

# TEST REPORT

Report No.: DPHTL2510203092E

Date: Nov 4,2025

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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:** Magnetic LED torch with clip**Model/Style/Item #:** MO2932**Vendor code:** 107978**Receiving Date:** Oct 20,2025**Test Period:** From Oct 20,2025 to Oct 24,2025**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)	<b>PASS</b>
2	Item 50 of Annex XVII of REACH Regulation (EC) 1907/2006 & amendment (EU) No 1272/2013 - Polycyclic-aromatic hydrocarbons (PAHs) content	<b>PASS</b>

\*\*\*\*\*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,cover	BL	BL	BL	BL	BL
2	Black plastic,shell	BL	BL	BL	BL	BL
3	Black soft plastic,button	BL	BL	BL	BL	BL
4	Silvery magnet,plate	BL	BL	BL	BL	NA
5	Silvery metal,cover	BL	BL	BL	BL	NA
6	Silvery metal,screw	BL	BL	BL	X	NA
7	Silvery metal,contact plate	BL	BL	BL	BL	NA
8	Silvery metal,solder	BL	BL	BL	BL	NA
9	Red soft plastic,wire jacket	BL	BL	BL	BL	BL
10	Blue soft plastic,wire jacket	BL	BL	BL	BL	BL
11	Coppery metal,wire core	BL	BL	BL	BL	NA
12	Bright black plastic,switch	BL	BL	BL	BL	BL
13	Silvery metal,switch inner	BL	BL	BL	BL	NA
14	Silvery metal,switch spring	BL	BL	BL	X	NA
15	White lubricating oil	BL	BL	BL	BL	BL
16	Silvery metal,switch lead	BL	BL	BL	BL	NA
17	Silvery coating,cover	BL	BL	BL	BL	BL
18	Silvery metal,small contact plate	BL	BL	BL	BL	NA
19	Silvery metal,spring	BL	BL	BL	X	NA
20	Translucent yellow/white dry glue,LED	BL	BL	BL	BL	X
21	Black body,resistor	BL	BL	BL	BL	BL
22	Silvery metal,solder	BL	BL	BL	BL	NA
23	White PCB	BL	BL	BL	BL	BL
24	Silvery metal,solder	BL	BL	BL	BL	NA

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25	Matt white plastic,shell	BL	BL	BL	BL	BL
26	Silvery metal,solder	BL	BL	BL	BL	NA
27	Black PCB	BL	BL	BL	BL	BL
28	Transparent dry glue,LED	BL	BL	BL	BL	X
29	Silvery metal,lead	BL	BL	BL	BL	NA
30	Yellow dry glue,base	BL	BL	BL	BL	BL
31	Bright silvery metal,base	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≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	BL≤50-3σ< X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
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,(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

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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.

## 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
	6	14	19		
1 Hexavalent Chromium (Cr(VI))	Negative	Negative	Negative	#	-
- Conclusion	PASS	PASS	PASS	-	-

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

(b) MDL: Method detected 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

Test Item(s)	Result		Limit (mg/kg)	MDL (mg/kg)
	20	28		
1 Monobromo biphenyl	N.D.	N.D.	-	50

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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	-
-	<b>Conclusion</b>	<b>PASS</b>	<b>PASS</b>	-	-

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

Test Item(s)			Result				Limit (%)	MDL(%)
			1+2	3	9+10	12		
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
-	<b>Conclusion</b>		<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Test Item(s)			Result				Limit (%)	MDL(%)
			15	17	20	21		
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
-	<b>Conclusion</b>		<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>	-	-

Test Item(s)			Result			Limit (%)	MDL(%)
			23+27	25	28+30		
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) MDL: Method detected limit  
 (b) N.D.: Not detected (result is less than MDL)

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

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

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.

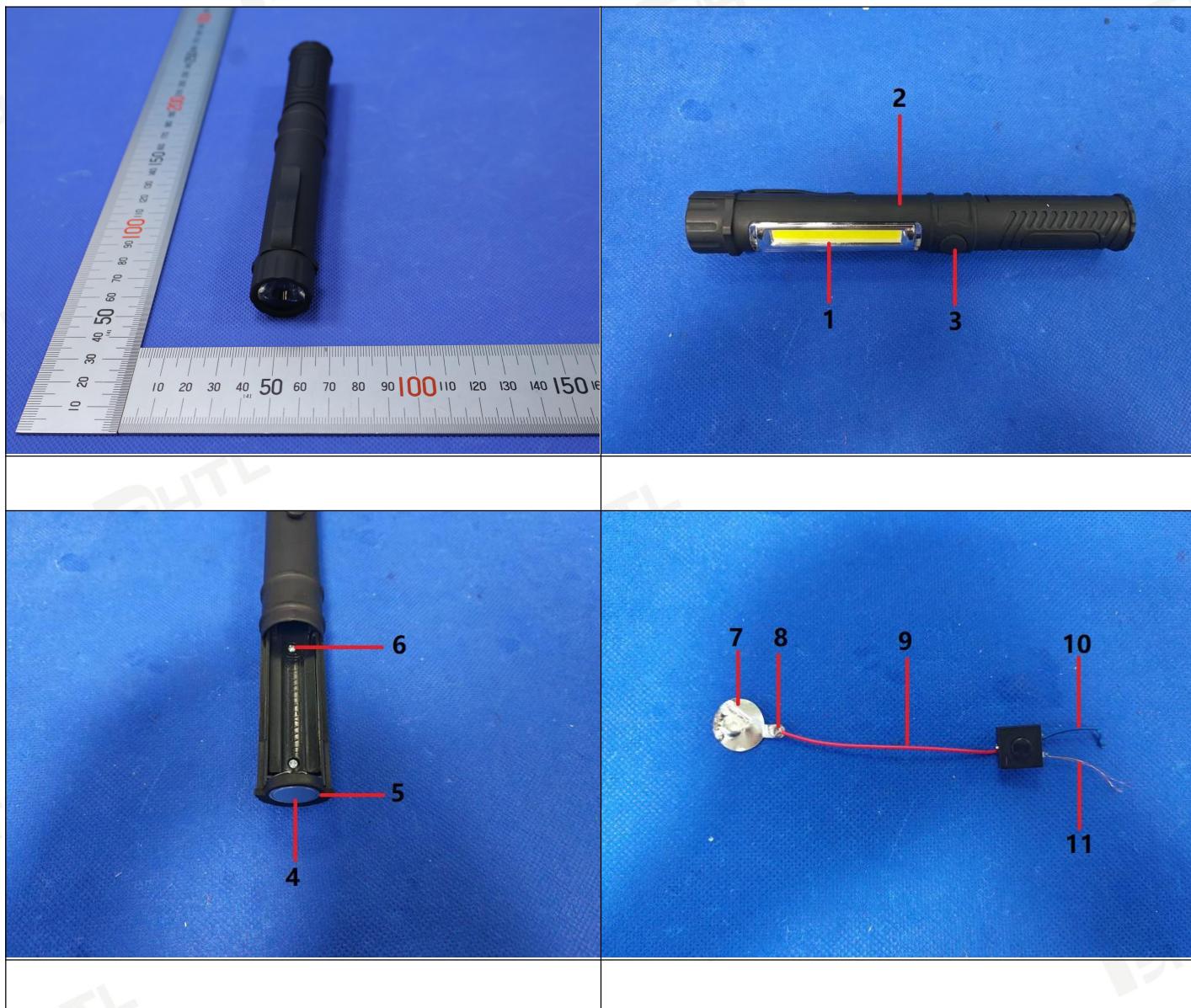
Category II : Toys, including activity toys, and childcare articles, that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use.

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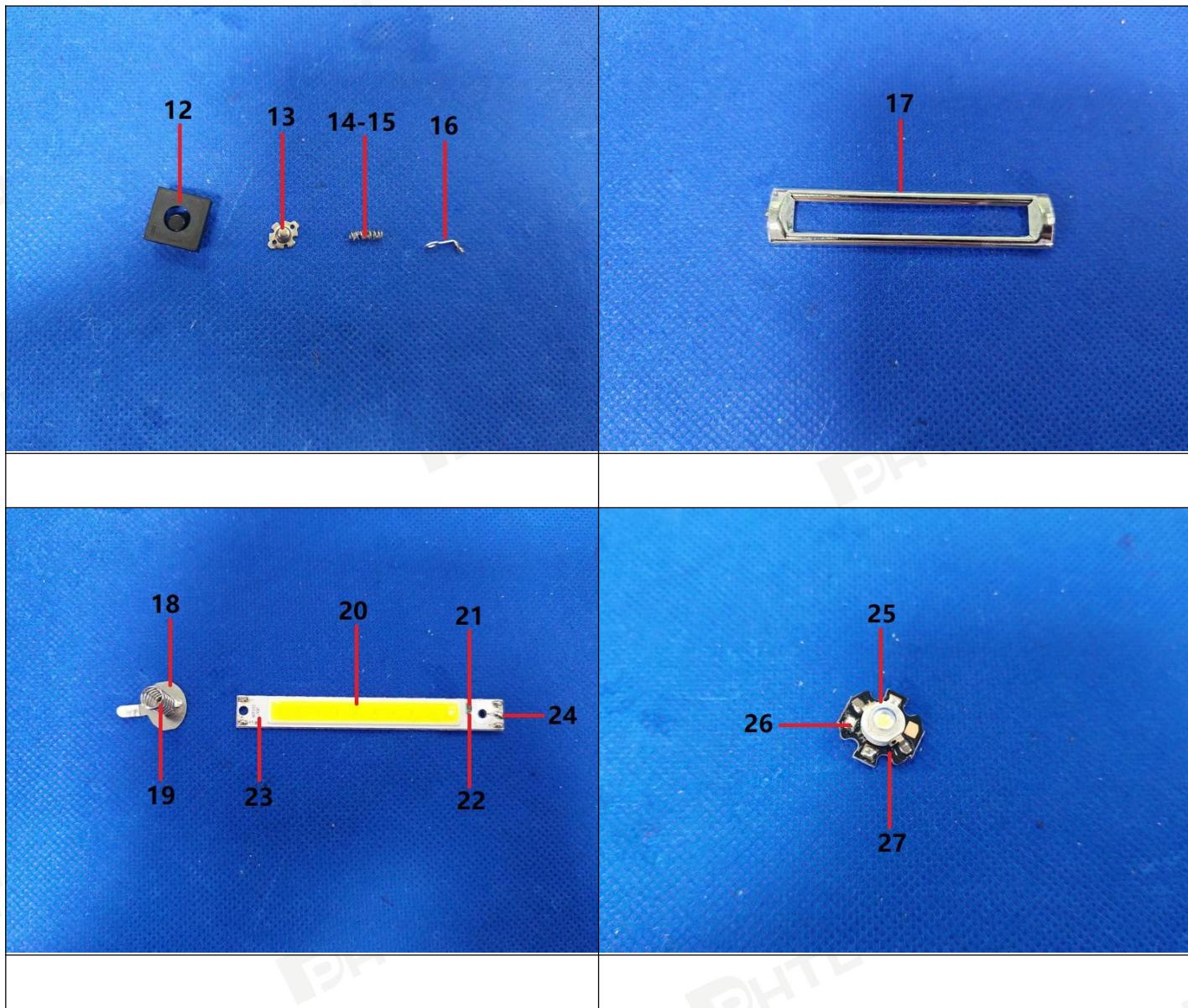
**Photo(s):**

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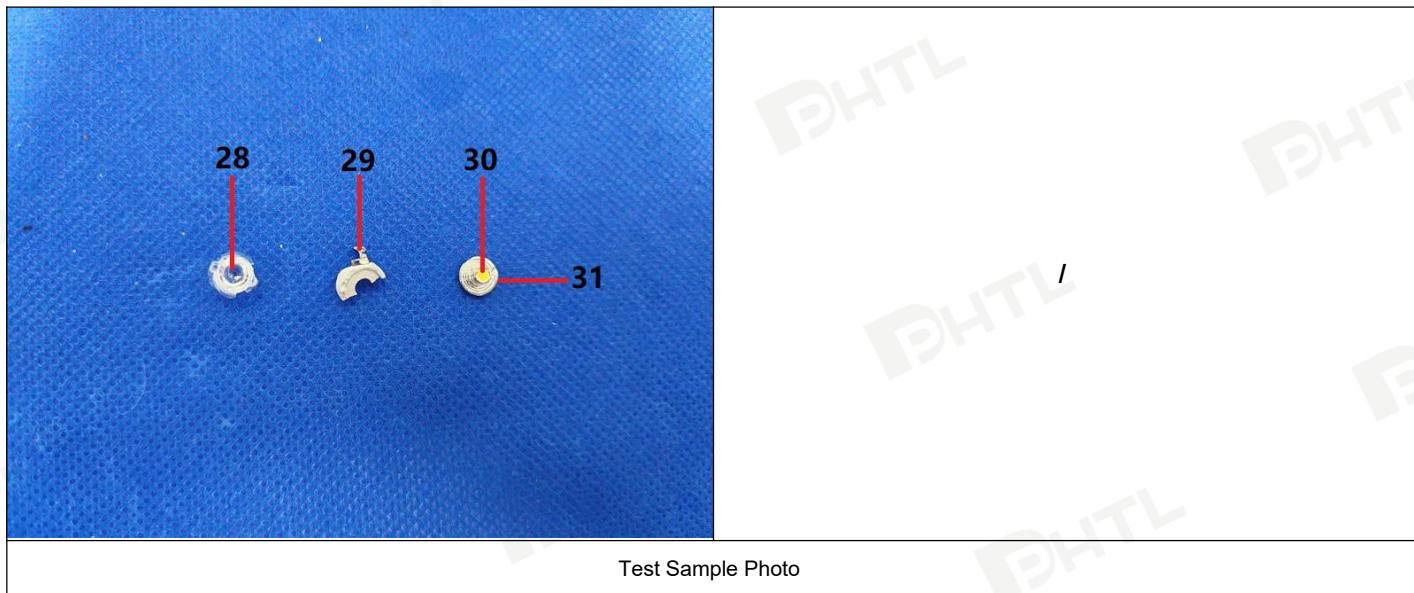


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