



TEST REPORT

Applicant: Hangzhou NaKu Technology Co., Ltd
Address: Binjiang District Xincheng Road NO.99 KaiHe Mansion, 215 Room, Hangzhou, Zhejiang, China




Manufacturer: Hangzhou NaKu Technology Co., Ltd
Address: Binjiang District Xincheng Road NO.99 KaiHe Mansion, 215 Room, Hangzhou, Zhejiang, China

The following samples were submitted and identified on behalf of the clients as:

Sample name: TTL Laser Module
Brand: 
Model(s): TTL-Laser-Module
Batch No.: /
Sample received date: Jun. 05,2024
Testing period: Jun. 05,2024 to Jun. 11,2024
Test Method: Please refer to next page(s).
Test Result: Please refer to next page(s).

Result Summary :

Test Requested	Conclusion
European Directive 2011/65/EU and amendment (EU) 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment	PASS

Tested By: 	Check By: 	Approve By: 
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Date: Jun. 24,2024

Test Method:

A. Screening test by XRF spectroscopy

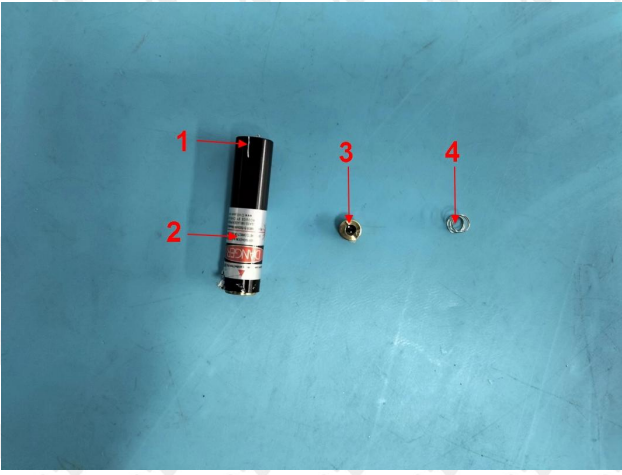
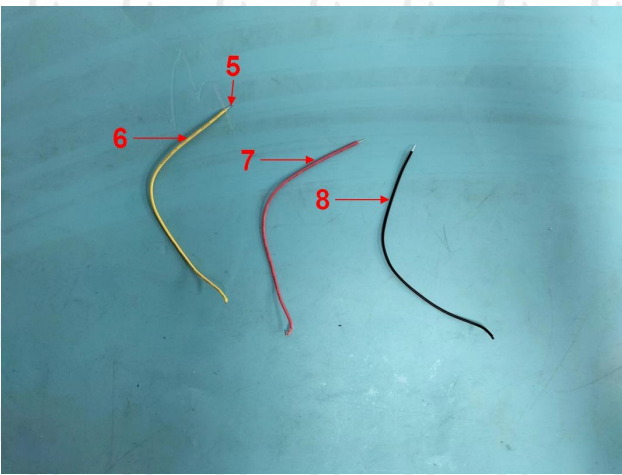
XRF screening limits for regulated elements according to IEC 62321-3-1:2013

Element	Screening limit / mg/kg		MDL	
	Polymers and metals	Composite material	Polymers	Other material
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10mg/kg	50mg/kg
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma)$ $\leq OL$	$LOD \leq (50-3\sigma) < X < (150+3\sigma)$ $\leq OL$	10mg/kg	50mg/kg
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma)$ $\leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma)$ $\leq OL$	10mg/kg	50mg/kg
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$	10mg/kg	50mg/kg
Br	$BL \leq (300-3\sigma) < X$ (non-metal only)	$BL \leq (250-3\sigma) < X$	10mg/kg	50mg/kg

B. Chemical Test

Test Item(s)	Test Method	Analysis Equipment(s)	MDL	Limit
Lead (Pb)	IEC 62321-5:2013	ICP-OES	2 mg/kg	1000mg/kg
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	2 mg/kg	100mg/kg
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES	2 mg/kg	1000mg/kg
Hexavalent Chromium Cr(VI)	IEC 62321-7-1:2015	UV-VIS	- -	1000mg/kg
	IEC 62321-7-2:2017		8 mg/kg	1000mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
Phthalate	IEC 62321-8:2017	GC-MS	50mg/kg	1000mg/kg

Tested material list

No.	Description	Photo(s) of tested material
1	Black plated metal part	
2	Label	
3	Gold metal part	
4	Silver metal part	
5	Silver metal wire core	
6	Yellow plastic wire skin	
7	Red plastic wire skin	
8	Black plastic wire skin	

Note: test samples were specified by applicant.

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Test Result(s):

No.	XRF screening Result					Chemical confirm Result (mg/kg)	Remark	Conclusion
	Pb	Cd	Hg	Cr	Br			
1	BL	BL	BL	BL	BL	---	---	PASS
2	BL	BL	BL	BL	BL	---	---	PASS
3	#29765	BL	BL	BL	BL	---	---	PASS
4	BL	BL	BL	BL	BL	---	---	PASS
5	BL	BL	BL	2500	BL	Cr ⁶⁺ : Negative	---	PASS
6	BL	BL	BL	BL	BL	---	---	PASS
7	BL	BL	BL	BL	BL	---	---	PASS
8	BL	BL	BL	BL	BL	---	---	PASS

Test Item(s)	Dibutyl Phthalate (DBP) (mg/kg)	Benzylbutyl Phthalate (BBP) (mg/kg)	Bis-(2-ethylhexyl) Phthalate (DEHP) (mg/kg)	Diisobutyl phthalate (DIBP) (mg/kg)	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	
Limit	1000	1000	1000	1000	
No.	Result (mg/kg)				PASS
2	N.D	N.D	N.D	N.D	
6+7+8	N.D	N.D	N.D	N.D	PASS

Remark:

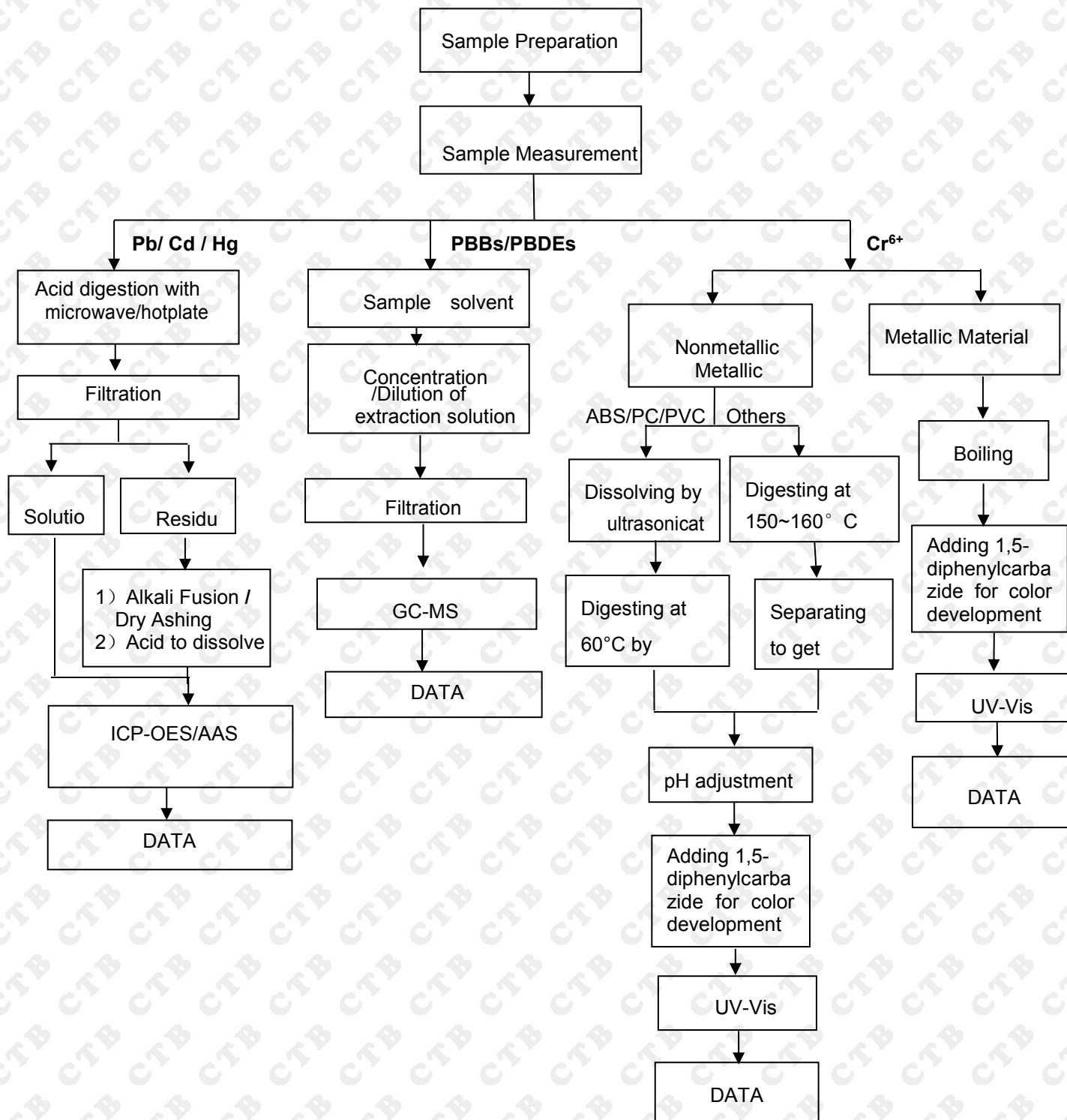
1. BL = below the limit
2. OL = over the limit
3. X = inconclusive, chemical confirm test is needed
4. NA = metal not applicable
5. mg/kg = milligram per kilogram = ppm
6. N.D = not detected
7. Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than $0.1\mu\text{g}/\text{cm}^2$ with 50cm^2 sample surface area used.
8. Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than $0.13\mu\text{g}/\text{cm}^2$ with 50cm^2 sample surface area used. The limit for composite test should be divided by the mixed number.
9. sample surface area used. The limit for composite test should be divided by the mixed number.

Note:

1. When perform screening tests, 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 Cr^{6+} .
2. Pb, Cd, Hg, Cr and Br results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is needed to be performed, if the concentration falls into the inconclusive area according to IEC 62321-3-1:2013.
3. For the XRF screening test for RoHS elements, the reading may be different to the actual content in the sample be of non-uniformity composition.
4. # the lead content of tested component exceeded 1000ppm, but less than 40000ppm, it can comply with the RoHS directive, as it is exempted to contain lead with up to 40000ppm according to item 6(c) of annex III of 2011/65/EU, as per applicant' s declaration.

Test flow chart

1. Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs



2. Phthalate test flow chart

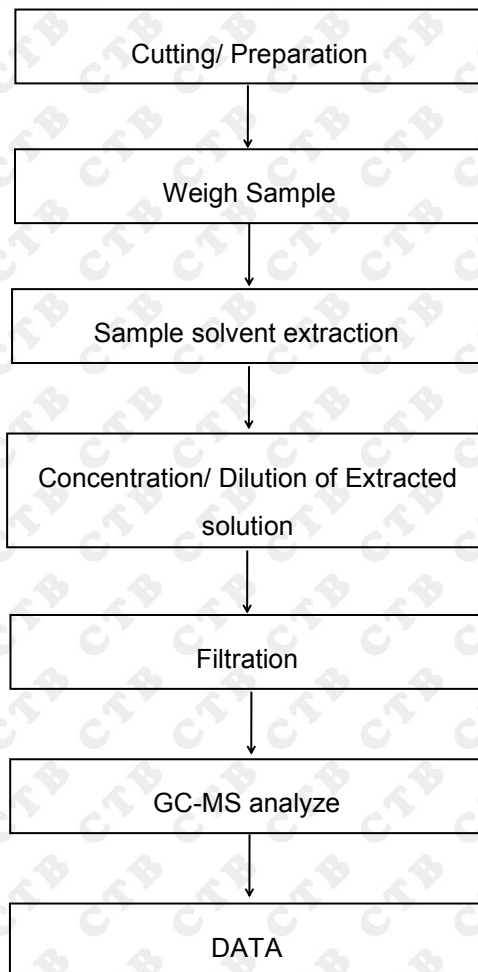
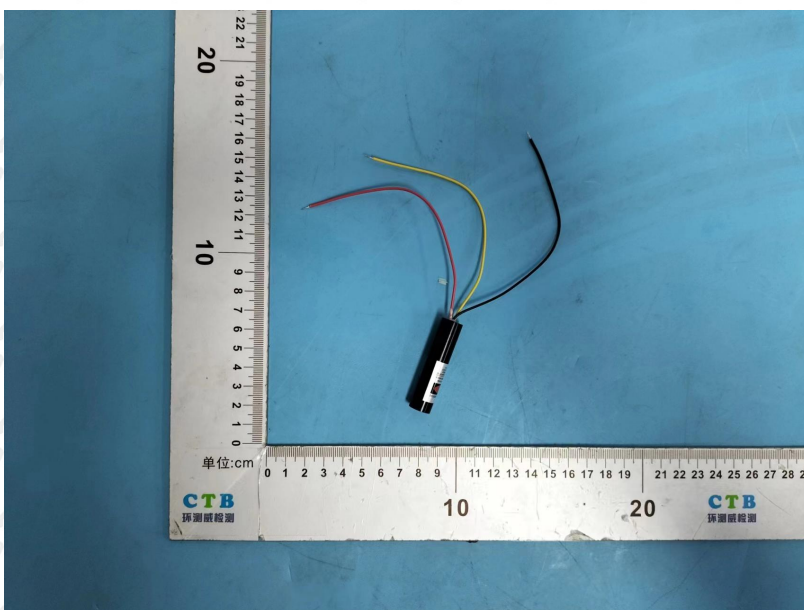
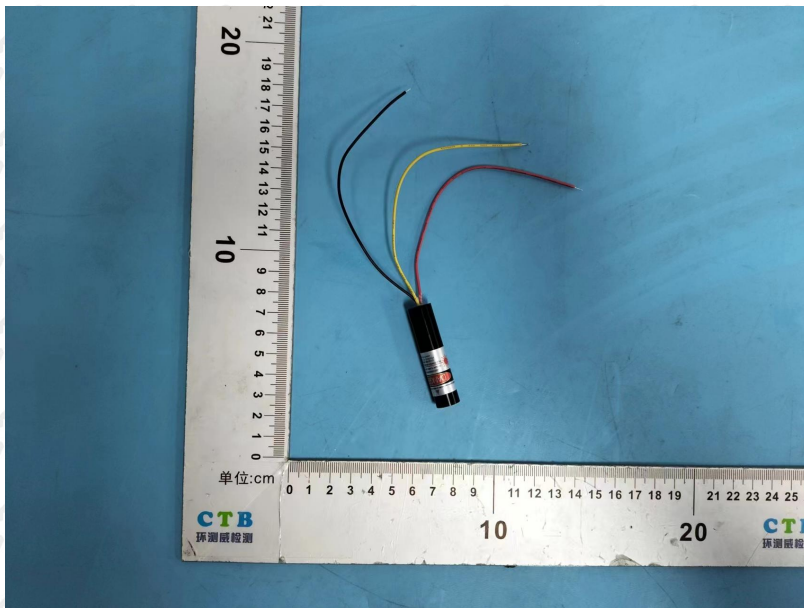


Photo documentation



*** End of Report ***

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "★" indicates the testing items were fulfilled by subcontracted lab. "※" indicates the items are not in CNAS accreditation scope.