

TEST REPORT

Report No.: DPHTL2510093080E

Date: Oct 28,2025

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Applicant : Mid Ocean Brands B.V.**Address:** Unit 711-716, 7/F., Tower A, 83 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 1 LED key ring**Model/Style/Item #:** MO8622**Vendor code:** 107978**Receiving Date:** Oct 9,2025**Test Period:** From Oct 9,2025 to Oct 13,2025**Add Information:** -**Test Summary:**

#	Test Item(s)	Conclusion
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,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0)	PASS
2	Polycyclic-aromatic hydrocarbons (PAHs) content--Item 50 of Annex XVII of REACH Regulation (EC) 1907/2006 & amendment (EU) No 1272/2013	PASS

*****Please refer to the following page for detailed results*****

Authorized Signatory

Mark Mai
(Technical Director)

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Result:

1.1 EU RoHS Directive 2011/65/EU and its amendment directives(EU)2015/863,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0) 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,loop	BL	BL	BL	BL	NA
2	Silvery metal,semicircle	BL	BL	BL	BL	NA
3	Silvery metal,small loop	BL	BL	BL	BL	NA
4	Black soft plastic,button	BL	BL	BL	BL	BL
5	Black plastic,button	BL	BL	BL	BL	BL
6	Silvery meta,lid	BL	BL	BL	BL	NA
7	Black plated silvery metal, shell	X	X	BL	X	NA
8	Silvery meta,top	BL	BL	BL	BL	NA
9	Translucent plastic,LED	BL	BL	BL	BL	X
10	Silvery meta,lead	BL	BL	BL	BL	NA
11	Silvery meta,spring	BL	BL	BL	X	NA
12	White plastic,circle	BL	BL	BL	BL	BL
13	Silvery meta,circle	BL	BL	BL	BL	NA
14	Matt white plastic,holder	BL	BL	BL	BL	BL
15	Matt black plastic,circle	BL	BL	BL	BL	BL
16	Transparent plastic,plate	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	Polymers	Metal	Composite material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X < 150 + 3\sigma \leq OL$

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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 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,(EU)2017/2102,(EU)2022/1632 (RoHS 2.0):

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous Results)
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

Test Item(s)		Result		Limit	MDL
		7	11		
1	Hexavalent Chromium (Cr(VI))	Negative	Negative	#	-
-	Conclusion	PASS	PASS	-	-

Remark(s) (a) ug/cm²: microgram per square centimeter

(b) MDL: Method detected limit

(c) Negative = Sample Cr(VI) concentration is less than 0.10 ug/cm²

Positive = Sample Cr(VI) concentration is greater than 0.13 ug/cm²

(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 Lead Content (Pb)

IEC62321-5:2013, acid digested and determined by AAS

Test Item(s)		Result	Limit (mg/kg)	MDL (mg/kg)
		7		
1	Lead (Pb)	N.D.	1000	10
-	Conclusion	PASS	-	-

Remark(s): (a) mg/kg: milligrams per kilogram

(b) MDL: Method detected limit

(c) N.D.: Not detected (result is less than MDL)

1.4 Cadmium Content (Cd)

IEC62321-5:2013, acid digested and determined by AAS

Test Item(s)		Result	Limit (mg/kg)	MDL (mg/kg)
		7		
1	Cadmium (Cd)	N.D.	100	10
-	Conclusion	PASS	-	-

Remark(s): (a)mg/kg: milligrams per kilogram

(b)MDL: Method detected limit

(c)N.D.: Not detected (result is less than MDL)

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1.5 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers (PBBs and PBDEs) IEC 62321-6:2015, solvent extract and determined by GC-MS

Test Item(s)		Result	Limit (mg/kg)	MDL (mg/kg)
		9		
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
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
-	Sum of PBBs	N.D.	1000	-
-	Sum of PBDEs	N.D.	1000	-
-	Conclusion	PASS	-	-

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

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

Test Item(s)			Result					Limit (%)	MDL(%)
			4	5	9	12+14+15	16		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	N.D.	0.1	0.005
-	Conclusion		PASS	PASS	PASS	PASS	PASS	-	-

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

2. Polycyclic-aromatic hydrocarbons (PAHs) content - Item 50 of Annex XVII of REACH Regulation (EC) 1907/2006 & amendment (EU) No 1272/2013 AfPS-GS-2019-01:PAK, determined by GC-MS

Test Item(s)		Result		Limit (mg/kg)	MDL (mg/kg)
		category I*1			
		4	9		
1	Benz[a]anthracene(BaA) CAS#56-55-3	N.D.	N.D.	1	0.2
2	Chrysene(CHR) CAS#218-01-9	N.D.	N.D.	1	0.2
3	Benz[b]fluoranthene(BbFA) CAS#205-99-2	N.D.	N.D.	1	0.2
4	Benz[k]fluoranthene(BkFA) CAS#207-08-9	N.D.	N.D.	1	0.2
5	Benz[j]fluoranthene(BjFA) CAS#205-82-3	N.D.	N.D.	1	0.2
6	Benzo[a]pyrene(BaP) CAS#50-32-8	N.D.	N.D.	1	0.2
7	Benzo[e]pyrene(BeP) CAS#192-97-2	N.D.	N.D.	1	0.2
8	Dibenz [a,h]anthracene (DBahA) CAS#53-70-3	N.D.	N.D.	1	0.2

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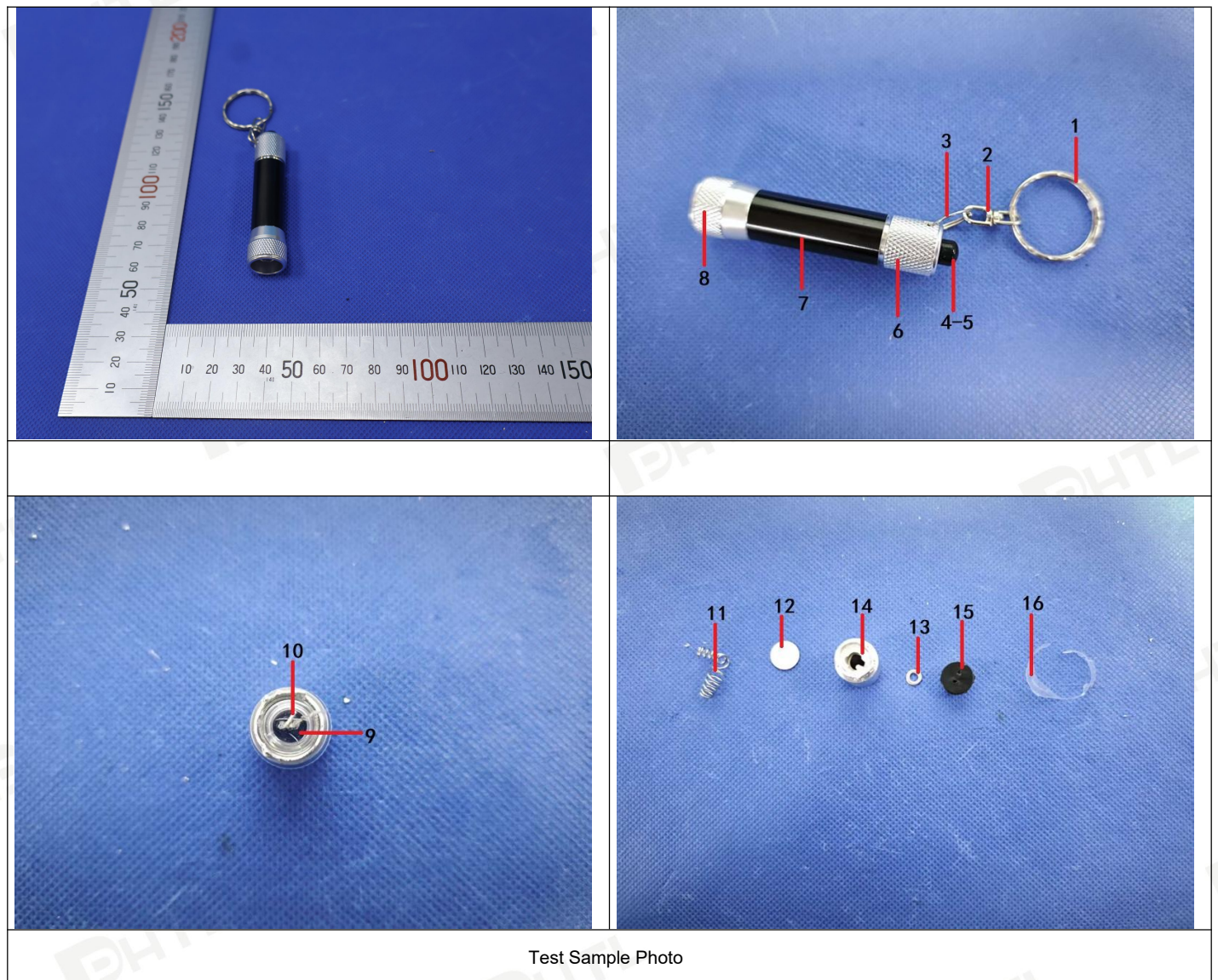
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Conclusion	PASS	PASS	-	-
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Remark: (a) mg/kg: milligram per kilogram
 (b) MDL: Method detected limit
 (c) N.D.: Not detected (result is less than MDL)
 1: Material category
 Category I: Articles come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use.
 Category II : Toys, including activity toys, and childcare articles, that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use.

Photo(s):



Test Sample Photo

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Product Photo, For reference only

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