承 認 書
APPROVAL SHEET

客戶名稱
Customer: 研揚科技股份有限公司

飛偉料號
FW P/N: FWAA-1375

客戶料號
Cus. P/N: 170X000255

規格敘述
DESCRIPTION: COM CABLE 210mm

審 核 Approved By	業 務 Sales Dept	品 保 QA Dept	工 程 Engineering Dept
王俊偉	張全生	劉江華	楊仁貴

客戶簽章
Customer Signature:

審 核 Approved By	核 對 Checked By	檢 驗 Tested By

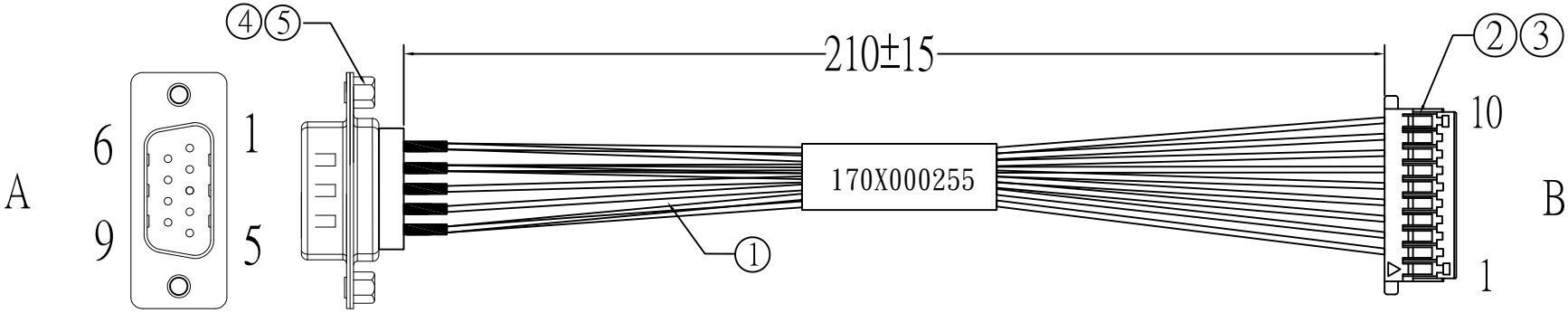
飛偉科技有限公司
FLYINGWAY TECH CO.,LTD
Address:新北市永和區中和路343號3F-1
TEL:02-22311313
FAX:02-22311020
CONTACT:Chino Wang
E-Mail:chino@flyingwaytech.com.tw
Cellphone:0983588528

DATE:2021/03/29

RoHS Compliant

Pin對照表

A	1	2	3	4	5	6	7	8	9
B	10	9	8	7	6	5	4	3	2
顏色	黑	棕	紅	橙	黃	綠	藍	紫	白



NO	品 名 規 格	數量	單位	生產廠商
5	套管:Φ1.0*L=10mm 黑色 厚壁	9	pcs	WORE或同級品
4	DB頭:9P 公頭 後鉚螺母 二排 焊接式 黑膠芯	1	pcs	超端或同級品
3	TER:11002TOP-2E	9	pcs	JCTC或同級品
2	HSG:11002H00-10P	1	pcs	JCTC或同級品
1	線材:UL1571#28 OD=0.8 黑;棕;紅;橙;黃;綠;藍;紫;白各1 L=220*2.0T*1.6	共9	pcs	瑞興或同級品

客戶工程師	Jimmy	
版次	變更內容	變更日期
A	新發行	2020/09/25

飛 偉 科 技 有 限 公 司
FLYINGWAY TECH CO.,LTD
TEL:02-2231-1313
FAX:02-2231-1020
E-MAIL:chino@flyingwaytech.com.tw

TITLE: COM CABLE 210mm

FW P/N: FWAA-1375

CUS. P/N: 170X000255

REV:	DWG BY:	CHECKED BY:	DATE:
A	Irene	Chino	2020/09/25

瑞興電線有限公司

UL 1571 HOOK-UP WIRE
80℃ 30V PVC 電子線

UL Subject 758 UL FILE NO : E108485

▲說明 :
●導體使用絞線 30-24AWG 鍍錫銅
●PVC 絕緣
●額定溫度 : 80℃ , 額定電壓 : 30Volts
●可通過 UL VW-1 垂直型耐燃測試

▲Product Description :
●Tinned copper conductor30-24AWG
●Color-coded PVC insulation
●Rated temperature : 80℃,Rated voltage : 30Volts
●Passes UL VW-1 vertical flame test

▲應用 :
●電子設備二次回路中內部連接用線

▲Applications
●Internal wiring of class 2 circuits in electronic equipment

構造及電器性能 structure & electric properties

UL 1571	額定 Range		導體 Conductor		絕緣體 Insulation		公差值 Tolerance mm	最大導體阻抗 Maximum Conductor Resistance Ω / Km	最小絕緣阻抗 Minimum Insulation Resistance MΩ / Km	絕緣耐電壓 (VAC/min) Insulation Potential Strength
	溫度 Temp ℃	電壓 Voltage V	線號 AWG	構成 NO./mm	厚度 Thickness mm	外徑 O.D. mm				
多蕊線 Stranded	80℃	30V	30	0.100/ 7	0.20	0.70	± 0.05	387	15	2000
			30	0.100/ 7	0.11	0.55	± 0.05	387		
			28	0.127/ 7	0.20	0.80	± 0.05	244		
			28	0.127/ 7	0.11	0.60	± 0.05	244		
			26	0.160/ 7	0.20	0.90	± 0.05	153		
			24	0.160/11	0.20	1.05	± 0.05	95.8		
先絞後鍍 Top-Coated (ATC)			28	0.127/ 7	0.20	0.80	± 0.05	244		

UL Product iQ™

AVLV2.E108485 - APPLIANCE WIRING MATERIAL - COMPONENT

Appliance Wiring Material - Component

See General Information for Appliance Wiring Material - Component

REI HSING WIRE CO LTD E108485
56-5 JIUN-ING ST
SHUH-LIN, TAIPEI HSIEN 238 TAIWAN

Table of Recognized Styles

Single-conductor, thermoplastic insulation.							
1007	1164	1285	1497	1589	1723	10800	11028
1010	1180	1316	1500	1591	1726	10981	11042
1011	1185	1330	1516	1592	1789	10982	11045
1013	1198	1331	1533	1617	10064	10983	11047
1015	1199	1332	1538	1618	10070	10984	
1028	1212	1333	1569	1672	10109	10985	
1032	1213	1371	1571	1674	10198	10986	
1061	1226	1429	1577	1685	10362	10987	
1080	1227	1430	1581	1709	10368	10993	
1095	1283	1431	1584	1710	10369	11027	
Multiple-conductor, thermoplastic insulation.							
2096	2476	2697	20005	20855	21099	21143	21458
2444	2547	2733	20080	21016	21100	21307	
2464	2555	2851	20276	21064	21101	21309	
2468	2562	2854	20850	21088	21118	21310	
Single-conductor, thermoset insulation.							
3099	3173	3271	3321	3369	3406	3512	3613
3122	3239	3275	3323	3385	3443	3587	3615
3132	3265	3289	3364	3386	3463	3590	3713
3135	3266	3302	3367	3398	3464	3610	

Multiple-conductor, thermoset insulation.							
4384	4478						
Single and multiple-conductor specialty items.							
5140	5243						

Marking: Company name, voltage rating, temperature rating, conductor size, conductor material if other than copper, and use.

Last Updated on 2018-05-16

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Test Report

SINWA LASER TECHNOLOGY CO.,LTD

50.WU KONG 5 TH RD,.WU KU INDUSTRIAL PARK .TAIPEI TAIWAN

The following sample(s) was/were submitted and identified on behalf of the clients as : INK WHITE FOR WIRE &CABLE PRINTING

SGS Job No. :	CP20-019851 - SZ
Model No. :	I-PVC-01
Date of Sample Received :	30 Apr 2020
Testing Period :	30 Apr 2020 - 14 May 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-062929.005	White paste

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*005*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Member of the SGS Group (SGS SA)

Test Item(s)	Limit	Unit	MDL	*005*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Remark : The result(s) shown is/are of the total weight of dried sample.

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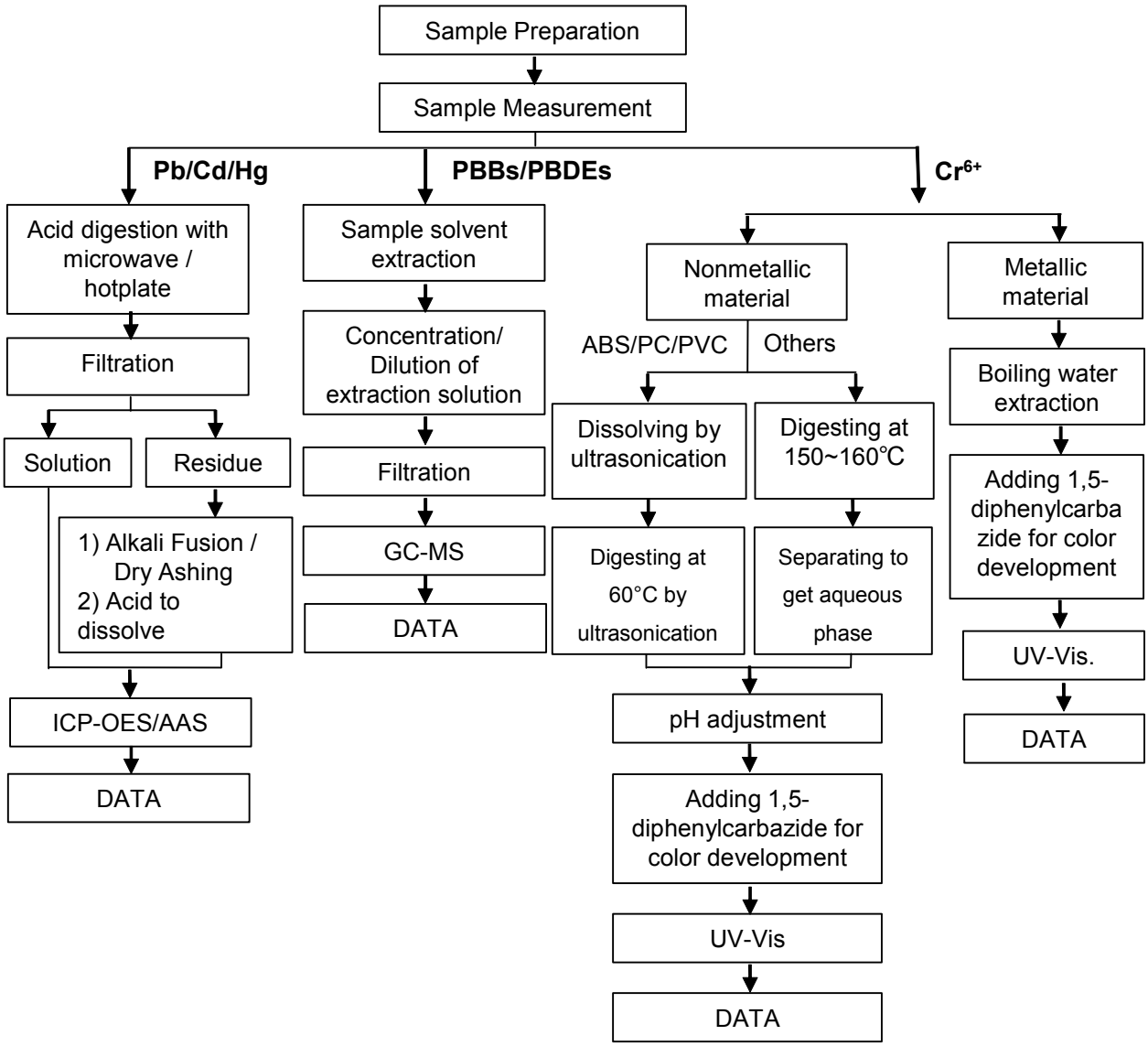
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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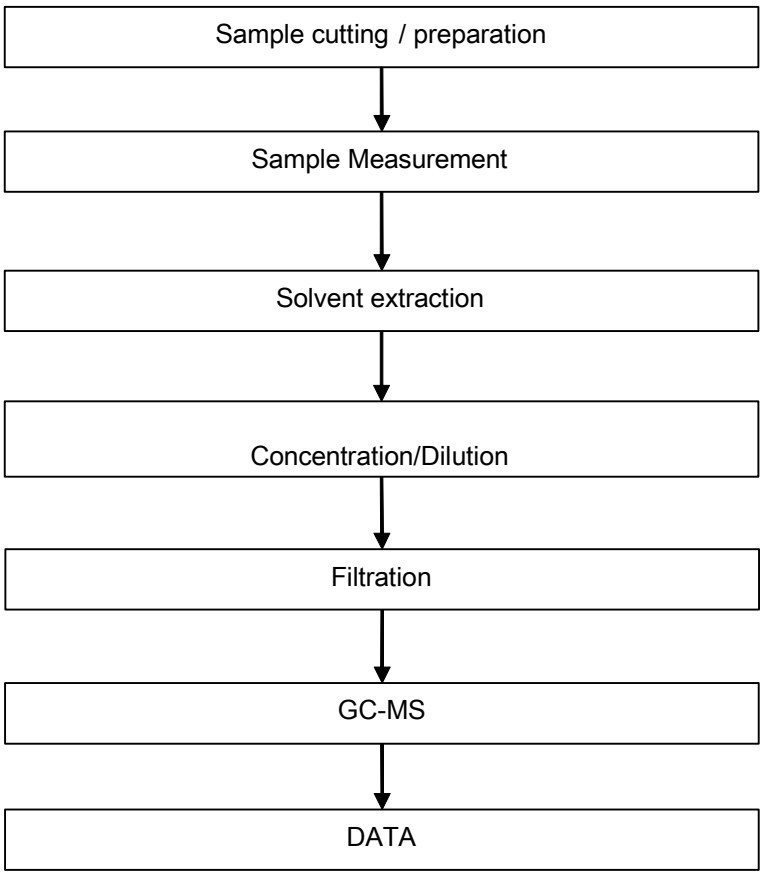
ATTACHMENTS

Phthalates Testing Flow Chart



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Sample photo:

CAN20-062929.005

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

Report No. A2200216505101031

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	BROWN PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101031

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101031

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101031

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

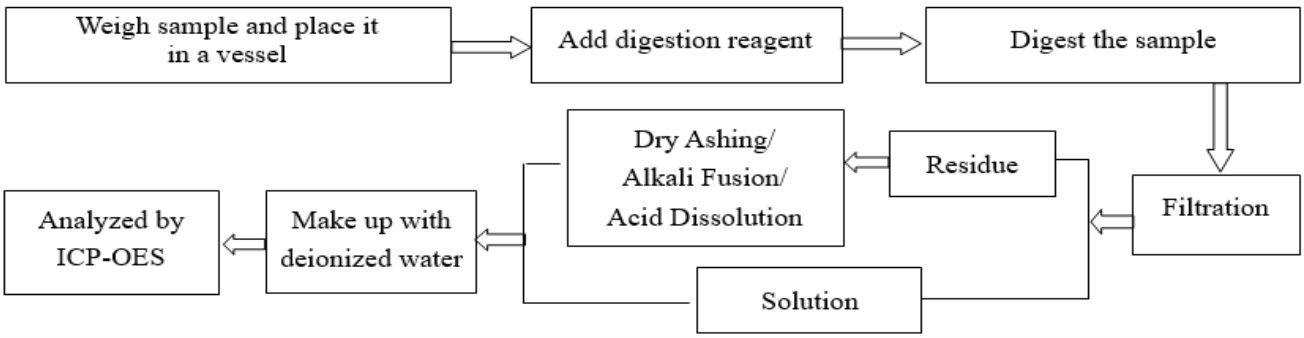
Sample/Part Description Brown wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

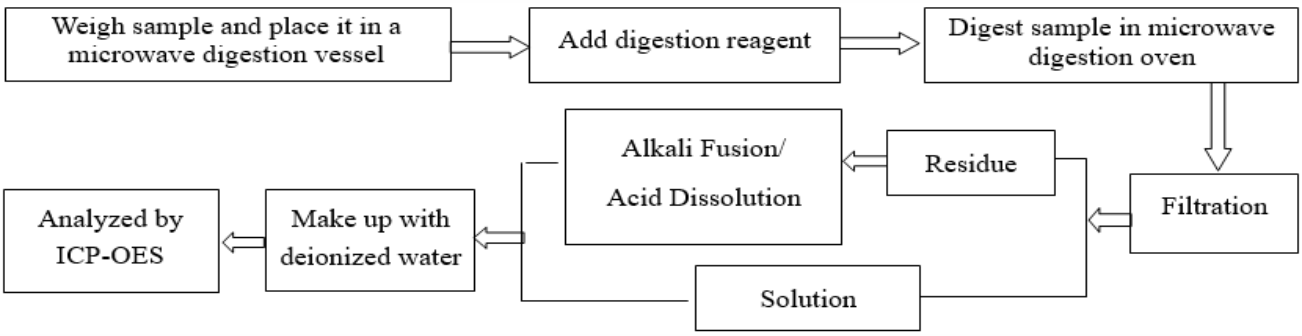
Test Report

Test Process

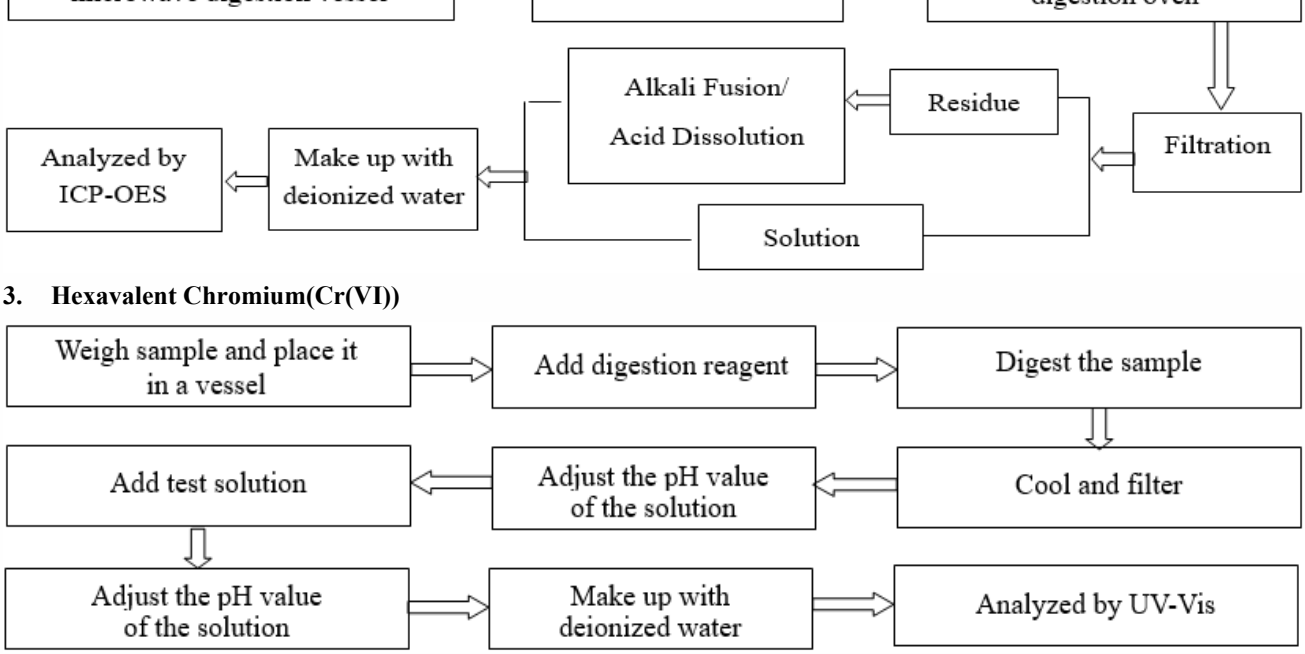
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



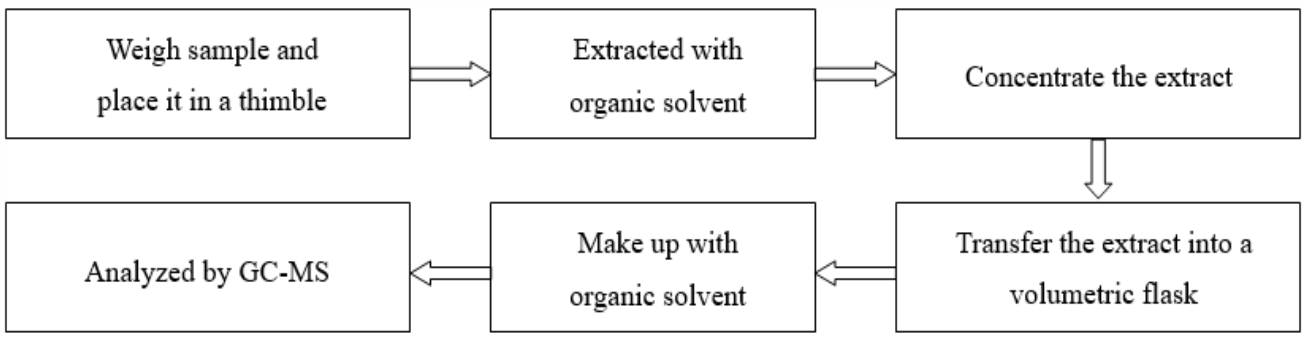
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

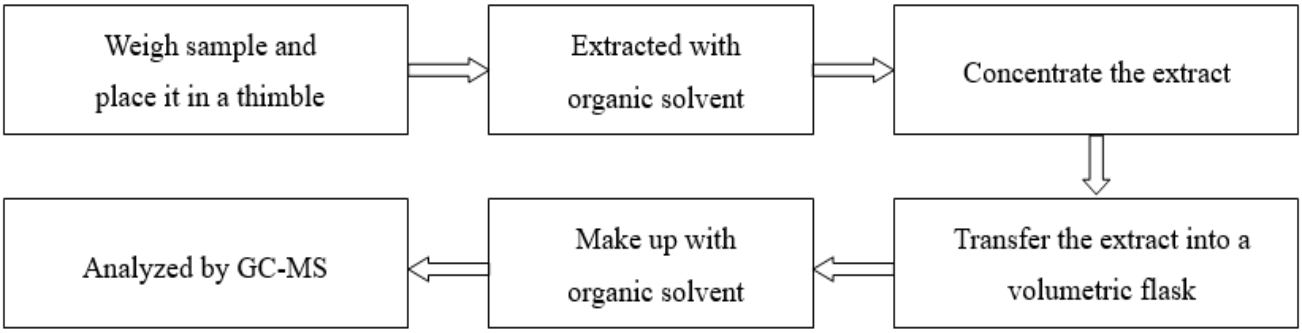


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

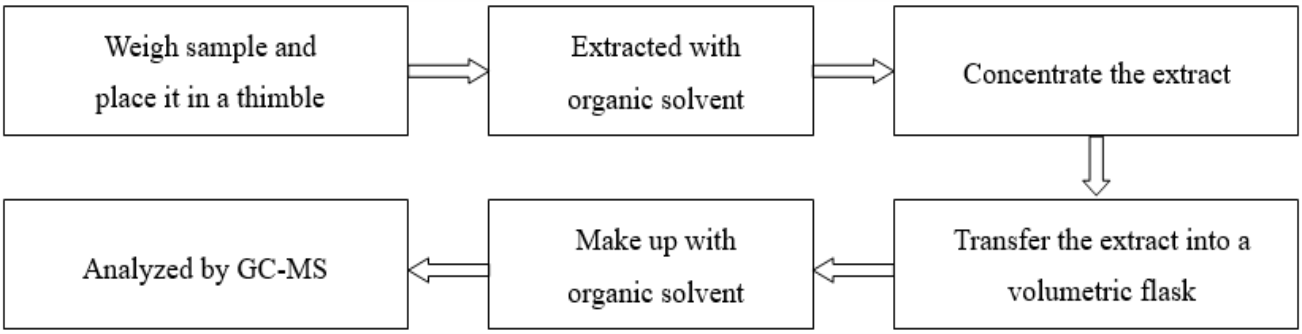


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101031

Photo(s) of the sample(s)

Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101025

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	GREEN PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020

Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by: Yu Liu

Approved by: Hill Zheng

Hill Zheng

Technical Manager

Reviewed by: Danna Yan

Date: Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101025

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101025

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101025

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

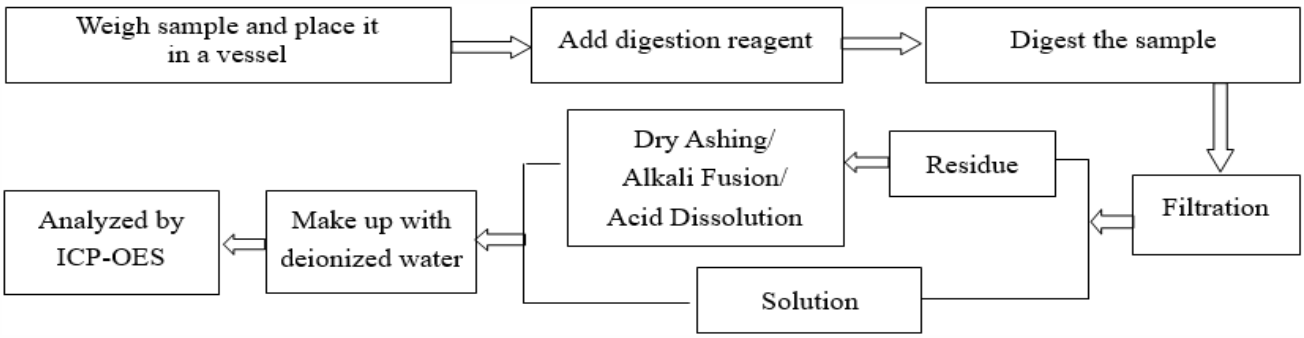
Sample/Part Description Green wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

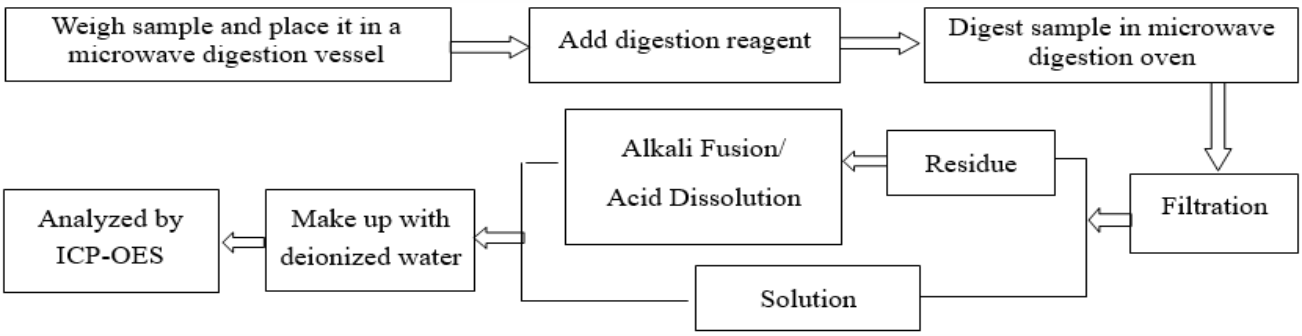
Test Report

Test Process

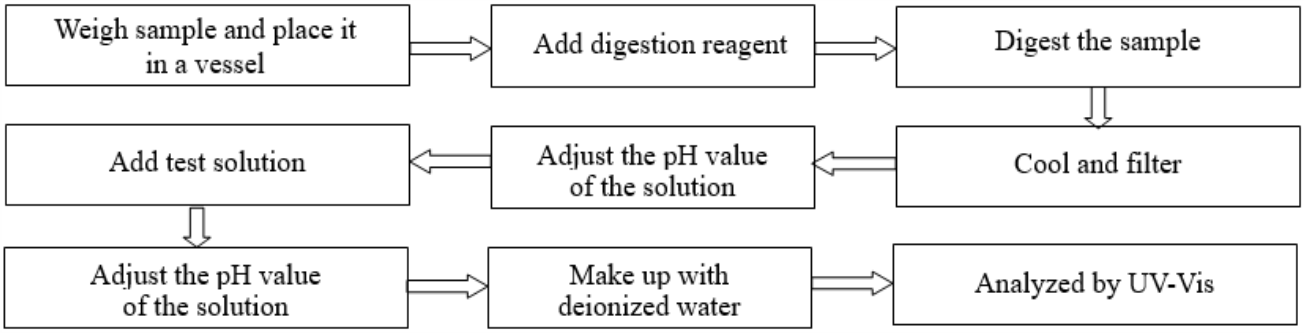
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



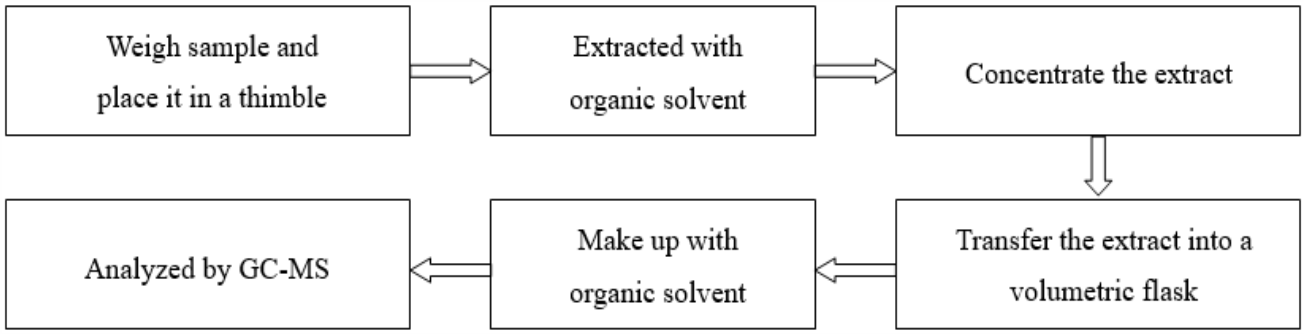
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

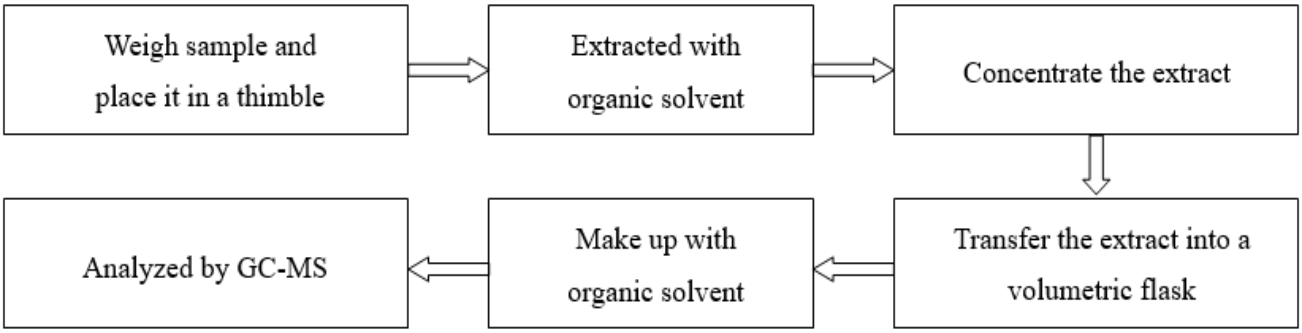


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

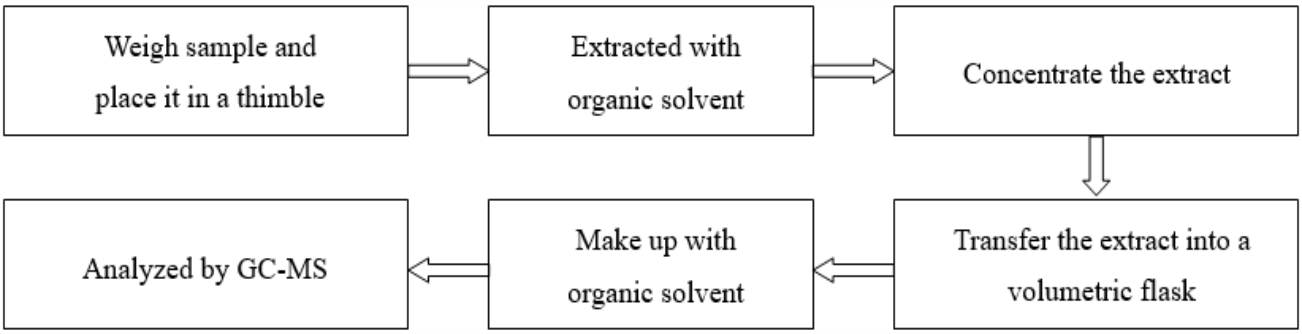


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



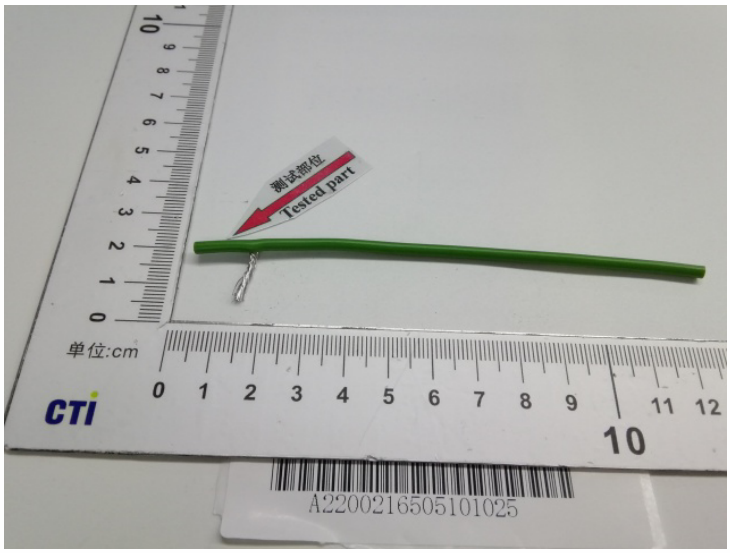
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101025

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
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*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200217474102001

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	BLUE PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 10, 2020

Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by: Grace Sun

Approved by: Hill Zheng

Hill Zheng

Technical Manager

Reviewed by: Ophelia Wen

Date: Jul. 10, 2020

No. R338859441

Test Report

Report No. A2200217474102001

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200217474102001

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200217474102001

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

Sample/Part Description Blue wire jacket

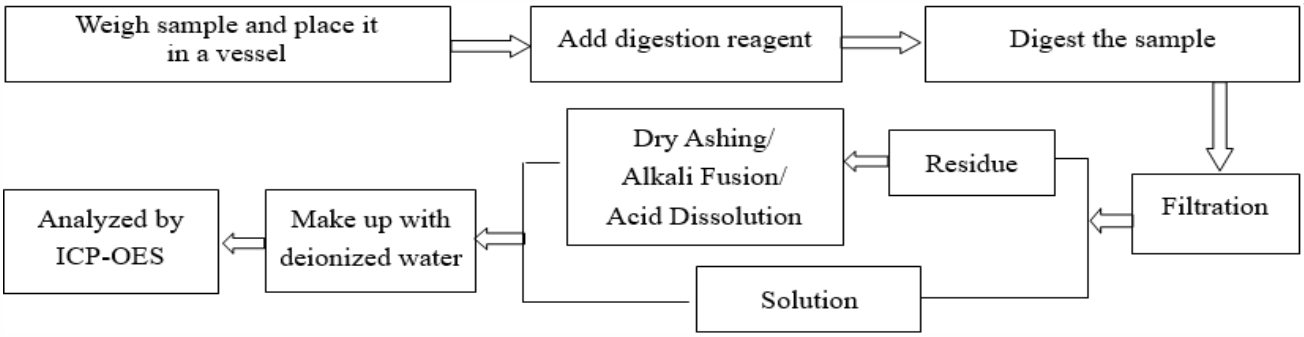
Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

Test Report

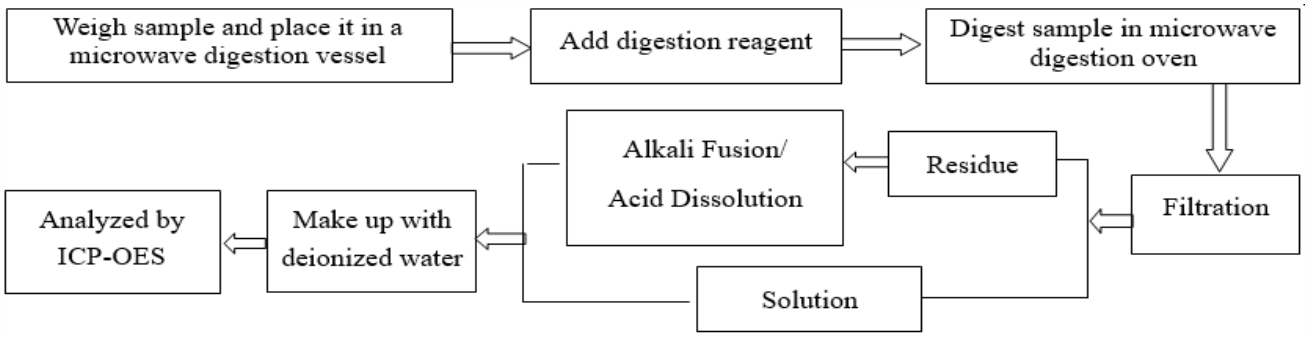
Report No. A2200217474102001

Test Process

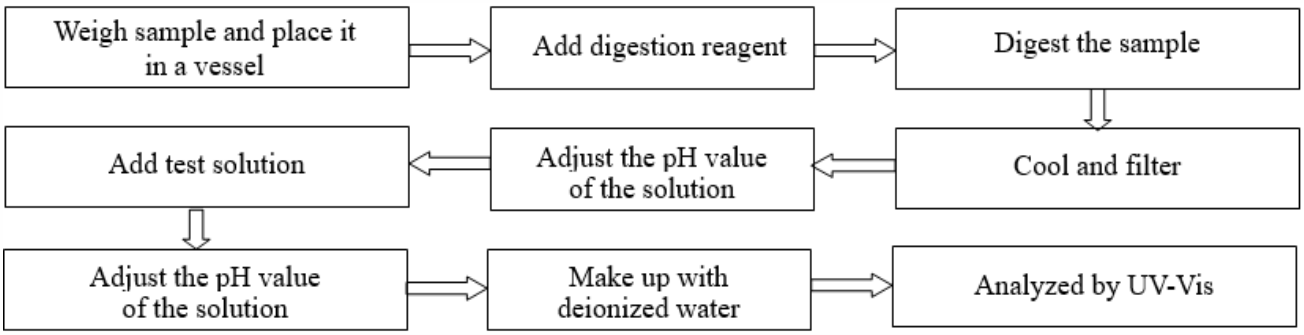
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



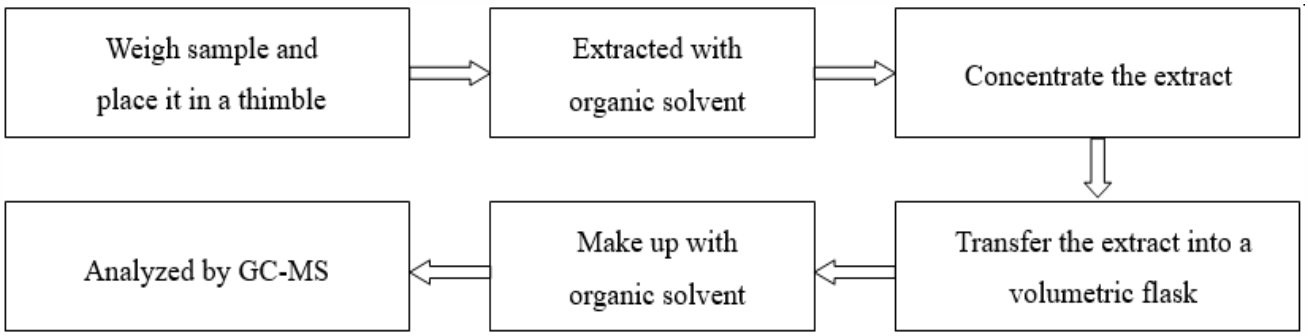
2. Mercury(Hg)



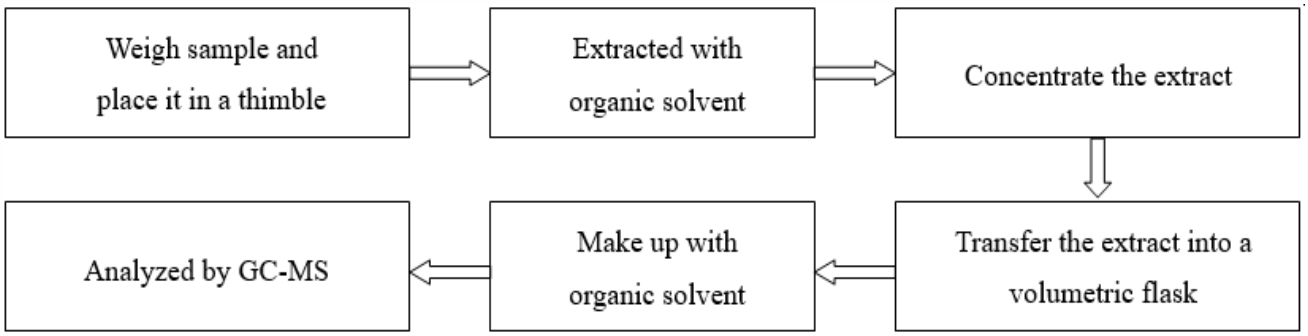
3. Hexavalent Chromium(Cr(VI))



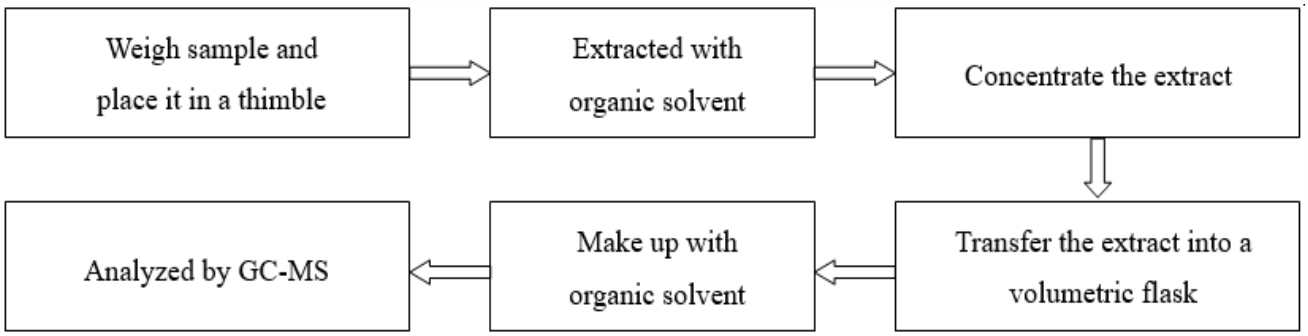
4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. Phthalates (DBP, BBP, DEHP, DIBP)



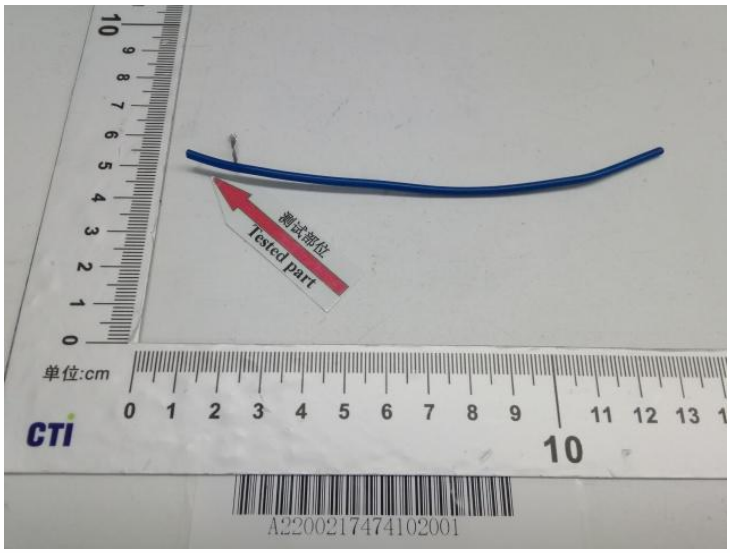
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200217474102001

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
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Appendix

Client Reference Information

UL1007,1015,1571,1061,1028,1032,1080，1095,1569,1581,1674,1500,
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1430,1431,3443,3610,2468,2464,2444,20080,2555,2476,2697,
2733,2562,2096,1533,2547,20005,20276,2854,2851,1185,10070,
10198,SPT,(H)VSF,(H)VFF,(H)VCTF,(H)VCFK,H05V2-U,
H05V2-K,AV,AVS,AVSS,CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV),OR Other PVC insulated wire

Statement:
The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101022

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	GREY PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101022

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101022

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101022

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

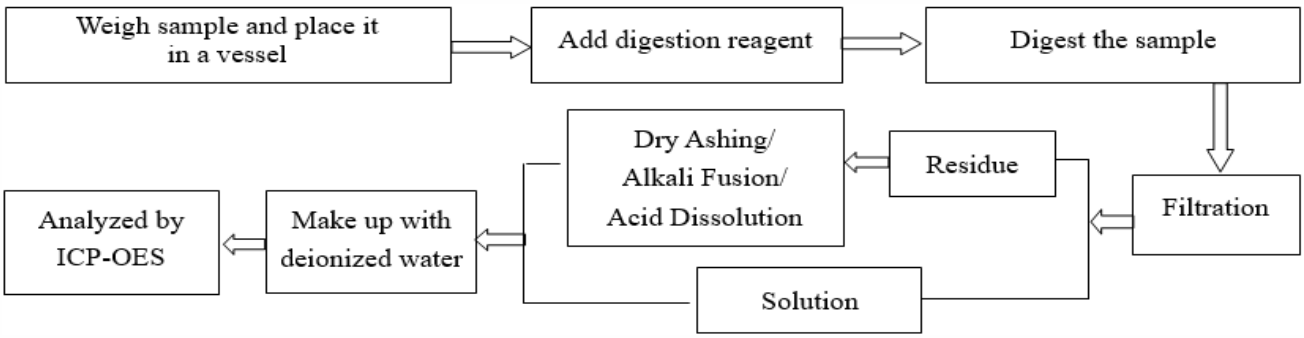
Sample/Part Description Gray wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

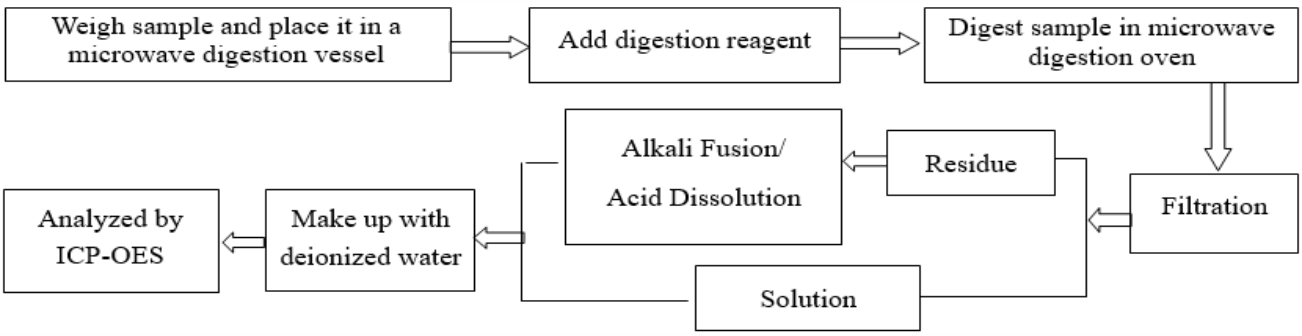
Test Report

Test Process

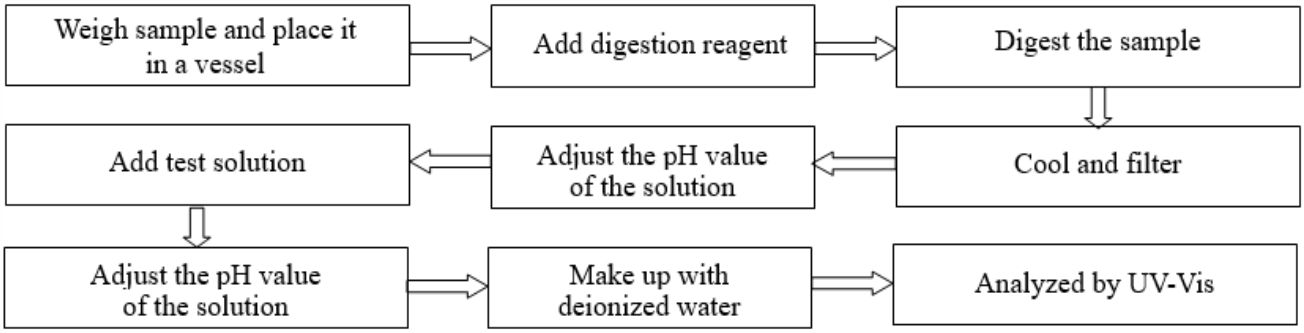
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



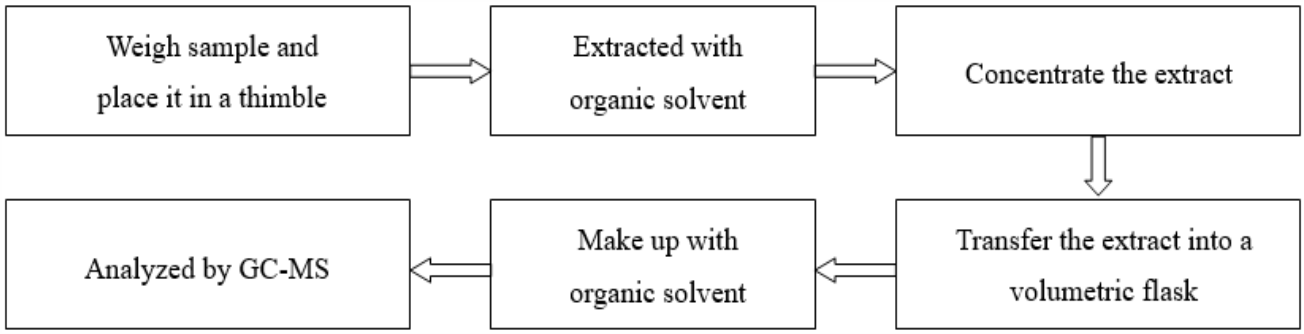
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

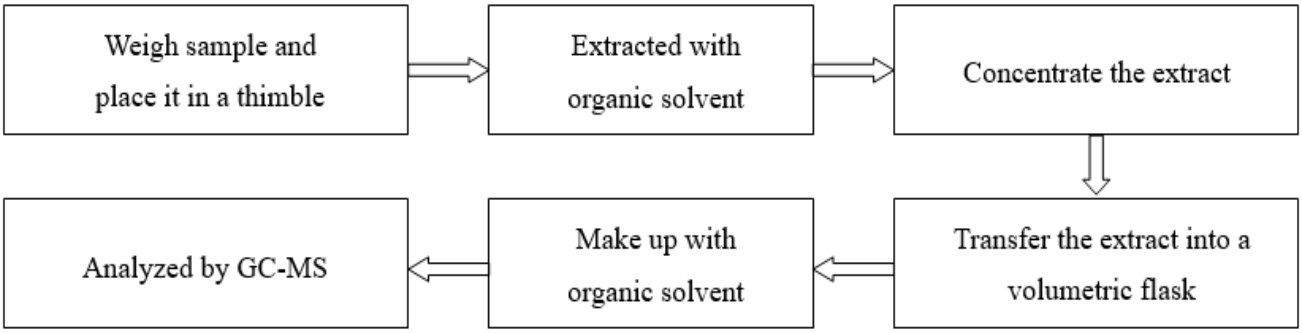


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

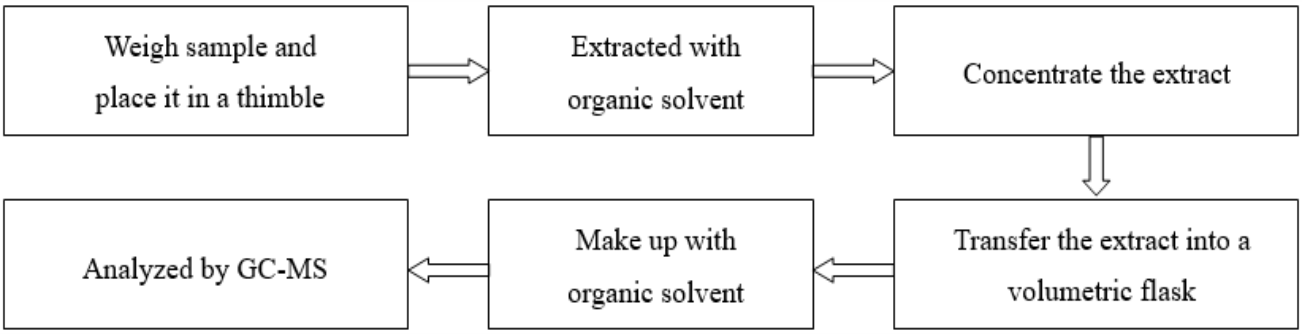


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



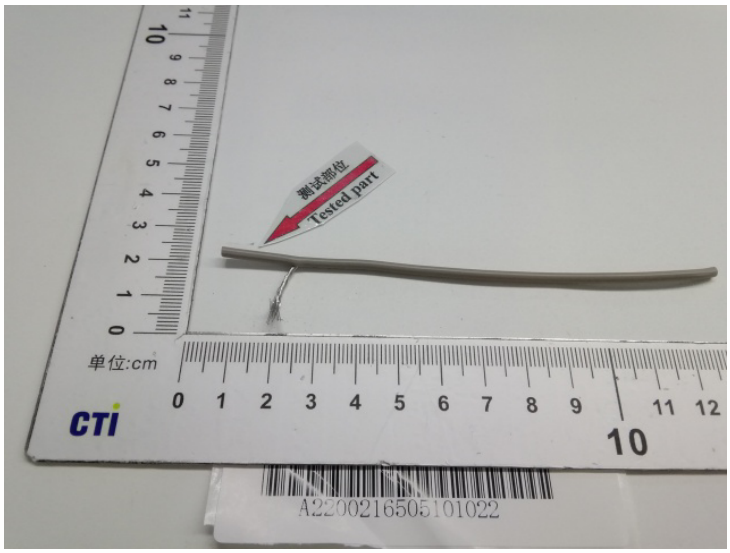
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101022

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101019

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	YELLOW PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101019

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101019

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101019

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

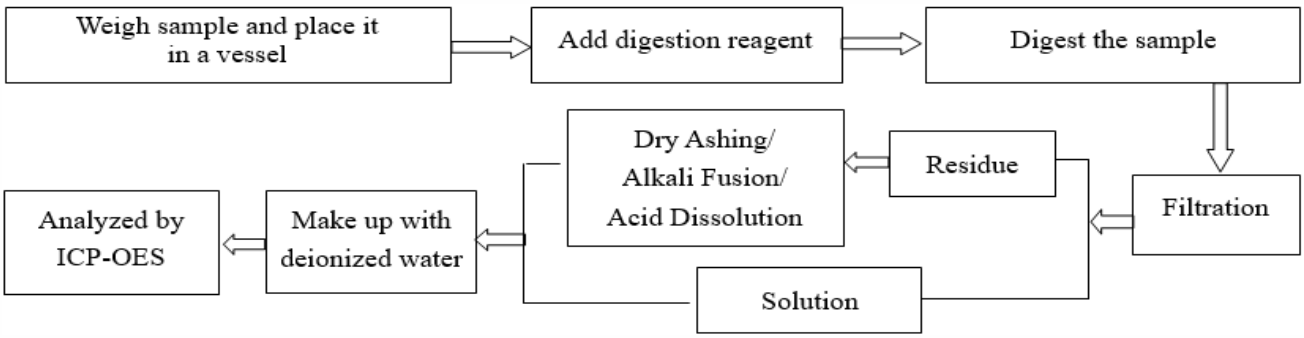
Sample/Part Description Yellow wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

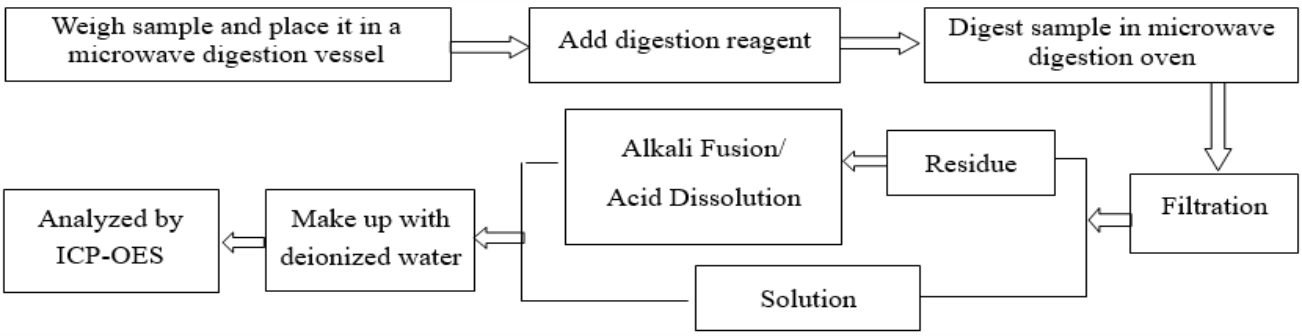
Test Report

Test Process

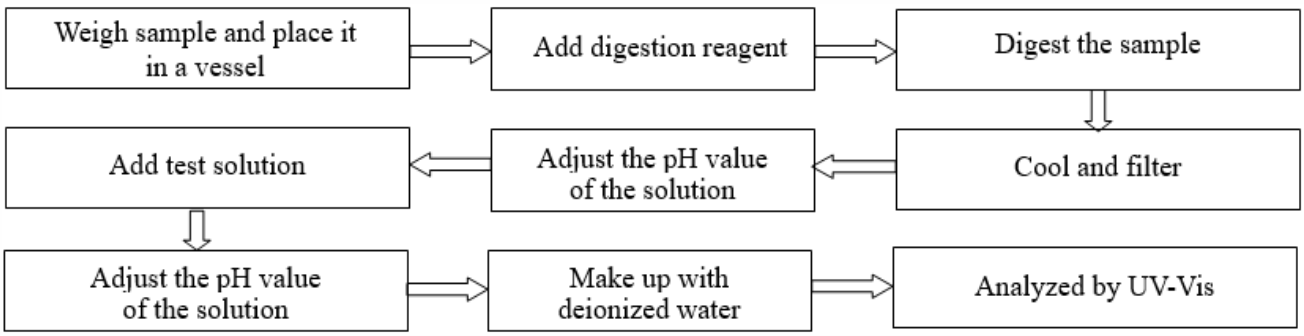
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



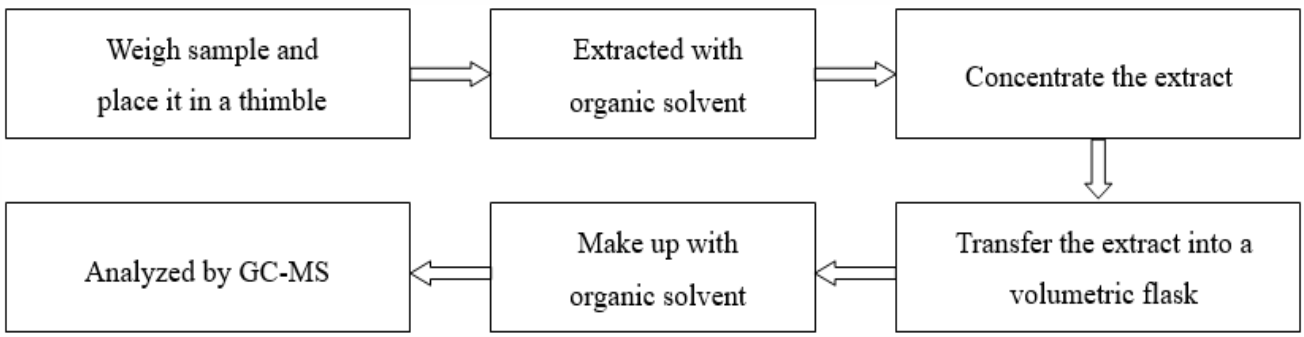
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

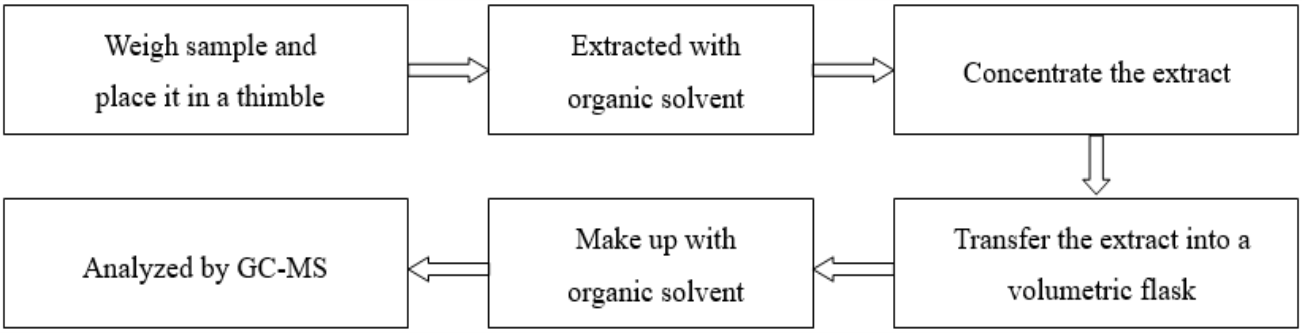


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

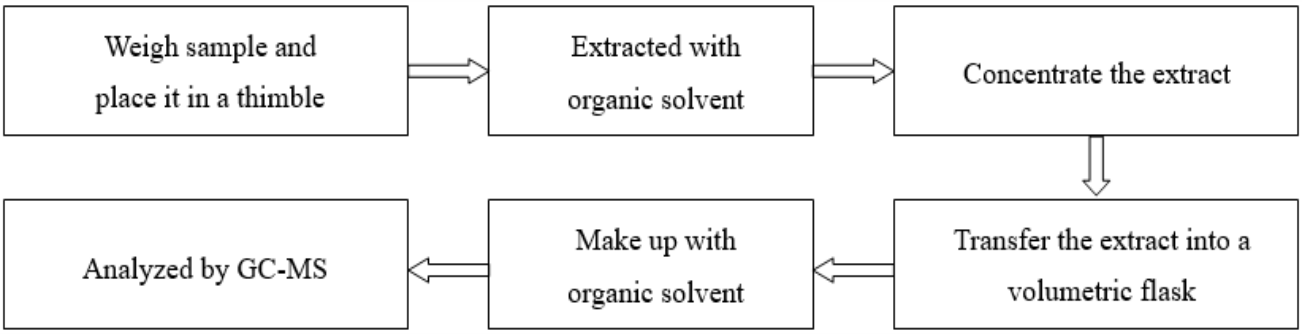


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



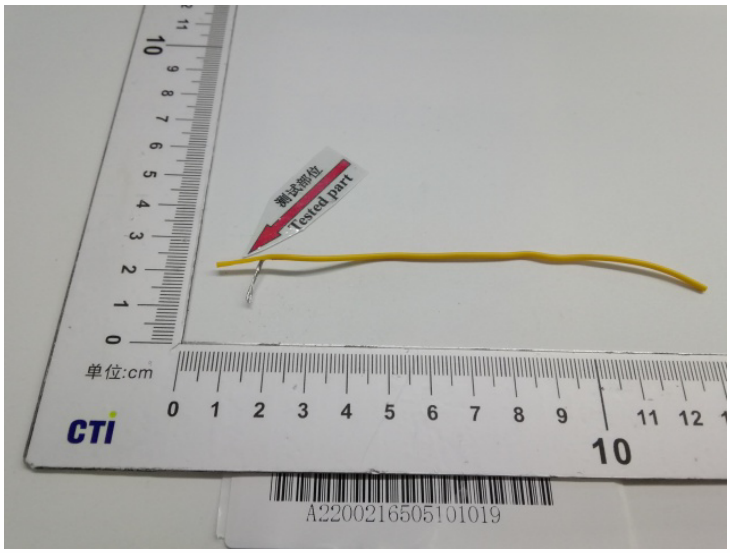
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101019

Photo(s) of the sample(s)



Statement:

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2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
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*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

CTI 华测检测 CENTRE TESTING INTERNATIONAL

Test Report

Report No. A2200216505101013

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	RED PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101013

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101013

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101013

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

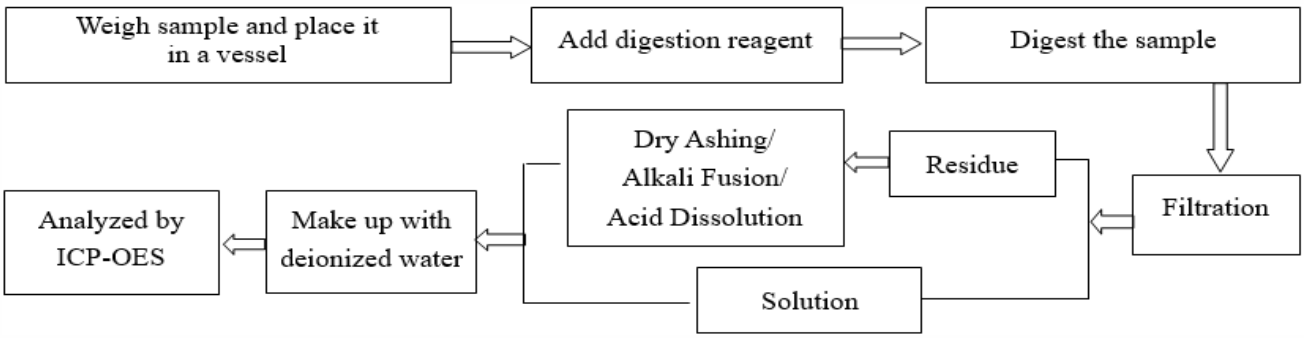
Sample/Part Description Red wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

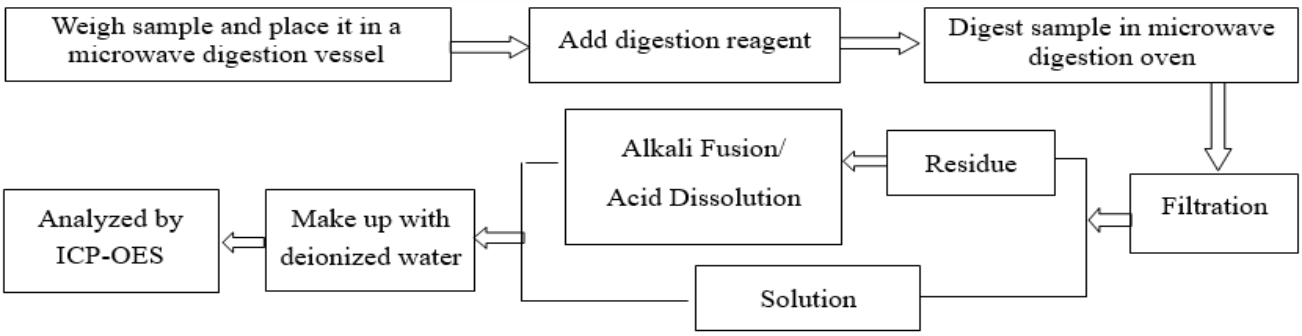
Test Report

Test Process

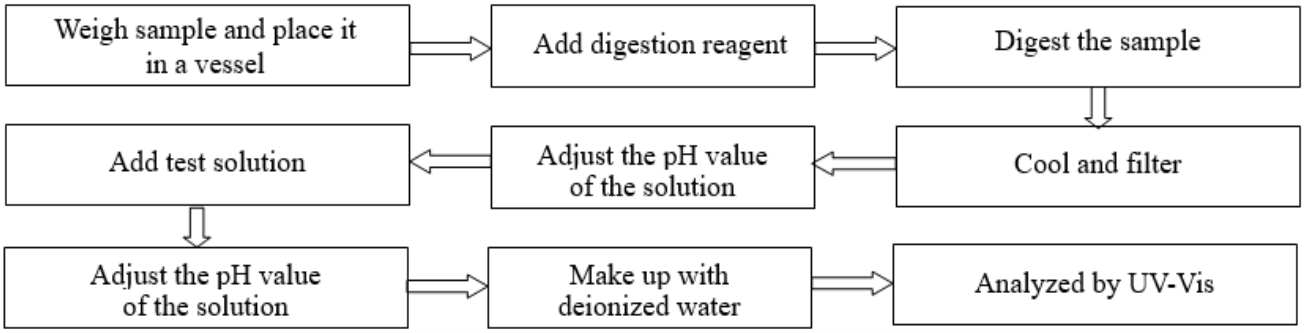
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



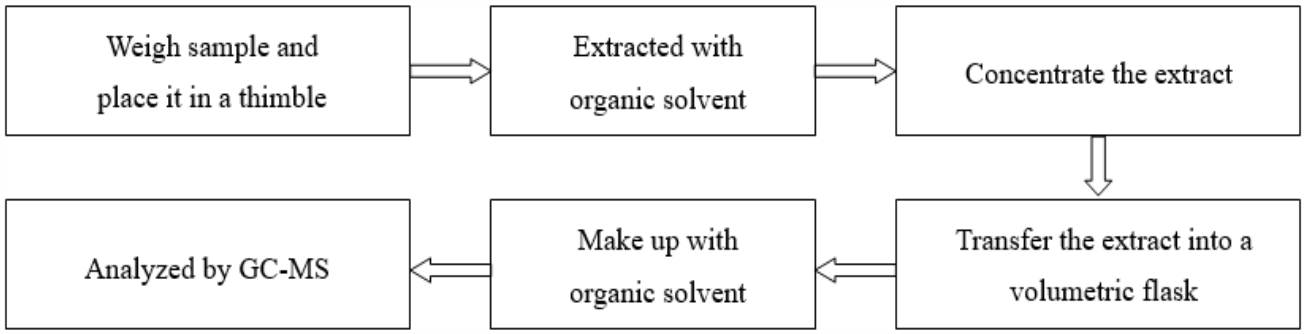
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

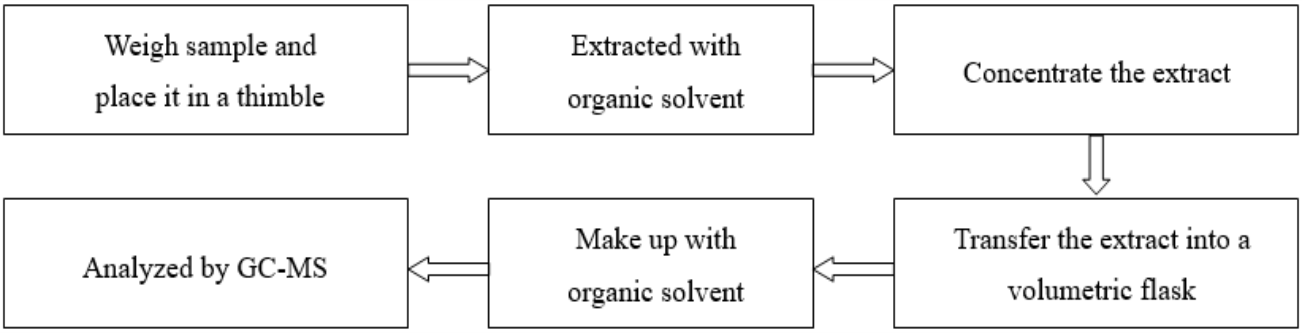


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

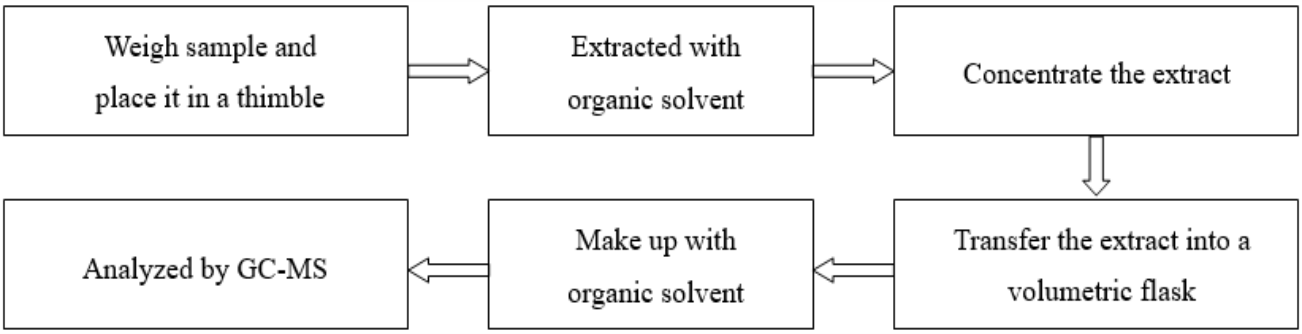


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101013

Photo(s) of the sample(s)

Statement:

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Appendix

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UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101010

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	BLACK PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101010

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101010

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101010

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

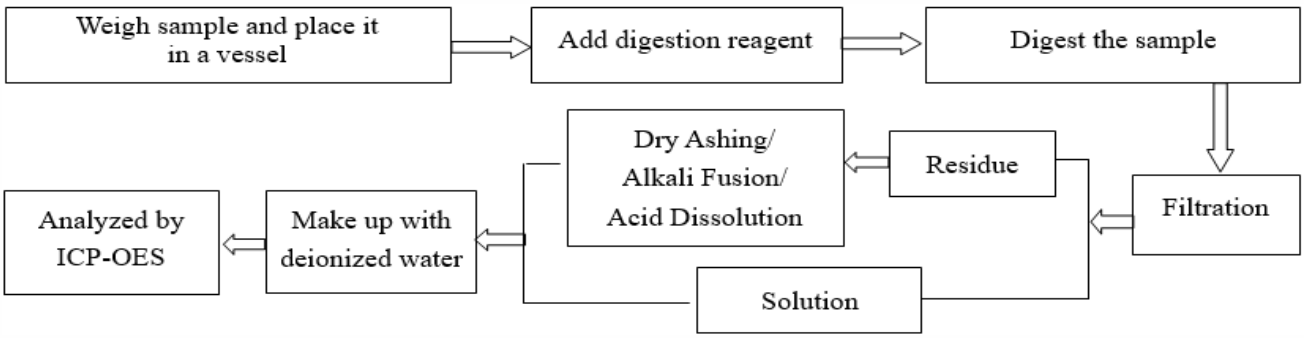
Sample/Part Description Black wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

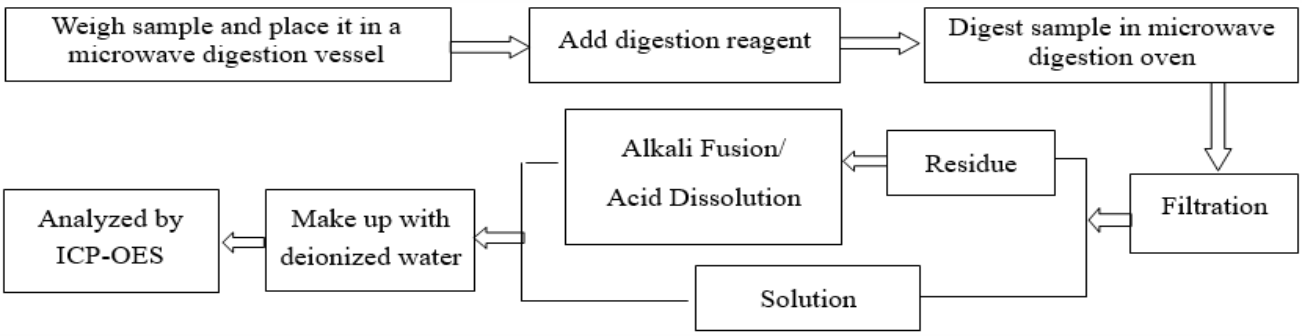
Test Report

Test Process

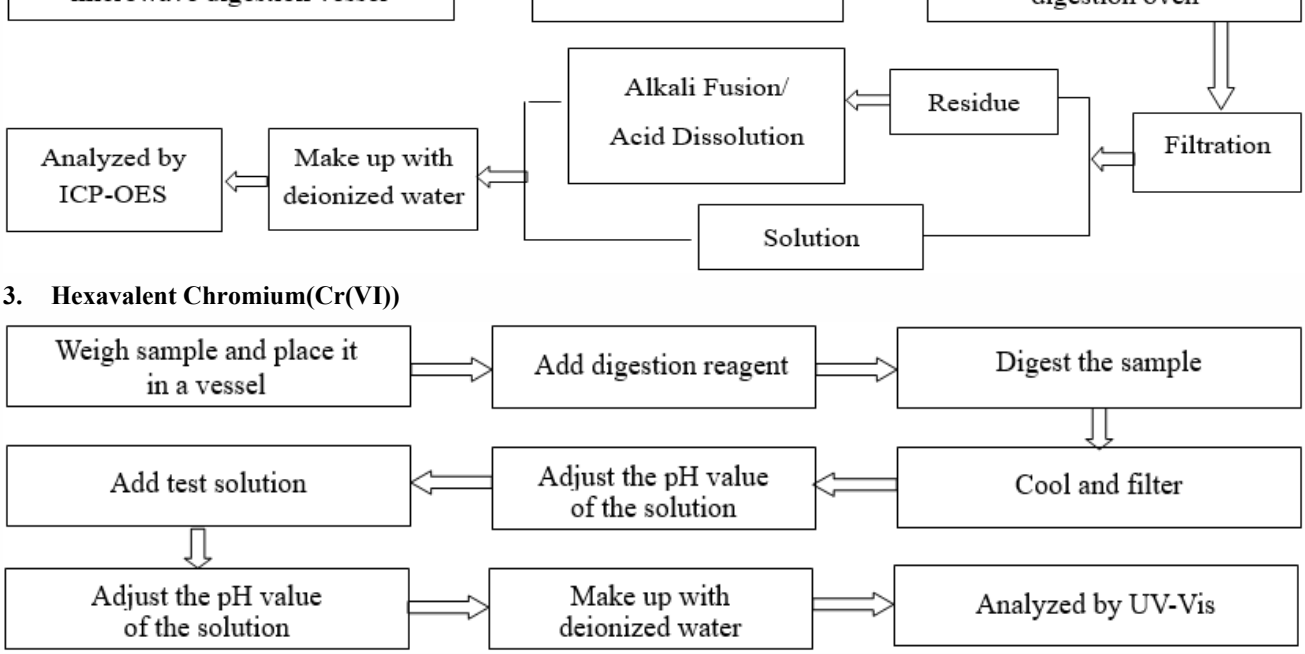
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



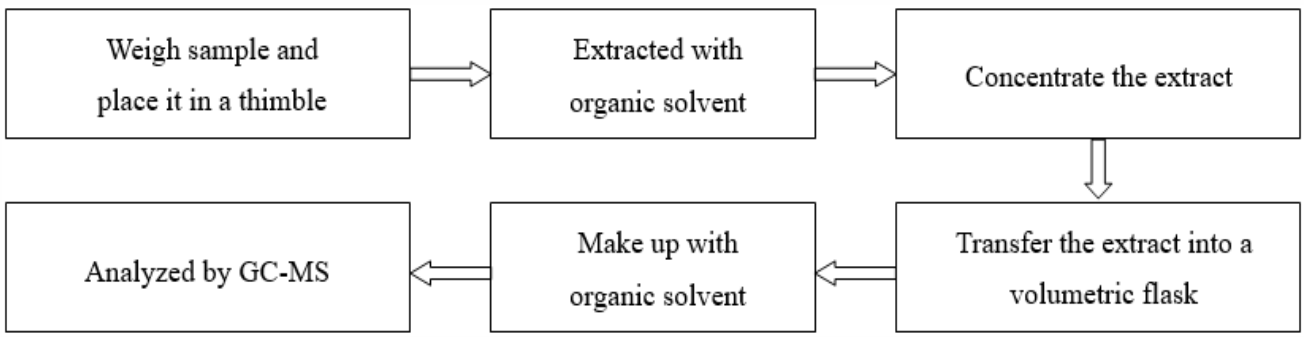
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

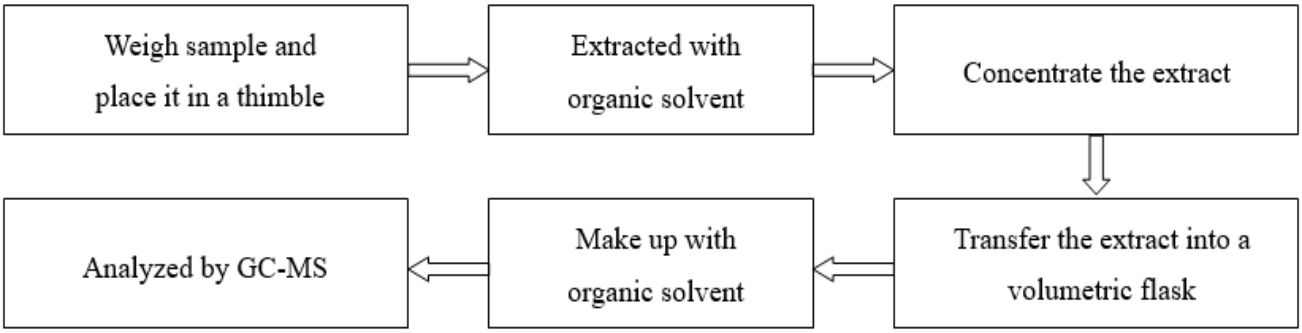


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

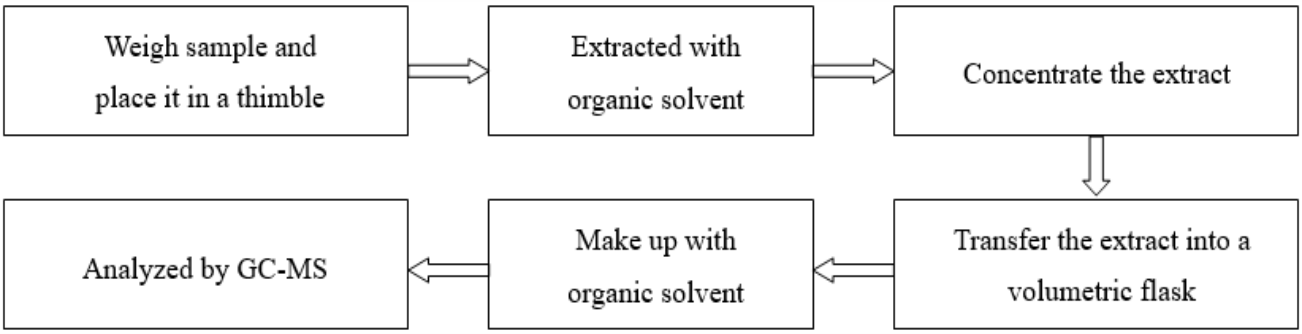


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101010

Photo(s) of the sample(s)

Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101004

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	ORANGE PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by Yu Liu

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Danna Yan

Date Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101004

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101004

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101004

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

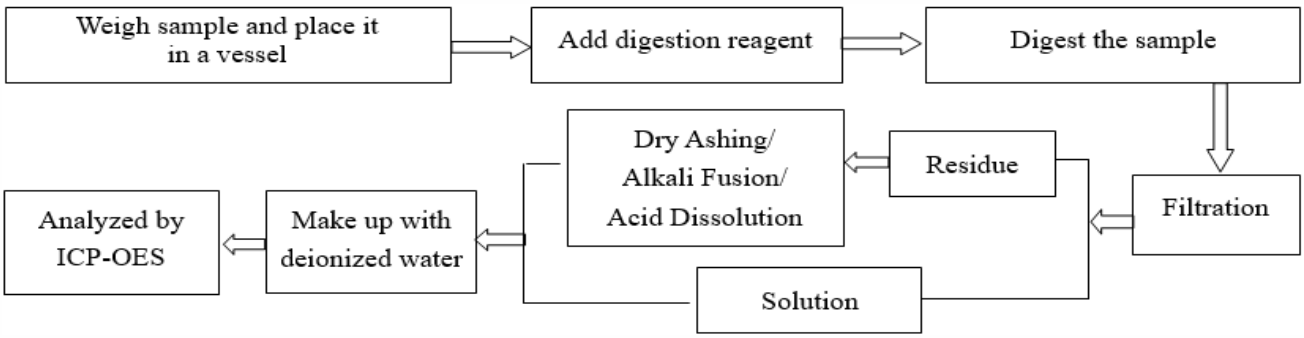
Sample/Part Description Orange wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

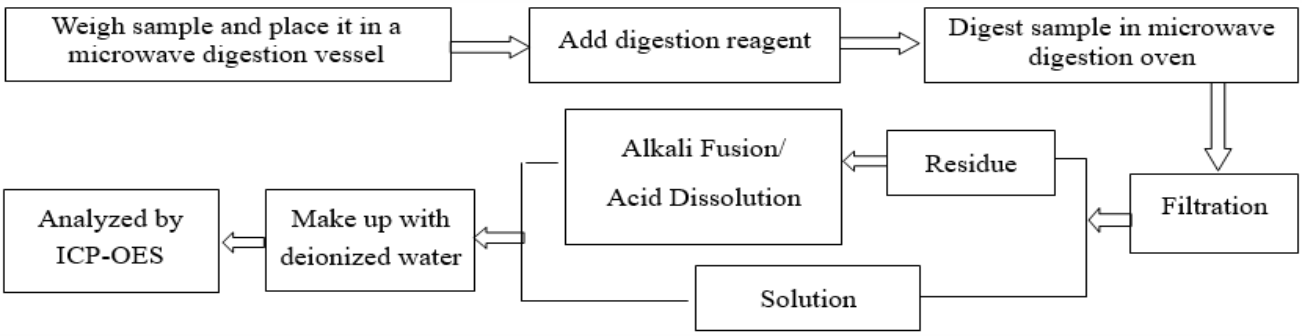
Test Report

Test Process

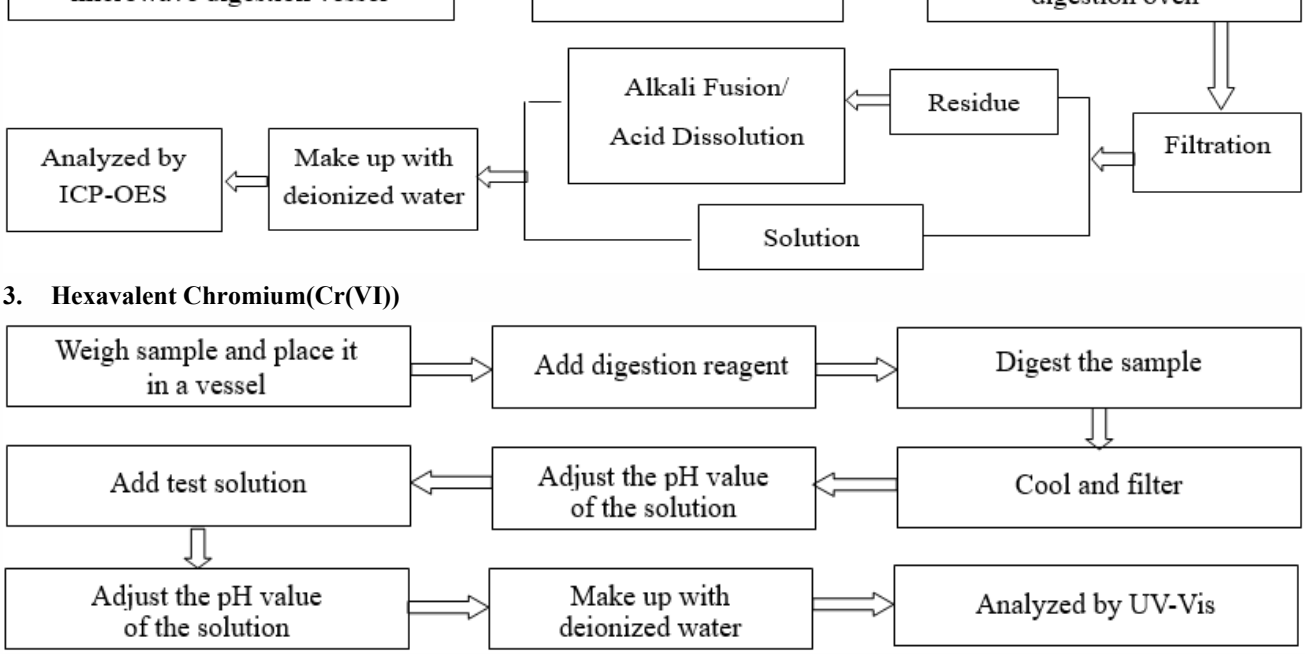
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



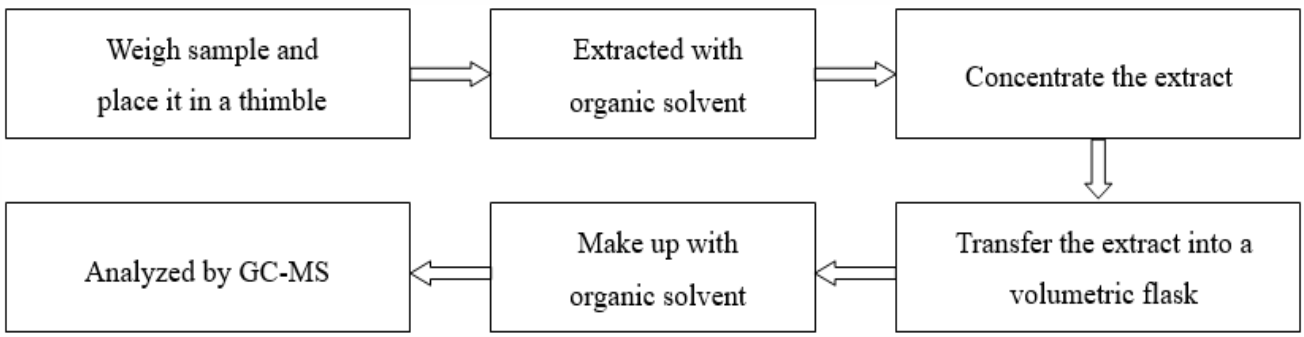
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

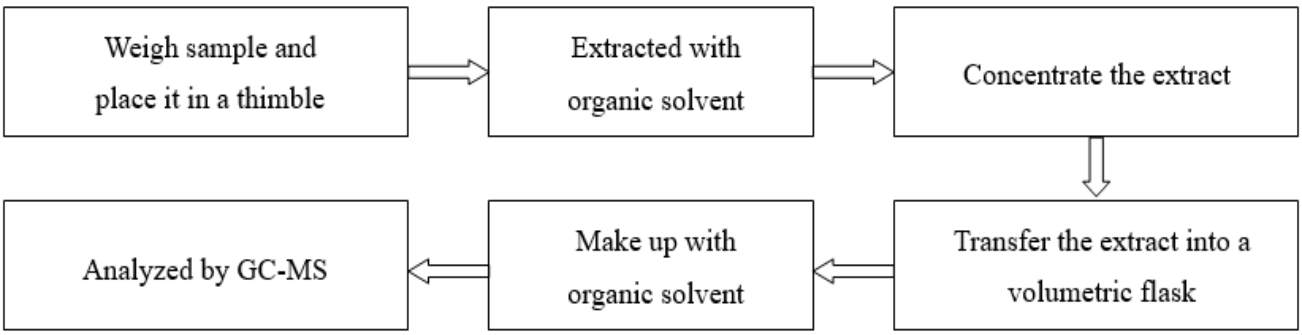


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

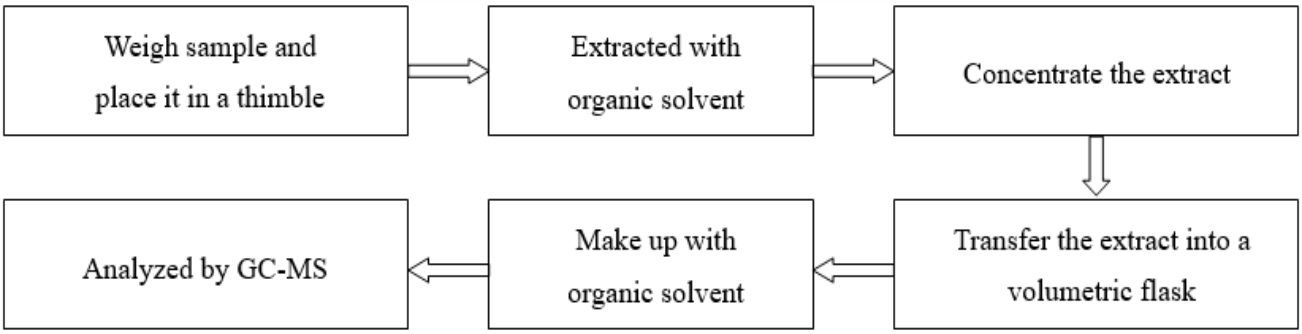


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



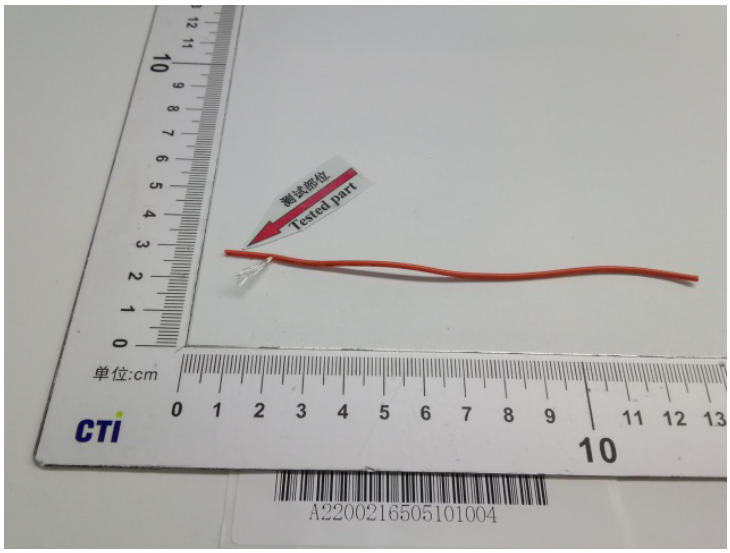
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101004

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Test Report

Report No. A2200216505101001

Company Name shown on Report	REIHSING(DONGGUAN) ELECTRIC WIRE AND CABLE CO.,LTD
Address	NO.18 LANYUAN ROAD XINAN VILLAGE CHANGAN TOWN DONGGUAN CITY GUANGDONG CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	WHITE PVC LF INSULATED WIRE
Part No.	UL1015 LF WIRE
Supplier	Reihsing
Sample Received Date	Jul. 8, 2020
Testing Period	Jul. 8, 2020 to Jul. 11, 2020
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Hexabromocyclododecane (HBCDD) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by: Yu Liu

Approved by: Hill Zheng

Hill Zheng

Technical Manager

Reviewed by: Danna Yan

Date: Jul. 11, 2020

No. R338859990

Test Report

Report No. A2200216505101001

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3540C:1996 & US EPA 8270E:2018	GC-MS

Test Report

Report No. A2200216505101001

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Biphenyls(PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2200216505101001

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Hexabromocyclododecane(HBCDD)	N.D.	5 mg/kg

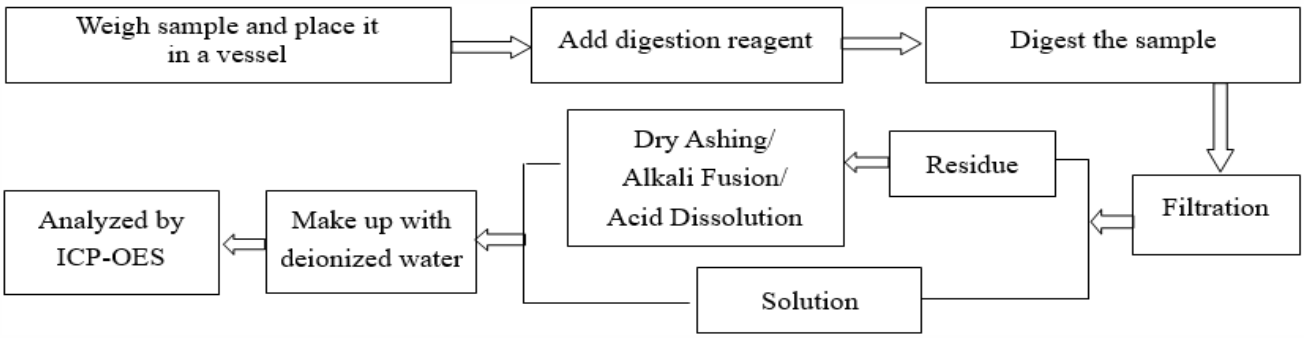
Sample/Part Description White wire jacket

Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.**
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL)
-mg/kg = ppm = parts per million

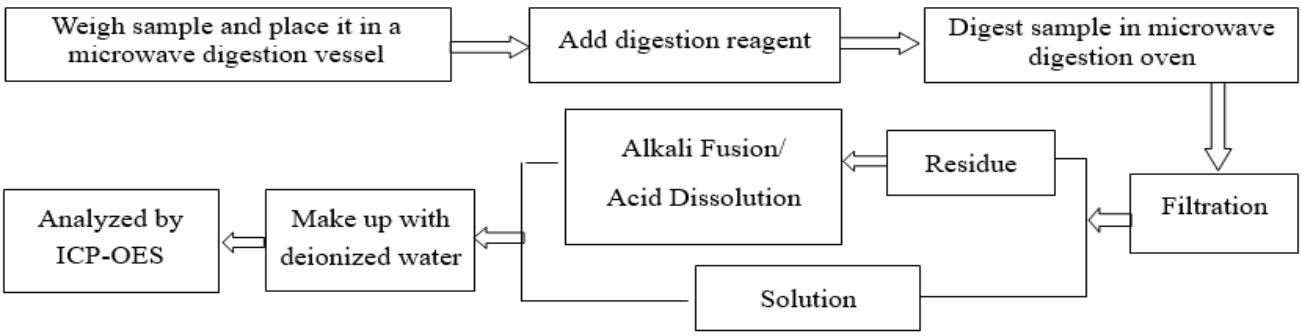
Test Report

Test Process

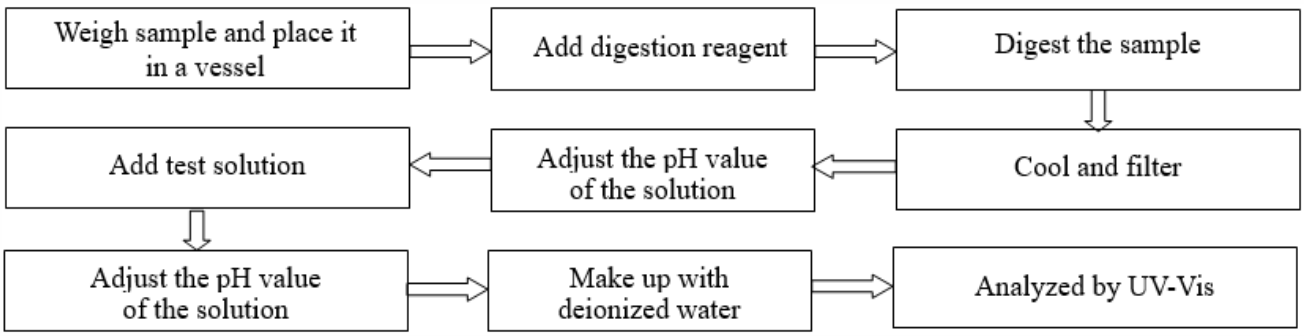
1. Lead(Pb), Cadmium(Cd), Chromium(Cr)



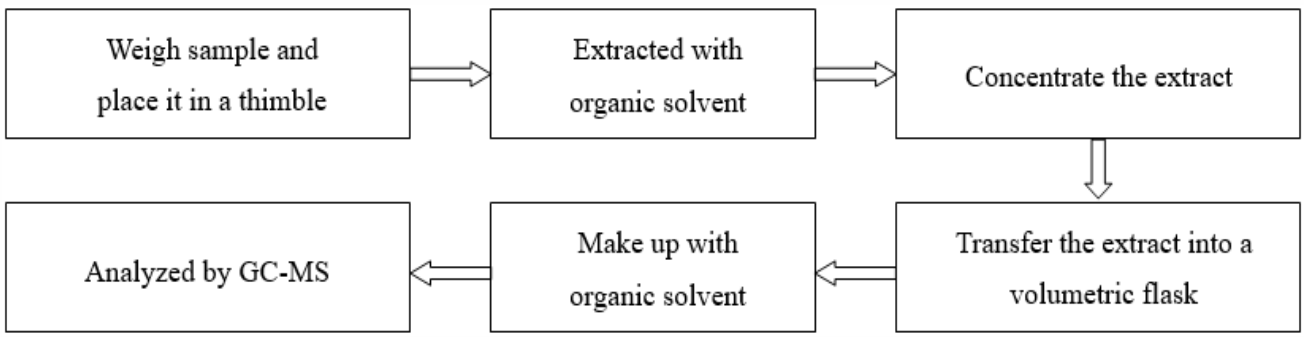
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))

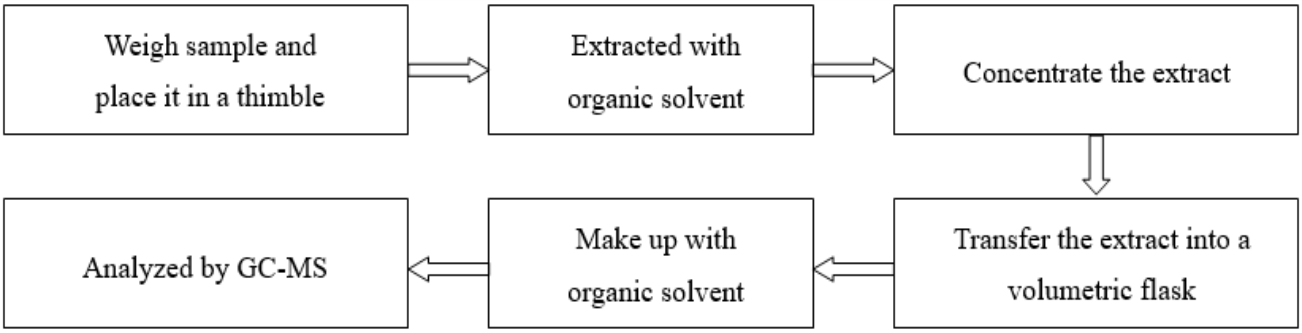


4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)

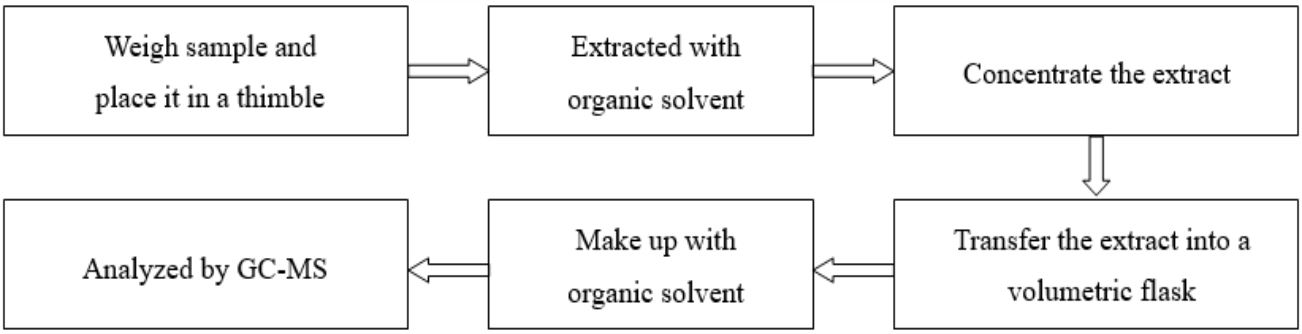


Test Report

5. Phthalates (DBP, BBP, DEHP, DIBP)



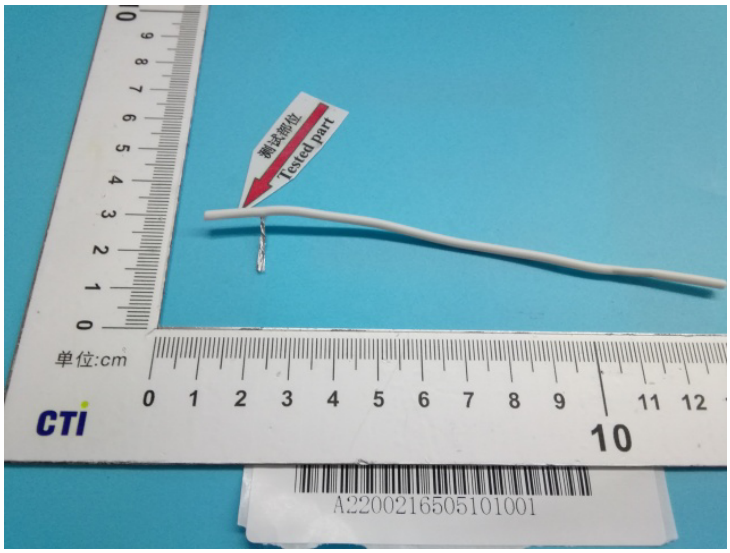
6. Hexabromocyclododecane (HBCDD)



Test Report

Report No. A2200216505101001

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***

Appendix

Client Reference Information

UL1007, 1015, 1571, 1061, 1028, 1032, 1080， 1095, 1569, 1581, 1674, 1500,
1283, 1285， 1011, 1013, 1497, 1789, 1685, 1617, 1672, 1618, 1010, 1316, 1429,
1430, 1431, 3443, 3610, 2468, 2464, 2444, 20080, 2555, 2476, 2697,
2733, 2562, 2096, 1533, 2547, 20005, 20276, 2854, 2851, 1185, 10070,
10198, SPT, (H)VSF, (H)VFF, (H)VCTF, (H)VCFK, H05V2-U,
H05V2-K, AV, AVS, AVSS, CCC60227IEC02(RV)06(RV)08(RV-90)52(RVV)53(RVV), OR Other PVC insulated wire

Statement:

The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

DONGGUAN LUCKY FLY CONDUCTOR CO.,LTD

QIAO ZI REGION CHANG PING TOWN DONG GUAN CITY GUANG DONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : TINNED COPPER WIRE

SGS Job No. :	CP20-005367 - GZ
Main Substance :	Cu,Sn
Date of Sample Received :	04 Mar 2020
Testing Period :	04 Mar 2020 - 10 Mar 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Zmguan

Zm guan
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-021252.002	Silvery plated metal wire

Remarks :

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*002*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▾	-	µg/cm²	0.10	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	*002*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) ▼= 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 ND (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

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Elementary Analysis

Test Method : SGS In-house method (GZTC CHEM-TOP-009-01, with reference to EPA 3050B:1996), analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	*002*
Beryllium (Be)	mg/kg	5	ND

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2019:01 PAK, analysis was performed by GC-MS.

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Test Item(s)	CAS NO.	Unit	MDL	002
Naphthalene(NAP)	91-20-3	mg/kg	0.1	ND
Phenanthrene(PHE)	85-01-8	mg/kg	0.1	ND
Anthracene(ANT)	120-12-7	mg/kg	0.1	ND
Fluoranthene(FLT)	206-44-0	mg/kg	0.1	ND
Pyrene(PYR)	129-00-0	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	56-55-3	mg/kg	0.1	ND
Chrysene(CHR)	218-01-9	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF)	205-99-2	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	205-82-3	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	207-08-9	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	192-97-2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	193-39-5	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	53-70-3	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	191-24-2	mg/kg	0.1	ND
Sum of 4 PAHs (Phenanthrene, Pyrene, Anthracene, Fluoranthene)	-	mg/kg	-	ND
Sum of 15 PAHs	-	mg/kg	-	ND

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AfPS (German commission for Product Safety) : GS PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Materials, that are destined in mouth closed or material in toys according to Directive 2009/48 EC or materials in articles for use by children up to 3 years with longer term according to skin contact (longer than 30s) at intended use	Materials not covered in category 1, with foreseeable contact to skin longer than 30 seconds (long-term skin contact) or repeated short term skin contact at intended or foreseeable use		Materials that do not fall in category 1 or 2, with foreseeable contact to skin up to 30 seconds (short-term skin contact) at intended or foreseeable use	
		Used by Children (<14 years)	Other Consumer Products	Used by Children (<14 years)	Other Consumer Products
Benzo(a)pyrene (BaP) Benzo(e)pyrene (BeP) Benzo(a)anthracene (BaA) Benzo(b)fluoranthene (BbF) Benzo(j)fluoranthene (BjF) Benzo(k)fluoranthene (BkF) Chrysene (CHR) Dibenzo(a,h)anthracene (DBA) Benzo(g,h,i)perylene (BPE) Indeno(1,2,3-c,d)pyrene (IPY)	< 0.2 mg/kg (each)	< 0.2 mg/kg (each)	< 0.5 mg/kg (each)	< 0.5 mg/kg (each)	< 1 mg/kg (each)
Phenanthrene (PHE) Pyrene (PYR) Anthracene (ANT) Fluoranthene (FLT)	< 1 mg/kg (Sum)	< 5 mg/kg (Sum)	< 10 mg/kg (Sum)	< 20 mg/kg (Sum)	< 50 mg/kg (Sum)
Naphthalene (NAP)	< 1 mg/kg	< 2 mg/kg		< 10 mg/kg	
Sum of 15 PAHs	<1 mg/kg	< 5 mg/kg	< 10 mg/kg	< 20 mg/kg	< 50 mg/kg

Remark:
The German committee on Product Safety (AfPS) published a new PAHs document (AfPS GS 2019:01 PAK) on May 15, 2019, which will be binding for the issue of GS mark certificate from 1 July 2020. The previously valid document (AfPS GS 2014:01 PAK) can be used during the transitional period to determine the procedure for existing certificates and new certificates; also, there are exceptions.

Perfluorooctanoic acid (PFOA) & Perfluorooctane sulfonates (PFOS)

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS NO.	Unit	MDL	002
Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	0.01	ND
Perfluorooctane Sulfonates (PFOS)^	-	mg/kg	0.01	ND

Notes :

^ PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluoroctanesulfonic acid, Perfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamide, N-Ethylperfluoroctane sulfonamide,

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N-Methylperfluoroctane sulfonamidoethanol and N-Ethylperfluoroctane sulfonamidoethanol.

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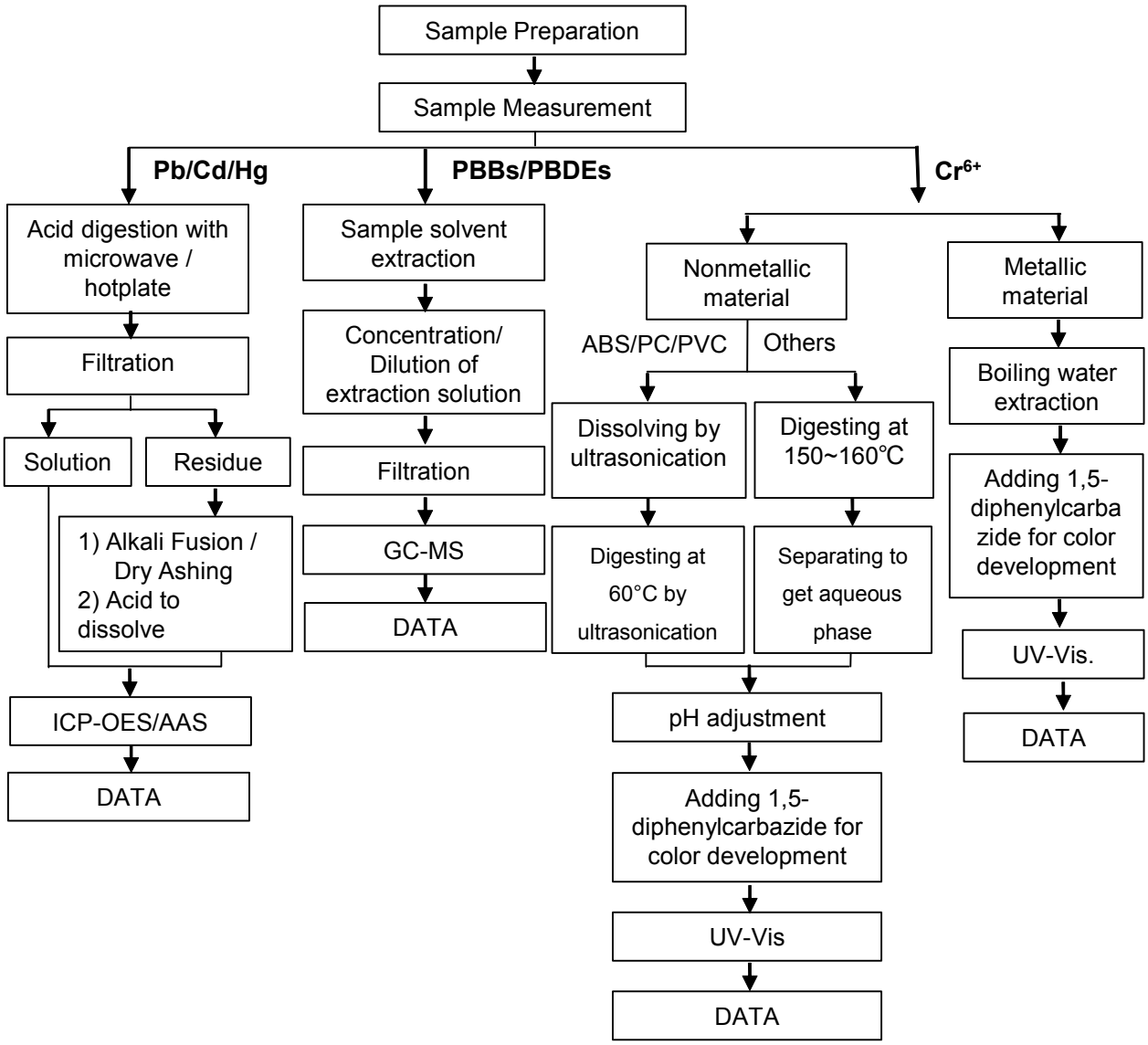
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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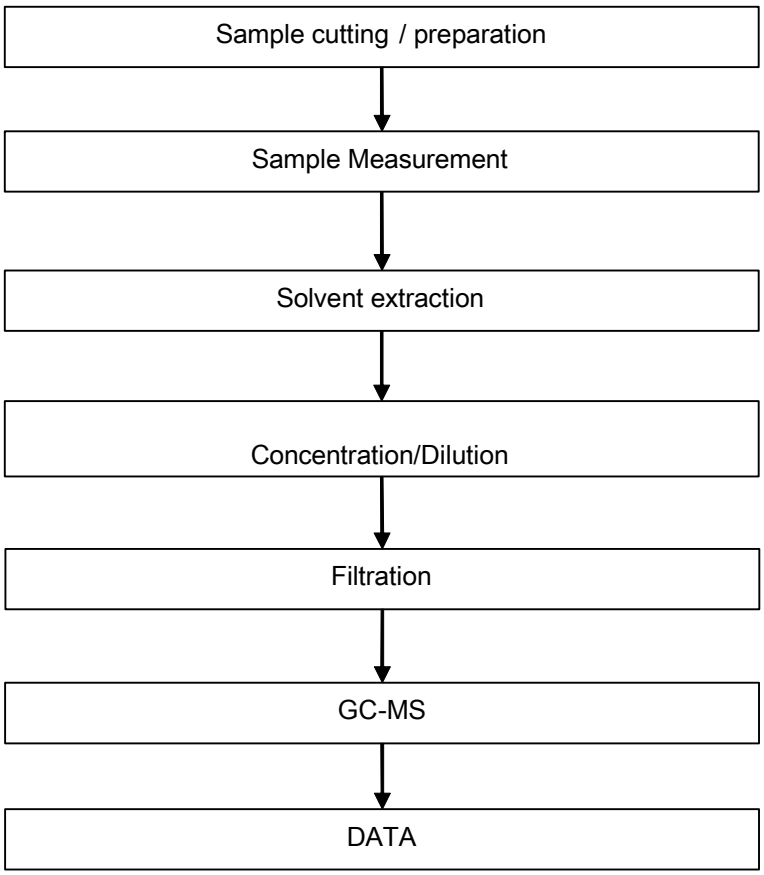
Phthalates Testing Flow Chart



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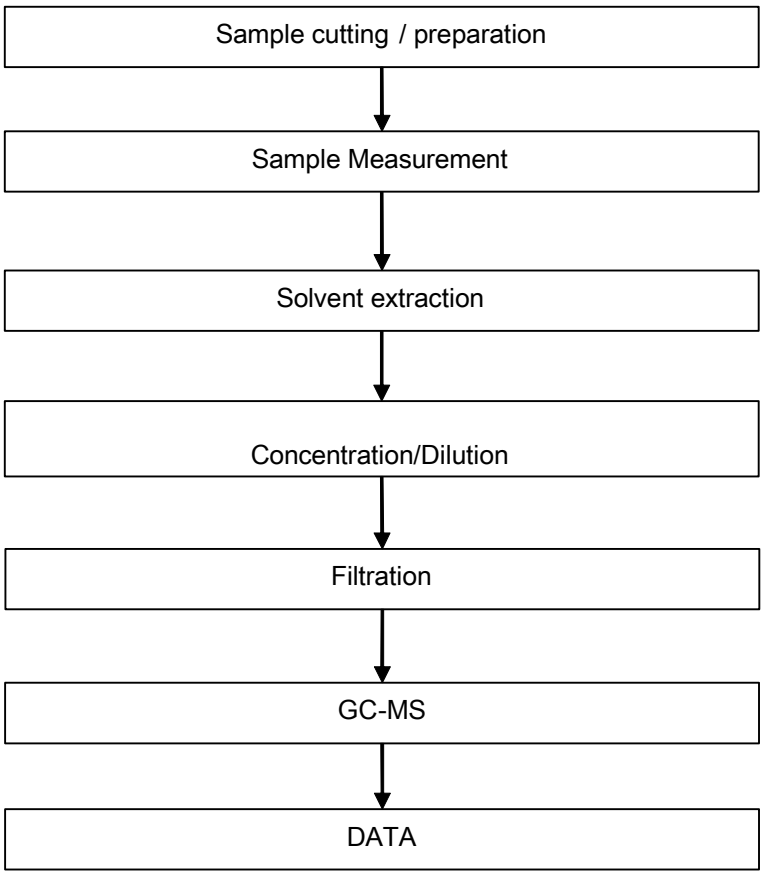
PAHs Testing Flow Chart



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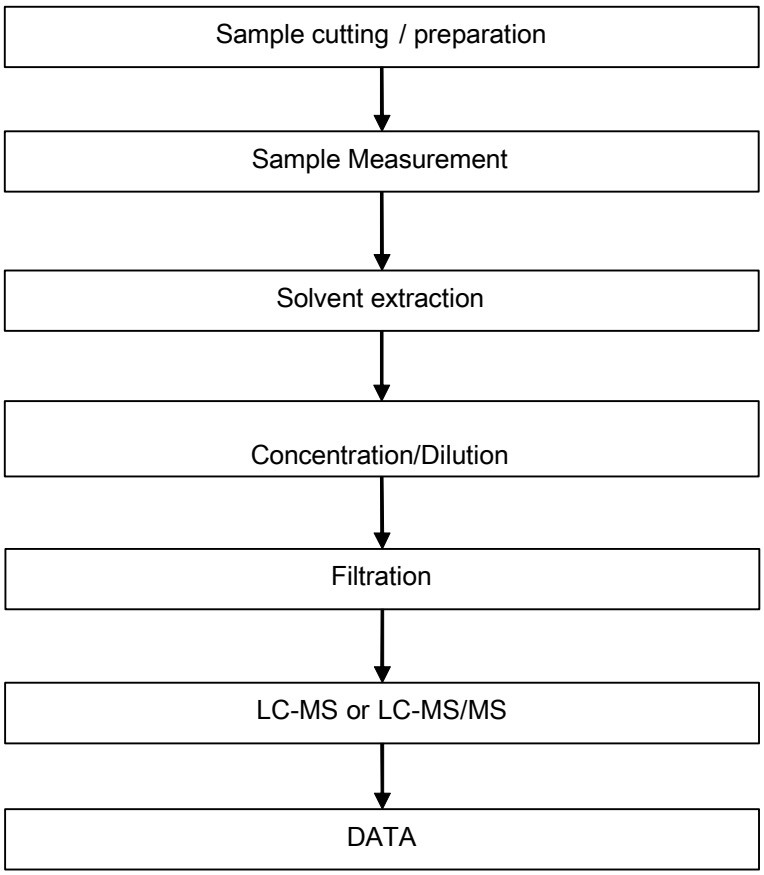
PFOA / PFOS Testing Flow Chart



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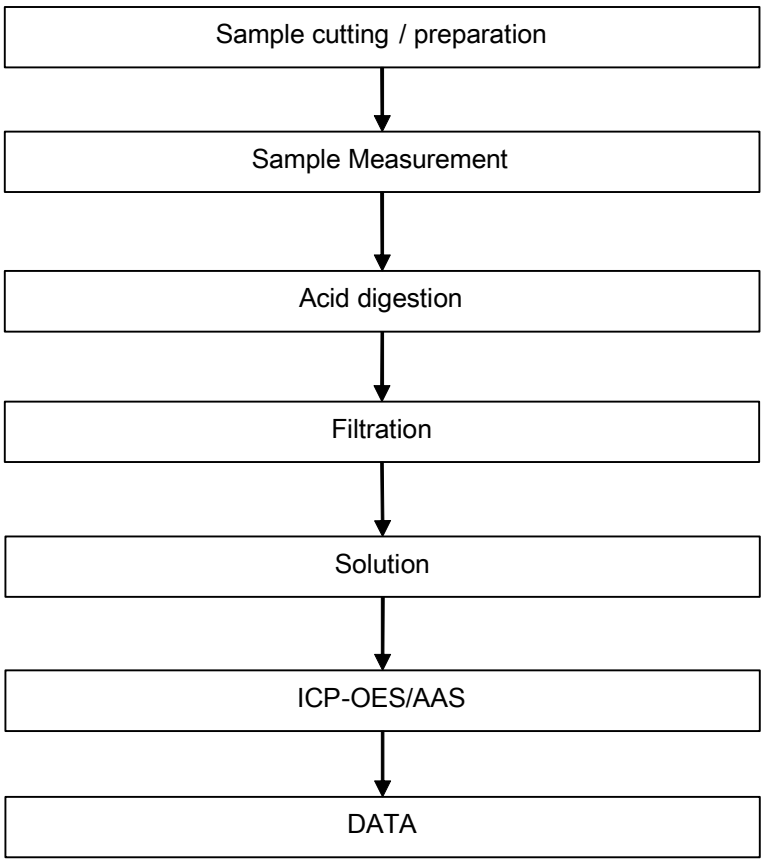
Elementary Testing Flow Chart



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Sample photo:

CAN20-021252.002

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report (SVHC)

DONGGUAN LUCKY FLY CONDUCTOR CO.,LTD
QIAO ZI REGION CHANG PING TOWN DONG GUAN CITY GUANG DONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : BARE COPPER WIRE; TINNED COPPER WIRE

SGS Job No. :	CP20-005367 - GZ
Main Substance :	Cu,Sn
Date of Sample Received :	04 Mar 2020
Testing Period :	04 Mar 2020 - 10 Mar 2020
Test Requested :	As requested by client, SVHC screening is performed according to: (i) Two hundred and five (205) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before Jan 16, 2020 regarding Regulation (EC) No 1907/2006 concerning the REACH.
Test Results :	Please refer to next page(s).

Summary :

According to the specified scope and evaluation screening, the test results of SVHC are ≤ 0.1% (w/w) in the submitted sample.	PASS

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Zmguan

Zm guan
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Remark :

1. The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA: http://echa.europa.eu/web/guest/candidate-list-table
   These lists are under evaluation by ECHA and may subject to change in the future.
2. REACH obligation:
   2.1 Concerning article(s):
   Communication:
   Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance in the Candidate List.

   Notification:
   In accordance with Regulation (EC) No 1907/2006, any EU producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance in the Candidate List is present in those articles above a concentration of 0.1% weight by weight (w/w).

   SGS adopts the ruling of the Court of Justice of the European Union on the definition of an article under REACH unless indicated otherwise. Detail explanation is available at the following link:
   http://www.sgs.com/-/media/global/documents/technical-documents/technical-bulletins/sgs-crs-position-statement-on-svhc-in-articles-a4-en-16-06.pdf?la=en

   2.2 Concerning material(s):
   Test results in this report are based on the tested sample. This report refers to testing result of tested sample submitted as homogenous material(s). In case such material is being used to compose an article, the results indicated in this report may not represent SVHC concentration in such article. If this report refers to testing result of composite material group by equal weight proportion, the material in each composite test group may come from more than one article.

   If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

   2.3 Concerning substance and preparation:
   If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and its amendments, client is suggested to prepare a Safety

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Data Sheet (SDS) against the SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:
- a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
- a mixture that is classified as hazardous under the CLP Regulation (EC) No 1272/2008, when it contains a substance with concentration equal to, or greater than the classification limit as set in Regulation (EC) No. 1272/2008; or
- a mixture is not classified as hazardous under the CLP Regulation (EC) No 1272/2008, but contains either:
(a) a substance posing human health or environmental hazards in an individual concentration of ≥ 1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or ≥ 0.2 % by volume for gaseous mixtures; or
(b) a substance that is PBT, or vPvB in an individual concentration of ≥ 0.1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
(c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures; or
(d) a substance for which there are Europe-wide workplace exposure limits.

3. If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

Test Sample :

Sample Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-021252.003	Copper-colored metal wire(a)+Silvery plated metal wire(b)

Test Method :

SGS In-House method- SGS-CCL-TOP-092-01, SGS-CCL-TOP-092-02, Analyzed by ICP-OES, UV-VIS, GC-MS, HPLC-DAD/MS and Colorimetric Method.

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Test Result: (Substances in the Candidate List of SVHC)

Batch	Substance Name	CAS No.	003 Concentration (%)	RL (%)
-	All tested SVHC in candidate list	-	ND	-

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Notes :

1.The table above only shows detected SVHC, and SVHC that below RL are not reported.
Please refer to Appendix for the full list of tested SVHC.
2.RL = Reporting Limit (Test data will be shown if it ≥ RL. RL is not regulatory limit.) ND = Not detected (lower than RL),
ND is denoted on the SVHC substance.
3.* The test result is based on the calculation of selected element(s) and to the worst-case scenario.
** The test result is based on the calculation of selected marker(s) and to the worst-case scenario.
For detail information, please refer to the SGS REACH website:
http://www.sgs.com/en/Consumer-Goods-Retail/Toys-and-Juvenile-Products/Toys/REACH/Management-of-SVHC.aspx
4. RL = 0.005% is evaluated for element (i.e. cobalt, arsenic, lead, chromium (VI), aluminum, zirconium, boron, strontium, zinc, antimony, cadmium, titanium and barium respectively), except molybdenum RL=0.0005%, boron RL=0.0025% (only for Lead bis(tetrafluoroborate)).
5. Calculated concentration of boric compounds are based on the water extractive boron by ICP-OES.
6. Δ CAS No. of diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD): 134237-50-6, 134237-51-7, 134237-52-8.
7. ☆ CAS No. of Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride: 25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9; EC No. of those: 247-094-1, 243-072-0, 256-356-4, 260-566-1.
8. § The substance is proposed for the identification as SVHC only where it contains Michler's ketone (CAS Number: 90-94-8) or Michler's base (CAS Number: 101-61-1) ≥0.1% (w/w).
9.Composite test has been performed in equal proportion for the components/material per client requested. And the result is calculated using the minimum sample weight.

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
I	1	4,4' -Diaminodiphenylmethane(MDA)	101-77-9	0.050
I	2	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	0.050
I	3	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	0.050
I	4	Anthracene	120-12-7	0.050
I	5	Benzyl butyl phthalate (BBP)	85-68-7	0.050
I	6	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	0.050
I	7	Bis(tributyltin)oxide (TBTO)	56-35-9	0.050
I	8	Cobalt dichloride*	7646-79-9	0.005
I	9	Diarsenic pentaoxide*	1303-28-2	0.005
I	10	Diarsenic trioxide*	1327-53-3	0.005
I	11	Dibutyl phthalate (DBP)	84-74-2	0.050
I	12	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)△	25637-99-4,3194-55-6	0.050
I	13	Lead hydrogen arsenate*	7784-40-9	0.005
I	14	Sodium dichromate*	7789-12-0, 10588-01-9	0.005
I	15	Triethyl arsenate*	15606-95-8	0.005
II	16	2,4-Dinitrotoluene	121-14-2	0.050
II	17	Acrylamide	79-06-1	0.050
II	18	Anthracene oil**	90640-80-5	0.050
II	19	Anthracene oil, anthracene paste**	90640-81-6	0.050
II	20	Anthracene oil, anthracene paste, anthracene fraction**	91995-15-2	0.050

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
II	21	Anthracene oil, anthracene paste, distn. lights**	91995-17-4	0.050
II	22	Anthracene oil, anthracene-low**	90640-82-7	0.050
II	23	Diisobutyl phthalate	84-69-5	0.050
II	24	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	0.005
II	25	Lead chromate*	7758-97-6	0.005
II	26	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	0.005
II	27	Pitch, coal tar, high temp.**	65996-93-2	0.050
II	28	Tris(2-chloroethyl)phosphate	115-96-8	0.050
III	29	Ammonium dichromate*	7789-09-5	0.005
III	30	Boric acid*	10043-35-3, 11113-50-1	0.005
III	31	Disodium tetraborate, anhydrous*	1303-96-4, 1330-43-4, 12179-04-3	0.005
III	32	Potassium chromate*	7789-00-6	0.005
III	33	Potassium dichromate*	7778-50-9	0.005
III	34	Sodium chromate*	7775-11-3	0.005
III	35	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	0.005
III	36	Trichloroethylene	79-01-6	0.050
IV	37	2-Ethoxyethanol	110-80-5	0.050
IV	38	2-Methoxyethanol	109-86-4	0.050
IV	39	Chromic acid, Oligomers of chromic acid and dichromic acid, Dichromic acid*	7738-94-5,-13530-68-2	0.005

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
IV	40	Chromium trioxide*	1333-82-0	0.005
IV	41	Cobalt(II) carbonate*	513-79-1	0.005
IV	42	Cobalt(II) diacetate*	71-48-7	0.005
IV	43	Cobalt(II) dinitrate*	10141-05-6	0.005
IV	44	Cobalt(II) sulphate*	10124-43-3	0.005
V	45	1,2,3-trichloropropane	96-18-4	0.050
V	46	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	0.050
V	47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	0.050
V	48	1-methyl-2-pyrrolidone	872-50-4	0.050
V	49	2-ethoxyethyl acetate	111-15-9	0.050
V	50	Hydrazine	7803-57-8, 302-01-2	0.050
V	51	Strontium chromate*	7789-06-2	0.005
VI	52	1,2-Dichloroethane	107-06-2	0.050
VI	53	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	0.050
VI	54	2-Methoxyaniline; o-Anisidine	90-04-0	0.050
VI	55	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	0.050
VI	56	Aluminosilicate Refractory Ceramic Fibres *	650-017-00-8 (Index no.)	0.005
VI	57	Arsenic acid*	7778-39-4	0.005
VI	58	Bis(2-methoxyethyl) ether	111-96-6	0.050
VI	59	Bis(2-methoxyethyl) phthalate	117-82-8	0.050

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VI	60	Calcium arsenate*	7778-44-1	0.005
VI	61	Dichromium tris(chromate) *	24613-89-6	0.005
VI	62	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	0.050
VI	63	Lead diazide, Lead azide*	13424-46-9	0.005
VI	64	Lead dipicrate*	6477-64-1	0.005
VI	65	Lead styphnate*	15245-44-0	0.005
VI	66	N,N-dimethylacetamide	127-19-5	0.050
VI	67	Pentazinc chromate octahydroxide*	49663-84-5	0.005
VI	68	Phenolphthalein	77-09-8	0.050
VI	69	Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	0.005
VI	70	Trilead diarsenate*	3687-31-8	0.005
VI	71	Zirconia Aluminosilicate Refractory Ceramic Fibres*	650-017-00-8 (Index no.)	0.005
VII	72	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26)§	2580-56-5	0.050
VII	73	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)§	548-62-9	0.050
VII	74	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	0.050
VII	75	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	0.050
VII	76	4,4'-bis(dimethylamino) benzophenone (Michler's Ketone)	90-94-8	0.050
VII	77	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol§	561-41-1	0.050
VII	78	Diboron trioxide*	1303-86-2	0.005

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VII	79	Formamide	75-12-7	0.050
VII	80	Lead(II) bis(methanesulfonate)*	17570-76-2	0.005
VII	81	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	0.050
VII	82	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	0.050
VII	83	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) §	6786-83-0	0.050
VII	84	β-TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6	0.050
VIII	85	[Phthalato(2-)]dioxotrilead*	69011-06-9	0.005
VIII	86	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	0.050
VIII	87	1,2-Diethoxyethane	629-14-1	0.050
VIII	88	1-Bromopropane	106-94-5	0.050
VIII	89	3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	0.050
VIII	90	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	-	0.050
VIII	91	4,4'-Methylenedi-o-toluidine	838-88-0	0.050
VIII	92	4,4'-Oxydianiline and its salts	101-80-4	0.050
VIII	93	4-Aminoazobenzene	60-09-3	0.050
VIII	94	4-Methyl-m-phenylenediamine	95-80-7	0.050
VIII	95	4-Nonylphenol, branched and linear	-	0.050
VIII	96	6-Methoxy-m-toluidine	120-71-8	0.050
VIII	97	Acetic acid, lead salt, basic*	51404-69-4	0.005

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(SVHC)

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	98	Biphenyl-4-ylamine	92-67-1	0.050
VIII	99	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	0.050
VIII	100	Cyclohexane-1,2-dicarboxylic anhydride, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	85-42-7,13149-00-3,14166-21-3	0.050
VIII	101	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	0.050
VIII	102	Dibutyltin dichloride (DBTC)	683-18-1	0.050
VIII	103	Diethyl sulphate	64-67-5	0.050
VIII	104	Diisopentylphthalate	605-50-5	0.050
VIII	105	Dimethyl sulphate	77-78-1	0.050
VIII	106	Dinoseb	88-85-7	0.050
VIII	107	Dioxobis(stearato)trilead*	12578-12-0	0.005
VIII	108	Fatty acids, C16-18, lead salts*	91031-62-8	0.005
VIII	109	Furan	110-00-9	0.050
VIII	110	Henicosafluoroundecanoic acid	2058-94-8	0.050
VIII	111	Heptacosafluorotetradecanoic acid	376-06-7	0.050
VIII	112	Hexahydromethylphathalic anhydride, Hexahydro-4-methylphathalic anhydride, Hexahydro-1-methylphathalic anhydride, Hexahydro-3-methylphathalic anhydride	☆	0.050
VIII	113	Lead bis(tetrafluoroborate)*	13814-96-5	0.005
VIII	114	Lead cyanamidate*	20837-86-9	0.005
VIII	115	Lead dinitrate*	10099-74-8	0.005
VIII	116	Lead monoxide*	1317-36-8	0.005

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	117	Lead oxide sulfate*	12036-76-9	0.005
VIII	118	Lead tetroxide (orange lead)*	1314-41-6	0.005
VIII	119	Lead titanium trioxide*	12060-00-3	0.005
VIII	120	Lead titanium zirconium oxide*	12626-81-2	0.005
VIII	121	Methoxyacetic acid	625-45-6	0.050
VIII	122	Methyloxirane (Propylene oxide)	75-56-9	0.050
VIII	123	N,N-dimethylformamide	68-12-2	0.050
VIII	124	N-Methylacetamide	79-16-3	0.050
VIII	125	N-Pentyl-isopentylphthalate	776297-69-9	0.050
VIII	126	o-Aminoazotoluene	97-56-3	0.050
VIII	127	o-Toluidine	95-53-4	0.050
VIII	128	Pentacosafluorotridecanoic acid	72629-94-8	0.050
VIII	129	Pentalead tetraoxide sulphate*	12065-90-6	0.005
VIII	130	Pyrochlore, antimony lead yellow*	8012-00-8	0.005
VIII	131	Silicic acid, barium salt, lead-doped*	68784-75-8	0.005
VIII	132	Silicic acid, lead salt*	11120-22-2	0.005
VIII	133	Sulfurous acid, lead salt, dibasic*	62229-08-7	0.005
VIII	134	Tetraethyllead*	78-00-2	0.005
VIII	135	Tetralead trioxide sulphate*	12202-17-4	0.005
VIII	136	Tricosafluorododecanoic acid	307-55-1	0.050
VIII	137	Trilead bis(carbonate)dihydroxide (basic lead carbonate)*	1319-46-6	0.005

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	138	Trilead dioxide phosphonate*	12141-20-7	0.005
IX	139	4-Nonylphenol, branched and linear, ethoxylated	-	0.050
IX	140	Ammonium pentadecafluorooctanoate (APFO)**	3825-26-1	0.050
IX	141	Cadmium oxide*	1306-19-0	0.005
IX	142	Cadmium*	7440-43-9	0.005
IX	143	Dipentyl phthalate (DPP)	131-18-0	0.050
IX	144	Pentadecafluorooctanoic acid (PFOA)	335-67-1	0.050
X	145	Cadmium sulphide*	1306-23-6	0.005
X	146	Dihexyl phthalate	84-75-3	0.050
X	147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	0.050
X	148	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	0.050
X	149	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	0.050
X	150	Lead di(acetate)*	301-04-2	0.005
X	151	Trixylyl phosphate	25155-23-1	0.050
XI	152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	0.050
XI	153	Cadmium chloride*	10108-64-2	0.005
XI	154	Sodium perborate; perboric acid, sodium salt*	-	0.005
XI	155	Sodium peroxometaborate*	7632-04-4	0.005

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XII	156	2-(2H-Benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	0.050
XII	157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	0.050
XII	158	2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate; DOTE	15571-58-1	0.050
XII	159	Cadmium fluoride*	7790-79-6	0.005
XII	160	Cadmium sulphate*	10124-36-4, 31119-53-6	0.005
XII	161	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate & 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE & MOTE)	-	0.050
XIII	162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	68515-51-5, 68648-93-1	0.050
XIII	163	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	-	0.050
XIV	164	1,3-propanesultone	1120-71-4	0.050
XIV	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	0.050
XIV	166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	0.050
XIV	167	Nitrobenzene	98-95-3	0.050
XIV	168	Perfluorononan-1-oic-acid and its sodium and ammonium salts	375-95-1,21049-39-8, 4149-60-4	0.050
XV	169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	0.050

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XVI	170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	0.050
XVI	171	4-Heptylphenol, branched and linear	-	0.050
XVI	172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7,335-76-2,3830-45-3	0.050
XVI	173	p-(1,1-dimethylpropyl)phenol	80-46-6	0.050
XVII	174	Perfluorohexane-1-sulphonic acid and its salts	-	0.050
XVIII	175	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	0.050
XVIII	176	Benz[a]anthracene	56-55-3, 1718-53-2	0.050
XVIII	177	Cadmium nitrate*	10022-68-1, 10325-94-7	0.005
XVIII	178	Cadmium carbonate*	513-78-0	0.005
XVIII	179	Cadmium hydroxide*	21041-95-2	0.005
XVIII	180	Chrysene	218-01-9, 1719-03-5	0.050
XVIII	181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	0.050
XIX	182	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride (trimellitic anhydride)	552-30-7	0.050
XIX	183	Benzo[ghi]perylene	191-24-2	0.050
XIX	184	Decamethylcyclopentasiloxane (D5)	541-02-6	0.050
XIX	185	Dicyclohexyl phthalate (DCHP)	84-61-7	0.050
XIX	186	Disodium octaborate*	12008-41-2	0.005

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Batch	No.	Substance Name	CAS No.	RL (%)
XIX	187	Dodecamethylcyclohexasiloxane (D6)	540-97-6	0.050
XIX	188	Ethylenediamine	107-15-3	0.050
XIX	189	Lead*	7439-92-1	0.005
XIX	190	Octamethylcyclotetrasiloxane (D4)	556-67-2	0.050
XIX	191	Terphenyl hydrogenated	61788-32-7	0.050
XX	192	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one (3-benzylidene camphor)	15087-24-8	0.050
XX	193	2,2-bis(4'-hydroxyphenyl)-4- methylpentane	6807-17-6	0.050
XX	194	Benzo[k]fluoranthene	207-08-9	0.050
XX	195	Fluoranthene	206-44-0, 93951-69-0	0.050
XX	196	Phenanthrene	85-01-8	0.050
XX	197	Pyrene	129-00-0, 1718-52-1	0.050
XXI	198	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof)	-	0.050
XXI	199	2-methoxyethyl acetate	110-49-6	0.050
XXI	200	4-tert-butylphenol (PTBP)	98-54-4	0.050
XXI	201	Tris(4-nonylphenyl,branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	-	0.050
XXII	202	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	119313-12-1	0.050
XXII	203	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	71868-10-5	0.050
XXII	204	Diisohexyl phthalate	71850-09-4	0.050

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XXII	205	Perfluorobutane sulfonic acid (PFBS) and its salts	-	0.050

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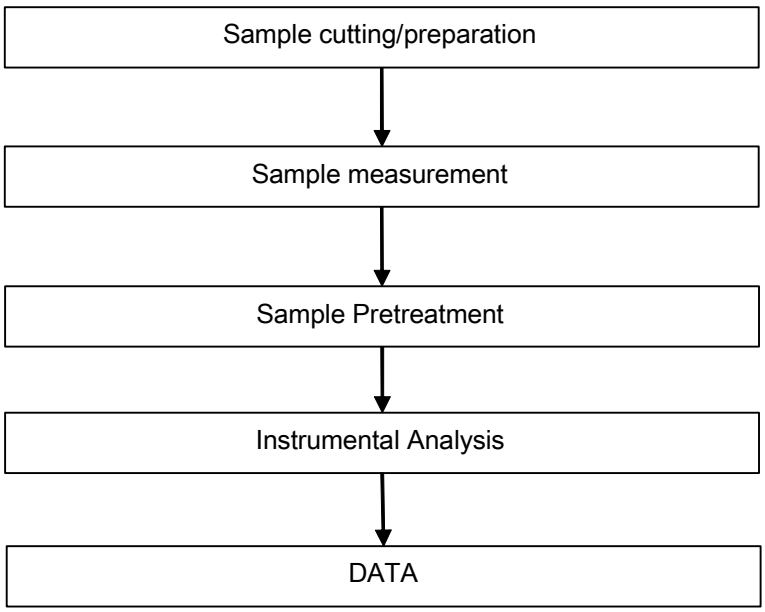
SVHC Testing Flow Chart



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Test Report

SINWA LASER TECHNOLOGY CO.,LTD

50.WU KONG 5 TH RD,.WU KU INDUSTRIAL PARK .TAIPEI TAIWAN

The following sample(s) was/were submitted and identified on behalf of the clients as : INK BLACK FOR WIRE &CABLE PRINTING

SGS Job No. :	CP20-019851 - SZ
Model No. :	I-PVC-02
Date of Sample Received :	30 Apr 2020
Testing Period :	30 Apr 2020 - 14 May 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-062929.006	Black paste

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*006*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	006
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Remark : The result(s) shown is/are of the total weight of dried sample.

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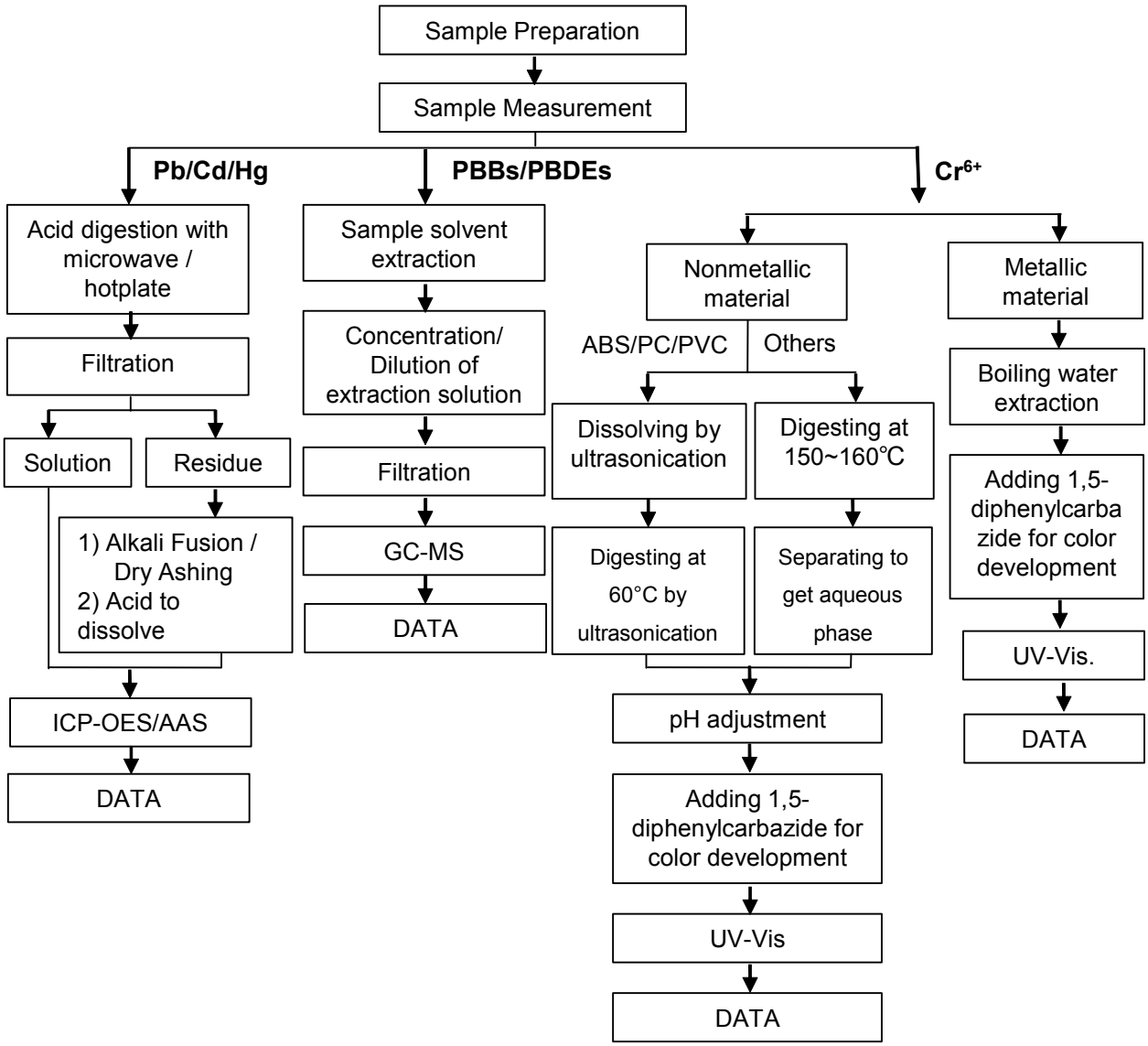
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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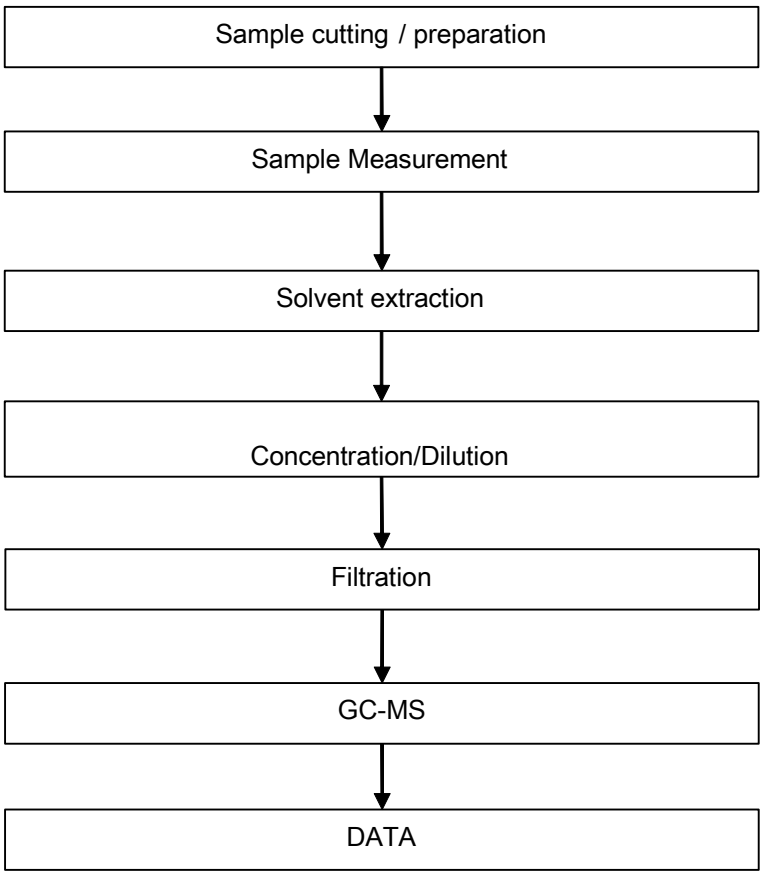
Phthalates Testing Flow Chart



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加:智清

物質安全資料表

MATERIAL SAFETY DATA SHEET(MSDS)

1 供應商資料

物品名稱： 環保 PVC 電子線

供應商名稱 ： 瑞興電線電纜(東莞)有限公司

地址 ： 廣東省東莞市長安鎮增田工業區

電話 ：0769-85315656

緊急聯絡人 ： 陳清學 | 電話:0769-85315656-608 | 傳真: 0769-85315655

2 成份資料

中英文名稱 :銅(Copper)，錫(Tin)，聚氯乙烯(Polyvinyl Chloride)，油墨(EVE)

	主要危害物質成份			化學文摘社登記號碼 CAS NO:	濃度或濃度範圍(成份百分比)			危害物質分類及圖示
	成份名稱	化學式	含量(%)		時量平均容許濃度 TWA	短時間時量平均容許濃度 STEL	最高容許濃度 CEILING	
銅線	銅線	Cu	約 99.98	7440-50-8				
	錫	Sn	約 0.02	7440-31-5				
PVC	PVC 混合物	$(CH_2CHCl)n$	約 52	9002-86-2				
	可塑劑	$C_{24}H_{38}O_4$	約 19	6422-86-2				
	填充劑	$CaCO_3$	約 25	471-34-1				
	安定劑	Ca/Zn	約 1	1592-23-0				
	阻燃劑	Sb_2O_3	約 1	1309-64-4				
	滑劑	PE-520	約 1	9002-88-4				
	顏色	/	約 1	/				
印字油墨	樹脂	CnHmOk	約 30	24937-78-8				
	活性稀釋劑	C6H10O4	約 30	14636-95-4				
	鈦白粉/碳黑	TiO2/C	約 10	1333-86-4/13463-67-7				
	硫酸鋇	BaSO4	約 15	7727-43-7				
	碳酸鈣	CaCO3	約 10	471-34-1				
	添加劑	Si2O5R3	約 5	1332-58-7				

3 危害辨識資料與急救措施

最重要危害效應

健康危害效應: 燃燒產生 HCL,對人體有害

環境影響: 無

物理性及化學與危害: 無

特殊危害: 無

主要症狀: 不同接觸方式症狀不同

物品危害分類: 本物 爲固估自然狀下無害

4 急救措施

急救措施

不同暴露途徑之急救方法：吸入樹脂逸出氣體，將患者移至通風處，立即送醫。吞食後催吐以清水漱口若有不適立即送醫。皮膚眼睛接以肥皂水或清水沖洗 15 分鐘，若有不適立即送醫。

最重要危害效應: 無

對急救人員防護: 供氧式防護具

對醫師之提示: 告知醫師患者接觸方式方便施救

5 滅火措施

適用滅火器: 水、泡沫、干粉滅火劑

滅火時可能遭遇特殊危害: 燃燒產生的氣體使人窒息

特殊滅火程序: 移出可燃物

消防人員之特殊防護設備: 供氧式防護具

6 洩漏處理方法

個人應注意事項: 本品是固體不會產生洩漏，該項本品不適用。

環境注意事項: 本品是固體不會產生洩漏，該項本品不適用。

清理方法: 本品是固體不會產生洩漏，該項本品不適用。

7 安全處置與儲存方法

處置: 操作處所嚴禁煙火，做好整理整頓以避免粉塵累積。

儲存: 存放於陰涼處，避免直射陽光，避免腐蝕性氣體、液體接觸，儲存處嚴禁煙火;
线材的储存温度通常在温度 25+/-2 度,湿度在 40%-70%之间,无酸性环境下储存.

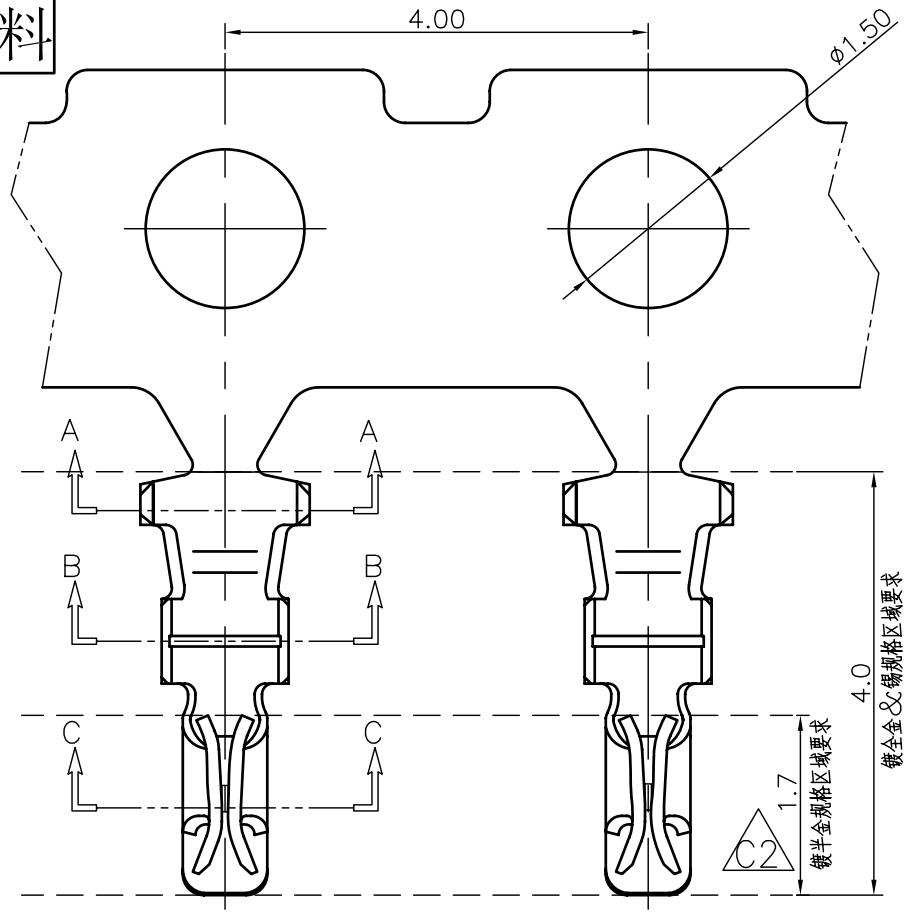
瑞興電線電纜(東莞)有限公司 工程部 2016.12.01 發行章

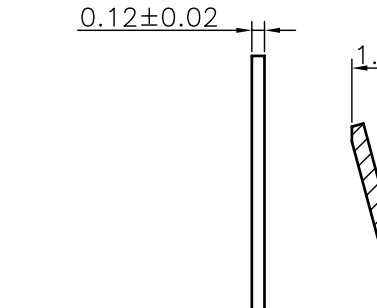
表單編號	RH-GP-02	版本號	V-001

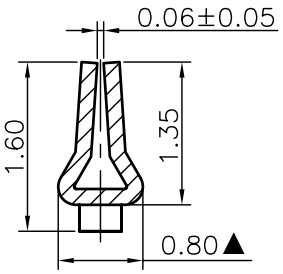
8	暴露預防措施	工程控制: 無	
		參數控制: 無	
		個人防護設備: 防毒面具，手套	
		呼吸防護: 清洗成形機時使用防毒面具。	眼睛防護: 無
		手部防護: 接觸熔膠時使用手套。	皮膚及身體防護: 無
		衛生措施: 保持作業環境整潔，勤洗手。	
9	物理及化學性質	物質狀態: 固體	形狀: 線狀
		顏色: 多色	氣味: 略有刺激性氣味
		PH 值: 中性	沸點/沸點範圍: 未測定
		分解溫度: 150～180℃	閃火點: 200℃
			測試方法: 無
		自然溫度: 400℃	爆炸界限: 未測定
		蒸氣壓: 未測定	蒸氣密度: 未測定
		密度: 1.35～1.50/cm^3	溶解度: 0.46%（at20℃）
10	安定性及反應性	安定性: 依一般操作和儲存程序時，安定性佳。	
		特殊狀況下可能危害反應: 無	
		應避免狀況: 煙火	
		應避免之物質: 腐蝕性氣體,液體。	
		危害分解物: CO,HCL,CO2	
11	毒性資料	急毒性: 無	致敏感性: 無
		局部效應: 無	
		慢毒性或長期毒性: 無	
		特殊效應: 無	
12	生態資料	可能環境影響/環境流佈: 爲防止被海洋生物或鳥類攝食，嚴禁丟棄至海洋或水域。	
13	廢棄處置方法	廢棄處置方法: 根據當地法規處理。	
14	運送資料	國際運送規定: 未分類	
		聯合國編號: 無	
		國內運送規定: 未分類	
		特殊運送方法及注意事項: 無	
15	法規資料	適用法規: 無	
16	其它	參考文獻:無	
		製表單位:	名稱: 工程
			地址/電話: 東莞市長安鎮增田工業區/0769-85315656
		製表人:	職稱: 姓名: 呂天生
		製表日期:	公元 2016.12.01
表單編號		RH-GP-02	版本號 V-001

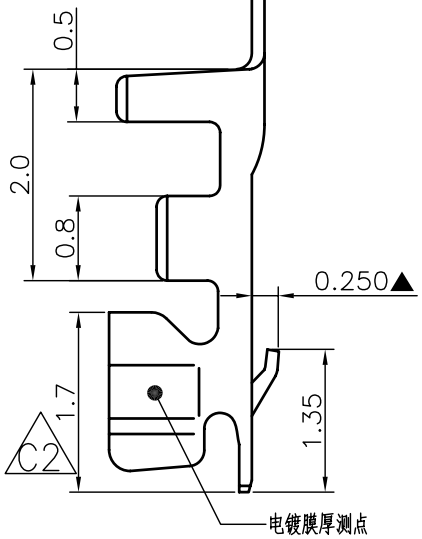
鴻海高精電機(東莞)有限公司 工程部 2016.12.01 發行章

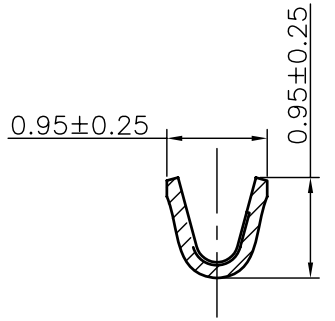
环保物料











Specification & Ordering Information:

Options	Part No	Wire Range	Insulation O.D.	Material	Finish	Qty/reel
1	11002TOP-2E-S-NK	AWG #28~#32	0.80mm(max)	Phosphor Bronze	Tin-plated 80μ"Min	2,0000 PCS
2	11002TOP-5X-S-NK	AWG #28~#32	0.80mm(max)	Phosphor Bronze	Gold Plated on Overall.	2,0000 PCS
3	11002TOP-0X-S-NK	AWG #28~#32	0.80mm(max)	Phosphor Bronze	Gold Plated on Contact Area.	2,0000 PCS

Note:11002TOP-XX-S-NK C1

0A--Gold-flash 0B--2μ" 0C--3μ" 0D--4μ" 0E--5μ" 5A--Gold-flash 5B--2μ" 5C--3μ" 5D--4μ" 5E--5μ"
0F--10μ" 0G--15μ" 0H--30μ" 0I--50μ" 5F--10μ" 5G--15μ" 5H--30μ" 5I--50μ"

REV.	DATE	DESCRIPTION	CHK.	APPD.
C3	11.05.31	TR1105310082	EAST	唐海江
C2	10.08.05	TR1007270049	EAST	唐海江
C1	09.12.21	修改电镀码料号,增加Mark码	EAST	唐海江
C0	09.12.09	换图框发行	EAST	唐海江

一般公差 GENERAL TOLERANCE
X.X ±0.25 X° ±5°
X.XX ±0.15 X.X' ±2'
X.XXX ±0.08 ▲ MAJOR DIM.
单位UNIT mm

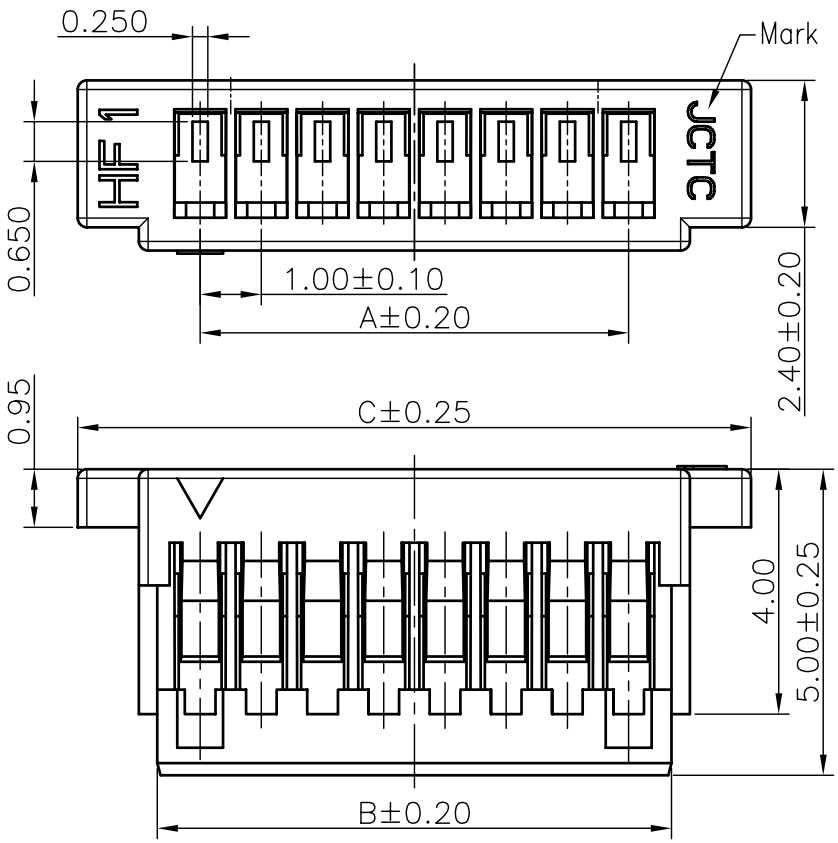
绘图 DR.	EAST
校对 CHK.	唐海江
审核 CHK.	龚友连
核准 APPD.	王志刚

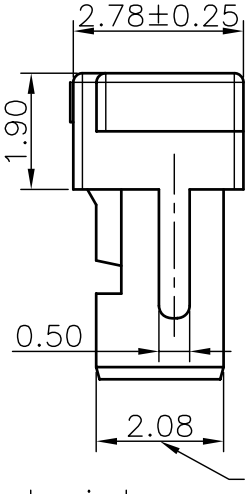
JCTC® 东莞市胜蓝电子有限公司
TERMINAL & CONNECTORS —— 富强电子厂 ——

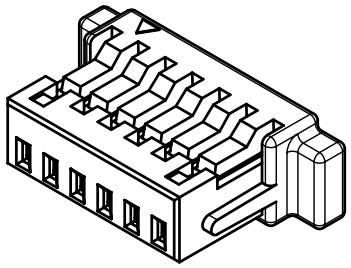
品名TITLE: JST1.0端子 松端

料号 PART NO.: 11002TOP-XX-S-NK
文件编号 NUMBER: ENDE05
比例SCALE: 1/1
SHEET: 1/1
版次 REV.: C3

环保物料







Specifications:
Rated Voltage : 50V AC/DC
Rated Current : 1A AC,DC
Withstand Voltage : 500V AC/minute
Contact Resistance : 20mΩ(MAX.)
Insulation Resistance : 100MΩ(MIN.)
Temperature Range :-25°C~+85°C

Dimensional Ordering Information:			
Circuits	Dimensions		
Part No	A	B	C
2P	1.00	2.40	5.00
3P	2.00	3.40	6.00
4P	3.00	4.40	7.00
5P	4.00	5.40	8.00
6P	5.00	6.40	9.00
7P	6.00	7.40	10.00
8P	7.00	8.40	11.00
9P	8.00	9.40	12.00
10P	9.00	10.40	13.00
11P	10.00	11.40	14.00
12P	11.00	12.40	15.00
13P	12.00	13.40	16.00
14P	13.00	14.40	17.00
15P	14.00	15.40	18.00
16P	15.00	16.40	19.00
17P	16.00	17.40	20.00
18P	17.00	18.40	21.00
19P	18.00	19.40	22.00
20P	19.00	20.40	23.00
21P	20.00	21.40	24.00
24P	23.00	24.40	27.00
30P	29.00	30.40	33.00

11002H00-NPX-HF-NK
① ② ③④ ⑤ ⑥

① Series No.
② H90 : Side Contact
H00 : Up Contact
③ No. of Circuits
④ A: Product color (A--Y)
Blank : Natural type
⑤ HF : Halogen Free
⑥ Blank: Mark NK: No Mark

Suitable for JCTC 11002 series terminal

Part No.	Material	Color
11002H00-NP	PBT,UL94V-0	Natural(White)
11002H00-NPA	PBT,UL94V-0	Black
11002H00-NPC	Nylon 66,UL94V-0	Red
11002H00-NPE	Nylon 66,UL94V-0	Yellow
11002H00-NP-HF	Nylon 66,UL94V-0	Natural(White)
11002H00-NPA-HF	Nylon 66,UL94V-0	Black

Part No.	Material	Color
11002H00-NP-NK	PBT,UL94V-0	Natural(White)
11002H00-NPA-NK	PBT,UL94V-0	Black
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11002H00-NPE-NK	Nylon 66,UL94V-0	Yellow
11002H00-NP-HF-NK	Nylon 66,UL94V-0	Natural(White)
11002H00-NPA-HF-NK	Nylon 66,UL94V-0	Black

版次REV.	日 期 DATE	变 更 内 容 DESCRIPTION	审 核 CHK.	核 准 APPD.
C4	12.07.24	将18P主体厚度由2.08改为2.11	龚友连	王志刚
C3	11.07.19	主体增加"HF"	龚友连	王志刚
C2	10.11.25	新增黑色无卤规格	龚友连	王志刚
C1	10.07.06	新增24P,30P规格	龚友连	王志刚

一般公差 GENERAL TOLERANCE
X.X ±0.25
X.XX ±0.15
X.XXX ±0.08
X° ±5°
X.X° ±2°
▲ MAJOR DIM.
单位 UNIT mm

绘 图 DR.	欧阳小强
校 对 CHK.	龚友连
审 核 CHK.	龚友连
核 准 APPD.	王志刚

JCTC® 东莞市胜蓝电子有限公司
TERMINAL & CONNECTORS —— 富 强 电 子 厂 ——

品名 TITLE
JST 1.00mm PITCH HOUSING

料号 PART NO.		
11002H00-NPX-XX-XX		
文件编号 NUMBER		
ENDE05		
比例 SCALE	SHEET	版次 REV.
1/1	1/1	C4

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See General Information for Connectors for Use in Data, Signal, Control and Power Applications - Component

SHENGLAN TECHNOLOGY CO LTD E338796
No.4 Hexing Rd
Shatou Southern District
Changan Town
Dongguan, Guangdong 523846 CHINA

Connectors, Model(s) Cat. No. 11002H00, follow by -2X, follow by 5, 6, 8, 9, 10, 12, 15, 17, 18, 20, 25, follow by P, follow by A thru Z or 1 thru 9, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9, follow by -A thru -Z, follow by A thru Z.

Connectors, Model(s) Cat. No. 11002W00, follow by -2X, follow by 5, 6, 8, 9, 10, 12, 15, 20, 25, follow by P, follow by A thru Z or 1 thru 9, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9, follow by -A thru -Z, follow by A thru Z.

Connectors, Model(s) Cat. No. 11002W90, follow by -2X, follow by 5, 6, 8, 9, 10, 15, 20, 25, follow by P, follow by A thru Z or 1 thru 9, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9, follow by -A thru -Z, follow by A thru Z.

Connectors, Model(s) Cat. No. 11004H, followed by -2x10 or -2x15, followed by PL.

Connectors, Model(s) Cat. No. 11006H00, followed by -2X10, -2X15 or -2X20, followed by P.

Connectors, Model(s) Cat. No. 11252H, followed by -2x, followed by 5, 10, 15 or 20, followed by P.

Connectors, Model(s) Cat. No. 11252W, followed by -2X, followed by 5, 10, 15 or 20, followed by P.

Connectors, Model(s) Cat. No. 11253H, followed by -20 or -30, followed by P.

Connectors, Model(s) Cat. No. 11253W, followed by -20 or -30, followed by P.

Connectors, Model(s) Cat. No. 11258H00, follow by -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -20, follow by P, follow by A thru Z or 1 thru 9, follow by -L, follow by -A thru -Z or -1 thru -9, follow A thru Z or 1 thru 9.

Connectors, Model(s) Cat. No. 11258W90, follow by -S, follow by -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -20, follow by P, follow by A thru Z or 1 thru 9, follow by -L, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9.

Connectors, Model(s) Cat. No. 11500H00, followed by -2 thru -15, followed by P.

Connectors, Model(s) Cat. No. 11500W00, followed by -2 thru -15, followed by P.

Connectors, Model(s) Cat. No. 12002H00, follow by -2 thru -16, follow by P, follow by A thru Z or 1 thru 9, follow by -L, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9.

Connectors, Model(s) Cat. No. 12002W00, follow by -2 thru -16, follow by P, follow by A thru Z or 1 thru 9, follow by -L, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9.

Connectors, Model(s) Cat. No. 12002W90, follow by -2 thru -16, follow by P, follow by A thru Z or 1 thru 9, follow by -L, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9.

Connectors, Model(s) Cat. No. 12003H, followed by -2x, followed by 2 thru 17, followed by P.

Connectors, Model(s) Cat. No. 12009H00, followed by -2X2, -2X3 or -2X4, followed by P.

Connectors, Model(s) Cat. No. 12504H00, followed by -2 thru -15, followed by P, followed by -L.

Connectors, Model(s) Cat. No. 12505H00, followed by -2 thru -15 or -20, followed by P.

Connectors, Model(s) Cat. No. 12505W00, follow by -2 thru -15, follow by P, follow by A thru Z or 1 thru 9, follow by -A thru -Z or -1 thru -9, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9, follow by -A thru -Z, follow by A thru Z.

Connectors, Model(s) Cat. No. 12505W90, follow by -2 thru -15, follow by P, follow by A thru Z or 1 thru 9, follow by -A thru -Z or -1 thru -9, follow by -A thru -Z or -1 thru -9, follow by A thru Z or 1 thru 9, follow by -A thru -Z, follow by A thru Z.

Connectors, Model(s) Cat. No. 12541H, followed by -2x, followed by 1 thru 20, followed by P.

Connectors, Model(s) Cat. No. 12543H, followed by -2 thru -20, followed by P.

Connectors, Model(s) Cat. No. 12547H00, followed by -3 thru -8, followed by P.

Connectors, Model(s) Cat. No. 13502W90, followed by -2P, followed by A thru Z, followed by -A thru -Z, or -0 thru -9, followed by -A thru -Z, or -0 thru -9, followed by -A thru -Z, or -0 thru -9, followed by -A thru -Z, or -0 thru -9.

Connectors, Model(s) Cat. No. 13962H00, 13962W00 and 13962W90, followed by -2P thru -10P, followed by A thru Z, followed by -A thru -Z, or -0 thru -9, followed by -A thru -Z, or -0 thru -9.

Connectors, Model(s) Cat. No. 22001H, followed by -2 thru -16, followed by P.

Connectors, Model(s) Cat. No. 22501H, followed by -2 thru -14, followed by P.

Connectors, Model(s) Cat. Nos. 10500H and 10500W, followed by -41 or -51, followed by P.

Connectors, Model(s) Cat. Nos. 11001H and 11001W, followed by -30, followed by P.

Connectors, Model(s) Cat. Nos. 11002H and 11002W, followed by -2 thru -20, followed by P.

Connectors, Model(s) Cat. Nos. 11003H and 11003W, followed by -2 thru -30, followed by P.

Connectors, Model(s) Cat. Nos. 11005H and 11005W, followed by -2X, followed by 2 thru 25, followed by P.

Connectors, Model(s) Cat. Nos. 11251H and 11251W, followed by -2 thru -15, followed by P.

Connectors, Model(s) Cat. Nos. 11254H00, 12006H, 12006W, 12504H and 12504W, followed by -2 thru -15, followed by P.

Connectors, Model(s) Cat. Nos. 11255H, 11255W, 11256H and 11256W, followed by -2 thru -30, followed by P.

Connectors, Model(s) Cat. Nos. 11257H, follow by -4 thru -15, followed by PL.

Connectors, Model(s) Cat. Nos. 11257W, 12503H00 and 12503W00, follow by -2 thru -15, followed by P.

Connectors, Model(s) Cat. Nos. 11501H and 11501W, followed by -2 thru -13, followed by P.

Connectors, Model(s) Cat. Nos. 11501H00 and 11501W00, followed by -14 or -15, followed by P.

Connectors, Model(s) Cat. Nos. 12001H and 12001W, followed by -2 thru -16, followed by P.

Connectors, Model(s) Cat. Nos. 12002H and 12002W, followed by -2x, followed by 2 thru 15, followed by P.

Connectors, Model(s) Cat. Nos. 12004H, 12004W and 12005W, follow by -2 thru -16, followed by P.

Connectors, Model(s) Cat. Nos. 12005H, follow by -2 thru -16, followed by PL.

Connectors, Model(s) Cat. Nos. 12501H and 12501W, followed by -2 thru -16, followed by P.

Connectors, Model(s) Cat. Nos. 12502H and 12502W, followed by -2 thru -15, followed by P.

Connectors, Model(s) Cat. Nos. 50801H and 50801W, follow by -2 thru -24, followed by P.

Connectors, Model(s) Cat. Nos. 51274H-7P and 51275H-7P.

Model(s) BCUM-200A-PE, BICF-200A-PE, HS-0021-PC-GY, HS-0023-PC-GY

Marking: Company name and model designation on the device or carton.
Last Updated on 2018-11-15

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SHENGLAN TECHNOLOGY CO.,LTD

NO.4HECING ROAD SHATOU SOUTHERN DISTRICT CHANGAN TOWN DONGGUAN CITY GUANGDONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : Nylon 66 UL94V-0 Natural color Housing

SGS Job No. :	CP20-046546 - SZ
Model No. :	12001
Client Ref. Info. :	PLEASE SEE REMARK
Date of Sample Received :	03 Sep 2020
Testing Period :	03 Sep 2020 - 14 Sep 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-154433.001	White plastic

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	*001*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Elementary Analysis

Test Method : SGS In-house method (GZTC CHEM-TOP-004-01, with reference to EPA 3052:1996), analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	*001*
Antimony (Sb)	mg/kg	10	ND
Tin (Sn)	mg/kg	5	ND

Tetrabromobisphenol A (TBBP-A)

Test Method : SGS In-house method (GZTC CHEM-TOP-065, With reference to EPA 3540C:1996 & EPA 8270E:2017), analysis was performed by GC-MS&LC-MS.

Test Item(s)	Unit	MDL	*001*
Tetrabromobisphenol A (TBBP-A)	mg/kg	5	ND

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Red Phosphor

Test Method : SGS In-house method (GZTC CHEM-TOP-215-01), analysis was performed by PY-GC/MS/ ICP-OES.

Test Item(s)	Unit	MDL	*001*
Red phosphorus	mg/kg	500	ND

Phthalates

Test Method : With reference to IEC 62321-8:2017, analyzed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.005	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.005	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.005	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.005	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.005	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.005	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.005	ND
Dipropyl Phthalate (DPrP)	131-16-8	%(w/w)	0.005	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%(w/w)	0.005	ND
Dipentyl Phthalates (DPENP/DnPP)	131-18-0	%(w/w)	0.005	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%(w/w)	0.005	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.005	ND
Di(2-ethyhexyl)adipate (DEHA)	103-23-1	%(w/w)	0.005	ND
Diisopentyl Phthalate (DIPP)	605-50-5	%(w/w)	0.005	ND
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters,C7-rich (DIHP)	71888-89-6	%(w/w)	0.005	ND
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	%(w/w)	0.005	ND
Di-n-heptyl Phthalate (DnHpP)	3648-21-3	%(w/w)	0.005	ND
Dinonyl Phthalate (DNP)	84-76-4	%(w/w)	0.005	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%(w/w)	0.005	ND

Phthalate(s)

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Test Method : With reference to SGS in house method (SGS-CCL-TOP-042-41) , analysis was performed by LC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Phthalic acid, mono-2-ethylhexyl ester(MEHP)	4376-20-9	%(w/w)	0.003	ND

Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Perfluorooctanoic acid (PFOA) and its salts+	335-67-1	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	mg/kg	0.010	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol(EtFOSE)	1691-99-2	mg/kg	0.010	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND

Notes :

(1) + PFOA and its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1);
(2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)2 (CAS No.: 70225-14-8), PFOS-N(C2H5)4 (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)
(3) * The test result is based on the calculation of selected marker(s) and to the worst-case scenario.

Hexabromocyclododecane (HBCDD)

Test Method : SGS in house method (GZTC CHEM-TOP-073, with reference to EPA 3550C:2007 & EPA 8270E:2017), analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001

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Test Item(s)	CAS NO.	Unit	MDL	001
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	mg/kg	10	ND

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2019:01 PAK, analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Naphthalene(NAP)	91-20-3	mg/kg	0.1	ND
Phenanthrene(PHE)	85-01-8	mg/kg	0.1	ND
Anthracene(ANT)	120-12-7	mg/kg	0.1	ND
Fluoranthene(FLT)	206-44-0	mg/kg	0.1	ND
Pyrene(PYR)	129-00-0	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	56-55-3	mg/kg	0.1	ND
Chrysene(CHR)	218-01-9	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF)	205-99-2	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	205-82-3	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	207-08-9	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	192-97-2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	193-39-5	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	53-70-3	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	191-24-2	mg/kg	0.1	ND
Acenaphthylene(ANY)	208-96-8	mg/kg	0.1	ND
Acenaphthene(ANA)	83-32-9	mg/kg	0.1	ND
Fluorene(FLU)	86-73-7	mg/kg	0.1	ND
Sum of 7 PAHs Acenaphthylene. Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	-	mg/kg	-	ND
Sum of 18 PAHs	-	mg/kg	-	ND

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Client requirements

Parameter (mg/kg)	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials coming into long-term contact with skin (more than 30s) during the intended use -in toys according to Directive 2009/48/EC or -for the use by children[a,b] up to 3 years of age.	Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact[c] with skin during the intended or foreseeable use[d].		Materials covered neither by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use.	
		a. use by children	b. other consumer products	a. use by children	b. other consumer products
Benzo(a)pyrene (BaP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene (BeP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene (BaA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene (BbF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene (BjF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene (BkF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene (CHR)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene (DBA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene (BPE)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(1,2,3-cd)pyrene (IPY)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Sum of 7 PAHs (Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene)	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene (NAP)	< 1	< 2		< 10	
Sum of 18 PAHs	<1	< 5	< 10	< 20	< 50

Note:
[a] A "Child" is legally defined as a person before reaching the age of 14 years.
[b] Use by children includes both active and passive contact by children.
[c] Definition "short-term repetitive contact" taken from REACH Annex XVII entry 50 amendment (Regulation (EC) No. 1272/2013)
[d] According to the definition of the German Product Safety Act (ProdSG) (chapter 1 Article 2 No. 28) "foreseeable use" shall mean the use of a product in a manner that the person placing it on the market, has not intended, but which could be reasonably foreseeable.

Remark:
The classification of material categories is refer to AfPS GS 2019:01 PAK issued on 10 April, 2020. The Acenaphthylene (ANY), Acenaphthene (ANA) and Fluorene (FLU) are not in the scope of AfPS 2019:1 PAK which is additionally in scope of AfPS GS 2014:01 PAK and recommended in connection with §30 LFGB product safety requirements.

European Regulation POPs (EU) 2019/1021– Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCPs)

Test Method : With reference to ISO 18219: 2015, analysis was performed by GC-NCI-MS / GC-ECD.

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Test Item(s)	Limit	Unit	MDL	001
Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCPs)	1500	mg/kg	50	ND
Comment				**PASS**
Alkanes C14-C17, chloro (medium -chain chlorinated paraffins) (MCCPs)	-	mg/kg	50	ND

Remark: Results & photo(s) of this report refer to test report CANEC2015443301.

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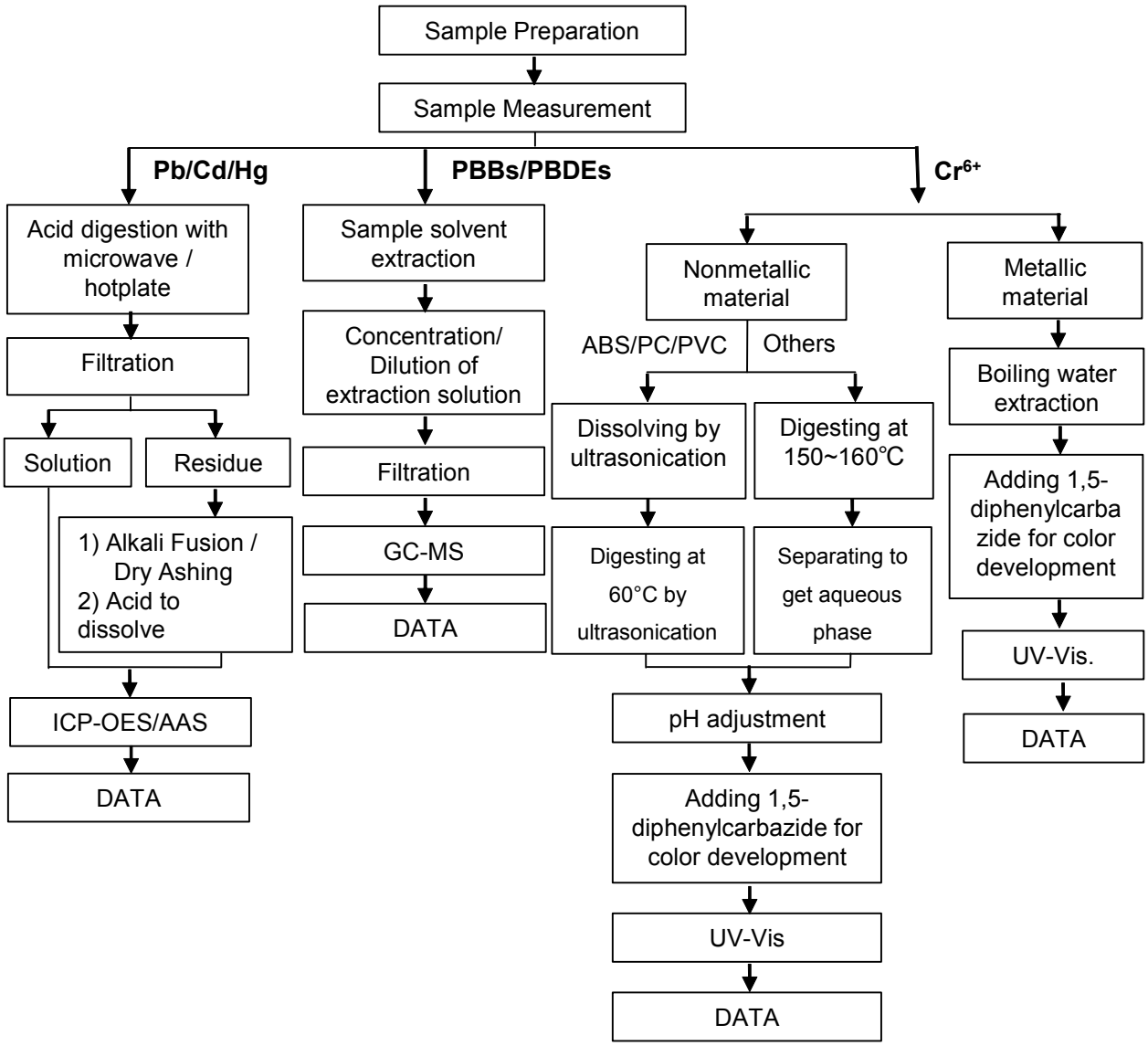
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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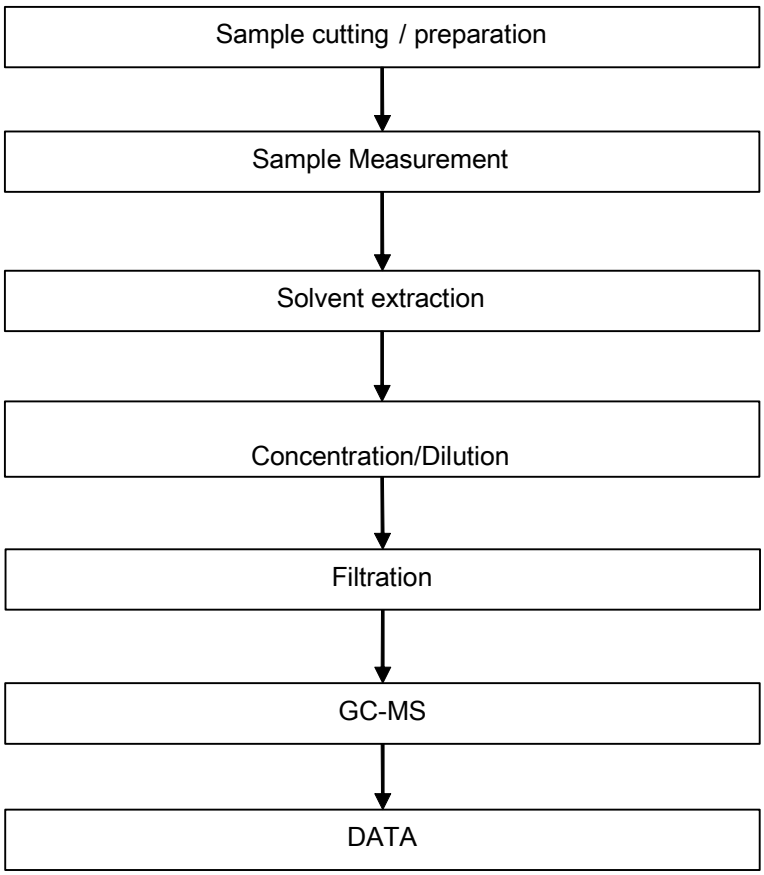
Phthalates Testing Flow Chart



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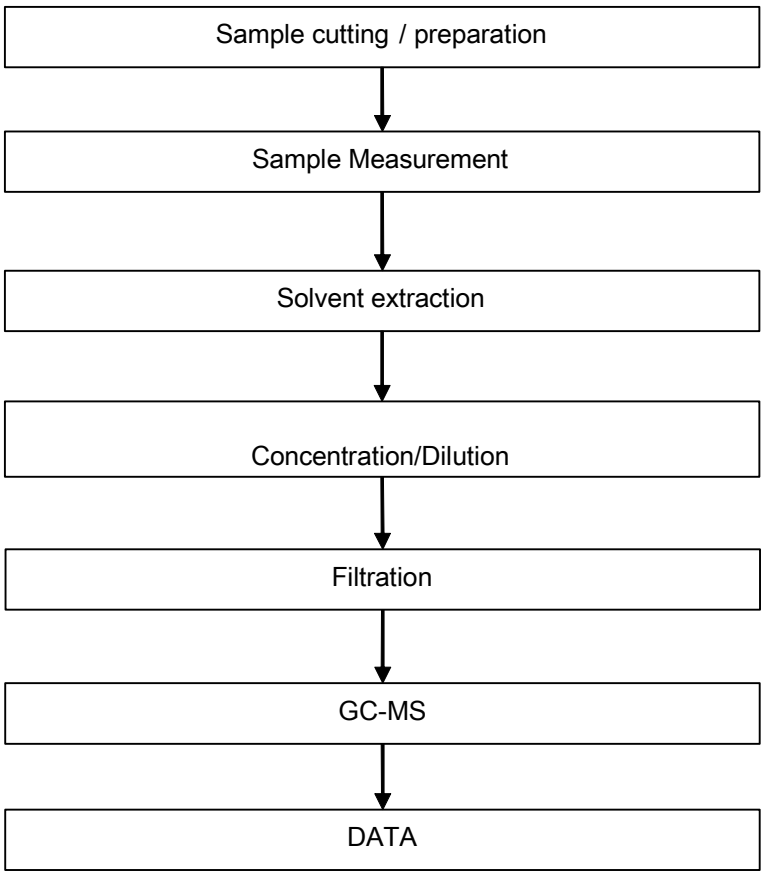
HBCDD Testing Flow Chart



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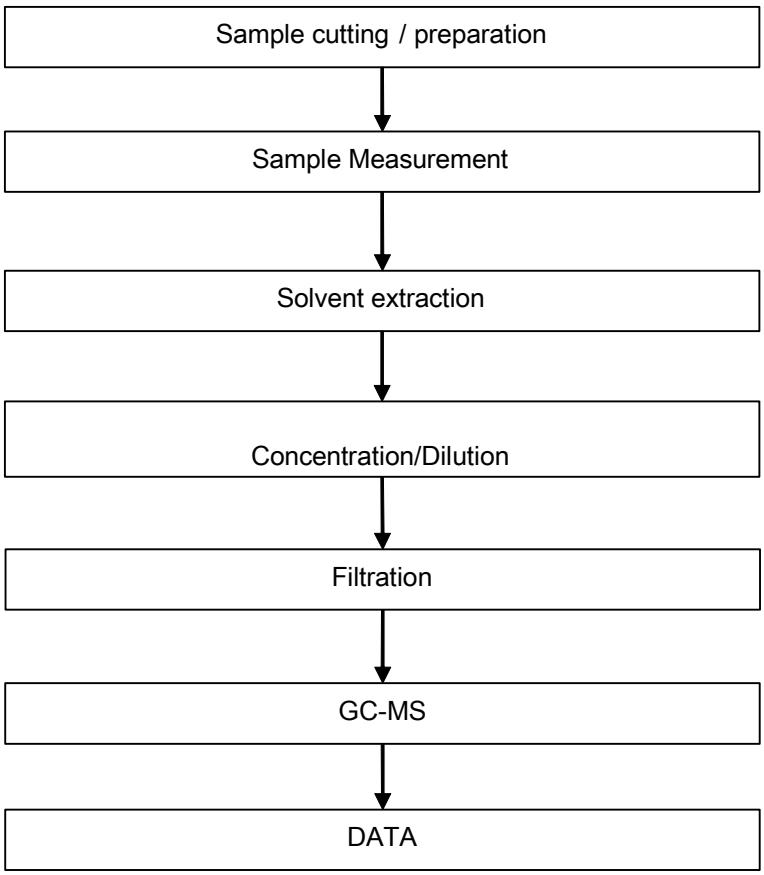
PAHs Testing Flow Chart



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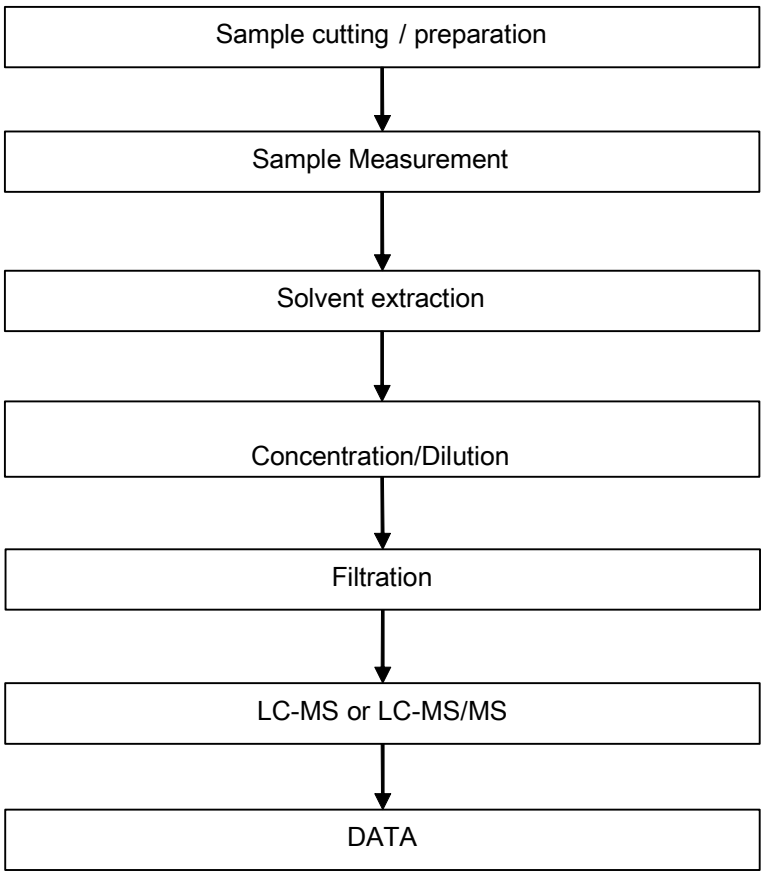
PFOA / PFOS Testing Flow Chart



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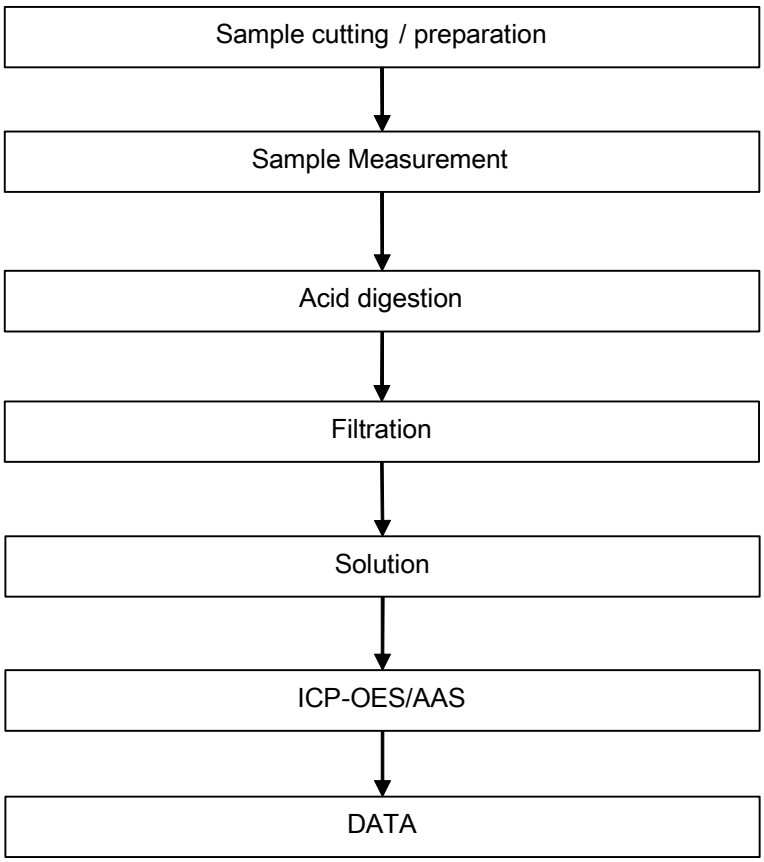
Elementary Testing Flow Chart



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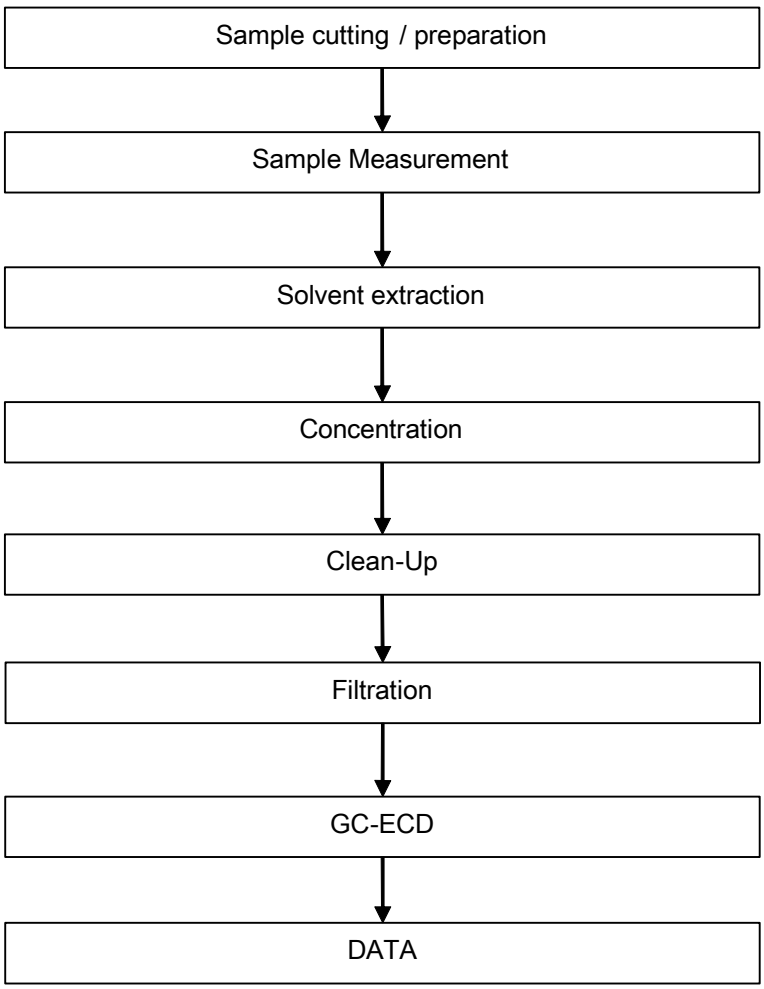
SCCP/MCCP/LCCP Testing Flow Chart



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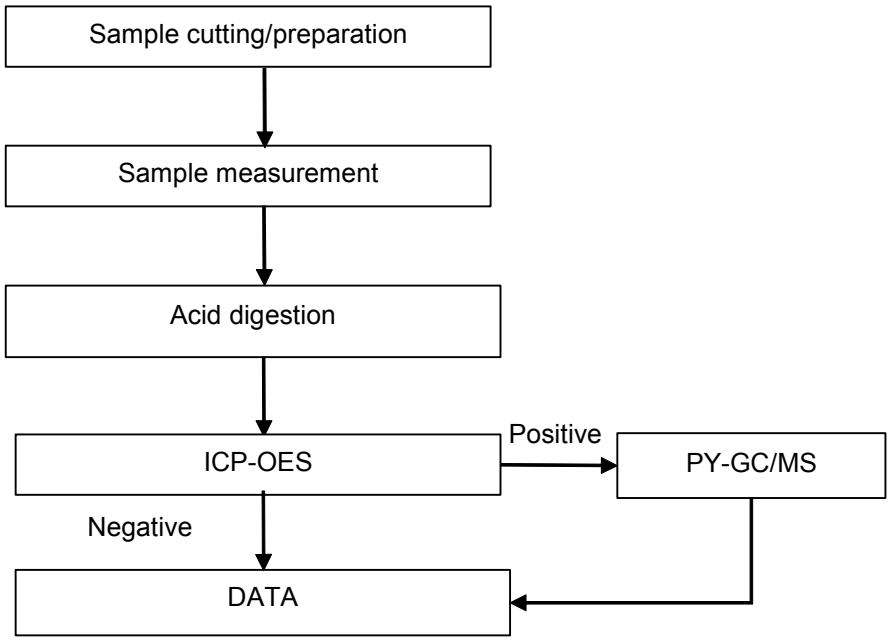
Red phosphorus Testing Flow Chart



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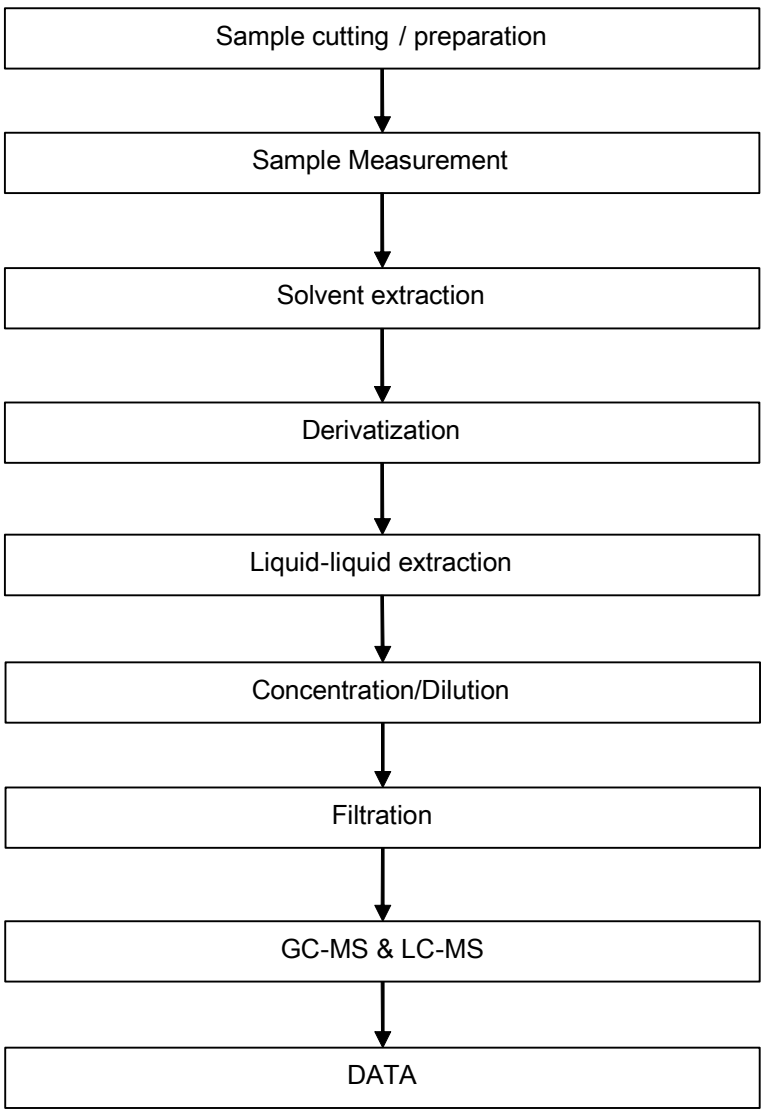
TBBP-A Testing Flow Chart



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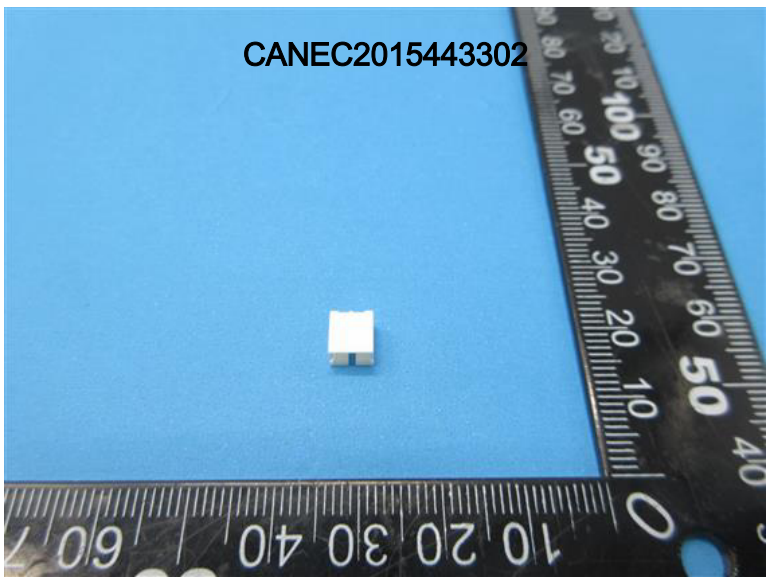
Sample photo:



CAN20-154433.001

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Test Report

No. CANEC2019772619 Date: 16 Nov 2020 Page 1 of 7

SHENGLAN TECHNOLOGY CO.,LTD

NO.4HECING ROAD SHATOU SOUTHERN DISTRICT CHANGAN TOWN DONGGUAN CITY GUANGDONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : Phosphor copper nickel plated tin terminal pin

SGS Job No. :	CP20-058493 - SZ
Model No. :	12505
Client Ref. Info. :	PLEASE SEE REMARK
Date of Sample Received :	10 Nov 2020
Testing Period :	10 Nov 2020 - 16 Nov 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Violet,Shi
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Technical Laboratory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-197726.004	Silvery metal

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit	MDL	*004*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▾	-	µg/cm²	0.10	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:12586 37,25

(2) ▾= 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 ND (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

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Perfluorooctanoic acid (PFOA) and its salts & Perfluorooctane sulfonates (PFOS) and its derivatives

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS.

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Test Item(s)	CAS NO.	Unit	MDL	004
Perfluorooctanoic acid (PFOA) and its salts+	335-67-1	μg/m²	1.0	ND
Perfluorooctane sulfonates (PFOS) ^	1763-23-1	μg/m²	1.0	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	μg/m²	1.0	ND
N-methylperfluoro-1-octanesulfonamide(MeFOSA)	31506-32-8	μg/m²	1.0	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	μg/m²	1.0	ND
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol(MeFOSE)	24448-09-7	μg/m²	1.0	ND
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol(EtFOSE)	1691-99-2	μg/m²	1.0	ND
Perfluorooctane sulfonates (PFOS) and its derivatives	-	μg/m²	-	ND

Notes :

(1) + PFOA and its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1);
(2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)2 (CAS No.: 70225-14-8), PFOS-N(C2H5)4 (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)

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10001、10500、10800、11001、11002、11003、11004、11005、11006、11007、11008、
11201、11202、11204、11250、11251、11252、11253、11254、11255、11256、11257、
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RJB11、HDB11、HDB12、HDB13、UCB11、UBB1B、UBB11、UAB16、UADB8、JAB11、YB、
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BS0134、TNKBB1、TNTAC1、UATAA1、UAMAE1、USB2.0、UAMAE1、UATAA1、TNTAE1、
UCMAJ1、TNTBT3、9001、 9002、5000102、BT035210、THREE IN ONE、FOUR IN ONE、USB、
HDMI、 RJ、 0308、 XSBO、XSB1、UA10103、UA09092、MHF、FPC、FFC、SATA、CARD、
LVM、BS-8、JACK、J-PIM、RCA、BUAOHV、SUASN2 、BOO、JTHA8、BUAO、OEM、TNAOPO、
SCA、TUAOPH、SUAS02、AWDANW、AWDCIW、AWDATB、AHFANB、TNTBC1、TNB12、
TNKBG1/2/3/4、UBB14、US90、HE103A、BCO、WUSF5526、UBDU2、UBMBS1/2、BB0、BPO、
HD9A、PIN、TUA0PX、6500、BS0261、B0032、BP0156、BP0237、BT035210、HP HS、N85、
QB140、UC、Charging gun、BB0158、B0026、SA96、SA95、U1B、AT89、 TN、UBB、
BAB11-00BDL1XXL-H、M0143-CA-XX、M0142-CA-XX、HDMAC1XNA-R、HDMAC2XNA-R、
BM0249-NL-BK、BM0248-NL-BK、BB0152-XX-XX、M0054-SUS-PA、C11-060-06-AG160、
6000M0F-0S-4、6000M0F-0S-4-B、BS0128-NY-BK、BS0127-NY-BK、HF96-2XXX-XB01

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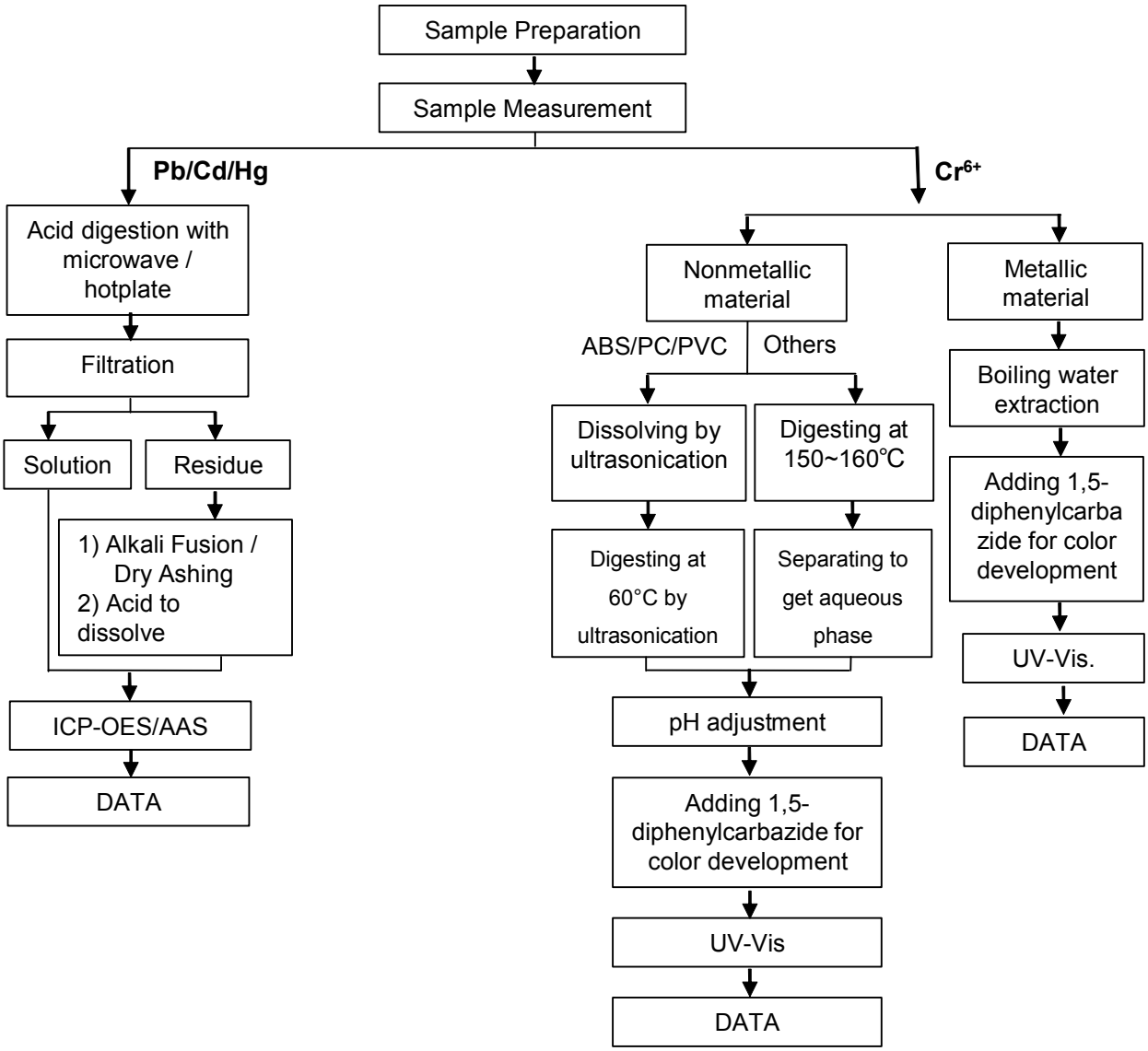
Pb/Cd/Hg/Cr^{6+} Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} test method excluded).



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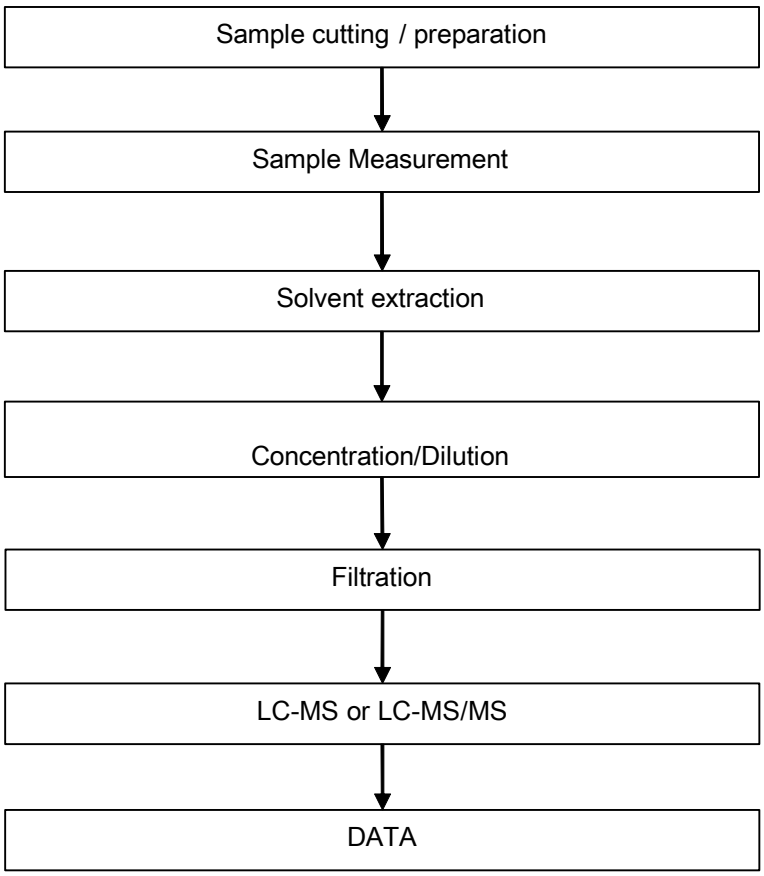
PFOA / PFOS Testing Flow Chart



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Sample photo:

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胜蓝科技股份有限公司

MATERIAL SAFETY DATA SHEET(MSDS)

1 供应商资料

磷铜镀錫端子

供应商名称 :胜蓝科技股份有限公司

地址 :东莞市长安镇沙头南区合兴路4号

电话 :0769-87094988

紧急联络人: 龚友连 | 电话:0769-87094988 | 传真:0769-85337009

2 成份辨识资料

中英文名称 :

主要危害物质成份			化学文摘社登记号码CAS NO:	浓度或浓度范围(成份百分比)			危害物质分类及图示
成份名称	化学式	含量(%)		时量平均容许浓度 TWA	短时间时量平均容许浓度 STEL	最高容许浓度 CEILING	
phosphor bronze	Cu	92.4871	7440-50-8	None	None	None	
	PB	0.0009	7439-92-1	None	None	None	
	Fe	0.04	7439-89-6	None	None	None	
	Zn	0.002	7440-66-6	None	None	None	
	P	0.12	7723-14-0	None	None	None	
	SN	6.5	7440-31-5	None	None	None	
plating	SN	0.8	7440-31-5	None	None	None	
	NI	0.05	7440-02-0	None	None	None	

3 危害辨识资料与急救措施

最重要危害效应

健康危害效应:本产品在固体状态时不具健康危害及危险

环境影响:本产品在固体时对环境不具影响

物理性及化学与危害: 固体/无味/银灰色

特殊危害: 无特殊危害

主要症狀: 恶心、呕吐、头晕

物品危害分类: 最低级

4 急救措施

急救措施

不同暴露途径之急救方法:
误食后立即送医院就医

最重要危害效应: 呕吐

對急救人员防护:无

对医师之提示:无

5 灭火措施

适用灭火器: 二氧化碳,泡沫,干粉化学灭火器,水雾等

灭火时可能遭遇特殊危害: 引起火灾、产生有毒气体

特殊灭火程序:无需特殊灭火程序

消防人员之特殊防护设备:使用从氧式吸防护具

6 泄漏处理方法

個人应注意事项:应注意个人卫生,接触后用清水洗手

环境注意事项:废弃时不可随意放置

清理方法:工作台面每天作业前/后须擦拭干淨,建议可以戴手套或手指套作业

7 安全处置与储存方法

处置: 废弃物可送至政府许可的废弃物处理中心进行处理

储存:1.存放于远离火源的地方,开箱后应避免阳光照射,并保持作业处空气流通 .
2.-20-60℃保持产品原包装保存,保持存放地点通风以免热裂解而产生刺激性气体及表面有白雾状
3.储存时不可重压,避免摔落现象

东莞市胜蓝电子有限公司

MATERIAL SAFETY DATA SHEET(MSDS)

8	暴露预防措施	工程控制: 无	
		参数控制: 无	
		個人防护设备:作业时应戴上手指套等其它保护措施.	
		呼吸防护: 无需专业防护设备	眼睛防护: 无需
		手部防护: 作业时应戴上手指套	皮肤及身体防护:穿工作服,经常勤
		卫生措施: 建议使用安全目镜,进食前应洗手及脸部,平时多运动,保持健康体力	
9	物理及化学性质	物质状态: 固体	形状:不规则
		颜色: 本色	气味:无
		PH值:未测定	沸点/沸点范围: 不适用
		分解温度:未测定	闪火点: 无
			測試方法: 不适用
		自然溫度: 无	爆炸界限: 不适用
		蒸气压: 无	蒸气密度: 未测定
		密度: 未测定	溶解度: 未测定
10	安定性及反应性	安定性:正常状态下安定	
		特殊状况下可能危害反应: 长期使用材质老化、易脱落.	
		应避免状况:避免与化学物质长期接触,避免与食品放置在一起.	
		应避免之物质:化学物质	
		危害分解物:无	
11	毒性资料	急毒性: 正常情况下无毒性	致敏感性:无
		局部效应:无	
		慢毒性或長期毒性:无	
		特殊效应: 无	
12	生态资料	可能环境影响/环境流佈: 无	
13	废弃处置方法	废弃处置方法:根据当地法规合理处理	
14	运送资料	国际运送规定:无	
		联合国编号: 无	
		国内运送规定: 无	
		特殊运方法及注意事项: 无	
15	法规资料	适用法规: 关于在电子电气设备中禁止使用某些有害物质的规定(ROHS)	
16	其它	参考文献:	无
		制表单位:	名称:胜蓝科技股份有限公司
			地址/电话:东莞市长安镇沙头南区合兴路4号
		制表人:	职称: QE 王自友
		制表日期:	公元 二零一二年六月十五日

胜蓝科技股份有限公司

MATERIAL SAFETY DATA SHEET(MSDS)

1 供應商資料

物品名稱 ： NYLON66 -V0 塑胶		
供應商名稱 :胜蓝科技股份有限公司		
地址 :東莞市長安鎮沙頭南區合兴路4号		
電話 :0769-38932899		
緊急聯絡人: 龚友连	電話: 0769-38932899	傳真: 0769-85337009

2 成份辨識資料

中英文名稱 :

主要危害物質成份			化學文摘社登記號碼CAS NO:	濃度或濃度範圍(成份百分比)			危害物質分類及圖示
成份名稱	化學式	含量(%)		時量平均容許濃度 TWA	短時間時量平均容許濃度 STEL	最高容許濃度 CEILING	
Plastic	PA66	84.0	32131-17-2	None	None	None	
	Melamine cyanurate	15.0	37640-57-6	None	None	None	
	other additives	1.0	/	None	None	None	

3 危害辨識資料與急救措施

最重要危害效應	4 急救措施	急救措施
健康危害效應: 本產品在固體狀態時不具健康危害及危險		不同暴露途徑之急救方法: 誤食後立即送醫院就醫
環境影響: 本產品在固體時對環境不具影響		
物理性及化學興危害:固體/無味/ 本色		
特殊危害: 無特殊危害		最重要危害效應: 嘔吐
主要症狀: 惡心、嘔吐、頭暈		對急救人員防護:無
物品危害分類: 最低級		對醫師之提示: 無

5 滅火措施

適用滅火器: 二氧化碳,泡沫,乾粉化學滅火器,水霧等

滅火時可能遭遇特殊危害: 引起火災、產生有黴氣體

特殊滅火程序: 無需特殊滅火程序

消防人員之特殊防護設備: 使用從氧式吸防護具

6 洩漏處理方法

個人應注意事項: 應注意個人衛生,接觸後用清水洗手

環境注意事項: 廢棄時不可隨意放置

清理方法: 工作臺面每天作業前/后須擦拭干淨,建議可以帶手套或手指套作業

7 安全處置與儲存方法

處置: 廢棄物可送至政府許可的廢棄物處理中心進行處理

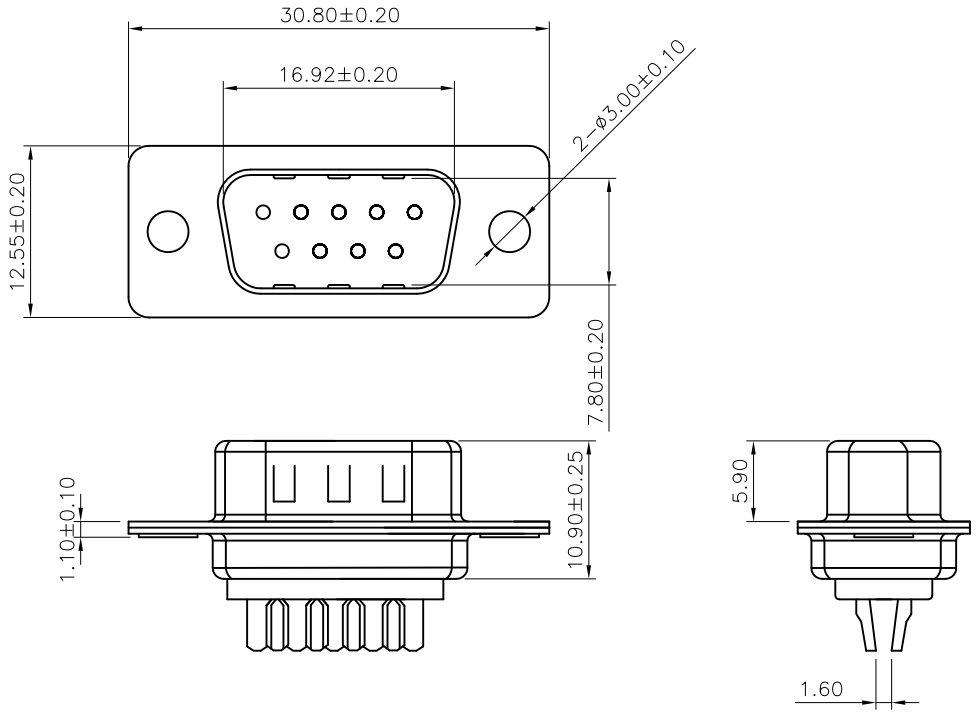
儲存: 1.存放於遠離火源的地方,開箱後應避免陽光照射,並保持作業處空氣流通 .
2.-20-60℃保持產品原包裝保存,保持存放地點通風以免熱裂解而產生刺激性氣體及表面有白霧狀
3.儲存時不可重壓,避免摔落現象

胜蓝科技股份有限公司

MATERIAL SAFETY DATA SHEET(MSDS)

8	暴露預防措施	工程控制: 無	
		參數控制: 無	
		個人防護設備: 作業時應戴上手指套等其它保護措施.	
		呼吸防護: 無需專業防護設備	眼睛防護: 無需
		手部防護: 作業時應戴上手指套	衣服和手
		衛生措施: 建議使用安全目鏡,進食前應洗手及臉部,平時多運動,保持健康體力	
9	物理及化學性質	物質狀態: 固體	形狀: 不規則
		顏色: 本色	氣味: 無
		PH值: 未測定	沸點/沸點範圍: 不適用
		分解溫度: 未測定	閃火點: 無
			測試方法: 不適用
		自然溫度: 無	爆炸界限: 不適用
		蒸氣壓: 無	蒸氣密度: 未測定
		密度: 未測定	溶解度: 未測定
10	安定性及反應性	安定性:正常狀態下安定	
		特殊狀況下可能危害反應: 長期使用材質老化、易脫落.	
		應避免狀況: 避免與化學物質長期接觸,避免與食品放置在一起.	
		應避免之物質: 化學物質	
		危害分解物: 無	
11	毒性資料	急毒性: 正常情況下無毒性	致敏感性: 無
		局部效應: 無	
		慢毒性或長期毒性:無	
		特殊效應: 無	
12	生態資料	可能環境影響/環境流佈: 無	
13	廢棄處置方法	廢棄處置方法: 根據當地法規合理處理	
14	運送資料	國際運送規定: 無	
		聯合國編號: 無	
		國內運送規定: 無	
		特殊運送方法及注意事項: 無	
15	法規資料	適用法規: 關於在電子電氣設備中禁止使用某些有害物質的規定(ROHS)	
16	其它	參考文獻:	無
		製表單位:	名稱: 胜蓝科技股份有限公司
			地址/電話: 東莞市長安鎮沙頭南區第一工業區合興路
		製表人:	職稱: QE 姓名: 王自友
		製表日期:	公元 二零一五年六月二十一日

REV.	ECN NO.	DESCRIPTION	DRAW	CHECK	APPD.	DATE



Note:

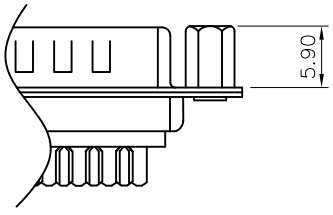
1.Material:
1.1 Insulator:PBT UL 94-V0 rated.
1.2 Contact:Brass,T=0.20mm.
1.3 Shell:Cold rolled steel,T=0.40mm.

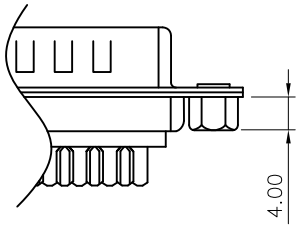
2.Specification:
2.1 Current rating:1A Max.
2.2 Dielectric withstanding voltage:500V(ac) for 1 minute.
2.3 Contact resistance:30 mΩ MAX.
2.4 Insulation resistance:1000 MΩ MIN at DC 500V.
2.5 Temperature rage: -55°C TO+105°C.
2.6 Total mating force:6Kgf MAX.
2.7 Total unmating force:1.3Kgf MIN.

3.Finishes:
3.1 Contacts:Gold flashed 1u",3u",5u",10u",15u",30u".
3.2 Shell:Nickel/Tin or gold plated.

No.	Part Name	Q'ty	Material	Material thickness &Remarks	Finish
6	NUT	2	Brass	H4.75*8.0*5.8	Nickel Plashed
5	3B NUT	2	Brass	H4.75*5.5*4.0	Nickel Plashed
4	Back-shell	1	Cold Rolled steel	T=0.30mm	Tin Plashed
3	Front-shell	1	Cold Rolled steel	T=0.35mm	Nickel Plashed
2	Contact	9-37	Brass	T=0.20mm	Gold Flashed
1	Plastic	1	PBT	UL 94-V0	Black/Blue/White

A	前鉚#4-40UNC不通孔	B	后鉚#4-40UNC通孔





东莞超端五金电子有限公司
Dongguan Chaoduan Metal Electronics Co.,Ltd

UNLESS OTHERWISE SPECIFIED TOLERANCES	METRIC
.X +/-	0.30
.XX +/-	0.20
.XXX +/-	0.10
FRACTIONS +/-	
ANGLES +/-	2.00°
DIMENSIONS	
(METRIC)	(MM)

APPROVAL	日期
制图 Andy	2016.11.21
审核 Huangyiqiang	2016.11.21
核准 Hebiao	2016.11.21
文件位置	

ANGLE OF PROJECTION

品名规格	DB-9PIN(M)一体夹板式1.6
料号	
纸张	A4
工程图号:	QB-R-CD007
版本.	A0
比例	1 : 1
页数	1 OF 1

QMFZ2.E361519
Plastics - Component

Page Bottom

Plastics - Component

See General Information for Plastics - Component

DONGGUAN BUNCH PLASTICS TECHNOLOGY CO LTD E361519
Langzhou Industrial Zone
No2 Rd Changping Town
Dongguan, Guangdong 523589 CHINA

									H	D		
		Min.		H	H	RTI			V	4	C	
		Thk	Flame	W	A	Elec	Mech		T	9	T	
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5	I	
Polybutylene Terephthalate (PBT), glass reinforced, furnished as pellets.												
F530-15	NC, BK	1.0	V-0	-	-	75	75	75	-	-	-	
		3.7	V-0	-	-	75	75	75				
Polybutylene Terephthalate (PBT), furnished as pieces.												
PBTVO+GF 6830-15	NC, WT, BK	1.6	V-0	-	-	75	75	75	-	-	-	
	ALL	3.0	V-0	-	-	75	75	75				

Marking: Company name and material designation on container, wrapper or finished part.

Last Updated on 2015-04-28

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Test Report

No. CANEC2020727601 Date: 02 Dec 2020 Page 1 of 5

DONGGUAN ZHENGWEI COPPER CO.,LTD

NO.24 JIANXIN ROAD JINGXIANG VILLAGE LIAOBU TOWN DONGGUAN CITY
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : C2680

SGS Job No. :	CP20-061099 - GZ
Date of Sample Received :	23 Nov 2020
Testing Period :	23 Nov 2020 - 26 Nov 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

scan to see the report

CANEC2020727601

Violet Shi

Violet,Shi
Approved Signatory

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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 sgs.china@sgs.com

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-207276.001	Brassy metal

Remarks :

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015 and IEC 62321-6:2015 analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	15
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▾	-	μg/cm²	0.10	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Technical Laboratory.

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Test Item(s)	Limit	Unit	MDL	*001*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:17422328703511101::::FSP_ORG_ID,FSP_LANG_ID:12586 37,25

(2) ▼= 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 ND (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

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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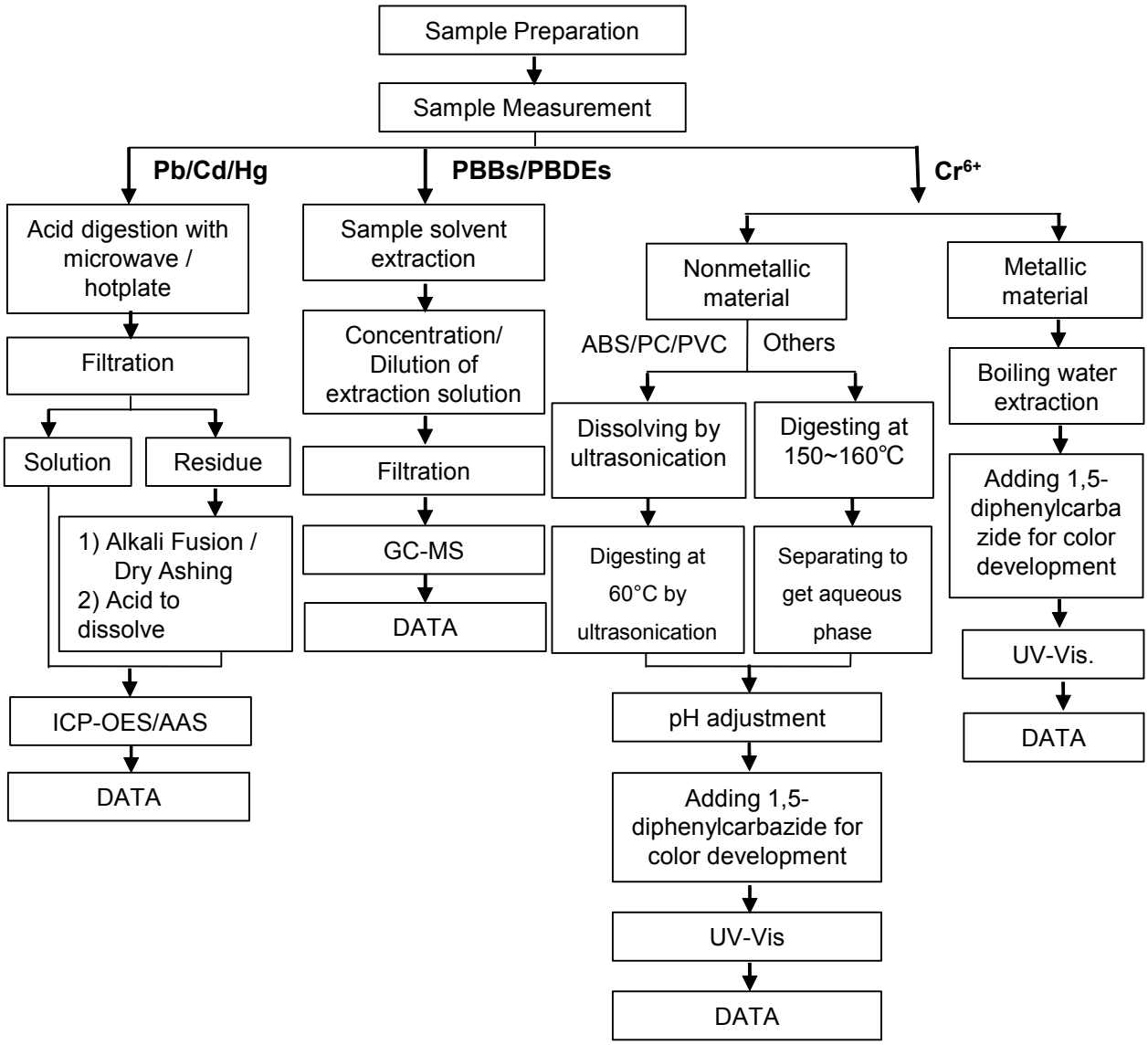
ATTACHMENTS

Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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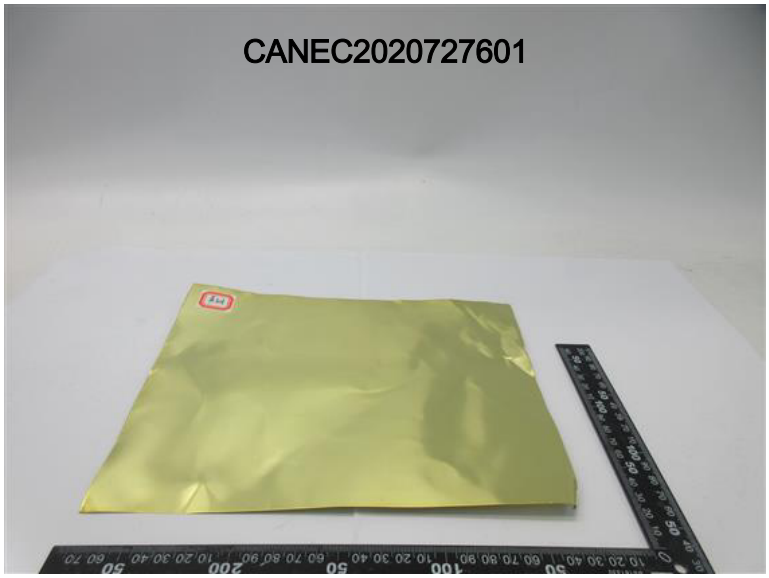
Sample photo:



CAN20-207276.001

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Test Report

Report No. A2210086894101001

Company Name shown on Report	SHEN ZHEN NA PU METALLIC CO。，LTD
Address	101-401，BUILDING 60 LONG WANG MIAO LNDUSTRIAL ZONE, EAST ZONE BAI SHI XIA COMMUNITY,FU YONG SUB-DIRSTRICT BAOAM DISTRICT,SHEN ZHEN,GUANG DONG PROVINCE, P.R CHINA

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name	Gold coating
Sample Received Date	Mar. 16, 2021
Testing Period	Mar. 16, 2021 to Mar. 19, 2021
Test Requested	As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Beryllium(Be), Perfluorooctanoic Acid(PFOA), Perfluorooctane Sulfonates(PFOS) in the submitted sample(s).
Test Method	Please refer to the following page(s).
Test Result(s)	Please refer to the following page(s).

Tested by IVY XU

Approved by Hill Zheng

Hill Zheng

Technical Manager

Reviewed by Tori Xia

Date Mar. 19, 2021

No. R393389530

Test Report

Report No. A2210086894101001

Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	Refer to IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	Refer to IEC 62321-5:2013	ICP-OES
Mercury (Hg)	Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Beryllium(Be)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018	ICP-OES
Perfluorooctanoic Acid(PFOA)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
Perfluorooctane Sulfonates(PFOS)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS

Test Report

Report No. A2210086894101001

Test Result(s)

Tested Item(s)	Result	MDL
Lead(Pb)	N.D.	2 mg/kg
Cadmium(Cd)	N.D.	2 mg/kg
Mercury(Hg)	N.D.	2 mg/kg
Hexavalent Chromium(Cr(VI))	N.D. ▼	0.10 μg/cm ²(LOQ)

Tested Item(s)	Result	MDL
Polybrominated Biphenyls (PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

Test Report

Report No. A2210086894101001

Test Result(s)

Tested Item(s)	Result	MDL
Phthalates (DBP, BBP, DEHP, DIBP)		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result	MDL
Beryllium(Be)	N.D.	2 mg/kg

Tested Item(s)	Result	MDL
Perfluorooctanoic Acid(PFOA)	N.D.	0.5 μg/m²

Tested Item(s)	Result	MDL
Perfluorooctane Sulfonates(PFOS)	N.D.	0.01 mg/kg

Sample/Part Description Golden plating

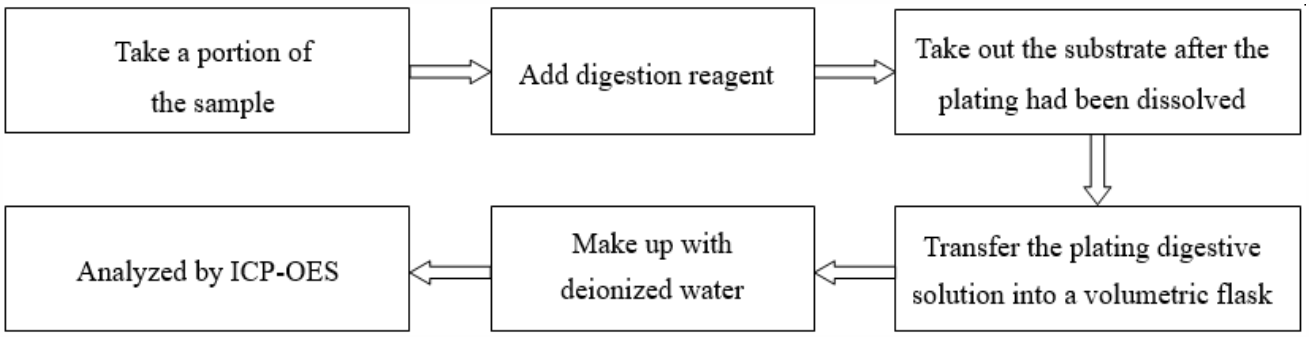
Remark: **The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Beryllium.**

-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL or LOQ)
-mg/kg = ppm = parts per million
-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²
-▾The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 μg/cm²; The coating is considered a non-Cr(VI) based coating.

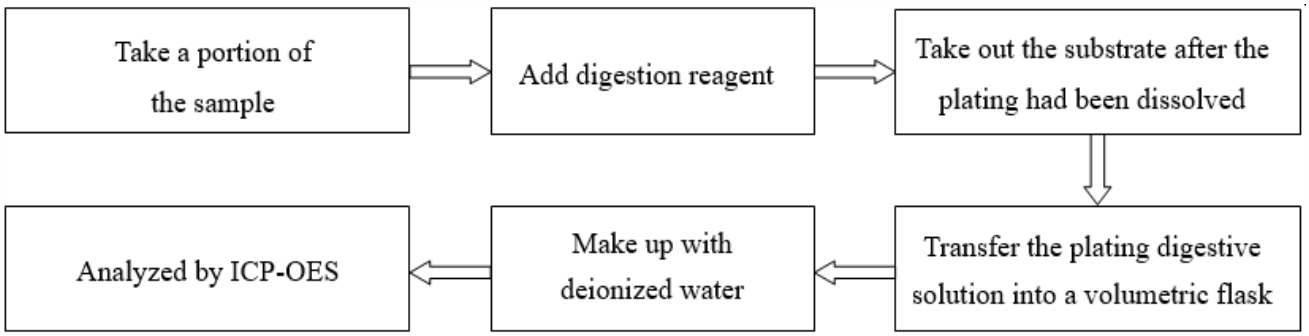
Test Report

Test Process

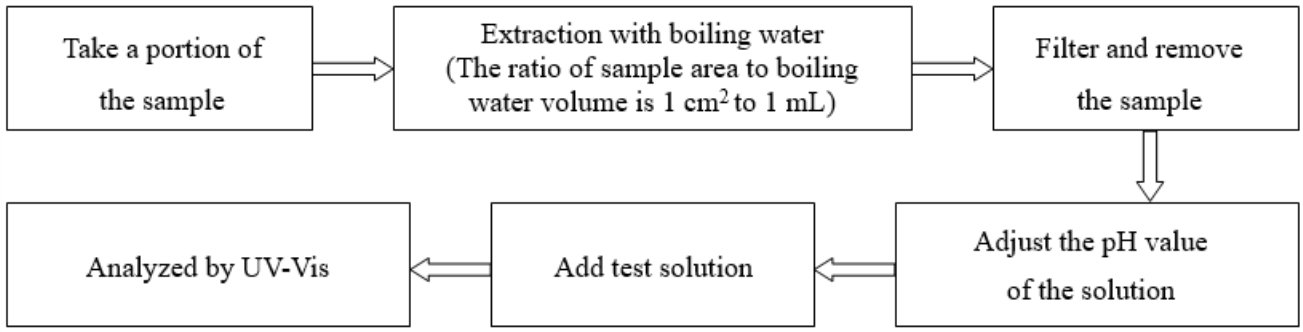
1. Lead (Pb), Cadmium (Cd)



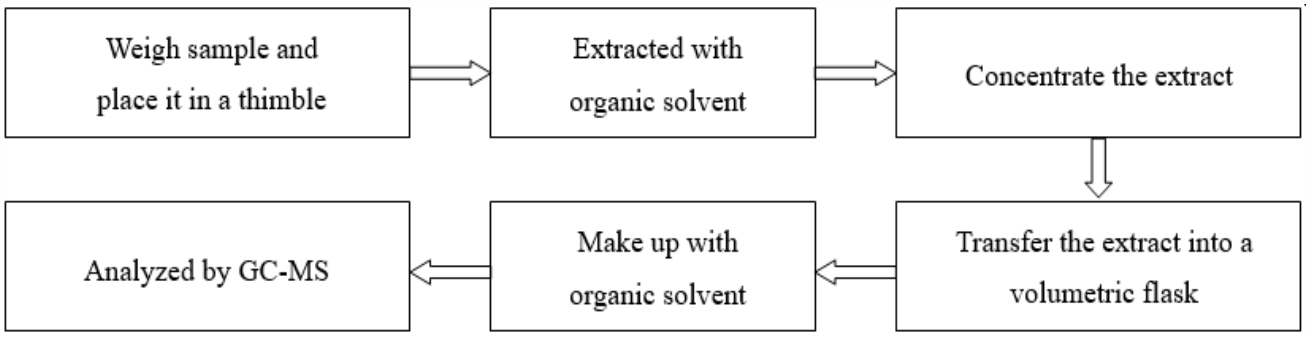
2. Mercury (Hg)



3. Hexavalent Chromium (Cr(VI))

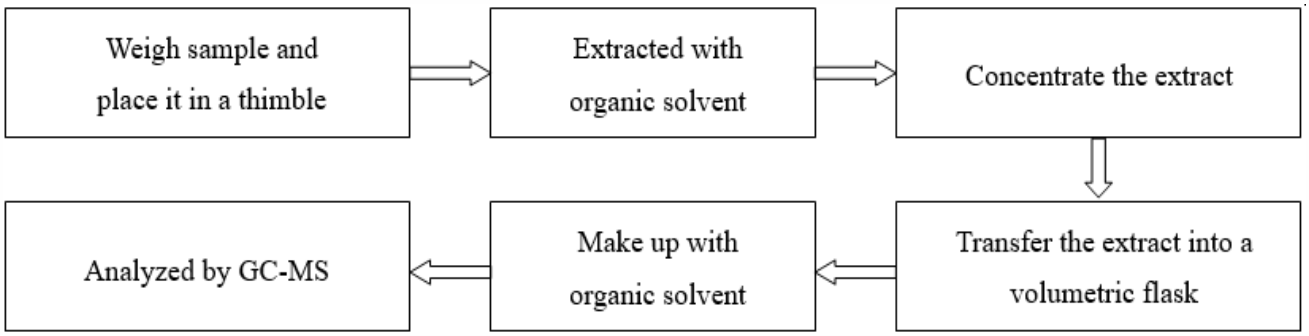


4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)

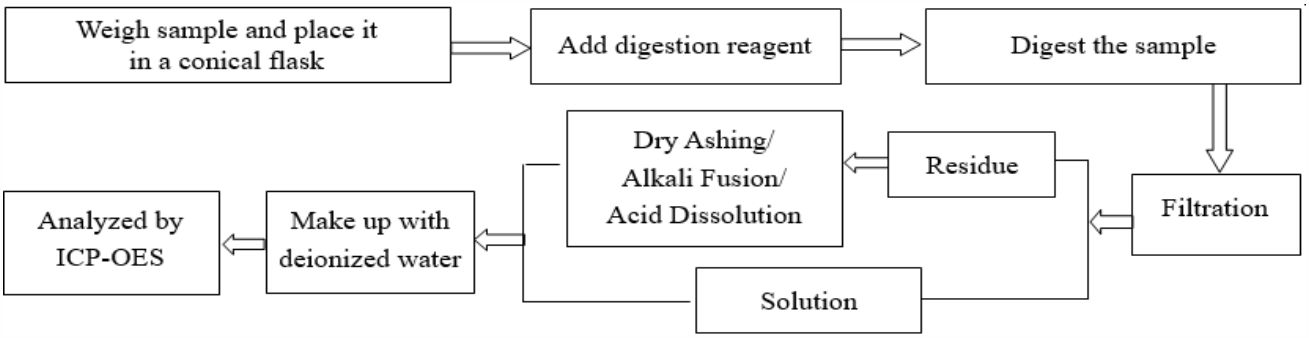


Test Report

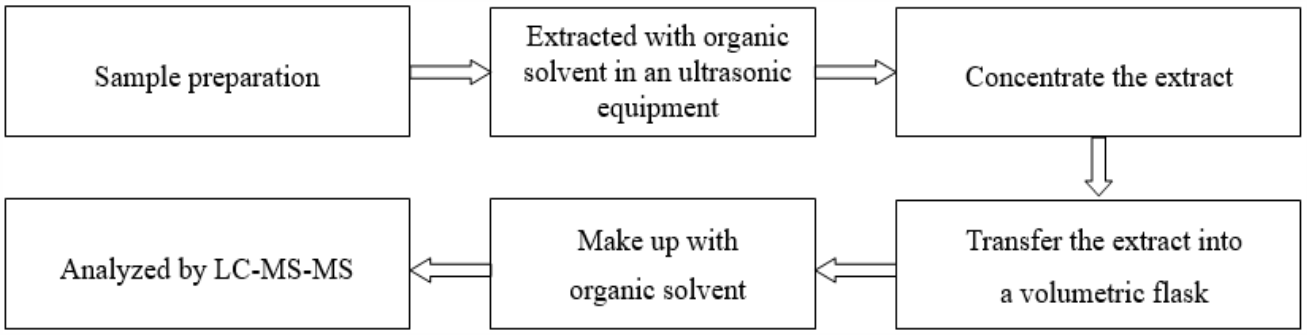
5. Phthalates (DBP, BBP, DEHP, DIBP)



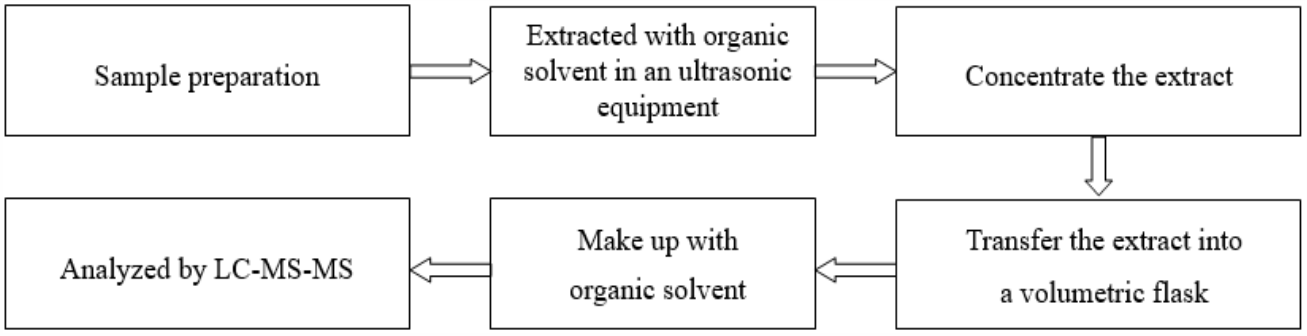
6. Beryllium(Be)



7. Perfluorooctanoic Acid(PFOA)



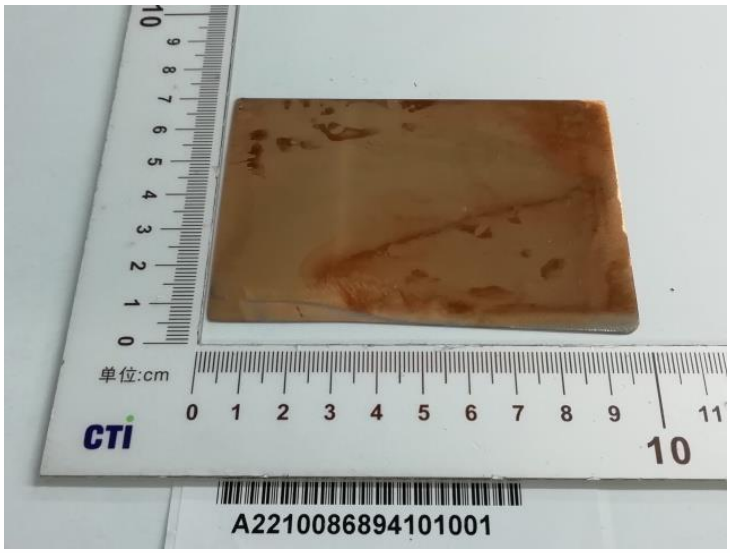
8. Perfluorooctane Sulfonates(PFOS)



Test Report

Report No. A2210086894101001

Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
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检测报告
Test Report

报告编号 A2200284359102002E
Report No. A2200284359102002E

报告抬头公司名称 Company Name shown on Report	深圳市瑞云峰（鸿科治）实业有限公司 SHENZHENRUIYUNFENG(HONGKEZHI)INDUSTRY LIMITDE COMPANY
地 址 Address	深圳市宝安区沙井镇共和村第六工业区B区二栋1. 2. 3层 1.2.3FLOOR NO 2BUILD,B,AREA,NO,6INDUSTRIALZONE,GONGHEVILLAGE, SHAJINGSTREET,BAOAN,SHENZHEN

以下测试之样品及样品信息由申请者提供并确认
The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

样品名称	镀镍工件
Sample Name	镀镍工件
材料名称	铁材
Material	铁材
样品接收日期	2020.08.21
Sample Received Date	Aug. 21, 2020
样品检测日期	2020.08.21-2020.08.25
Testing Period	Aug. 21, 2020 to Aug. 25, 2020

检测要求	根据客户要求，对所提交样品中的铅(Pb)，镉(Cd)，汞(Hg)，六价铬(Cr(VI))，多溴联苯(PBBs)，多溴二苯醚(PBDEs)，邻苯二甲酸酯(DBP，BBP，DEHP，DIBP)进行测试。
Test Requested	As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) in the submitted sample(s).
检测依据/检测结果 Test Method/Test Result(s)	请参见下页。 Please refer to the following page(s).

主 检 Tested by 王俊

审 核 Reviewed by 鲁艳

批 准 Approved by 郑晴涛

郑晴涛
技术经理 Technical Manager

日 期 Date 2020.08.25

No. R179751960

华测检测认证集团股份有限公司
Centre Testing International Group Co.,Ltd.
广东省深圳市宝安区新安街道兴东社区华测检测大楼
CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

检测报告
Test Report

检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead(Pb)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
镉 Cadmium(Cd)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
汞 Mercury(Hg)	参考IEC 62321-4:2013+AMD1:2017 CSV Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015	UV-Vis
多溴联苯 Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

检测报告
Test Report

检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
铅 Lead(Pb)	N.D.	2 mg/kg
镉 Cadmium(Cd)	N.D.	2 mg/kg
汞 Mercury(Hg)	N.D.	2 mg/kg
六价铬 Hexavalent Chromium(Cr(VI))	N.D. ▼	0.10 μg/cm² (LOQ)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多溴联苯 Polybrominated Biphenyls(PBBs)		
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)		
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg

检测报告
Test Report

检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)		
邻苯二甲酸二丁酯 Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

样品/部位描述 银色镀层
Sample/Part Description Silvery plating

备注: 对于检测铅，镉，汞之样品已完全溶解。
-N.D. = 未检出（小于方法检出限或定量限）
-mg/kg = ppm = 百万分之一
-LOQ = 定量限，六价铬的定量限为0.10 μg/cm²
-▼六价铬浓度小于0.10 μg/cm²，样品未检出六价铬。

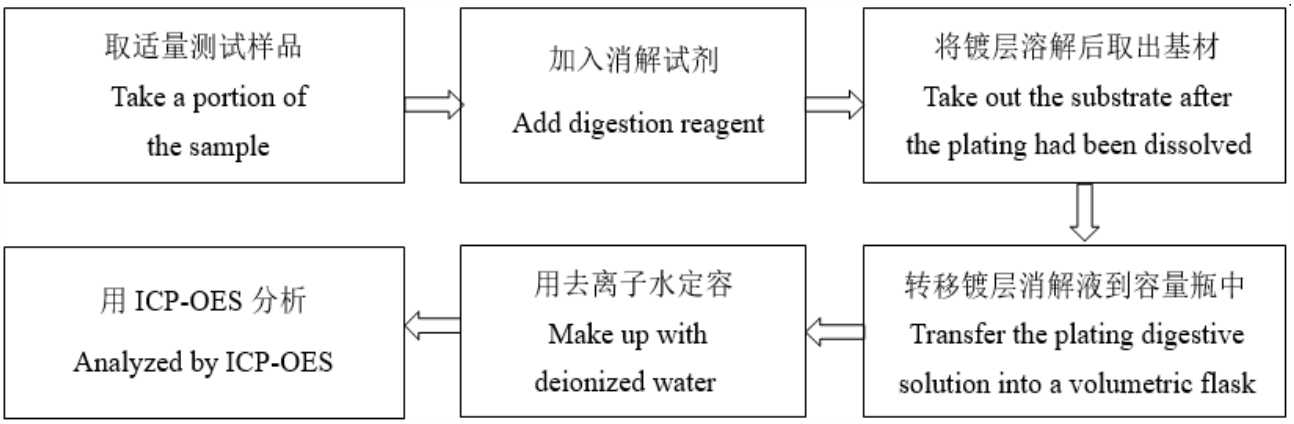
Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL or LOQ)
-mg/kg = ppm = parts per million
-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²
-▼The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 μg/cm². The coating is considered a non-Cr(VI) based coating.

注释: 本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。
Note: The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

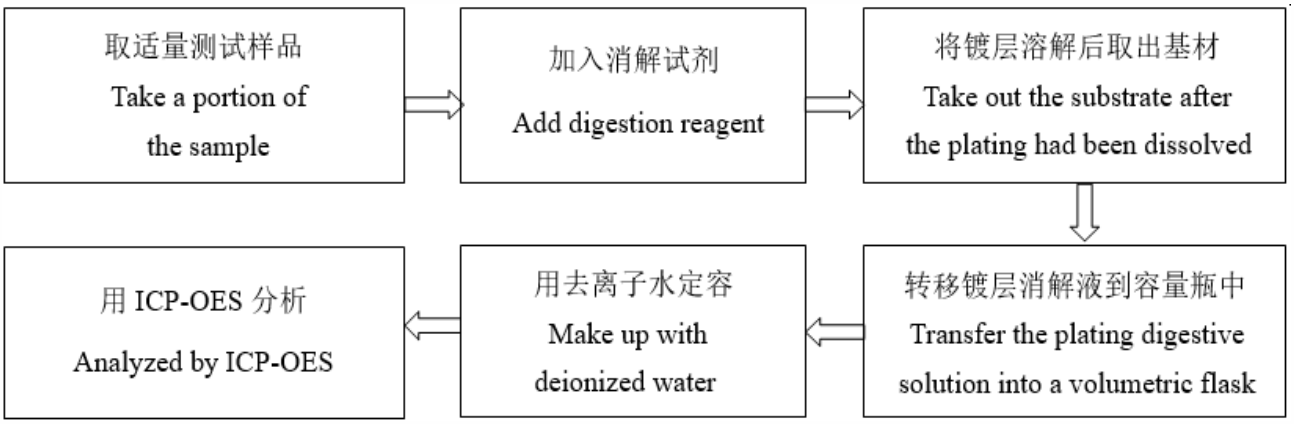
检测报告
Test Report

检测流程 Test Process

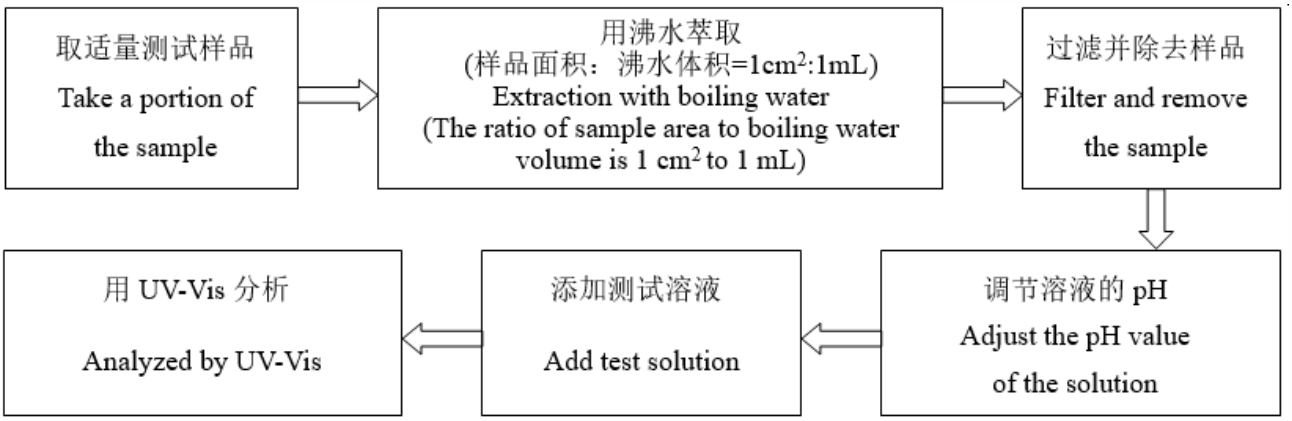
1. **铅(Pb)， 镉(Cd)**
   Lead(Pb), Cadmium(Cd)



2. **汞(Hg)**
   Mercury(Hg)



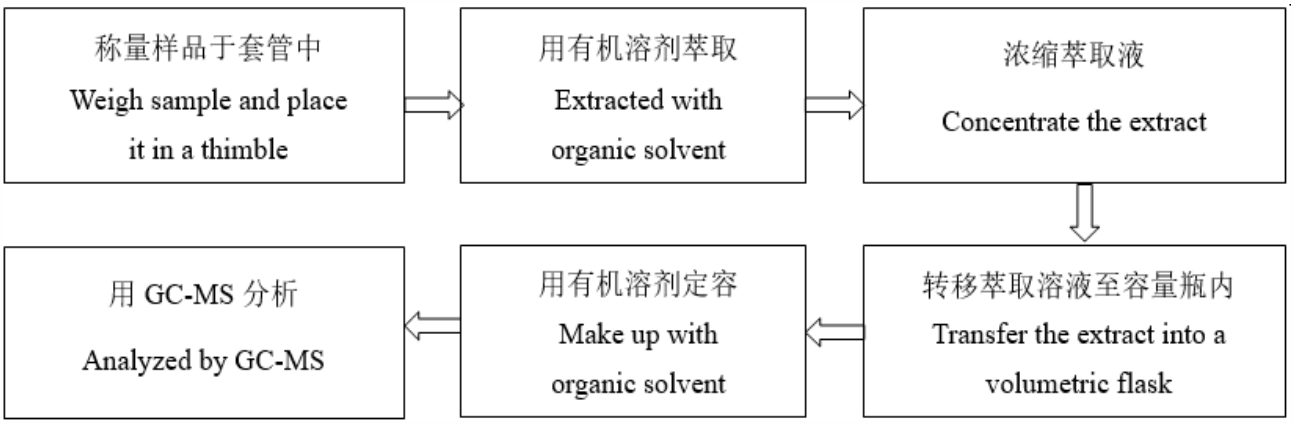
3. **六价铬(Cr(VI))**
   Hexavalent Chromium(Cr(VI))



检测报告
Test Report

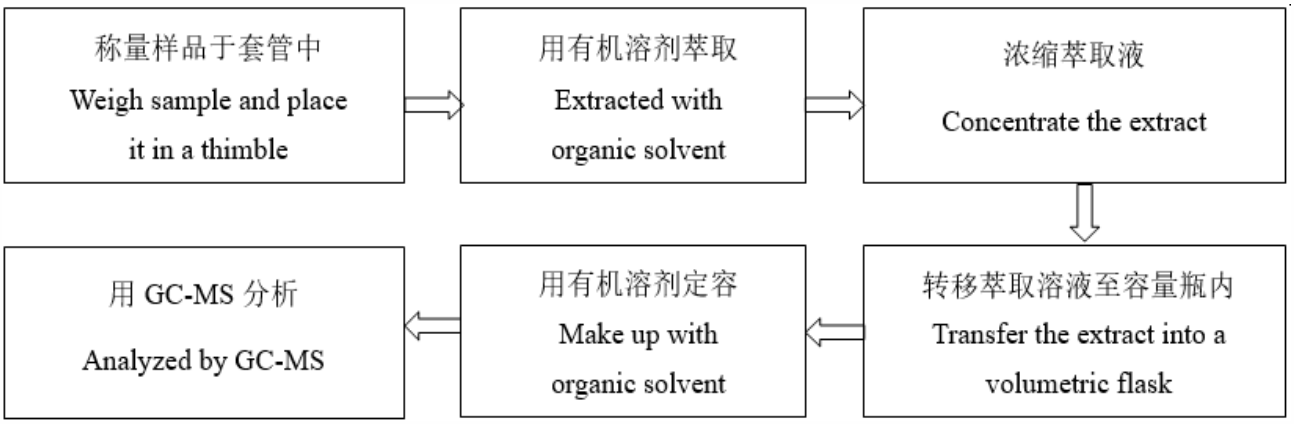
4. 多溴联苯(PBBs)， 多溴二苯醚(PBDEs)

Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)



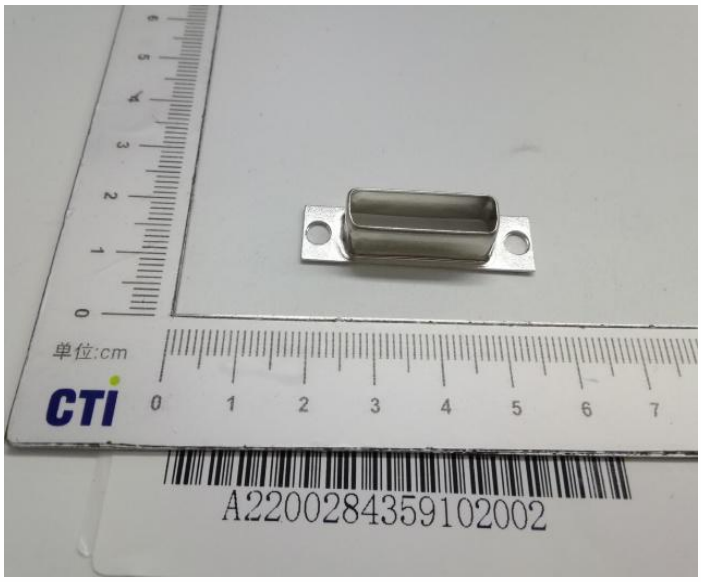
5. 邻苯二甲酸酯(DBP， BBP， DEHP， DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



检测报告
Test Report

样品图片
Photo(s) of the sample(s)



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2. 报告抬头公司名称及地址、样品及样品信息由申请者提供，申请者应对其真实性负责，CTI未核实其真实性；
   The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn’t verified;
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CTI 华测检测 CENTRE TESTING INTERNATIONAL

检测报告
Test Report

报告编号 A2200284359102001E
Report No. A2200284359102001E

报告抬头公司名称 Company Name shown on Report 深圳市瑞云峰（鸿科治）实业有限公司
SHENZHENRUIYUNFENG(HONGKEZHI)INDUSTRY LIMITDE COMPANY

地 址 Address 深圳市宝安区沙井镇共和村第六工业区B区二栋1. 2. 3层
1.2.3FLOOR NO 2BUILD,B,AREA,NO,6INDUSTRIALZONE,GONGHEVILLAGE, SHAJINGSTREET,BAOAN,SHENZHEN

以下测试之样品及样品信息由申请者提供并确认
The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

样品名称	镀亮锡工件
Sample Name	镀亮锡工件
材料名称	铁材
Material	铁材
样品接收日期	2020.08.21
Sample Received Date	Aug. 21, 2020
样品检测日期	2020.08.21-2020.08.25
Testing Period	Aug. 21, 2020 to Aug. 25, 2020

检测要求 根据客户要求，对所提交样品中的铅(Pb)，镉(Cd)，汞(Hg)，六价铬(Cr(VI))，多溴联苯(PBBs)，多溴二苯醚(PBDEs)，邻苯二甲酸酯(DBP，BBP，DEHP，DIBP)进行测试。

Test Requested As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) in the submitted sample(s).

检测依据/检测结果 Test Method/Test Result(s) 请参见下页。
Please refer to the following page(s).

主 检 Tested by 王俊
批 准 Approved by 郑晴涛
郑晴涛
技术经理 Technical Manager

审 核 Reviewed by
日 期 Date 2020.08.25

No. R179751960

华测检测认证集团股份有限公司
Centre Testing International Group Co.,Ltd.
广东省深圳市宝安区新安街道兴东社区华测检测大楼
CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

检测报告
Test Report

检测依据 Test Method

测试项目 Test Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead(Pb)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
镉 Cadmium(Cd)	参考IEC 62321-5:2013 Refer to IEC 62321-5:2013	ICP-OES
汞 Mercury(Hg)	参考IEC 62321-4:2013+AMD1:2017 CSV Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015	UV-Vis
多溴联苯 Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS

检测报告
Test Report

检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
铅 Lead(Pb)	53 mg/kg	2 mg/kg
镉 Cadmium(Cd)	N.D.	2 mg/kg
汞 Mercury(Hg)	N.D.	2 mg/kg
六价铬 Hexavalent Chromium(Cr(VI))	N.D. ▼	0.10 μg/cm² (LOQ)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多溴联苯 Polybrominated Biphenyls(PBBs)		
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)		
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg

检测报告
Test Report

检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
邻苯二甲酸酯 Phthalates (DBP, BBP, DEHP, DIBP)		
邻苯二甲酸二丁酯 Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄基酯 Butyl benzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二(2-乙基)己酯 Di-(2-ethylhexyl) phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

样品/部位描述 银色镀层
Sample/Part Description Silvery plating

备注: 对于检测铅，镉，汞之样品已完全溶解。
-N.D. = 未检出（小于方法检出限或定量限）
-mg/kg = ppm = 百万分之一
-LOQ = 定量限，六价铬的定量限为0.10 μg/cm²
-▼六价铬浓度小于0.10 μg/cm²，样品未检出六价铬。

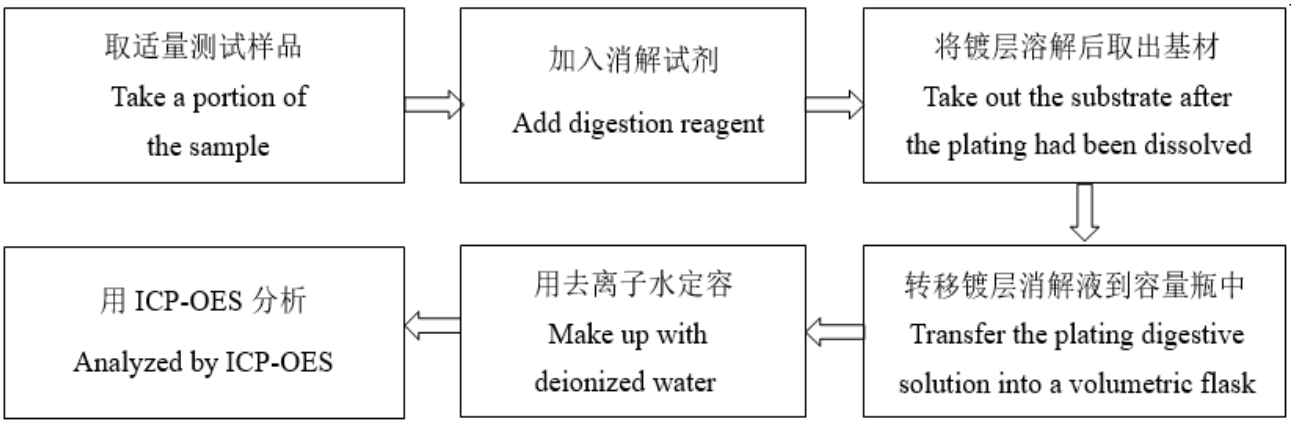
Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.
-MDL = Method Detection Limit
-N.D. = Not Detected (<MDL or LOQ)
-mg/kg = ppm = parts per million
-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²
-▼The sample is negative for Cr(VI) − The Cr(VI) concentration is below 0.10 μg/cm². The coating is considered a non-Cr(VI) based coating.

注释: 本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。
Note: The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

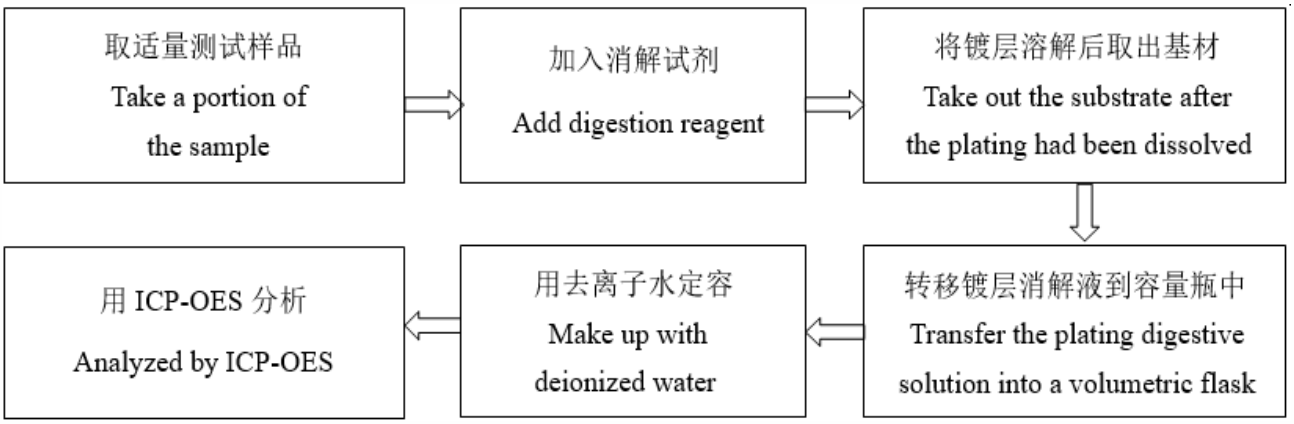
检测报告
Test Report

检测流程 Test Process

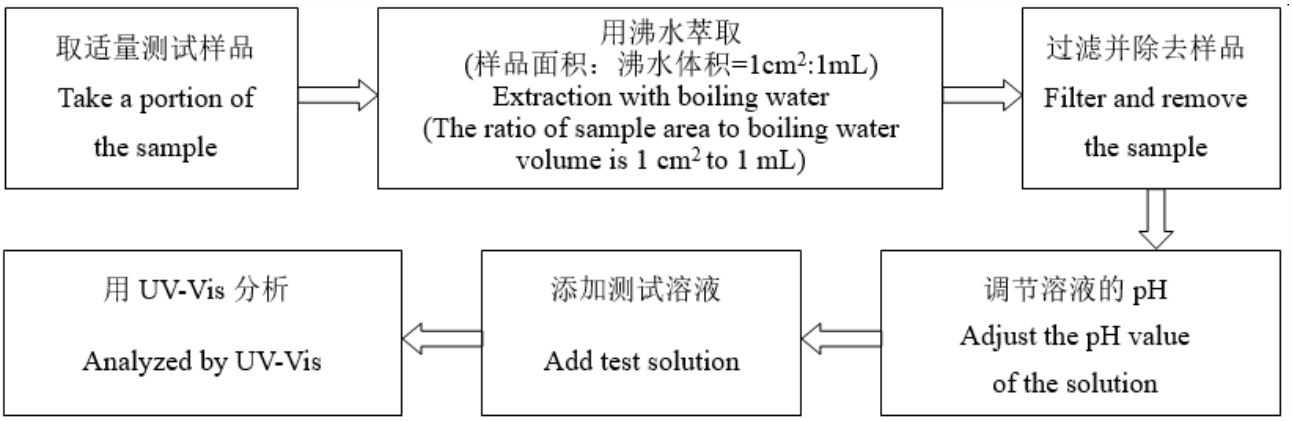
1. **铅(Pb)， 镉(Cd)**
   Lead(Pb), Cadmium(Cd)



2. **汞(Hg)**
   Mercury(Hg)

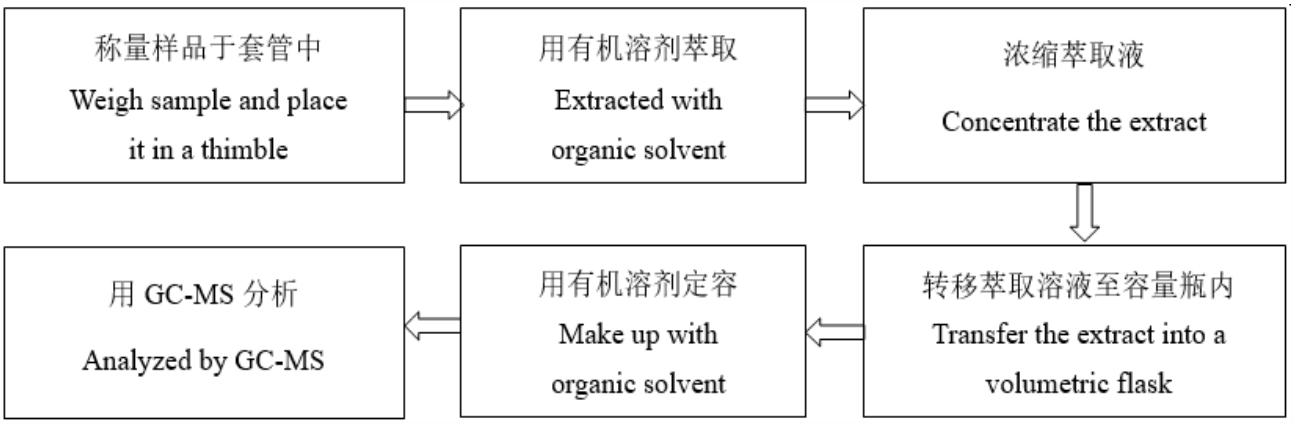


3. **六价铬(Cr(VI))**
   Hexavalent Chromium(Cr(VI))



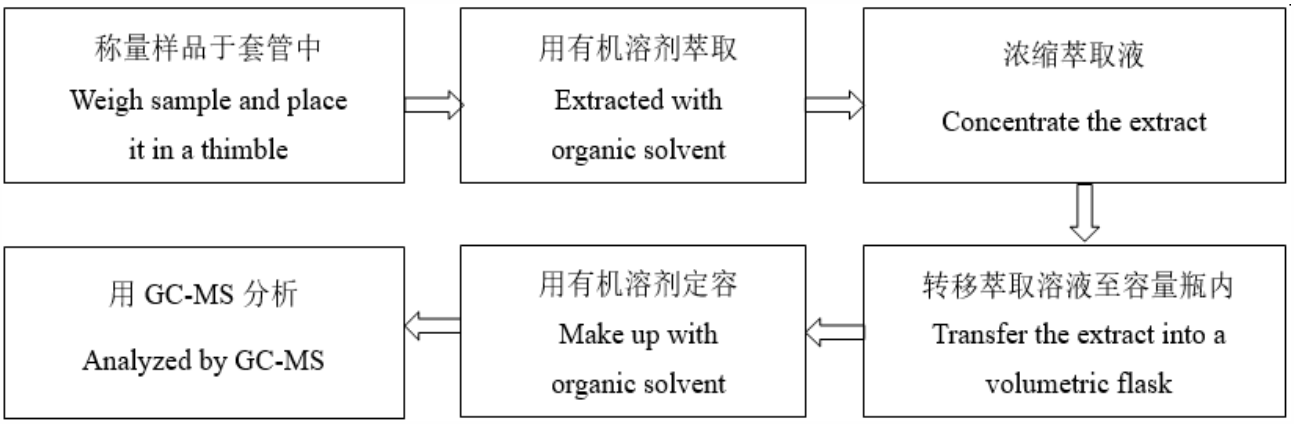
4. 多溴联苯(PBBs)， 多溴二苯醚(PBDEs)

Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. 邻苯二甲酸酯(DBP， BBP， DEHP， DIBP)

Phthalates (DBP, BBP, DEHP, DIBP)



检测报告
Test Report

样品图片
Photo(s) of the sample(s)

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Test Report

No. CANEC2019683501 Date: 12 Nov 2020 Page 1 of 6

DONGGUAN BUNCH PLASTICS TECHNOLOGY CO.,LTD.

THE INDUSTRIAL ROAD TWO,LANGZHOU DISTRICT,CHANGPING TOWN,DONGGUAN CITY
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : PBTVO+GF BK

SGS Job No. :	CP20-058295 - GZ
Date of Sample Received :	09 Nov 2020
Testing Period :	09 Nov 2020 - 12 Nov 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Violet,Shi
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Technical Laboratory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-196835.001	Black sheet

Remarks :

(1) 1 mg/kg = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	14
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	*001*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

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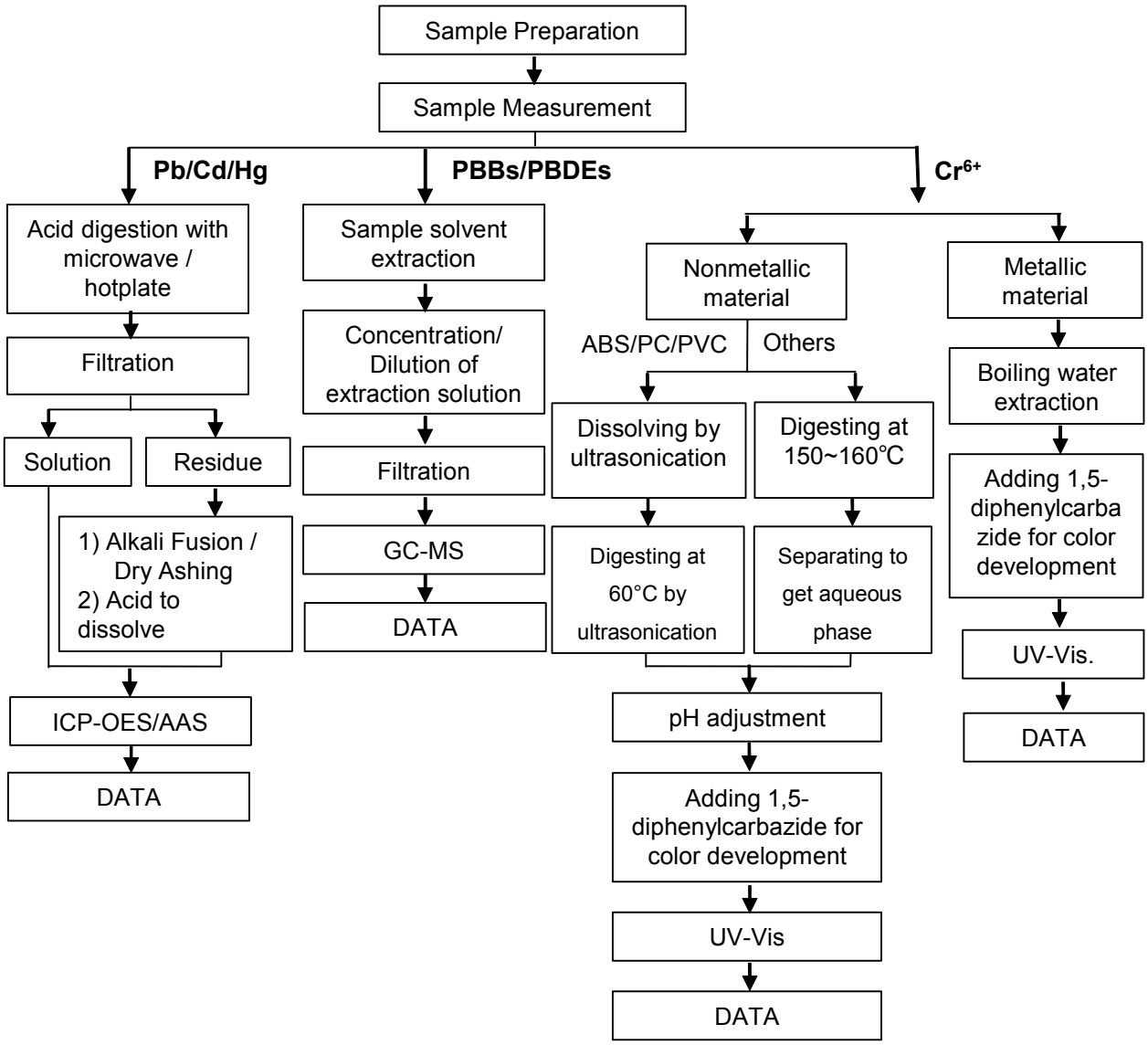
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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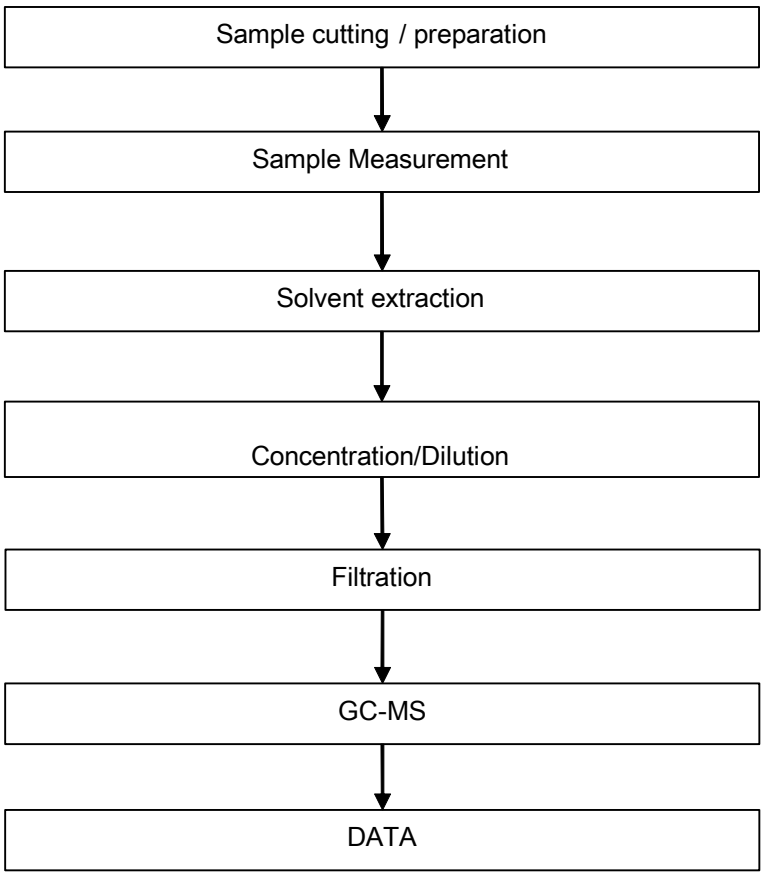
ATTACHMENTS

Phthalates Testing Flow Chart



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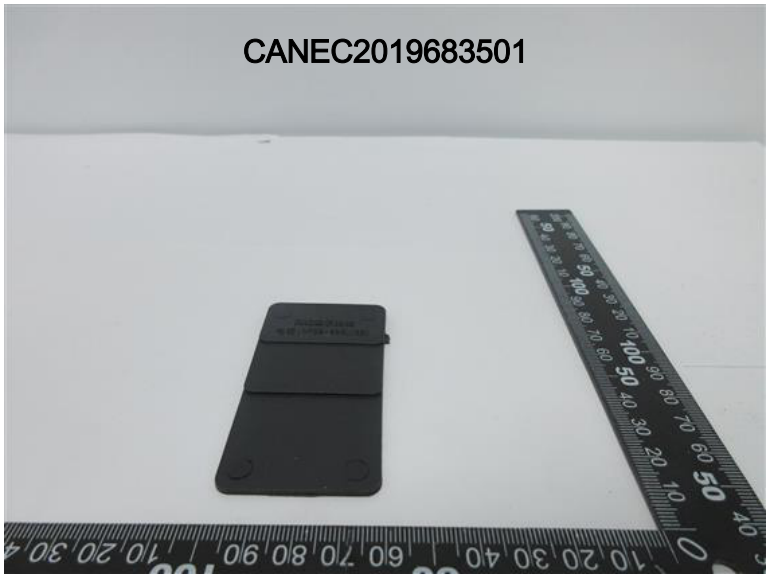

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宁波金田铜业（集团）股份有限公司高精度板带公司

物资安全资料表

MSDS　H65

宁波金田铜业（集团）股份有限公司高精度板带公司物质安全资料表编号：	MCL003
版次：	1
编制日期：	2015-1-10

1、物品与厂商资料：

物品名称：	黄铜带		
物品牌号：	H65（C2680）		
化学名称：	Cu-Zn 金属合金		
类别：	金属混合物		
制造商或供应商名称：	宁波金田铜业（集体）股份有限公司高精度板带公司		
制造商或供应商地址：	宁波市江北区慈城镇城西西路 1 号		
制造商或供应商电话：	86-574-83005068	传真：	86-574-87597621-8068
制造商或供应商网址：	www.jintiancopper.com		

2.成份辨认资料：

成分	化学式	含量（%）	化学文摘社登记号码（CAS.NO.）
铜	Cu	63.5-68	7440—50—8
铅	Pb	0.05	7439—92—1
铁	Fe	0.1	7439—89—6
锌	Zn	余量	7440—66—6
镍	Ni	0.5	7440—02—0

备注：本产品在固体时不具危险性，其粉尘及烟雾时具有危险性。

3、危险辨认资料

警告： 长时间暴露与粉尘及烟雾的工作环境下，对眼睛、呼吸系统、皮层会造成刺激伤害，必须佩带保护器具，包括护目镜、适当衣物、必要保护全身体。身体被接触之部位，必须彻底清洗干净。

种类的名称：	铜、锡之混合物
危险标示类别：	金属粉尘或烟雾将对皮肤、眼睛造成刺激性且对肺具有毒性，但金属成品本身不具有危害性。
危险级数（粉尘及烟雾）：	健康：1　可燃：0（0 为最低、4 为最高）

4、急救措施

对于粉尘及烟雾危害：

眼睛接触：	以大量清净水冲洗上下眼皮内部（至少 15 分钟），若眼睛被刺激不适者，立即送医检查。
食入时：	大量喝水并催吐，迅速送医检查。
皮肤接触：	以清水清洗干净。
吸入时：	送至通风良好较阴凉处休息，以毛布保暖，严重者迅速送医院检查诊断。

5、火灾及爆炸危害资料：

可燃性资料：

爆炸性：	无
可燃性：	无
燃烧性：	无
闪火性：	不适用
自然性：	不适用

灭火剂：

灭火方式：使用灭火剂于材料表面即可

消防建议：

注意粉尘可能会导致爆炸或产生可燃烧气体

6、泄漏处置

本产品在加工时产生粉尘时，有可能产生保证，必须将火源移除，也惟有粉尘型态才可能产生泄漏，所以必须装社吸尘装置，过滤空气中的粉尘，以降低其粉尘浓度。	
泄漏于空气中：	不适用
泄漏于水中：	不适用
泄漏于地面中：	不适用

7、取用及储运方式：

取用注意事项：

轧延产品的端面容易割伤皮肤，应小心取用。 切削加工时会产生粉尘，所以一定要小心，眼睛、皮肤及呼吸应佩带保护器具。 要注意粉尘不可泄漏到空气中去。 需注意产品有翻倒的危险，容易造成压伤，在吊运过程中要十分注意。 打包带剪除时，要小心其末端会弹起，容易对身体、皮肤及眼睛造成割伤。 衣物或器具上的粉尘应用水洗掉或者用吸尘器清洁，而不能用拍打或其他方式处理。

储存条件：

仓库储存最高容许温度：无 避免防止在潮湿或碱性物质或酸/碱性气体的场所。

8、人员暴露防护措施

Cu 暴露标准		OSHA（PEL）		ACGIH（TLV）	
		ppm	Mg/m^3	ppm	Mg/m^3
	烟雾	无	0.1	无	0.2
	粉尘	无	1	无	1
Zn 暴露标准		OSHA(PEL)		ACGIH(TLV)	
		ppm	Mg/m^3	ppm	Mg/m^3
	粉尘	无	无	无	无
呼吸保护：	长时间暴露于粉尘及烟雾的工作环境下，需要呼吸保护器具，佩带 NIOSH 认证防护口罩。				
通风防护	工作场所中，若是会产生烟雾及粉尘时，必须要有通风设施及集尘装置，且工作中不可饮食及抽烟。				
眼睛及皮肤保护：	需要佩带护目镜、防护手套以防割伤。				
人员保护：	作业时应穿戴合适的工作服及安全鞋。				

9、物理及化学性质：

外观：	有红褐色光泽的固态金属
熔点：	1020-1060℃
沸点：	无资料
比重：	8.66
蒸汽压：	不适用
溶解度：	不适用
25℃时的 PH 值：	不适用

10、安全性及反应性资料：

非活性物质

11、毒性资料：

来源途径：

粉尘：食入、皮肤接触、吸入、眼睛接触 烟雾：吸入、眼睛接触、皮肤接触 本产品的成品不具毒性

动性毒性：本合金产品不具毒性
其单一成分的毒性说明如下（仅供参考）： 皮肤腐蚀性：无此资料 刺激性（对眼睛、皮肤）：铜产品会产生接触性皮炎，锌对眼睛有危害性。 急性毒性：铜的粉末不小心误食，会有急性中毒症状----呕吐、无力感及胃疼；粉尘吸入过多，会有胸疼、发烧等症状。 粉尘、烟雾会让有气喘、肺气肿的病患者病情加重。

12、生态资料：

本产品的成品对生态不具毒性

分解性：无资料
蓄积性：无资料
突发性：本产品没有资料显示会造成突发性
鱼毒性：水中，尤其在软水中，铜的浓度达到 0.015~3.0mg/1 时，曾有报告说会对许多种类的鱼、甲壳类的动物及软体动物、浮游生物等有毒性。

13、废品处理

本主品不属于危害性废弃物，当必须丢弃时可以委托回收商予以回收再生处理。

14、运输资料

运送时不要直接与水接触，并且主要会有滑落、翻落的危险发生

15 法规资料

通常无特定法令规定，但是在会产生粉尘的场所必须遵守劳工安全卫生法。劳工作业环境空气中有害物质浓度要在容许浓度标准之内。

16、其他资料

本 MSDS 内容资料应被所有使用、运送储存或暴露于本产品的公司人员充分了解与接受并其应用于使用、加工、制程或管理与本产品有关的作业规定上。本 MSDS 资料内容在编订时可能已经将最新的资料纳入，但并不对所有内容予以任何保证。

物质安全资料表(MSDS)

1、物品与厂商资料

1.1化学物质名称(原材料名称)

槽别	原材料名称	物品编号
	硼酸	GT-BORIC-01
镍槽	镍块	NI
	氯化镍	GT-NICL-01
	硼酸	GT-BORIC-01
	镍光泽剂	GT-302BRIGHTENER
锡槽	锡球	GT-SN
	有机酸	GT-810AEID
	有机锡	GT-810TIN
	纯锡光泽剂	STANTEKXD

1.2 厂商资料

供应商名称:深圳鸿科治实业有限公司

供应商地址:深圳市宝安区沙井街道共和村第六工业区B区A3-6

供应商电话:0755-29698936

2、成份辨识资料：

2.1 名称:镍块 ,氯化镍,硼酸,镍光泽剂,锡球,有机酸,有机锡,纯锡光泽剂

2.2 同义名称: 无

2.3 化学式:Ni , $Nicl_2 6H_20$ H_3BO_3 GT-3023Brightener

2.4 化学成份

Ni^{2+} 70-90g/L $NiCL_26H_2O$ 10-20g/L H_3BO_3 40-50g/L

GT-302Brightener 0.30g/L GT-810Aeid 15000g/L

3、危害性辩论资料

3.1 最重要危害效应

3.1.1 健康危害效应:无相关资料,各组成元素于11项之毒性资料中描述.

3.1.2 环境影响:以上成份元素有显示

3.1.3 物理/化学危险性:以上成份元素中有显示.

3.2 特殊危害:参考〈广东省化学物品暂行管理条例〉

3.3 主要症状:无相关资料

3.4 物品危害分类:无相关资料

本产品在生产成品后不具有危险性,但制程在生产中各种成份,操作不当,会引起轻度皮肤红肿,干裂,腐烂,轻度无力,恶心,对于人体皮肤呼吸系统会造成刺激性伤害,必须配戴适应之保护用具.

4、防护急救措施

4.1 生产中加工中,产生药液接触之急救方法

4.1.1 酸溅在皮肤上,用大量的水冲洗,然后用5%的$NaHCO_3$清洗

4.1.2 碱溅在皮肤上,用大量的水冲洗,然后用2%的醋酸清洗

4.1.3 吸入:将患者移至通风处,用人工呼吸给氧,同时给予高铁血素解毒剂,吸入硝酸丙醋0.5M上可用2%的$NaHCO_3$水溶液或1:500的Kmm04溶液洗胃,催吐.

物质安全资料表(MSDS)

4.2 最重要症状危害措施:无相关资料
4.3 对急救人员之防护:无相关资料
4.4 对医师之提示:无相关资料
5、灭火措施
5.1 适用于灭火剂:不可燃物,不适用
5.2 灭火时要能会遇到之特殊危害,不可用燃物,不适用
5.3 特殊灭火程序:不可燃物,不适用
6、泄漏处理方法：
6.1 个人应注意事项:轻拿轻放.
6.2 环境注意事项:需分开单独存放.
6.3 清理方法:已成桶包装,不适用
7、安全处置与储方法：
7.1 处置
7.1.1 操作相关成份时,需戴手套及胶鞋.
7.1.2 身体外露部分或皮破伤者禁止与药液相接触.
7.1.3 在操作时须戴防护用品.
7.1.4 在操作时禁止吸烟和用食.
7.1.5 加强车间内通风
7.2 储存
7.2.1 储存于干燥通风良好室内或具有温湿度控制之空间.
7.2.2 严禁暴露于室外或温湿度高密闭空间.
8、暴预防措施：
合金无相关资料报道，组成之各元素相关资料如下所述：
8.1 生产控制:在生产时若生产有雾,必须要用通风设备.
8.2 生物指标:无相关资料
8.3 个人防护设备:长时间在生产时必须有适当的防护.
8.3.1 手套:工作防护手套.
8.3.2 适当工作服,安全鞋.
8.3.3 卫生措施,无相关资料.
9、物理及化学性质
制成品之特性：镍块

物质状态：固体	形状　依制成品形状
颜色：银白色金属	气味：无
闪火点：——	PH值：——
	分解温度：50-60°

物质安全资料表(MSDS)

纯锡球：

物质状状	形状　依制成品形状
颜色：银白色	气味：无
闪火点：——	PH值：——
	分解温度：18-25°

组成药液主要特性

槽液温度：Ni ：50-60°C		Sn：18-25℃
PH值：Ni：3.5-4.5		电镀密度:10-30A/dm^2

10、安定性及反应性：
10.1 安定性:一般环境下相对安定
10.2 应避免之状况:无相关资料
10.3 应避免之物质:无相关资料
10.4 危害分解物:无相关资料
11、毒性资料：
合金无相关资料报道，组成之各元素相关资料如下所述：
11.1 急毒性;急性中毒症状为呕吐,无力,头晕,皮肤干裂.
11.2 局部效应:无相关资料
11.3 致敏感性:无相关资料
11.4 慢毒性或长期毒性:强酸碱对皮肤,肌肉有腐蚀危害性.
12、生态资料
12.1 分解性:无相关资料
12.2 蓄积性:无相关资料
12.3 水中的各药水在0.015-3.0g/1的情况时,会对环境造成影响,具有毒性.
13、废液处理方法
13.1 其生产中各种液体属危害性废弃物,须经过专业废理人员处理.
14、运送资料
14.1 国际,国内,联合国,暂无相关资料.
14.2 特殊运送方法及注意事项:不可手直接触摸生产,并且要注意会有滑落,掉落之危险发生.
15、法规资料
15.1 适用法规：通常无特定法令规定，但是在会产生汽雾場所，
必须遵守劳工安全卫生法劳工作业环境空气中有害物质容许所含浓度标准。
15.2 国际法规;暂无
16、其它资料
16.1 参考资料
工业技术研究环境与安全卫生技术发展中心.
16.2 制表单位
名称:深圳市鸿科治实业有限公司　电话:0755-29698936

深圳創達五金飾品有限公司

物質安全資料表

一、物質與廠商資料

物品名稱：锡
物品編號：
製造商或供應商名稱、位址、電話：深圳創達五金飾品有限公司；深圳市寶安區松崗鎮朗下第三工業區；0755-29092582
緊急聯絡電話/傳真電話：　　電話：0755-29092582　　傳真：0755-29092581

二、成分辨識資料

純物質：

中英文名稱： SN
同義名稱：無
化學文摘社登記號碼：（CAS）—
危害物質成分：（成分百分比）—

混合物：

成分名稱	濃度或濃度範圍（成分百分比）	CAS 编号
Sn	99.91%~99.97%	7440-31-5

三、危害辨識資料：

最重要危害效應	健康危害效應：低毒
	環境影響：無
	物理性及化學性危害：—
	特殊危害：—
主要症狀：—	
物品危害分類：—	

四、急救措施：

不同暴露途徑之急救方法： • 吸入：將患者移到空氣流通之場所，維持安靜，保溫並立即送醫；停止呼吸時應立即實施人工呼吸，呼吸困難時則進行氧化急救。 • 皮膚接觸：脫下被污染的衣服，立即用大量水清洗接觸部位，如有發炎應就醫。 • 眼睛接觸：立即用大量水清洗眼睛達 15 分鐘，並立即就醫。 • 食入：飲用大量水或鹽水，並催吐就醫。

UnRegistered

最重要症狀及危害效應：—
對急救人員之防護：—
對醫師之提示：—

五、滅火措施：

適用滅火劑：乾粉滅火劑
滅火時可能遭遇之特殊危害：擦刮傷
特殊滅火程式：—
消防人員之特殊防護設備：穿戴自揣式呼吸器及防護衣

六、洩漏處理方法：

個人應注意事項：穿戴安全眼鏡，防護手套
環境注意事項：不能將其排入河川
消防方法：使用木屑、砂土吸附，然後以水沖洗

七、安全處置與儲存方法：

處置：使用無危害性環保包裝材料對產品進行包裝，並且平穩橫置於卡板上方進行打包
儲存：溫度 20±3℃　　濕度 50%—70%

八、暴露預防措施：

工程控制：—
控制參數： • 八小時日時量平均容許濃度/短時期時量平均容許溫度/最高容許溫度 • 生物指標:
個人防護設備：安全眼鏡、防護手套 • 呼吸防護：設制排氣裝置 • 手部防護：防護手套 • 眼睛防護：安全眼鏡 • 皮膚及身體防護：衣服
衛生措施：1.工作場所嚴禁飲食及抽煙 2.維持作業場所清潔

九、物理及化學性質：

物質狀態：固態	形狀：—
顏色：銀白	氣味：—
PH 值：鹼性	沸點/沸點範圍：
分解溫度：—	閃火點：— 測試方法：—
自然溫度：—	爆炸界限：—
蒸氣壓：—	蒸氣密度：—
密度：7.3g/cm^3	溶解度：—

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十、定性及反應性：

安定性：不可置於 13℃以下環境否則會失去錫的性質
特殊狀況下可能之危害反應：—
應避免之狀況：—
應避免之物質：一切液體
危害分解物：無

十一、毒性資料：

急毒性：低毒
局部效應：—
致敏感性：—
慢毒性或長期毒性：—
特殊效應：—

十二、生態資料：

可能之環境影響/環境流怖： 水中生物分解度低

十三、壓處置方法

廢棄處置方法：依據當地環保法規處理

十四、運送資料：

國際運送規定：—
聯合國編號：—
國內運送規定：—
特殊運送方法及注意事項：避免劇烈震動、衝撞、擠壓

十五、法規資料：

適用法規：—

十六、其化資料：

參考文獻		
製造單位	名稱：深圳創達五金飾品有限公司	
	位址/電話：深圳市寶安區松崗鎮朗下第三工業區	電話：0755—29092582
製 錶 人	職稱：品保部經理	姓名：（簽章）戴斌
製錶日期	2014-04-02	
備註：上述資料中符號“—”代表目前查無相關資料，而符號“/”代表此欄對該物質不適用		

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深圳創達五金飾品有限公司

物質安全資料表

一、物質與廠商資料

物品名稱： 镍
物品編號：
製造商或供應商名稱、位址、電話：深圳創達五金飾品有限公司；深圳市寶安區松崗鎮朗下第三工業區；0755-29092582
緊急聯絡電話/傳真電話： 電話：0755-29092582 傳真：0755-29092581

二、成分辨識資料

純物質：

中英文名稱：鎳電鍍品
同義名稱：
化學文摘社登記號碼：（CAS）—
危害物質成分：（成分百分比）—

混合物：

成分名稱	濃度或濃度範圍（成分百分比）	CAS 编号
Ni	100%	7440-02-0

三、危害辨識資料：

最重要危害效應	健康危害效應：低毒
	環境影響：無
	物理性及化學性危害：—
	特殊危害：—
主要症狀：—	
物品危害分類：—	

四、急救措施：

不同暴露途徑之急救方法：

• 吸入：將患者移到空氣流通之場所，維持安靜，保溫並立即送醫；停止呼吸時應立即實施人工呼吸，呼吸困難時則進行氧化急救。

• 皮膚接觸：脫下被污染的衣服，立即用大量水清洗接觸部位，如有發炎應就醫。

• 眼睛接觸：立即用大量水清洗眼睛達 15 分鐘，並立即就醫。

• 食入：飲用大量水或鹽水，並催吐就醫。

最重要症狀及危害效應：—

對急救人員之防護：—

對醫師之提示：—

五、滅火措施：

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適用滅火劑：乾粉滅火劑
滅火時可能遭遇之特殊危害：擦刮傷
特殊滅火程式：—
消防人員之特殊防護設備：穿戴自揣式呼吸器及防護衣

六、洩漏處理方法：

個人應注意事項：穿戴安全眼鏡，防護手套
環境注意事項：不能將其排入河川
消防方法：使用木屑、砂土吸附，然後以水沖洗

七、安全處置與儲存方法：

處置：使用無危害性環保包裝材料對產品進行包裝，並且平穩橫置於卡板上方進行打包
儲存：溫度 20±3℃　　濕度 50%—70%

八、暴露預防措施：

工程控制：—
控制參數： • 八小時日時量平均容許濃度/短時期時量平均容許溫度/最高容許溫度 • 生物指標:
個人防護設備：安全眼鏡、防護手套 • 呼吸防護：設制排氣裝置 • 手部防護：防護手套 • 眼睛防護：安全眼鏡 • 皮膚及身體防護：衣服
衛生措施：1.工作場所嚴禁飲食及抽煙 2.維持作業場所清潔

九、物理及化學性質：

物質狀態：固態	形狀：—
顏色：白色	氣味：—
PH 值：中性	沸點/沸點範圍：2800℃
分解溫度：—	閃火點：— 測試方法：—
自然溫度：—	爆炸界限：—
蒸氣壓：—	蒸氣密度：—
密度：8.9g/cm^3	溶解度：—

十、定性及反應性：

安定性：安全，無聚合危險性
特殊狀況下可能之危害反應：—

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應避免之狀況：—
應避免之物質：一切液體
危害分解物：無

十一、毒性資料：

急毒性：低毒
局部效應：—
致敏感性：—
慢毒性或長期毒性：—
特殊效應：—

十二、生態資料：

可能之環境影響/環境流怖： 水中生物分解度低

十三、壓處置方法

廢棄處置方法：依據當地環保法規處理

十四、運送資料：

國際運送規定：—
聯合國編號：—
國內運送規定：—
特殊運送方法及注意事項：避免劇烈震動、衝撞、擠壓

十五、法規資料：

適用法規：—

十六、其化資料：

參考文獻	
製造單位	名稱：深圳創達五金飾品有限公司
	位址/電話：深圳市寶安區松崗鎮朗下第三工業區　　電話：0755—29092582
製 錶 人	職稱：品保部經理　　姓名：（簽章）戴斌
製錶日期	2014-04-02
備註：上述資料中符號“—”代表目前查無相關資料，而符號“/”代表此欄對該物質不適用	

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物质安全资料表

一．物质标识

物品中文名称：金
公司名称：恒基镀膜（深圳）有限公司
公司地址：深圳宝安区沙井街道西环路茭塘工业区第三栋
公司电话：0755-27560633 传真：0755-27560399
制作部门/制作人：品质部/梁练宾
制作日期：2009/8/20

二．主要成分

主要成分	化学式	含量	化学文摘社登记号码 **CAS.NO**
金	AU	100%	7440-57-5

三．健康危害

根据法规的标准末被列为有害品类

四．急救措施

吸入：无需特别措施
皮肤接触：用水洗涤皮肤
眼睛接触：立即用大量水冲洗眼睛，如果眼睛刺激持续，请就医
食入：无需特别措施
给医治人员的提示：对症处理

五．火灾及爆炸危害资料

闪点：无　　燃烧性：不燃　　爆炸上限：无　　爆炸下限：无

六．泄露之紧急应变

个人的预防措施：穿着适当的防护服
环境预防措施：防止物质进入排水沟或水道，不要直接排入水源，如果溢出物进入水道或者下水道，或者污染土壤或植被时，请通知政府管理部门
消除方法：装入适当的容器中进行回收处理

七．处理与储存注意事项

储存：存放在原来的容器中，储存区域应该是：凉爽，干燥，切不要阳光直射
操作：操作后彻底清洗

八．暴露预防措施

手部：戴橡胶防酸碱手套
吸入：戴自吸过滤式防毒面具
眼部：佩戴化学防护眼镜

九．物理及化学物性

物质状态：固体　　相对密度:1.08 颜色：金黄色　　PH：7.0 溶解性：不易混合
十．稳定性和反应特性
安定性：稳定 危害分解性：不聚合 反应性及不相容性：碱性物质
十一．毒性资料
本产品或其组分的毒理学资料获得以后,会列在本节中
十二．环境生态资料
本产品或其组分的毒理学资料获得以后,会列在本节中
十三．废弃处理与处置
根据当地、州（省）、联邦所有法规进行处理。
十四．运送资料
不受现有危险品相关法规的控制
十五．适用法规
化学危险品安全管理条例
十六．其它资料
参考文献： 1.Aldrich Sigma RDH Fluka MSDS 英文版 2.Mallinckrodt Baker MSDS 英文版

Pony Testing International Group

Report No.：1003253-020~1

MSDS Report

Samples	SPCC
Client Unit	FOSHAN SHUNDE HETAI STEEL TRADE CO., LTD
Client Address	Foshan Shunde Luzhou Lecong Develop

Report in electronic version is only for client's preview and reference. For confirmative content, formal test report shall prevail.

Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Name: SPCC

Client Unit: FOSHAN SHUNDE HETAI STEEL TRADE CO., LTD
Address: Foshan Shunde Luzhou Lecong Develop
Post Code: 528315
Tel: 0757-28854088
Emergency Telephone: 0757-28854088
Fax: 0757-28834077
E-Mail: hetaimfl@qq.com

Section 2 – Composition/Information on Ingredient

Chemical Name	CAS No.	Formula	Weight（%）
Iron	7439-89-6	Fe	95.85
Carbon	7440-44-0	C	0.60
Silicon	7440-21-3	Si	0.50
Manganese	7439-96-5	Mn	1.80
Phosphorus	7723-14-0	P	1.20
Sulfur	7704-34-9	S	0.05

Section 3 - Hazards Identification

No harm under normal use. At long industrial condition, reference as follow.

Eye

Dust or welding fumes may cause irritation of eyes.

Skin

Dust or welding fumes may cause irritation.

Inhalation

Dust or welding fumes may cause irritation of respiratory tract and result in discomfort such as dizziness, nausea, or dryness or irritation of nose and throat.

Ingestion

May be harmful if swallowed.

Section 4 - First Aid Measures

Eye

Flush with plenty of water for at least 15 minutes. Get medical attention if irritation persists.

Skin

Remove contaminated clothing/shoes. Flush skin with large amounts of water for at least 15 minutes, follow by washing with soap and water. Get medical attention if irritation persists. Do not reuse clothing/shoes until cleaned.

Inhalation

Remove victim to fresh air. If symptoms develop, seek medical advice.

Ingestion

Do not induce vomiting. Get medical attention.

Section 5 - Fire Fighting Measures

Flash Point: N/A.

Flammability: Non-flammable.

Extinguishing Media

Use water spray, carbon dioxide, or dry chemical.

Firefighting

Wear self contained breathing apparatus and protective clothing.

Hazardous Combustible Products

Carbon monoxide, carbon dioxide, sulfur oxides, oxides of phosphorus, metallic oxides, other irritating and toxic fumes.

Section 6 - Accidental Release Measures

Steps to be taken in case material is spilled or released

Fine turnings should be swept or vacuumed. Small materials can be reclaimed for re-use.

Waste Disposal Method

Used or unused product should be disposed of in accordance with Federal, State, or Local Rules and Regulations.

Section 7 - Handling and Storage

Handling

Keep away from fire. Avoid mechanical or electrical abuse.

Storage

Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperature should be avoided. Keep away from acid, bases, strong oxidizers.

Section 8 - Exposure Controls, Personal Protection

No need under normal use. If at long industrial condition, handle as follows

Engineering Controls

In a cool, well-ventilated area. Use an approved particulate respirator in dusty or misty atmospheres. Use explosion-proof equipment if needed.

Personal Protection

Safety glasses, protective gloves, lab coat, eye washer and safety shower if needed.

Exposure limit

Iron

OSHA TWA 10.0mg/m^3 as oxide dust and fume.

ACGIH TLV 5.0mg/m^3 as oxide fume.

Carbon

OSHA PEL 5.0mg/m^3 as respirable fraction.

ACGIH TLV 10mg/m^3 Total.

Silicon
OSHA TWA 10.0mg/m^3 as total dust; 5.0mg/m^3 as respirable fraction.
ACGIH TLV 10.0mg/m^3 as total dust.

Manganese
OSHA TWA 1.0mg/m^3 as fume.
ACGIH TLV 1.0mg/m^3 as fume; 3.0mg/m^3 STEL as fume; 5.0mg/m^3 as dust.

Phosphorus
OSHA PEL 0.1mg/m^3 / 8 hours (TWA).
ACGIH TLV 0.1mg/m^3 / 8 hours (TWA).

Section 9 - Physical and Chemical Properties

Flash Point: N/A.
Flammability: Non-flammable.

Appearance and odor: Metallic gray, odorless, metal solid.
Chemical Uses: Widely used in electron, decorative lighting, and furniture.

Section 10 - Stability and Reactivity

Stability
Stable under normal conditions.
Conditions to Avoid
Heating, mechanical abuse and electrical abuse.
Hazardous Combustible Products
Carbon monoxide, carbon dioxide, sulfur oxides, oxides of phosphorus, metallic oxides, other irritating and toxic fumes.
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Iron

Oral LD50 for Rats: 30gm/kg

Silicon
Oral LD50 for Rats: 3160mg/kg

Manganese
Oral LD50 for Rats: 9gm/kg

Phosphorus
Oral LD50 for Male Rats: 3.76mg/kg
Oral LD50 for Female Rats: 3.03mg/kg
Oral LD50 for Male Mice: 4.85mg/kg
Oral LD50 for Female Mice: 4.82mg/kg

Sulfur
Oral LD50 for Rabbits: 175mg/kg

Section 12 - Ecological Information

Report spills as required to appropriate authorities. U.S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks.

Section 13 - Disposal Considerations

Recycle the products if possible. All disposals must comply with federal, state, and local regulations. The material, if spilled or discarded, may be a regulated waste. Refer to state and local regulations. If regulated solvents are used to clean up spilled material, the resulting waste mixture may be regulated. Department of Transportation (DOT) regulations may apply for transporting this material when spilled.

Section 14 - Transport Information

This product is not a hazardous material or dangerous goods for

transportation.

Transport Fashion: By sea, by railway, by highway.

Section 15 - Regulatory Information

Law Information

《Dangerous Goods Regulation》

《Recommendations on the Transport of Dangerous Goods Model Regulations》

《International Maritime Dangerous Goods》

《Classification and code of dangerous goods》

OSHA Hazard Communication Standard Status

Toxic Substances Control Act (TSCA) Status

SARA Title III

RCRA

In accordance with all Federal, State and Local laws.

Section 16 - Additional Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information maybe applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

MSDS Creation Date: January 08, 2015

东莞市邦奇塑料科技有限公司

(MSDS)（安全技术说明书）

1. 化学品名称和制造商信息

PBTHB+GF NC(PBT不防火白色)

使用：聚合物

公司：东莞市翔骏塑胶制品有限公司

地址：东莞市常平镇朗洲工业二路

电话：0769-83811691

传真：0769-83811692

邮箱：china_pbt@126.com

网址：http://www.xiangjunsj.com

2. 化学组成信息

PBT（聚对苯二甲酸丁二醇酯）

阻燃剂

玻璃纤维

助剂

危害物质成分：无

3. 危害信息

健康危害效应： 无

环境影响： 无

物理性及化学性危害： 无

特殊危害： 无

4. 急救措施

眼睛接触：若接触到高温物料，立即以大量的冷水冲洗并送医。

皮肤接触：若接触到高温物料，立即以大量的冷水冲洗并送医。

吸入：当吸入加热所产生之气体时，应立即移至通风良好之处，如有必要则送医治疗。

食入：尽量呕吐出食入物，如有必要则送医治疗。

5. 消防措施

适宜的灭火介质：水、泡沫、干灭火介质。

特殊危害：在300℃以上可能产生一氧化碳、溴化氢等，其它分解产物和氧化产物视火情而定。

特殊防护：穿着防护设备。

6. 泄露应急处理

清理或收集方法：

少量：选择合适的器械处理。

大量：选择合适的器械处理。

补充说明：产品渗漏/溢出有高度至滑危险。

7．操作和储存

操作：作业时配戴防护手套及防尘口罩，避免粉尘由口鼻吸入。

储存：应存放于干燥及通风良好之处。

8．接触控制和个人防护措施

工程控制

确保工作场所通风，加工时的烟尘需抽走。

个人防护

呼吸防护：防粉尘用防护面罩

手部防护：隔热手套

眼睛防护：安全护目眼镜

皮肤及身体防护：长袖工作服及安全鞋

9．理化特性

形状： 颗粒

颜色： 各种颜色，取决于着色剂

气味： 无味

密度： 1.35g/cm^3

水中溶解性： 不溶

10．稳定性和反应活性

稳定性高，正常的储存条件下无反应。

11．毒理学信息

根据我们的现有经验和资料，如对于指定用途按推荐采取合适的防范措施进行操作，无不利健康影响。

12．生态学信息

持续性和可降解性

经验表明，产品是惰性的，不可降解。

生物积累潜势

由于产品具有粘性和较低的水中溶解度，不可能被生物利用。

13．废弃处置

检查可能的循环再利用。

可以根据当地条例与生活垃圾一起处置或焚烧。

14．运输信息

陆地运输

道路运输 根据运输规则，不列入危险品。

铁路运输 根据运输规则，不列入危险品。

内河运输 根据运输规则，不列入危险品。

海洋运输

根据运输规则，不列入危险品。

航空运输

根据运输规则，不列入危险品。

15．法规信息

产品符合WEEE/RoHS指令。

产品需遵守中国的法律/法规。

16．其它信息

此安全技术说明书中资料是依据我们现有知识和经验编写，并且只考虑安全原因对产品进行说明。这些资料未说明产品的性质（产品技术规格）。不应从本安全技术说明书推测任何达成协议的性质或产品对于特定用途的适用性。本产品的接收者有责任确保任何所属权和遵守现行法律法规。

弘源碩電子材料有限公司

HungYuanShuo Electronic Accessories CO.,LTD

产品规格承认书

版本：A/1

产品名称	H无卤环保热缩套管	供应商代码	
规格/型号	所有系列	客户编号	

供應商確認（弘源碩電子材料有限公司）

拟制/日期	审核/日期
范松林 / 2012 年 1 月 15 日	宋大春 / 2012 年 1 月 15 日

客戶確認

客户批准/日期		

公司地址：深圳市寶安區沙井街道辦中心路匯盈商務大廈十三樓1301，1302室

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1 主题内容与适用范围

本承认书规定了无卤环保阻燃型热收缩套管的技术要求、试验方法、检验规则以及包装等内容。

本承认书适用于电线连接、焊点保护、电线端部处理、线束及电子元器件的防护和绝缘处理、健身器材零部件和钢结构表面防护、相关产品的防锈和防腐处理、电线和其它产品的标识等用途的无卤阻燃型热收缩套管。

2 引用标准

Standard for Extruded Electrical Tubing UL 224。

3 术语

3．1 热收缩材料

以可塑性线型高聚物或高聚物合金为基材，用高能辐照方法或化学方法使聚合物分子链部分交联成为网状结构获得弹性“记忆效应”，经加热扩张至特定尺寸后冷却定型，使用时加热到适当温度后自行收缩到扩张前的形状和尺寸，这种材料称为热收缩材料。

3．2 热收缩套管

将上述高聚物或高聚物合金通过挤出成型得到规定尺寸的管状中间产品，辐照（或化学）交联后加热扩张，冷却定型得到的具有一定尺寸的管状产品成为热收缩套管。

3. 3 绿色 RSFR 无卤阻燃热收缩材料

在热收缩材料中添加一定量的不含卤素、重金属等对环境有害的阻燃剂，使之符合一定阻燃要求和环保要求，则成为绿色 RSFR 无卤阻燃热收缩材料。

4 技术要求

4．1 使用条件

4．1．1 连续使用的环境温度：-55℃～125℃。

4．1．2 可在酸、碱条件下长期使用。

4．1．3 可在环保要求严格的条件下长期使用。

4．2 表观要求

4．2．1 制品表面无明显划伤、凹凸不平、竹节状缺陷。

4．2．2 表面光洁、无油污、无积尘。

4．2．3 印字清晰、无重影、无多余墨迹、无印不全或打滑现象。

4．3 热收缩性能

4．3．1 起始收缩温度 70℃；超薄型完全收缩温度 110℃，普通型完全收缩温度 125℃。

按照 UL224 标准，完全收缩到位温度为 200℃，3 分钟。

4．3．2 纵向收缩率不超过±5%

4．4 材料的性能特性

材料的理化性能符合表 1 规定。

4．5 收缩套管的产品尺寸

无卤阻燃型薄壁热收缩套管的产品尺寸符合表 2 规定，无卤阻燃型热收缩套管的产品尺寸符合表 3 规定。

4. 6 颜色

标准颜色：黑色、红色、蓝色、黄色、绿色、白色，其它颜色如紫色、灰色、棕色等可根据客户要求定做。

4.7 使用方法

在使用过程中，为了保证热缩套管能完全收缩到位，使用强制鼓风式恒温烘箱，并将收缩温度控制在 125℃。特别注意，当把热缩套管放入烘箱过程中，烘箱温度有一下降趋势，要达到设定温度需要一定的时间；同时，在烘箱内通过热空气循环流动使热缩套管达到最终收缩温度同样需要一定

的时间。因此，必须在烘箱实际温度达到设定温度并保持该温度 3 分钟左右，热缩套管才能完全收缩到位。

表 1　　无卤阻燃型热收缩套管的性能特性

性能			测试方法	性能指标
物理性能	拉伸强度/MPa		GB/T1040	≥10.4
	断裂伸长率/%		GB/T1040	≥200
	热老化后拉伸强度/MPa		UL224；158℃×168hr	≥7.3
	热老化后断裂伸长率/%		UL224；158℃×168hr	≥100
	耐热冲击		UL224；250℃×4hr	不发粘,不龟裂
	抗冷弯曲		UL224；-30℃×1hr	不龟裂
电气性能	耐压	300V	UL224	2500V 不击穿
		600V	UL224	2500V 不击穿
	击穿强度/KV/mm		GB/T1408	≥15
	体积电阻率/Ω•cm		GB/T1410	≥1×10^{14}
化学性能	铜安定性		UL224；158℃×168hr	PASS
	抗腐蚀性		UL224；158℃×168hr	PASS
	阻燃性		UL224	VW-1

表 2　H-CB 管（无卤阻燃型薄壁热收缩套管）的产品尺寸

规格	收缩前尺寸（mm）		收缩后尺寸（mm）		旧包装	新包装	适用范围
（mm）	内径	壁厚	内径	壁厚	米/盘	米/盘	（mm)
Φ0.6CB	0.90±0.2	0.13±0.05	≤0.40	0.20±0.10	200	400	0.4～0.7
Φ0.8CB	1.10±0.2	0.13±0.05	≤0.50	0.20±0.10	200	400	0.6～0.8
Φ1.0CB	1.40±0.2	0.13±0.05	≤0.65	0.20±0.10	200	400	0.7～1.0
Φ1.5CB	1.90±0.2	0.13±0.05	≤0.85	0.20±0.10	200	400	0.9～1.4
Φ2.0CB	2.40±0.2	0.13±0.05	≤1.00	0.22±0.10	200	400	1.1～1.8
Φ2.5CB	2.90±0.2	0.13±0.05	≤1.30	0.25±0.10	200	400	1.4～2.3
Φ3.0CB	3.40±0.2	0.13±0.05	≤1.50	0.28±0.10	200	400	1.6～2.7
Φ3.5CB	3.90±0.2	0.13±0.05	≤1.80	0.28±0.10	200	400	1.9～3.2
Φ4.0CB	4.40±0.2	0.15±0.05	≤2.00	0.30±0.10	200	400	2.1～3.6
Φ4.5CB	4.90±0.2	0.15±0.05	≤2.30	0.30±0.10	100	200	2.4～4.0
Φ5.0CB	5.50±0.2	0.15±0.05	≤2.5	0.32±0.10	100	200	2.6～4.5
Φ6.0CB	6.50±0.2	0.15±0.05	≤3.0	0.32±0.10	100	200	3.1～5.4
Φ7CB	7.50±0.3	0.15±0.05	≤3.5	0.32±0.10	200	200	3.7～6.3
Φ8CB	8.50±0.3	0.15±0.05	≤4.0	0.32±0.10	200	200	4.2～7.2
Φ9CB	9.50±0.3	0.15±0.05	≤4.5	0.35±0.10	200	200	4.7～8.0
Φ10CB	10.5±0.3	0.15±0.05	≤5.0	0.35±0.10	200	200	5.2～9.0

Φ11CB	11.5±0.3	0.18±0.05	≤5.5	0.40±0.10	200	200	5.7～10.0
Φ12CB	12.5±0.3	0.20±0.05	≤6.0	0.40±0.10	200	200	6.2～11.0
Φ13CB	13.5±0.3	0.20±0.05	≤6.5	0.40±0.10	200	200	6.7～12.0
Φ14CB	14.5±0.3	0.20±0.05	≤7.0	0.40±0.10	200	200	7.3～13.0
Φ15CB	15.5±0.4	0.20±0.05	≤7.5	0.40±0.10	200	200	7.8～14.0
Φ16CB	16.5±0.4	0.22±0.05	≤8.0	0.40±0.10	200	200	8.3～15.8
Φ17CB	17.5±0.4	0.22±0.05	≤8.5	0.40±0.10	200	200	8.8～16.0
Φ18CB	18.5±0.4	0.22±0.05	≤9.0	0.42±0.10	200	200	9.3～17.0
Φ20CB	20.5±0.5	0.25±0.05	≤10.0	0.45±0.10	200	200	10.5～19.0
Φ22CB	22.5±0.5	0.25±0.05	≤11.0	0.45±0.10	200	200	11.5～20.5
Φ25CB	25.5±0.5	0.25±0.05	≤12.5	0.45±0.10	100	100	13.0～24.0

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表3 H管（无卤阻燃型热收缩套管）的产品尺寸要求

规格（mm）	收缩前尺寸（mm）		收缩后尺寸（mm）		旧包装	新包装	适用范围（mm）
	内径	壁厚	最大内径	壁厚	米/盘	米/盘	（mm)
Φ0.6	0.9±0.2	0.18±0.05	≤0.40	0.33±0.10	200	400	0.4～0.7
Φ0.8	1.1±0.2	0.18±0.05	≤0.50	0.33±0.10	200	400	0.6～0.8
Φ1.0	1.5±0.2	0.20±0.05	≤0.65	0.36±0.10	200	400	0.75～0.9
Φ1.5	2.0±0.2	0.20±0.05	≤0.85	0.36±0.10	200	400	0.95～1.4
Φ2.0	2.5±0.2	0.20±0.05	≤1.00	0.45±0.10	200	400	1.1～1.8
Φ2.5	3.0±0.2	0.20±0.05	≤1.30	0.45±0.10	200	400	1.35～2.3
Φ3.0	3.5±0.2	0.23±0.05	≤1.50	0.45±0.10	200	400	1.6～2.7
Φ3.5	4.0±0.2	0.23±0.05	≤1.80	0.45±0.10	200	400	1.85～3.2
Φ4.0	4.5±0.2	0.25±0.05	≤2.00	0.45±0.10	200	400	2.1～3.6
Φ4.5	5.0±0.2	0.28±0.05	≤2.30	0.56±0.10	100	200	2.35～4.0
Φ5.0	5.5±0.2	0.28±0.05	≤2.50	0.56±0.10	100	200	2.6～4.5
Φ6.0	6.5±0.2	0.28±0.05	≤3.00	0.56±0.10	100	200	3.1～5.4
Φ7.0	7.5±0.3	0.30±0.05	≤3.50	0.56±0.10	100	100	3.7～6.3
Φ8.0	8.5±0.3	0.30±0.08	≤4.00	0.56±0.10	100	100	4.2～7.2
Φ9.0	9.5±0.3	0.30±0.08	≤4.50	0.56±0.10	100	100	4.7～8.0
Φ10	10.5±0.3	0.30±0.08	≤5.00	0.56±0.10	100	100	5.2～9.0
Φ11	11.5±0.3	0.30±0.08	≤5.50	0.56±0.10	100	100	5.7～10
Φ12	12.5±0.3	0.30±0.08	≤6.00	0.56±0.10	100	100	6.2～11
Φ13	13.5±0.3	0.35±0.08	≤6.50	0.56±0.10	100	100	6.7～12
Φ14	14.5±0.3	0.35±0.10	≤7.00	0.70±0.10	100	100	7.3～13
Φ15	15.5±0.4	0.35±0.10	≤7.50	0.70±0.10	100	100	7.8～14

规格（mm）	收缩前尺寸（mm）		收缩后尺寸（mm）		旧包装	新包装	适用范围（mm）
Φ16	16.5±0.4	0.35±0.10	≤8.00	0.70±0.10	100	100	8.3～15
Φ17	17.5±0.4	0.35±0.10	≤8.50	0.70±0.10	100	100	8.8～16
Φ18	19.0±0.5	0.35±0.10	≤9.00	0.70±0.10	100	100	9.3～17
Φ20	22.0±0.5	0.40±0.10	≤10.00	0.83±0.10	100	100	10.4～19
Φ22	24.0±0.5	0.40±0.12	≤11.00	0.83±0.15	100	100	11.4～21
Φ25	26.0±0.5	0.45±0.12	≤12.50	0.90±0.15	50	50	12.8～24
Φ28	29.0±0.5	0.45±0.12	≤14.00	0.90±0.15	50	50	14.4～29
Φ30	31.5±1.0	0.45±0.12	≤15.00	1.00±0.15	50	50	16～29
Φ35	36.5±1.0	0.45±0.12	≤17.50	1.00±0.15	50	50	18～34
Φ40	41.5±1.0	0.50±0.12	≤20.00	1.00±0.15	50	50	21～39
Φ45	46.5±1.0	0.50±0.15	≤22.50	1.00±0.20	25	25	23.5～44
Φ50	≥50	0.50±0.15	≤25.00	1.10±0.20	25	25	26～49

E203950 Ⓦ WOER RSFR-H TUBE 125℃ VW-1 H （Φ9）

注:Φ30及以上规格产品默认为G管（环保性能符合欧盟RoHS 2002/95/EC标准）。如果客户需H无卤热缩套管，须在订单上注明。

4.8 环境物质

本承认书承诺不使用以下物质，四大重金属、多溴联苯（PBB）、多溴联苯醚（PBDE）、卤素等通过SGS检测。无卤阻燃型热收缩套管的环保特性列于表4。

1. 多氯化联苯(PCB)类
2. 多氯化萘(PCN)类
3. 氯化石蜡
4. 灭蚁灵（Mirex）
5. 其它有机氯化合物
6. 有机溴化合物-多溴联苯（PBB）
7. 有机溴化合物-多溴联苯醚（PBDE）
8. 有机锡化合物（三丁基锡化合物和三苯基锡化合物）
9. 石棉
10. 偶氮化合物
11. 甲醛

表4 无卤阻燃型热收缩套管的环保特性

环境物质	含量	测试方法
氟（F）	≤200PPM	EN 14582 Method B
氯（Cl）	≤900ppm	EN 14582 Method B
溴（Br）	≤900ppm	EN 14582 Method B
碘（I）	≤200PPM	EN 14582 Method B

镉（Cd）	≤5ppm	IEC 62321
铅（Pb）	≤90ppm	IEC 62321
铬（Cr^{6+}）	≤5ppm	IEC 62321
汞（Hg）	≤5ppm	IEC 62321
砷（As）	≤50ppm	EPA 3052
钡（Ba）	≤1000ppm	EPA 3052
锑(Sb)	≤60ppm	EPA 3052
硒（Se）	≤25ppm	EPA 3052

备注：氯（Cl）+ 溴（Br）<1500ppm

5.材质证明书

材 质 证 明 书

沃尔核材股份有限公司无卤环保型 RSFR-H 热缩套管是一种阻燃型的热收缩套管，组成材料为聚烯烃加适量阻燃剂和助剂。产品中铅（Pb）、镉（Cd）、汞(Hg)、六价铬（Cr^{6+}）、多溴联苯(PBB)、多溴联苯醚(PBDE)等环境物质含量符合日本 SONY-SS-00259 和欧盟 RoHS 2002/95/EC 指令环保要求。其主要成份如下：

原料名称			使用目的	含量	供应商	CAS.NO.
中文	英文	分子式				
聚烯烃	Polyolefin	$(CH_2CH_2)n$	主剂	50%	北京有机	9002-88-4
氢氧化镁	Magnesium Hydroxide	$Mg(OH)_2$	阻燃剂	35%	锦昊辉	1309-42-8
磷系阻燃剂	Phosphorus	$(NH_4PO_3)n$	阻燃剂	10%	上海海以	7723-14-0
色母粒	Pigment	色母+填充剂	着色剂	5%	华万彩	——
油墨	Printing Ink	——	印字	——	上海捷信	——

6.技术资料

（1） UL/cUL 证书
（2） ISO9001 证书
（3） ISO14001 证书
（4） ISO/TS16949 证书
（5） SGS/ITS/CTI 检测报告

弘源碩電子材料有限公司
二零一二年一月十五日

ONLINE CERTIFICATIONS DIRECTORY

YDPU2.E203950
Tubing, Extruded Insulating - Component

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Tubing, Extruded Insulating - Component

See General Information for Tubing, Extruded Insulating - Component

SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD E203950
XINWEI INDUSTRIAL PARK, WOER MANSION
NANSHAN DISTRICT, XILI
SHENZHEN, GUANGDONG 518052 CHINA

Cat. No.	Max V	Max Temp C	Col Recognized	Max Temp Rated Oil Resistance C	VW-1 Rated #
Flexible Heat-Shrinkable Polyolefin Tubing					
RSFR	600	125	All except Clear	None	$
WKZM-x-yz	600	125	White	None	No
RSFR-H	600	125	All except Clear	None	Yes
RSFR(CB)	300	125	All except Clear	None	Yes
Not Heat-Shrinkable PTFE Tubing					
WF	600	200	Natural	None	Yes
Heat-Shrinkable Polyolefin Tubing with Meltable Liner					
SBRS	600	125	All except Clear	None	Yes
Not Heat-Shrinkable Standard Wall Silicone Tubing					
WST-600	600	150	White	None	@

x-yz - x represents tubing expanded ID, yz represents any alpha and/or numeric combination - for internal client code.

- Tubing is considered to comply with the optional VW-1 flammability requirements only if it is so marked for tubing authorized below.

@ - VW-1 rated for internal diameter sizes 6.50 - 15.00 mm only.

$ - VW-1 rated for Black color only.

Marking: Company name or file number "E203950", catalog number, voltage rating, temperature rating in degrees C, inside diameter (before and after recovery), and date of manufacture shall be marked on tags attached to both ends of the tubing, on the shipping spool label or on the smallest unit container.

Last Updated on 2008-04-30

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An independent organization working for a safer world with integrity, precision and knowledge.

Test Report

SINWA LASER TECHNOLOGY CO.,LTD

50.WU KONG 5 TH RD,.WU KU INDUSTRIAL PARK .TAIPEI TAIWAN

The following sample(s) was/were submitted and identified on behalf of the clients as : HALOGEN FREE WHITE INK

SGS Job No. :	CP20-019851 - SZ
Model No. :	I-TPE-01
Client Ref. Info. :	I-TPE-01;I-PE-01;I-TPR-01;I-PPE-01;I-PP-01;I-TPU-01;I-RU-01.
Date of Sample Received :	30 Apr 2020
Testing Period :	30 Apr 2020 - 14 May 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-062929.008	White paste

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*008*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	008
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Remark : The result(s) shown is/are of the total weight of dried sample.

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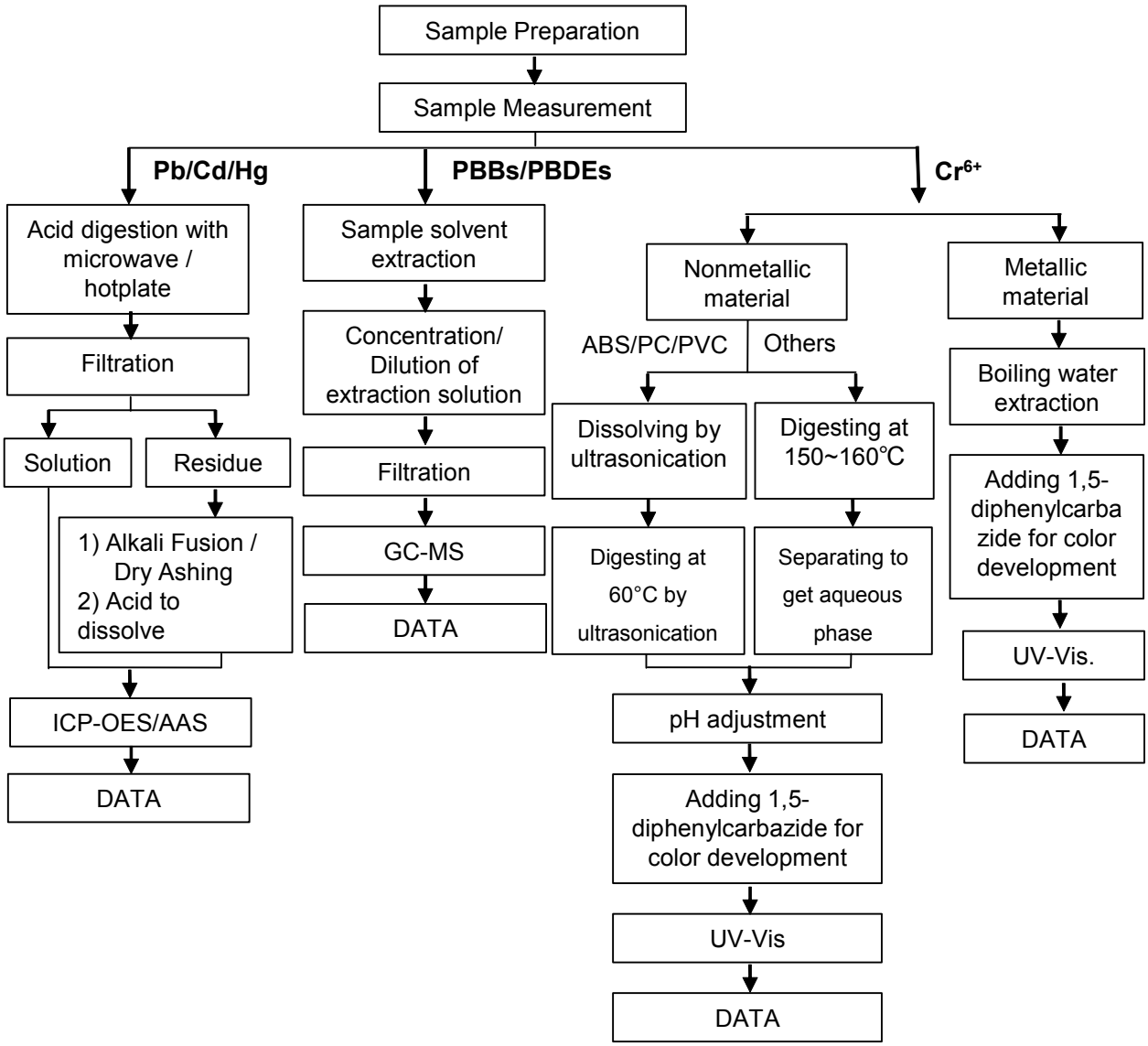
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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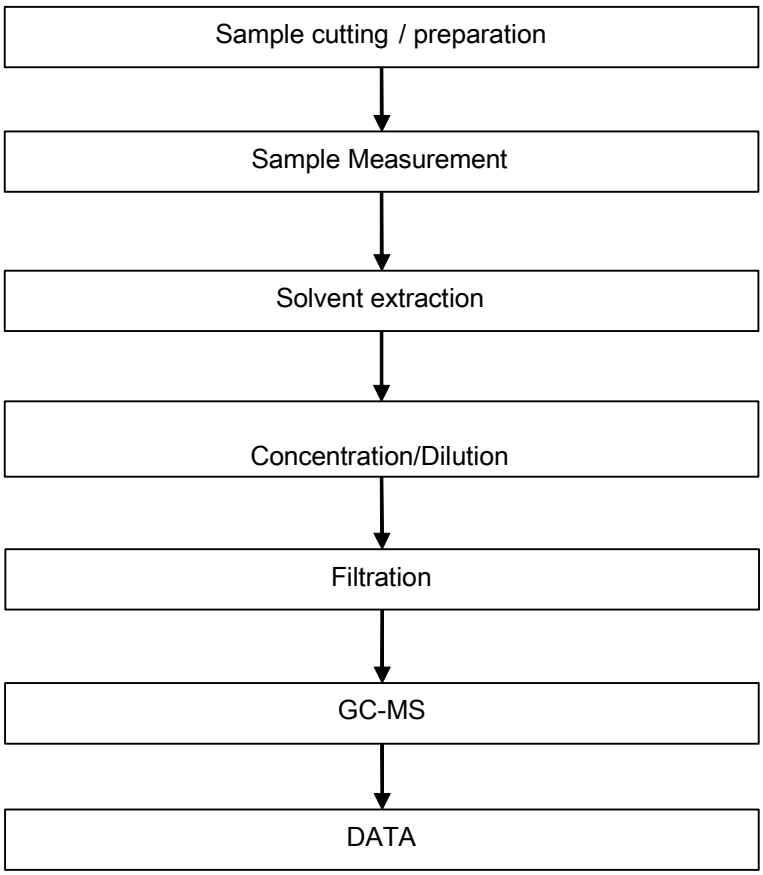
Phthalates Testing Flow Chart



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Sample photo:

CAN20-062929.008

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD

WOER INDUSTRIAL PARK,LANJING NORTH ROAD,LONGTIAN STREET,PINGSHAN DISTRICT,SHENZHEN,GUANGDONG

The following sample(s) was/were submitted and identified on behalf of the clients as : RSFR-H HEAT SHRINKABLE TUBINGS

SGS Job No. :	CP20-049006 - SZ
Date of Sample Received :	17 Sep 2020
Testing Period :	17 Sep 2020 - 23 Sep 2020
Test Requested :	Selected test(s) as requested by client.
Test Method :	Please refer to next page(s).
Test Results :	Please refer to next page(s).
Conclusion :	Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP) , Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) , and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Kelly Qu
Approved Signatory

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center Chemical Laboratory.

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-163500.005	Black plastic tube

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	*005*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND

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Test Item(s)	Limit	Unit	MDL	*005*
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	mg/kg	50	ND

Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.IEC 62321 series is equivalent to EN 62321 series https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

Halogen

Test Method : With reference to EN 14582:2016, analysis was performed by IC.

Test Item(s)	Unit	MDL	*005*
Fluorine (F)	mg/kg	50	114
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

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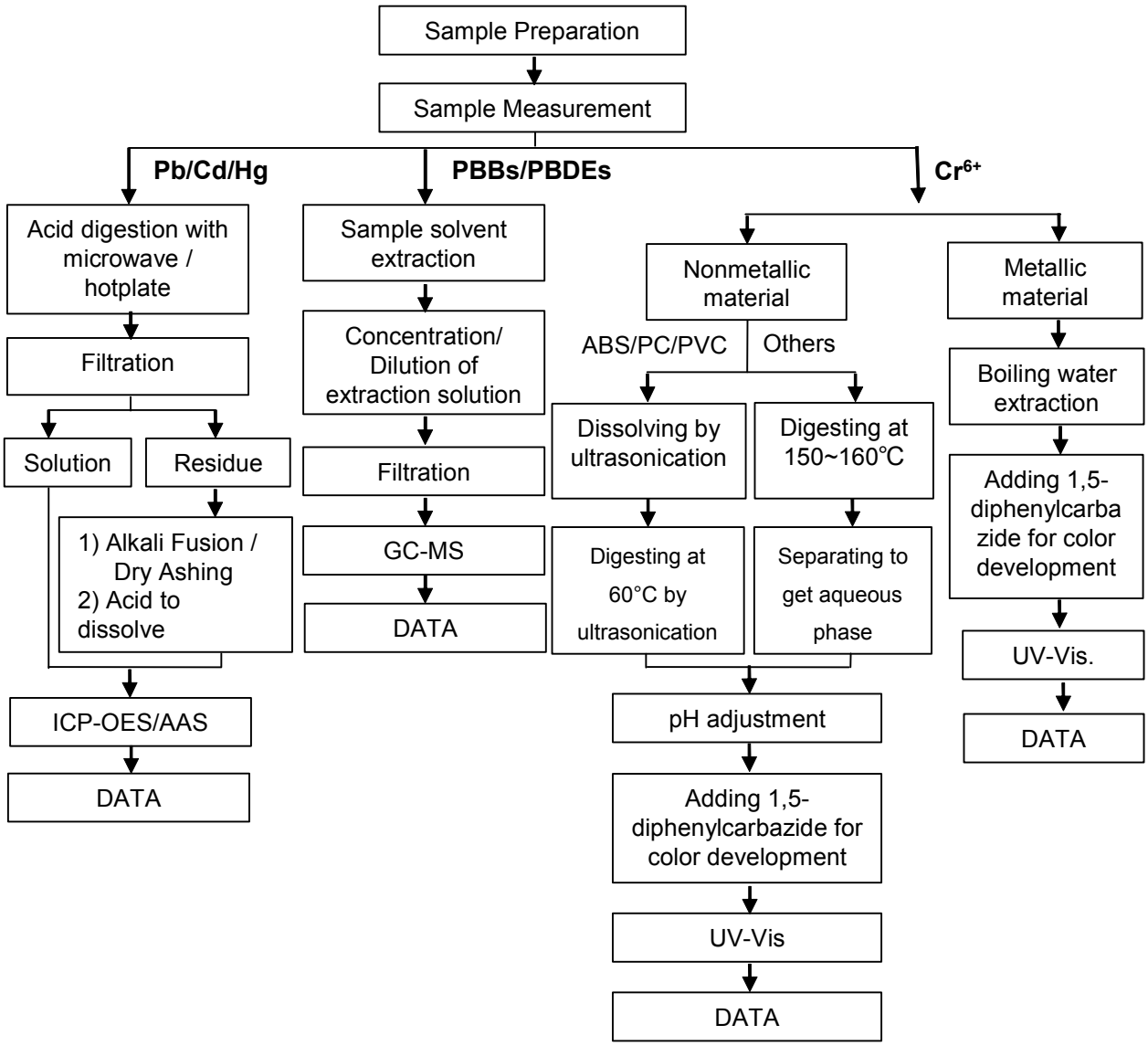
Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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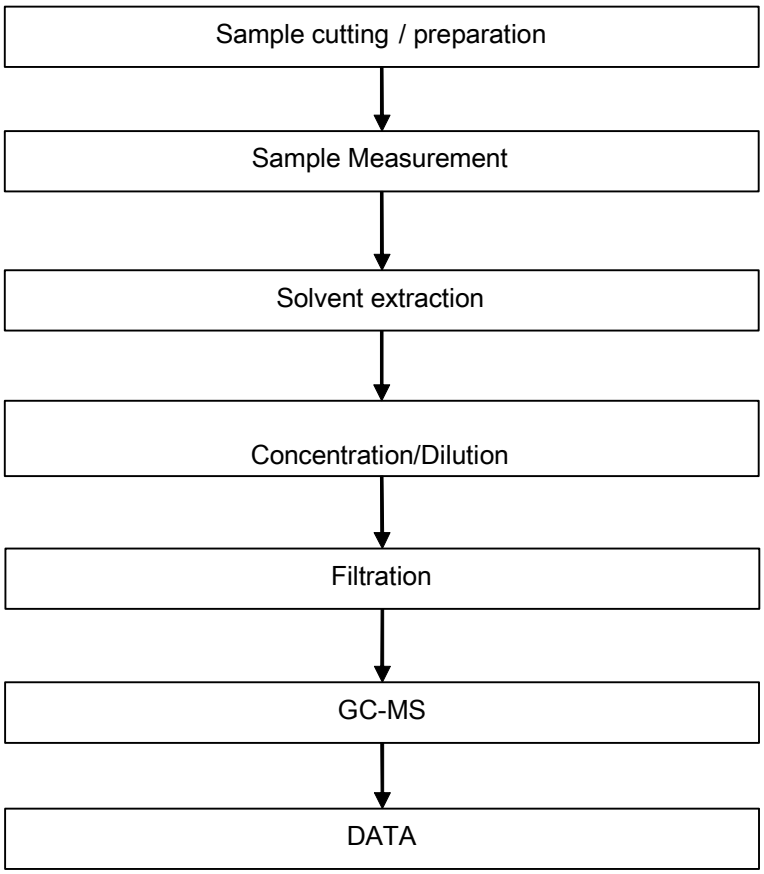
Phthalates Testing Flow Chart



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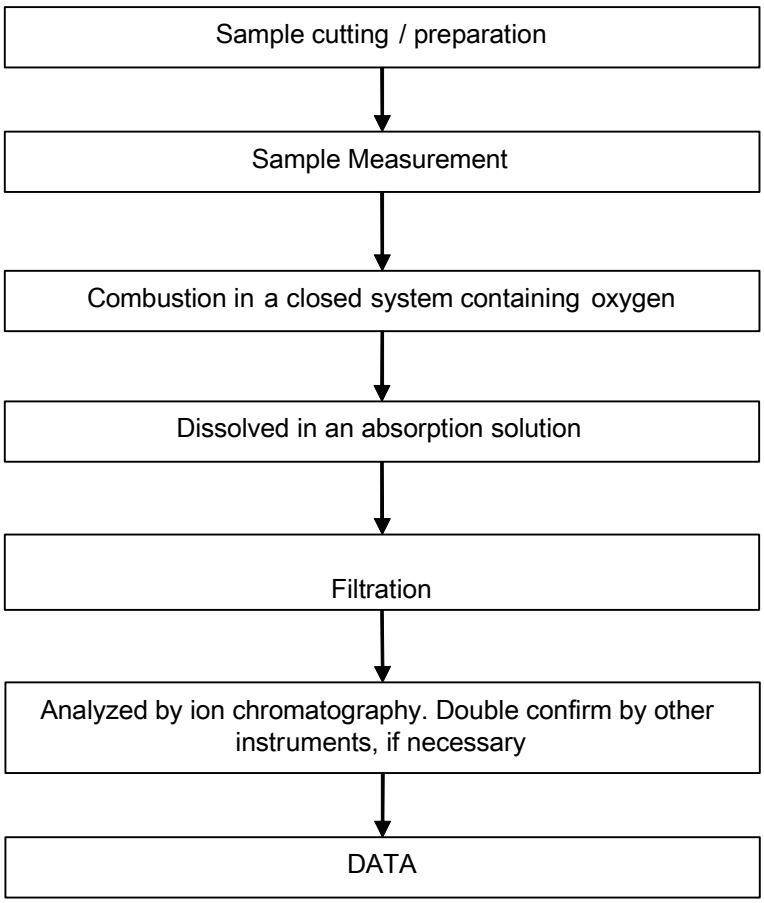
ATTACHMENTS

Halogen Testing Flow Chart



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Sample photo:

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检测报告
Test Report

报告抬头公司名称	深圳市沃尔核材股份有限公司
Company Name shown on Report	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD.
地址	深圳市坪山新区兰景北路沃尔工业园
Address	WOER MANSION,NORTH LANJING ROAD,PINGSHAN,SHENZHEN P.R.CHINA

以下测试之样品及样品信息由申请者提供并确认
The following sample(s)and sample information was/were submitted and identified by/on the behalf of the applicant

样品名称	黑色 H 管
Sample Name	RSFR-H HEAT SHRINKABLE TUBINGS（E203950 WOER RSFR-H TUBE 125℃ VW-1 H）
样品接收日期	2020.07.07
Sample Received Date	Jul. 7, 2020
样品检测日期	2020.07.07-2020.07.21
Testing Period	Jul. 7, 2020 to Jul. 21, 2020

检测要求	根据客户要求,对所提交的样品进行测试。
Test Requested	To test the submitted sample(s) as specified by client.
检测依据/检测结果	请参见下页。
Test Method/Test Result(s)	Please refer to the following page(s).

主检 Tested by

审核 Reviewed by

批准 Approved by

陈凯敏
实验室经理 Lab Manager

日期 Date 2020.07.21

No. R201801497

上海华测品标检测技术有限公司
Centre Testing International Pinbiao(Shanghai) Co., Ltd.
上海市闵行区万芳路 1351 号
No.1351, Wanfang Road, Minhang District, Shanghai, China

检测报告
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检测依据 Test Method

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
铅 Lead (Pb)	IEC 62321-5:2013	ICP-OES
镉 Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
汞 Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
六价铬 Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 和/或 IEC 62321-5:2013 测试总铬含量 IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
多溴联苯 Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
多溴二苯醚 Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
全氟辛烷磺酸盐 Perfluorooctane Sulfonates (PFOS)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
全氟辛酸 Perfluorooctanoic Acid (PFOA)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
六溴环十二烷 Hexabromocyclododecane (HBCDD)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
短链氯化石蜡 Short Chain Chlorinated Paraffins (SCCPs)	参考 US EPA 3550C:2007 & US EPA 8270E:2017 Refer to US EPA 3550C:2007 & US EPA 8270E:2017	GC- MS(NCI)
富马酸二甲酯 Dimethyl Fumarate (DMF)	参考 US EPA 3550C:2007 & US EPA 8270E:2017 Refer to US EPA 3550C:2007 & US EPA 8270E:2017	GC-MS
多氯联苯 Polychlorinated Biphenyls (PCBs)	参考 US EPA 3550C:2007&US EPA8082A:2007 Refer to US EPA 3550C:2007&US EPA8082A:2007	GC-MS
多氯化萘 Polychlorinated Naphthalene (PCNs)	参考 US EPA 3550C:2007 & US EPA 8270E:2017 Refer to US EPA 3550C:2007 & US EPA 8270E:2017	GC-MS
多氯三联苯 Polychlorinated Triphenyls (PCTs)	参考 US EPA 3540C:1996 & US EPA 8270E:2017 Refer to US EPA 3540C:1996 & US EPA 8270E:2017	GC-MS
2-(2'-羟基-3',5'-二叔丁基苯基)-苯并三唑 2-Benzotriazol-2-yl-4,6- di-tert-butylpheno (UV-320)	参考 US EPA 3550C:2007 &US EPA 8270E:2017 Refer to US EPA 3550C:2007 &US EPA 8270E:2017	GC-MS

检测报告
Test Report

测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
全氟己基磺酸及其盐和相关物质（PFHxS）Perfluorohexane-1-sulphonic acid (PFHxS), its salts and PFHxS-related substances	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
双酚 A (BPA) 4,4'-isopropylidenediphenol (bisphenol A; BPA)	参考 US EPA 3550C:2007 & US EPA 8321B:2007 Refer to US EPA 3550C:2007 & US EPA 8321B:2007	LC-MS-MS
聚氯乙烯 Polyvinyl Chloride (PVC)	参考JY/T 001-1996 Refer to JY/T 001-1996	FT-IR
甲醛 Formaldehyde	参考 ISO 17226-1:2008 Refer to ISO 17226-1:2008	HPLC
有机锡化合物 Organic Tin compounds	参考 ISO 17353:2004(E) Refer to ISO 17353:2004(E)	GC-MS
磷酸酯Phosphate(s)	参考 US EPA 3550C:2007 & US EPA 8270E:2017 Refer to US EPA 3550C:2007 & US EPA 8270E:2017	GC-MS
邻苯二甲酸酯 Phthalates	参考 EN 14372:2004(E) Refer to EN 14372:2004(E)	GC-MS
多环芳烃 Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK	GC-MS
偶氮染料AZO Colorants	参考EN 14362-1:2017 Refer to EN 14362-1:2017	GC-MS/HPLC
氧化铍 Beryllium oxide (BeO) *	参考US EPA 3052:1996 & US EPA 6010D:2014 Refer to US EPA 3052:1996 & US EPA 6010D:2014	ICP-OES
镍的释放量 Released Nickel	EN 1811:2011+A1:2015	ICP-OES
臭氧层破坏物质 Ozone Depleting Substances	参考 US EPA 8260D:2018 Refer to US EPA 8260D:2018	HS/GC-MS
全氟化碳 Perfluorocarbon(PFCs)	参考 US EPA 8260D:2018 Refer to US EPA 8260D:2018	HS/GC-MS
氢氟碳化合物 Hydrofluorocarbon(HFCs)	参考 US EPA 8260D:2018 Refer to US EPA 8260D:2018	HS/GC-MS
六氟化硫 Sulfur hexafluoride (SF_6)	参考 US EPA 5021A:2014 Refer to US EPA 5021A:2014	GC-ECD

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测试项目 Tested Item(s)	测试方法 Test Method	测试仪器 Measured Equipment(s)
③高氯酸盐 Perchlorates	参考 US EPA 3550C:2007& US EPA 8321B:2007 Refer to US EPA 3550C:2007& US EPA 8321B:2007	LC-MS-MS
石棉 Asbestos	ISO 22262-1:2012	PLM
放射性物质 Radioactive substances#	GB/T 11713-2015/GB/T 11743-2013	高纯锗γ谱仪 Falcon5000 型 HPGe gamma-ray spectrometer Falcon5000

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检测结果 Test Result(s)

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
铅 Lead (Pb)	N.D.	2 mg/kg
镉 Cadmium (Cd)	N.D.	2 mg/kg
汞 Mercury (Hg)	N.D.	2 mg/kg
六价铬 Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多溴联苯 Polybrominated Biphenyls(PBBs)		
一溴联苯 Monobromobiphenyl	N.D.	5 mg/kg
二溴联苯 Dibromobiphenyl	N.D.	5 mg/kg
三溴联苯 Tribromobiphenyl	N.D.	5 mg/kg
四溴联苯 Tetrabromobiphenyl	N.D.	5 mg/kg
五溴联苯 Pentabromobiphenyl	N.D.	5 mg/kg
六溴联苯 Hexabromobiphenyl	N.D.	5 mg/kg
七溴联苯 Heptabromobiphenyl	N.D.	5 mg/kg
八溴联苯 Octabromobiphenyl	N.D.	5 mg/kg
九溴联苯 Nonabromobiphenyl	N.D.	5 mg/kg
十溴联苯 Decabromobiphenyl	N.D.	5 mg/kg
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)		
一溴二苯醚 Monobromodiphenyl ether	N.D.	5 mg/kg
二溴二苯醚 Dibromodiphenyl ether	N.D.	5 mg/kg
三溴二苯醚 Tribromodiphenyl ether	N.D.	5 mg/kg
四溴二苯醚 Tetrabromodiphenyl ether	N.D.	5 mg/kg
五溴二苯醚 Pentabromodiphenyl ether	N.D.	5 mg/kg
六溴二苯醚 Hexabromodiphenyl ether	N.D.	5 mg/kg
七溴二苯醚 Heptabromodiphenyl ether	N.D.	5 mg/kg
八溴二苯醚 Octabromodiphenyl ether	N.D.	5 mg/kg
九溴二苯醚 Nonabromodiphenyl ether	N.D.	5 mg/kg
十溴二苯醚 Decabromodiphenyl ether	N.D.	5 mg/kg

检测报告
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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
全氟辛烷磺酸盐 Perfluorooctane Sulfonates (PFOS)	N.D.	5 mg/kg
全氟辛酸 Perfluorooctanoic Acid(PFOA)	N.D.	5 mg/kg
六溴环十二烷 Hexabromocyclododecane (HBCDD)	N.D.	5 mg/kg
短链氯化石蜡 Short Chain Chlorinated Paraffins (SCCPs)	N.D.	100 mg/kg
富马酸二甲酯 Dimethyl Fumarate (DMF)	N.D.	0.1 mg/kg
多氯联苯 Polychlorinated Biphenyls (PCBs)	N.D.	5 mg/kg
多氯化萘 Polychlorinated Naphthalene (PCNs)	N.D.	5 mg/kg
多氯三联苯 Polychlorinated Triphenyls (PCTs)	N.D.	5 mg/kg
2-(2'-羟基-3',5'-二叔丁基苯基)-苯并三唑 2-Benzotriazol-2-yl-4,6- di-tert-butylpheno (UV-320)	N.D.	5 mg/kg
双酚 A (BPA) 4,4'-isopropylidenediphenol(bisphenol A; BPA)	N.D.	1 mg/kg
全氟己基磺酸及其盐和相关物质（PFHxS） Perfluorohexane-1-sulphonic acid (PFHxS), its salts and PFHxS-related	N.D.	0.0005%
聚氯乙烯 Polyvinyl Chloride (PVC)	阴性 Negative	/
甲醛 Formaldehyde	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
有机锡化合物 Organic Tin compounds		
三丁基锡 Tributyl Tins (TBT)	N.D.	5 mg/kg
三苯基锡 Triphenyl Tins (TPhT)	N.D.	5 mg/kg
二丁基锡 Dibutyl Tins (DBT)	N.D.	5 mg/kg
二辛基锡 Dioctyl Tins (DOT)	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
磷酸酯 Phosphate(s)		
磷酸三(2-氯乙基)酯 Tri(2-chloroethyl) phosphate(TCEP)	N.D.	5 mg/kg
磷酸三(1,3-二氯-2 丙基)酯 Tris(1,3-dichloroisopropyl)phosphate (TDCPP)	N.D.	5 mg/kg
磷酸三(2-氯丙基)酯 Tris(1-chloro-2-propyl)phosphate(TCPP)	N.D.	5 mg/kg

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
邻苯二甲酸酯 Phthalates		
邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
邻苯二甲酸丁基苄酯 Butylbenzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
邻苯二甲酸二正辛酯 Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50 mg/kg
邻苯二甲酸二异壬酯 Diisononyl phthalate (DINP)CAS#:28553-12-0, 68515-48-0	N.D.	50 mg/kg
邻苯二甲酸二异癸酯 Diisodecyl phthalate (DIDP)CAS#:26761-40-0, 68515-49-1	N.D.	50 mg/kg
邻苯二甲酸二异丁酯 Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg
邻苯二甲酸二己酯 Di-n-hexyl phthalate (DNHP)CAS#:84-75-3	N.D.	50 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
多环芳烃 Polycylic Aromatic Hydrocarbons(PAHs)		
苯并[a]蒽 Benzo[a]anthracene	N.D.	0.2 mg/kg
苯并[b]荧蒽 Benzo[b]fluoranthene	N.D.	0.2 mg/kg
苯并[k]荧蒽 Benzo[k]fluoranthene	N.D.	0.2 mg/kg
苯并[a]芘 Benzo[a]pyrene	N.D.	0.2 mg/kg
二苯并[a,h]蒽 Dibenz[a,h]anthracene	N.D.	0.2 mg/kg
苯并[j]荧蒽Benzo[j]fluoranthene	N.D.	0.2 mg/kg
苯并[e]芘Benzo[e]pyrene	N.D.	0.2 mg/kg

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测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
偶氮染料 AZO Colorants		
4-氨基联苯 4-aminodiphenyl	N.D.	5 mg/kg
联苯胺 Benzidine	N.D.	5 mg/kg
4-氯邻甲苯胺 4-chloro-o-toluidine	N.D.	5 mg/kg
2-萘胺 2-naphthylamine	N.D.	5 mg/kg
邻氨基偶氮甲苯 o-aminoazotoluene	N.D.	5 mg/kg
5-硝基-邻甲苯胺 5-nitro-o-toluidine	N.D.	5 mg/kg
对氯苯胺 4-chloroaniline	N.D.	5 mg/kg
2,4-二氨基苯甲醚 2,4-diaminoanisole	N.D.	5 mg/kg
4,4’-二氨基二苯甲烷 4,4’-diaminodiphenylmethane	N.D.	5 mg/kg
3,3’-二氯联苯胺 3,3’-dichlorobenzidine	N.D.	5 mg/kg
3,3’-二甲氧基联苯胺 3,3’-dimethoxybenzidine	N.D.	5 mg/kg
3,3’-二甲基联苯胺 3,3’-dimethylbenzidine	N.D.	5 mg/kg
3,3’-二甲基-4,4’-二氨基二苯甲烷 4,4'-methylenedi-o-toluidine	N.D.	5 mg/kg
2-甲氧基-5-甲基苯胺 6-methoxy-m-toluidine	N.D.	5 mg/kg
4,4'-亚甲基-二-(2-氯苯胺) 4,4’-methylene-bis-(2-chloroaniline)	N.D.	5 mg/kg
4,4’-二氨基二苯醚 4,4’-oxydianiline	N.D.	5 mg/kg
4,4’-二氨基二苯硫醚 4,4’-thiodianiline	N.D.	5 mg/kg
邻甲苯胺 o-toluidine	N.D.	5 mg/kg
2,4-二氨基甲苯 2,4-toluylenediamine	N.D.	5 mg/kg
2,4,5-三甲基苯胺 2,4,5-trimethylaniline	N.D.	5 mg/kg
邻氨基苯甲醚 2-methoxyaniline	N.D.	5 mg/kg
4-氨基偶氮苯 4-aminoazobenzene	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
氧化铍 Beryllium oxide (BeO) *	N.D.	10 mg/kg

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测试项目 Tested Item(s)	结果 Result			方法检出限 MDL
	1	2	3	
样品测试的表面积 Sample area tested (cm^2)	1.02	1.02	1.02	--
所用人工汗液的体积 Test solution used (ml)	1.02	1.02	1.02	--
样品的镍释放量 Released Nickel ($\mu g/cm^2$/week)	N.D.	N.D.	N.D.	0.05 $\mu g/cm^2$/week

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
臭氧层破坏物质 Ozone Depleting Substances		
氟氯碳化物 Chlorofluorocarbon (CFCs)	N.D.	5 mg/kg
氟氯氢碳化物 Hydrochlorofluorocarbon (HCFCs)	N.D.	5 mg/kg
哈龙 Halon(Halons)	N.D.	5 mg/kg
氯化碳氢化物 Chlorinated hydrocarbons (CHCs)	N.D.	5 mg/kg
含溴氟烃 Hydrobromofluorocarbon (HBFCs)	N.D.	5 mg/kg
溴代甲烷 Bromomethane (CH_3Br)	N.D.	5 mg/kg
氢氯氟烃 Hydrochlorofluoroc arbons (HCFC)	N.D.	5 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
全氟化碳 Perfluorocarbon (PFCs)	N.D.	5 mg/kg
氢氟碳化合物 Hydrofluorocarbon (HFCs)	N.D.	5 mg/kg
六氟化硫 Sulfur hexafluoride (SF_6)	N.D.	0.1 mg/kg
◎ 高氯酸盐Perchlorates	N.D.	0.005 mg/kg

测试项目 Tested Item(s)	结果 Result	方法检出限 MDL
石棉 Asbestos (CAS#: 1332-21-4)		
阳起石 Actinolite (CAS#: 77536-66-4)	未检出 N.A.D.	/
铁石棉(铁闪石) Amosite (Grunerite) (CAS#: 12172-73-5)	未检出 N.A.D.	/
直闪石 Anthophyllite (CAS#: 77536-67-5)	未检出 N.A.D.	/
温石棉 Chrysotile (CAS#: 12001-29-5)	未检出 N.A.D.	/
青石棉 Crocidolite (CAS#: 12001-28-4)	未检出 N.A.D.	/
透闪石 Tremolite (CAS#: 77536-68-6)	未检出 N.A.D.	/

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测试项目 Tested Item(s)		检出限 Detection Limit L_D （Bq/kg）	检测结果 Test Results (Bq/kg)	备注 Remark （Bq/kg）
放射性物质 Radioactive substances#	^{238}U	8.0	43.84	天然本底 Background：39.5±34.4
	^{226}Ra	3.0	13.38	天然本底 Background：36.5±22.0
	^{232}Th	4.0	55.19	天然本底 Background：49.1±27.6
	^{40}K	16.0	218.35	天然本底 Background：580.0±202.0
	^{137}Cs	1.0	$< L_D$	——
	^{60}Co	1.0	$< L_D$	——
备注：^{238}U、^{226}Ra、^{232}Th、^{40}K、^{137}Cs 和 ^{60}Co 指该核素的含量（Bq/kg），$< L_D$ 表示样品中的放射性低于探测下限。 Remark：^{238}U、^{226}Ra、^{232}Th、^{40}K、^{137}Cs and ^{60}Co refer to the content of the nuclide (Bq/kg), and $< L_D$ means the radioactivity in the sample is lower than the detection limit.				

样品/部位描述 黑色塑料套管
Sample/Part Description Black plastic sleeving

注释: **#表示此项目由分包实验室完成。本报告中的数据结果供科研、教学、企业内部质量控制、企业产品研发等目的用。**
Note: **#Indicates the item(s) is (are) fulfilled by subcontracted lab.The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.**

检测报告
Test Report

石棉符合性声明 Statement of Compliance

-检出限：对于样品中纤维或者纤维束的检出及分辨能力定义为该方法的检出限。对于本方法来说，经过适当的前处理步骤后，检出限能够低于 0.1%

-The limit of detection of this method is defined as the detection and identification of one fibre or fibre bundle in the amount of sample examined. With appropriate matrix reduction procedures that are tailored to the nature of the sample, the limit of detection can be significantly lower than 0.1%

-如果检出石棉，报告上将体现含量范围：微量（<0.1%）, 0.1%~5%, 5%~50%和 50%~100%。

-The estimated concentration(s) of the asbestos varieties detected in ranges is/are as follows: Trace (<0.1%), 0.1%~5%, 5%~50%, and 50%~100%

-针对含有经过研磨处理的石棉纤维或者纤维体积（长度、直径）过小的制品，使用偏光显微镜方法很难发现其中的石棉纤维的存在。

-Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarized light microscopy. These materials often contain milled asbestos with too small fibre diameter and length to be detected.

-华测检测石棉检测中心按照国际标准建立了严格的质量监督和质量保证程序，并定期参加英国 AIMS*能力比对计划（一年三次）以验证实验室的检测能力。

-CTI Asbestos Testing Center has established strict quality assurance and supervision procedures in accordance with international standard. And the laboratory participates in the AIMS* every year (three times per year) to confirm our proficiency.

*AIMS 是一项国际实验室间针对材料中石棉检测的能力比对计划，它是由代表英国职业健康安全委员会（HSE）的职业健康安全实验室（HSL）组织举办的。

*The Asbestos in Materials Scheme (AIMS) is an international inter-laboratory testing scheme, and it is managed by the Health and Safety Laboratory (HSL) which on behalf of the Health and Safety Executive (HSE) of UK

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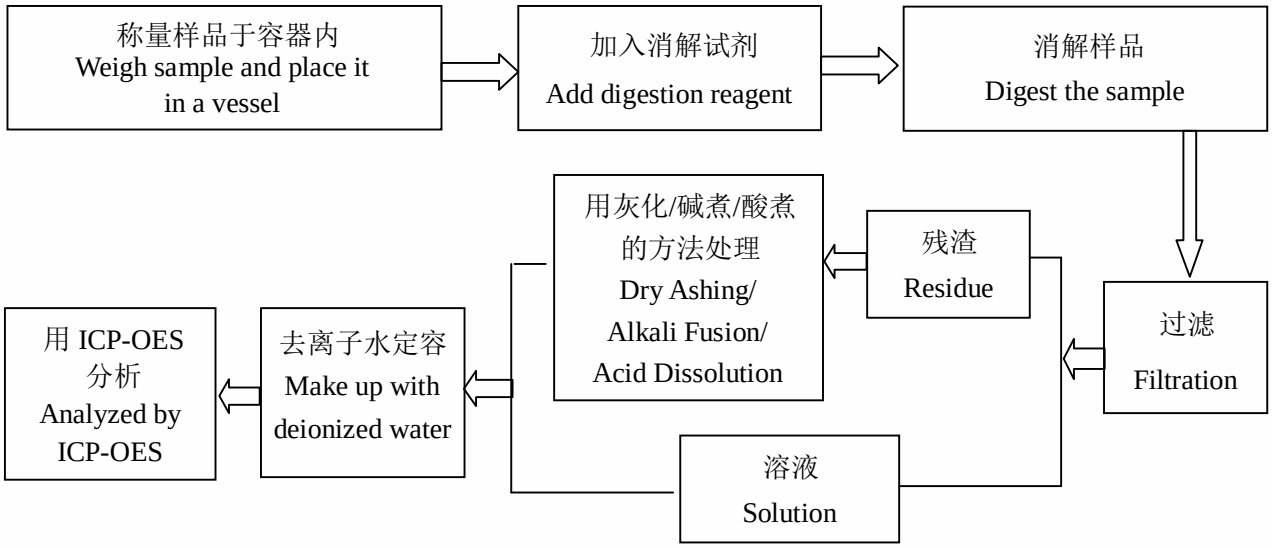
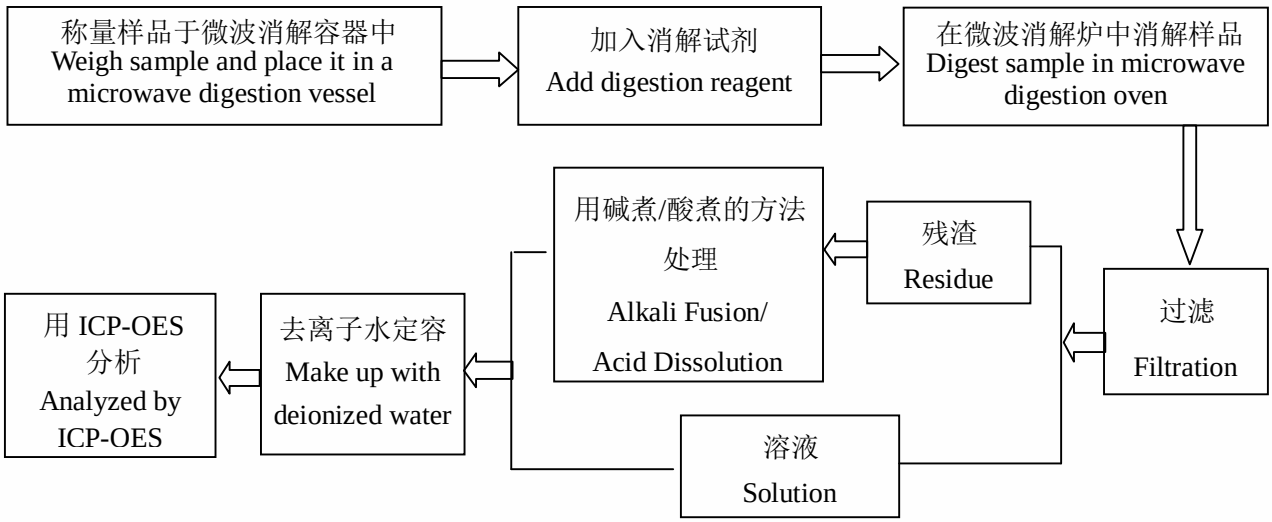
检测流程 Test Process

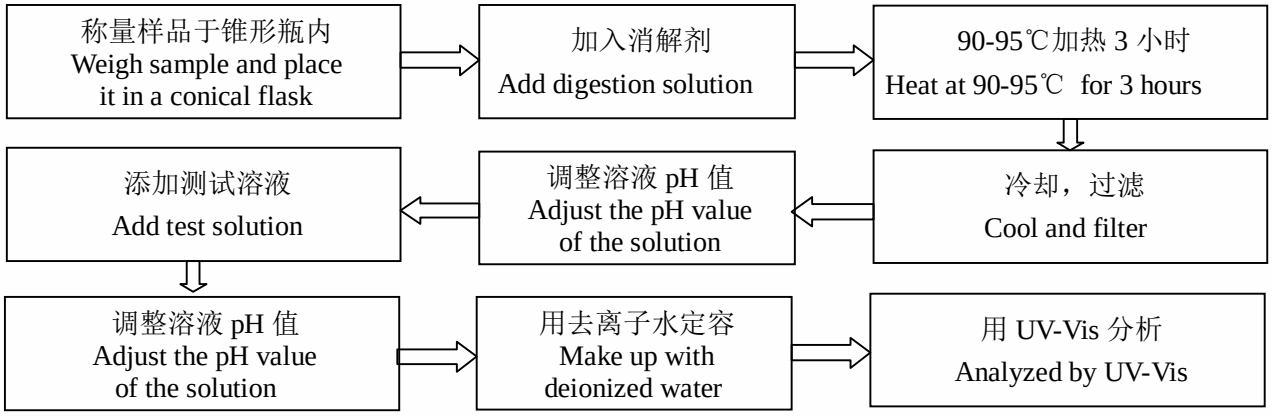
1. 铅 Lead(Pb), 镉 Cadmium(Cd), 铬 Chromium(Cr)



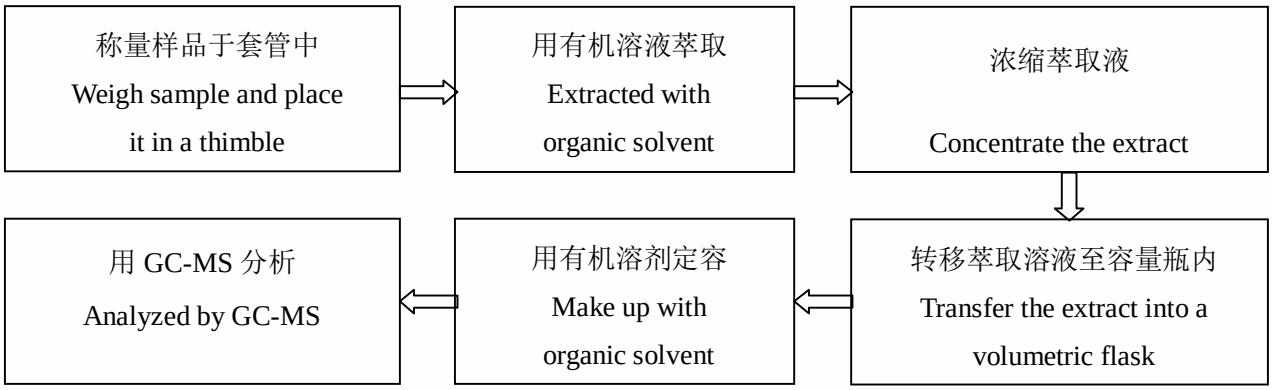
2.汞 Mercury(Hg)



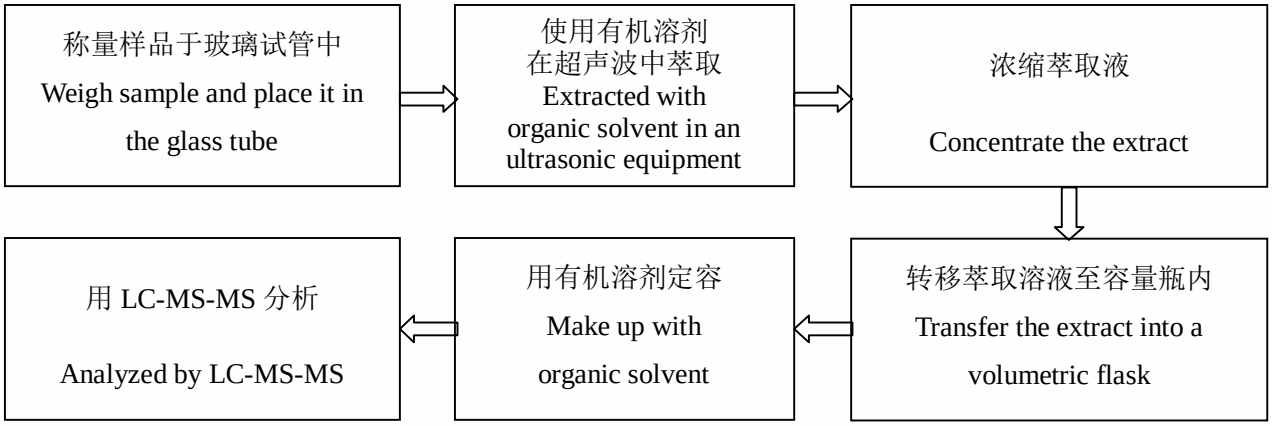
3. 六价铬 Hexavalent Chromium (Cr(VI))



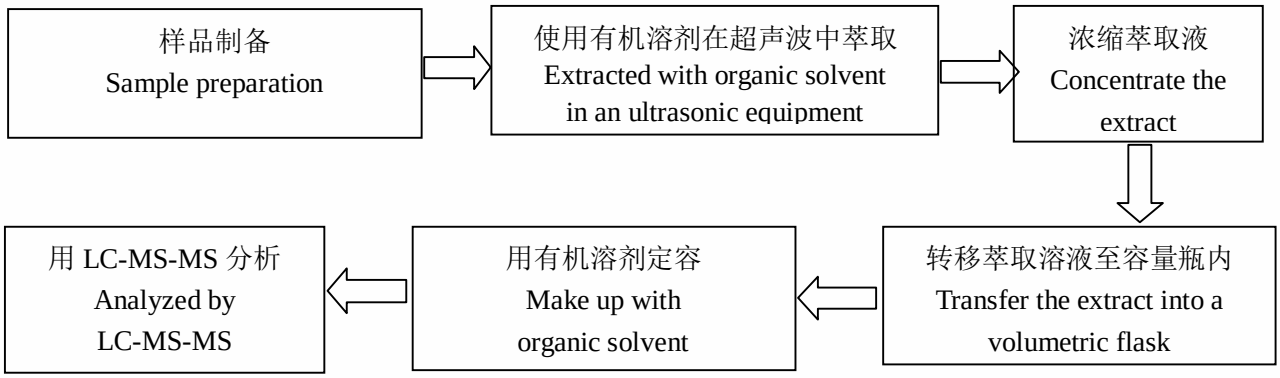
4. 多溴联苯 Polybrominated Biphenyls(PBBs), 多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)



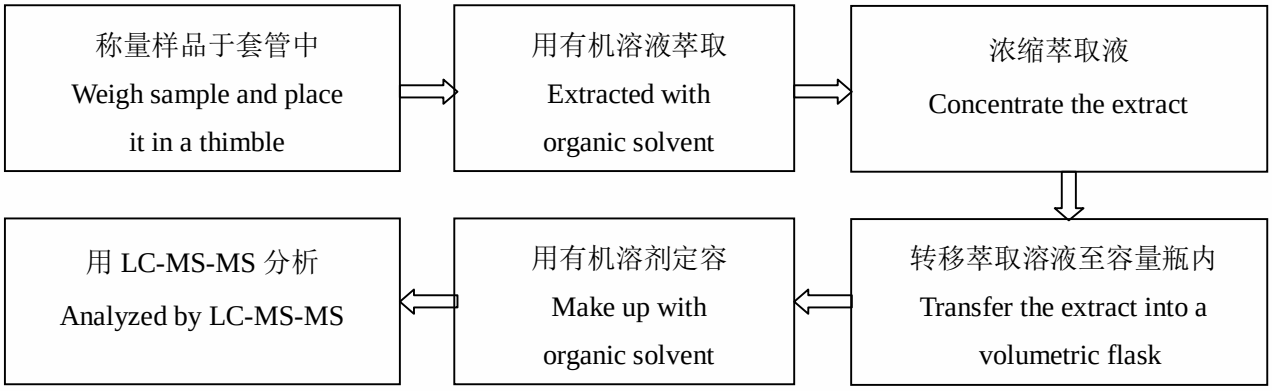
5.双酚 A 4,4'-isopropylidenediphenol(bisphenol A; BPA)



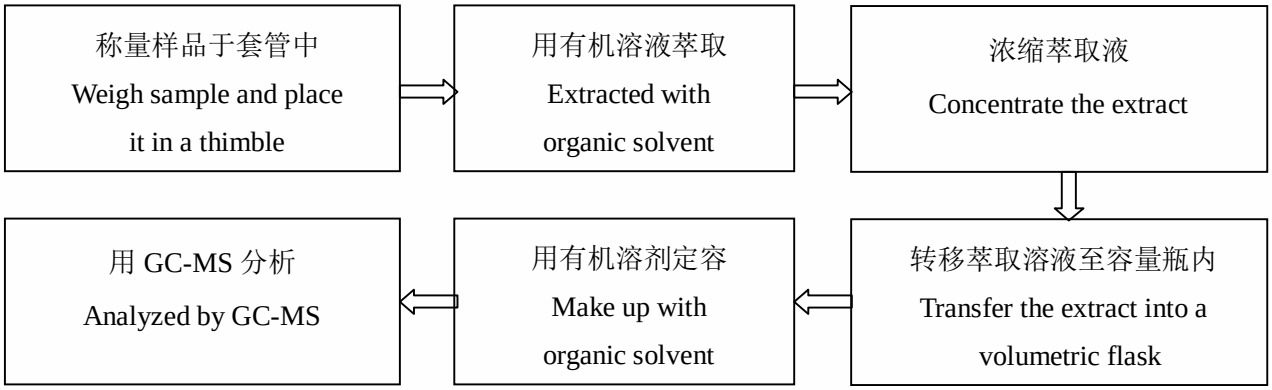
6. 全氟辛烷磺酸盐 Perfluorooctane Sulfonates(PFOS), 全氟辛酸 Perfluorooctanoic Acid(PFOA)



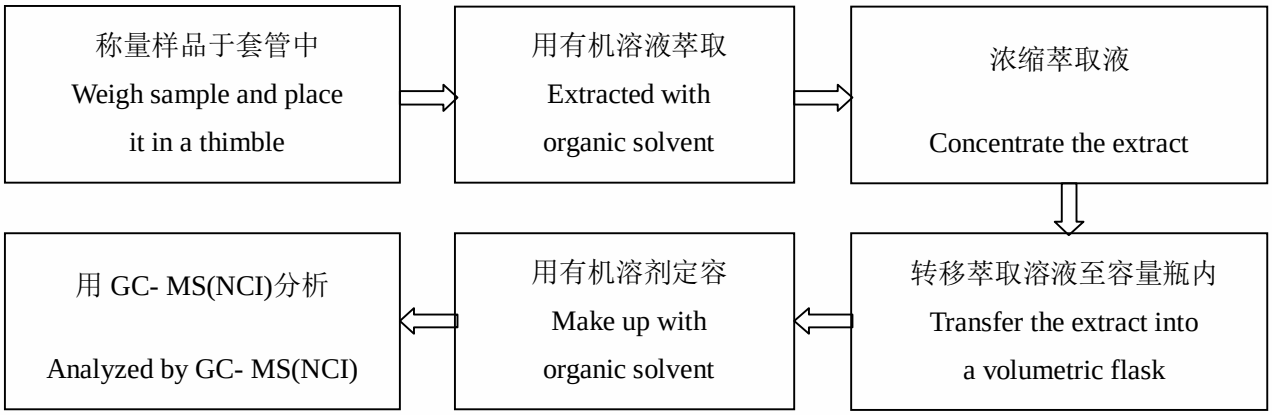
7. 六溴环十二烷 Hexabromocyclododecane(HBCDD)



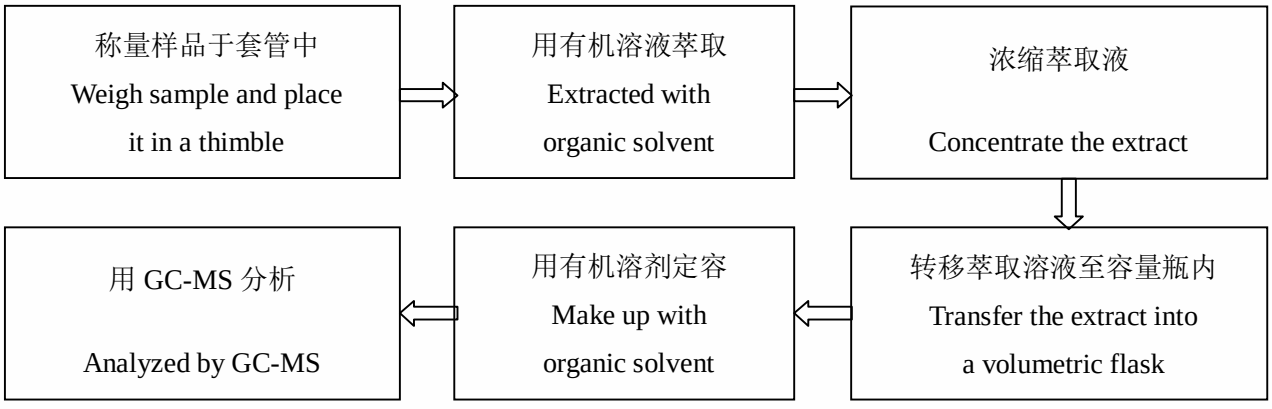
8.多氯联苯 Polychlorinated Biphenyls (PCBs),
多氯化萘 Polychlorinated Naphthalene(PCNs), 多氯三联苯 Polychlorinated Triphenyls(PCTs)



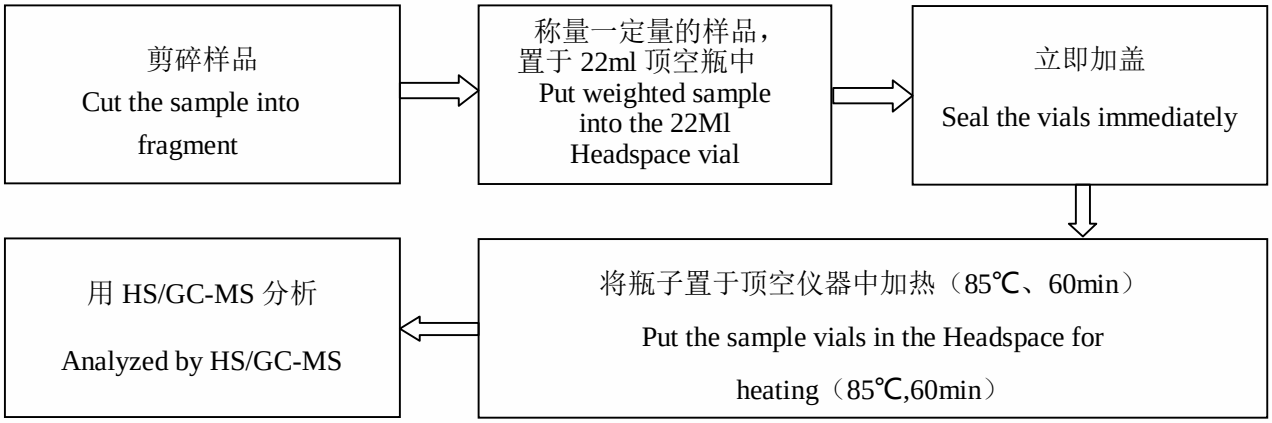
9. 短链氯化石蜡 Short Chain Chlorinated Paraffins (SCCPs)



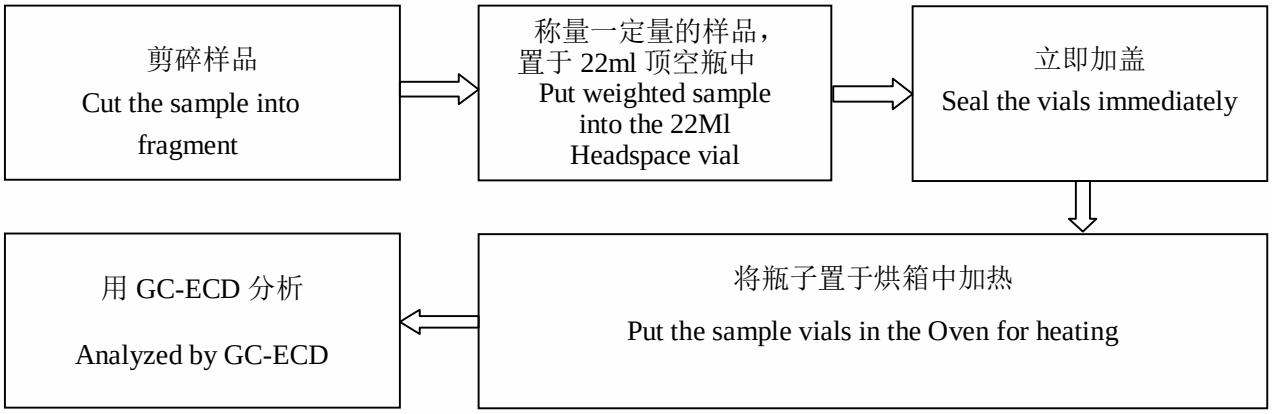
10. 磷酸酯 Phosphate(s)，富马酸二甲酯 Dimethyl Fumarate(DMF)



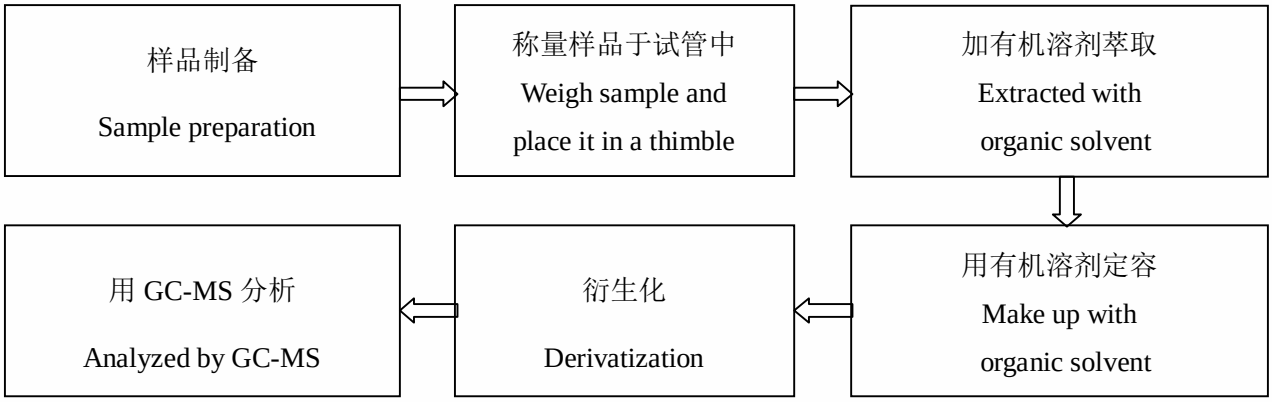
11. 臭氧层破坏物质 Ozone Depleting Substances,全氟化碳 Perfluorocarbon (PFCs), 氢氟碳化合物 Hydrofluorocarbon (HFCs)



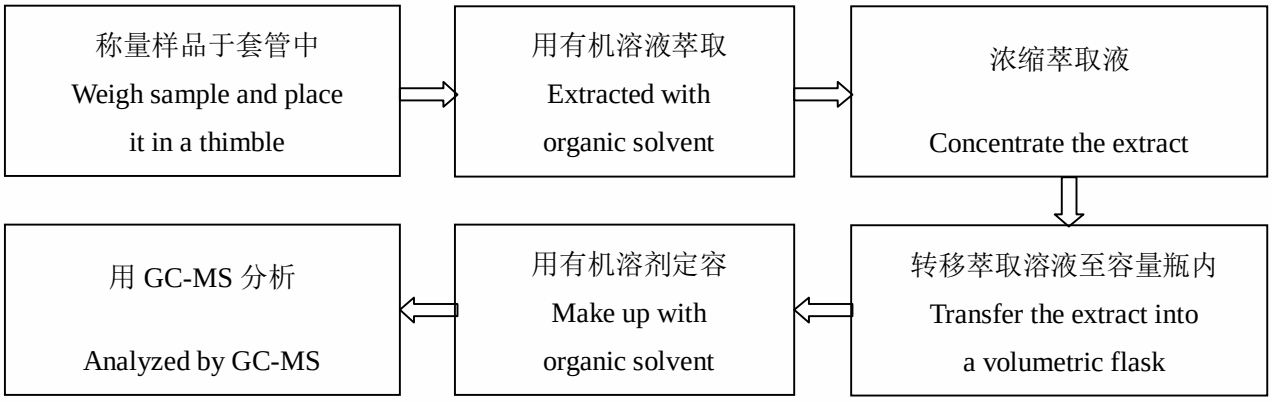
12. 六氟化硫 Sulfur hexafluoride(SF_6)



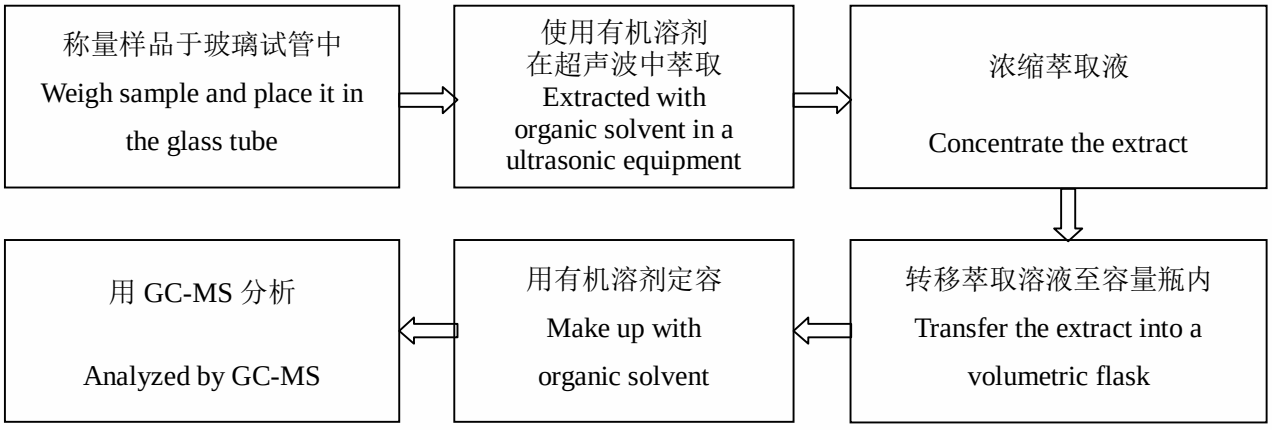
13. 有机锡化合物 Organic Tin compounds



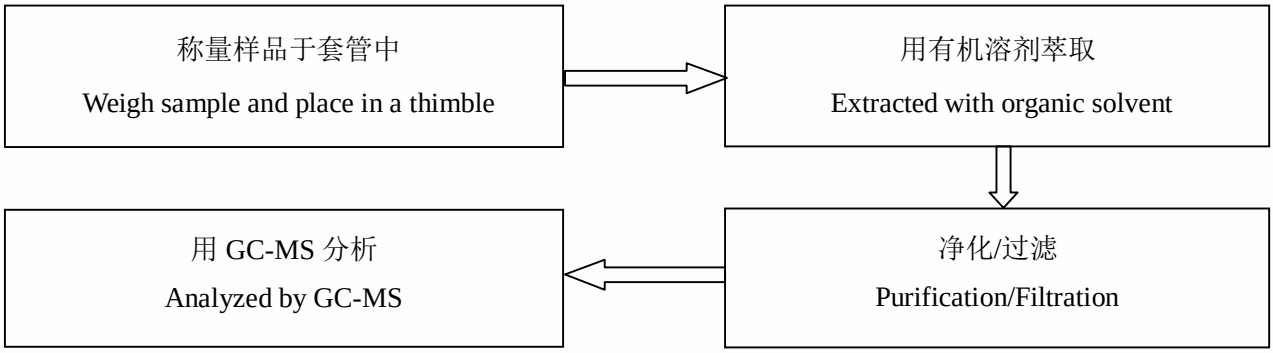
14. 邻苯二甲酸酯 Phthalates



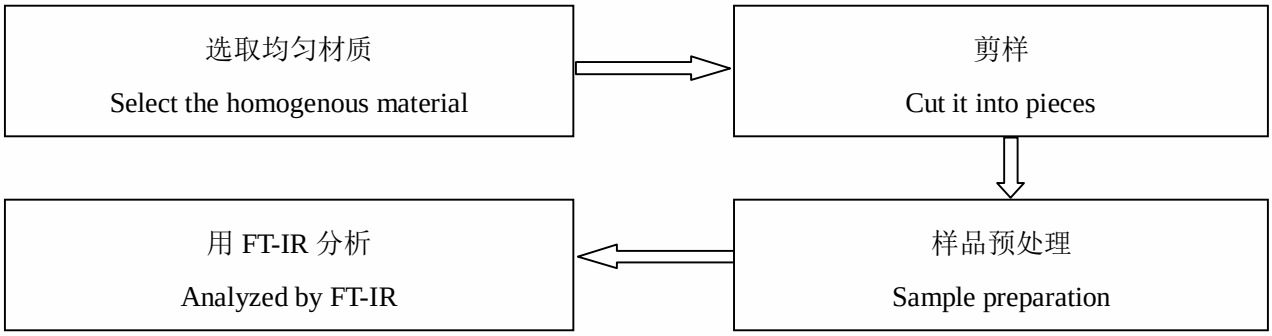
15. 2-(2'-羟基-3',5'-二叔丁基苯基)-苯并三唑 2-Benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)



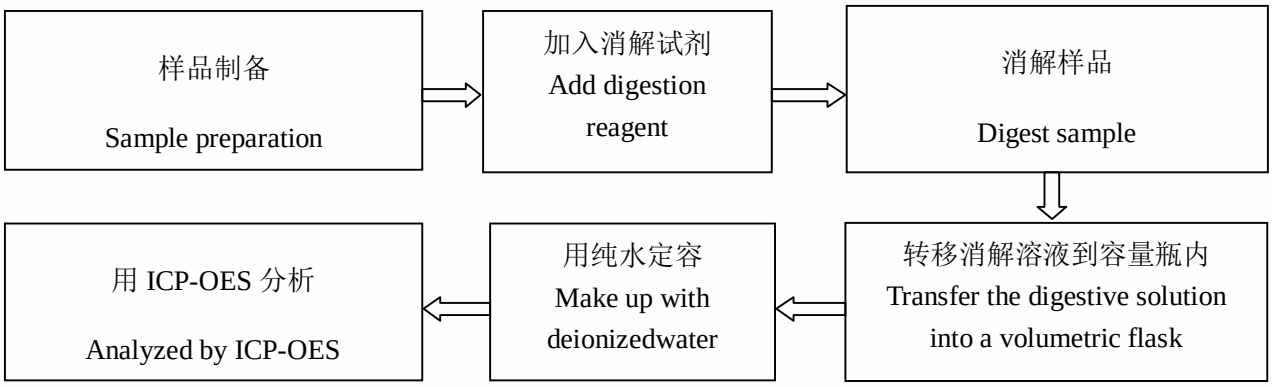
16. 多环芳烃 Polycylic Aromatic Hydrocarbons(PAHs)



17. 聚氯乙烯 Polyvinyl Chloride (PVC)



18. 氧化铍 Beryllium oxide (BeO)



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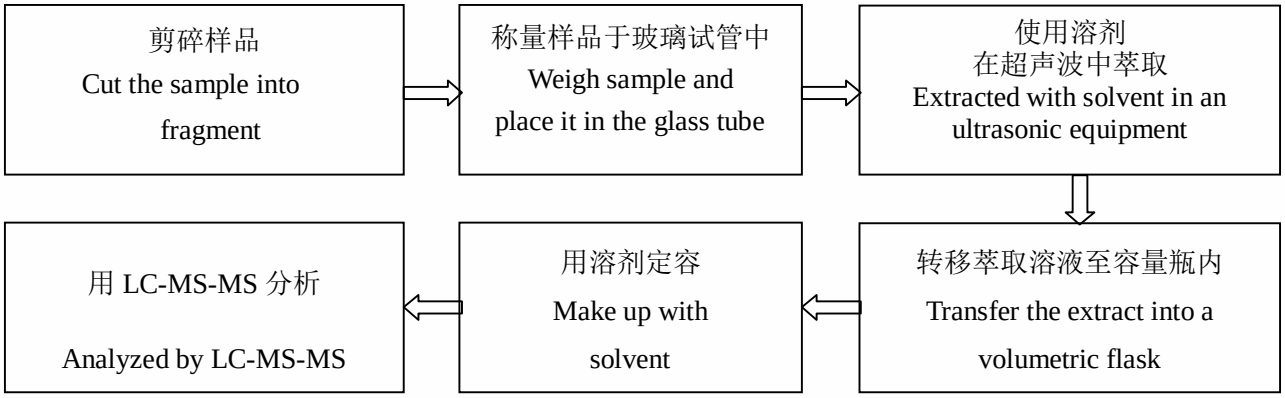
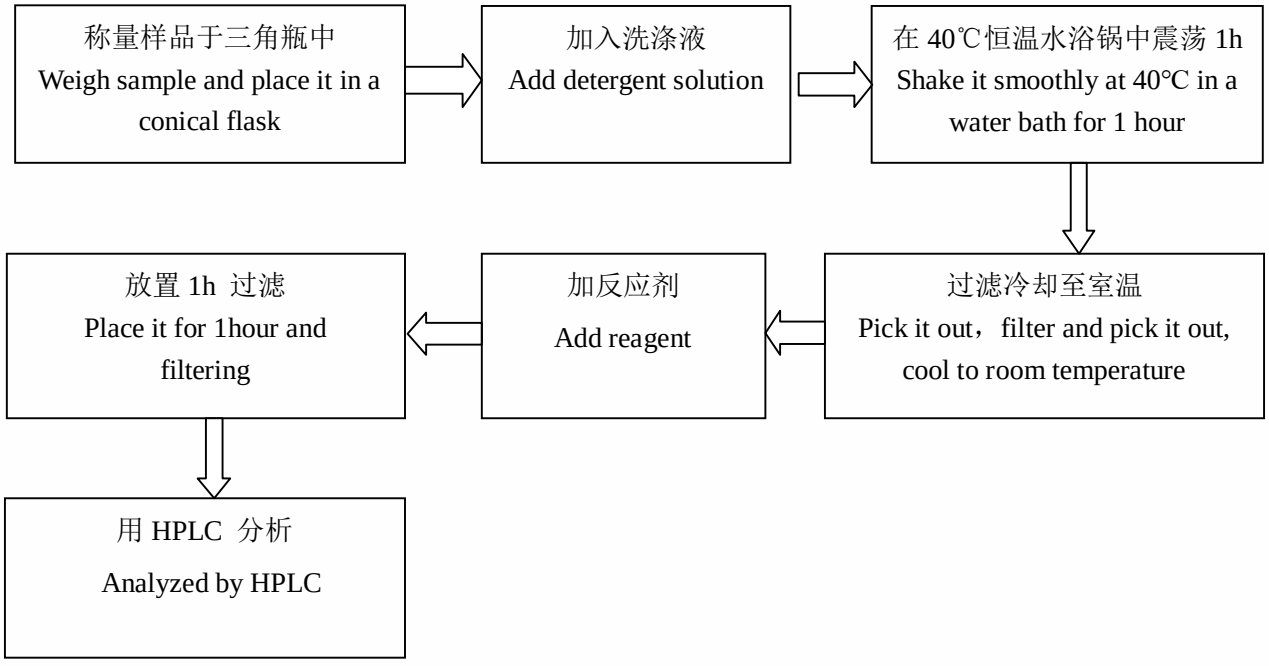
19. 高氯酸盐 Perchlorates



20. 甲醛 Formaldehyde



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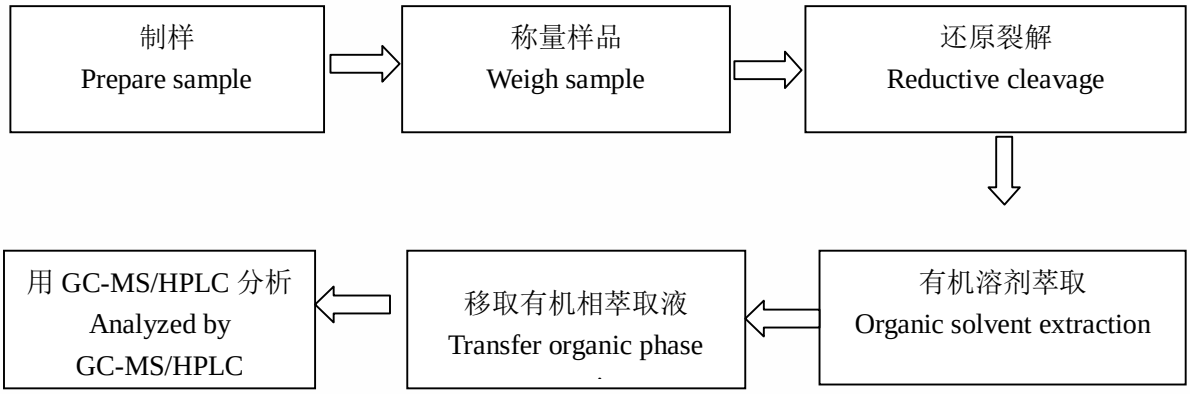
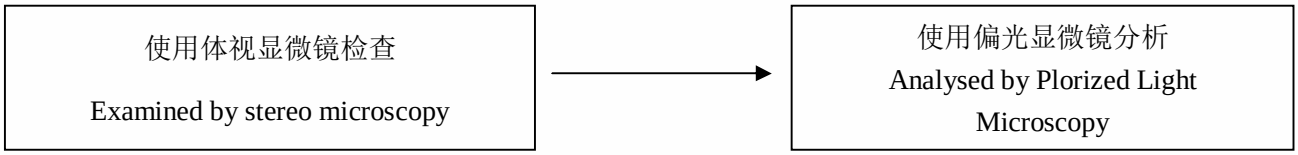
21. 偶氮染料 AZO Colorants



22.石棉 Asbestos



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样品图片

Photo(s) of the sample(s)

声明 Statement：

1. 检测报告无批准人签字、“专用章”及报告骑缝章无效；
   This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. 报告抬头公司名称及地址、样品及样品信息由申请者提供，申请者应对其真实性负责，CTI 未核实其真实性；
   The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn’t verified;
3. 本报告检测结果仅对受测样品负责；
   The result(s) shown in this report refer(s) only to the sample(s) tested;
4. 未经 CTI 书面同意，不得部分复制本报告；
   Without written approval of CTI, this report can’t be reproduced except in full;
5. 如检测报告中的英文内容与中文内容有差异，以中文为准。
   In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** 报告结束 ***

*** End of Report ***

深圳市沃尔核材股份有限公司

物 质 安 全 资 料 表

MATERIAL SAFETY DATA SHEET

一、化学品名称和制造商信息 Chemical Product & Company Information :

物品名称：无卤环保热缩套管 Article：Halogen Free Heat Shrinkable Tubings.
规格型号：全系列规格 Spec：All Spec.
制造商或供货商名称：深圳市沃尔核材股份有限公司 Manufacture or supplier: ShenZhen Woer Heat—Shrinkable Material Co.,Ltd.
地址及电话：深圳市坪山新区兰景北路沃尔工业园/深圳市南山区西丽新围沃尔大厦 Address: WOER BULIDING XINWEI INDUSTRY PARK XILI TOWN SHENZHEN CITY CHINA TEL: 86-755-28299167 FAX: 86-755-28299164

二、化学组成信息 Composition/Information on Ingredients :

原料名称 Raw Material Name			使用目的 Using aim	含量 Content	供应商 Manufacturer	CAS.NO.
中文	英文 English Name	分子式				
乙烯-醋酸乙烯共聚物	Ethylene-vinyl acetate copolymer	(CH2-CH2) m-(CH2-CH-COO CH3)n	主剂 Main Material	50%	北京有机 China Sinopec	24937-78-8
氢氧化镁	Magnesium Hydroxide	$Mg(OH)_2$	阻燃剂 Flame-Retardant Material	35%	锦昊辉 Jinhaohui Material Co.,Ltd.	1309-42-8
磷系阻燃剂	Phosphorus	P	阻燃剂 Flame-Retardant Material	10%	上海海以 Shanghai Haiyi Co.,Ltd	7723-14-0
色母粒	Pigment	色母+填充剂	着色剂 Colorant Material	5%	华万彩 Huawangcai Co.,Ltd	——
油墨	Printing Ink	——	印字 Printint ink	——	信华 Xinhua Co.,Ltd	——

三、危害信息 Hazards Identification :

最重要的危害项目 KEY HAZARD ITEM	健康危害效应：点燃后在短时间内会熄灭，有少量烟雾产生，对人体呼吸道产生轻微伤害。Health hazard note: Be fired for a moment and will be flameout, it will produce a little smoke, the smoke will hazard breath a little.
	环境影响：危害空气。 Environment hazard note: If be fired and pollute the air.
	物理性及化学性危害：常态是管状，在70-125℃预热收缩。 Physics and chemistry characteristic: it normal is pipe and will shrink at 70-125℃, that perhaps is harmful.
	特殊危害：如果火烤、烟熏，烟雾会冲击眼睛、呼吸系统，对人体产生伤害。 Specific hazard: if be fired or sootiness, it will produce smoke and hurt eyes breath.
主要症状：眼睛流泪，喷嚏，咳嗽，在呼吸新鲜空气会减轻相应症状。 Mostly symptom: lachrymation , sneeze ,cough. It will be good after breathing fresh air.	
物品燃烧危险：点燃时会短时间燃烧。 Fireproofing characteristic: It flames out for a moment after leaving fire.	

四、急救措施 First Aid Measures :

不同暴露途径之急救方法：First-aid measures: 吸入：在正常操作下没有吸入的危险。 Normal it is not harmful for breath. 皮肤接触：正常接触时对皮肤无损伤。由于此管易划伤，建议操作时戴手套。 Skin touch: Normal it is not harmful for skin 眼睛接触：无影响 Normal it is not harmful for eyes. 食入：不能食用。 It can’t be eated..
最重要及危害效应：吸入燃烧烟雾，冲击呼吸系统。 Key symptom: Be fired ,the smoke choke the breath.
对急救人员之防护：配戴呼吸防护装置。 First aid defend: Get on gas mask
对医师之提示：对呼吸系统严重症者，应不断吸入新鲜空气来减轻症状。 Doctor suggest: If breath a lot of smoke ,must breath more fresh air , it can help you to reduce the symptom.

五、 消防措施 Fire Fighting Measures：

适用灭火剂：不能长时间燃烧，使用粉末灭火器。 Fire-fighting material medical: Dust farina powder .
灭火时可能遭遇之特殊危害：燃烧可产生少量烟雾，冲击人体呼吸系统。 During fire-fighting, special hazard: Be fired ,produce a little smoke , and it can choke the breath.
特殊灭火程序：无。 Special fire-fighting program: No special program.
消防人员之特殊防护设备：正常消防设备。 Fire-fighter special dependence: Normal fire-fighting device.

六、 泄露应急处理 Accidental Release Measures ：

个人应注意事项：无 Person notice: No
环境注意事项：无 Environment notice: No

清理方法：无　　Cleaning method: No special method

七、操作和储存　Handling and Storage：

操作：用烘箱和热风枪加热即可收缩。 Handling: Using oven or heating gun and it will shrink.
储存：常温下用纸箱包装好放置在凉荫处。 Deposit: At normal temperature paper box package, no sun straight shine.

八、接触控制和个人防护措施　Exposure Controls/Personal Protection：

接触控制：无危害　Exposure Controls: No danger.
个人防护措施：无　Dependence: No

九：理化特性 Physical and Chemical Properties ：

ITEM			TESTING METHOD	REQURIMENT
Physical	Tensile strength /MPa		GB/T 1040	≥10.4
	Elongation/%		GB/T 1040	≥200
	Ensile strength after aging/MPa		UL224；158℃×168h	≥7.3
	Elongation after aging/%		UL 224；158℃×168h	≥100
	Cold Blend		UL 224；-30℃×1h	No cracking
Electrical	Dielectric Withstand	300V	UL224	No Breakdown for 1500V
		600V	UL224	No Breakdown for 2500V
	Dielectric Strength KV/mm		GB/T1408	≥15
	Volume resistance /Ω•cm		GB/T1410	$\geq 1\times 10^{14}$
Chemical	Anti Corrosion		UL 224；158℃×168h	PASS
	Copper stability		UL 224；158℃×168h	PASS
	Flammability		UL224	☆

注：☆表示黄色和白色阻燃性能要特别注明，其他颜色阻燃性能能够达到要求。

Note: yellow and white flame retardant performance needs to be improved, the other can reach the required color flame retardant properties

十、 稳定性和反应活性 Stability and Reactivity ：

稳定性：不能分解。Stability: No decompose
特殊状况下可能之危害反应：有火的话，此种产品会短时间燃烧，产生烟雾。 Special condition, perhaps hazard: If has fire, the production can be fired for a moment and produce a little smoke.
应避免之状况：高温放置会收缩。 Please avoid the condition: At heat temperature condition the production will shrink.
应避免之物质：火种　Please avoid the condition: Fire.
危害分解物：烟雾。　Hazard decompose material: Smoke.

十一、 毒理学信息 Toxicological Information：

急毒性：无　　Rapid virulence: No
局部效应：无　Part effect: No
致敏感性：无　Cause hypersusceptibility : No
慢毒性或长期毒性：无 Slowly or long-term virulence: No
特殊效应：无 Special effect: No

十二、生态学信息 Ecological Information:

可能之环境影响/环境流：该产品不会在自然界分解，对动植物及水生物不会产生危害。Perhaps environment effect: The production can’t decompose at nature condition, so it can’t hazard the animal and plant.

十三、废弃处置　Disposal Considerations:

废弃处置方法：这些物品将统一收集给废品收购站，作相应环保处理。 Trash disposal: Collect and treat for the environment.

十四、运输信息　Transport Information:

国际运送规定：无　World wild transportation rule: No
联合国编号：无　　U.N. code: No
国内运送规定：无　Transportation in china rule: No
特殊运送方法及注意事项：避免挤压变形，利器损伤。 Special transportation method and notice: Avoid extrusion distortion, edge tool hurt.

十五、法规信息　Regulatory Information:

适用法规：UL224　　Comply rule or law: UL224

十六、其他信息 Other Information:

参考文献：CTI/ITS/SGS检测报告　Reference : CTI/ITS/SGS　Test　Report
製表單位名稱：深圳市沃尔核材股份有限公司 地址：深圳市坪山新区兰景北路沃尔工业园　　電話：0755－28299167
製表人：范松林　　Tabulation：Songlin　Fan
製表日期：2017 年 03 月 07 日　　Date the MSDS Was prepared: Mar 07 2017
備註：无

(以上内容如有岐义以中文为准　If the Chinese and English content are different, the Chinese content is right)

不使用限用物質聲明書
Non-use of restricted substances statement

請填寫相關資訊

Please fill in the relevant information：

公司名稱 Company name：飛偉科技有限公司

公司負責人 Company Responsible Person：王俊偉

立書人 Declarant：王俊偉

立書人職稱 Declarant's Title：負責人

本聲明書生效日期 Effective Date of this Declaration：2021/03/19

(公司章 Company Stamp)

請勾選本聲明書適用範圍

Please Select the Scope of this Declaration：

■提供給研揚的全部產品 All Products provided to AAEON

□研揚料號 AAEON Part Number：

_____

□原廠料號 Manufacturer Part Number：

_____

(負責人章 Responsible Person Chop)

_____ **(填寫公司名稱) 響應全球綠色環保法規或其他法律，保證如下事項：**

_____ **(Fill in Company name) Response to global green environmental protection regulations or other laws, guarantee the following matters:**

■ 一、產品符合歐盟 RoHS (2011/65/EU & (EU) 2015/863) 規範。
The product complies with EU RoHS (2011/65/EU & (EU) 2015/863) norms.

i. 當作為包材類的材料，也須符合歐盟包裝指令(94/62/EC) 與修訂指令(2013/2/EU)
When used as package material, it also needs to comply with EU package directive (94/62/EC) and amendment (2013/2/EU)
Note: Pb+Cd+Hg+Cr^{6+} <100 ppm

ii. 若為電池零件，也須符合電池指令 2006/66/EC 與修訂指令 2013/56/EU
For battery components, it also needs to comply with EU battery directive (2006/66/EC) and amendment (2013/56/EU)
Note: Cd<20ppm; Hg <5ppm

管制文件，不可任意複製/更改
Regulatory documents that can not be arbitrarily Copy / Change

5F, No. 135, Lane 235, PaoChiao Rd., Hsin-Tien Dist, New Taipei City, 231, Taiwan, R.O.C.

不使用限用物質聲明書
Non-use of restricted substances statement

■ 二、產品符合衝突金屬(Conflict Metal)規範，並確認銷售產品若有含錫、鉭、鎢、金這四種礦產，來源並非來自剛果民主共和國及其周邊國家剛果、烏干達、蘇丹、坦桑尼亞、盧旺達、安哥拉、贊比亞、布隆迪。

The product complies with the conflict metal norms, and confirm that your company selling products contain tin、tantalum、tungsten、gold four mineral, those sources are not come from Democratic Republic of the Congo and its neighboring countries of Congo、Uganda、San、Tanzania、Rwanda、Angola, Zambia, Burundi.

■ 三、產品符合歐盟最新REACH (EC 1907/2006) 規範。

高關注物質(SVHC)，不超過 0.1%上限，以重量計算。

備註：請參照歐盟化學總署(ECHA)網站，最新的高關注物質清單。

This product complies with latest EU REACH (EC 1907/2006) norms.

The SVHC, are not over 0.1% threshold by weight.

Note: Please check ECHA website for latest SVHC list:

https://echa.europa.eu/candidate-list-table

■ 四、產品符合美國環保署 TSCA 毒性物質管理法第 6(h)節五項 PBT 毒性物質管理要求

This product complies with USA EPA Toxic Substances Control Act (TSCA) Persistent, Bioaccumulative, and Toxic (PBT) 5 Chemicals requirement under Section 6(h)

立書人提供給研揚的所有文件（含測試報告、聲明書、調查表等文件)，均正確屬實並且完整。

All documents (including test reports, declarations, survey forms, etc.) provided by Declarant to AAEON shall be correct, true and complete.

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