

## Test Report

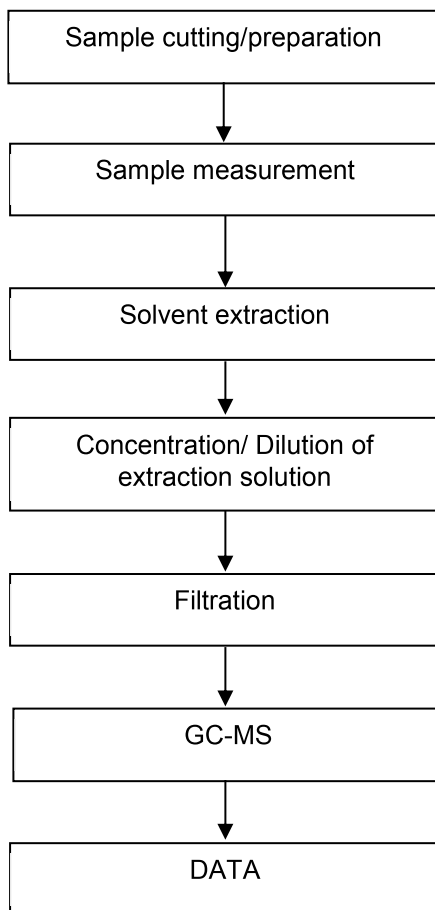
### ATTACHMENTS

No.: SHAEC23000346911

Date: Jan 13, 2023

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### PBBs/PBDEs Testing Flow Chart



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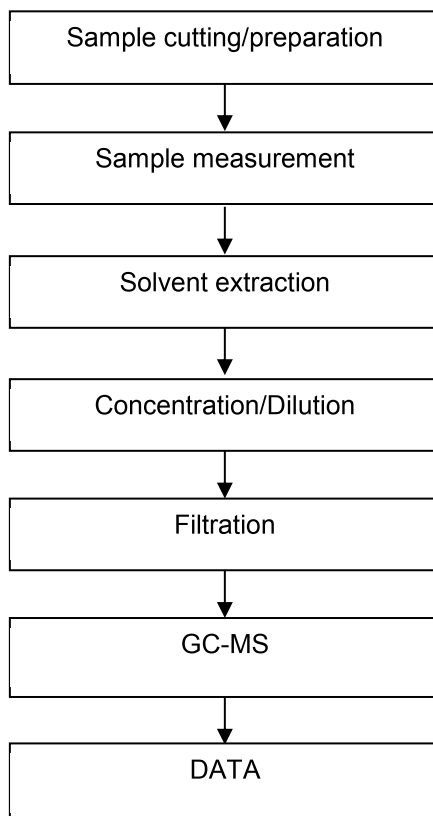
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### Phthalates Testing Flow Chart



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## Test Report

No.: SHAEC23002162901

Date: Mar 09, 2023

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Client Name: COLORANT CHROMATICS TRADING(SHANGHAI)CO.,LTD

Client Address: 2F,BLOCK C,VI-HUB@JINQIAO,200 JINSU ROAD,PUDONG,SHANGHAI

Sample Name: FEP Colormasterbatch

Client Ref. Information: 100.00/102.00/103.00/108.00/113.00/142.00/143.00/152.00/153.00/158.00/190.00/192.00/193.00/198.00/S203.0/S243.0/S245.0/STR1625/STR1962

Lot No.: 7167477

The above sample(s) and information were provided by the client.

SGS Job No.: SP23-005674

Sample Receiving Date: Mar 03, 2023

Testing Period: Mar 03, 2023 ~ Mar 09, 2023

Test Requested: Select test(s) as requested by the client.

Test Method(s): Please refer to next page(s).

Test Result(s): Please refer to next page(s).

Test Requirement	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

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



Jenny Lan

Approved Signatory



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# Test Report

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## Test Result(s):

### Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0021629-0001.C001	Black solid pellet

### Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

**EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)**

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A1
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))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND



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Test Item(s)	Limit	Unit(s)	MDL	A1
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

### Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) 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.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.

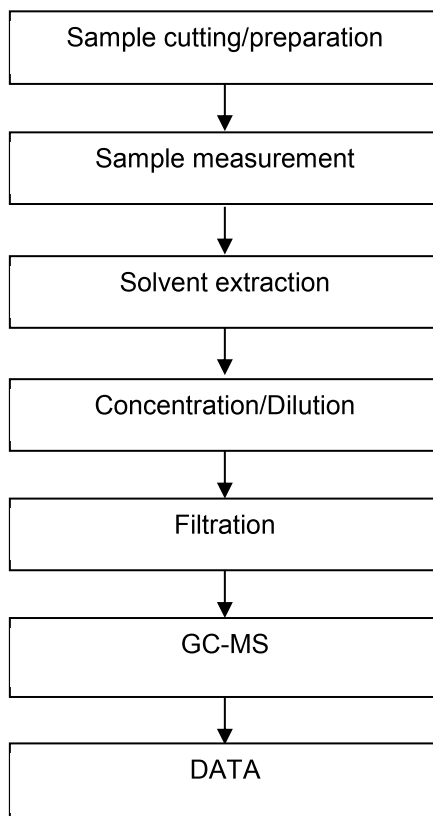


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### Phthalates Testing Flow Chart



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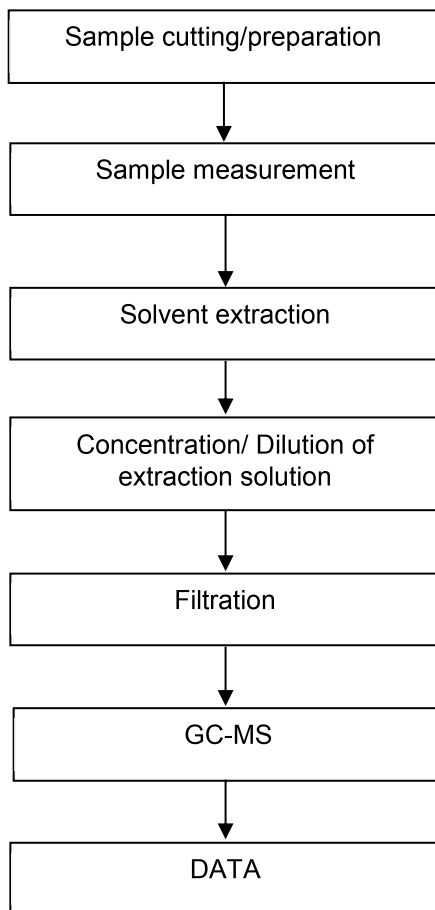
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#### PBBs/PBDEs Testing Flow Chart



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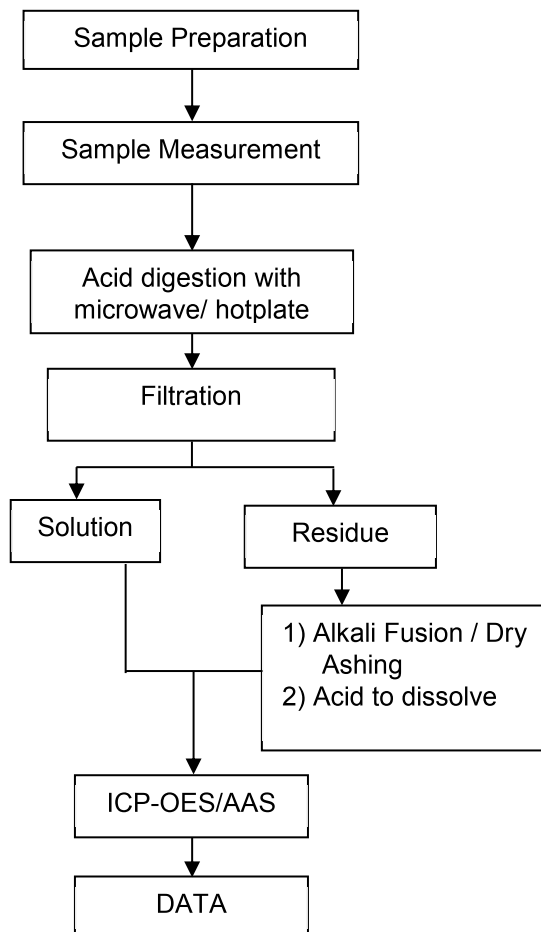
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### Elements (IEC62321) Testing Flow Chart

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



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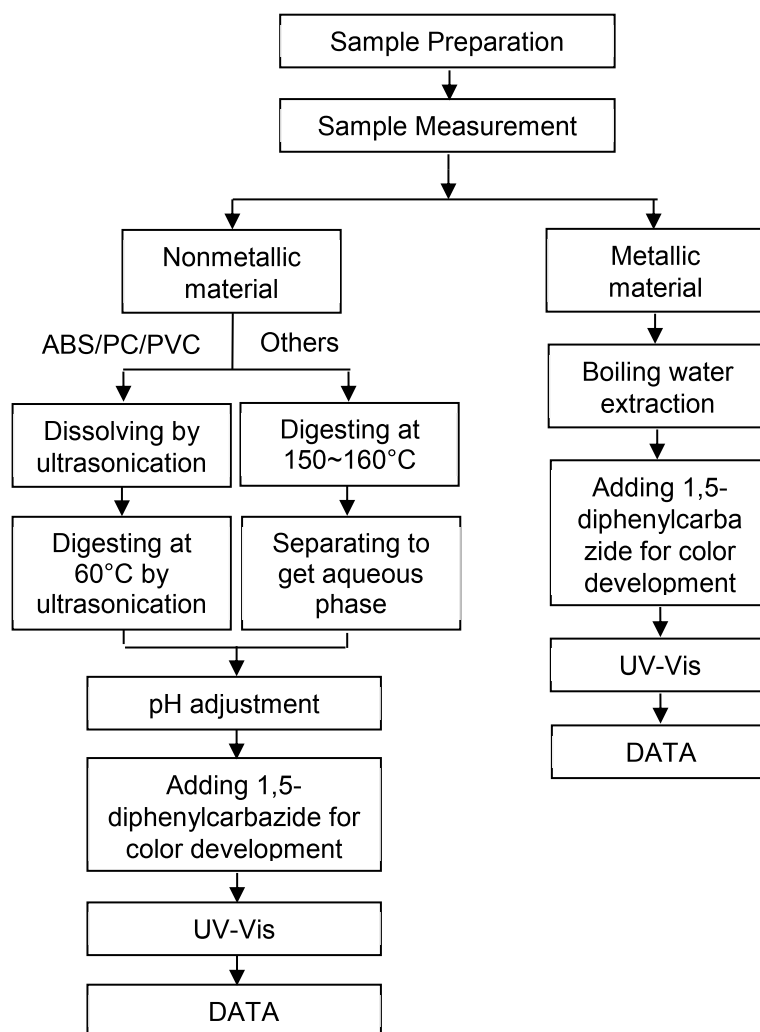
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### Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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Date: Mar 09, 2023

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# Test Report

Report No. A2230430133101008

Company Name KUNSHAN QIANHENG SURFACE TREATMENT CO.,LTD  
shown on ReportAddress NO.2 FENGXIA ROAD,HEFENG DEVELOPMENT ZONE, LUJIA  
TOWN,KUNSHAN,JIANGSU PROVINCE

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

Sample Name Gold coating  
Sample Received Date Aug. 23, 2023  
Testing Period Aug. 23, 2023 to Aug. 27, 2023

**Test Requested** As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Arsenic(As), Beryllium(Be), Antimony(Sb), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I), Perfluorooctane Sulfonates(PFOS) in the submitted sample(s).

**Test Method** Please refer to the following page(s).

**Test Result(s)** Please refer to the following page(s).

## Conclusion

Tested Sample	According to standard/directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.



Approved by

*Chen Kaimin*Chen kaimin  
Lab Manager

Date

Aug. 27, 2023

No. R268851113

No.1351, Wanfang Road, Minhang District, Shanghai, China

## Test Report

Report No. A2230430133101008

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## Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	Refer to IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	Refer to IEC 62321-5:2013	ICP-OES
Mercury (Hg)	Refer to IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015	UV-Vis
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Arsenic(As)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Beryllium(Be)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Antimony(Sb)	Refer to US EPA 3050B:1996 & US EPA 6010D:2018*	ICP-OES
Fluorine (F)	Refer to EN 14582:2016*	IC
Chlorine (Cl)	Refer to EN 14582:2016*	IC
Bromine (Br)	Refer to EN 14582:2016*	IC
Iodine (I)	Refer to EN 14582:2016*	IC
Perfluorooctane Sulfonates(PFOS)	Refer to US EPA 3550C:2007 & US EPA 8321B:2007*	LC-MS-MS/LC-MS



## Test Report

Report No. A2230430133101008

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## Test Result(s)

Tested Item(s)	Result	MDL	Limit
	008		
Lead (Pb)	N.D.	2 mg/kg	1000 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg	100 mg/kg
Mercury (Hg)	N.D.	2 mg/kg	1000 mg/kg
Hexavalent Chromium (Cr(VI))	N.D. ▼	0.10 µg/cm² (LOQ)	1000 mg/kg
Tested Item(s)	Result	MDL	Limit
	008		
Polybrominated Biphenyls (PBBs)			
Monobromobiphenyl	N.D.	5 mg/kg	1000 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg	
Tribromobiphenyl	N.D.	5 mg/kg	
Tetrabromobiphenyl	N.D.	5 mg/kg	
Pentabromobiphenyl	N.D.	5 mg/kg	
Hexabromobiphenyl	N.D.	5 mg/kg	
Heptabromobiphenyl	N.D.	5 mg/kg	
Octabromobiphenyl	N.D.	5 mg/kg	
Nonabromobiphenyl	N.D.	5 mg/kg	
Decabromobiphenyl	N.D.	5 mg/kg	
Tested Item(s)	Result	MDL	Limit
	008		
Polybrominated Diphenyl Ethers (PBDEs)			
Monobromodiphenyl ether	N.D.	5 mg/kg	1000 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg	
Tribromodiphenyl ether	N.D.	5 mg/kg	
Tetrabromodiphenyl ether	N.D.	5 mg/kg	
Pentabromodiphenyl ether	N.D.	5 mg/kg	
Hexabromodiphenyl ether	N.D.	5 mg/kg	
Heptabromodiphenyl ether	N.D.	5 mg/kg	
Octabromodiphenyl ether	N.D.	5 mg/kg	
Nonabromodiphenyl ether	N.D.	5 mg/kg	
Decabromodiphenyl ether	N.D.	5 mg/kg	

## Test Report

Report No. A2230430133101008

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## Test Result(s)

Tested Item(s)	Result	MDL	Limit
	008		
Phthalates (DBP, BBP, DEHP, DIBP)			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg
Tested Item(s)	Result	MDL	
	008		
Arsenic (As)	N.D.		10 mg/kg
Beryllium (Be)	N.D.		10 mg/kg
Antimony (Sb)	N.D.		10 mg/kg
Tested Item(s)	Result	MDL	
	008		
Fluorine (F)	N.D.		1 µg/cm²
Chlorine (Cl)	N.D.		1 µg/cm²
Bromine (Br)	N.D.		1 µg/cm²
Iodine (I)	N.D.		1 µg/cm²
Tested Item(s)	Result	MDL	
	008		
Perfluorooctane Sulfonates (PFOS)	N.D.		0.5 µg/m²

## Sample/Part Description

No.	CTI Sample ID	Description
1	008	Golden plating

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

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm<sup>2</sup>

-The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 µg/cm<sup>2</sup>. The coating is considered a non-Cr(VI) based coating.

**Note:** “\*” indicates the method(s) is (are) not in CNAS accreditation scope.

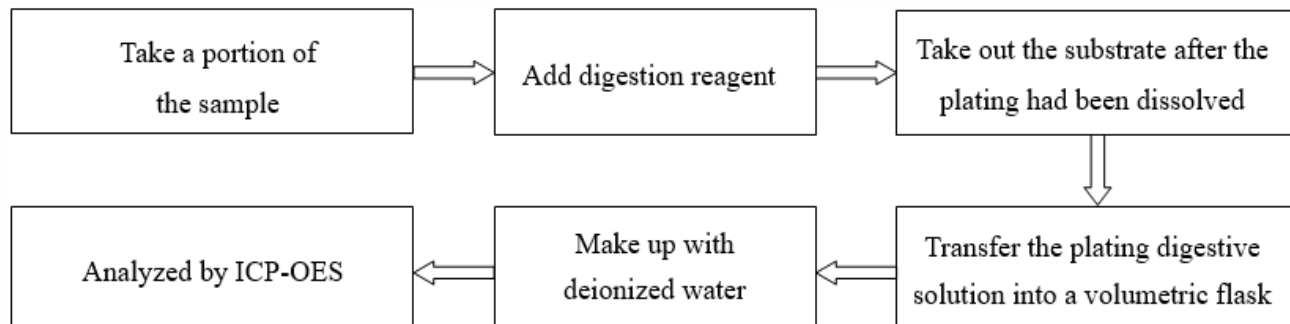
# Test Report

Report No. A2230430133101008

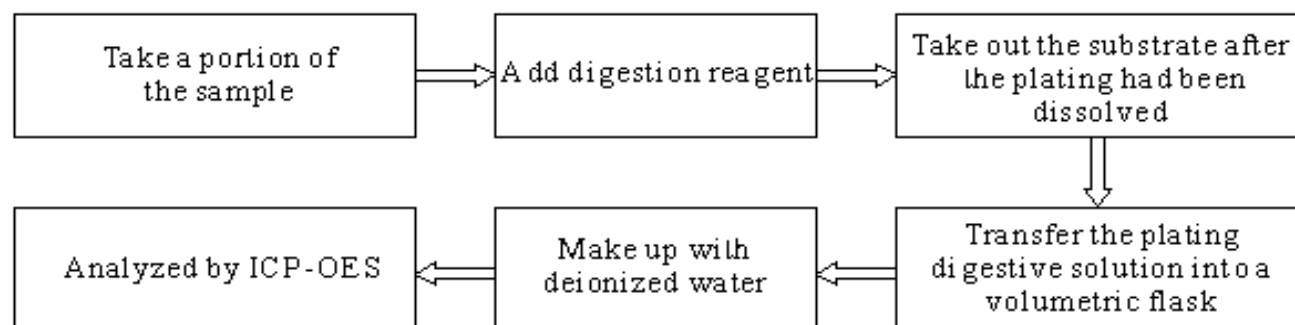
Page 5 of 7

## Test Process

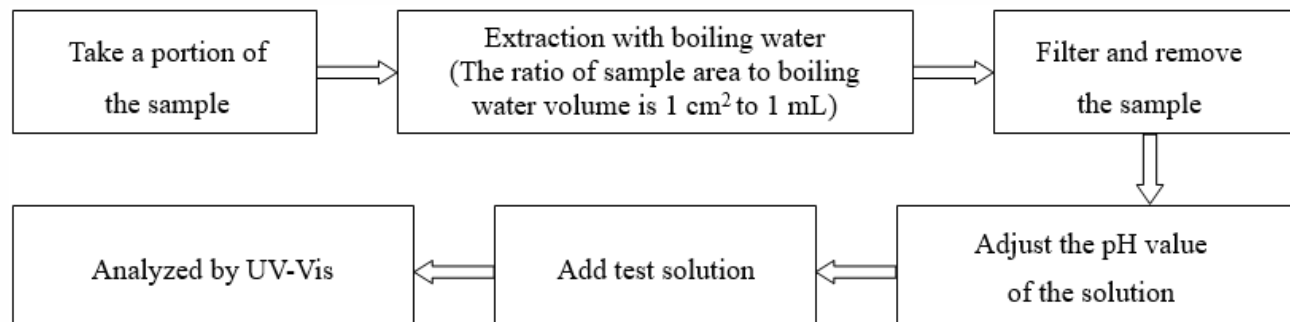
### 1. Lead (Pb), Cadmium (Cd)



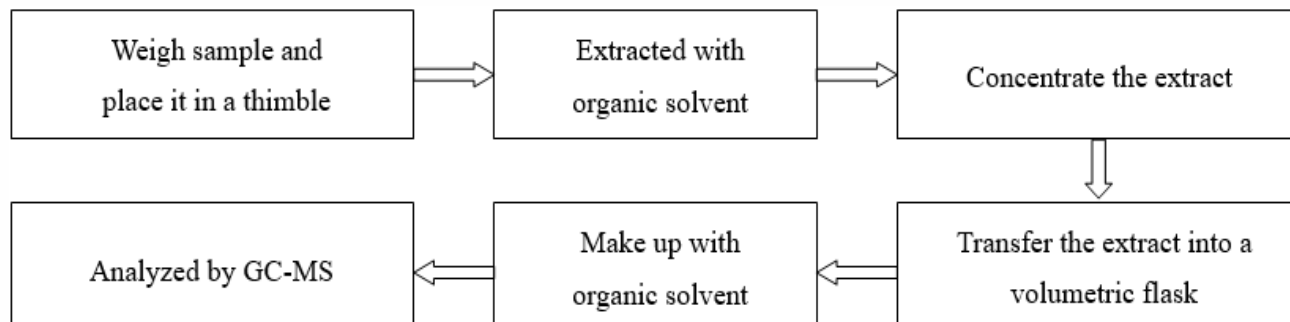
### 2. Mercury (Hg)



### 3. Hexavalent Chromium (Cr(VI))



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

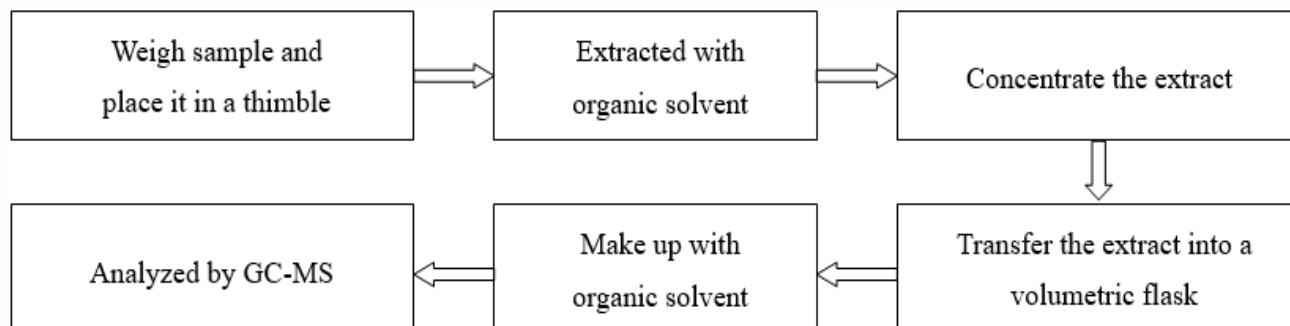


# Test Report

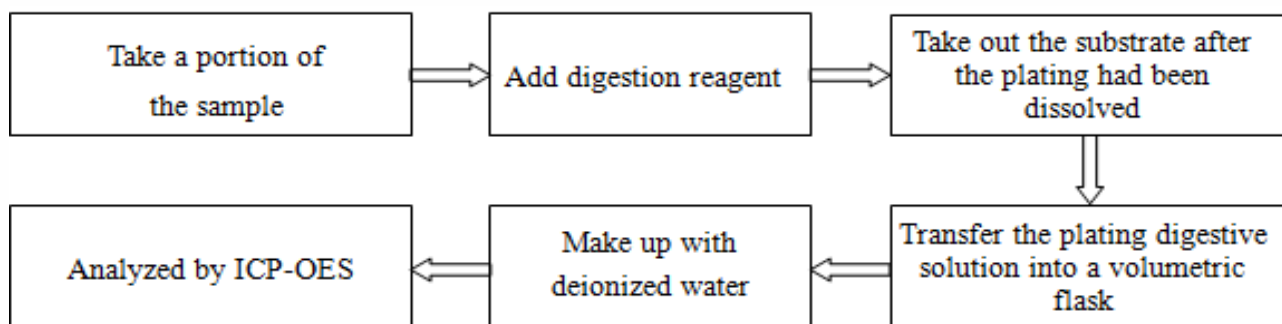
Report No. A2230430133101008

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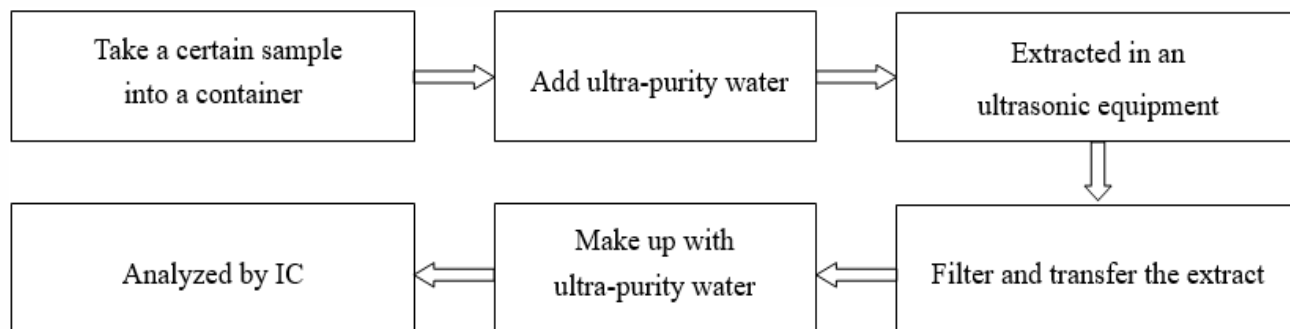
## 5. Phthalates (DBP, BBP, DEHP, DIBP)



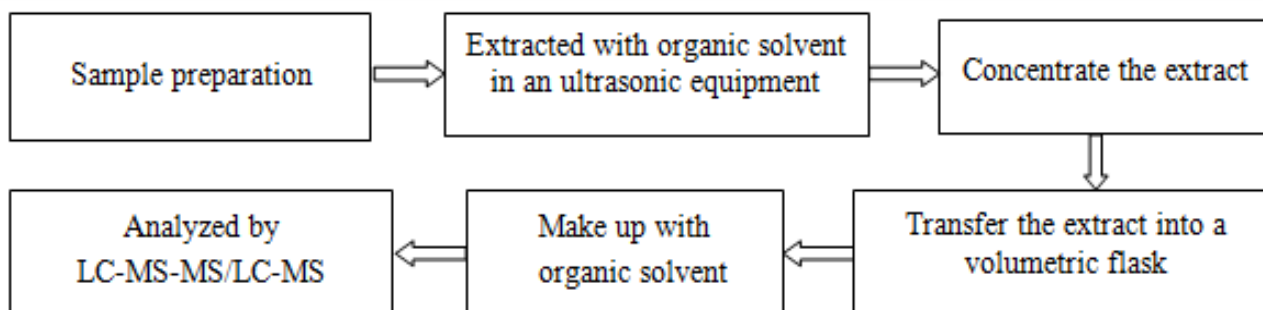
## 6. Arsenic(As), Beryllium(Be), Antimony(Sb)



## 7. Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



## 8. Perfluorooctane Sulfonates(PFOS)

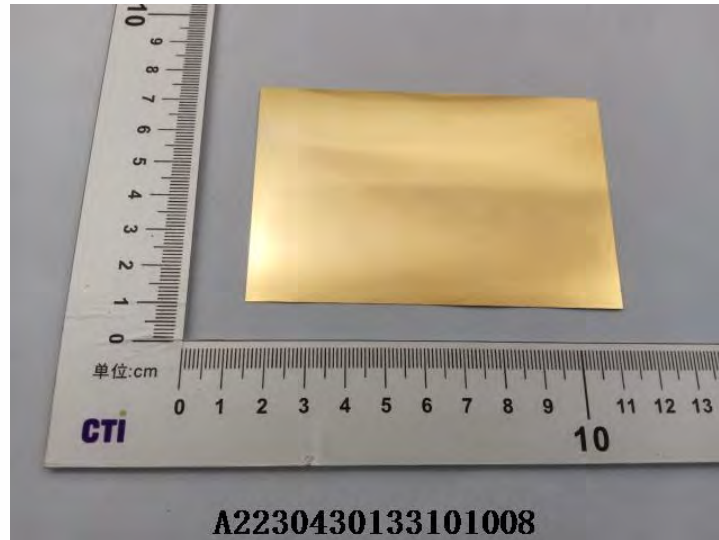


# Test Report

Report No. A2230430133101008

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## Photo(s) of the sample(s)



### Statement:

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

\*\*\* End of report \*\*\*





# Test Report

No.: ETR23705938

Date: 04-Aug-2023

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SHINKONG SYNTHETIC FIBERS CORPORATION  
SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED  
LOTUS BUILDING, 5F, NO.136, SEC.3, REN AI ROAD, DA AN DISTRICT, TAIPEI CITY 10657, TAIWAN  
NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU  
JIANGSU, CHINA

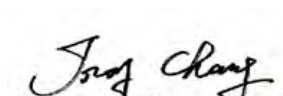
## The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : SHINKONG SYNTHETIC FIBERS CORPORATION  
Sample Name : THERMOPLASTIC POLYESTER RESIN  
Style/Item No. : SHINITE ® PBT F202G30BK , F202G30BL , F202G30NA

Sample Receiving Date : 28-Jul-2023  
Testing Period : 28-Jul-2023 to 04-Aug-2023

Test Requested : Testing item(s) is/are specified by client. Please refer to result table for testing item(s).

Test Results : Please refer to following pages.

  
Troy Chang / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



PIN CODE: E76BDC46

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SHINKONG SYNTHETIC FIBERS CORPORATION

SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED

LOTUS BUILDING, 5F, NO.136, SEC.3, REN AI ROAD, DA AN DISTRICT, TAIPEI CITY 10657, TAIWAN

NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU

JIANGSU, CHINA

## Test Part Description

No.1 : MIXED WHITE, BLUE AND BLACK PLASTIC PELLETS

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Cadmium (Cd)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Lead (Pb)		mg/kg	2	8.45
Mercury (Hg)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Hexavalent Chromium Cr(VI)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.
Dibromobiphenyl		mg/kg	5	n.d.
Tribromobiphenyl		mg/kg	5	n.d.
Tetrabromobiphenyl		mg/kg	5	n.d.
Pentabromobiphenyl		mg/kg	5	n.d.
Hexabromobiphenyl		mg/kg	5	n.d.
Heptabromobiphenyl		mg/kg	5	n.d.
Octabromobiphenyl		mg/kg	5	n.d.
Nonabromobiphenyl		mg/kg	5	n.d.
Decabromobiphenyl		mg/kg	5	n.d.
Sum of PBBs		mg/kg	-	n.d.
Monobromodiphenyl ether		mg/kg	5	n.d.
Dibromodiphenyl ether		mg/kg	5	n.d.
Tribromodiphenyl ether		mg/kg	5	n.d.
Tetrabromodiphenyl ether		mg/kg	5	n.d.
Pentabromodiphenyl ether		mg/kg	5	n.d.
Hexabromodiphenyl ether		mg/kg	5	n.d.
Heptabromodiphenyl ether		mg/kg	5	n.d.
Octabromodiphenyl ether		mg/kg	5	n.d.
Nonabromodiphenyl ether		mg/kg	5	n.d.
Decabromodiphenyl ether		mg/kg	5	n.d.
Sum of PBDEs		mg/kg	-	n.d.

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SHINKONG SYNTHETIC FIBERS CORPORATION

SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED

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NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU

JIANGSU, CHINA

Test Item(s)	Method	Unit	MDL	Result
				No.1
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dibutyl phthalate (DBP)		mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP)		mg/kg	50	n.d.
Diisobutyl phthalate (DIBP)		mg/kg	50	n.d.
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)		mg/kg	50	n.d.
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)		mg/kg	50	n.d.
Diundecyl phthalate (DUP) (CAS No.: 3648-20-2)		mg/kg	50	n.d.
Di-n-pentyl phthalate (DNPP) (CAS No.: 131-18-0)		mg/kg	50	n.d.
Bis(2-methoxyethyl) phthalate (DMEP) (CAS No.: 117-82-8)		mg/kg	50	n.d.
Dipropylheptyl phthalate (CAS No.: 53306-54-0)		mg/kg	50	n.d.
Di-n-hexyl phthalate (DNHP) (CAS No.: 84-75-3)		mg/kg	50	n.d.
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.	mg/kg	20	n.d.

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SHINKONG SYNTHETIC FIBERS CORPORATION

SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED

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NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU  
JIANGSU, CHINA

## Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value.

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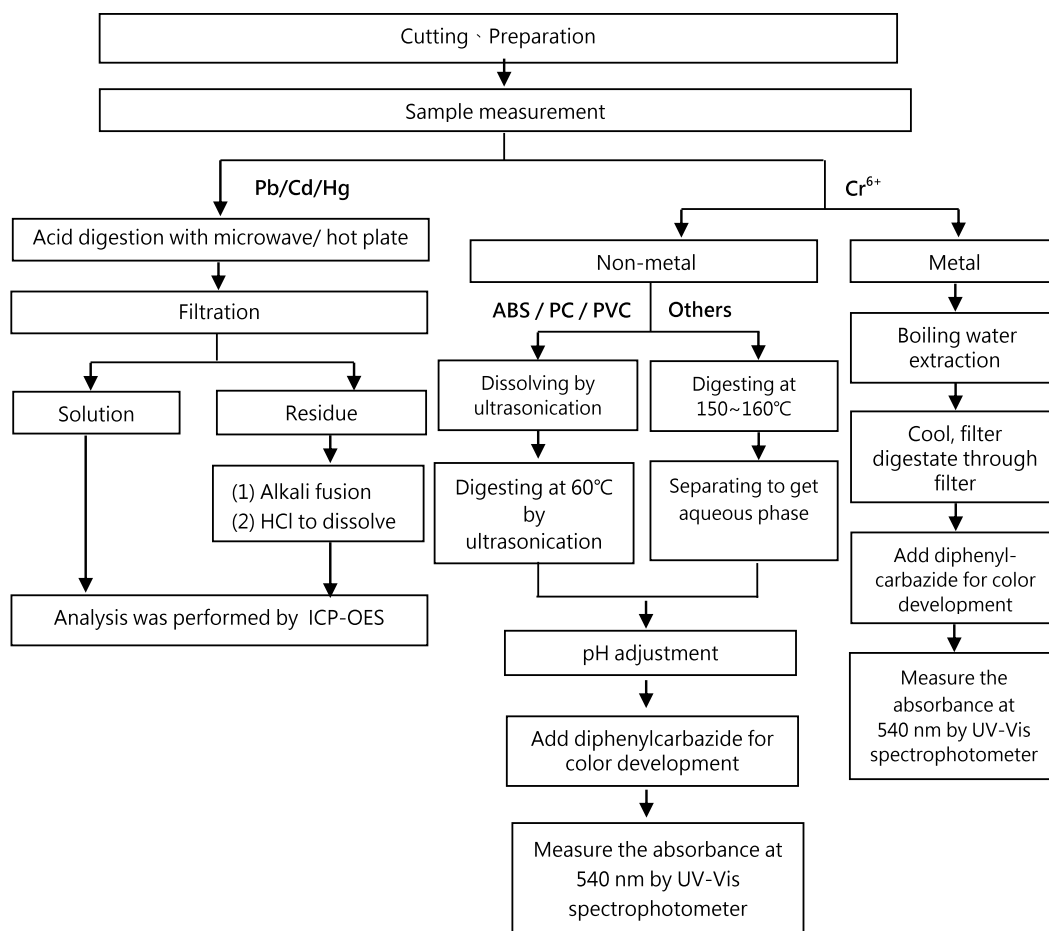
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JIANGSU, CHINA

## Analytical flow chart of heavy metal

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

(  $\text{Cr}^{6+}$  test method excluded )



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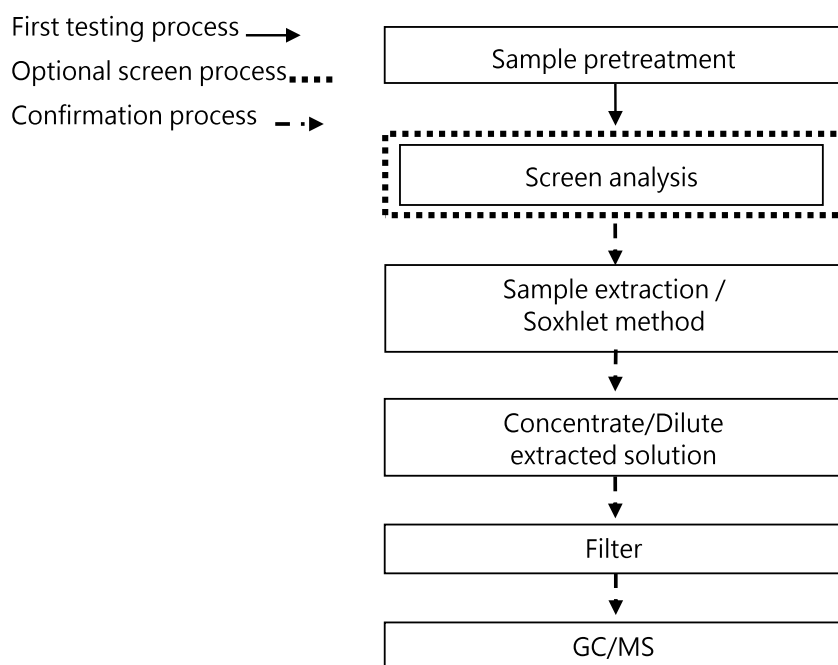
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## Analytical flow chart – PBBs / PBDEs



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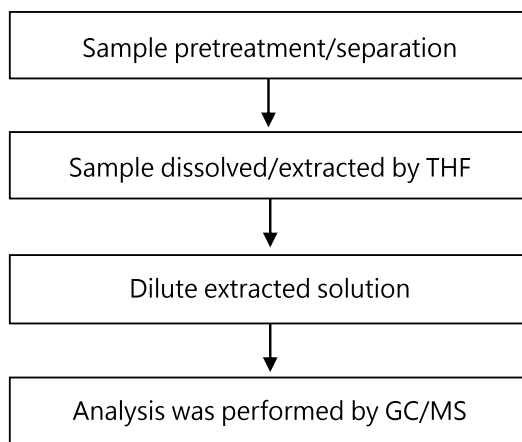
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NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU

JIANGSU, CHINA

## Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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# Test Report

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SHINKONG SYNTHETIC FIBERS CORPORATION

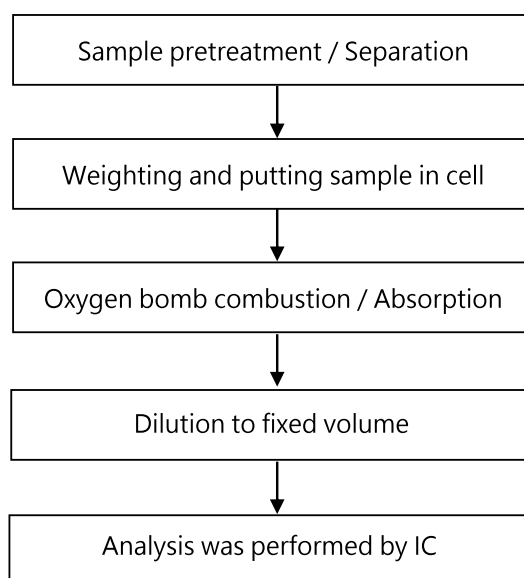
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NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU

JIANGSU, CHINA

## Analytical flow chart - Halogen



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# Test Report

No.: ETR23705938

Date: 04-Aug-2023

Page: 9 of 10

SHINKONG SYNTHETIC FIBERS CORPORATION

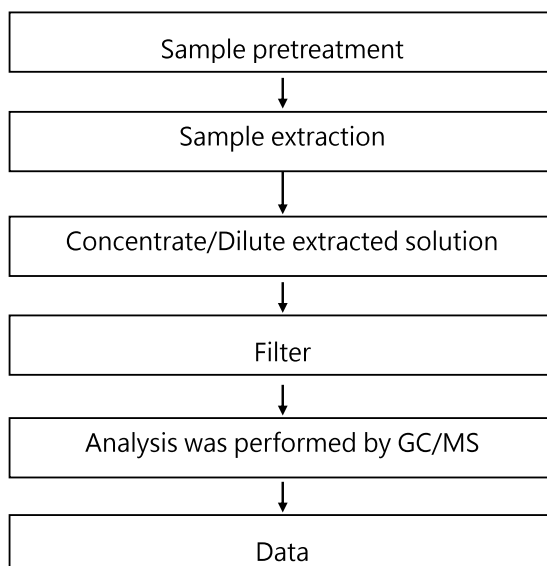
SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED

LOTUS BUILDING, 5F, NO.136, SEC.3, REN AI ROAD, DA AN DISTRICT, TAIPEI CITY 10657, TAIWAN

NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU

JIANGSU, CHINA

## Analytical flow chart - HBCDD



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No.: ETR23705938

Date: 04-Aug-2023

Page: 10 of 10

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SHINKONG APPLIED MATERIALS (JIANGSU) COMPANY LIMITED

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NO.1, HUAFA ROAD, TANGZHOU ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONE, YANGZHOU  
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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

### ETR23705938



\*\* End of Report \*\*

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## 检测报告

编号: CANEC2301145810

日期: 2023年02月08日 第1页,共9页

客户名称: 福建紫金铜业有限公司  
客户地址: 福建省上杭县南岗工业开发区

样品名称: 锡磷青铜: C5210  
以上样品及信息由客户提供。

SGS工作编号: 23319230 - XM  
样品接收日期: 2023年02月01日  
检测周期: 2023年02月01日 - 2023年02月08日  
检测要求: 根据客户要求检测  
检测方法: 请参见下一页  
检测结果: 请参见下一页  
检测结果概要:

检测要求	结论
欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863- 铅, 汞, 镉, 六价铬, 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸二丁酯 (DBP), 邻苯二甲酸丁苄酯(BBP), 邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP)	符合
卤素	见检测结果
元素分析	见检测结果

通标标准技术服务有限公司广州分公司  
授权签名

李嘉欣

Jessie Li 李嘉欣  
批准签署人



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## 检测报告

编号: CANEC2301145810

日期: 2023年02月08日 第2页,共9页

检测结果:

## 检测样品描述:

样品编号	SGS样品ID	描述
SN1	CAN23-011458.002	铜色金属片

备注:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = 方法检测限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863-铅, 汞, 镉, 六价铬, 多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸二丁酯 (DBP), 邻苯二甲酸丁苄酯(BBP), 邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP)

检测方法: 参考IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES, UV-Vis 和 GC-MS 进行分析。

检测项目	限值	单位	MDL	002
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1000	mg/kg	2	ND
汞 (Hg)	1000	mg/kg	2	ND
六价铬(Cr(VI))▼	-	µg/cm²	0.10	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND



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## 检测报告

编号: CANEC2301145810

日期: 2023年02月08日 第3页,共9页

检测项目	限值	单位	MDL	002
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND
邻苯二甲酸二丁酯 (DBP)	1000	mg/kg	50	ND
邻苯二甲酸丁苄酯(BBP)	1000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND

备注:

- (1)最大允许限值引用自RoHS指令(EU) 2015/863。
- (2) IEC 62321 系列等同于 EN 62321 系列
- (3) ▼=a. 当六价格的浓度高于 $0.13 \mu\text{g}/\text{cm}^2$ 时, 样品为阳性, 即含有六价格;  
b. 当六价格的浓度为ND(低于 $0.10 \mu\text{g}/\text{cm}^2$ )时, 样品为阴性, 即未检测到六价格;  
c. 当六价格的浓度介于 $0.10 \mu\text{g}/\text{cm}^2$ 与 $0.13 \mu\text{g}/\text{cm}^2$ 之间时, 无法直接判定是否检测到六价格, 因不同个体的样品表面差异可能会影响测定结果;  
由于未获知样品的存储条件和生产日期, 样品的六价格检测结果仅能代表检测时样品含六价格的状态。

## 卤素

检测方法: 参考EN 14582:2016, 用 IC分析。

检测项目	单位	MDL	002
氟 (F)	mg/kg	50	ND
氯 (Cl)	mg/kg	50	ND
溴 (Br)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

## 元素分析

检测方法: SGS内部方法 (GZTC CHEM-TOP-009-01, 参考EPA 3050B:1996), 采用ICP-OES进行分析。



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## 检测报告

编号: CANEC2301145810

日期: 2023年02月08日 第4页,共9页

检测项目	单位	MDL	002
铍 (Be)	mg/kg	5	ND
锑 (Sb)	mg/kg	10	ND

除非另有说明, 参照ILAC-G8:09/2019, 使用简单接受 ( $w=0$ ) 的二元判定规则进行符合性判定。  
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检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



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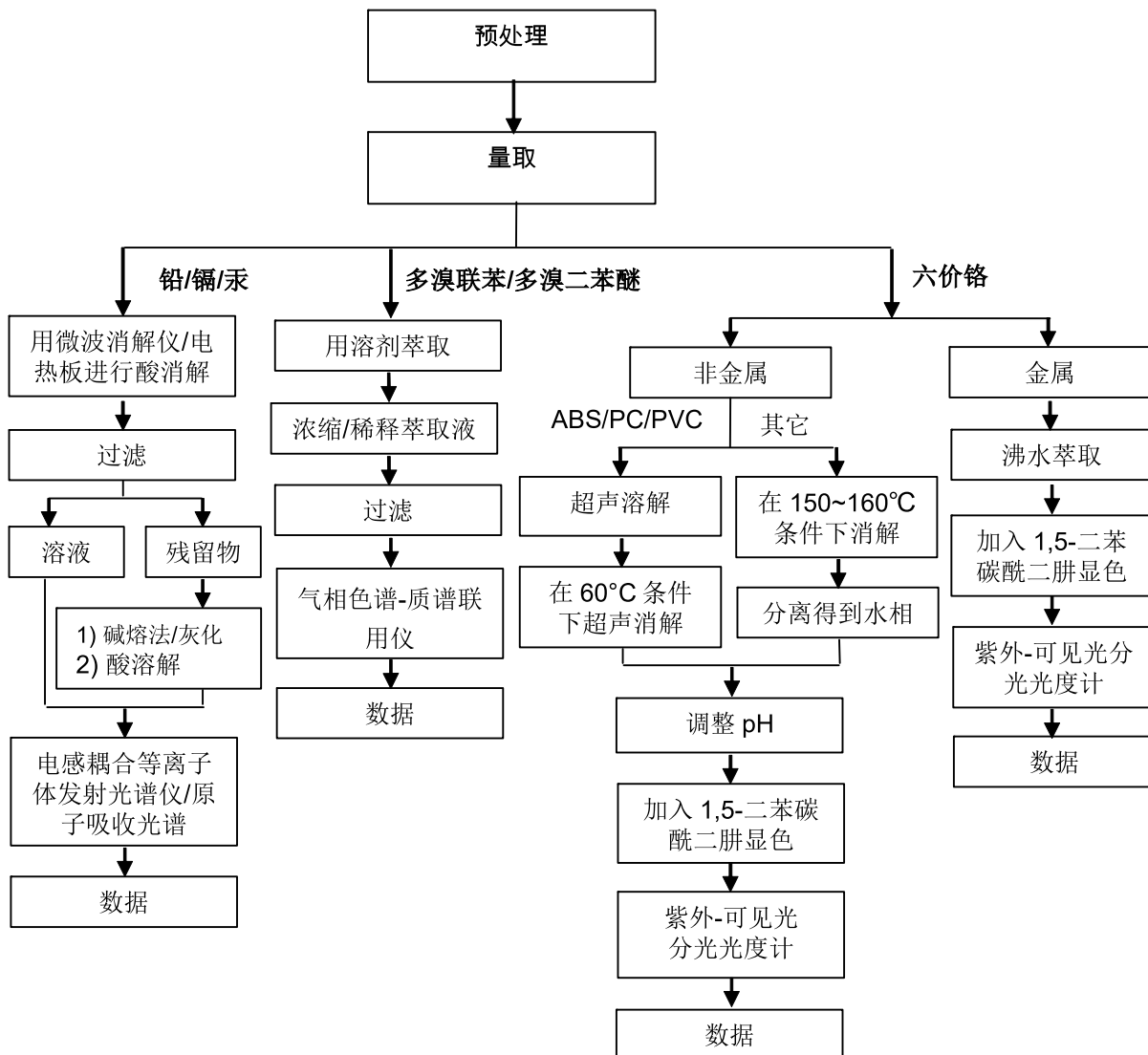
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## 附件

Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs 检测流程图

1) 样品按照下述流程被完全消解 (六价铬和多溴联苯/多溴二苯醚检测除外)。



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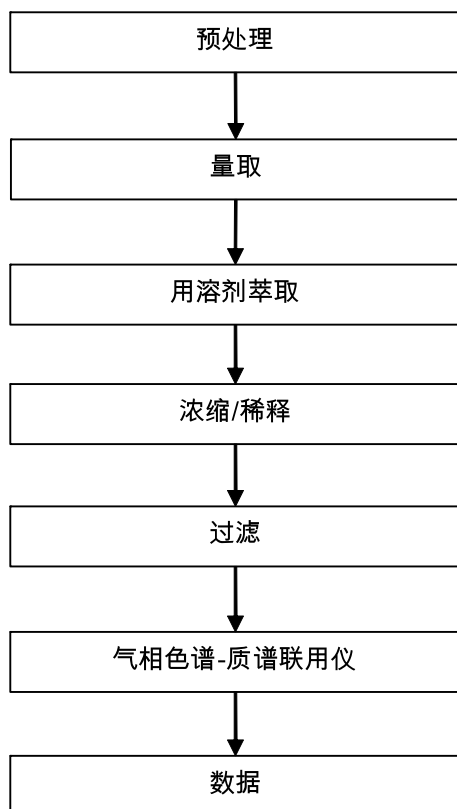
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## 附件

## Phthalates 检测流程图



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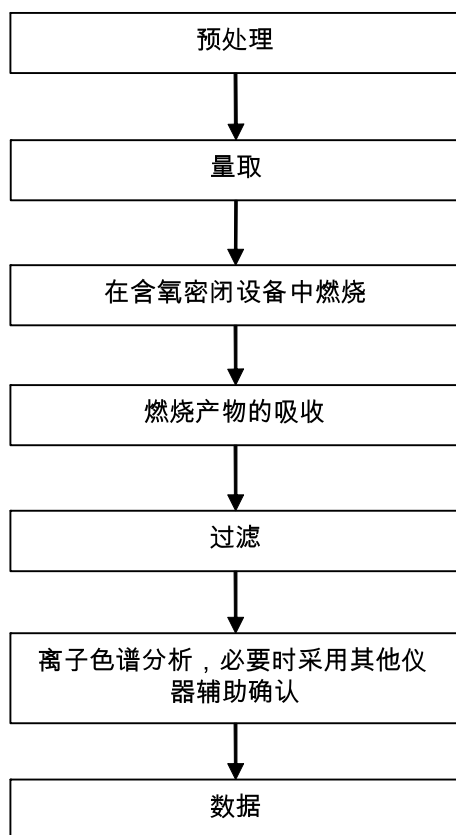
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## 附件

## 卤素检测流程图



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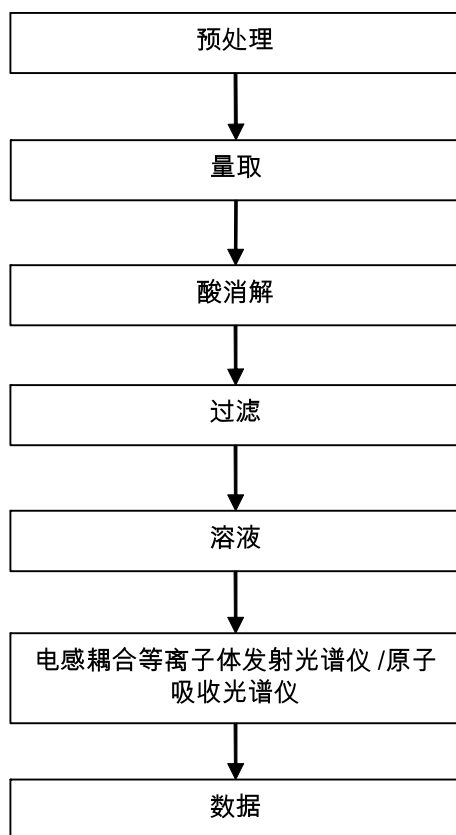
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## 附件

## 元素检测流程图



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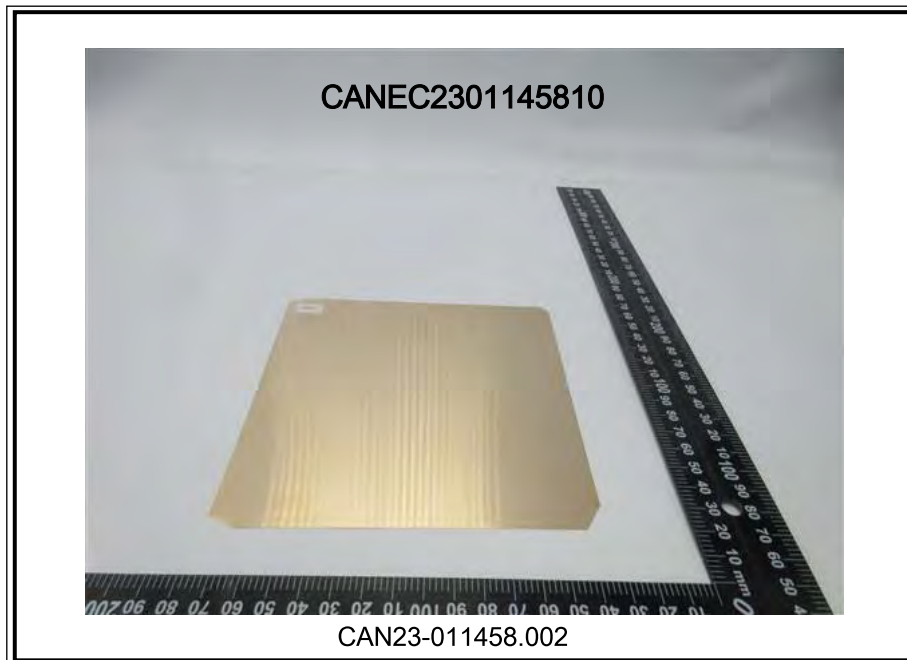
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## 检测报告

编号: CANEC2301145810

日期: 2023年02月08日 第9页,共9页

样品照片:



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# Test Report

No.: ETR23101900

Date: 12-Jan-2023

Page: 1 of 7

DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

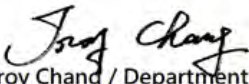
The following sample(s) was/were submitted and identified by the applicant as:

Sample Name : ADHESIVE  
Style/Item No. : G9000 SERIES(G9000,G9000 C,G9000-SY,G9000W,G9010,G9011)  
Lot No. : 2B02  
The Testing Sample : G9000-SY

Sample Receiving Date : 06-Jan-2023  
Testing Period : 06-Jan-2023 to 12-Jan-2023

Test Requested : (1) As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs contents in the submitted sample(s).  
(2) As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample.

Test Results : Please refer to following pages.

  
Troy Chang / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



PIN CODE: 8FC901EA

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# Test Report

No.: ETR23101900

Date: 12-Jan-2023

Page: 2 of 7

DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

## Test Part Description

No.1 : TRANSPARENT DOUBLE SIDED ADHESIVE (EXCLUDING THE RELEASE LINER)

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Lead (Pb) (CAS No.: 7439-92-1)		mg/kg	2	n.d.
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.
Dibromobiphenyl		mg/kg	5	n.d.
Tribromobiphenyl		mg/kg	5	n.d.
Tetrabromobiphenyl		mg/kg	5	n.d.
Pentabromobiphenyl		mg/kg	5	n.d.
Hexabromobiphenyl		mg/kg	5	n.d.
Heptabromobiphenyl		mg/kg	5	n.d.
Octabromobiphenyl		mg/kg	5	n.d.
Nonabromobiphenyl		mg/kg	5	n.d.
Decabromobiphenyl		mg/kg	5	n.d.
Sum of PBBs		mg/kg	-	n.d.
Monobromodiphenyl ether	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.
Dibromodiphenyl ether		mg/kg	5	n.d.
Tribromodiphenyl ether		mg/kg	5	n.d.
Tetrabromodiphenyl ether		mg/kg	5	n.d.
Pentabromodiphenyl ether		mg/kg	5	n.d.
Hexabromodiphenyl ether		mg/kg	5	n.d.
Heptabromodiphenyl ether		mg/kg	5	n.d.
Octabromodiphenyl ether		mg/kg	5	n.d.
Nonabromodiphenyl ether		mg/kg	5	n.d.
Decabromodiphenyl ether		mg/kg	5	n.d.
Sum of PBDEs		mg/kg	-	n.d.

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Date: 12-Jan-2023

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DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

Test Item(s)	Method	Unit	MDL	Result
				No.1
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Iodine (I) (CAS No.: 14362-44-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.

## Note :

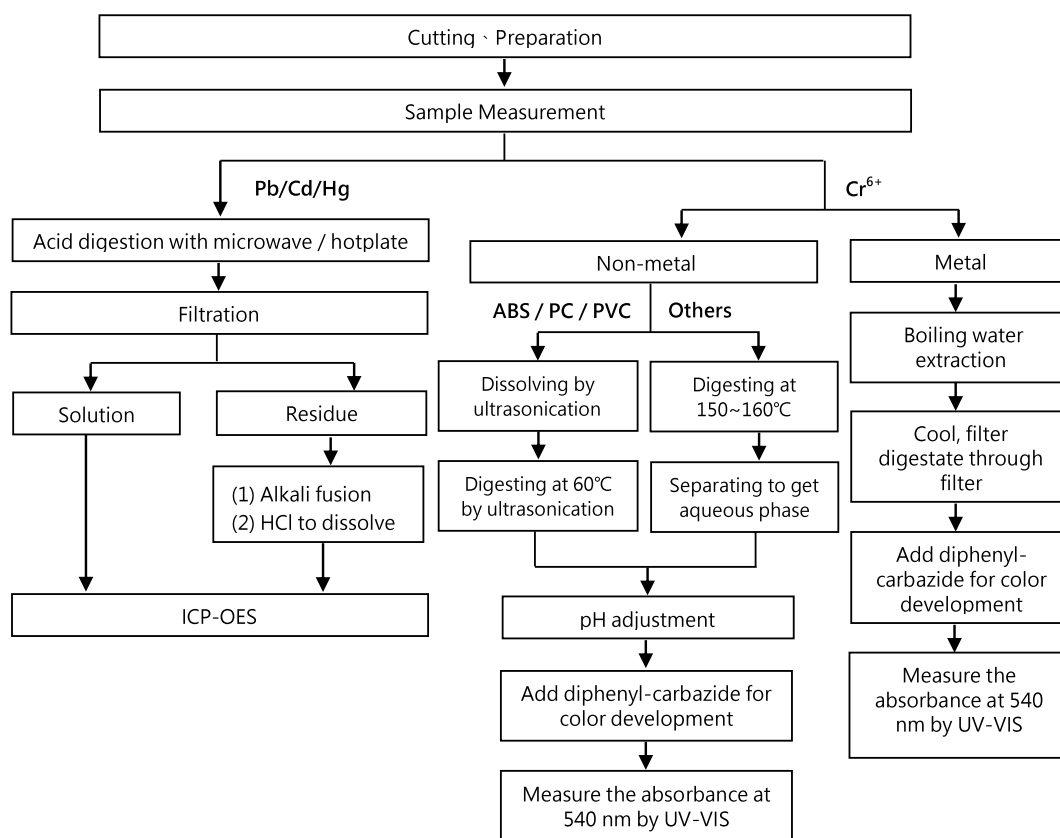
1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated

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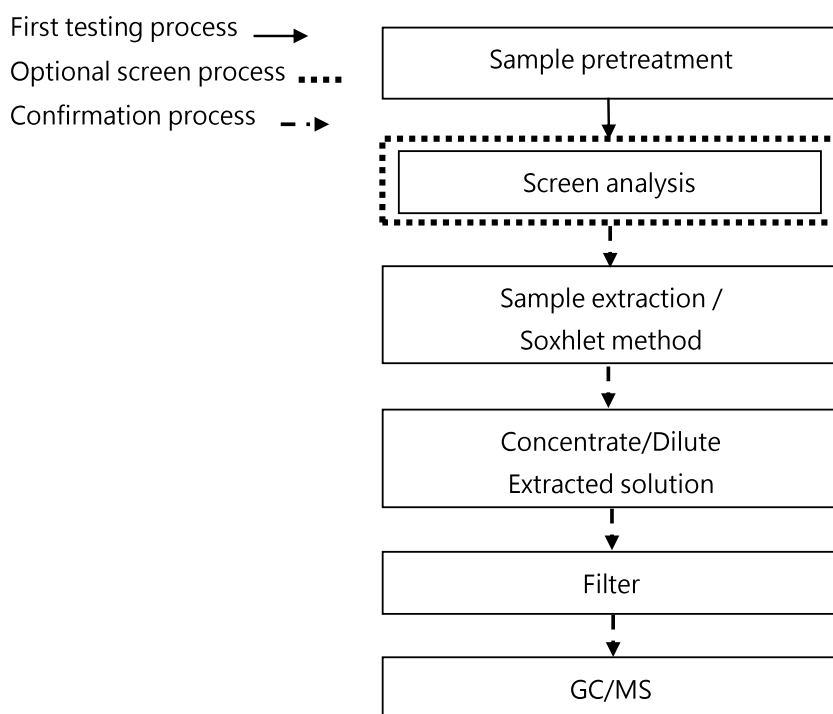
## Analytical flow chart of Heavy Metal

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

(  $\text{Cr}^{6+}$  test method excluded )

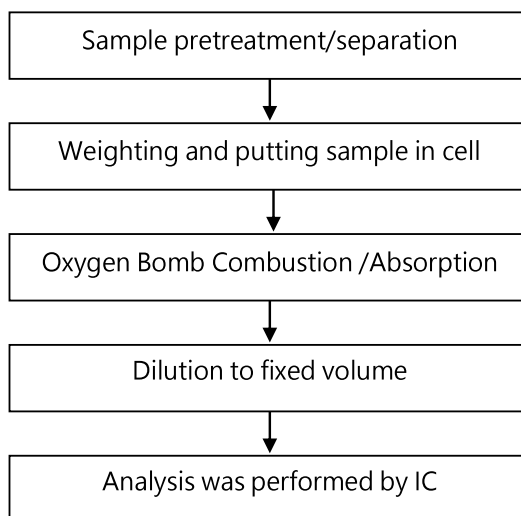


## Analytical flow chart – PBBs / PBDEs



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## Analytical flow chart of Halogen



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## Test Report

No.: ETR23101900

Date: 12-Jan-2023

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DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

### ETR23101900



\*\* End of Report \*\*

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# Test Report

No.: ETR23103764

Date: 19-Jan-2023

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DEXERIALS CORPORATION

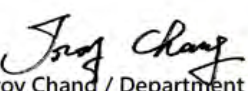
1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

The following sample(s) was/were submitted and identified by the applicant as:

Sample Name : ADHESIVE  
Style/Item No. : G9000 SERIES(G9000,G9000 C,G9000-SY,G9000W,G9010,G9011)  
Lot No. : 2C02  
The Testing Sample : G9000-SY

Sample Receiving Date : 12-Jan-2023  
Testing Period : 12-Jan-2023 to 19-Jan-2023

Test Requested : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine DBP, BBP, DEHP, DIBP contents in the submitted sample(s).  
(2) Please refer to next pages for the other item(s).  
Test Results : Please refer to following pages.

  
Troy Chang / Department Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



PIN CODE: 47DD438A

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# Test Report

No.: ETR23103764

Date: 19-Jan-2023

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DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

## Test Part Description

No.1 : TRANSPARENT DOUBLE SIDED ADHESIVE (EXCLUDING THE RELEASE LINER)

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result
				No.1
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-ethyl phthalate (DEP) (CAS No.: 84-66-2)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dimethyl phthalate (DMP) (CAS No.: 131-11-3)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Antimony (Sb) (CAS No.: 7440-36-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.

## Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)

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# Test Report

No.: ETR23103764

Date: 19-Jan-2023

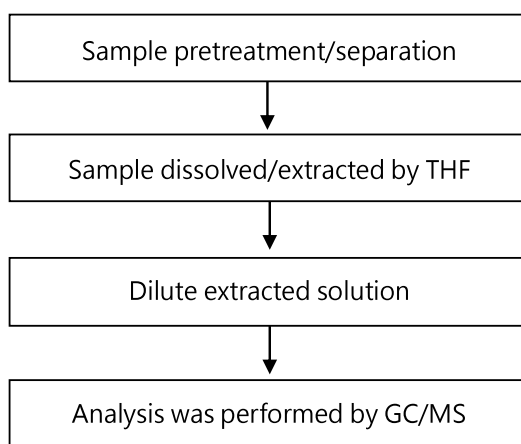
Page: 3 of 5

DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

## Analytical flow chart - Phthalate

【Test method: IEC 62321-8】

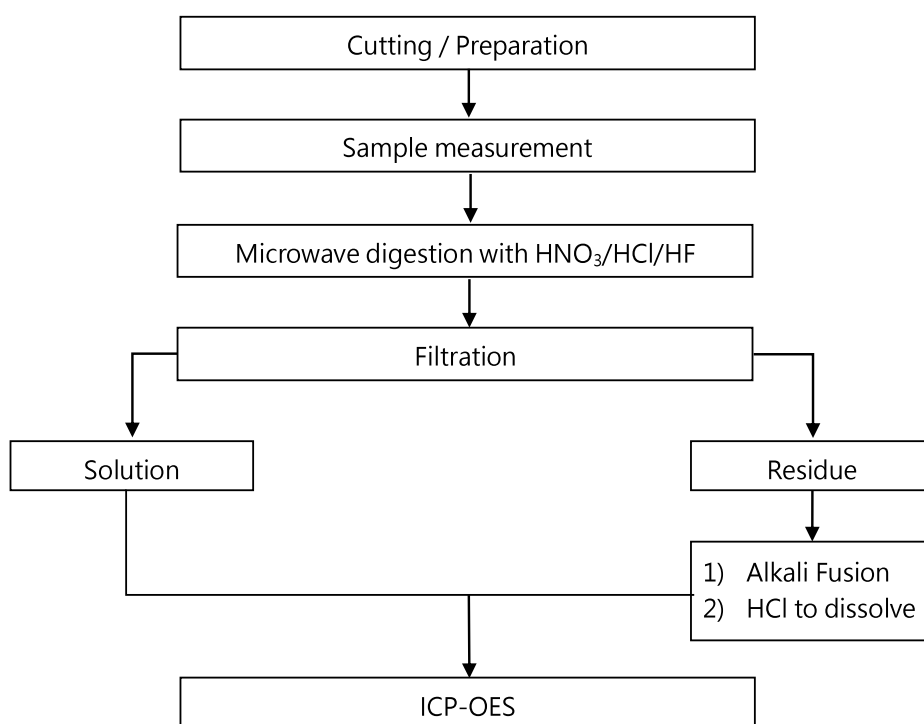


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## Analytical flow chart of Elements (Heavy Metal included)

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

【Reference method : US EPA 3051A 、US EPA 3052】



\* US EPA 3051A method does not add HF.

## Test Report

No.: ETR23103764

Date: 19-Jan-2023

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DEXERIALS CORPORATION

1724 SHIMOTSUBOYAMA, SHIMOTSUKE-SHI, TOCHIGI 323-0194, JAPAN

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### ETR23103764



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# **Samsung HW-600C Antenna Report**

**Engineer : Roy**

**Report date : 2023/12/15 REV6**



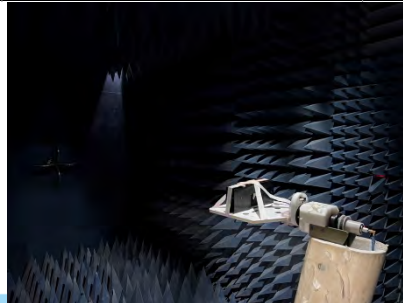
# Revision History

Revision	Date	Engineer	Description
01	2022/12/9	Johnson	New Release
02	2023/1/9	Irene	Data Update
03	2023/02/10	Emily	Add Equipment list
04	2023/06/30	Aiden	Redesign antenna for DUT
05	2023/08/23	Wade	Change antenna position
06	2023/12/15	Roy	Change antenna pattern



# Equipment list

Device	Ttype/Model	Manufacturer	test Item
Network Anylyzer	N5230A	Agilent Technologies	S-parameter & passive antenna test
Anechoic Chamber	FFC-600L	WavePro Inc.	passive antenna test
Turntable	NSI-SC-5606-3DZ	NSI-MI	
Measurement SW	NSI 2000	NSI-MI	
Dual Polarization Vivaldi Antenna 0.6~8GHz	-	WavePro Inc.	
Computer Monitor	HS-CM145	CCTVINDIA	
Industrial PC	IPC-610BP	Advantech Co., Ltd	
Standard Beam Controller (SBC)	NSI-RF-5918	NSI-MI	
Antenna Range Controller (ARC Box)	NSI-SC-5911-4	NSI-MI	
RF Cable 240in 22GHz	UFA210C-1-2400-300300	Carlisle Interconnect Tech.	
RF Cable 240in 22GHz	UFA210C-1-2400-300300	Carlisle Interconnect Tech.	
RF Cable 60cm 26.5GHz	EC-A5-60-1678	E-INSTUMENT TECH LTD.	
3D Printer	CR-6-MAX	CREALITY	3D printing

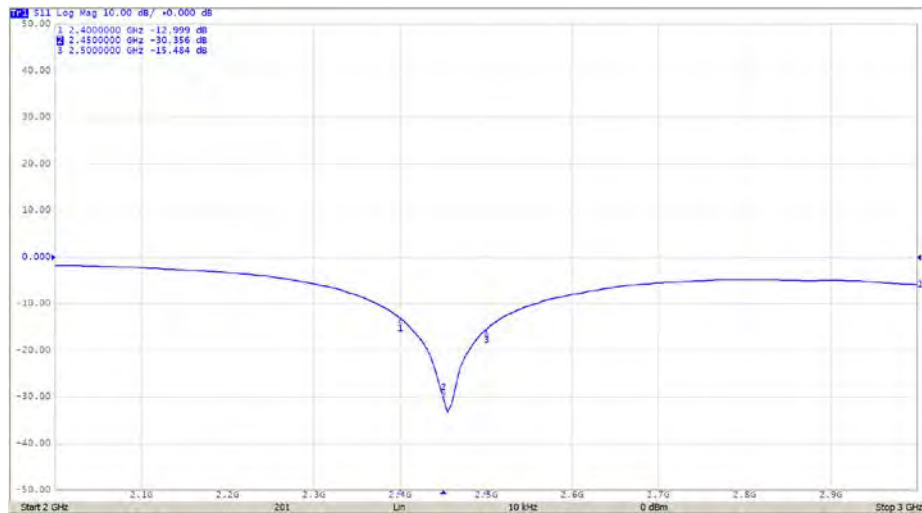


# Antenna specification

Item	Specification
Operating Frequency(GHz)	2.4-2.5
Bandwidth	100MHz (Min.)
Return Loss	10 dB (Min.)
Polarization	Linear
Azimuth Bandwidth	Omni-directional
Peak Gain	4.48 dBi (Max)
Impedance	50Ω
Material	PCB
Maximum Power	1W
V.S.W.R	2 : 1
Radiation	Omni directional
Efficiency	52 %(Max)
Operating Temperature	-10~60℃
Storage temp	-10~70℃

# Antenna Measurement Vector Network Analyzer

# S-parameter



Frequency (MHz)	2400	2450	2500
S11(dB)	-12.9	-30.3	-15.4

# The antenna anechoic chamber measurement

# 3D Gain Total

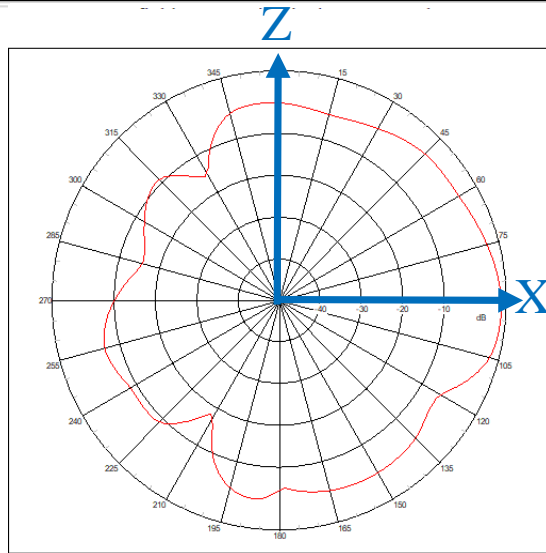
Frequency(GHz)	Gain(dBi)	3D-avgGain(dBi)	Efficiency
2.4	3.85	-3.56	44
2.41	4.25	-3.2	48
2.42	4.45	-2.96	51
2.43	4.48	-2.87	52
2.44	4.39	-2.87	52
2.45	4.11	-3.04	50
2.46	3.88	-3.13	49
2.47	3.84	-3	50
2.48	3.41	-3.25	47
2.49	3.62	-3.4	46
2.5	3.34	-3.52	44



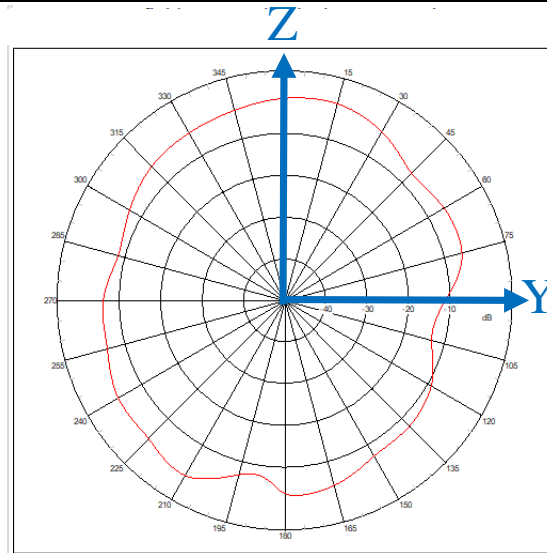
# Antenna Pattern

Frequency : 2400MHz

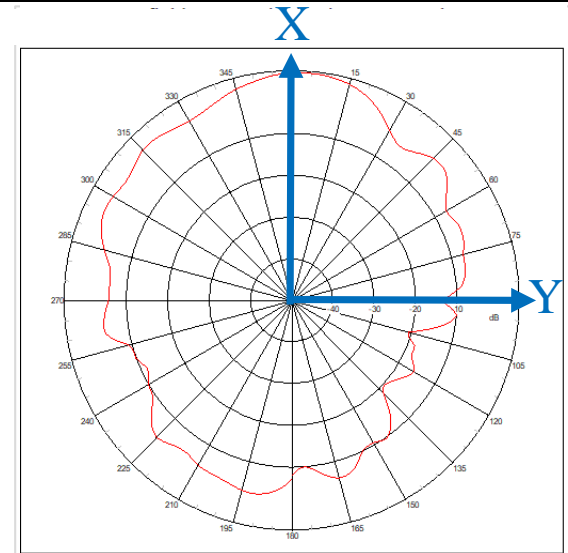
## XZ-plane



## YZ-plane



## XY-plane



Far-field amplitude limits:

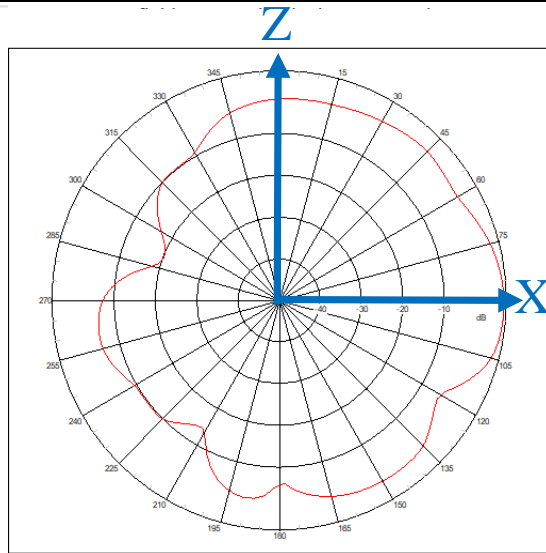
Max: 5dB

min: -50dB

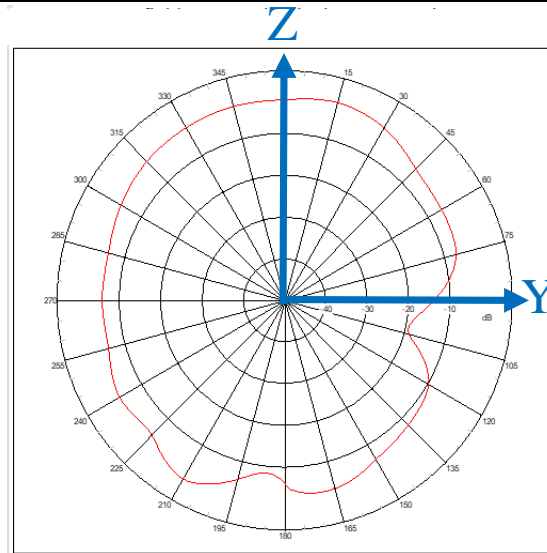
# Antenna Pattern

Frequency : 2450MHz

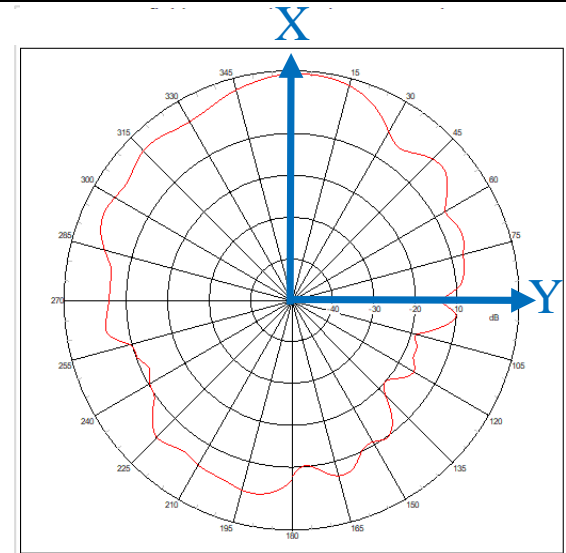
## XZ-plane



## YZ-plane



## XY-plane



Far-field amplitude limits:

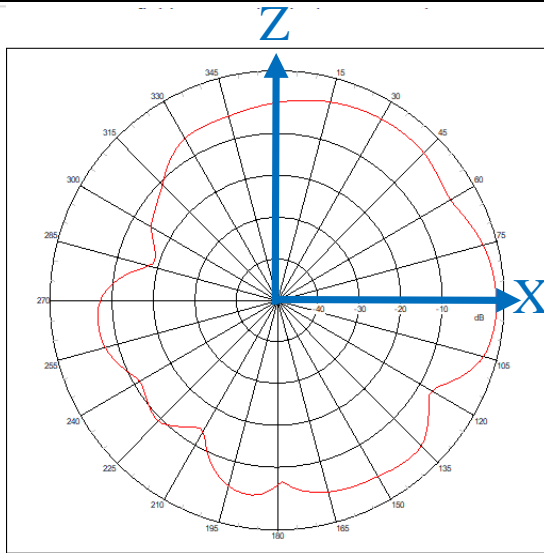
Max: 5dB

min: -50dB

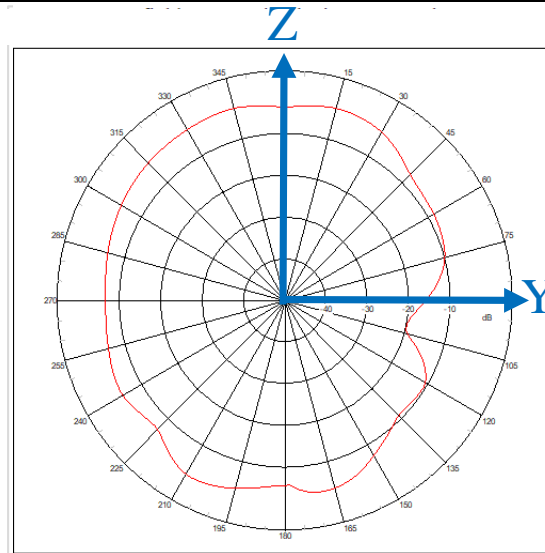
# Antenna Pattern

Frequency : 2500MHz

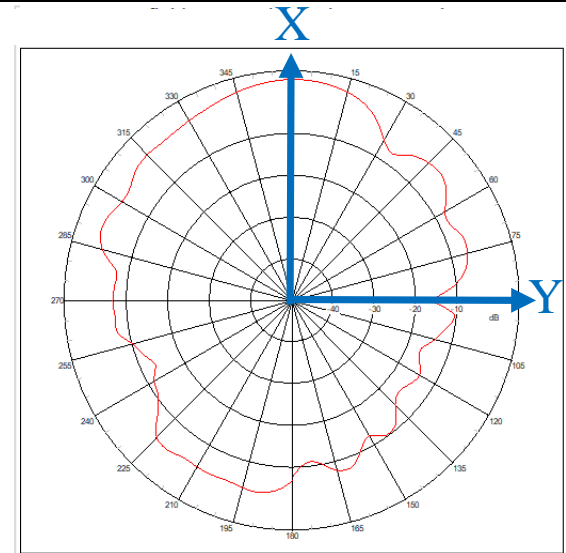
XZ-plane



YZ-plane



XY-plane



Far-field amplitude limits:

Max: 5dB

min: -50dB



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*pour les activités suivantes :*

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WIRE HARNESSSES, RF (RADIO FREQUENCY) AND ANTENNA PRODUCTS, PLASTIC INJECTION,  
STAMPING PARTS, PLASTIC & HARDWARE MOLDS  
电子和车用连接器、连接线、线束、无线射频天线产品、注塑成型部件、  
冲压部件, 塑胶五金模具的设计、生产和销售

**has been assessed and found to meet the requirements of:**  
*a été évalué et jugé conforme aux exigences requises par :*

**ISO 9001 : 2015**

**and is developed on the following locations:**  
*et est déployé sur les sites suivants :*

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