



設計驗證
工程課
2024-07-11
發行

承　　認　　書

日期：2020.06.19

SPECIFICATION FOR APPROVAL

客戶名稱：
CUSTOMER：　鈺緯科技開發股份有限公司

料　　號：
PART NO：　**3KF00800535** (K1176)

品　　名：
ESCRIPTION：　**FFC Cable Ass'y**

■	RoHS環保產品(無鉛)
□	一般產品(含鉛)

本承認書內容若貴公司確認無誤，
懇請於下方承認欄內簽章寄回。

Please confirm your acceptance of this approval sheet by return fax.

承　認　欄

CONFIRMATION SIGNATURE

設計驗證
工程課
2024-07-11
發行
鈺緯科技開發股份有限公司

穩惠電子工業股份限公司
WEN TE ELECTRONICS CO.,LTD.
新北市中和區中山路二段327巷19號5樓
電話： 02-2240-2482　　傳真： 02-2248-0401
E-mail:Jackie@wentek.com.tw
東莞穩德電子有限公司
DONGGUAN WEN DE ELECTRONICS CO.,LTD
廣東省東莞市虎門鎮新聯高科技工業區高科二路88號
電話： 86-769-85509740　傳真： 86-769-85504618
E-Mail：wd@dgwender.com.cn

核准	審核	品管	製作
沈燕凌 2020/6/19	林景杰 2020/6/19	溫雁琳 2020/6/19	呂宛樺 2020/6/19
APPROVAL	穩惠電子工業股份有限公司 TEL:22402482 工程確認章		

	目录	文件编号:S04-FC0308

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RoHS

變更內容 ECN Content	變更日期 ECN DATE	ECO單號 EC0 NO.

技术要求:

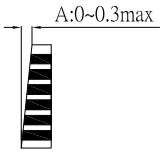
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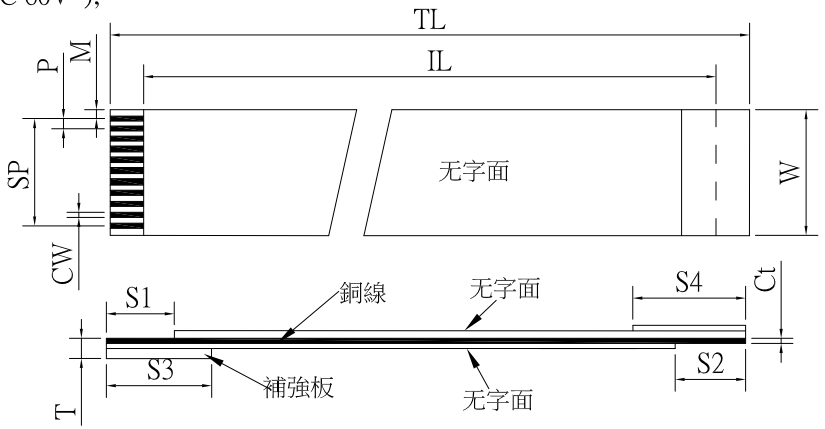
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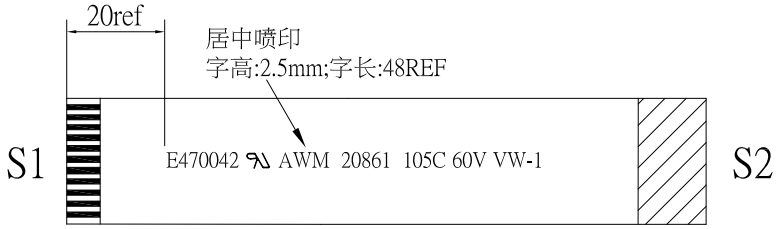
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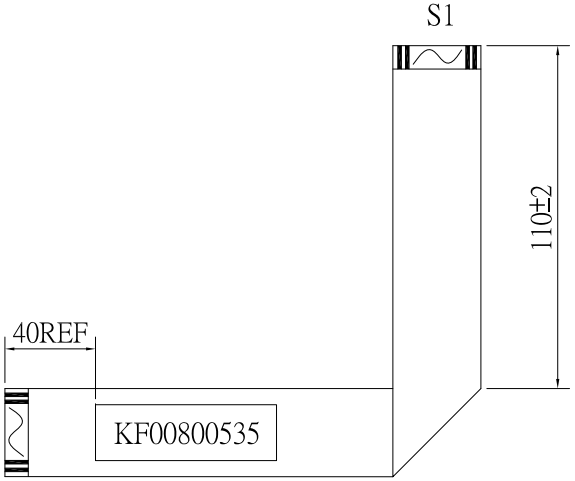
貼合規格:1.0*8*222*D 4/4/6/6(0.05*0.65);

貼合料號:F14D08X-22201K2A.









4*20白底黑字标签

KF00800535

間距 Pitch	P	1.0	±0.1
總間距 Span	SP	7	±0.1
總寬度Width	W	9	+0.07 -0.12
邊距Margin	M	1.0	±0.1
端子厚度 Insert Thickness	T	0.3	±0.05
裸銅長度 Strip Length	S1	4	±0.5
	S2	4	±0.5
補強板長度 Protector Length	S3	6	±1
	S4	6	±1
排線內長 Inside Length	IL	222	±2
排線总長 Total Length	TL	230	±2
銅線PIN數 No. of pin	8		
銅 線 Conductor	厚 度 Thickness	0.05	±0.005
	寬 度 Width	0.65	±0.03

設計驗證 工程課 2024-07-11 發行 鈺緯科技開發股份有限公司

注:標〇為重點尺寸

Note: 〇Important Inspection Dimension

GP要求:<<參照環境管理物質規范>>要求

GP Request:<<Refer to the envirdn mental manage material specification>>☐

承認單號 accept NO.	

穩 憙 電 子 工 業 股 份（東 莞）有 限 公 司

DONGGUAN WEN DE Electronic (Dongguan) CO., Ltd.

圖樣名稱:FFC Drawing Name:FFC	客戶名稱 : 鈺緯科技 Customer Name : DIVA	尺寸單位:mm Dimension Unit:mm	圖紙編號:FFC-P01- Drawing No.:FFC-P01-
穩憙料號 : F14D08A-22201K2A WenTek No. : F14D08A-22201K2A	客戶料號:3KF00800535 Customer No.:3KF00800535 (K1176)	繪圖比例: SCALE:	版次:V1.0(ERP:A) 頁次:1/1 REV:V1.0(ERP:A) SHT:1of1
繪圖: Drawing:	校對: Proofreading:	審核: Checked:	批准: Approved:	日期:2020.07.08 Date:2020.07.08

FNAME REVDATE USER

6.特性:

类别 Distinction	项目 Test Item	特性值 Value	测试方法 Test Method
Electrical Character	Conductor Resistance	.Ref to attachment 1	JIS C-3102
	Insulation Resistance	≧100MΩ	Pitch(2.54;1.25;1.0;0.8)DC500V
		≧50MΩ	Pitch(0.5 0.4) DC250V
	Dielectric Strength	PASS	AC500V, 0.5mA,1Min.between conductors in the air AC1000V,0.5mA,1Min.between conductors in the water
Experiment	High temperature test	Insulation Resistance,normal	85℃96hrs
	Temperature Cycle test	Insulation Resistance,normal	→ 25℃,65%RH(2hrs) → -40℃,0%RH(4hrs) → 25℃,65%RH(4hrs) → 85℃,95%RH(4hrs) → 25℃,65%RH(2hrs) 5cycles
	High Humidity test	Insulation Resistance ,normal	40℃,95%RH,96hrs
	Flame test	30V(UL2896) 60V(UL20624) 60V(UL20861) 90V(UL20890) 300V(UL2643) 90V (UL21783)	UL VW-1
Durability Character	Flexing test	Bend test times≧100cycle	R0.5,180°,600g70cycle/min
		耐曲撓測試≧300,000cycle	R10*10cm，70cycle/min
	Abrasion test	≧100,000cycle	R0.5,600g，60cycle/min
銅線可焊性 Conductor Solderability	可焊性測試 Solderability test	The sarface of sn95%	speed15mm/sec,temperature250℃, dip depeh3mm ,dip time 4sec

Conductor Size (mm)	0.1 * 1.27	0.1 * 0.8	0.1 * 0.7	0.1 * 0.65	0.1 * 0.3	0.076 * 0.66	0.05 * 1.27	0.05 * 0.8	0.05 * 0.7	0.05 * 0.65	0.05 * 0.5	0.05 * 0.3	0.035 * 0.8	0.035 * 0.7	0.035 * 0.65	0.035 * 0.43	0.035 * 0.3
Conductor Resistance (ohm/M)	0.17	0.27	0.33	0.35	0.7	0.35	0.3	0.53	0.6	0.63	0.75	1.45	0.77	0.94	0.96	1.59	2.2

Table 1

Note：

The conductor of thickness is 0.1mm.Which is effected by material thickness.It's bending test≦ 50000cycle

The others conductor is according to the above list.

Storage Condition Temperature: -10~60℃;Humidity:30~50RH%

Quality Assurance Period: We can guarantee this tin plating Flexible Flat(FFC)for 3 months and gold electroplating Flexible Flat(FFC)for 3 months when Stored in normal condition

Operating temperatur range 0~60℃

佛山市顺德区莱尔电子材料有限公司

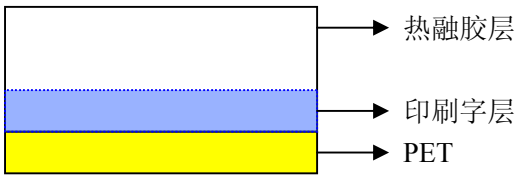
材质证明

1、我司生产的热融胶膜，主要由 PET、热融胶层和印刷油墨组成。PET 主要用途是绝缘、油墨主要用途是印字、涂料主要用途是粘合、阻燃。

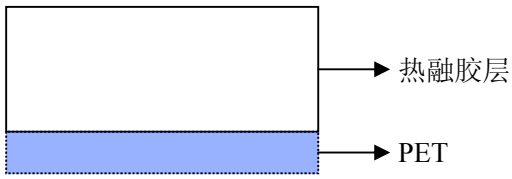
2、环保热融胶膜符合 ROHS 法规要求。

如下图视：

环保印字热融胶膜：



环保无印字热融胶膜：



序号	品名	型号	PET 厚度(μm)	印刷字层(μm)	热融胶层厚度(μm)	重量比例	涂料
1	环保无印字热融胶膜	LEPB12-37	12	0	25	2.0：1.9	80℃ ROHS
2	环保印字热融胶膜	LEPBZ12-37	12	1	24	2.0：1.9	80℃ ROHS
3	环保无印字热融胶膜	LEPB37-105	12	0	25	2.0：1.9	105℃ ROHS
4	环保印字热融胶膜	LEPBZ37-105	12	1	24	2.0：1.9	105℃ ROHS
5	环保无印字热融胶膜	LEPB19-43	19	0	24	2.0：1.9	80℃ ROHS
6	环保黑色无印字热融胶膜	LEPBH19-43	19	1	23	2.0：1.9	80℃ ROHS
7	环保印字热融胶膜	LEPBZ19-43	19	1	23	2.0：1.9	80℃ ROHS
8	环保黑色印字热融胶膜	LEPBHZ19-43	19	1	23	2.0：1.9	80℃ ROHS
9	环保无印字热融胶膜	LEPB43-105	19	0	24	2.0：1.9	105℃ ROHS
10	环保印字热融胶膜	LEPBZ43-105	19	1	23	2.0：1.9	105℃ ROHS
11	环保无印字热融胶膜	LEPB25-50	25	0	21	2.0：2.1	80℃ ROHS
12	环保印字热融胶膜	LEPBZ25-50	25	1	20	2.0：2.1	80℃ ROHS
13	环保无印字热融胶膜	LEPB25-60	25	0	35	1：1	80℃ ROHS
14	环保黑色无印字热融胶膜	LEPBH25-60	25	1	34	1：1	80℃ ROHS
15	环保黑色印字热融胶膜	LEPBHZ25-60	25	1	34	1：1	80℃ ROHS
16	环保黑色无印字热融胶膜	LEPBH25-70	25	1	44	1：1	80℃ ROHS
17	环保黑色印字热融胶膜	LEPBHZ25-70	25	1	44	1：1	80℃ ROHS
18	环保无印字热融胶膜	LEPB60-105	25	0	35	1：1	105℃ ROHS
19	环保印字热融胶膜	LEPBZ60-105	25	1	34	1：1	105℃ ROHS
20	环保无印字热融胶膜	LEPB60-105A	25	0	35	1：1	105℃ ROHS
21	环保印字热融胶膜	LEPBZ60-105A	25	1	34	1：1	105℃ ROHS
22	环保无印字热融胶膜	LEPB50-80	50	0	30	1：0.6	80℃ ROHS
23	环保印字热融胶膜	LEPBZ50-80	50	1	29	1：0.6	80℃ ROHS
24	环保无印字热融胶膜	LEPB32-80	32	0	48	1：1.6	80℃ ROHS
25	环保印字热融胶膜	LEPBZ32-80	32	1	47	1：1.6	80℃ ROHS
26	环保无印字热融胶膜	LEPB50-100	50	0	50	2.13：2.42	80℃ ROHS
27	环保黑色无印字热融胶膜	LEPBH43-105	19	1	24	2.0：1.9	105℃ ROHS
28	环保黑色无印字热融胶膜	LEPBH60-105	25	1	34	1：1	105℃ ROHS
29	环保黑色印字热融胶膜	LEPBHZ43-105	19	1	24	2.0：1.9	105℃ ROHS
30	环保黑色印字热融胶膜	LEPBHZ60-105	25	1	34	1：1	105℃ ROHS
31	环保无印字热融胶膜	LEPB65-105	25	0	40	1：1.2	80℃ ROHS

FFC常用规格SPEC检验标准表

规格	公差		抗拉强度	伸长率	直流电阻（Ω/M）			客户料号
	宽度	厚度	Kg/mm2		裸铜	镀锡	镀镍	
0.3*0.035	±0.025	±0.005	≥15	≥20%	≤1.79	≤1.87	≤1.98	
0.3*0.05	±0.025	±0.005	≥15	≥20%	≤1.27	≤1.33	≤1.4	
0.32*0.028	±0.025	±0.005	≥15	≥20%	≤2.15	≤2.25	≤2.4	
0.32*0.035	±0.025	±0.005	≥15	≥20%	≤1.16	≤1.76	≤1.85	
0.5*0.035	±0.025	±0.005	≥15	≥20%	≤1.08	≤1.13	≤1.19	
0.05*0.5	±0.025	±0.005	≥15	≥20%	≤0.82	≤0.85	≤0.88	
0.65*0.035	±0.025	±0.005	≥15	≥20%	≤0.84	≤0.88	≤0.92	
0.65*0.05	±0.025	±0.005	≥15	≥20%	≤0.59	≤0.62	≤0.65	
0.65*0.1	±0.025	±0.005	≥15	≥20%	≤0.29	≤0.31	≤0.32	
0.7*0.035	±0.025	±0.005	≥15	≥20%	≤0.77	≤0.81	≤0.85	
0.47*0.035	±0.025	±0.005	≥15	≥20%	≤1.08	≤1.13	≤1.19	
0.7*0.05	±0.025	±0.005	≥15	≥20%	≤0.54	≤0.57	≤0.59	
0.7*0.1	±0.025	±0.005	≥15	≥20%	≤0.27	≤0.28	≤0.30	
0.8*0.035	±0.025	±0.005	≥15	≥20%	≤0.68	≤0.71	≤0.75	
0.8*0.05	±0.025	±0.005	≥15	≥20%	≤0.48	≤0.50	≤0.53	
0.8*0.1	±0.025	±0.005	≥15	≥20%	≤0.24	≤0.25	≤0.27	
0.8*0.16	±0.025	±0.005	≥15	≥20%	≤0.15	≤0.16	≤0.17	
1.27*0.1	±0.025	±0.005	≥15	≥20%	≤0.15	≤0.16	≤0.17	
0.3*0.1	±0.025	±0.005	≥15	≥20%	≤0.7	≤0.71	≤0.72	

佛山市顺德区莱尔电子材料有限公司

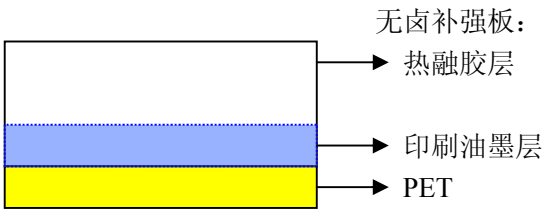
材质证明

1、我司生产的无卤补强板，主要由 PET、热融胶层和印刷油墨组成。PET 主要用途是绝缘、油墨主要用途是印刷颜色、涂料主要用途是粘合。

2、无卤补强板符合卤素法规要求。

3、热融胶层主要成份（重量比）：树脂（16%）PET (84%)。PET 层主要成份：聚酯等。

如下图视：



序号	品名	型号	PET 厚度（μm）	印刷油墨厚度（μm）	热融胶层厚度(μm)	重量比例	涂料
1	无卤透明综合型补强板	LEB25-55ST	25	1	29	1.1：0.2	无卤综合型
2	无卤蓝色综合型补强板	LEB75-100S	75	1	24	1.1：0.2	无卤综合型
3	无卤黑色综合型补强板	LEBH100-130S	100	1	29	1.1：0.2	无卤综合型
4	无卤蓝色综合型补强板	LEB100-130S	100	1	29	1.1：0.2	无卤综合型
5	无卤浅蓝色综合型补强板	LEB100-130SQ	100	1	29	1.1：0.2	无卤综合型
6	无卤紫色综合型补强板	LEB100-130SZ	100	1	29	1.1：0.2	无卤综合型
7	无卤蓝色综合型补强板	LEB125-160S	125	1	34	1.1：0.2	无卤综合型
8	无卤紫色综合型补强板	LEB125-160SZ	125	1	34	1.1：0.2	无卤综合型
9	无卤浅蓝色综合型补强板	LEB125-160SQ	125	1	34	1.1：0.2	无卤综合型
10	无卤高温补强板	LEB125-160A	125	1	34	1.1：0.2	无卤高温
11	无卤高温补强板	LEB150-183A	150	1	32	1.1：0.2	无卤高温
12	无卤蓝色综合型补强板	LEB150-183S	150	1	32	1.1：0.2	无卤综合型
13	无卤蓝色综合型补强板	LEB150-183SQ	150	1	32	1.1：0.2	无卤综合型
14	无卤蓝色不透明补强板	LEB150-183ACZY	150	1	32	1.1：0.2	无卤高温
15	无卤蓝色综合型补强板	LEB175-205S	175	1	29	1.1：0.2	无卤综合型
16	无卤蓝色综合型补强板	LEB175-205SQ	175	1	29	1.1：0.2	无卤综合型
17	无卤透明综合型补强板	LEB188-215ST	188	1	26	1.1：0.2	无卤综合型
18	无卤蓝色综合型补强板	LEB188-225S	188	1	36	1.1：0.2	无卤综合型
19	无卤高温补强板	LEB188-225A	188	1	36	1.1：0.2	无卤高温
20	无卤浅蓝色高温补强板	LEB188-225AQ	188	1	36	1.1：0.2	无卤高温
21	无卤绿色高温补强板	LEB188-225AL	188	1	36	1.1：0.2	无卤高温
22	无卤白色高温补强板	LEB188-225AW	188	1	36	1.1：0.2	无卤高温
23	无卤浅蓝色综合型补强板	LEB188-225SQ	188	1	36	1.1：0.2	无卤综合型
24	无卤蓝色不透明补强板	LEB188-225ACZY	188	1	36	1.1：0.2	无卤高温
25	无卤蓝色综合型补强板	LEB215-250S	215	1	34	1.1：0.2	无卤综合型
26	无卤浅蓝色高温补强板	LEB215-250AQ	215	1	34	1.1：0.2	无卤高温
27	无卤高温补强板	LEB215-250A	215	1	34	1.1：0.2	无卤高温

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.cn

Material Safety Data Sheet

Section 1. CHEMICAL PRODUCT&COMPANY INDENTIFICATION

Product name: LEPB12-37、LEPBZ12-37、LEPB19-43、LEPBZ19-43、LEPB25-60、LEPBZ25-60、LEPB60-105、LEPBZ60-105、LEBP50-100、LEPB32-80、LEPBZ32-80、LPEB85-105、LEPBZ50-100、LEPB100-105、LEPB60-105A、LEPBZ60-105A 、LEPB60-105B、LEPB80-105A、LEPB100-105A、LEPBZ50-105、LEPB50-105、LE37-105、LEZ37-105、LE60-105、LEZ60-105、LE43-105、LEZ43-105、LEPBH25-60、LEPBHZ25-60、LEPBH25-70、LEPBHZ25-70、LEPBH32-80、LEPBHZ32-80、LEPB50-80、LEPB25-70、LEPBZ25-70、

Chemical name: Thermal adhesive polyester film

Manufacturer: LEARY ELECTRICAL EQUIPMENT CO.,LTD.

Address: BeiShui Industry District, Xingtan Town, Shunde Borough , Foshan City , Guangdong Province

Emergency Telephone No:(86)757-27386863

Fax No: (86)757-27386866

Section 2. COMPOSITION /INFORMATION

Components	WT.% (optional)	CAS NO
PET FILM LAYER		
Polyethylene terephthalate	30-35	25038-59-9
ADHESIVE LAYER		
Polyester adhesive	20-25	29408-67-1
Bromide type flame retardant (Use FR material except for PBBS &PBDES	≤25	84852-53-9
Antimony trioxide	≤10	1309-64-4
Titanium dioxide	≤10	13463-67-7

Section 3. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N/A Vapor Density: N/A

Specific gravity: N/A Solubility in water :Insoluble

Molecular weight: N/A Color: White

Odor: No

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (method used): N/A Flammable limits: Unknown

Extinguishing media: Dry Chemicals Foam CO_2 Water

Unusual Fire and Explosion Hazard: Keep away from fire sparks and open flame.

Section 5. FIRE-FIGHTING MEASURES

Extinguishing Media: Bubble Or Dry Powder

Section 6. Accidental Release Measure

Environmental precautions : N/A

Section 7. REACTIVITY DATA

Stability: Stable

Incompatibility (Materials to Avoid): Strong ignition sources

Hazardous Decomposition Products: N/A
Hazardous Polymerization: Will not occur

Section 8. HEALTH HAZARD DATA

Exposure from routine use: No evidence of adverse effects from available information.

Inhalation: No data Ingestion: No data
Skin: No data Eyes: No data
Health Hazard: No data Chronic: No data

Medical Conditions Generally Aggravated By Exposure: No data
Emergency and First Aid Procedures:
Contact with skin: The film is not likely to be hazardous by skin contact but cleansing the skin after use us advisable.
Contact with eyes: Flush eyes with plenty of water.
Ingestion: No specific intervention is indicated film is not likely to be hazardous by ingestion. Consult a physician if necessary.

Section 9.HANDLING &STORAGE

Handlers are advised to wear safe gloves to avoid cuts from sharp edge of film .
Precautions to be taken in handling and storing: Keep away from fire sparks and open flame. Store in cool and dry area.

Section 10. EXPOSURE CONTROL &PERSONAL PROTECTION

Generally applicable control measure and precautions while no special controls or handling procedures are required.
It is recommended that exposure to any inhalable material be minimized by the use of adequate ventilation. Such as local exhaust. Effective containment and cleanness.
Eye/Face: Safety Glasses

Section 11. TOXICOLOGICAL INFORMATION

Polyethylene terephthalate is not a skin irritant. But is mild eye irritant.
Toxic effects from short exposures by inhalation resulted in no adverse effects.
Toxic effects from short exposures by ingestion resulted in no adverse effects.

Section 12. ECOLOGICAL INFORMATION

The information is not available. Toxicity is expected to be low based on insolubility in water.

Section 13. DISPOSAL INFORMATION

Waste disposal method: Incinerate or bury in a suitable land fill where permitted by appropriate government regulations.

Section 14. Transport Information

Transport regulations: Not long-term high-temperature environment in order to avoid failures.

Section 15. Regulatory Information

Applicable Regulations:N/A

Section 16. OTHER INFORMATION

Revision date:2015-4-30

-END OF MSDS-

LEARY ELECTRICAL EQUIPMENT CO.,LTD.

Material Safety Data Sheet

Section 1. CHEMICAL PRODUCT&COMPANY INDENTIFICATION

Product name: LEB100-130S、LEB100-130ST、LEB125-160S、LEB125-160SQ、LEB125-160S、LEB175-205S、LEB175-205SQ、LEB188-225S、LEB188-225SQ、LEB188-225SZ、LEB188-225A、LEB188-225ACZY、LEB188-215ST、LEB215-250S、LEB215-250A、LEB215-250ACZY、LEB250-282A、LEB250-282S、LEB125-160YCZY、LEB175-205YCZY、LEB188-225YCZY、LEB250-282YCZY

Chemical name: Thermal adhesive polyester film

Manufacturer: LEARY ELECTRICAL EQUIPMENT CO.,LTD.

Address: BeiShui Industry District, Xingtan Town, Shunde Borough , Foshan City , Guangdong Province

Emergency Telephone No:(86)757-27386863

Fax No: (86)757-27386866

Section 2. COMPOSITION /INFORMATION

Components	WT.% (optional)	CAS NO
PET FILM LAYER		
Polyethylene terephthalate	60-70	25038-59-9
ADHESIVE LAYER		
Polyester adhesive	≥30	29408-67-1
Titanium dioxide	≤5	13463-67-7

Section 3. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N/A Vapor Density: N/A

Specific gravity: N/A Solubility in water :Insoluble

Molecular weight: N/A Color: Blue & Cambridge blue

Odor: No

Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (method used): N/A Flammable limits: Unknown

Extinguishing media: Dry Chemicals Foam CO_2 Water

Unusual Fire and Explosion Hazard: Keep away from fire sparks and open flame.

Section 5. FIRE-FIGHTING MEASURES

Extinguishing Media: Bubble Or Dry Powder

Section 6. Accidental Release Measure

Environmental precautions : N/A

Section 7. REACTIVITY DATA

Stability: Stable

Incompatibility (Materials to Avoid): Strong ignition sources

Hazardous Decomposition Products: N/A

Hazardous Polymerization: Will not occur

Section 8. HEALTH HAZARD DATA

Exposure from routine use: No evidence of adverse effects from available information.

Inhalation: No data Ingestion: No data

Skin: No data Eyes: No data

Health Hazard: No data Chronic: No data
Medical Conditions Generally Aggravated By Exposure: No data
Emergency and First Aid Procedures:
Contact with skin: The film is not likely to be hazardous by skin contact but cleansing the skin after use us advisable.
Contact with eyes: Flush eyes with plenty of water.
Ingestion: No specific intervention is indicated film is not likely to be hazardous by ingestion. Consult a physician if necessary.
Section 9.HANDLING &STORAGE
Handlers are advised to wear safe gloves to avoid cuts from sharp edge of film .
Precautions to be taken in handling and storing: Keep away from fire sparks and open flame. Store in cool and dry area.
Section 10. EXPOSURE CONTROL &PERSONAL PROTECTION
Generally applicable control measure and precautions while no special controls or handling procedures are required.
It is recommended that exposure to any inhalable material be minimized by the use of adequate ventilation. Such as local exhaust. Effective containment and cleanness.
Eye/Face: Safety Glasses
Section 11. TOXICOLOGICAL INFORMATION
Polyethylene terephthalate is not a skin irritant. But is mild eye irritant.
Toxic effects from short exposures by inhalation resulted in no adverse effects.
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The information is not available. Toxicity is expected to be low based on insolubility in water.
Section 13. DISPOSAL INFORMATION
Waste disposal method: Incinerate or bury in a suitable land fill where permitted by appropriate government regulations.
Section 14. Transport Information
Transport regulations: Not long-term high-temperature environment in order to avoid failures.
Section 15. Regulatory Information
Applicable Regulations:N/A
Section 16. OTHER INFORMATION
Revision date: 2013-4-1

-END OF MSDS-

LEARY ELECTRICAL EQUIPMENT CO.,LTD.

物質安全資料表

MATERIAL SAFETY DATA SHEET

一.製造商或供應商資料
Section 1: Taizhou hongkang new material CO.,LTD.
製造商或供應商名稱:泰州市弘康新型材料有限公司
Manufacturer or supplier name:Taizhou Chuangneng New Materials Co. Ltd.
製造商或供應商地址: 泰州市高港科创园创业大道北侧
North Side,Chuangye Avenue,Science And Innovation Park,
Gaogang District,Taizhou
緊急聯絡電話 : 0523-86110618
Emergency contact phone : 0523-86110618
二.物品名稱 :鍍锡銅線
Section 2: Product Name: Sn Plating Copper Wire
三.成份辨識資料:
Section 3: Component data:
纯物质:
Pure substance:
1銅線 :
Copper wire:
中英文名稱 : 銅線 COPPER wire
Chinese and English Name: 銅線 COPPER wire
化學文摘社記號碼 :7740-50-8
CAS #: 7740-50-8
2.纯锡:
中英文名稱 : 纯锡 Sn
Chinese and English Name: 纯锡 Sn
化學文摘社記號碼 :7740-31-5
CAS #: 7740-31-5
四.危害辨識資料 :
Section 4: Hazard identification
銅線: Copper wire
1.健康危害效應 :a.急性可能造成眼.鼻.喉.皮膚之刺激
1.Health hazard:A.may stimulate the eye nose throat skin
b.吞食一般無毒.但大量會因刺激而造成腸胃不適
B.Swallowed without poisoning,But swallowed a lot of will be gastrointestinal discomfort
c.有皮膚病及慢性病者易受危害
C.Skin disease and chronic disease susceptible to harm
d.動物實驗中.會增加肌肉腫之機會
D.The opportunity to increase muscle mass is found by animal experiments.
2.環境影響 :久置會形成氧化物.對環境較無直接影響
2.Environmental impact:Put a long time to form an oxide,no direct harm to the environment
3.物理性及化學性危害 :导电体，无化学性危害。
3.Physical and chemical hazards: electrical conductivity,no chemical hazard.
4.特殊危害 : 無
4.No special hazard
2.純锡 :SN

1.健康危害效應 :a.急性可能造成眼.鼻.喉.皮膚之刺激
1.Health hazard:A.may stimulate the eye nose throat skin
2.環境影響 :污染地下水
2.Environmental impact:Groundwater pollution
3.物理性及化學性危害 :無
3.Physical and chemical hazards:NO
4.特殊危害 : 無
4.No special hazard
五.物理特性及化學特性 :
Section 5:Physical and chemical properties:
1.銅線：Copper wire
a.物質狀態 :固體
A.Mateial form:solid
b.沸點 : 2325℃ e.氣味 :無 ;水中不溶
B.Boiling point: 2325℃ E.no odor;Do not dissolve in water
c.熔點 :1083℃ f .蒸氣壓 : 0 mmHg @20℃
C. melting point: 1083℃ F.Vapor pressure:0 mmHg @20℃
d.外觀 :金黃色金屬g.比重 : 8.89 (水= 1)
D.Appearance: golden yellow metal. G.specific gravity:8.89
(the specific gravity of water is 1)
2.純锡 :SN
a.物質狀態 :固體
A.Mateial form:solid
b.熔点 : 235℃
B. Melting point: 235℃
c.形狀 :圓形
C.Shape:Circular
d.外觀 :銀色
D.Appearance:Silver
e.氣味 :無 ;水中不溶.
E.no odor;Do not dissolve in water
六.安定性及反應性 :
Section 6: Stability and reactivity:
1.銅線：Copper wire
a.安定性 : 安定
A.Stability: stability
b.特殊情況下可能之危害 : 無
B.special circumstances that may cause harm:NO
c.應避免之狀況 : 火源.陽光直射.水氣.硫酸.鹽酸.硝煙
C.avoid the following situations: fire, direct sunlight, water vapor, sulfuric acid, hydrochloric acid.
d.應避免之物質 : 強氧化劑
D.Avoid contact with the following substances:Strong oxidizing agent
e.危害分解物 : 金屬粉塵.燻煙
E. hazard decomposition: metal dust.smoke
2.純锡 :Sn
a.安定性 : 安定
A.Stability: stability
b.應避免之狀況 : 粉末狀況於空氣中會氧化.

B.avoid the following situations:When becoming powder in the air will be oxidized
c.應避免之物質 ： 1.硫酸.鹽酸.硝煙
C.Avoid contact with the following substances:
1.Sulfuric acid、Hydrochloric acid、Nitrate
2.粉末勿與土壤混合丟棄.
2.Do not mix the powder with mud
3.清洗銅粉的水不可直接丟棄排水溝.應過濾乾淨.
3.Copper wash water is not directly discard drains, You should filter and clean
七.健康危害及急救措施:
Section 7: first aid measures:

銅線：Copper wire1.

1、吸入時.立刻將患者移至空氣新鮮處,若呼吸停止.施以人工急救，并立即送医
1.when inhaled, immediately move the patient to the fresh air.
If patient stop breathing, carry out first aid and send to hospital immediately.
2.皮膚接觸時.立即用大量肥皂水清洗.滲入皮膚立刻脫掉衣服並予以清洗.如仍有刺激感立即送醫
2.If there is contact with skin,Washing immediately with plenty of soap and water.
Penetrate the skin immediately take off the clothes and wash it,
If there is still a sense of excitement immediately sent to hospital
3.接觸眼睛時.即刻用大量清水沖洗.並即送醫
3.If the eyes contact, rinse immediately with plenty of water and go to the hospital immediately.
4.食入時.若意識清醒即刻喝下大量清水.並即催吐.若意識不清,不可催吐立即送醫.
4.When swallowed,If you are conscious, drink plenty of water immediately,and immediately spit it out
If you are unconscious,immediately go to the hospital
2.純锡 :Sn
1.吸入時煙塵.將患者移到空氣.清新處讓其躺下.並即送醫.
1.when inhaled, immediately move the patient to the fresh air, and send to hospital immediately.
2.皮膚接觸時.若沾上皮膚時用大量清水沖洗趕走焊錫.延醫治療.
2.If there is contact with skin,Washing immediately with plenty of water and send to hospital
3.接觸眼睛時.用水沖洗患部.並延醫移走眼中異物.
3.If there is contact with eyes,Washing immediately with plenty of water and send to hospital
4.食入時.飲大量水.馬上送醫.
4.When swallowed,drinking plenty of water and go to hospital
最重要癥狀及危害效應.眼睛刺痛等.
The most obvious symptoms and reactions：Eye irritation, etc.
八.滅火措施 :
Section 8: Fire fighting measures:
1.銅線：Copper wire
滅火材料為水,特殊滅火程序.此物不燃但為粉末則為可燃
You can use water to put out these fires.It can not be burning,
But when it becomes powder, it can burn.
2.純锡 :Sn
1.適用滅火劑為二氧化碳.乾粉.土或砂.泡沫滅火器.
1.Extinguishing Media carbon dioxide、 dry powder、mud or sand、Foam fire extinguisher.
2.滅火時可能遭遇之特殊危害.火或過熱會產生毒煙.
2.There may be special hazards for fire fighting：Produce toxic fumes

3.特殊滅火程序.戴上呼吸護具及防護衣.
3. Special fire-fighting procedures: Wear protective clothing and respiratory protective gear.
4.消防隊人員.戴上呼吸護具及防護衣
4.The fire brigade personnel: Wear protective clothing and respiratory protective gear
九.洩露及廢棄處理:
Section 9: Leakage and waste disposal:
1.銅線: Copper wire
成品本身為固體.可回收再利用.無廢棄物
The product itself is solid. It can be recycled.
2.純锡 :Sn
a.個人應戴上呼吸護具及穿防護衣.避免吸入灰塵及濃煙.
A. Wear protective clothing and respiratory protective gear,
Avoid breathing dust and smoke
b.應使溢出之錚錫凝固且冷卻.小心避免熔化的焊錫流到水面.
B. So that overflow tin solidification and cooling, Avoid molten tin into the water
c.圍堵熔化的焊錫區.以防止流入下水道或水溝
C.Avoiding molten tin into the Sewer
清理方法.可將收集到之洩露金屬.給予製造者.重新熔解.
Methods for cleaning up: Collect leaking metal to manufacturers
十.暴露預防措施:
Section 10: Operation and disposal of human body:
1.銅線: Copper wire
a.通風設備 : 1.局部排風設備.2.整體換氣設備
A.Ventilation equipment:1.局部排風設備 2.Integrated air exchange equipment
b.操作與儲存注意 : 1.作業時應避免粉塵.2.儲存於適當有標示之容器.
B.Operation and storage precautions:1.Dust should be avoided in operation
2.Stored in a labeled container.
3.遠離不相容物.
3.stay away from incompatible substances.
c.個人衛生 : 1.工作後之污染衣物立即脫下.並告知洗衣人員其危險性.
C. personal hygiene notes: 1.After the work of the contaminated clothing immediately took off. and inform the laundry staff of its dangers.
2.工作場所嚴禁吸煙及飲食.
2.No smoking and eating in the workplace
3.處理此物後徹底洗手.
3.Wash your hands thoroughly after this treatment.
4.保持工作場所清潔
4.Keep working place clean
2.純锡 :Sn
1.工程控制 :建議熔解溫度控制在235℃
1.Engineering Control: Melting temperature controlled at 235℃
2.参数控制: 八小時日時量平均容許濃度/短時間時量平均容許濃度/最高容許濃度 锡(Sn) :2 /2 /58.2
2.Parameter control: Eight hours daily at an average allowable concentration/
Short time allowable concentration/Maximum allowable concentration
Sn:2/2/58.2
3.個人防護設備 :
a.呼吸 : 呼吸防護具.

a.Breath:Respiratory protective equipment
b.手部 ： 保護手套.
b.Hands:Gloves
c.眼睛 ： 安全護目鏡.
c.Eyes:Goggle
d.皮膚及身體 ： 防護衣
d.Skin and body：Protective clothing
4.衛生措施 ： 工作前.吃飯前.使用肥皂水及清水.清潔手及身體.
4.personal hygiene notes:Wash hands and body with soap and water before eating and working
十一.儲藏方法 ：
Section 11:Storage
1.銅線：Copper wire
儲存注意 :1.作業時應避免粉塵.
Storage Considerations：avoid contact with dust.
2.儲存於適當有標示之容器.
2.Store in a container with the markings
3.遠離不相容物.
3.Away from incompatible materials.
2.純锡 :Sn
1.安裝消防設備及裝設排風設備.
1.Installation of fire-fighting equipment and ventilation equipment
2.儲存於乾淨及通風良好之處所
2.Store in a clean and well-ventilated place
3.有效期限 ： 壹 年
3.Validity period：1Year
3.完成品:電鍍锡銅線之完成品.由製造日期起.有效保存期限半年.
3.Finished product：From the date of manufacture,effectively save for a period of six months.
Placed in the room below 25℃65%RH and good ventilation, keep the place clean and dry
不得與其他化學品類.存放在一個密閉空間內
Shall not be in a confined space with other chemicals.
十二、毒理学资料
Section 12: Toxicological data
急毒性：无
Acute toxicity: No
局部效应：无
Local effect: no
致敏感性：无
Sensitivity: no
慢毒性及长期毒性：无
Slow toxicity and long term toxicity: no
十三、生态学资料
Section 13: Ecological information
可能之环境影响/环境流佈：未定义
Possibility of environmental impact / move: undefined
十四、运输信息
Section 14: Transport information
使用时：戴手套可防止尖锐损害
Use: wear gloves to prevent sharp damage
储放：储放于干燥环境防止氧化

Storage: stored in the dry bath environment to prevent oxidation
运送：需注意防止迭落掉落和掉挂时所造成的人与物的碰伤
Delivery: pay attention to prevent falling and fell and hanging out the bumps
十五. 法規資料:
Section 15:Applicable regulations:
適用法規 :水污染防治法 .空氣污染防治法 .廢棄物處理法 .危險物防治法
Applicable laws and regulations:Water Pollution Control Act.
Air pollution prevention and control regulations
Waste disposal regulations
Hazardous substances control regulations
十六.其他資料
Section 16:Other information
參考文献 :---------
References: -

製表者單位:名稱 : 泰州市弘康新型材料有限公司
Company name: Taizhou hongkang new material CO.,LTD.
地址 : 泰州市高港科创园创业大道北侧
Address: North Side,Chuangye Avenue,Science And Innovation Park,Gaogang District,Taizhou
製表人职称：经理
Title and name：Manager Tao.Yang
制表日期：23/07/2017
1. Date:23/07/2017

溧阳金利宝胶粘制品有限公司

物质安全资料表(MSDS)

一、物品与厂商资料

物品名称：表面处理50番白色特多龙商标纸
物品编号：T-HTLW50J(K101210)
制造厂商或供应商名称、地址:溧阳金利宝胶粘制品有限公司　江苏省溧阳市天目湖工业园滨河路
紧急联络电话/传真电话：Tel：0519-87962965　FAX：0519-87962960

二、成分辩识资料

中文名称Article　Name：表面处理50番白色特多龙商标纸					
英文名称English　Name：50μ　Polyester　Film White Label With Top-coated					
产品组成		产品组成之成分	化学名称	CAS NO.	含量百分比(%)
处理层	F53	拉卡树脂	Lacquer resin	--	0.5-2.5%
面材	T159	聚酯	聚对苯二甲酸乙二醇酯	25038-59-9	32-36%
		填料	$BaSO_4$	13462-86-7	4-8%
粘胶	F21B	丙烯酸共聚物	--	--	12-16.5%
离型底纸	SP-FCRPW80-R2	离型剂	乙烯基甲基硅氧烷	68083-18-1	0.2-1.0%
		格拉辛	--	--	43-48%

三、危害辩识资料

最重要危害效应	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
物品危害分类:无	

四、急救措施:

不同暴露途径之急救方法:
• 吸入: • 皮肤接触: • 眼睛接触: • 食入:
最重要症状及危害效应:无

五、灭火措施

适用灭火剂：CO_2灭火器　干粉灭火器
灭火时可能遭遇之特殊危害：无
特殊灭火程序：无
消防人员之特殊防护装备：无需特殊防护装备

六、泄漏处理方法:

个人注意事项: 环境注意事项: 清理方法:

七、安全处置与储存方法

处置：无需特殊处理装备
储存：需储存在阴凉干燥通风室内，保存期12个月

八、暴露预防措施:

个人防护设备: • 呼吸防护: 无须 • 手部防护: 无须 • 眼睛防护: 无须 • 皮肤及身体防护:无须
卫生措施: 空气保持流通

九、安定性

安定性：化学及物理性均稳定
特殊状态下可能之危害反应：可燃
应注意之状况：与火源隔离，防潮、防湿

十、废弃处置方法

废弃处置方法：在环境许可下焚火或掩埋

十一、物理及化学性质

物质状态:	固态	形状:卷装
颜色:	白色	气味:无
PH值:	7左右	爆炸界限:无
密度:	1.20-1.30	蒸汽密度(空气=1)
		水中溶解度:不溶

十二、毒性资料

急毒性:	无
吸入:	无
皮肤接触:	无
眼睛接触:	无
食入:	无
局部效应:无	
致敏感性:无	
慢毒性或长期毒性:无	
特殊效应:无	

十三、生态资料

可能之环境影响/环境流布:无

十四、运送资料

国际运送规定：无
联合国编号：无
国内运送规定：无
特殊运送方法及注意事项：无

十五、法规资料

适用法规: 一般性

十六、其他资料

参考文献：目前未有					
制表者单位	名称：溧阳金利宝胶粘制品有限公司				
	地址/电话：江苏省溧阳市天目湖工业园滨河路（0519-87962965）				
制表人	研发部： 耿卓		审核（签章）：刘锡财		
制表日期	2011年8月29日	修订日期	--	修订次数	0

溧阳金利宝胶粘制品有限公司 文書專用章 Tel:0519-87962988 江苏省溧阳市天目湖工业园滨河路

SAFETY DATA SHEET

1 IDENTIFICATION

Product name	:JP-K33, 1033K
Name of company	:Hitachi Industrial Equipment Systems Co., Ltd
Address	:1-1,Higashitaga-cho 1-chome, Hitachi-shi, Ibaraki-ken, Japan
Tel	:+81-294-36-8682
Fax	:+81-294-36-8975
Recommended use of the chemical and restrictions on use	:Printing Ink for industrial Marking

2 HAZARDS IDENTIFICATION

Physico-chemical endpoints	: Flammable liquid Category 2
Acute toxicity - oral	: Category 5
Acute toxicity - dermal	: Not available
Acute toxicity - inhalation（air）	: Not identified
Acute toxicity - inhalation（vapors）	: Category 5
Acute toxicity - inhalation（dust, mist）	: Not identified
Skin corrosion/irritation	: Category 2
Eye damage/irritation	: Category 2
Sensitization - respiratory	: Not identified
Sensitization - skin	: Not available
Germ cell mutagenicity	: Not available
Carcinogenicity	: Not identified
Toxic to reproduction	: Category 1
Effects on or via lactation	: Not identified
Specific target organ systemic toxicity	: (Single exposure) Category 1 Central nervous system Category 2 Kidney Category 3 Respiratory tract irritation :(Repeated exposure) Category 1 Central nervous system Category 1 Peripheral nervous system
Aspiration toxicity	: Category 2
Hazardous to the aquatic environment	
-Acute hazard	: Not available
-Chronic hazard	: Not available

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GHS label elements

Hazard symbols:



Signal word: Danger

Hazard statement and precautionary statement:

- Highly flammable liquid and vapor
- May be harmful if swallowed
- May be harmful if inhaled
- Causes skin irritation
- Causes serious eye irritation
- May damage fertility or the unborn child
- Causes damage to central nervous system-single exposure
- May cause damage to kidney-single exposure
- May cause damage to airway irritant-single exposure
- Causes damage to central nervous system and peripheral nervous system through prolonged or repeated exposure
- May be harmful if swallowed and enters airways

Precautionary statements:

- Keep out of reach of children. Read label before use. If medical advice is needed: Have product container or label at hand.

Prevention:

- Keep away from ignition sources such as heat/sparks/open flame– No smoking.
- Take precautionary measures against static discharge.
- Wear protective gloves and eye/face protection as specified by the competent authority.
- Do not breathe dust/mist/vapors.
- Use only in a well-ventilated area. Call a doctor/physician if you feel unwell.
- Do not eat, drink or smoke when using this product.
- Avoid contact during pregnancy/while nursing.
- Wash hands thoroughly after handling.

Response:

- In case of fire, use dry chemical, CO_2, water splay (fog) or form for extinction.
- IF SWALLOWED: Call a doctor/physician if you feel unwell. Rinse mouth.
- IF ON SKIN: Gently wash with plenty of soap and water.
- Wash/Decontaminate removed clothing before reuse.
- If skin irritation occurs, seek medical advice/attention.
- IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician.
- Collect spillage.

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Storage:
- Store in cool/well-ventilated place. Store locked up.
- Call a doctor/physician if exposed or you feel unwell.

Disposal:
- Waste must be disposed of according to applicable regulations.

3 Composition/information on ingredients

Substance or mixture; mixture
Composition:

Chemical name	concentration (%)	CAS number
2-butanone	80-90	78-93-3
ChromeⅢ-Complex Dye	5-15	TSCA Registered
Toluene	0.1-1	108-88-3

4 First-aid measures

Inhalation;
Remove the victim from the contamination immediately to fresh air. Keep the victim warm and quiet and arrange for transport to the neatest medical facility for examination and treatment by a physician as soon as possible.

Skin contact;
Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible. Wash the affected area under running water using a mild soap. If irritation persists, arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

Eye contact;
Gently rinse the affected eyes with clean water for at least 15 minutes. Remove contact lenses if easily possible. and refer for medical attention.

Ingestion;
Never give anything by mouth to someone who is unconscious or convulsing. If the victim is responsive, give him one or two glasses of water. And refer for medical attention.

5 Fire-fighting measures

Suitable extinguishing media;
Use dry chemical, CO_2, water splay (fog) or form.

Fire fighting procedures;
Use water spray to cool fire-exposed surfaces and to protect personnel. Shut off "fuel" to fire. If a leak or spill has not ignited, use water spray to disperse the vapors.
Avoid spraying water directly into storage containers due to danger of boil over.

Unusual fire/explosion hazard;
Flammable liquid, can release vapors that form flammable mixtures at temperatures at or above the flashpoint.

Special protective equipment and precautions for fire fighters;

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Fire fighters should wear boots, overalls, gloves, eye and face protection and breathing apparatus.

6 Accidental release measures

Shut off all sources of ignition; No smoking or flames in area. Absorb spill with inert material (e.g., dry sand or earth), then place in closed containers using non-sparking tools. Flush residual spill (area) with copious amounts of water.

7 Handling and storage

Handling;

Use only in the well-ventilated areas.
Make available in the work area emergency shower and eyes wash.
Avoid contact with skin or eyes.

Storage;

Close up the container and keep it in dark cool(0~20℃) place.
Keep away from combustible materials and sources of ignition.

8 Exposure controls/personal protection

Exposure guidelines:

ACGIH TLV-TWA (ppm)

2-butanone	:200
ChromeⅢ-Complex Dye	:None known
Toluene	:20(skin)

ACGIH STEL(ppm)

2-butanone	:300
ChromeⅢ-Complex Dye	:None known
Toluene	:No data

9 Physical and chemical properties

Appearance	
Physical state	:Liquid
Color	:Black
Odor	:Solvent odor
Boiling point[2)]	:80℃
Flash point	:-4.1℃（closed cup）
Upper/lower flammability or explosive limits[2)]	:Lower 1.7 vol%、Upper 11.4 vol%
Vapor pressure[2)]	:9.5kPa (20℃)
Vapor density (Air＝1)[2)]	:2.41 （2-butanone）
Relative density	:0.85(20℃)
Solubility（Water）[2)]	:29g/100mL (20℃)（2-butanone）
Partition coefficient: n-octanol/water[2)]	:0.29（2-butanone）
Auto-ignition temperature[2)]	:505℃
Decomposition temperature	:No data

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10 Stability and reactivity

Stability: The product is stable.
Conditions and materials to avoid: Not available
Hazardous decomposition products: These products are carbon oxides

11 Toxicological information

Acute toxicity:

2-butanone
LD50(orl,rat): 2737mg/kg(TXAPA9 19, 699, 1971)
LCLo(ihl,rat): 23500mg/m³/8h(AIHAAP 20, 364, 1959)
LD50(skin,rabbit): 6480mg/kg(SHELL* MSDS-5390-4)
TCLo(ihl,human): 1000mg/m³(VCVGK* -, 417, 1994)
LDLo(orl,human): 714.3mg/kg(VCVGK* -, 417, 1994)

ChromeⅢ-Complex Dye
Oral >5000（Rat LD50（mg/kg））
Dermal >2000（Rat LD50（mg/kg））
Inhalation None known

Toluene
LD50(orl,rat): 636mg/kg(NRTXDN 2, 567, 1981)
LC50(ihl,rat): 49mg/m³/4h(GTPZAB 32810), 23, 1988)
LD50(skin,rabbit): 14100μL/kg(AIHAAP 30, 470, 1969)
TCLo(ihl,human): 750mg/m³/8h(VCVGH* -, 144, 1990)
LD50(orl,rat): 2.600, 5.500, 5.580, 5.900, 6.400, 7.000, 7.530mg/kg(EU-RAR No.30, 2003)
LD50(orl,rat): 4,800mg/kg(Calculate)
LC50(ihl,rat): 12.5, 28.1, 28.8, 33mg/m³/4h(EU-RAR No.30, 2003)
LC50(ihl,rat): 18mg/m³/4h = 4.800ppm(Calculate)

Skin corrosion/irritation:

2-butanone
Skin; rabbit; 402mg/24h; Mild(TXAPA9 19, 276, 1971)

ChromeⅢ-Complex Dye
No（Rabbit test-OECD404 1981）

Toluene
Skin; rabbit; 20mg/24h; Moderate(85JCAE -, 29, 1986)

Serious eye damage/irritation:

2-butanone
Eye; rabbit; 80mg(TXAPA9 19, 276, 1971)

ChromeⅢ-Complex Dye
No（Rabbit test-84/449/EEC B.5）

Toluene
rabbit; ; Moderate(EU-RAR No.30, 2003)

Respiratory or skin sensitization:

2-butanone
Not available

ChromeⅢ-Complex Dye
No（Giunea pig test-84/449/EC B.6）

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Toluene
Not available

Germ cell mutagenicity:
2-butanone
Reverse mutation assay in S.typhimuriun and E.coli; Negative
Sex chromosome loss and nondisjunction; S.cerevisiae; 33800ppm(MUREAV 149, 339, 1985)
ChromeⅢ-Complex Dye
None known
Toluene
Micronucleus test; mouse; ipr; 433μg/kg/24h(ARTODN 58, 106, 1985)
Sister chromatid exchange; human; ihl; 252μg/L/19Y(MUREAV 519, 171, 2002)

Carcinogenicity:
2-butanone
Not available
ChromeⅢ-Complex Dye
None known
Toluene
Not available

Reproductive toxicity:
2-butanone
TCLo(ihl,rat): 2900mg/m³(female 6-10 D preg); Specific Developmental Abnormalities - craniofacial(VCVGK* -, 418, 1994)
ChromeⅢ-Complex Dye
None known
Toluene
TDLo(orl,rat): 16mL/kg(6-21 D preg); Effects on Newborn - phisycal(REPEBL 47, 362, 2000)
TCLo(ihl,rat): 1800ppm(7-20 D preg); Specific Developmental Abnormalities - Central Nervous System(ARTODN 75, 103, 2002)
Human; "the study suggests an increased risk

STOST-single exposure:
2-butanone
The influence of the central nervous system, rat/mouse(EHC 143, 1992; PATTY 4th, 1994; IRIS 2003)
The influence of kidny, oral, rat(DFGOT vol 12,1999; IRIS 2003; ATSDR 1992)
The respiratory tract irritation, human (ACGIH 7th, 2001; DFGOT vol 12,1999; PATTY 4th, 1994; ATSDR 1992)
ChromeⅢ-Complex Dye
None known
Toluene
Human; ihl, 50-100ppm, feebleness, sleepiness, dizziness(CERI hazard sheet, 96-4,1997)
Human; ihl, 200-400ppm, paresthesia, vomiturition(CERI hazard sheet, 96-4,1997)
Human; ihl, 500-800ppm, drunkenness, derangement, gait abonormality(CERI hazard sheet, 96-4,1997)
Human: irritation for eye, nose and throat(EU-RAR No.30, 2003)

STOST-repeated exposure:
2-butanone

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The sensory paralysis of hand and arm, human(EHC 143, 1992; DFGOT vol 12, 1999; IRIS 2003)
The damage of central nervous system, human(DFGOT vol 12, 1999; IRIS 2003)

Chrome Ⅲ-Complex Dye
None known

Toluene
Human; ihl, stenosis for range of vision, headache with deafness and eye nystagmus, trembling, dynamic ataxia, amnesia, cerebral atrophy, renal dysfunction(CERI hazard sheet, 96-4,1997)
Human; The increasing of SGOT, hepatotoxicity with the adipose degene

Aspiration hazard:

2-butanone
Not available

Chrome Ⅲ-Complex Dye
None known

Toluene
Not available

12 Ecological information

Ecotoxicity[1)]:

2-butanone
mosquito fish(96h-LC50(mg/L)):5600
daphnids(48h-LC50(g/L)):>1000

Chrome Ⅲ-Complex Dye
Oral >5000（Rat LD50（mg/kg））
Dermal >2000（Rat LD50（mg/kg））
Inhalation None known

Toluene
LD50(orl,rat): 636mg/kg(NRTXDN 2, 567, 1981)
LC50(ihl,rat): 49mg/m³/4h(GTPZAB 32810), 23, 1988)
LD50(skin,rabbit): 14100μL/kg(AIHAAP 30, 470, 1969)
TCLo(ihl,human): 750mg/m³/8h(VCVGH* -, 144, 1990)
LD50(orl,rat): 2.600, 5.500, 5.580, 5.900, 6.400, 7.000, 7. 530mg/kg(EU-RAR No.30, 2003)
LD50(orl,rat): 4,800mg/kg(Calculate)
LC50(ihl,rat): 12.5, 28.1, 28.8, 33mg/m³/4h(EU-RAR No.30, 2003)
LC50(ihl,rat): 18mg/m³/4h = 4.800ppm(Calculate)

Persistence and degradability:

2-butanone
Not available

Chrome Ⅲ-Complex Dye
None known

Toluene
This material is biodegradable.

Bioaccumulative potential:

2-butanone
Not available

Chrome Ⅲ-Complex Dye
None known

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Toluene
Not available

Mobility in soil:
2-butanone
Not available
ChromeⅢ-Complex Dye
None known
Toluene
Not available

13 Disposal considerations
Scrap materials may be disposed by licensed contractor or burned in an approved incinerator.
Do not dump into sewer, on the ground or into any body of water.
Follow national and local regulations.

14 Transport information
Follow all regulations in your country.

UN Number	:1210
UN Proper Shipping Name	:Printing ink, flammable
Transport hazard class	:Class 3(Flammable liquid)
Packing Group	:Ⅱ
Environmental hazards	:No

15 Regulatory information
Follow all regulations in your country.
Content of RoHS Directive material Cd<100ppm Pb, Hg, Hexavalent Cr, PBB, PBDE<1000ppm

16 References
1) Results of Eco-toxicity tests of chemicals conducted by Ministry of the Environment in Japan
2) International Chemical Safety Cards

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GUANGDONG LEARY NEW MATERIAL TECHNOLOGY CO.,LTD

BEISHUI INDUSTRIAL ZONE, XINGTAN TOWN, SHUNDE DISTRICT, FOSHAN CITY, GUANGDONG PROVINCE.

The following sample(s) was/were submitted and identified on behalf of the clients as : Hot melt glue film

SGS Job No. :	CP20-018688 - GZ
Model No. :	LEPB25-60
Client Ref. Info. :	SEE REMARK
Date of Sample Received :	28 Apr 2020
Testing Period :	28 Apr 2020 - 11 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

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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

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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 f (86-20) 82075113 e sgs.china@sgs.com

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-061410.001	White film

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	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.

VOC

Test Method : With reference to SGS in-house method (GZTC CHEM-TOP-050-37),TVOC test is performed according to Samsung requirement:
TVOC analysis was performed by TVOC portable detector.

Test Item(s)	Unit	MDL	*001*
Sample amount	-	-	10cm*10cm/0
TVOC	ppmV	16	ND

Notes :

1. ppmV: Part per million by volume
2. Tedlar bag：3L
3.Test condition: 40 °C , 30min

Elementary Analysis

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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*
Beryllium (Be)	mg/kg	5	ND
Cobalt (Co)	mg/kg	5	ND

Polychlorinated Naphthalenes (PCNs)

Test Method : SGS In-house method (GZTC CHEM-TOP-032-01, with reference to EPA 8082A:2007 & EPA 8270E:2017）, analysis was performed by GC-ECD/GC-MS.

Test Item(s)	Unit	MDL	*001*
1-Chlorinated Naphthalene	mg/kg	5	ND
2-Chlorinated Naphthalene	mg/kg	5	ND
1,4-Dichlorinated Naphthalene	mg/kg	5	ND
1,5-Dichlorinated Naphthalene	mg/kg	5	ND
1,2-Dichlorinated Naphthalene	mg/kg	5	ND
1,8-Dichlorinated Naphthalene	mg/kg	5	ND
1,2,3-Trichlorinated Naphthalene	mg/kg	5	ND
1,2,3,4-Tetrachlorinated Naphthalene	mg/kg	5	ND
1,2,3,4,6-Pentachlorinated Naphthalene	mg/kg	5	ND
Octa-chlorinated Naphthalene	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	10	ND

Red Phosphor

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

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

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)	Unit	MDL	001
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	mg/kg	10	ND

Phthalate

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Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%(w/w)	0.003	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.010	ND
Dipropyl Phthalate (DPrP)	131-16-8	%(w/w)	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%(w/w)	0.003	ND
Dipentyl Phthalates (DPENP/DnPP)	131-18-0	%(w/w)	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%(w/w)	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.003	ND

Notes :

(1) DBP,BBP,DEHP, DIBP Reference information: Entry 51 of Regulation (EU) 2018/2005 amending Annex XVII of REACH Regulation (EC) No 1907/2006:

i) Shall not be used as substances or in mixtures, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.

ii) Shall not be placed on the market in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material. In addition, DIBP shall not be placed on the market after 7 July 2020 in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material.

iii) shall not be placed on the market after 7 July 2020 in articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material in the articles.

Please refer to Regulation (EU) 2018/2005 to get more detail information

(2) DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EU) 2015/326 amending Annex XVII of REACH Regulation (EC) No 1907/2006.

i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.

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ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
Please refer to Regulation (EC) No 552/2009 to get more detail information

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+	-	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-Ethylperfluoroctane sulfonamide(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 refer to 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 refer to its derivatives 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)

Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene

Test Method : SGS In-house method (GZTC CHEM-TOP-244-01, With reference to EPA 3550C:2007), analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	*001*
Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)	68921-45-9	mg/kg	10	ND

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Notes :

* The result of BNST is quantified by one of BNST components

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LEPB12-37, LEPBZ12-37, LE25-43, LEZ25-43, LEPB19-43, LEPB19-43-1, LEPBZ19-43, LEPBZ19-43-1, LEPB19-43GZ, LEPBZ19-43GZ, LEPB43-105A, LEPB43-D, LEPB37-H, LEPBZ37-H, LEPB43-H, LEPBZ43-H, LEPB25-55, LEPB25-50, LEPBZ25-50, LEPBZ25-55, LE32-60, LEZ32-60, LEH32-60, LEPB32-60, LEPBZ32-60, LEPB25-60, LEPBZ25-60, LEPB86-105, LE60-H, LEZ60-H, LEPB60-H, LEPBZ60-H, LEPBH60-H, LEPBHZ60-H, LEPB70-H, LEPBZ70-H, LEPB80-H, LEPBZ80-H, LEPB100-H, LEPBZ100-H, LEPB60-F, LEPB25-65, LEPBZ25-65, LEPB25-70, LEPBZ25-70, LEPB32-80, LEPBZ32-80, LEPB50-80, LEPB50-100, LEPBZ50-100, LEPB37-105, LEPBZ37-105, LEPB37-105LE, LEPBZ37-105LE, LE37-105, LEZ37-105, LE37-105-L, LE43-105, LEZ43-105, LEPB43-105, LEPBZ43-105, LEPB43-105LE, LEPBZ43-105LE, LEPBH43-105LE, LEPBZ43-105A, LEPB50-105, LEPBZ50-105, LEPB80-105, LEPB80-105B, LEPBZ80-105, LEPB70-105B, LEPBZ70-105B, LE60-105, LEZ60-105, LEPB60-105, LEPBZ60-105, LEPB63-105, LEPBZ63-105, LEPB60-105LE, LEPBZ60-105LE, LEPB50-80LC, LEPB60-105A, LEPBZ60-105A, LEPB60-105B, LEPBZ60-105B, LEPB60-D-105, LEPB65-105, LEPBZ65-105, LEPB75-105, LEPBZ75-105, LEPB100-105, LEPB100-105LE, LEPBZ100-105, LEPB100-105A, LEPBZ100-105A, LEPB100-105B, LEPBZ100-105B, LEPB100-105YX, LEPBZ100-105YX, LEPB100-105YX-01, LEPBZ100-105YX-01, LEPBH15-37, LEPBHZ15-37, LEPBH19-43, LEPBHZ19-43, LEPBH25-60, LEPBHZ25-60, LEH60-105, LEHZ60-105, LEPBH25-65, LEPBHZ25-65, LEPBH25-70, LEPBHZ25-70, LEPBH32-80, LEPBHZ32-80, LEPBH50-80, LEPBHZ50-80, LEPBH50-100, LEPBH43-105, LEPBHZ43-105, LEPBH60-105, LPEBHZ60-105, LEPBH60-105LE, LPEBHZ60-105LE, LEPBH65-105, LEPBHZ65-105, LEPBH70-105, LEPBHZ70-105, LEPBH80-105, LEPBHZ80-105, LEPBH100-105, LEPBH100-105LE, LEPBHZ100-105, LEPBH60-105A, LEPBHZ60-105A, LEPBHU43-105, LEPBHU60-105, LEPB19-43MT, LEZ32-60-105, LE32-60-105, LEPB55-105, LEPB19-43XXS, LEPBZ19-43XXS, LEPBH19-43XXS, LEPBHZ19-43XXS, LEPB25-60VA, LEPBZ25-60VA, LEPB12-37VA, LEPBZ12-37VA, LEPB37-K, LEPBZ37-K, LEPB43-K, LEPBZ43-K, LEPB55-K, LEPBZ55-K, LEPB60-K, LEPBZ60-K, LEPB50-80-K, LEPBZ50-80-K, LEPB70-K, LEPBZ70-K, LEPB80-K, LEPBZ80-K, LEPB100-K, LEPBZ100-K, LEPB150-K, LEPBZ150-K, SRJMB50-25-01, SRJMB50-25-02, LEPB63-HL, LEPBZ63-HL, LEPB60-HL, LEPBZ60-HL, LEPB63-H-HL, LEPBZ63-H-HL, LEPB120-105, LEPB25-43, LEPBZ25-43, LEPB37-J, LEPBZ37-J, LEPB43-J, LEPBZ43-J, LEPB55-J, LEPBZ55-J, LEPB60-J, LEPBZ60-J, LEPB70-J, LEPBZ70-J, LEPB80-J, LEPBZ80-J, LEPB100-J, LEPBZ100-J, LEPB150-J, LEPBZ150-J, LEPB25-70VA, LEPBZ25-70VA, LEPBHZ25-70VA, LEPBH25-70VA, LEPB19-37, LEPBZ19-37, LEPB30-60, LEPBZ30-60

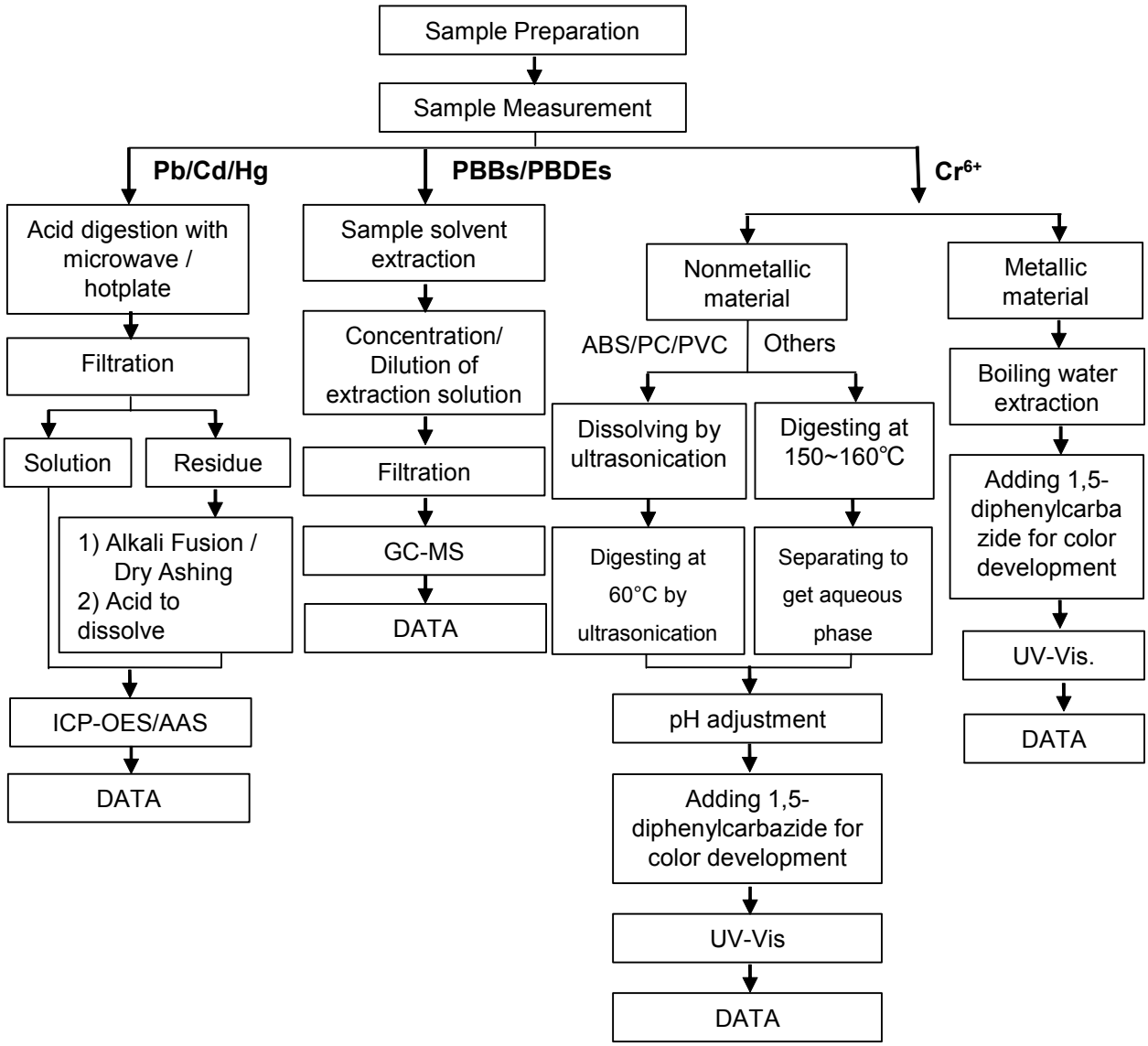
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Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

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

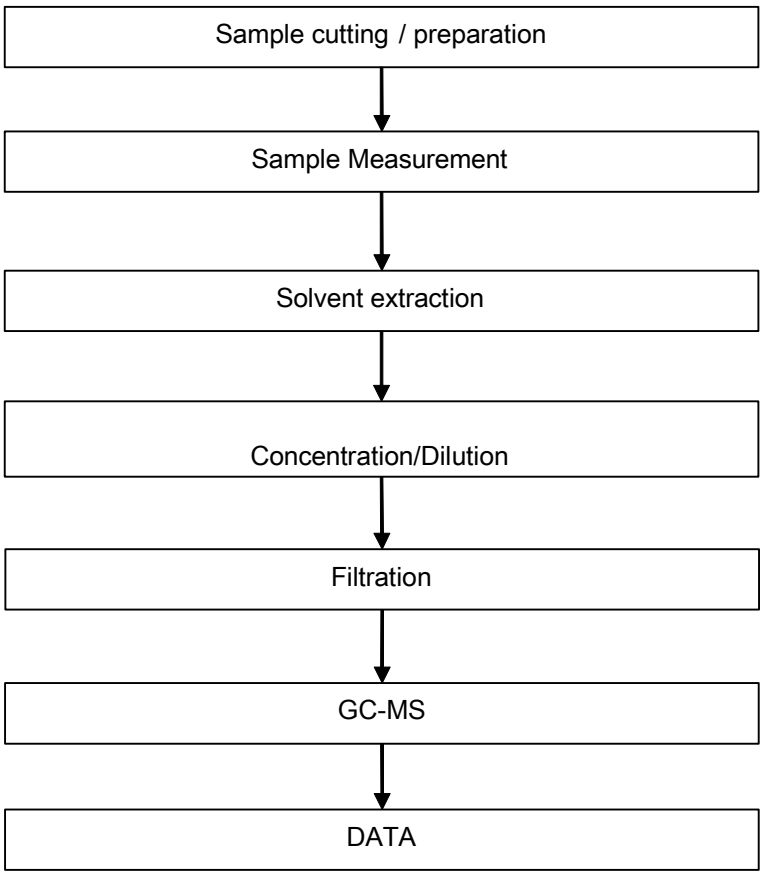


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Phthalates Testing Flow Chart

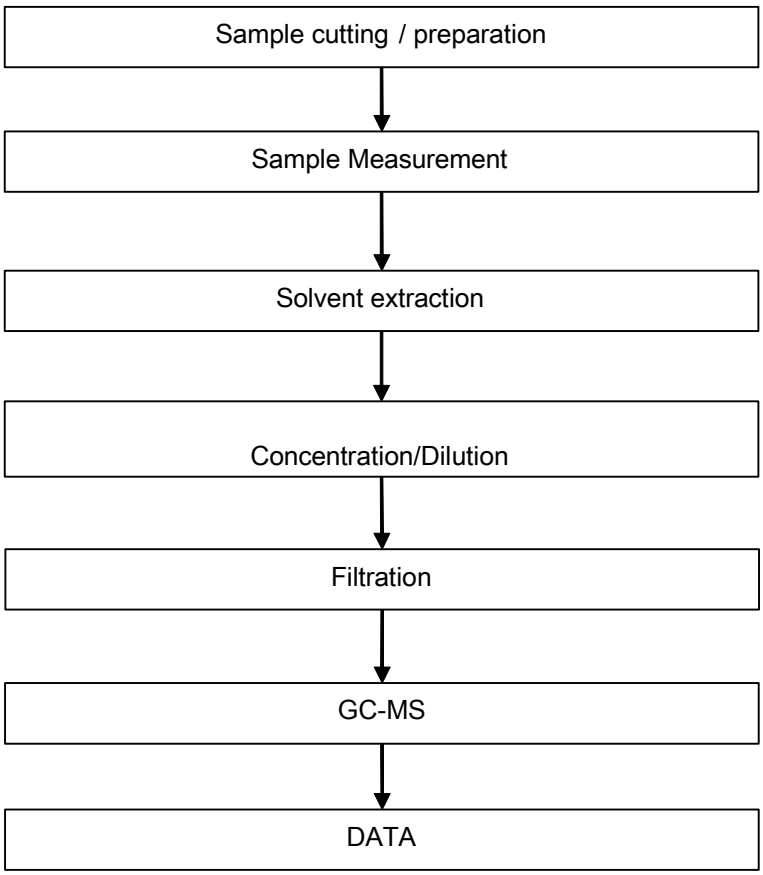


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HBCDD Testing Flow Chart

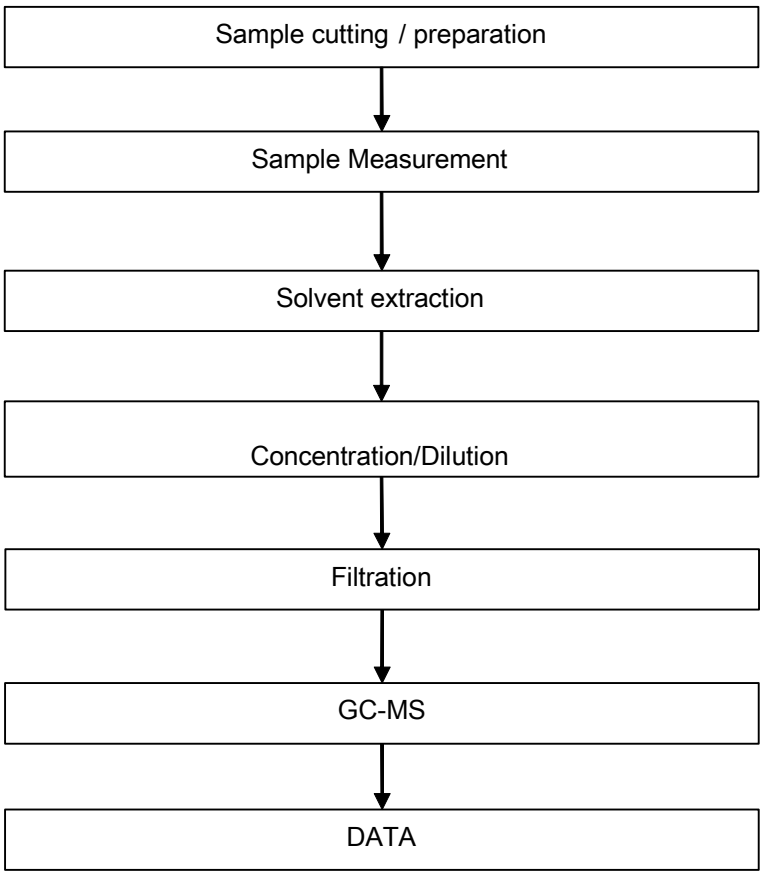


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PAHs Testing Flow Chart



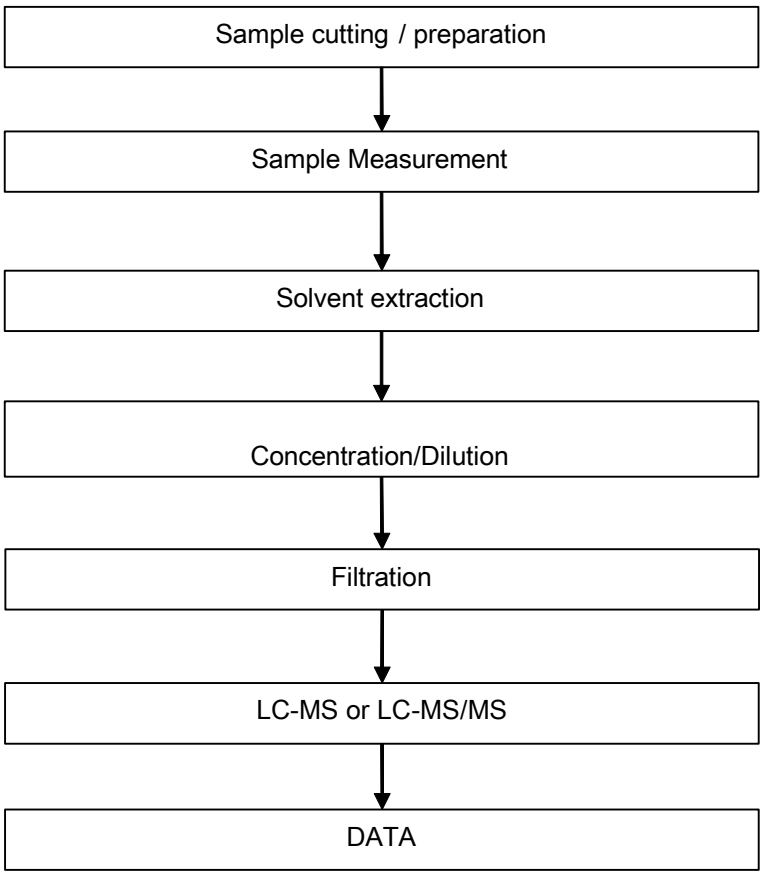
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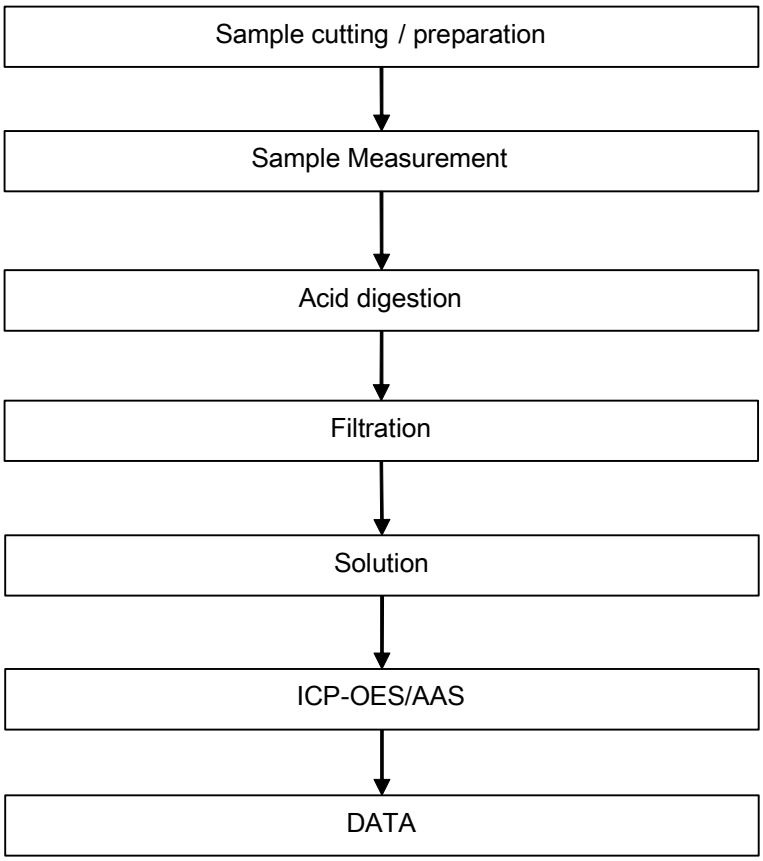
PFOA / PFOS Testing Flow Chart



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Elementary Testing Flow Chart

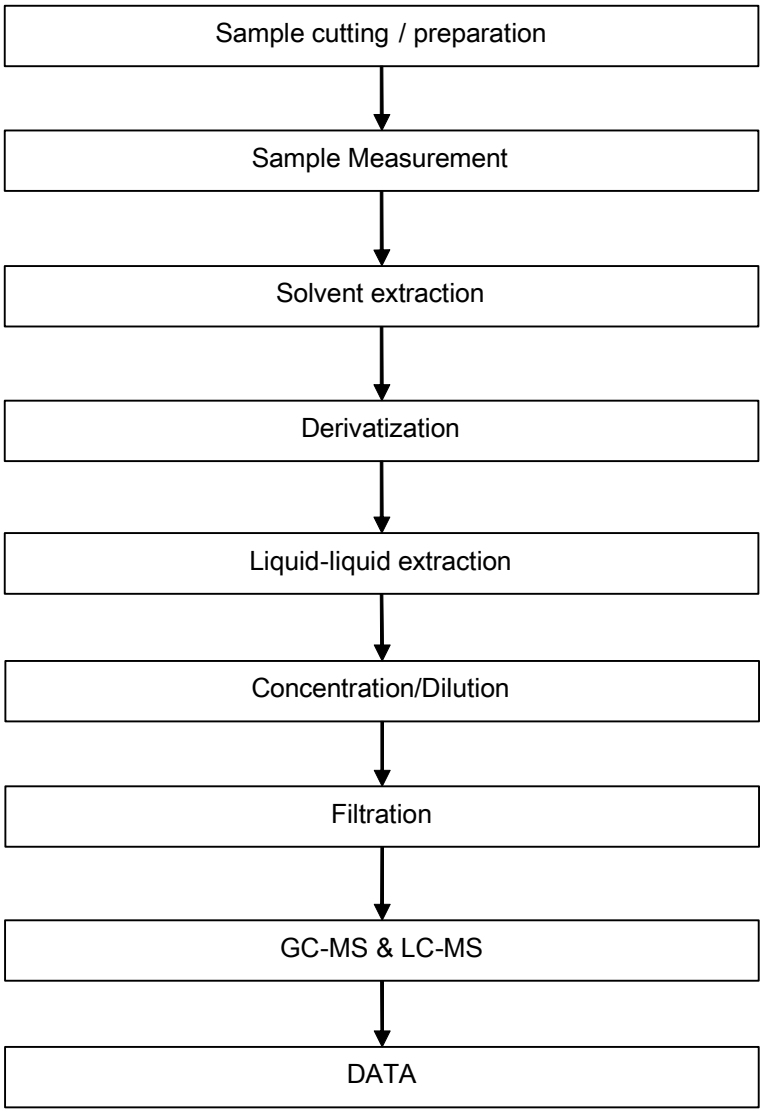


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TBBP-A Testing Flow Chart

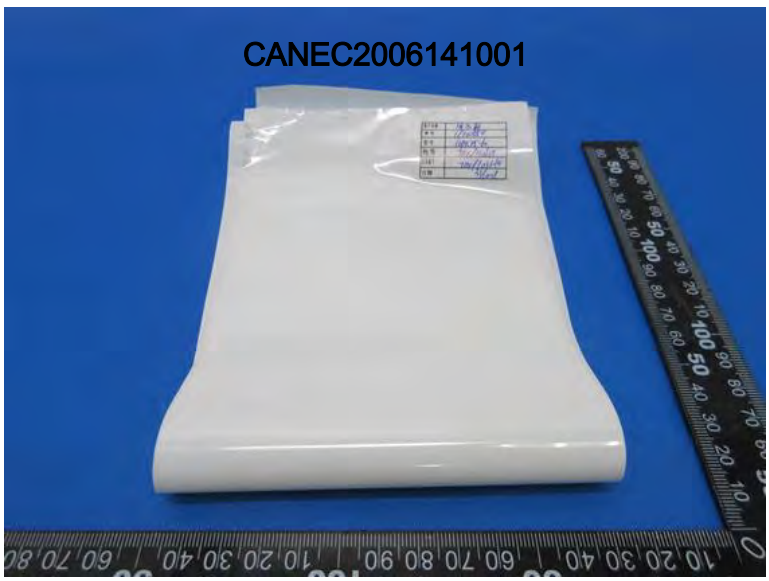


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Sample photo:



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TAIZHOU HONGKANG NEW MATERIAL CO.,LTD

NORTH SIDAE,CHUANGYE AVENUE,SCIENCE AND INNVATION PARK,GAOGANG DISTRICT,TAIZHOU

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

SGS Job No. :	SP19-040363 - SH
Date of Sample Received :	09 Dec 2019
Testing Period :	09 Dec 2019 - 11 Dec 2019
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 Cadmium, Lead, Mercury, 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 (Shanghai) Co., Ltd.

Dora Hu
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA19-273301.001	Silvery 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+AMD1:2017, IEC62321-5:2013, IEC62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, 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)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▾	-	µg/cm²	0.10	ND
Sum of PBBs	1000	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	1000	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

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Test Item(s)	Limit	Unit	MDL	*001*
Pentabromodiphenyl ether	-	mg/kg	5	ND
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
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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=104:30:17422328703511O1::::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.

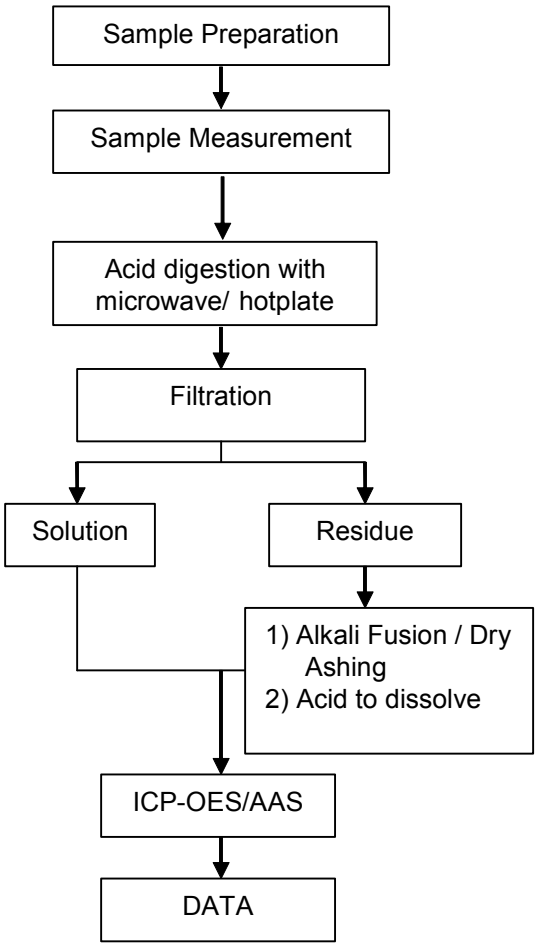
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Elements (IEC62321) Testing Flow Chart

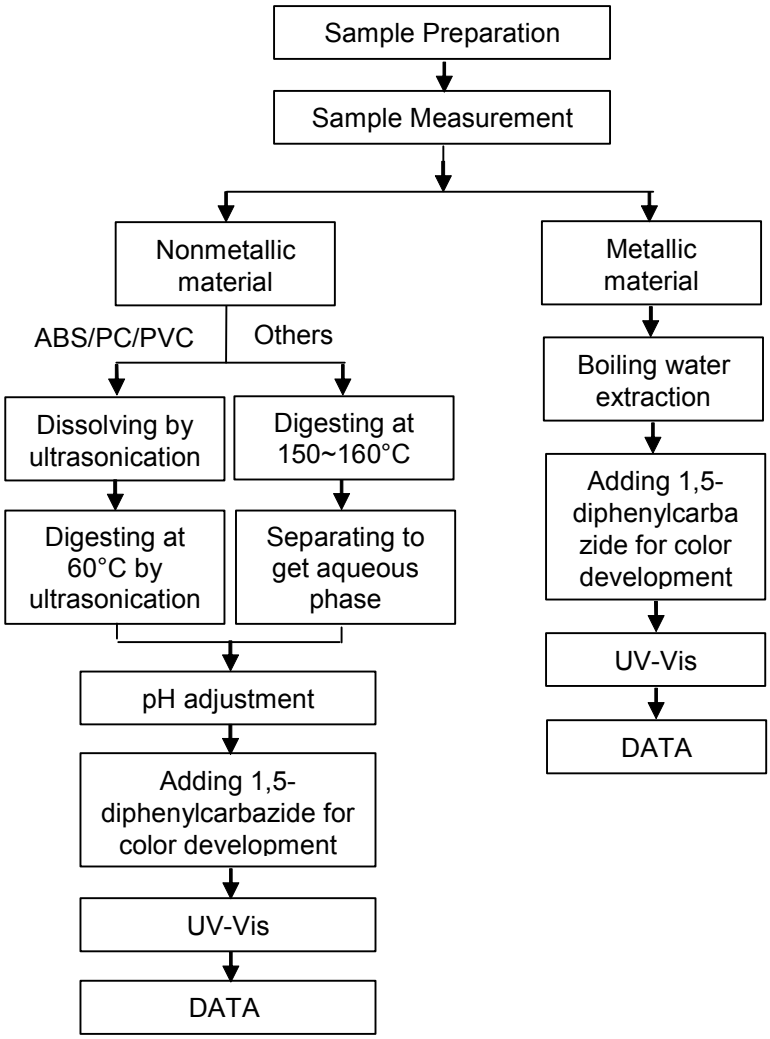
1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



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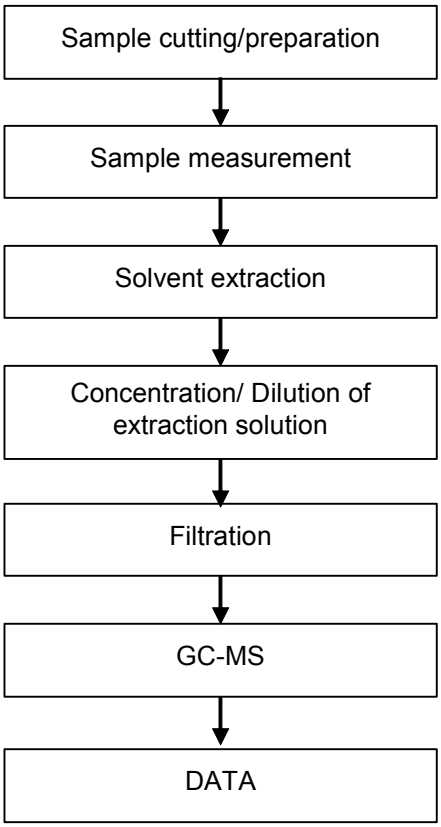
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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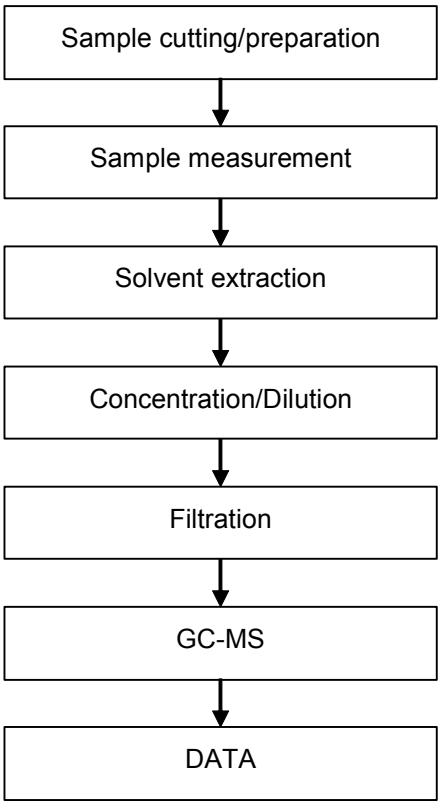
PBBs/PBDEs Testing Flow Chart



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Phthalates Testing Flow Chart



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Sample photo:



SHA19-273301.001

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GUANGDONG LEARY NEW MATERIAL TECHNOLOGY CO.,LTD

BEISHUI INDUSTRIAL ZONE, XINGTAN TOWN, SHUNDE DISTRICT, FOSHAN CITY, GUANGDONG PROVINCE.

The following sample(s) was/were submitted and identified on behalf of the clients as : Halogen free reinforcement plate

SGS Job No. :	CP20-018688 - GZ
Model No. :	LEB188-225S
Client Ref. Info. :	SEE REMARK
Date of Sample Received :	28 Apr 2020
Testing Period :	28 Apr 2020 - 11 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

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN20-061410.005	Blue 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	*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	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

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.

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Test Item(s)	Unit	MDL	*005*
Beryllium (Be)	mg/kg	5	ND
Cobalt (Co)	mg/kg	5	ND
Antimony (Sb)	mg/kg	10	164

Polychlorinated Naphthalenes (PCNs)

Test Method : SGS In-house method (GZTC CHEM-TOP-032-01, with reference to EPA 8082A:2007 & EPA 8270E:2017）, analysis was performed by GC-ECD/GC-MS.

Test Item(s)	Unit	MDL	*005*
1-Chlorinated Naphthalene	mg/kg	5	ND
2-Chlorinated Naphthalene	mg/kg	5	ND
1,4-Dichlorinated Naphthalene	mg/kg	5	ND
1,5-Dichlorinated Naphthalene	mg/kg	5	ND
1,2-Dichlorinated Naphthalene	mg/kg	5	ND
1,8-Dichlorinated Naphthalene	mg/kg	5	ND
1,2,3-Trichlorinated Naphthalene	mg/kg	5	ND
1,2,3,4-Tetrachlorinated Naphthalene	mg/kg	5	ND
1,2,3,4,6-Pentachlorinated Naphthalene	mg/kg	5	ND
Octa-chlorinated Naphthalene	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	*005*
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

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	*005*
Red phosphorus	mg/kg	500	ND

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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	005
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.

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)	Unit	MDL	005
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	mg/kg	10	ND

Phthalate

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Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	005
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%(w/w)	0.003	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.010	ND
Dipropyl Phthalate (DPrP)	131-16-8	%(w/w)	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%(w/w)	0.003	ND
Dipentyl Phthalates (DPENP/DnPP)	131-18-0	%(w/w)	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%(w/w)	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.003	ND

Notes :

(1) DBP,BBP,DEHP, DIBP Reference information: Entry 51 of Regulation (EU) 2018/2005 amending Annex XVII of REACH Regulation (EC) No 1907/2006:

i) Shall not be used as substances or in mixtures, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.

ii) Shall not be placed on the market in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material. In addition, DIBP shall not be placed on the market after 7 July 2020 in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material.

iii) shall not be placed on the market after 7 July 2020 in articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material in the articles.

Please refer to Regulation (EU) 2018/2005 to get more detail information

(2) DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EU) 2015/326 amending Annex XVII of REACH Regulation (EC) No 1907/2006.

i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.

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ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
Please refer to Regulation (EC) No 552/2009 to get more detail information

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	005
Perfluorooctanoic acid (PFOA) and its salts+	-	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-Ethylperfluoroctane sulfonamide(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 refer to 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 refer to its derivatives 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)

Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene

Test Method : SGS In-house method (GZTC CHEM-TOP-244-01, With reference to EPA 3550C:2007), analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	*005*
Benzenamine,N-phenyl-,Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)	68921-45-9	mg/kg	10	ND

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Notes :

* The result of BNST is quantified by one of BNST components

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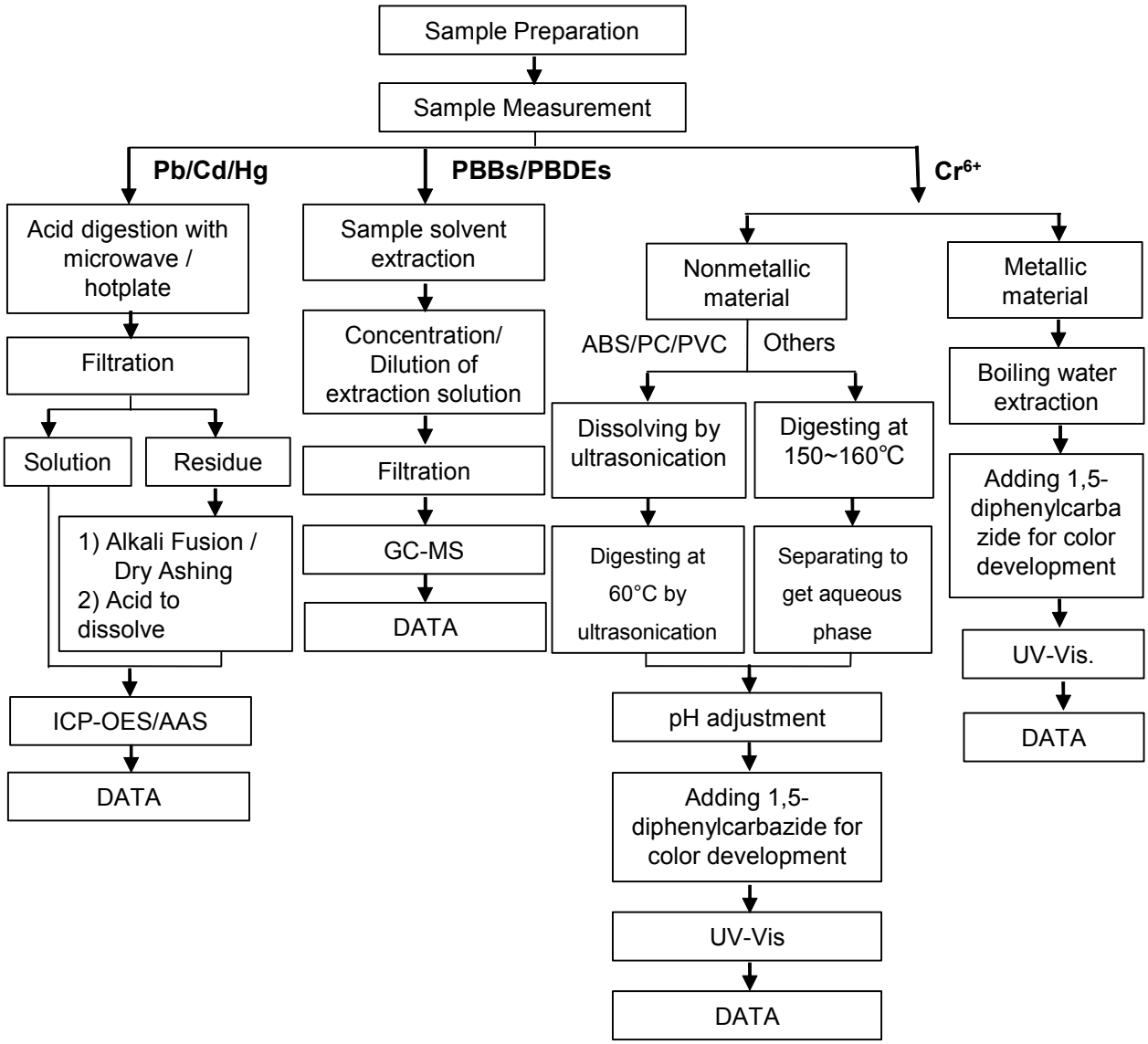
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Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

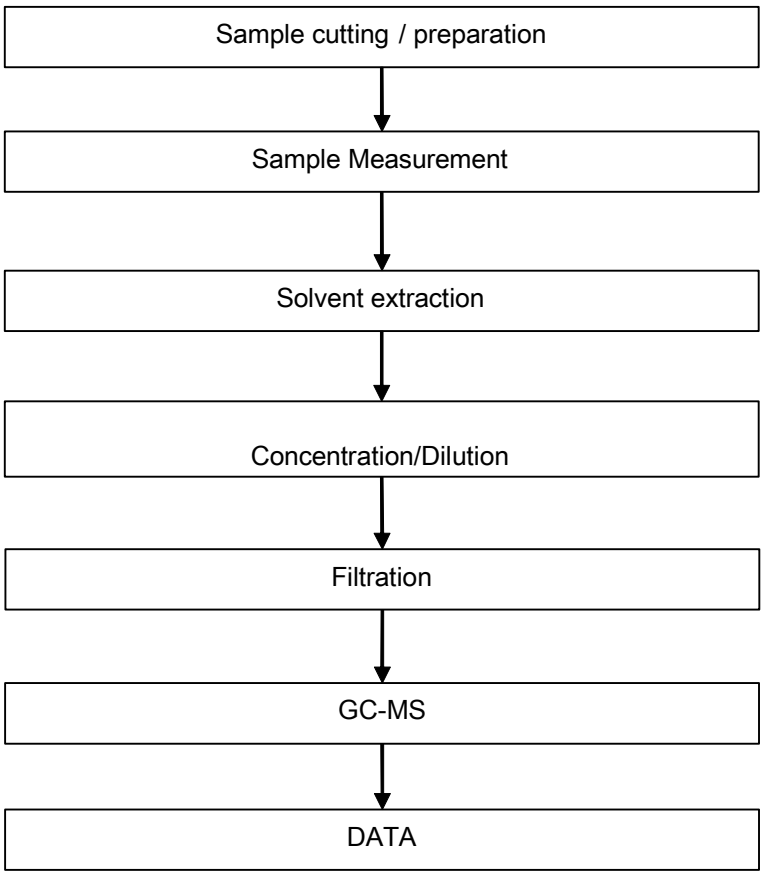
1) These samples were dissolved totally by pre -conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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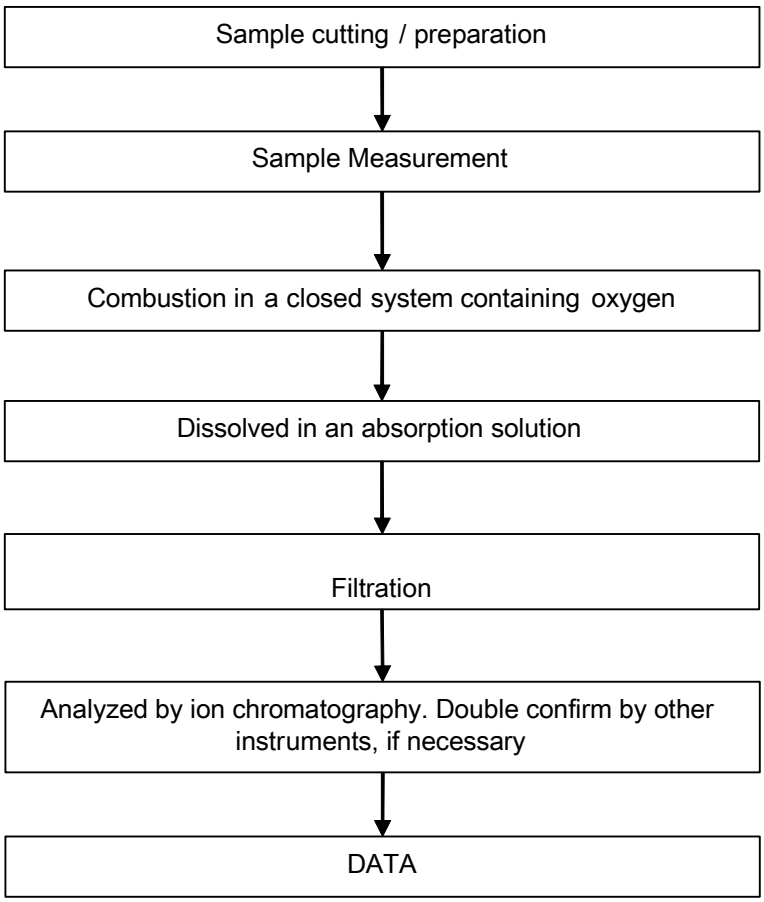
Phthalates Testing Flow Chart



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Halogen Testing Flow Chart

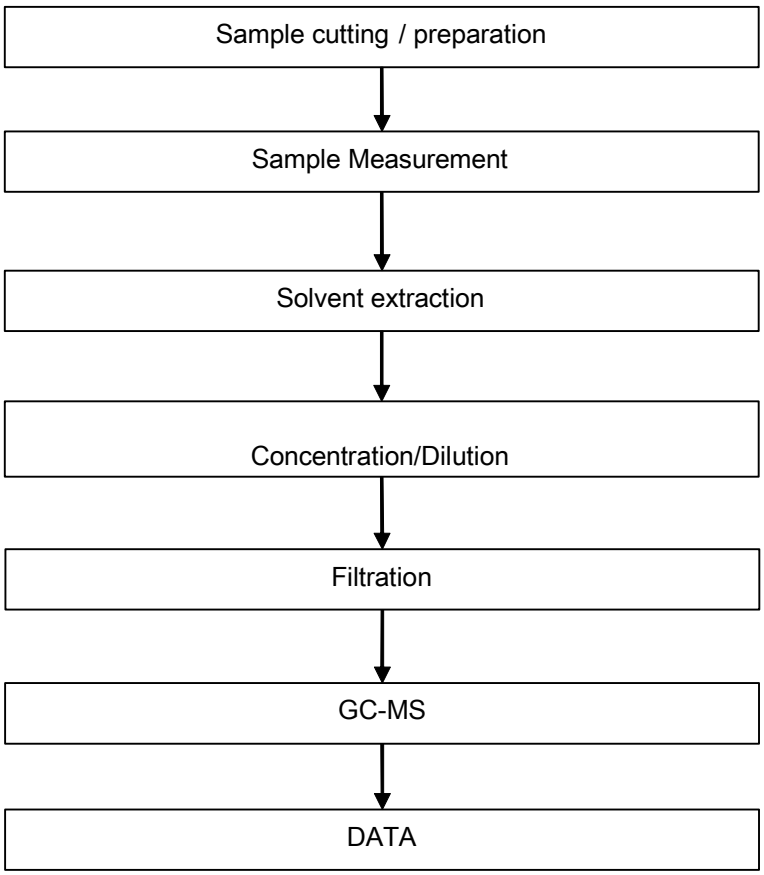


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HBCDD Testing Flow Chart



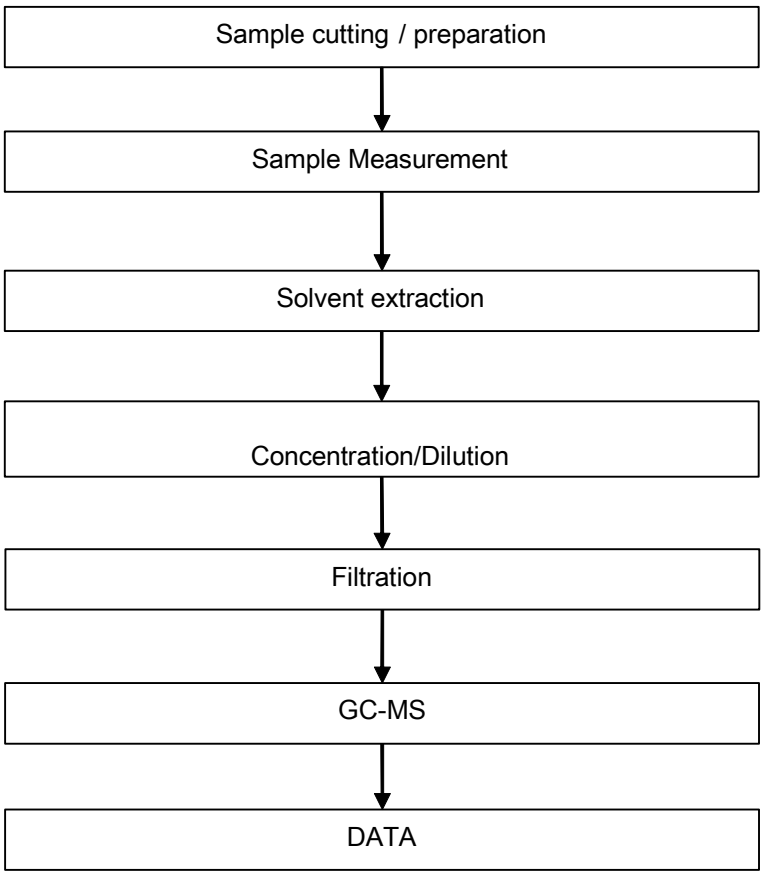
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PAHs Testing Flow Chart



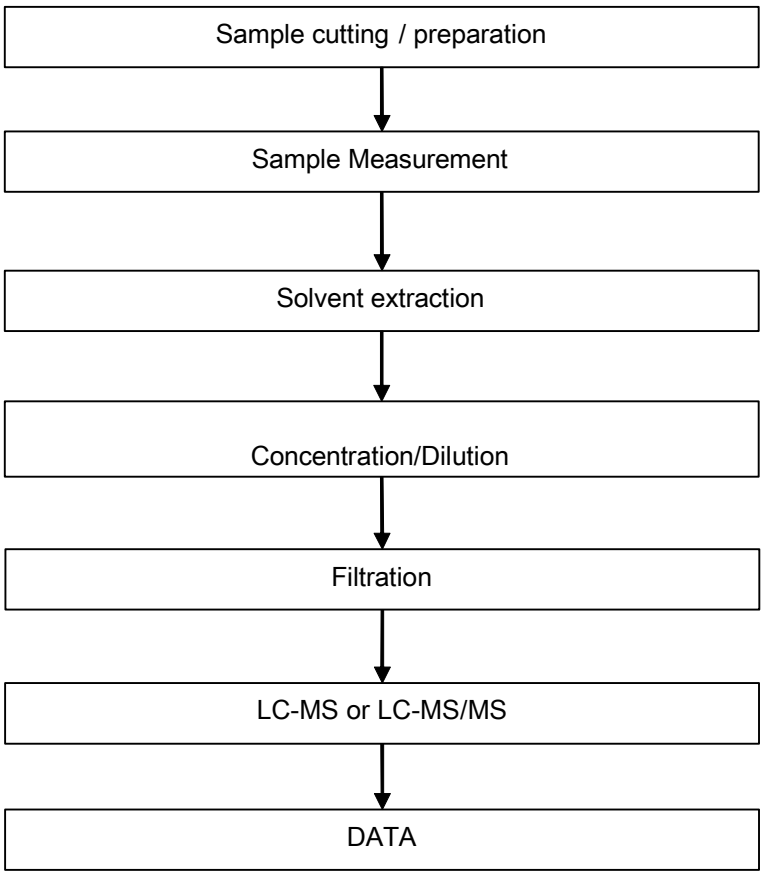
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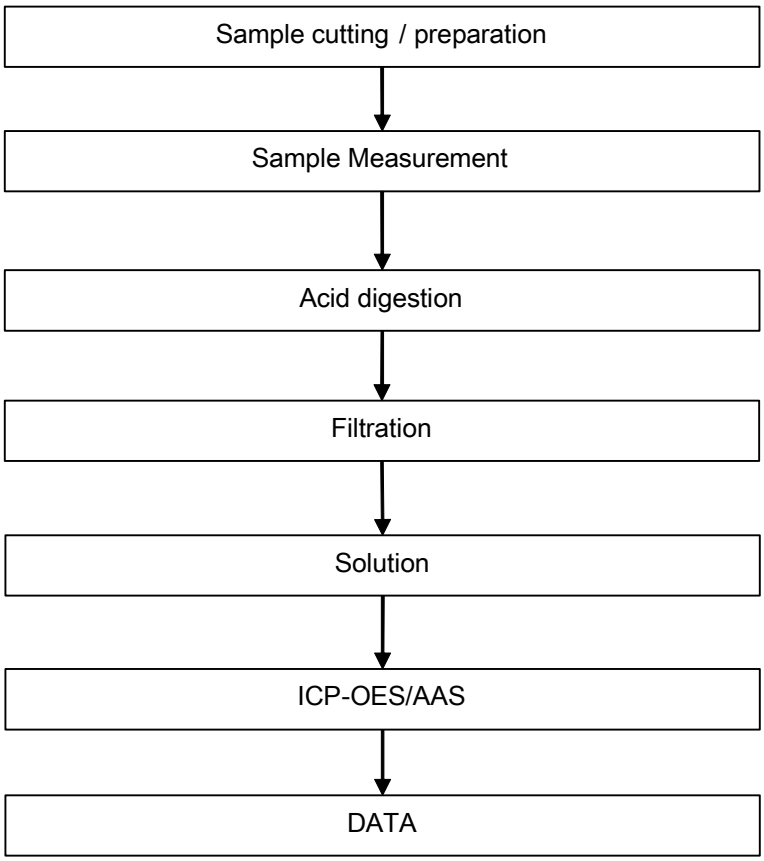
PFOA / PFOS Testing Flow Chart



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Elementary Testing Flow Chart

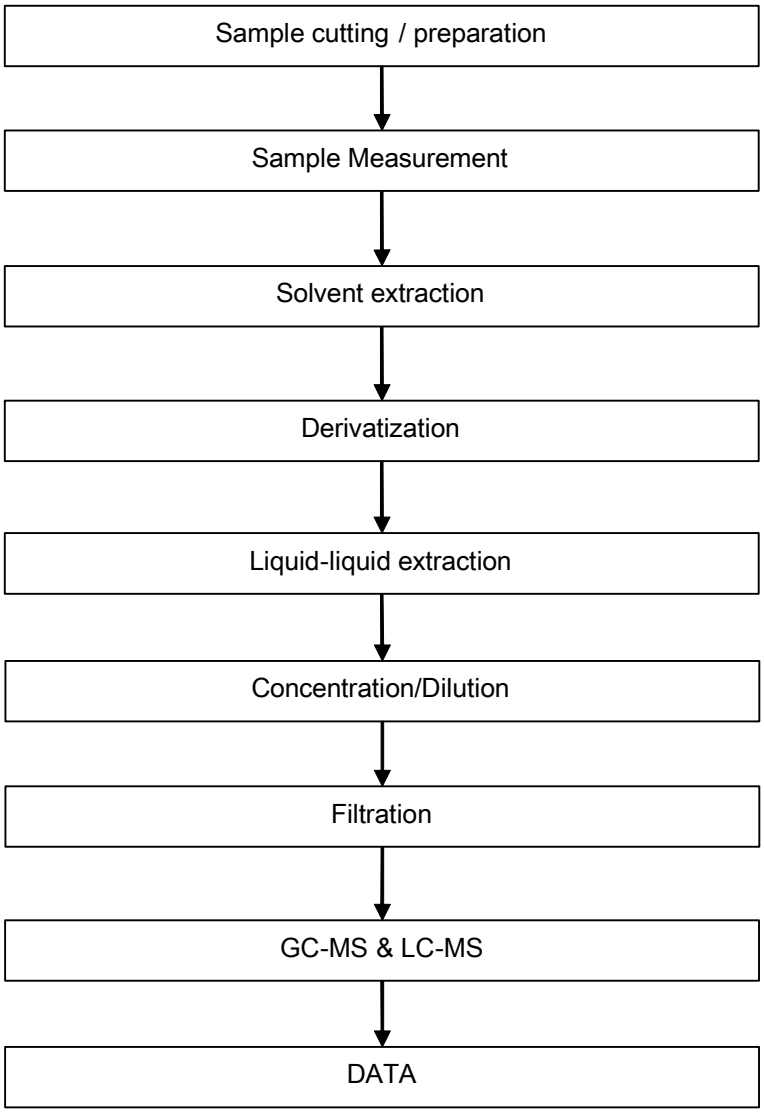


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TBBP-A Testing Flow Chart

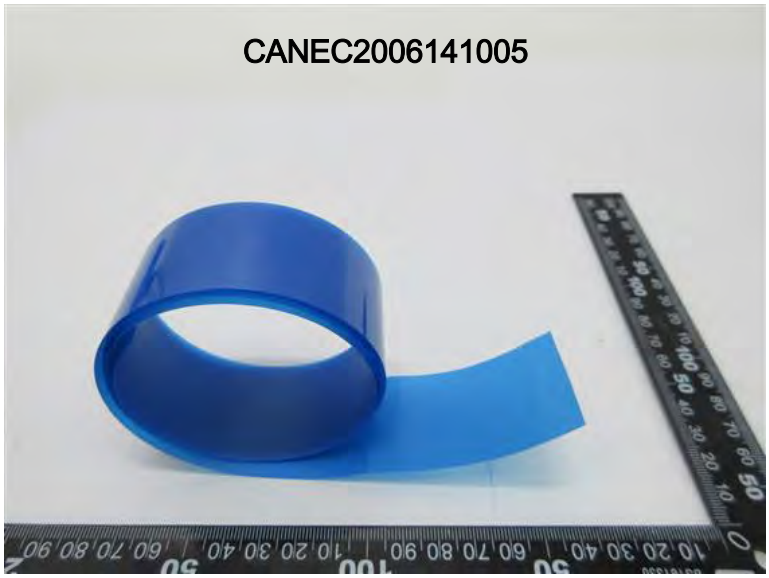


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Sample photo:



CAN20-061410.005

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*** End of Report ***

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Test Report

ZHONGSHAN KING LABEL ADHESIVE PRODUCTS CO., LTD

LIANFENG RD, SHENGFENG VILLAGE, XIAOLAN TOWN, ZHONGSHAN CITY, GUANGDONG CHINA

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

SGS Job No. :	CP19-048377 - SZ
Model No. :	T173
Client Ref. Info. :	PLEASE SEE REMARK
Lot No. :	SF06180724
Supplier :	KING LABEL
Date of Sample Received :	02 Sep 2019
Testing Period :	02 Sep 2019 - 06 Sep 2019
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

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN19-172911.001	White film

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.

Mercury (Hg)

Test Method : With reference to US EPA 7473: 2007, analysis was performed by Hg Analyzer.

Test Item(s)	Unit	MDL	001
Mercury (Hg)	mg/kg	0.1	ND

Halogen

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

Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND

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Test Item(s)	Unit	MDL	*001*
Iodine (I)	mg/kg	50	ND

Tetrabromobisphenol A (TBBP-A)

Test Method : SGS In-house method (GZTC CHEM-TOP-065, with reference to US EPA Method 3540C:1996), analysis was performed by GC-MS&HPLC-MS.

Test Item(s)	Unit	MDL	*001*
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

Hexavalent Chromium

Test Method : SGS In-house method (GZTC CHEM-TOP-001-01, with reference to US EPA Method 3060A:1996 & 7196A:1992), and then analyzed by UV-Vis Spectrophotometer.

Test Item(s)	Unit	MDL	*001*
Hexavalent Chromium (CrVI)	mg/kg	2	ND

PVC (Polyvinyl chloride)

Test Method : SGS in house method(GZTC CHEM-TOP-066), analysis was performed by FTIR.

Test Item(s)	CAS NO.	Unit	MDL	*001*
Polyvinyl Chloride (PVC)	9002-86-2	-	-	Negative

Notes :

(1) Negative=Undetectable,Positive=Detectable

Hexabromocyclododecane (HBCDD)

Test Method : With reference to IEC 62321:2008, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	*001*
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

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Phthalate

Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%(w/w)	0.003	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.010	ND
Dipropyl Phthalate (DPrP)	131-16-8	%(w/w)	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%(w/w)	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%(w/w)	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.003	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	%(w/w)	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	%(w/w)	0.01	ND
n-pentyl Isopentyl Phthalate (nPIPP)	776297-69-9	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear (DPP)	84777-06-0	%(w/w)	0.01	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	%(w/w)	0.01	ND
Diisopentyl Phthalate (DIPP)	605-50-5	%(w/w)	0.003	ND

Notes :

(1) DBP,BBP,DEHP, DIBP Reference information: Entry 51 of Regulation (EU) No2018/2005 amending Annex XVII of REACH Regulation (EC) No 1907/2006:
i) Shall not be used as substances or in mixtures, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.

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ii) Shall not be placed on the market in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material. In addition, DIBP shall not be placed on the market after 7 July 2020 in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material.
iii) shall not be placed on the market after 7 July 2020 in articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material in the articles.
Please refer to Regulation (EU) No 2018/2005 to get more detail information.
(2) DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).
i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.
Please refer to Regulation (EC) No 552/2009 to get more detail information.

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2014:01 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
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
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

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Test Item(s)	CAS NO.	Unit	MDL	001
Sum of 7 PAHs Acenaphthylene. Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	-	mg/kg	-	ND
Sum of 18 PAHs	-	mg/kg	-	ND

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

Parameter	Category 1	Category 2		Category 3	
	Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 s (long-term skin) or frequent contact.		Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 s (short-term skin contact).	
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/48/EC	Other products under ProdSG
Benzo(a)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene Mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(l,2,3-cd)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Acenaphthylene, Acenaphthene, fluorene,phenanthrene , pyrene, anthracene, fluoranthene, mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene, mg/kg	< 1	< 2		< 10	
Sum of 18 PAHs	<1	< 5	< 10	< 20	< 50

PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)

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

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Test Item(s)	CAS NO.	Unit	MDL	001
Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	0.01	ND
Perfluorooctane Sulfonates (PFOS)^		mg/kg	0.01	ND

Notes :

(1) ^: PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluoroctanesulfonic acid, Perfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamide, N-Ethylperfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamidoethanol and N-Ethylperfluoroctane sulfonamidoethanol.

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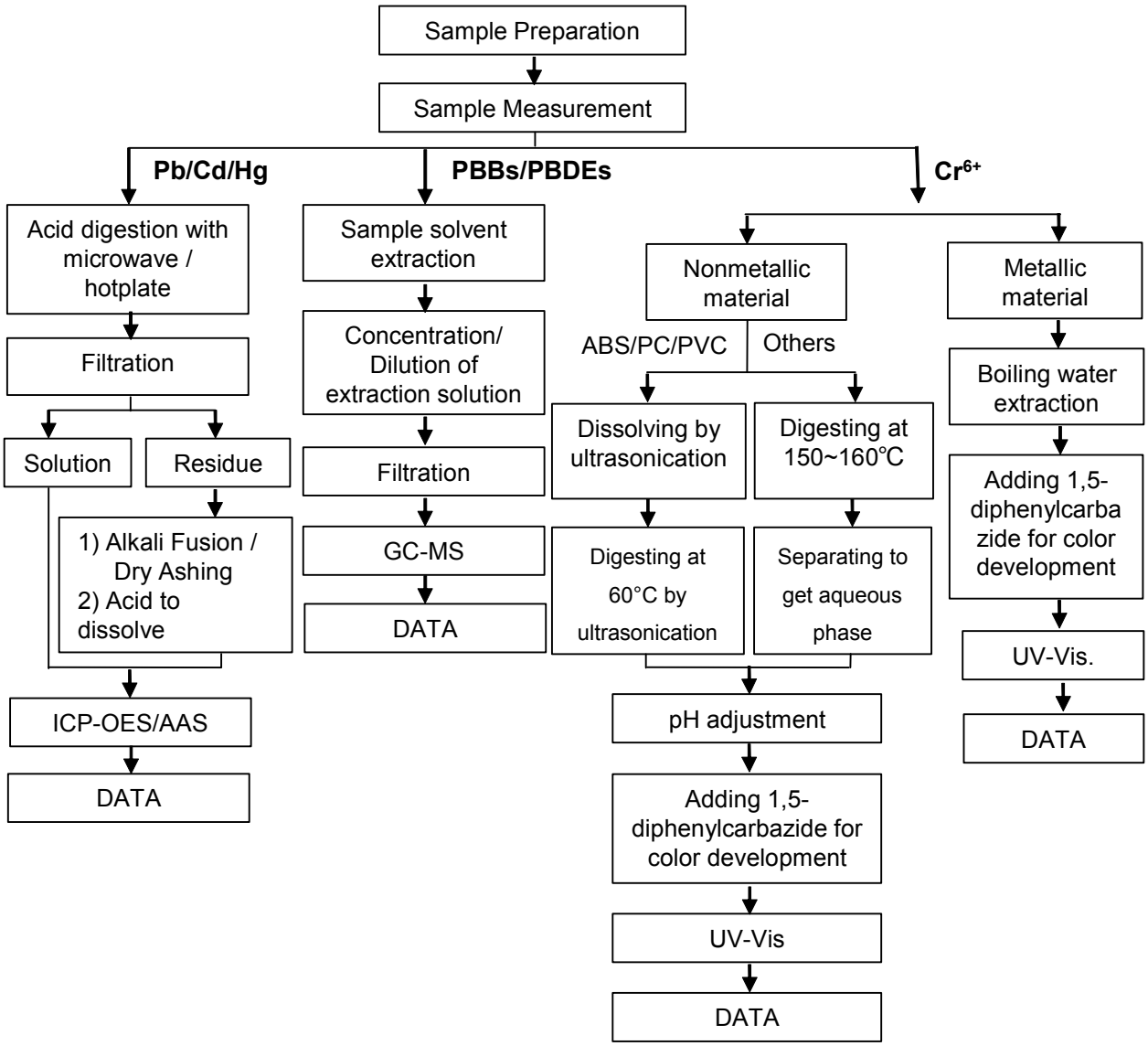
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Pb/Cd/Hg/Cr^{6+}/PBBs/PBDEs Testing Flow Chart

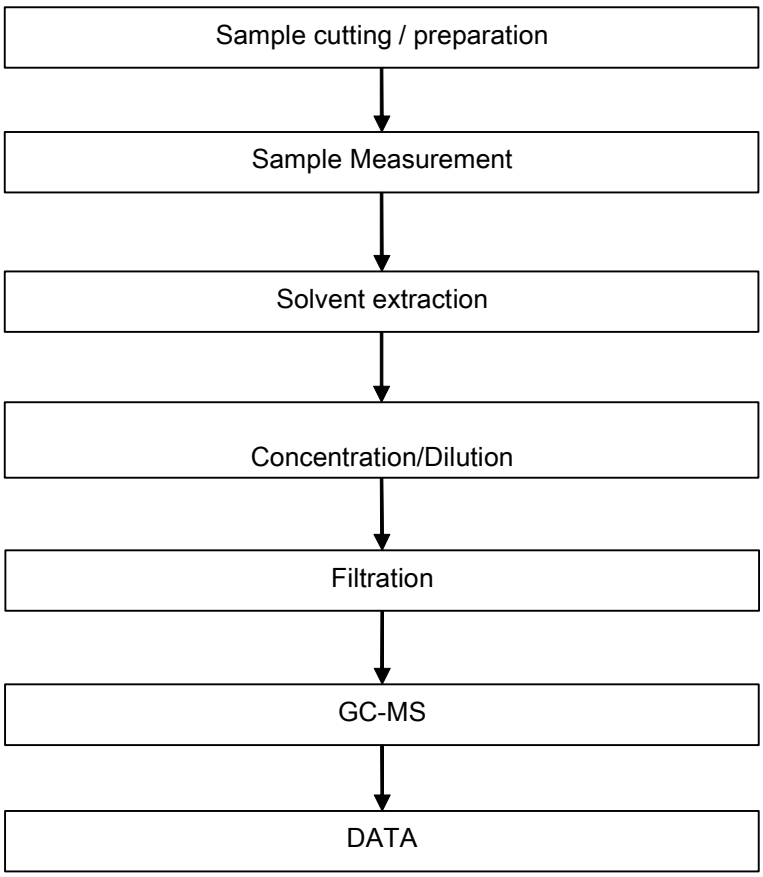
1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr^{6+} and PBBs/PBDEs test method excluded).



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Phthalates Testing Flow Chart



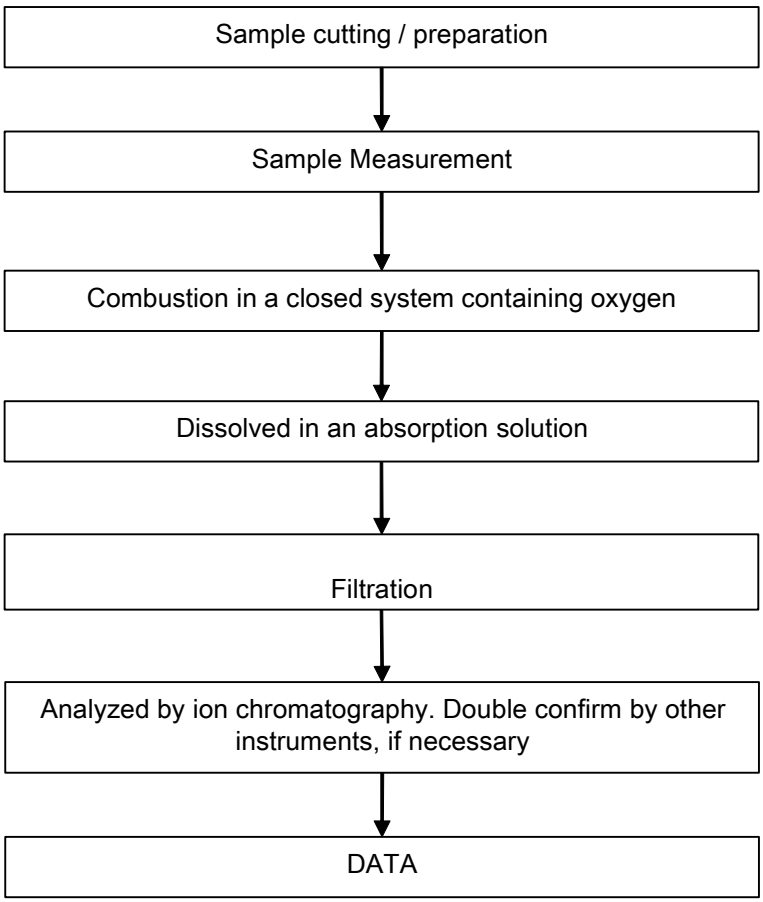
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Halogen Testing Flow Chart

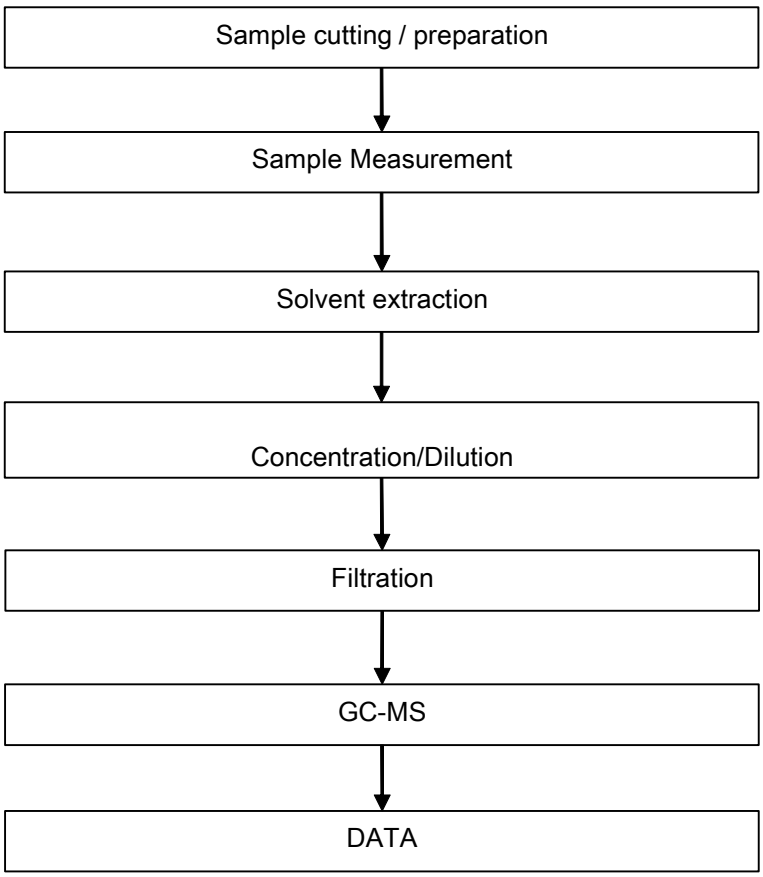


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HBCDD Testing Flow Chart



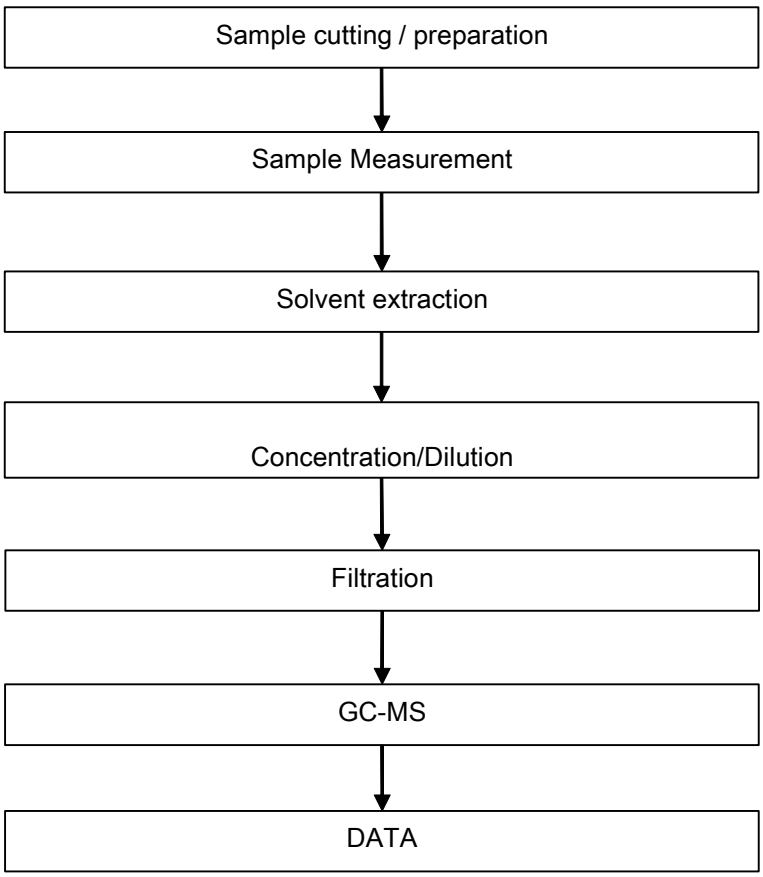
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PAHs Testing Flow Chart



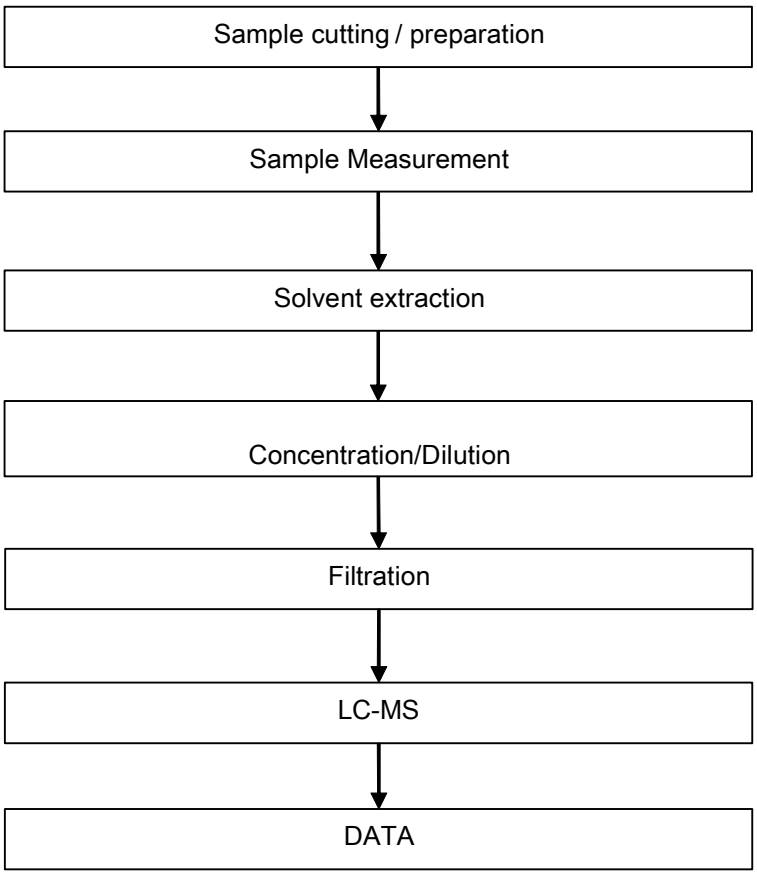
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PFOA / PFOS Testing Flow Chart

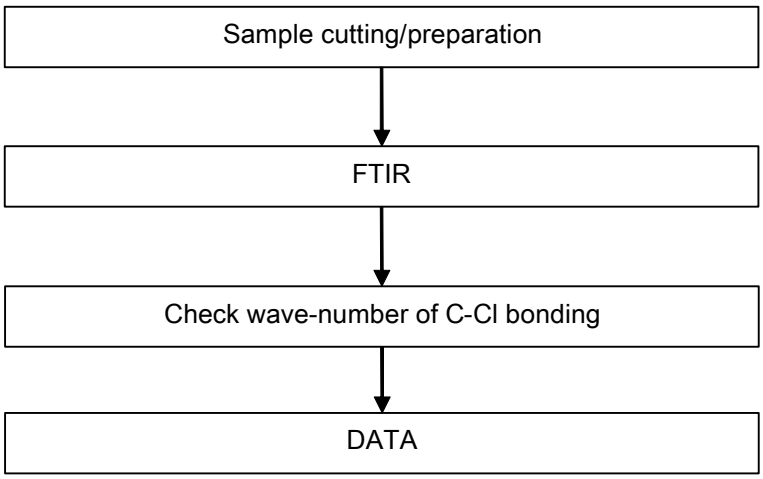


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PVC Testing Flow Chart

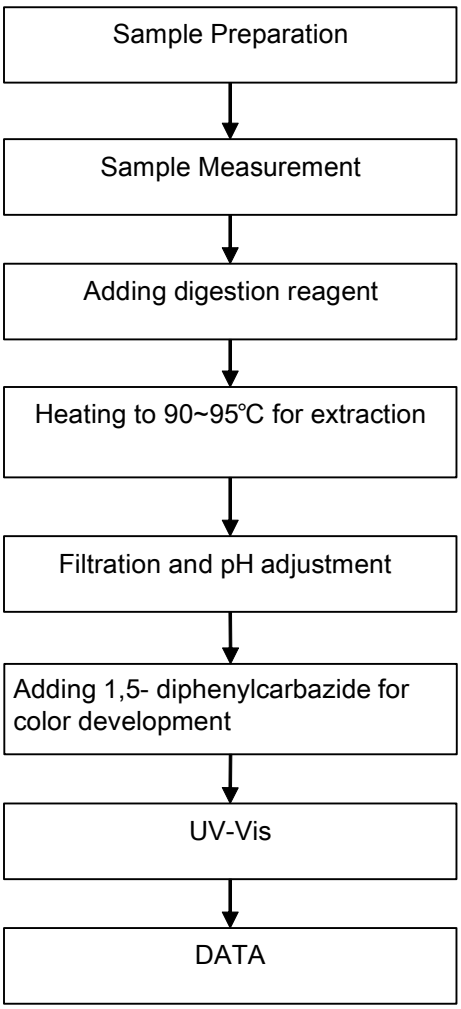


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Cr^{6+} Testing Flow Chart

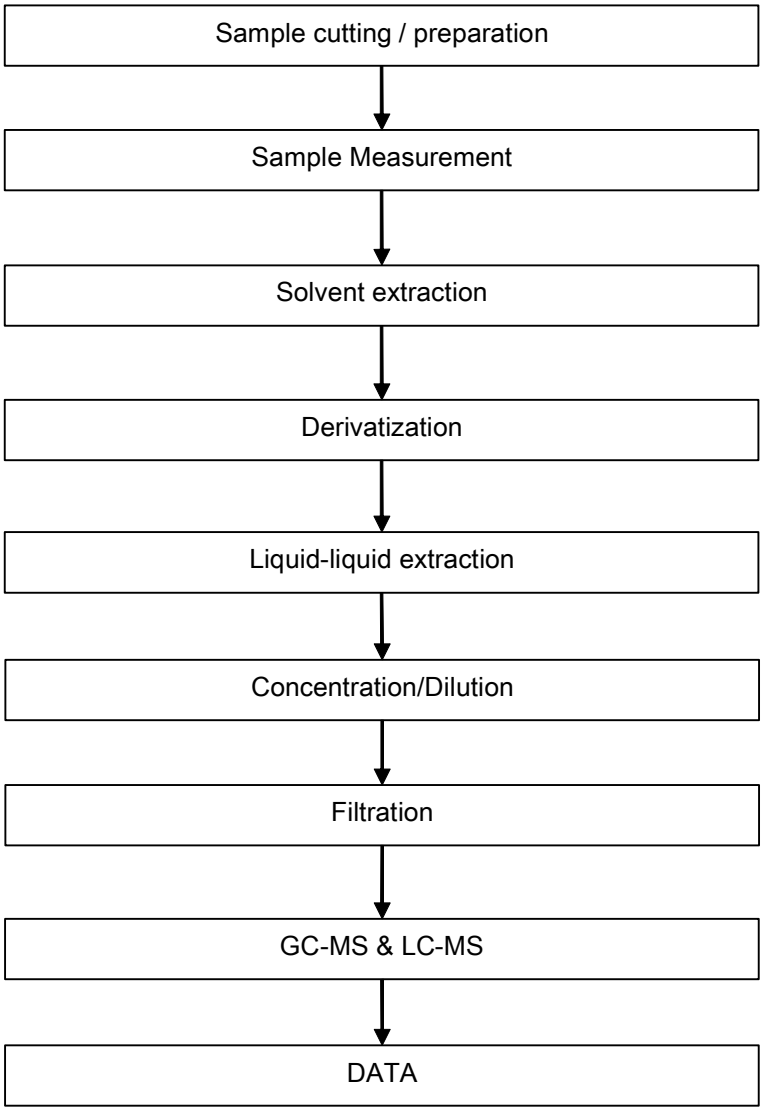


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TBBP-A Testing Flow Chart

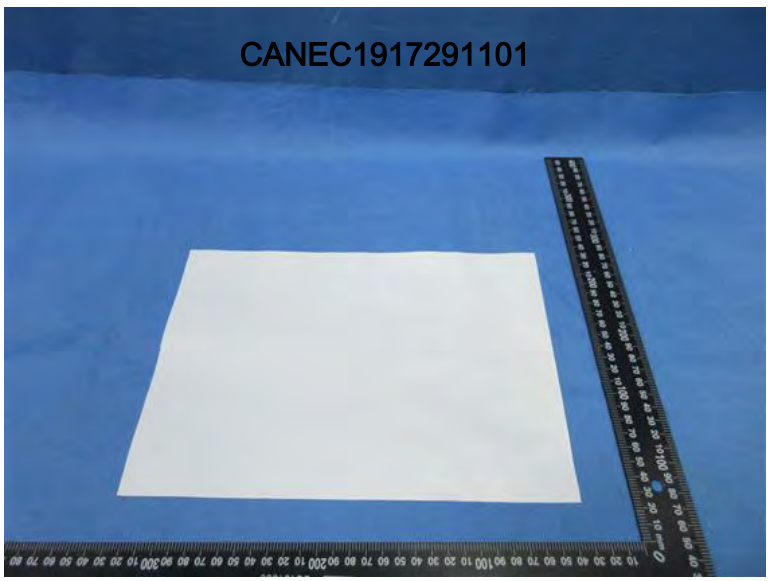


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Sample photo:



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HITACHI INDUSTRIAL EQUIPMENT SYSTEMS CO., LTD

1-1,HIGASHITAGA-CHO 1-CHOME，HITACHI-SHI，IBARAKI-KEN，JAPAN

The following sample(s) was/were submitted and identified on behalf of the clients as : Hitachi IJ Printer INK

SGS Job No. :	SP19-039298 - SH
Model No. :	JP-K33
Date of Sample Received :	07 Jan 2020
Testing Period :	07 Jan 2020 - 16 Jan 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).

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Dora Hu

Dora Hu
Approved Signatory

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA20-004265.001	Black liquid

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+AMD1:2017, IEC62321-5:2013, ISO 17075-1:2017, IEC 62321-6:2015 and IEC62321-8:2017, 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)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1000	mg/kg	3.0	ND
Sum of PBBs	1000	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	1000	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

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Test Item(s)	Limit	Unit	MDL	*001*
Pentabromodiphenyl ether	-	mg/kg	5	ND
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
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl 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) 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.

VOC

Test Method : With reference to US EPA 5021A:2014, analysis was performed by HS-GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	*001*
Dichloromethane	75-09-2	mg/kg	5	ND
n-Hexane	110-54-3	mg/kg	5	ND
Benzene	71-43-2	mg/kg	5	ND

Notes :

Results reported on the submitted sample as received.

Halogen

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

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Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Element(s)

Test Method : With reference to US EPA 3052:1996, analysis was performed by ICP-OES.

Test Item(s)	Unit	MDL	001
Beryllium (Be)	mg/kg	5	ND
Antimony (Sb)	mg/kg	10	ND

Sulfur

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

Test Item(s)	Unit	MDL	001
Sulfur (S)	mg/kg	50	137

Hexabromocyclododecane (HBCDD/HBCD)

Test Method : With reference to US EPA 3550C: 2007, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	001
Hexabromocyclododecane (HBCDD/HBCD)	mg/kg	10	ND

PVC (Polyvinyl chloride)

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Test Method : In-house method (SHTC-CHEM-SOP-115-T), analysis was performed by FTIR/HATR.

Test Item(s)	CAS NO.	Unit	MDL	*001*
PVC	9002-86-2	-	-	Negative

Notes :

(1) Negative=Undetectable,Positive=Detectable

Polycyclic aromatic hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2014:01 PAK, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	001
Benzo(a)pyrene(BaP)	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	mg/kg	0.1	4.1
Benzo(b)fluoranthene(BbF)	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	mg/kg	0.1	ND
Chrysene(CHR)	mg/kg	0.1	0.2
Dibenzo(a,h)anthracene(DBA)	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	mg/kg	0.1	ND
Acenaphthylene(ANY)	mg/kg	0.1	ND
Acenaphthene(ANA)	mg/kg	0.1	ND
Fluorene(FLU)	mg/kg	0.1	ND
Phenanthrene(PHE)	mg/kg	0.1	ND
Pyrene(PYR)	mg/kg	0.1	ND
Anthracene(ANT)	mg/kg	0.1	ND
Fluoranthene(FLT)	mg/kg	0.1	ND
Sum of Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	mg/kg	-	ND
Naphthalene(NAP)	mg/kg	0.1	ND
Sum of 18 PAHs	mg/kg	-	4.3

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

Parameter	Category 1	Category 2		Category 3	
	Material intended to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 s (long-term skin) or frequent contact.		Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 s (short-term skin contact).	
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/48/EC	Other products under ProdSG
Benzo(a)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(l,2,3-cd)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Acenaphthylene, Acenaphthene, fluorene,phenanthrene , pyrene, anthracene, fluoranthene, mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene, mg/kg	< 1	< 2		< 10	
Sum of 18 PAHs	<1	< 5	< 10	< 20	< 50

PFOS (Perfluorooctane Sulfonates) and PFOA (Perfluorooctanoic Acid)

Test Method : With reference to US EPA 3550C: 2007, analysis was performed by HPLC-MS.

Test Item(s)	Unit	MDL	001
Perfluorooctanesulfonate (PFOS)^	mg/kg	10	ND
Perfluorooctanoic Acid (PFOA)	mg/kg	10	ND

Notes :

(1) ^ PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluoroctanesulfonic acid, Perfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamide, N-Ethylperfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamidoethanol and N-Ethylperfluoroctane sulfonamidoethanol.

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Phthalates Content

Test Method : With reference to EN 14372:2004, analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Dibutyl Phthalate (DBP)	84-74-2	%	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 /68515-48-0	%	0.01	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 /68515-49-1	%	0.01	ND
Dimethyl Phthalate (DMP)	131-11-3	%	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	%	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%	0.003	ND
Di-n-pentyl Phthalates (DnPP)	131-18-0	%	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	%	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%	0.003	ND
Diisooctyl Phthalate (DiOP)	27554-26-3	%	0.01	ND
Dipropyl Phthalate (DPrP)	131-16-8	%	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%	0.003	ND

Result shown is of the total weight of dried sample.

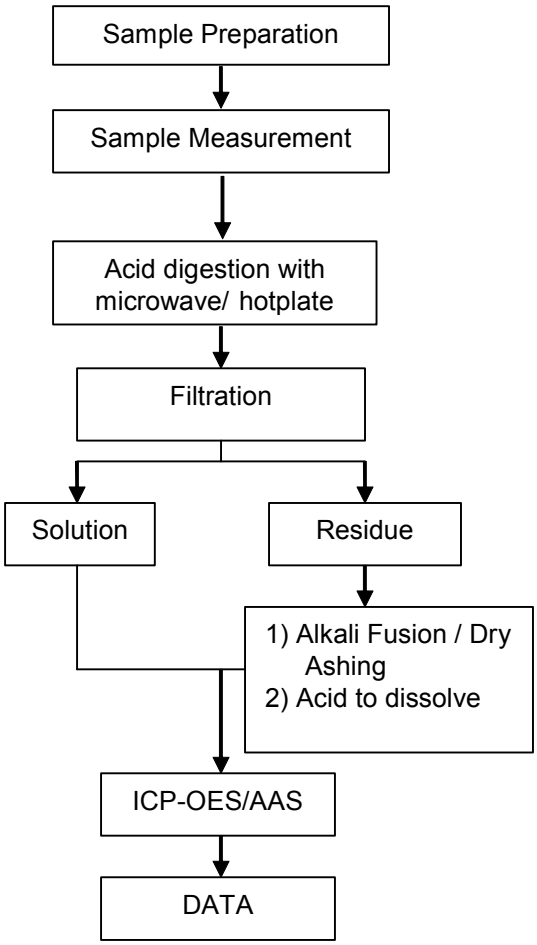
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Elements (IEC62321) Testing Flow Chart

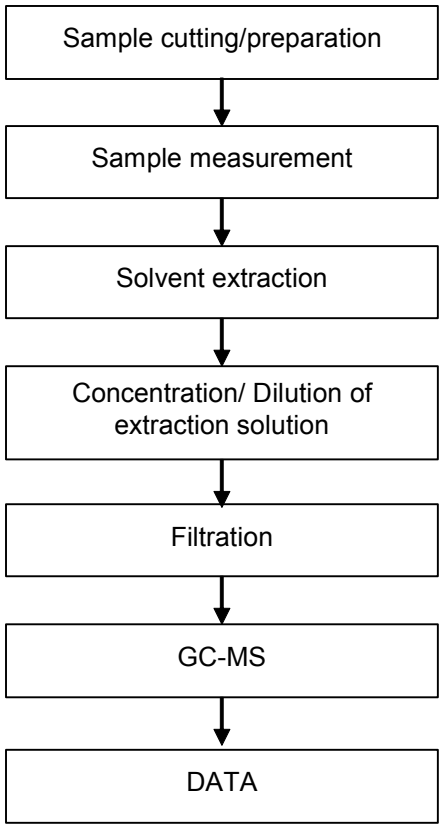
1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



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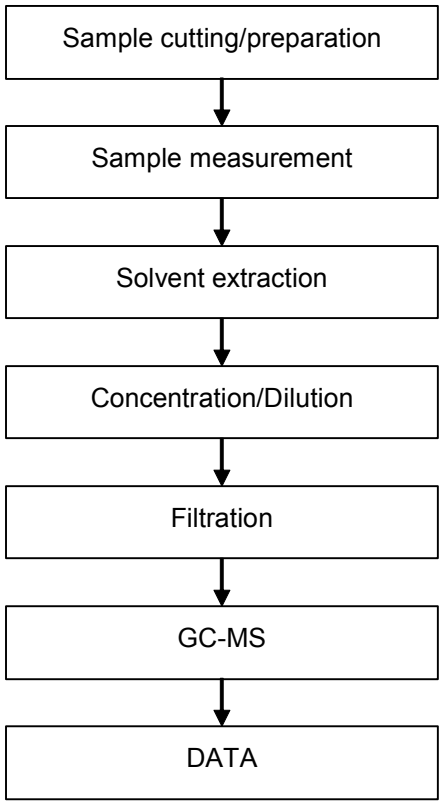
PBBs/PBDEs Testing Flow Chart



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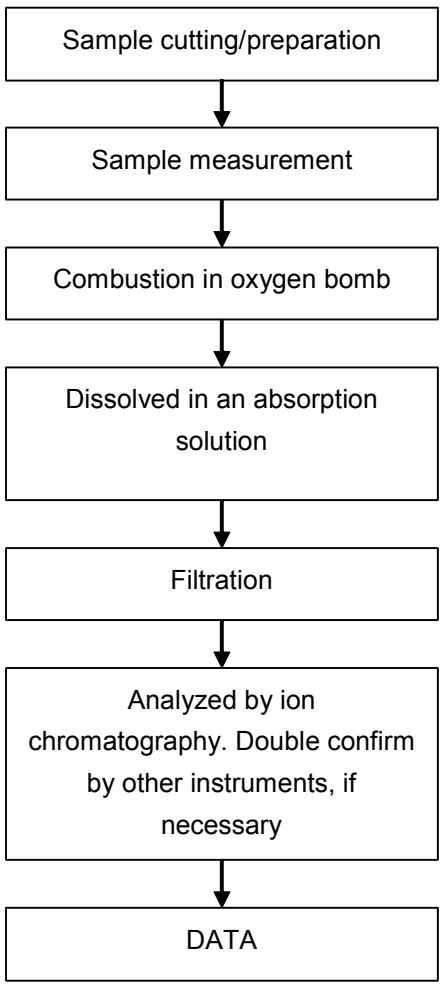
Phthalates Testing Flow Chart



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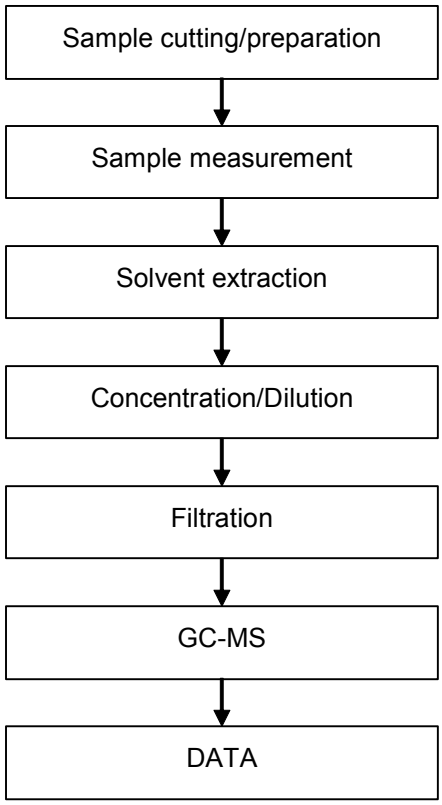
Halogen Testing (oxygen bomb) Flow Chart



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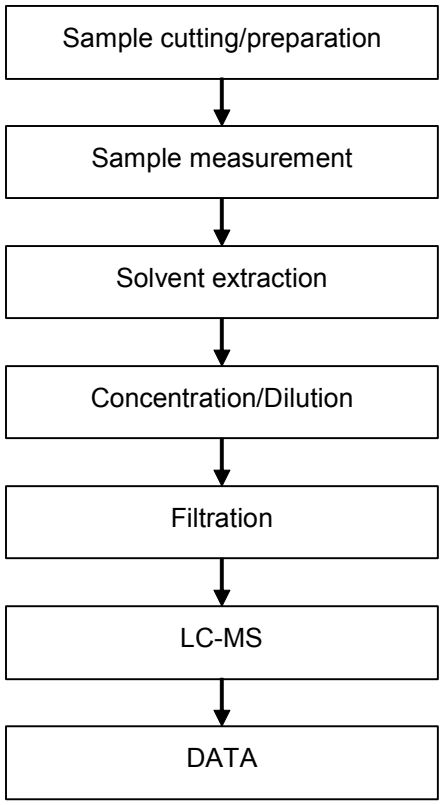
HBCDD Testing Flow Chart



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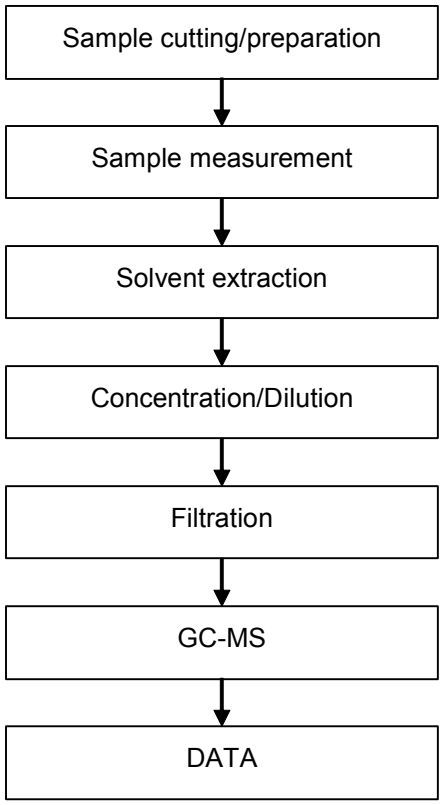
PFOS/PFOA Testing Flow Chart



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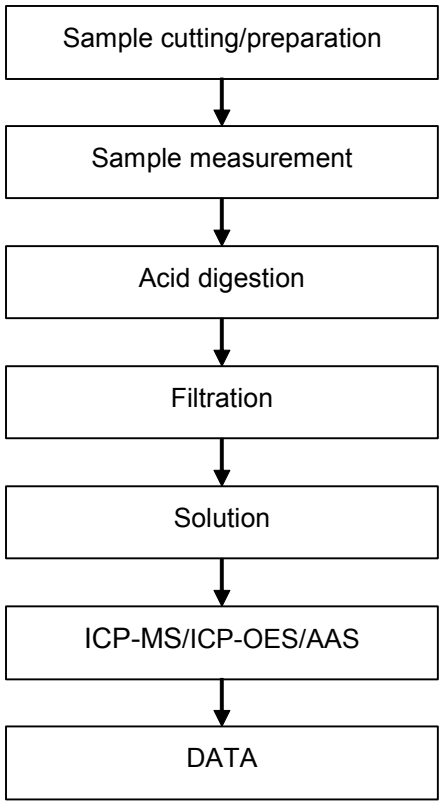
PAHs Testing Flow Chart



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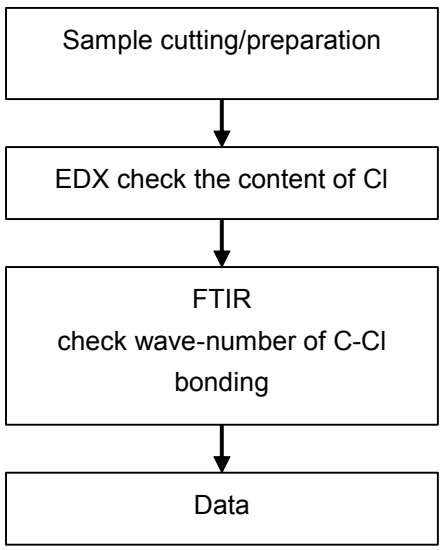
Elements Testing Flow Chart



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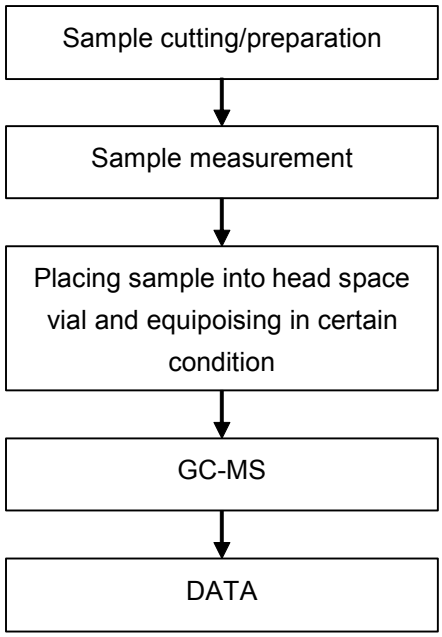
PVC Testing Flow Chart



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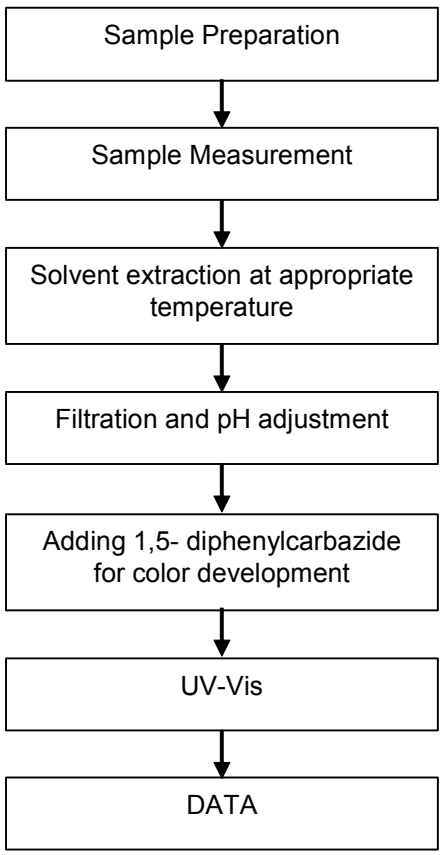
VOC Testing Flow Chart



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Cr^{6+} Testing Flow Chart



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