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## RoHS Test Report

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Report No. : AGC05443220427-001

**SAMPLE NAME** : LED flashlight in aluminium  
**MODEL NAME** : MO6591  
**APPLICANT** : MID OCEAN BRANDS B.V  
**STANDARD(S)** : Please refer to the following page(s).  
**DATE OF ISSUE** : Apr.21, 2022

**Attestation of Global Compliance (Shenzhen) Std & Tech Co., Ltd.**



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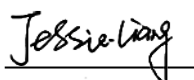
Applicant : MID OCEAN BRANDS B.V  
Address : 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.  
Test Site : 6/F., Building 2, Sanwei Chaxi Industrial Park, Sanwei Community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China

**Report on the submitted sample(s) said to be:**

Sample Name : LED flashlight in aluminium  
Model : MO6591  
Vendor code : 115205  
Country of Origin : CHINA  
Country of Destination : EUROPE  
Sample Received Date : Apr.13, 2022  
Testing Period : Apr.13, 2022 to Apr.21, 2022

**Test Requested:**

As specified by client, to determine the Pb, Cd, Hg, Cr<sup>6+</sup>, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample in accordance with Directive 2011/65/EU (RoHS) and its amendment directive (EU) 2015/863 on XRF and Chemical Method.

**Conclusion****Pass**Approved by: 

Liangdan, Jessie.Liang

Technical Director

## Report Revise Record:

Report Version	Issued Date	Valid Version	Notes
/	Apr.21, 2022	Valid	Initial release

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### Test Point Description

Test point	Test parts	Test point description
MO6591		
1.	Lamp holder	Transparent plastic lampshade
2.		Black seal ring
3.		Black lacquer
4.		Metal shell
5.		White plastic
6.		Black seal ring
7.	Lamp board	Chip LED
8.		Light board
9.		Tin solder
10.		Red wire jacket
11.		Blue wire jacket
12.		Wire core
13.	Circuit board	Chip capacitor
14.		Chip resistor
15.		Chip triode
16.		PCB board
17.		Tin solder
18.	---	Black seal ring
19.	Sling	Black thin sling
20.		Black lifting rope
21.		Black plastic button
22.	Key	Black rubber key
23.		White plastic
24.		Copper metal cap
25.		Metal spring
26.		Milky plastic key
27.		Metal spring
28.		Metal base
29.		Metal sheet
30.	---	Black plastic inner shell
31.	Battery chip	Metal sheet
32.		Metal spring

Note: "---" = The test point exists alone in the sample and is not attached to the test parts.

### Test Result:

(Test Method/ Instrument/ MDL and Limit: See Appendix)

Test point	Test result (mg/kg)										Conclusion
	Pb	Cd	Hg	Cr <sup>6+</sup>	PBBs	PBDEs	DIBP	DBP	BBP	DEHP	
1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity

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Test point	Test result (mg/kg)										Conclusion
	Pb	Cd	Hg	Cr <sup>6+</sup>	PBBs	PBDEs	DIBP	DBP	BBP	DEHP	
4	182*	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
6	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
8	N.D.*	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
9	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
10	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
11	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
12	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
13	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
14	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
15	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
16	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
17	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
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22	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
23	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
24	208	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
25	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
26	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
27	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
28	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
29	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
30	N.D.	N.D.	N.D.	N.D.	N.D.*	N.D.*	N.D.*	N.D.*	N.D.*	N.D.*	Conformity
31	N.D.	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity
32	515	N.D.	N.D.	N.D.	N/A	N/A	N/A	N/A	N/A	N/A	Conformity

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**Note:**

mg/kg = milligram per kilogram

 $\mu\text{g}/\text{cm}^2$  = microgram per square centimeter

MDL = Method Detection Limit

N.D.=Not Detected (less than method detection limit)

N/A= Not applicable

**Remark:**

- \*denotes as reported result(s) was (were) performed by wet chemistry method. Others were screened by XRF. For XRF screening, the result(s) of Cr VI was (were) reported as total chromium and the result(s) of PBBs and PBDEs was (were) reported as total bromine. Also, the XRF result(s) may be different to the actual content based on various factors including, but not limit to, sample size, thickness, area, nonuniformity composition, surface flatness.
- This XRF Scanning report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF scanning report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

- Boiling-water-extraction:

Number	Colorimetric result (Cr(VI) concentration)	Qualitative result
1	The sample solution is < the 0,10 $\mu\text{g}/\text{cm}^2$ equivalent comparison standard solution	The sample is negative for Cr(VI) – The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
2	The sample solution is $\geq$ the 0,10 $\mu\text{g}/\text{cm}^2$ and $\leq$ the 0,13 $\mu\text{g}/\text{cm}^2$ equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination.
3	The sample solution is > the 0,13 $\mu\text{g}/\text{cm}^2$ equivalent comparison standard solution	The sample is positive for Cr(VI) – The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

- Negative indicates the absence of Cr(VI) on the tested areas concentration is below the limit of quantification.

The coating is considered a non-Cr(VI) based coating.

Uncertainty indicates the absence of Cr(VI) on the tested areas unavoidable coating variations may influence the determination.

Positive indicates the presence of Cr(VI) on the tested areas concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI). Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.

### Appendix:

Test Item	Test Method/ Instrument	MDL	Maximum Limit
X-ray Fluorescence Spectrometry(XRF)			
Lead (Pb)	IEC 62321-3-1:2013 / XRF	200mg/kg	1000mg/kg
Cadmium (Cd)		50mg/kg	100mg/kg
Mercury (Hg)		200mg/kg	1000mg/kg
Total Chromium		200mg/kg	/
Total Bromine		200mg/kg	/
Wet Chemistry Method			
Lead (Pb)	IEC 62321-5:2013/ICP-OES	10mg/kg	1000mg/kg
Cadmium (Cd)	IEC 62321-5:2013/ ICP-OES	10mg/kg	100mg/kg
Mercury (Hg)	IEC 62321-4: 2013+A1:2017/ ICP-OES	10mg/kg	1000mg/kg
Non-metal Hexavalent Chromium (Cr <sup>6+</sup> )	IEC 62321-7-2:2017/ UV-Vis	8mg/kg	1000mg/kg
Metal Hexavalent Chromium (Cr <sup>6+</sup> )	IEC 62321-7-1:2015/ UV-Vis	0.1µg/cm <sup>2</sup>	/
Polybrominated Biphenyls (PBBs) -Monobromobiphenyl (MonoBB) -Dibromobiphenyl (DiBB) -Tribromobiphenyl (TriBB) -Tetrabromobiphenyl (TetraBB) -Pentabromobiphenyl (PentaBB) -Hexabromobiphenyl (HexaBB) -Heptabromobiphenyl (HeptaBB) -Octabromobiphenyl (OctaBB) -Nonabromodiphenyl (NonaBB) -Decabromodiphenyl (DecaBB)	IEC 62321-6:2015/ GC-MS	Single 5mg/kg	Sum 1000mg/kg
PolybrominatedDiphenylethers (PBDEs) -Monobromodiphenyl ether (MonoBDE) -Dibromodiphenyl ether (DiBDE) -Tribromodiphenyl ether (TriBDE) -Tetrabromodiphenyl ether (TetraBDE) -Pentabromodiphenyl ether (PentaBDE) -Hexabromodiphenyl ether (HexaBDE) -Heptabromodiphenyl ether (HeptaBDE) -Octabromodiphenyl ether (OctaBDE) -Nonabromodiphenyl ether (NonaBDE) -Decabromodiphenyl ether (DecaBDE)	IEC 62321-6:2015/ GC-MS	Single 5mg/kg	Sum 1000mg/kg
Di-iso-butyl phthalate (DIBP)	IEC 62321-8:2017/ GC-MS	50mg/kg	1000mg/kg
Dibutyl phthalate (DBP)		50mg/kg	1000mg/kg
Butylbenzyl phthalate (BBP)		50mg/kg	1000mg/kg
Di-(2-ethylhexyl) Phthalate (DEHP)		50mg/kg	1000mg/kg

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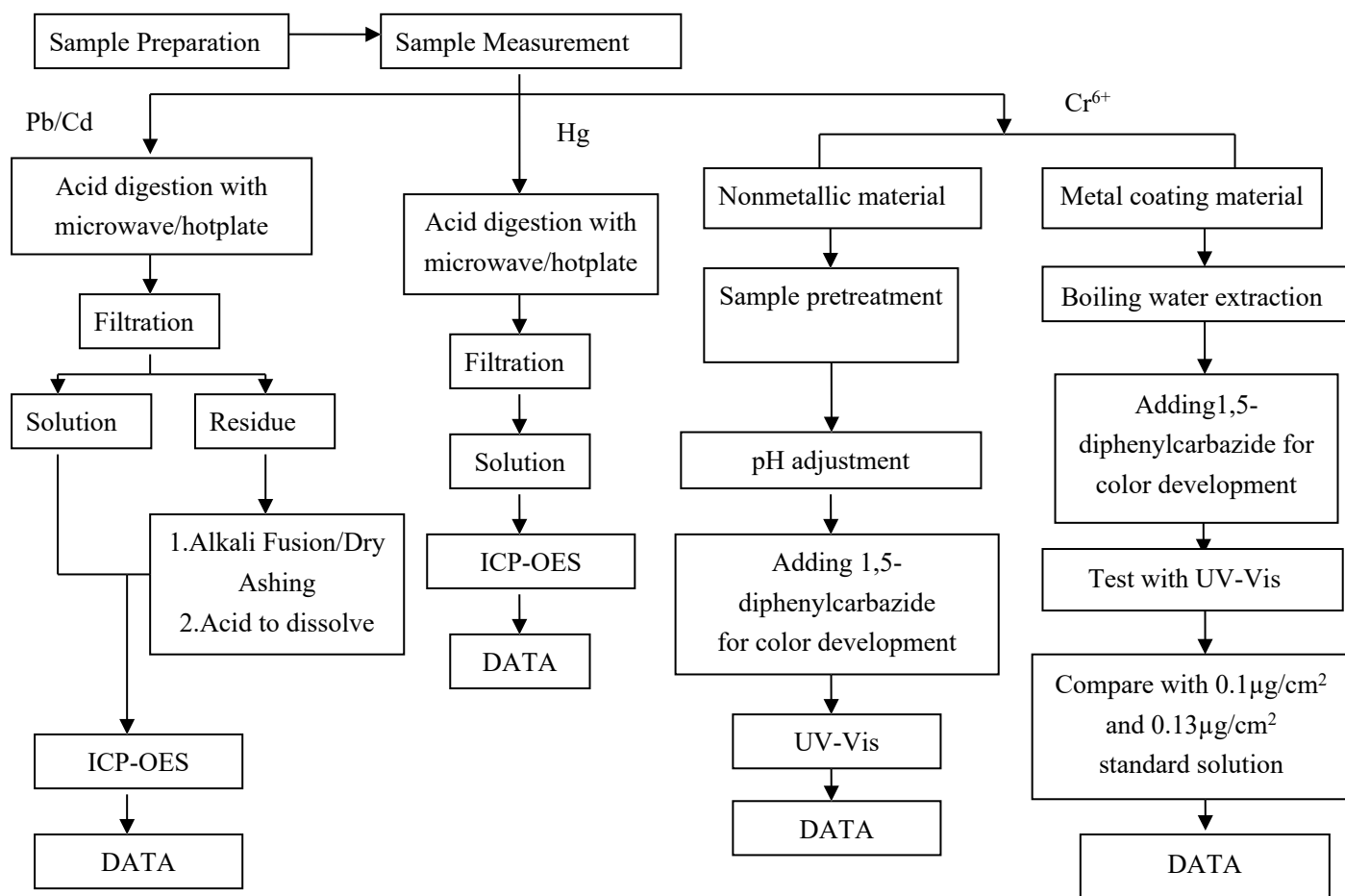
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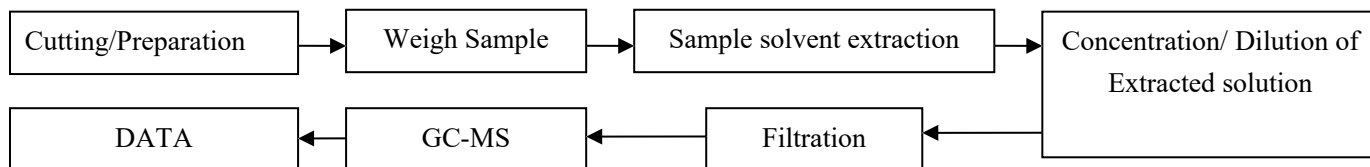
## Test Flow Chart

### 1.For Pb , Cd, Hg, Cr<sup>6+</sup>



These sample were dissolved totally by pre-conditioning method according to above flow chart (Cr<sup>6+</sup> test method excluded)

### 2.For PBBs, PBDEs, DBP, BBP, DEHP, DIBP



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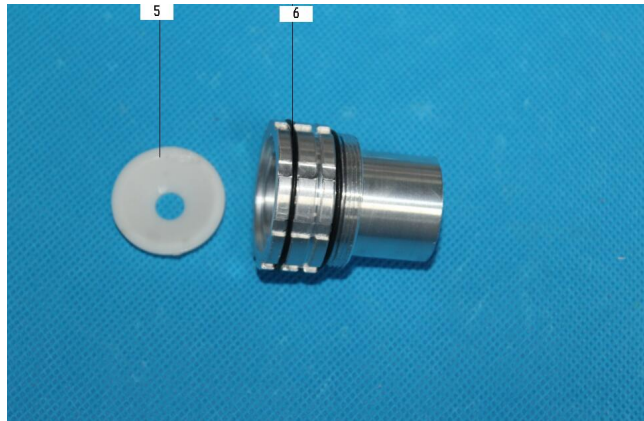
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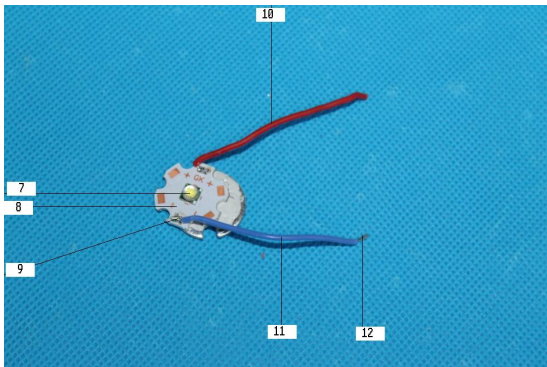
### The photo of the sample



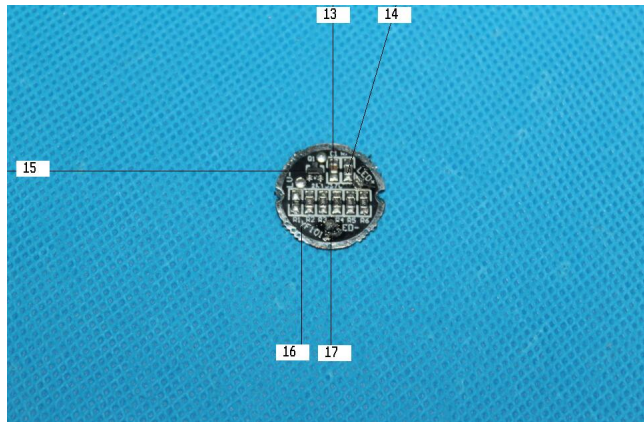
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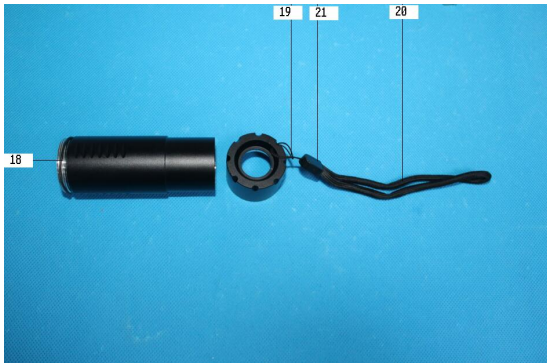
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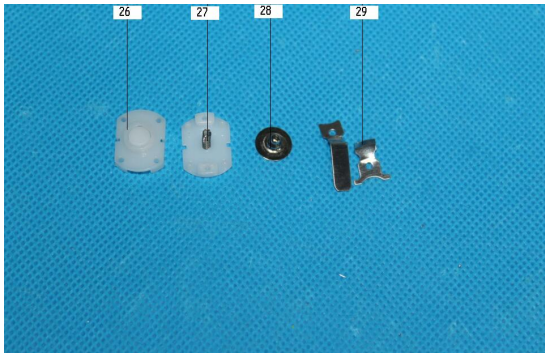


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AGC authenticate the photo only on original report

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

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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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