



CTS

CENTRE OF TESTING SERVICE

TEST REPORT

No.: C3190422012-C-R1

DATE: May 27, 2019

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APPLICANT:



DESCRIPTION OF SAMPLES:

Sample Name	:	Light up stylus pen
Item number	:	
Vendor code	:	
Model No.	:	/
Brand Name	:	/
Manufacturer Name	:	/
Buyer Name	:	/
Country of Origin	:	China
Country of Destination	:	Overseas
Sample Receiving Date	:	Apr. 22, 2019
Testing Period	:	Apr. 22, 2019 to Apr. 26, 2019
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU Annex II.
Test Method	:	Please refer to next page(s)
Test Results	:	Please refer to next page(s)

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CONCLUSION:

Tested Samples	Test Requested	Conclusion
Tested Component of Submitted Sample	European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	Pass
	The BBP/DBP/DEHP/DIBP content requirements of the European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its amendments (EU) 2015/863	Pass

Note: The tested part of the sample was specified by client.
The test conclusion was given based on the results of tested part.

Authorized by: CTS (Ningbo) Testing Service Technology Co., Ltd.



Jane.Ye

Lab Manager

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TEST RESULTS:

1) Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs)

1. X-Ray Fluorescence Spectrometry method in reference to IEC 62321-3-1:2013.
2. Chemical test method

Test Item(s)	Sample preparation	Test Method	Test Instrument
Lead (Pb)	With reference to IEC 62321-2:2013	With reference to IEC 62321-5:2013	ICP-AES
Cadmium (Cd)		With reference to IEC 62321-5:2013	ICP-AES
Mercury (Hg)		With reference to IEC 62321-4:2013+A1:2017	ICP-AES
Chromium VI (Cr VI)		With reference to IEC 62321-7-1:2015 IEC 62321-7-2:2017	UV-Vis
PBBs		With reference to IEC 62321-6:2015	GC-MS
PBDEs			

Test results of all parts by EDXRF and chemical confirmation

No.	Sample Description		Results					Chemical Confirmation Result (Unit=mg/kg)
			Pb	Cd	Hg	Cr	Br	
1	Switch	Black soft plastic	P	P	P	P	P	/
2		Red coating	P	P	P	P	P	/
3		White plastic	P	P	P	P	P	/
4		Spring	P	P	P	P	/	/
5	Beige plastic		P	P	P	P	P	/
6	LED	Transparent body	P	P	P	P	P	/
7		Pin	P	P	P	P	/	/
8	Black coating		P	P	P	P	P	/
9	White plastic base material		P	P	P	P	P	/
10	Transparent plastic pen shell		P	P	P	P	P	/
11	Silver metal pen clip		P	P	P	P	/	/

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No.	Sample Description	Results					Chemical Confirmation Result (Unit=mg/kg)
		Pb	Cd	Hg	Cr	Br	
12	Silver coating	P	P	P	X	P	CrVI: N.D.
13	Black plastic base material	P	P	P	X	P	CrVI: N.D.
14	White plastic pen holder	P	P	P	P	P	/
15	Silver metal nib	X	P	P	P	/	Pb: N.D.
16	Blue plastic	P	P	P	P	P	/
17	Black plastic pen grip	P	P	P	P	X	PBBs: N.D. PBDEs: 293 (10-PBDE: 293)
18	Silver metal	P	P	P	P	/	/
19	White plastic	P	P	P	P	P	/
20	Copper coating	P	P	P	P	P	/
21	Off-white plastic base material	P	P	P	X	P	CrVI: N.D.

Note : P = Below Limit (Pass)
 F = Over Limit (Fail)
 X = Inconclusive
 N.D. = not detected (less than MDL)
 1mg/kg=1ppm=0.0001%

Remarks:

- (1) Results are obtained by EDXRF for primary screening, and further chemical testing is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Polymer Materials	Metallic Materials	Electronic Materials
Pb	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cd	$P \leq 50 < X < 130 \leq F$	$P \leq 50 < X < 130 \leq F$	$X < 130 \leq F$
Hg	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cr	$P \leq 700 < X$	$P \leq 700 < X$	$P \leq 500 < X$
Br	$P \leq 250 < X$	/	$P \leq 250 < X$

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(2) Chemical Confirmation Result acceptable Limit and Method Detect Limit:

Test items	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (CrVI) by alkaline extraction	Chromium VI (CrVI) by boiling water extraction#	PBBs	PBDEs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm ²	mg/kg	mg/kg
Method Detection Limit	2	2	2	2	0.10	5	5
Acceptable Limit	1000	100	1000	1000	---	1000	1000

Note : 1. #=a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 μg/cm². The sample coating is considered to contain CrVI.
b. The sample is negative for CrVI if CrVI is N.D. (concentration less than 0.10 μg/cm²). The coating is considered a non-CrVI based coating.
c. The result between 0.10 μg/cm² and 0.13 μg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination.
2. Cr(VI) results represent status of the sample at the time of testing.

2) Phthalates

Test Method: Determination of phthalates by GC-MS based on IEC62321-8:2017.

No.	Sample Description	Result (%)				Limit (%)
		DEHP	DBP	BBP	DIBP	
1	Black soft plastic (switch)+red coating (switch)	N.D.	N.D.	N.D.	N.D.	0.1
2	White plastic (switch)+beige plastic +transparent body (LED)	N.D.	N.D.	N.D.	N.D.	0.1
3	Black coating+white plastic base material	N.D.	N.D.	N.D.	N.D.	0.1
4	Transparent plastic pen shell+white plastic pen holder+blue plastic	N.D.	N.D.	N.D.	N.D.	0.1
5	Silver coating+black plastic base material	N.D.	N.D.	N.D.	N.D.	0.1
6	Black plastic pen grip+white plastic	N.D.	N.D.	N.D.	N.D.	0.1
7	Copper coating+off-white plastic base material	N.D.	N.D.	N.D.	N.D.	0.1

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- Note :
1. N.D. = not detected (less than MDL)
 2. 1 mg/kg=1 ppm=0.0001%
 3. MDL= Method Detect Limit
 4. The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II and its amendment 2015/863/EU.
 5. The method detect limit for each Phthalates are:

Method Detect Limit		
Phthalates	DEHP (Di- (2-ethylhexyl)phthalate)	0.005%
	DBP (Dibutyl phthalate)	0.005%
	BBP (Benzyl butyl phthalate)	0.005%
	DIBP (Diisobutyl phthalate)	0.005%

6. The report is amended from the report C3190422012-C.
The report C3190422012-C become invalid.

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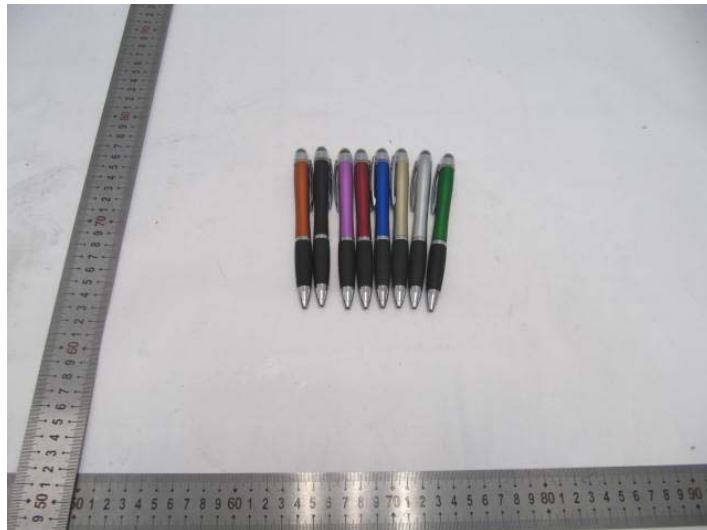
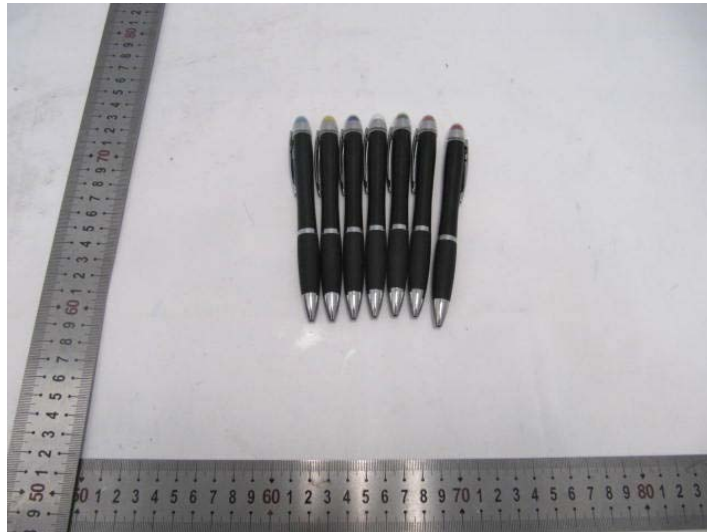
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SAMPLE REFERENCE PHOTO:



End of Report

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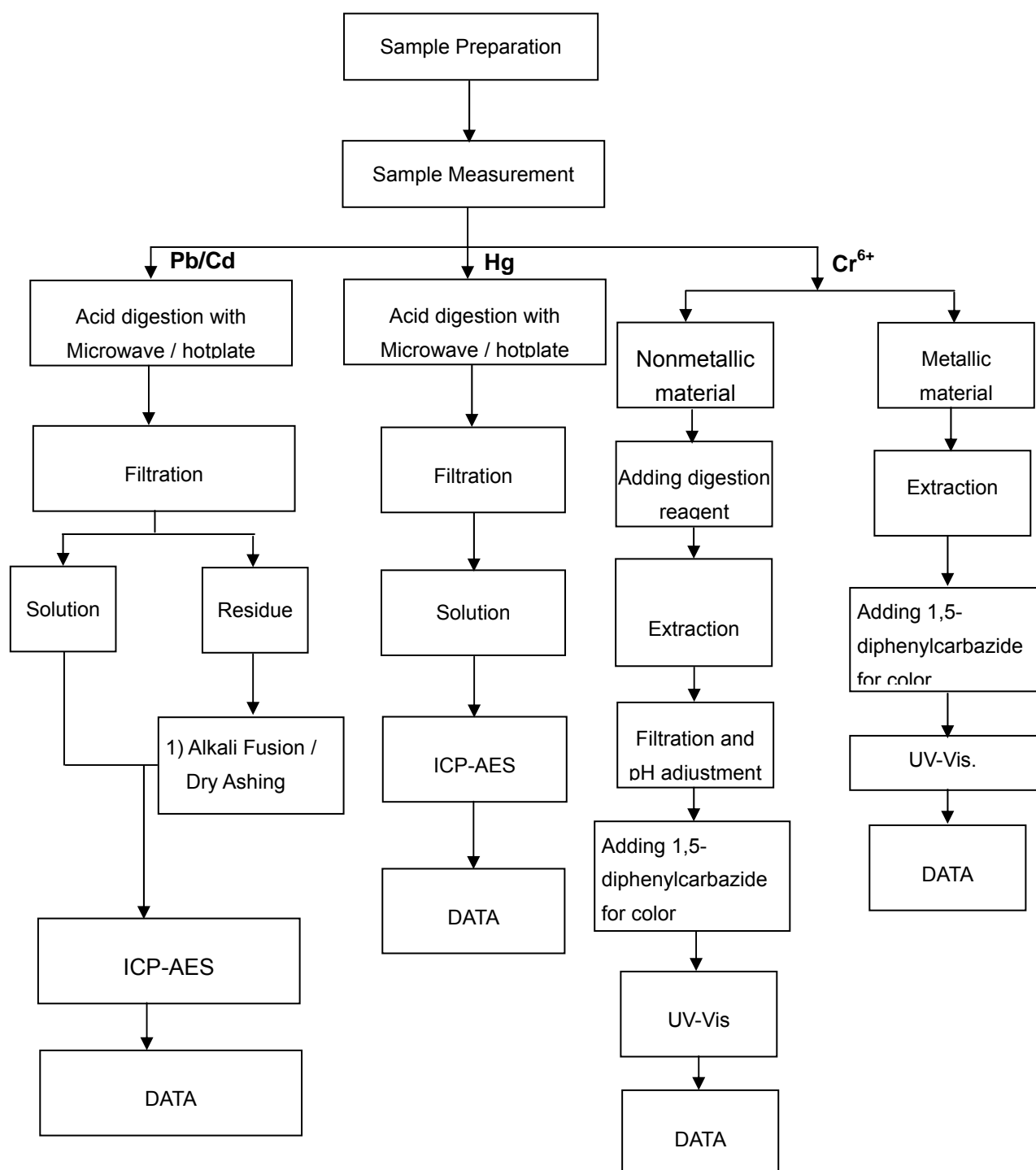
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Chemical Test Method Flow Chart



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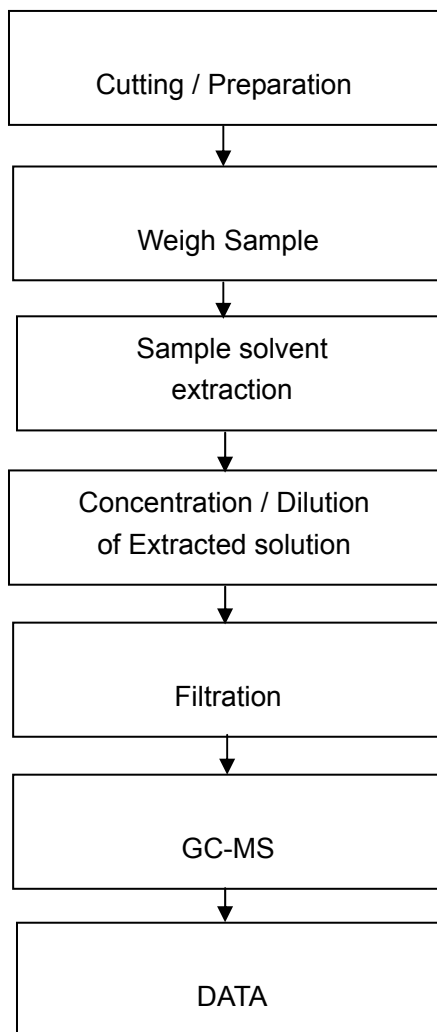
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PBBs / PBDEs



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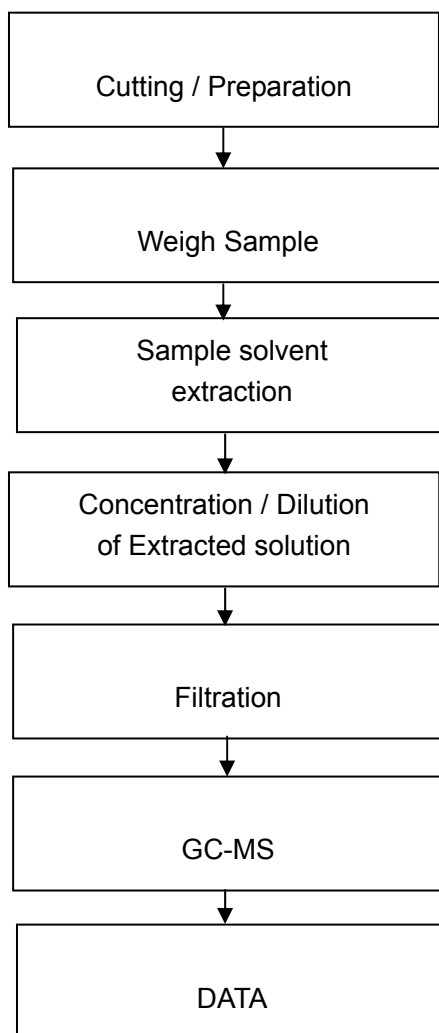
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Phthalates Testing Flow Chart



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