

Test Report

No. SZXEC2000949501

Date: 15 May 2020

Page 1 of 9

ZHUHAI WORLDWIDE OPTOELECTRONICS TECHNOLOGY CO.,LTD

NO.3,PINGDONG 6 ROAD,TECHNICAL AND INDUSTRIAL PAK IN NANPING,ZHUHAI.CHINA

This report is to supersede test report SZXEC1902191001

The following sample(s) was/were submitted and identified on behalf of the clients as : L5IR4-B45

SGS Job No. : RP20-008621 - SZ

Client Ref. Info. : LED SERIES: L3IR3-30、L3IR3-45、L3IR3-60、L3IR4-1-30、L3IR4-1-45、
L3IR4-1-60、L3IR5-30、L3IR5-45、L3IR5-60、L3IR3W-45、L3IR4W-45、
L3IR4P、L3IR5-B45-C、L4.8IR5-90、L4IR4-1-60、L4IR4-60、L5IR4-10、
L5IR4-1-90、L5IR4-1-45、L5IR4-30、L5IR4-45、L5IR4-60、L5IR4-B45-C-L6、
L5IR4P、L5IR5-30D、L5IR5-45、L5IR5-60、L5IR5-90D、L5IR5-B30D-C-L6、
L5IR5-B45D-C-L6、L5IR4P、L5IR5-B60D-C-L6、L5IR5W-45、L5IR4W-1-30、
L5IR5W-60D、L5IR5W-B45、L5IR5-10、L5IR5N-30-C-L6、L5IR850B-30、
L5IR850B-60、L5IR850A-30、L3IR850A-P、2CU、3DU、F3red、F3blue、
F3green、F3yellow、F3yellowgreen、F3redblue、F3redgreen、F3redyellow、
F3redyellowgreen、F5red、F5blue、F5green、F5yellow、F5yellowgreen、
F5redblue、F5redgreen、F5redyellow、F5redyellowgreen、F7yellowgreen、
4025IR、0402red、0402blue、0402green、0402yellow、0402yellowgreen、
0603red、0603blue、0603green、0603yellow、0603yellowgreen、
0603redyellowgreen、0805red、0805blue、0805green、0805yellow、
0805orange、0805white、0805yellowgreen、0805redyellowgreen、1206IR、
1206PT、1206red、1206blue、1206green、1206yellow、1206orange、
1206white、1206yellowgreen、1206redyellowgreen、1206redgreen、
3528red、3528blue、3528green、3528yellow、3528yellowgreen、
3528redblue、3528redgreenblue、5050white、5050redgreenblue

Date of Sample Received : 16 Oct 2019

Testing Period : 16 Oct 2019 - 22 Oct 2019

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



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Test Report

No. SZXEC2000949501

Date: 15 May 2020

Page 2 of 9

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 Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with 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



Kitty Xu

Approved Signatory



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Test Report

No. SZXEC2000949501

Date: 15 May 2020

Page 3 of 9

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX20-009495.001	Blue plastic
SN2	SZX20-009495.002	Silver-grey metal pin
SN3	SZX20-009495.003	Silver-grey metal

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+AMD1:2017, 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
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND



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Test Report

No. SZXEC2000949501

Date: 15 May 2020

Page 4 of 9

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

Notes :

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

IEC 62321 series is equivalent to EN 62321 series

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

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

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

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis.

Test Item(s)	Limit	Unit	MDL	002	003
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	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

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Test Report

No. SZXEC2000949501

Date: 15 May 2020

Page 5 of 9

- (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.

Remark: This report updates Client Ref Info..



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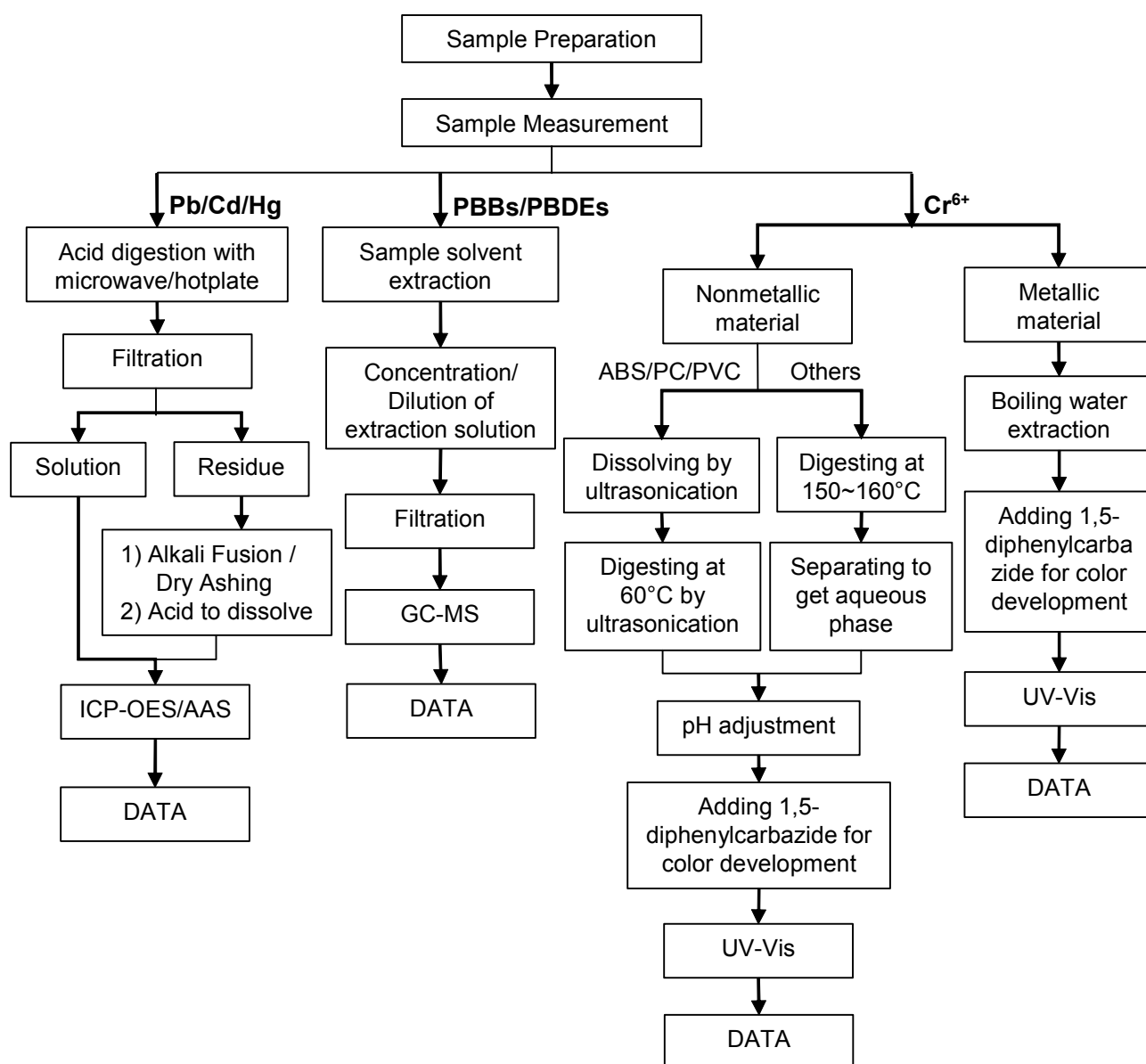
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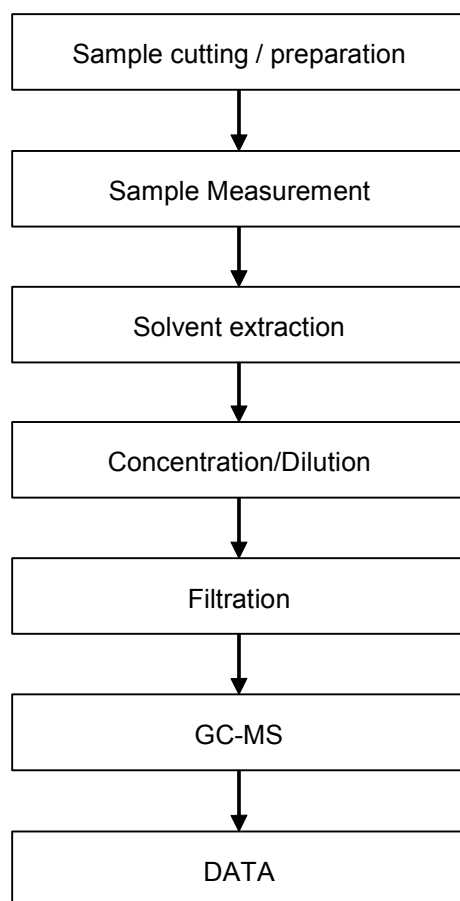
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded).



ATTACHMENTS

Phthalates Testing Flow Chart



Test Report

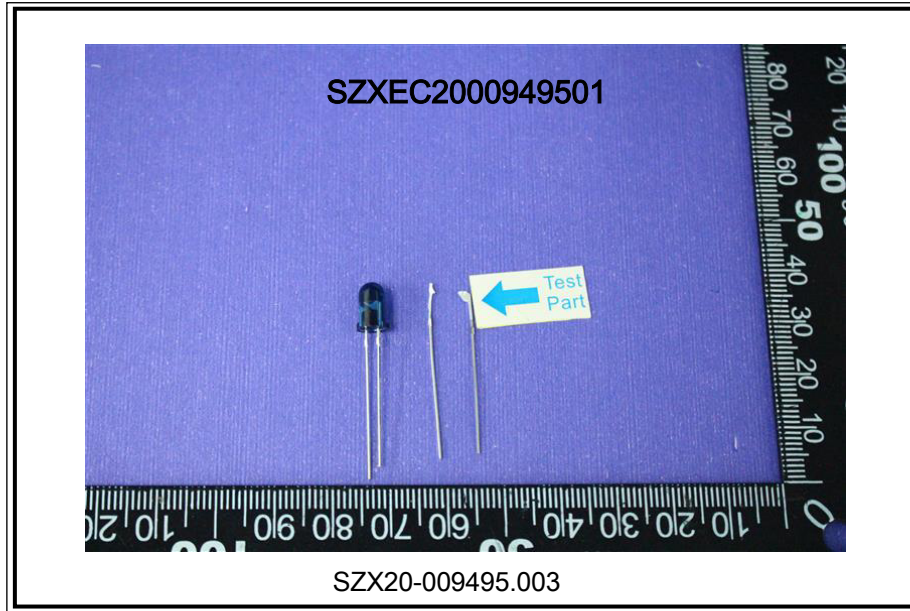
No. SZXEC2000949501

Date: 15 May 2020

Page 8 of 9

Sample photo:





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*** End of Report ***