



Test Report

Report No.: HLF18009016E

Date: Sep 20, 2018

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Applicant :

Address :

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Name : Multi tool with LED light

Sample Model : FB-001

Sample Lot : /

Sample Received Date : Sep 1, 2018

Test Completed Date : Sep 20, 2018

Test Method : 1. Screening test method: IEC62321-3-1:2013/XRF
2. Wet chemical test method:
Lead(Pb): IEC62321-5:2013/ICP-OES
Cadmium(Cd): IEC62321-5:2013/ICP-OES
Mercury(Hg): IEC62321-4:2013+A1:2017/ICP-OES
Hexavalent Chromium(CrVI): IEC62321:2008/UV-VIS
Polybrominated Biphenyls (PBBs): IEC62321:2008 /GC-MS
Polybrominated Biphenyl Ethers(PBDEs): IEC62321:2008 /GC-MS

Test Results : Refer to the next page(s).

Test Requested	Conclusion
RoHS Directive 2011/65/EU Annex II – Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(CrVI), Polybrominated Biphenyls (PBBs), Polybrominated Biphenyl Ethers(PBDEs)	PASS

Reviewed by:

Lab Senior Engineer

Authorized Signature:

Technology Manager

In no circumstances shall the Company's responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal. This test report cannot be reproduced except in full.



FLION TESTING TECHNOLOGIES

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Test Results:

Part No.	Results	Cd	Pb	Hg	Cr ⁶⁺	PBBs	PBDEs	Conclusion on RoHS
1	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
2	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
3	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
4	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
5	EDXRF	BL	BL	BL	BL	IN	IN	--
	Wet Chemical Testing	--	--	--	--	N.D.	N.D.	Comply
6	EDXRF	BL	BL	BL	BL	BL	BL	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
7	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply
8	EDXRF	BL	BL	BL	BL	--	--	--
	Wet Chemical Testing	--	--	--	--	--	--	Comply

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Remark:

(a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr⁶⁺.

(b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for CrVI) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (Unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(c) BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection

(d) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition

(e) mg/kg = ppm = 0.0001%, N.D. = not detected (<MDL), --- = not conducted

(f) Unit and Method Detection Limit (MDL) in wet chemical test:

Test Items	Pb	Cd	Hg
Units	mg/kg	mg/kg	mg/kg
MDL	2	2	2

The MDL for single compound of PBBs & PBDEs is 5 mg/kg and MDL of Cr⁶⁺ for polymer & composite sample is 2 mg/kg.

(g) According to IEC 62321:2008, result on Cr⁶⁺ for metal sample is shown as Positive/Negative.

Positive = Presence of Cr⁶⁺ coating, Negative = Absence of Cr⁶⁺ coating.

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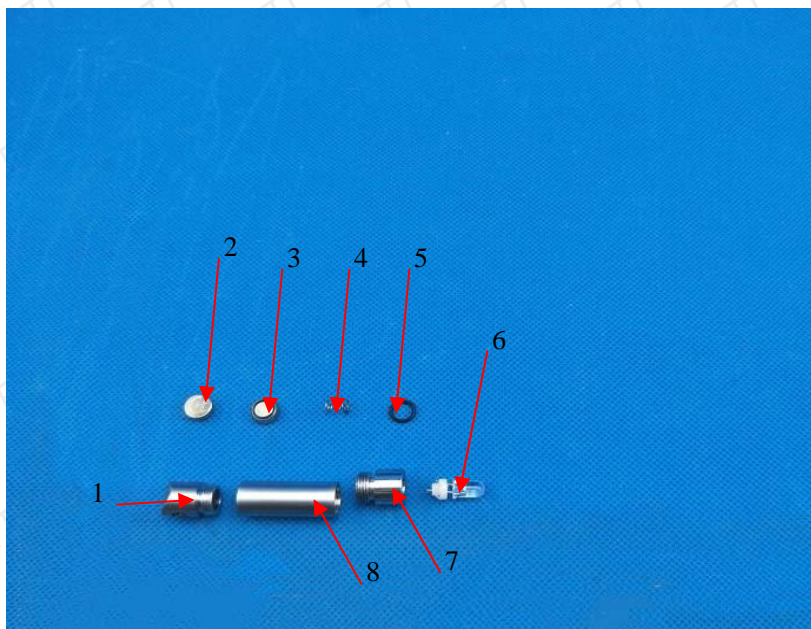
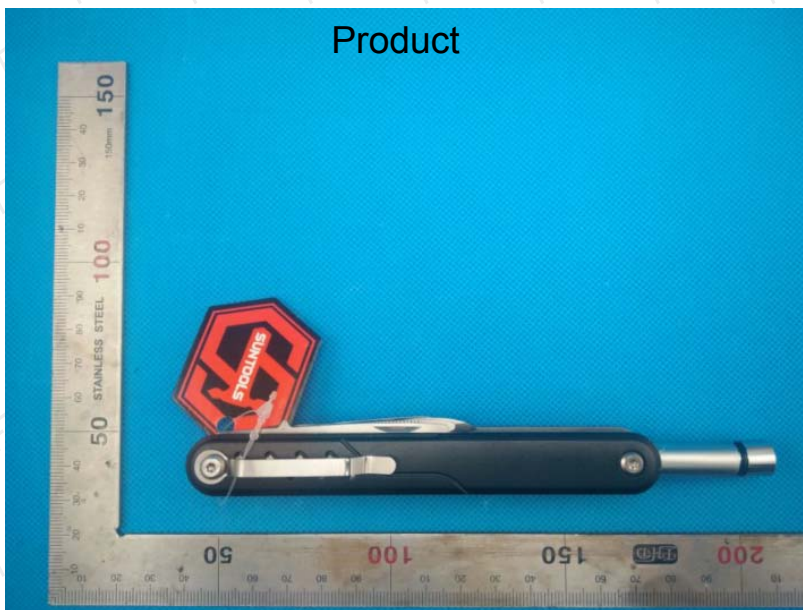
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Sample Photo

Product



Note: The results shown in this report refer only to the sample(s) tested.

***** End of Report *****

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