



# TEST REPORT

Report No.: STSGZ2302163066E

Date: 2-Mar-2023

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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

The following sample(s) and sample information was/were submitted and identified by client as:

**Sample Name:** Mini aluminium torch with keyring

**Model/Style/Item #:** MO8622

**Receiving Date:** 16-Feb-2023

**Test Period:** From 16-Feb-2023 to 21-Feb-2023

**Add Information:** -

## Test Summary:

#	Test Item(s)	Reference Standard/Method	Result
1	Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP and DIBP EU RoHS Directive 2011/65/EU and its amendment directives (EU) 2015/863 (RoHS )	IEC 62321-3-1:2013 IEC 62321-4:2013+A1:2017 IEC 62321-5:2013 IEC 62321-6:2015 IEC 62321-7-1:2015 IEC 62321-7-2:2017 IEC 62321-8:2017	PASS

\*\*\*\*\*

Signed for and on behalf of STS

Mark Mai  
(Technical Director)



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Guangzhou Depuhua Test Services Co. Ltd.

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## Result:

### 1.1 EU RoHS Directive 2011/65/EU and its amendment directives on XRF IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Silvery metal, ring	BL	BL	BL	BL	NA
2	Silvery metal, holder	BL	BL	BL	BL	NA
3	Silvery metal, small ring	BL	BL	BL	BL	NA
4	Silvery metal, shell	BL	BL	BL	BL	NA
5	Black plated silvery metal, shell	BL	BL	BL	BL	NA
6	Black plastic,holder	BL	BL	BL	BL	BL
7	Silvery metal, spring	BL	BL	BL	X	NA
8	Silver metal, big plate	BL	BL	BL	BL	NA
9	Silver metal,small plate	BL	BL	BL	BL	NA
10	White plastic,holder	BL	BL	BL	BL	BL
11	Transparent plastic,LED	BL	BL	BL	BL	X
12	Silvery metal, pin	BL	BL	BL	BL	NA
13	Silvery metal, battery	BL	BL	BL	BL	NA
14	Black soft plastic, protective cover	BL	BL	BL	BL	BL

#### Remark:

- (1) Results were obtained by XRF for primary screening, 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 below warning value according to IEC 62321-3-1:2013.

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	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$

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Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X	--	BL≤250-3σ< X

**Note:**

BL = Below Limit

OL = Over Limit

X = Inconclusive

NA = Not Applicable

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2011/65/EU and its amendment directives (EU) 2015/863 :

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 diphenyl ethers (PBDEs)	1000

**(4) Disclaimers:**

This XRF Screening 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 screening 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.

- (5) The selection of test portions was recommended by the client and the conclusion of chemical test is only for the selected portions.

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## 1.2 Hexavalent Chromium (Cr(VI))

Metal: IEC 62321-7-1:2015, extracted by boiling water and analyzed by UV-Vis

Non-metal: IEC 62321-7-2:2017, alkaline digested and analyzed by UV-Vis

Compound		Material	Limit	RL
		7		
1	Hexavalent Chromium (Cr(VI))	Negative	#	-
Conclusion		PASS	-	-

Remark(s) (a) ug/cm<sup>2</sup>: microgram per square centimeter

(b) RL: Report Limit

(c) Negative = Sample Cr(VI) concentration is less than 0.10 ug/cm<sup>2</sup>

Positive = Sample Cr(VI) concentration is greater than 0.13 ug/cm<sup>2</sup>

(d) # = Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement.

## 1.3 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers (PBBs and PBDEs)

IEC 62321-6:2015, solvent extract and determined by GC/MS

Compound		Material	Limit (mg/kg)	RL (mg/kg)
		11		
1	Monobromo biphenyl	N.D.	-	50
2	Dibromo biphenyl	N.D.	-	50
3	Tribromo biphenyl	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	-	50
5	Pentabromo biphenyl	N.D.	-	50
6	Hexabromo biphenyl	N.D.	-	50
7	Heptabromo biphenyl	N.D.	-	50
8	Octabromo biphenyl	N.D.	-	50
9	Nonabromo biphenyl	N.D.	-	50
10	Decabromo biphenyl	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	-	50

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13	Tribromo diphenyl ether	N.D.	-	50
14	Tetrabromo diphenyl ether	N.D.	-	50
15	Pentabromo diphenyl ether	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	-	50
21	Sum of PBBs	N.D.	1000	-
22	Sum of PBDEs	N.D.	1000	-
<b>Conclusion</b>		<b>PASS</b>	-	-

Remark(s): (a) mg/kg: milligram per kilogram  
 (b) RL: Report limit  
 (c) N.D.: Not detected (result is less than RL)

#### 1.4 Phthalates – (DBP, BBP, DEHP, DIBP) IEC 62321-8:2017, Solvent extract and determined by GC/MS

Compound			Material			Limit (%)	RL(%)
			6+10	11	14		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	0.1	0.005
<b>Conclusion</b>			<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Remark(s): (a) RL: Report limit  
 (b) N.D.: Not detected (result is less than RL)

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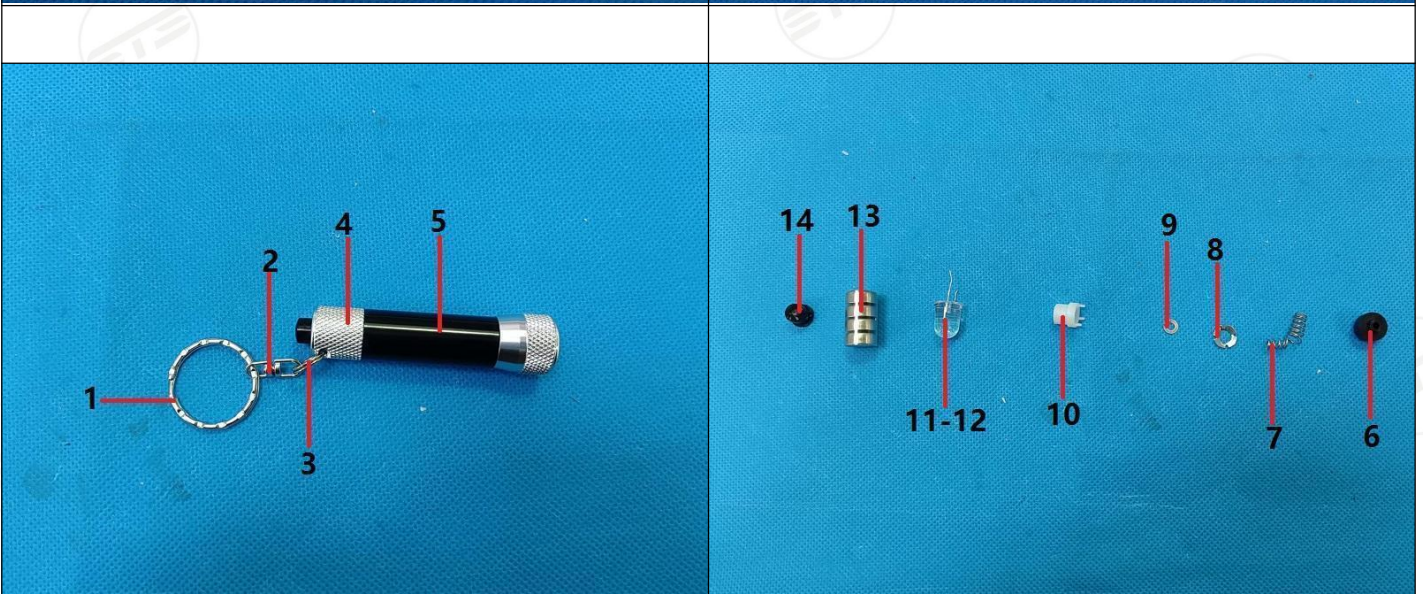
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## Photo(s):



Product Photo

END OF REPORT

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