

# Test Report

No. CANEC2119457318

Date: 04 Nov 2021

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SHENZHEN REFOND OPTOELECTRONICS CO.,LTD

6TH FLOOR,BUILDING #1,10TH INDUSTRIAL ZONE,TIAN LIAO COMMUNITY,GONG MING AREA,GUANG MING NEW DISTRICT,SHENZHEN,CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : White SMD Chip LED

SGS Job No. : CP21-055665 - SZ

Date of Sample Received : 21 Oct 2021

Testing Period : 21 Oct 2021 - 02 Nov 2021

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 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. Guangzhou Branch

*Coral Qiu*

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Coral Qiu  
Approved Signatory



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Test Results :

## Test Part Description :

| Specimen No. | SGS Sample ID    | Description          |
|--------------|------------------|----------------------|
| SN1          | CAN21-194573.008 | "White SMD Chip LED" |

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, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

| <u>Test Item(s)</u>        | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>008</u> |
|----------------------------|--------------|-------------|------------|------------|
| Cadmium (Cd)               | 100          | mg/kg       | 2          | ND         |
| Lead (Pb)                  | 1,000        | mg/kg       | 2          | 7          |
| Mercury (Hg)               | 1,000        | mg/kg       | 2          | ND         |
| Hexavalent Chromium (CrVI) | 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         |
| Tetrabromodiphenyl ether   | -            | mg/kg       | 5          | ND         |
| Pentabromodiphenyl ether   | -            | mg/kg       | 5          | ND         |

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| <u>Test Item(s)</u>                 | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>008</u> |
|-------------------------------------|--------------|-------------|------------|------------|
| 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)             | 1,000        | mg/kg       | 50         | ND         |
| Butyl benzyl phthalate (BBP)        | 1,000        | mg/kg       | 50         | ND         |
| Bis (2-ethylhexyl) phthalate (DEHP) | 1,000        | mg/kg       | 50         | ND         |
| Diisobutyl Phthalates (DIBP)        | 1,000        | mg/kg       | 50         | ND         |

### Notes :

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

(2) IEC 62321 series is equivalent to EN 62321 series

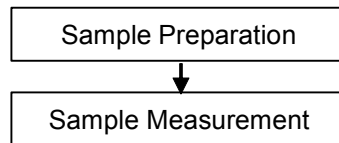
[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

(3) 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.

**ATTACHMENTS**

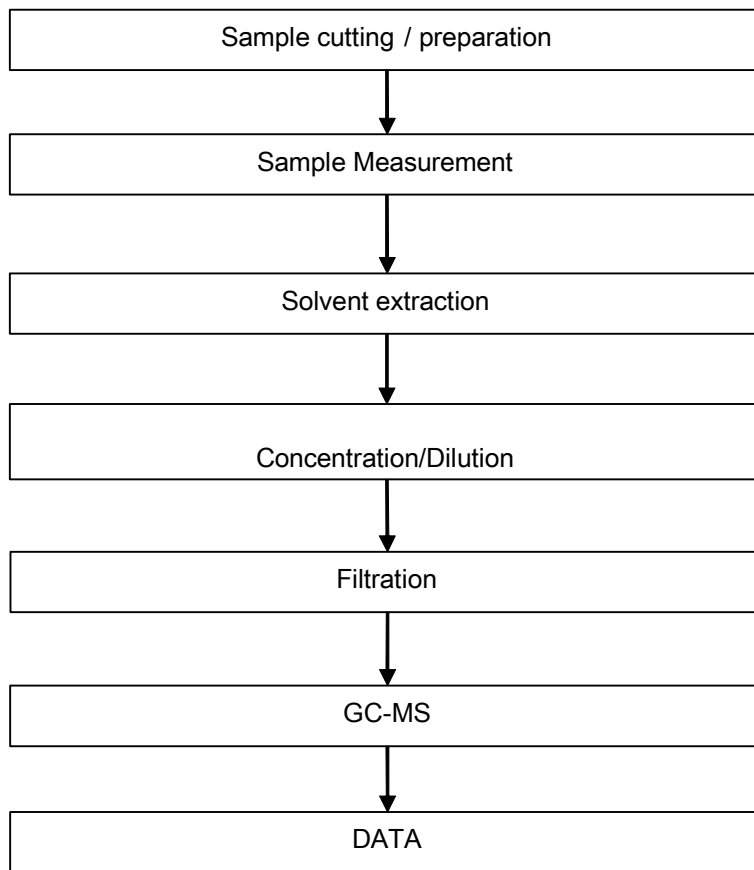
**Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart**

- 1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



ATTACHMENTS

Phthalates Testing Flow Chart



Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*