



TEST REPORT

Report No.: STSGZ2209223048E

Date: 11-Oct-2022

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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: 2 bicycle lights in PP box

Model/Style/Item #: MO8070

Receiving Date: 22-Sep-2022

Test Period: From 22-Sep-2022 to 28-Sep-2022

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

Tim Qi
(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	Transparent plastic,shell	BL	BL	BL	BL	BL
2	Laminate black printed white paper,sticker	BL	BL	BL	BL	BL
3	Silvery metal,screw	BL	BL	BL	X	NA
4	Silvery metal,axis	BL	BL	BL	BL	NA
5	Translucent soft plastic,button	BL	BL	BL	BL	BL
6	Silvery metal,ring	BL	BL	BL	BL	NA
7	Black elastic cord	BL	BL	BL	BL	BL
8	Black soft plastic,heat shrink tubing	BL	BL	BL	BL	BL
9	Silvery metal,holder	BL	BL	BL	BL	NA
10	Transparent plastic,LED cover	BL	BL	BL	BL	X
11	Silvery metal,lead	BL	BL	BL	BL	NA
12	Silvery metal,solder	BL	BL	BL	BL	NA
13	Black plastic,holder	BL	BL	BL	BL	BL
14	Green PCB	BL	BL	BL	BL	X
15	Silvery metal,cover	BL	BL	BL	BL	NA
16	White soft plastic,holder	BL	BL	BL	BL	BL
17	Transparent plastic,box	BL	BL	BL	BL	BL
18	Silvery metal,magnet	BL	BL	BL	BL	NA
19	Transparent red plastic,shell	BL	BL	BL	BL	BL
20	Red soft plastic,button	BL	BL	BL	BL	BL
21	Silvery metal,solder	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

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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
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,

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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			
1 Hexavalent Chromium (Cr(VI))	Negative		#	-
Conclusion	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 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)
	10	14		
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

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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
21	Sum of PBBs	N.D.	N.D.	1000	-
22	Sum of PBDEs	N.D.	N.D.	1000	-
Conclusion		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	5+8	7		
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

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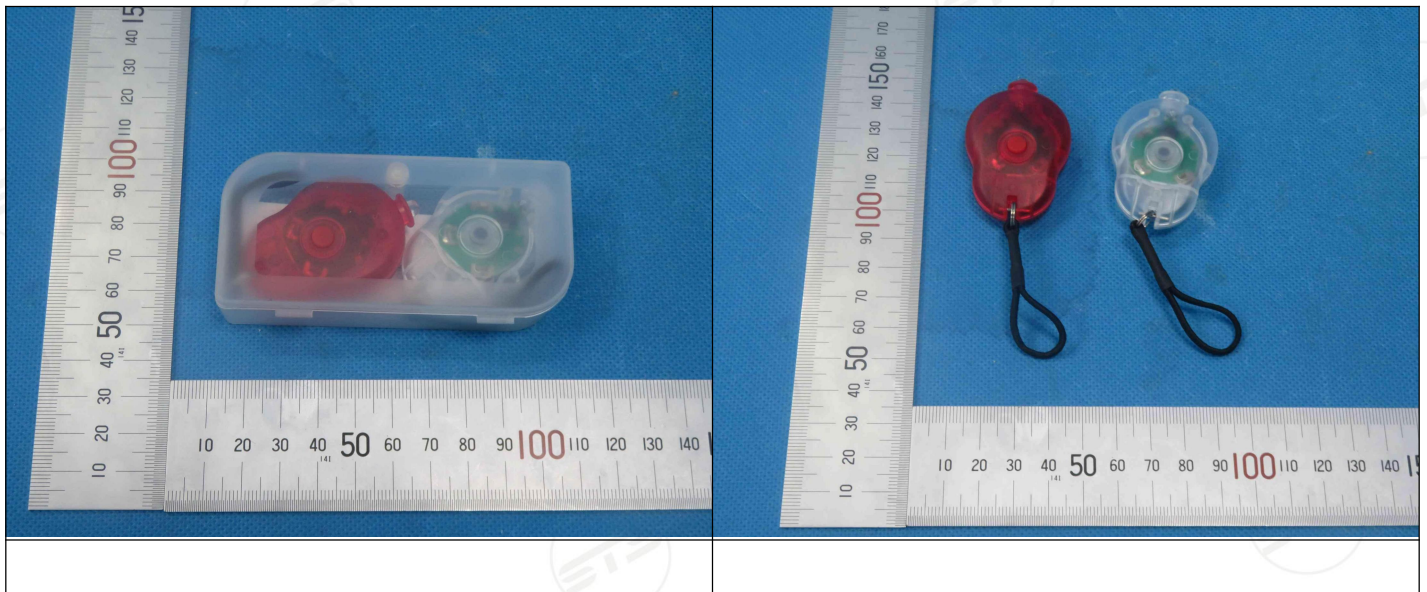
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	Conclusion	PASS	PASS	PASS	PASS	-	-
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Compound			Material				Limit (%)	RL(%)
			10+13	14	16+20	17+19		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 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	-	-

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

Photo(s):



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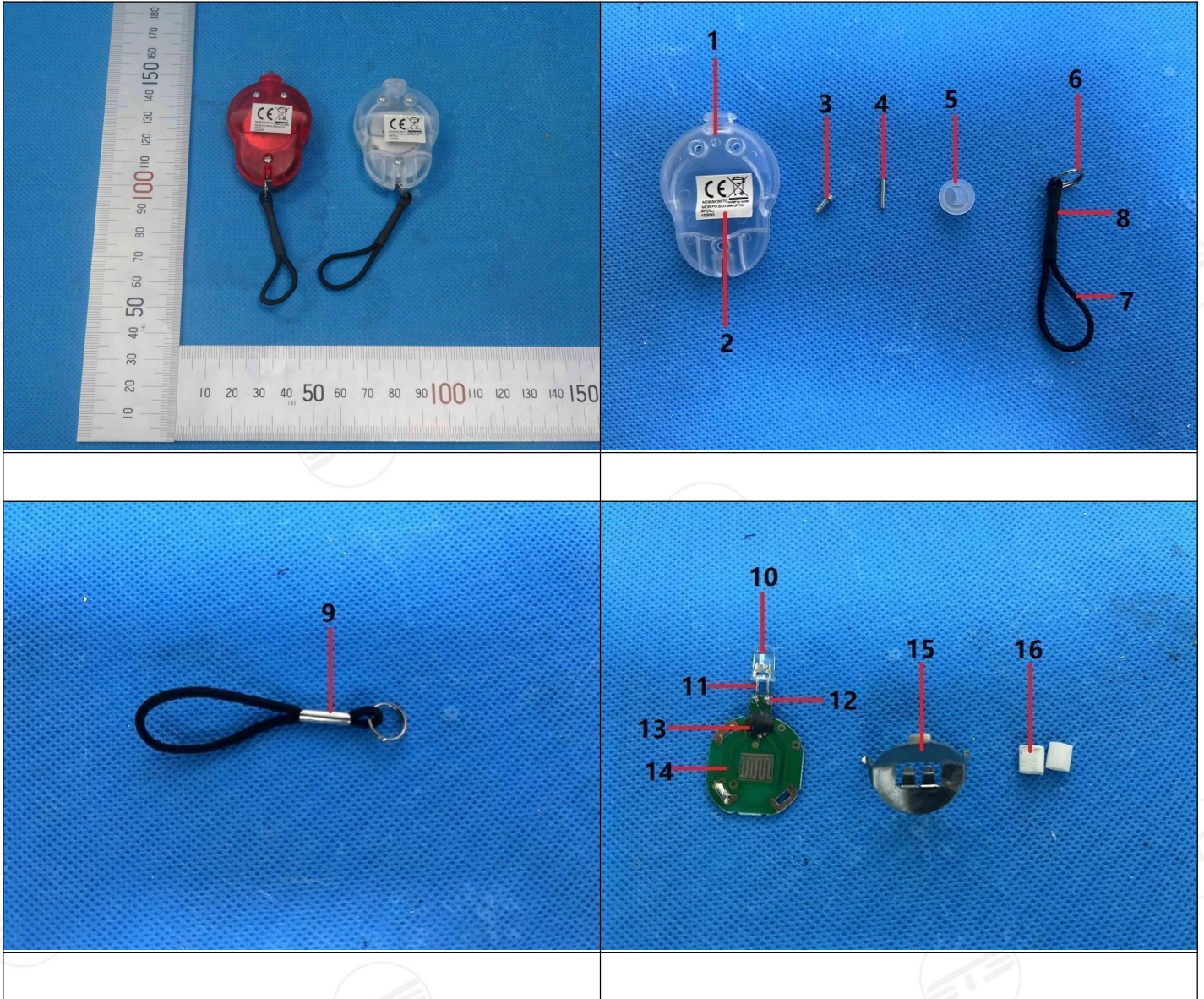
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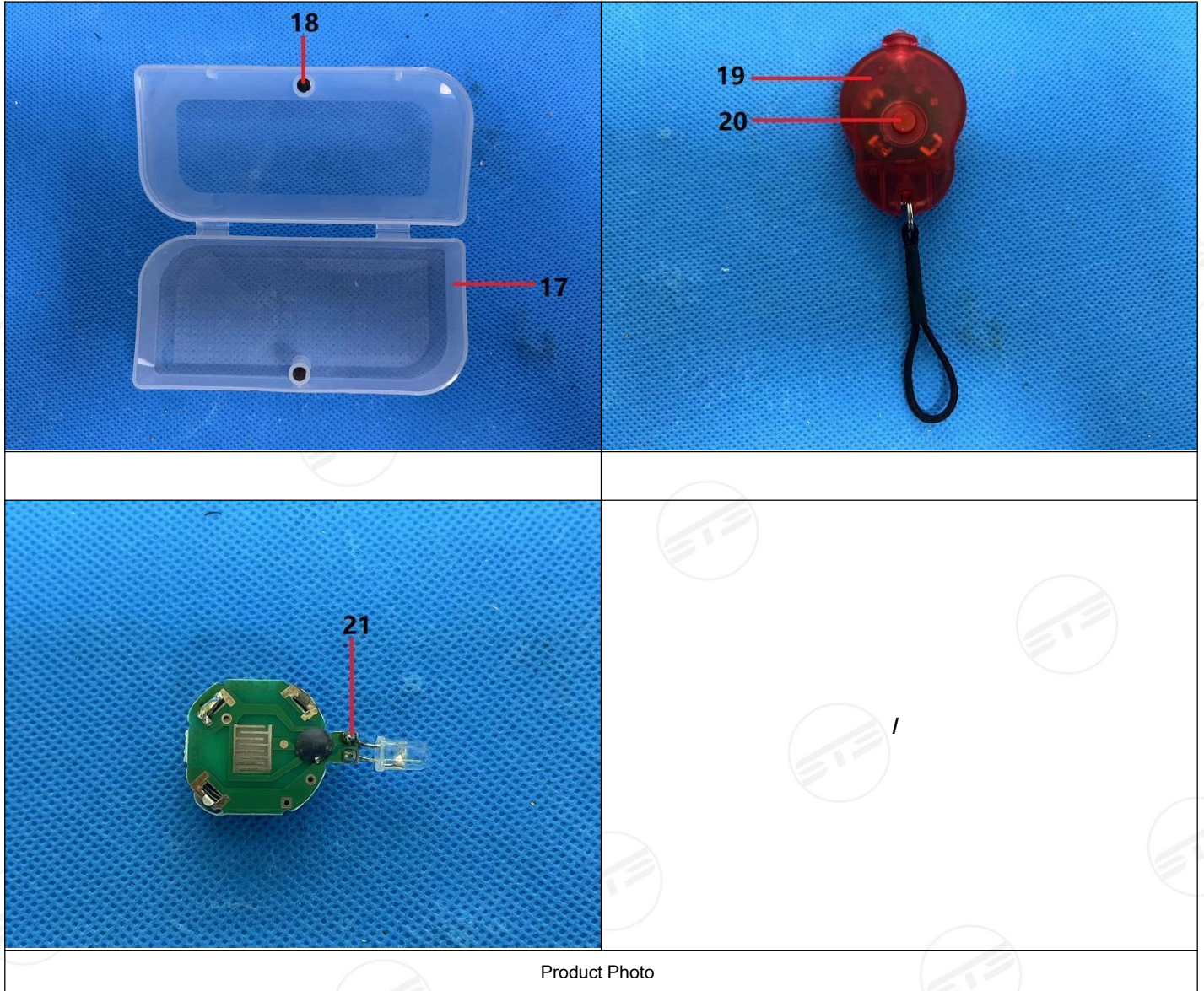
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Product Photo

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