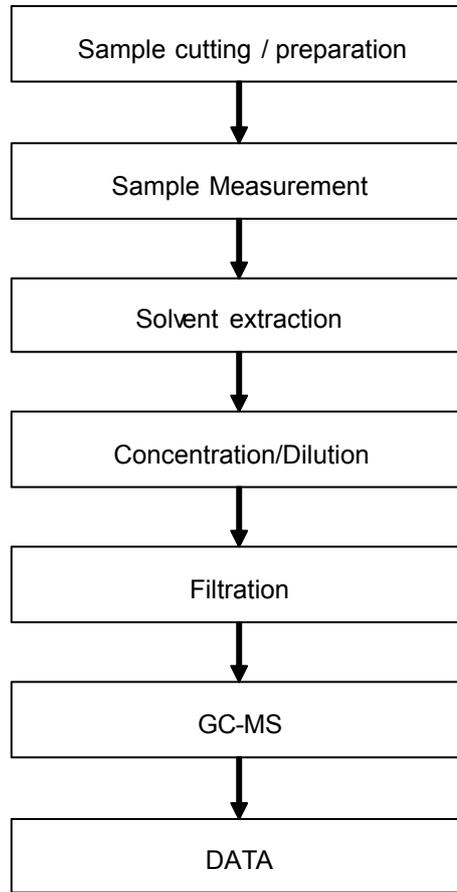
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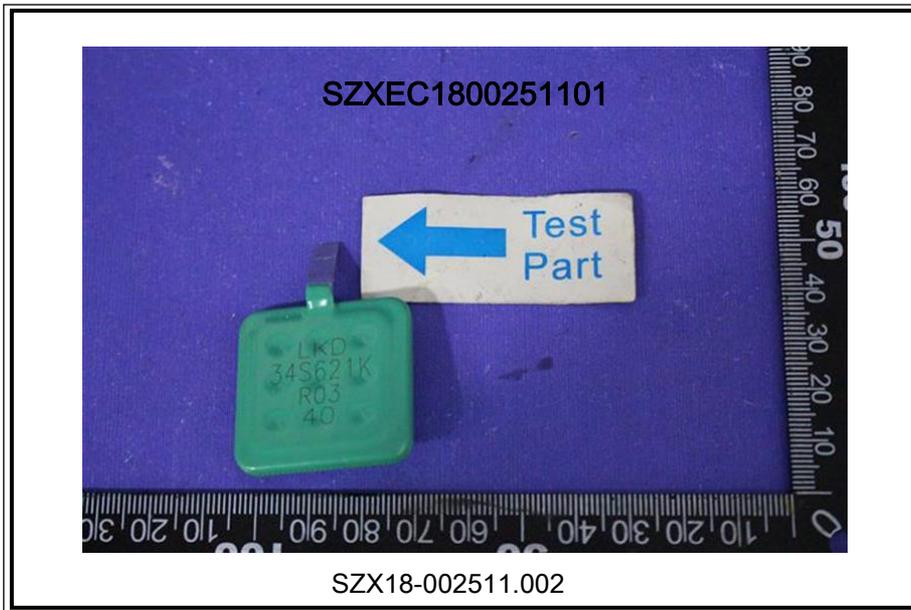
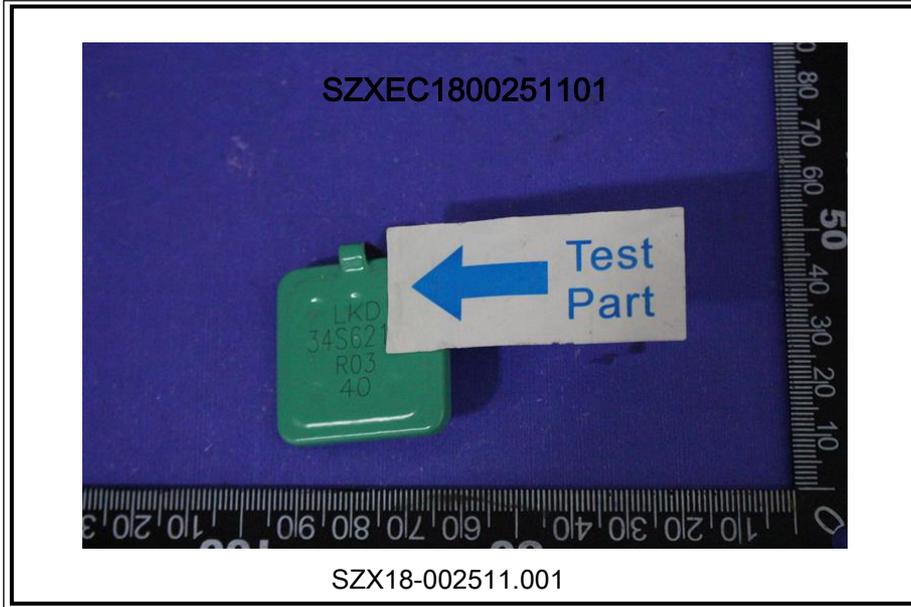
ATTACHMENTS

Phthalates Testing Flow Chart

- 1) Name of the person who made testing: David Mai
- 2) Name of the person in charge of testing: Roje Zhou

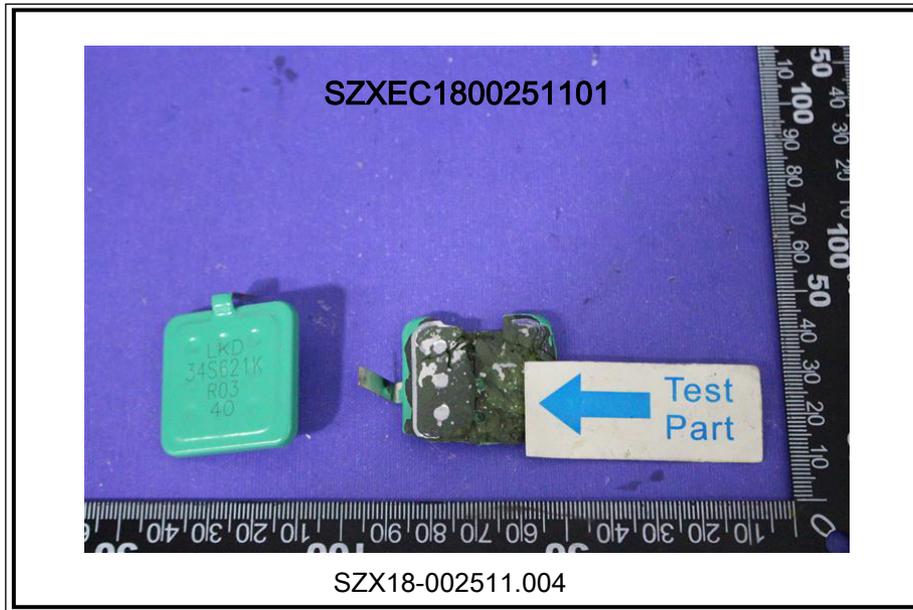
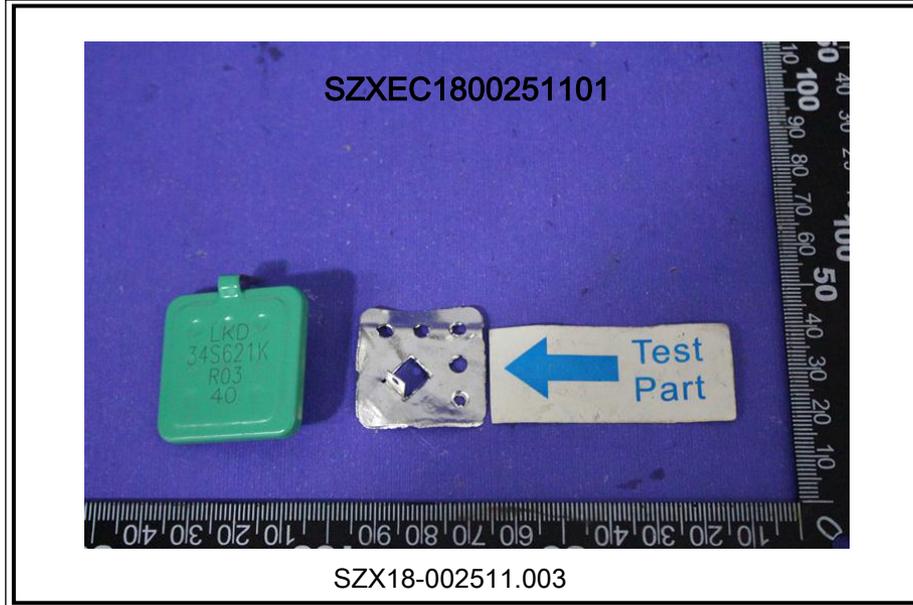


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