

TEST REPORT

Report No.: DPHTL2508063031E

Date: Sep 1,2025

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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: Emergency warning light**Model/Style/Item #:** MO8678**Vendor code:** 107978**Receiving Date:** Aug 6,2025**Test Period:** From Aug 6,2025 to Aug 11,2025**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

*****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	Transparent plastic,shell	BL	BL	BL	BL	BL
2	Orange plastic,hook	BL	BL	BL	BL	BL
3	Silvery metal,big screw	BL	BL	BL	X	NA
4	Silvery magnet,holder	BL	BL	BL	BL	NA
5	Orange soft plastic,shell	BL	BL	BL	BL	BL
6	Silvery metal,screw	BL	BL	BL	X	NA
7	Black plastic,battery holder	BL	BL	BL	BL	BL
8	Silvery metal,spring	BL	X	BL	X	NA
9	Silvery metal,contact plate	BL	BL	BL	BL	NA
10	Silvery metal,nut	BL	BL	BL	BL	NA
11	Silvery coating,light holder	BL	BL	BL	BL	BL
12	Black plastic,light holder	BL	BL	BL	BL	BL
13	Silvery metal,small screw	BL	BL	BL	X	NA
14	Green PCB	BL	BL	BL	BL	BL
15	Silvery metal,solder	BL	BL	BL	BL	NA
16	Silvery metal,solder	BL	BL	BL	BL	NA
17	Transparent plastic,LED	BL	BL	BL	BL	X
18	Black body,resister	BL	BL	BL	BL	BL
19	Black body,transistor	BL	BL	BL	BL	BL
20	Yellow body,LED	BL	BL	BL	BL	X
21	Black body,IC	BL	BL	BL	BL	BL
22	Black plastic,button	BL	BL	BL	BL	BL
23	Silvery metal,holder	BL	BL	BL	BL	NA
24	Transparent yellow plastic,film	BL	BL	BL	BL	BL

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25	Silvery metal, spring plate	BL	BL	BL	BL	NA
26	Black plastic, base	BL	BL	BL	BL	BL
27	Silvery metal, lead	BL	BL	BL	BL	NA

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	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X < 150 + 3\sigma \leq OL$
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

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Polybrominated diphenyl ethers (PBDEs)	1000
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(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.

1.2 Cadmium Content (Cd)

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

Test Item(s)		Result	Limit (mg/kg)	MDL (mg/kg)
		8		
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)

1.3 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
		3	6	8	13		
1	Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	Negative	#	-
-	Conclusion	PASS	PASS	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.

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1.4 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)
		17	20		
1	Monobromo biphenyl	N.D.	N.D.	-	50
2	Dibromo biphenyl	N.D.	N.D.	-	50
3	Tribromo biphenyl	N.D.	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	N.D.	-	50
5	Pentabromo biphenyl	N.D.	N.D.	-	50
6	Hexabromo biphenyl	N.D.	N.D.	-	50
7	Heptabromo biphenyl	N.D.	N.D.	-	50
8	Octabromo biphenyl	N.D.	N.D.	-	50
9	Nonabromo biphenyl	N.D.	N.D.	-	50
10	Decabromo biphenyl	N.D.	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	N.D.	-	50
13	Tribromo diphenyl ether	N.D.	N.D.	-	50
14	Tetrabromo diphenyl ether	N.D.	N.D.	-	50
15	Pentabromo diphenyl ether	N.D.	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	N.D.	-	50
-	Sum of PBBs	N.D.	N.D.	1000	-
-	Sum of PBDEs	N.D.	N.D.	1000	-

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

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

Test Item(s)			Result				Limit (%)	MDL(%)
			1+2	5	7	11		
1	DBP	Dibutylphthalate CAS# 84-74-2	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.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	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.	0.1	0.005
-	Conclusion		PASS	PASS	PASS	PASS	-	-

Test Item(s)			Result				Limit (%)	MDL(%)
			12	14	17	18+19		
1	DBP	Dibutylphthalate CAS# 84-74-2	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.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	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.	0.1	0.005
-	Conclusion		PASS	PASS	PASS	PASS	-	-

Test Item(s)			Result		Limit (%)	MDL(%)
			20+21	22+24+26		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	0.1	0.005

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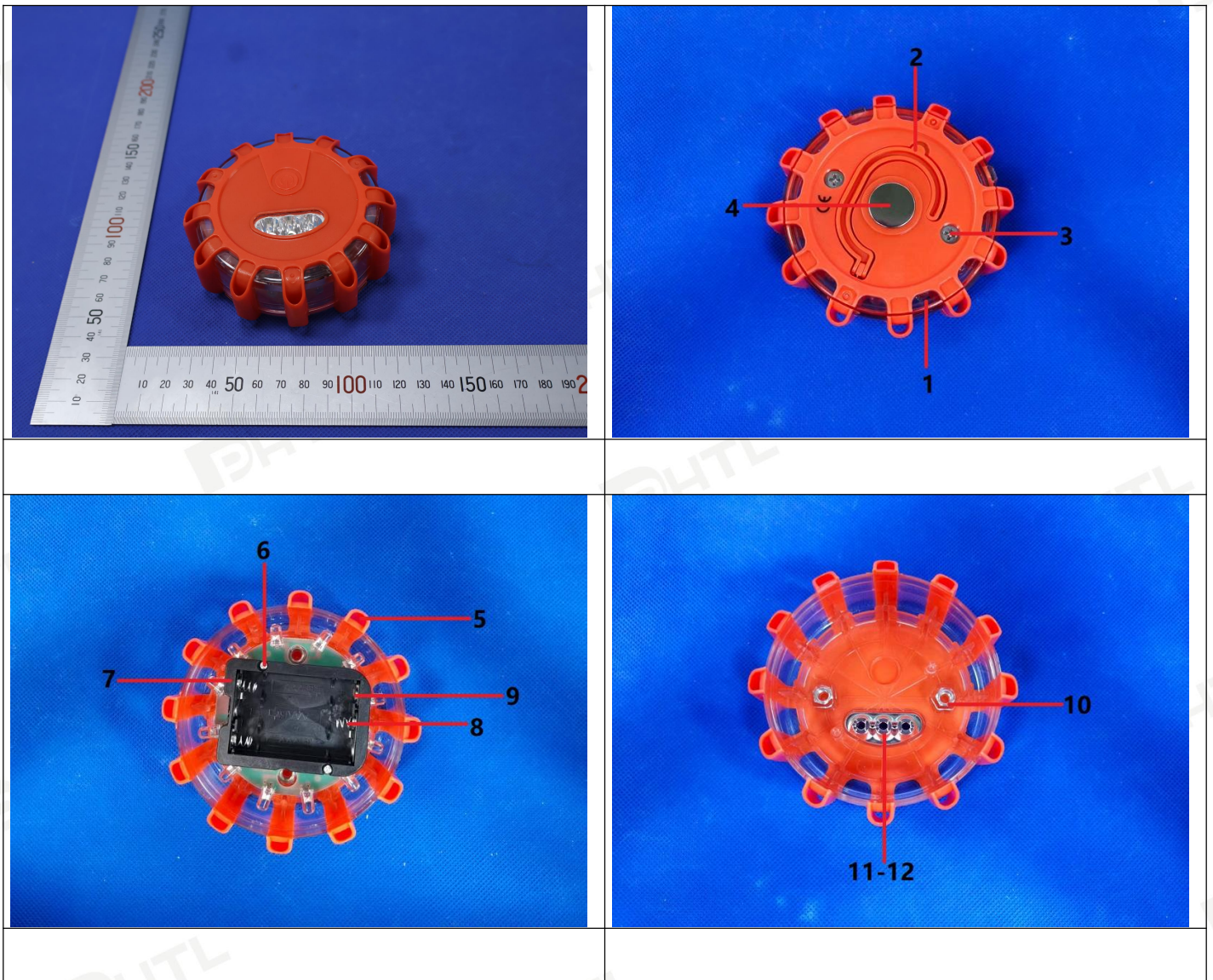
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4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	0.1	0.005
-	Conclusion		PASS	PASS	-	-

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

Photo(s):

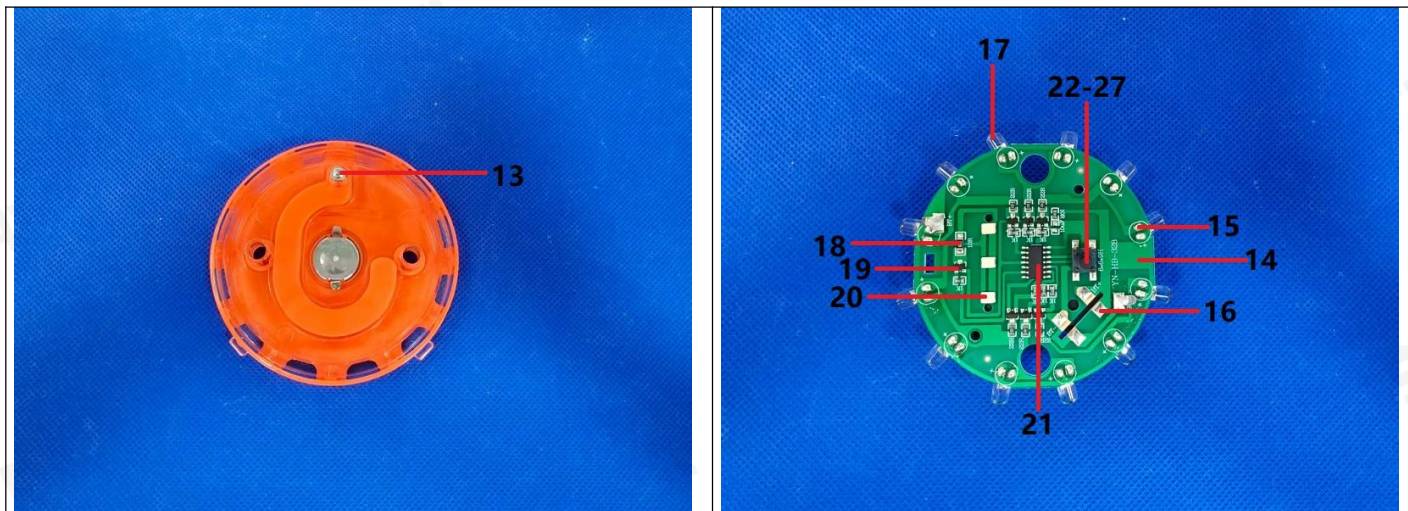


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Test Sample Photo

<<<<<< END OF REPORT >>>>>>

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