



TEST REPORT

Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 1 of 9

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: Emergency warning light

Model/Style/Item #: MO8678

Receiving Date: 9-Mar-2023

Test Period: From 9-Mar-2023 to 16-Mar-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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TEST REPORT

Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 2 of 9

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	Red plastic,case	BL	BL	BL	BL	BL
2	Red soft plastic,holder	BL	BL	BL	BL	BL
3	Silvery metal,screw	BL	BL	BL	X	NA
4	Silvery metal,holder	BL	BL	BL	BL	NA
5	Silvery metal,lead	BL	BL	BL	BL	NA
6	Transparent plastic,lid	BL	BL	BL	BL	BL
7	Silvery metal,thin screw	BL	BL	BL	X	NA
8	Black plastic,case	BL	BL	BL	BL	BL
9	Silvery metal,spring	BL	BL	BL	X	NA
10	Silvery metal,contact plate	BL	BL	BL	BL	NA
11	Transparent body,led	BL	BL	BL	BL	X
12	Silvery metal,lead	BL	BL	BL	BL	NA
13	Yellow body,led	BL	BL	BL	BL	X
14	Black body,audion	BL	BL	BL	BL	BL
15	Black body,resistor	BL	BL	BL	BL	BL
16	Black body,IC	BL	BL	BL	BL	BL
17	Black plastic,switch	BL	BL	BL	BL	BL
18	Silvery metal,holder	BL	BL	BL	BL	NA
19	Silvery metal,spring plate	BL	BL	BL	BL	NA
20	Silvery metal,lead	BL	BL	BL	BL	NA
21	Black plastic,case	BL	BL	BL	BL	BL
22	Silvery metal,solder	X	BL	BL	BL	NA
23	Green PCB	BL	BL	BL	BL	X
24	Silvery metal,nut	BL	BL	BL	BL	NA

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Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 3 of 9

25	Silvery coating,case	BL	BL	BL	BL	BL
26	Black plastic,case	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	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 700-3\sigma < X < 1300+3\sigma \leq OL$	$BL \leq 500-3\sigma < X < 1500+3\sigma \leq OL$
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 :

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

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Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 4 of 9

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.

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
		3	7	9		
1	Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	#	-
	Conclusion	PASS	PASS	PASS	-	-

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

(b) RL: Report 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

Compound		Material	Limit (mg/kg)	RL (mg/kg)
		22		
1	Lead (Pb)	305	1000	10
	Conclusion	PASS	-	-

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

(b) RL: Report limit

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

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Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 5 of 9

1.4 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	13	23		
1	Monobromo biphenyl	N.D.	N.D.	N.D.	-	50
2	Dibromo biphenyl	N.D.	N.D.	N.D.	-	50
3	Tribromo biphenyl	N.D.	N.D.	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	N.D.	N.D.	-	50
5	Pentabromo biphenyl	N.D.	N.D.	N.D.	-	50
6	Hexabromo biphenyl	N.D.	N.D.	N.D.	-	50
7	Heptabromo biphenyl	N.D.	N.D.	N.D.	-	50
8	Octabromo biphenyl	N.D.	N.D.	N.D.	-	50
9	Nonabromo biphenyl	N.D.	N.D.	N.D.	-	50
10	Decabromo biphenyl	N.D.	N.D.	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	N.D.	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	N.D.	N.D.	-	50
13	Tribromo diphenyl ether	N.D.	N.D.	N.D.	-	50
14	Tetrabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
15	Pentabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	N.D.	N.D.	-	50
21	Sum of PBBs	N.D.	N.D.	N.D.	1000	-

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Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 6 of 9

22	Sum of PBDEs	N.D.	N.D.	N.D.	1000	-
	Conclusion	PASS	PASS	PASS	-	-

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

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

Compound			Material				Limit (%)	RL(%)
			1	2	6+8	11+13+14		
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	-	-

Compound			Material				Limit (%)	RL(%)
			15+16	17+21	23	25		
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	-	-

Compound			Material	Limit (%)	RL(%)
			26		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	0.1	0.005

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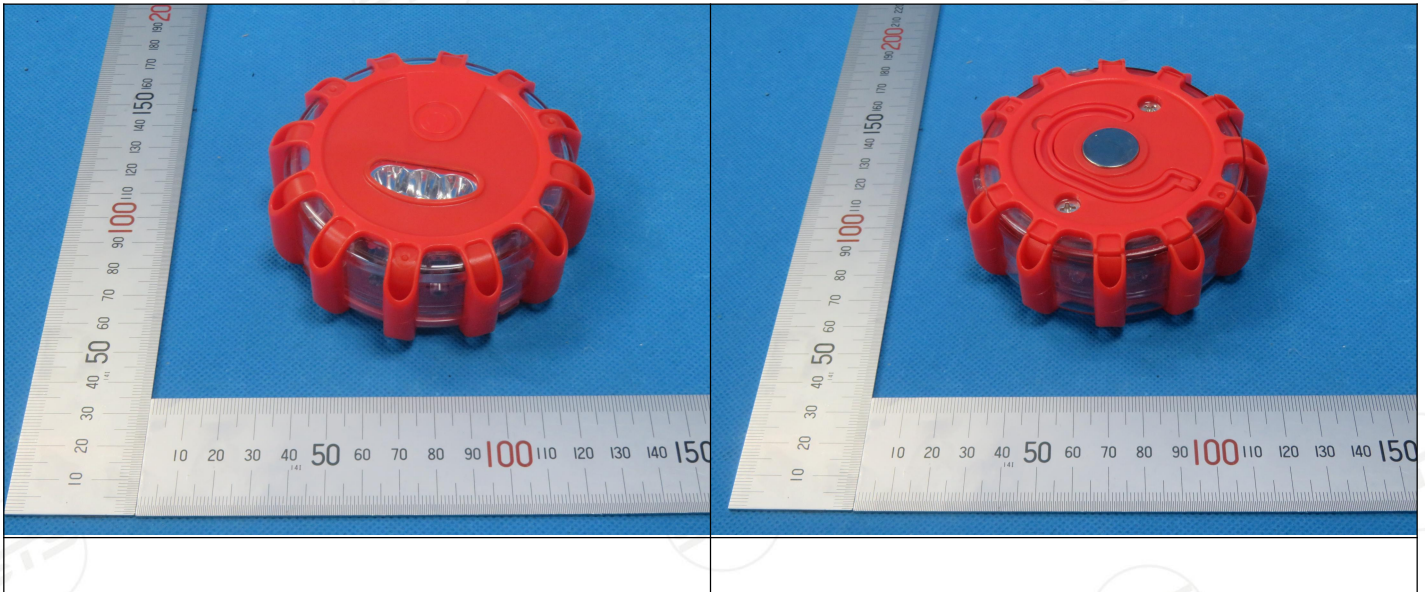
Date: 24-Mar-2023

Page 7 of 9

2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	0.1	0.005
Conclusion			PASS	-	-

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

Photo(s):



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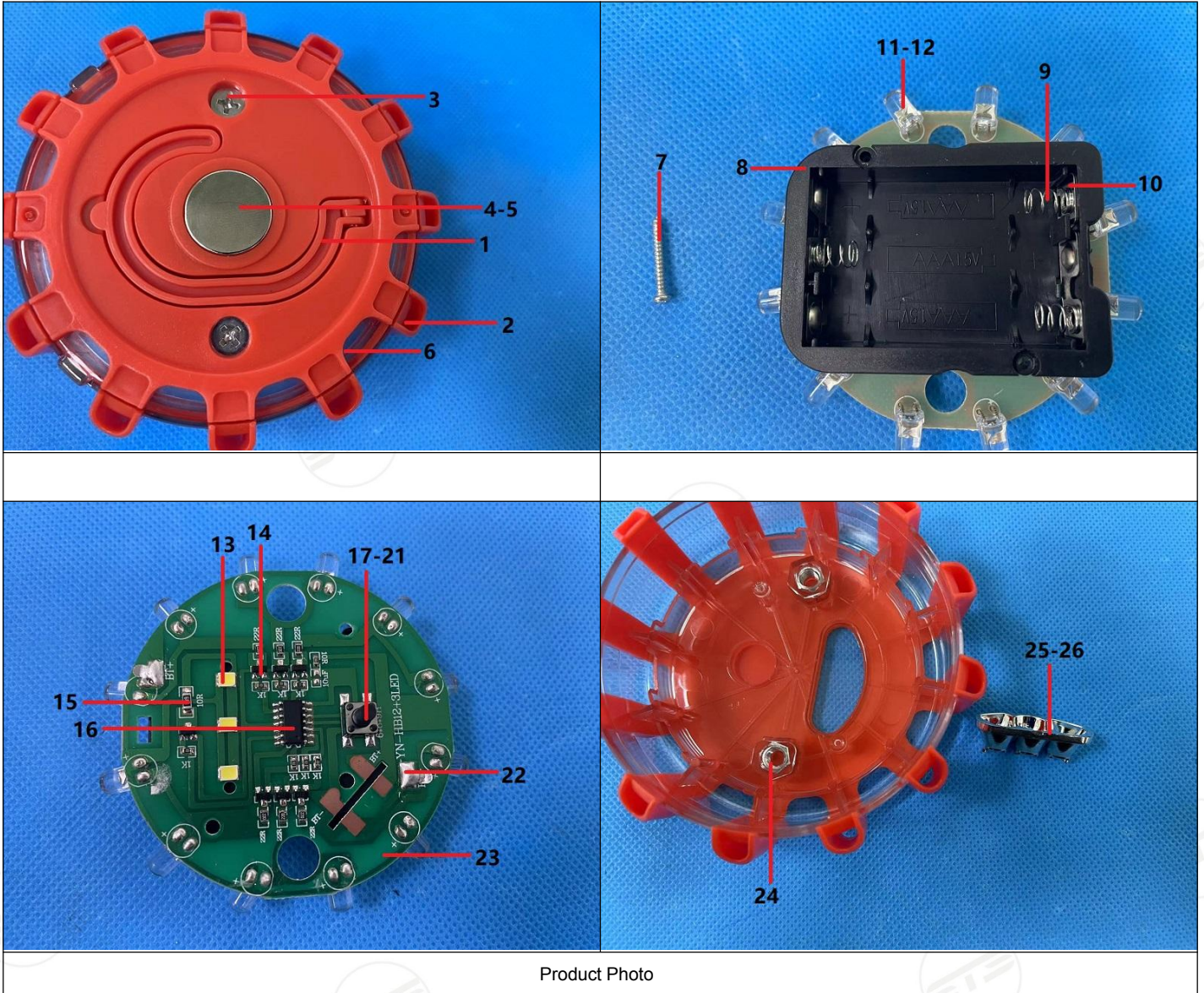


TEST REPORT

Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 8 of 9



Product Photo

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Report No.: STSGZ2303093032E

Date: 24-Mar-2023

Page 9 of 9

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9. 该测试报告的支持数据和信息本公司保存 10 年。个别评审机构有特别要求的,检测数据和报告的保存期可依情况变动。一旦超过上述提交的保存期限,数据和信息将被处理掉。任何情况下,本公司不必提供任何被处理的过期数据或信息。即使本公司事先被告知可能会发生相关的损害,本公司在任何情况下也不必承担任何损害,包括(但不限于)补偿性赔偿、利润损失、数据遗失、或任何形式的特殊损害、附带损害、间接损害、从属损害或任何违反约定、违反承诺、侵权(包括疏忽)、产品责任或其他原因的惩罚性损害。
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 ten 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.
10. 报告的签发记录可通过登录 www.stsgz.com 查询。如需进一步查询报告有效性或核实报告,需与本公司联系。
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