

# Test Report

**Report No.:** AGC03507190311-003

**Date:** Mar.22, 2019

**Page** 1 of 10

**Applicant:** MID OCEAN BRANDS B.V

**Address:** 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

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

**Sample Name:** 2 led dynamo torch

**Sample Model:** MO8235

**Supplier:** 107978

**Sample Received Date:** Mar.15, 2019

**Testing Period:** Mar.15, 2019 to Mar.22, 2019

**Test site:** 1,6/F.,Building 2,No. 1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Baoan District, Shenzhen, Guangdong, China

**Test Requested:** Please refer to following page(s).

**Test Method:** Please refer to following page(s).

**Test Result:** Please refer to following page(s).

Approved by:   
  
Liulinwen, Lewis  
Technical Director



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

# Test Report

**Report No.:** AGC03507190311-003

**Date:** Mar.22, 2019

**Page 2 of 10**
**Test Requested:**

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

**Conclusion**
**Pass**
**Pass**
**Test Methods:**

A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B: Chemical test:

Test Item	Test Method	Measuring Instrument	MDL
Cadmium (Cd)	IEC 62321-5:2013 Ed 1.0	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4: 2013+A1:2017 Ed 1.1	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr <sup>6+</sup> )	IEC 62321-7-2:2017 Ed 1.0	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr <sup>6+</sup> )	IEC 62321-7-1:2015 Ed 1.0	UV-Vis	/
PBBs/PBDEs	IEC 62321-6:2015 Ed 1.0	GC-MS	5 mg/kg

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.


**Attestation of Global Compliance Std. & Tech.**

## No.18 C

 Tel: +86-755 8358 3833 Fax: +86-755 2531 6612 E-mail: agc01@agc-cert.com 400 089 2118  
 Add: Building 2, No.171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China



# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 3 of 10

**Test Results:**
**A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF**

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	Black plastic shell(outer shell)	BL	BL	BL	BL	BL
2	Transparent lamp shade(outer shell)	BL	BL	BL	BL	BL
3	Gray plastic head buckle(outer shell)	BL	BL	BL	BL	BL
4	White plastic gear	BL	BL	BL	BL	BL
5	Black magnet ring	BL	BL	BL	BL	BL
6	Silver white metal axis	BL	BL	BL	BL	-
7	Gray metal axis	BL	BL	BL	BL	-
8	Silver screw	BL	BL	BL	BL	-
9	Metal jump ring	BL	BL	BL	BL	-
10	Silver metal stent(stent)	BL	BL	BL	BL	-
11	Transparent plastic(stent)	BL	BL	BL	BL	BL
12	Enameled wire(stent)	BL	BL	BL	BL	-
13	Black plastic lamp seat	BL	BL	BL	BL	BL
14	Tin solder	BL	BL	BL	BL	-
15	Pin(LED lamp)	BL	BL	BL	BL	-
16	LED lamp(LED lamp)	BL	BL	BL	BL	X*
17	Red wire jacket	BL	BL	BL	BL	BL
18	Silver metal shell(toggle switch)	BL	BL	BL	BL	-
19	Black toggle plastic(toggle switch)	BL	BL	BL	BL	BL
20	Silver metal sheet	BL	BL	BL	BL	-
21	Gray braided line(sling)	BL	BL	BL	BL	BL
22	Silver metal buckle(sling)	BL	BL	BL	X*	-

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 4 of 10

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X$ $< 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X$ $< 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X$ $< 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X$ $< 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X$ $< 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	mg/kg	$BL \leq 300 - 3\sigma < X$	-	$BL \leq 250 - 3\sigma < X$

Note: BL= Below Limit

OL= Over limited

X= Inconclusive

“-“= Not regulated

\*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.


**Attestation of Global Compliance Std. & Tech.**
**No.18 C**  
 Tel: +86-755 8358 3833 Fax: +86-755 2531 6612 E-mail: agc01@agc-cert.com 400 089 2118  
 Add: Building 2, No. 171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China



# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 5 of 10

**Remark:**

- i Results were obtained by XRF for primary scanning, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the above warning value according to IEC 62321-3-1:2013 Ed 1.0.
- ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- iii The maximum permissible limit is quoted from RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000

**Disclaimers:**

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.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 6 of 10

**B、 The Test Results of Chemical Method:**

 1)The Test Results of metal Cr<sup>6+</sup>

Test Item(s)	MDL	Result(s)	Limit
		22	
Hexavalent Chromium (Cr <sup>6+</sup> )	See note	Negative	#

Note:

- Negative = Absence of Cr(VI) on the tested areas
- MDL = Method Detection Limit
- Boiling-water-extraction:

Number	Colorimetric result (Cr(VI) concentration)	Qualitative result
1	The sample solution is < the 0,10 µg/cm <sup>2</sup> 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 ≥ the 0,10 µg/cm <sup>2</sup> and ≤ the 0,13 µg/cm <sup>2</sup> 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 µg/cm <sup>2</sup> 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.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.





# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 7 of 10

## 2) The Test Results of PBBs &amp; PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)	Limit
		16	
<b>Polybrominated Biphenyls (PBBs)</b>			
Monobromobiphenyl	5	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	
Tribromobiphenyl	5	N.D.	
Tetrabromobiphenyl	5	N.D.	
Pentabromobiphenyl	5	N.D.	
Hexabromobiphenyl	5	N.D.	
Heptabromobiphenyl	5	N.D.	
Octabromobiphenyl	5	N.D.	
Nonabromodiphenyl	5	N.D.	
Decabromodiphenyl	5	N.D.	
Total content	/	N.D.	
<b>Polybrominated Diphenylethers (PBDEs)</b>			
Monobromodiphenyl ether	5	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	
Tribromodiphenyl ether	5	N.D.	
Tetrabromodiphenyl ether	5	N.D.	
Pentabromodiphenyl ether	5	N.D.	
Hexabromodiphenyl ether	5	N.D.	
Heptabromodiphenyl ether	5	N.D.	
Octabromodiphenyl ether	5	N.D.	
Nonabromodiphenyl ether	5	N.D.	
Decabromodiphenyl ether	5	N.D.	
Total content	/	N.D.	
<b>Conclusion</b>	/	<b>Pass</b>	/

Note: N.D. = Not Detected or less than MDL  
 mg/kg = parts per million  
 MDL = Method Detection Limit

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.



# Test Report

**Report No.: AGC03507190311-003**

Date: Mar.22, 2019

Page 8 of 10

**2.Test result of DBP, BBP, DEHP, DIBP content**

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			1	2	3	4	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
<b>Conclusion</b>		/	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			5	11	13	16	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
<b>Conclusion</b>		/	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)			Limit
			17	19	21	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	1000
<b>Conclusion</b>		/	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	/

- Note:**
1. MDL = Method Detection Limit
  2. N.D. = Not Detected (less than method detection limit)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.





# Test Report

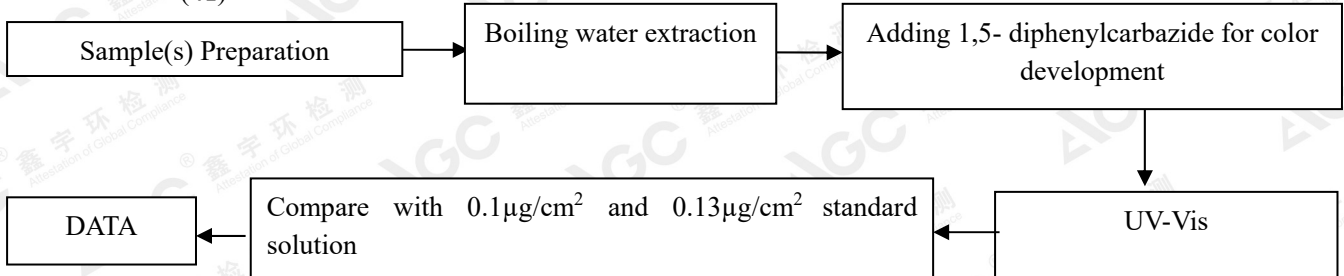
Report No.: AGC03507190311-003

Date: Mar.22, 2019

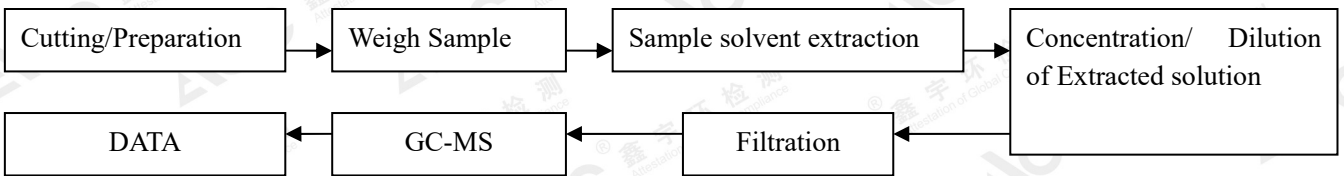
Page 9 of 10

## Test Flow Chart

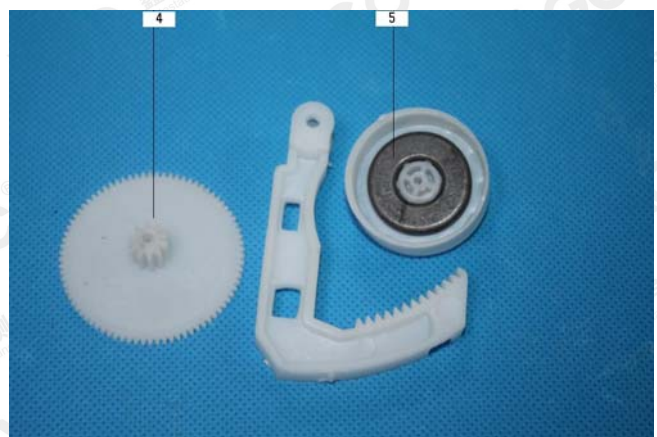
1. For metal Cr(VI)



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



## The photo of the sample



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

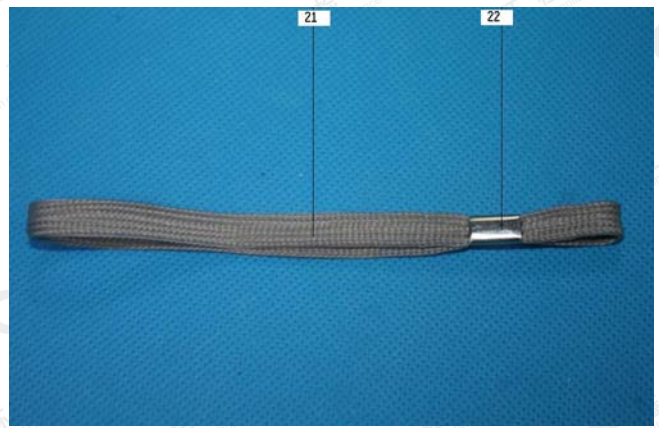
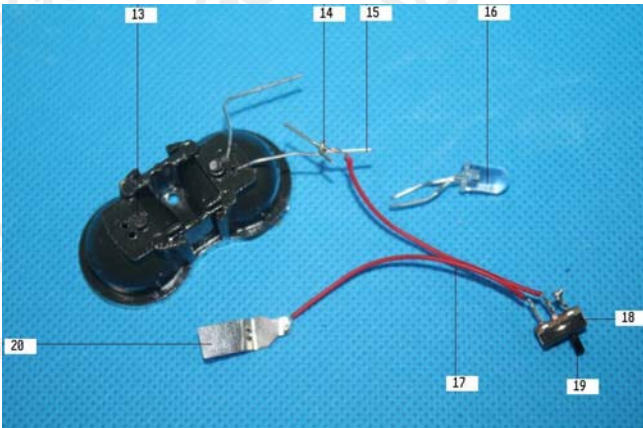
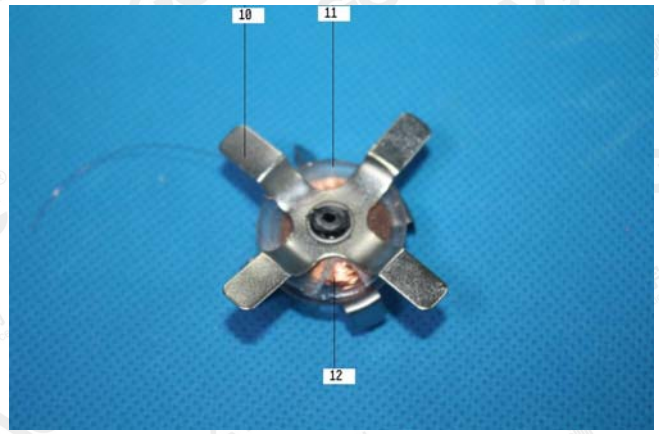
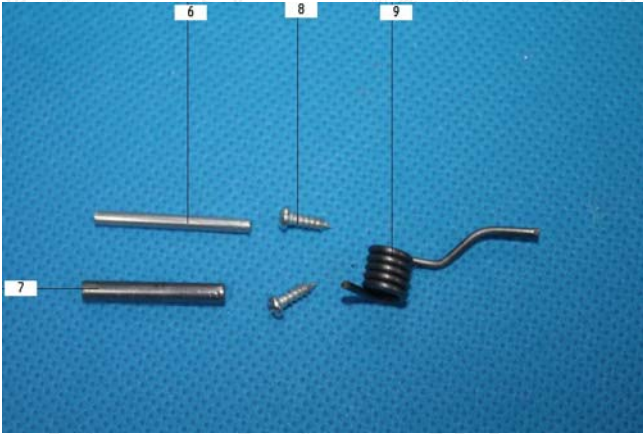


# Test Report

Report No.: AGC03507190311-003

Date: Mar.22, 2019

Page 10 of 10



**AGC03507190311-003**

AGC authenticate the photo only on original report

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.agc-cert.com>.

**AGC**

Attestation of Global Compliance Std. & Tech.

Tel: +86-755 8358 3833 Fax: +86-755 2531 6612 E-mail: agc01@agc-cert.com 400 089 2118  
Add: Building 2, No.171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China

**No.18 C**