



Test Report

No.: ETR24802273M01

Date: 30-Aug-2024

Page: 1 of 4

JX ADVANCED METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

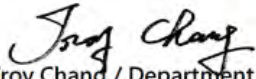
The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : JX ADVANCED METALS CORPORATION
Sample Name : COPPER ALLOY
Style/Item No. : C5210

Sample Receiving Date : 14-Aug-2024
Testing Period : 14-Aug-2024 to 30-Aug-2024

Test Requested : As specified by client, with reference to RoHS Directive 2011/65/EU Annex II to determine Cadmium, Lead, Mercury, Cr(VI) contents in the submitted sample(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: 4D9B5442

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Test Report

No.: ETR24802273M01

Date: 30-Aug-2024

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JX ADVANCED METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

Test Part Description

No.1 : COPPER COLORED METAL

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)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	19.4
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) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	µg/cm ²	0.1	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. (#2) =
 - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
 - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) 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.
5. This is the additional test report of ETR24802273.

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Date: 30-Aug-2024

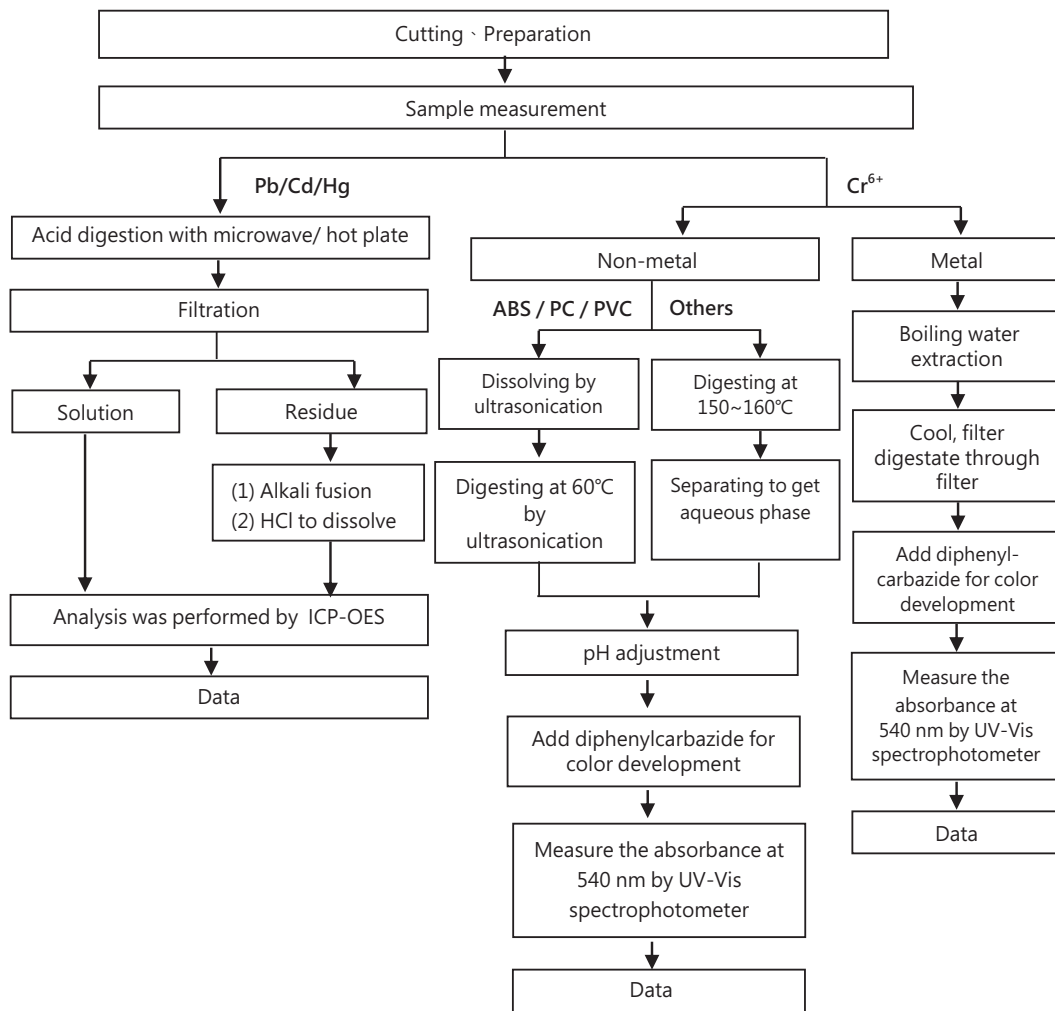
Page: 3 of 4

JX ADVANCED METALS CORPORATION
3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

Analytical flow chart of heavy metal

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

(Cr⁶⁺ test method excluded)



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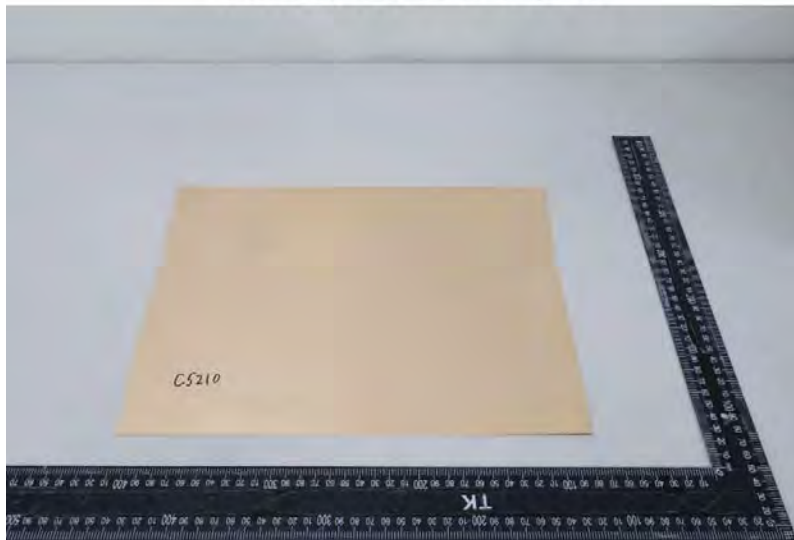
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JX ADVANCED METALS CORPORATION

3 KURAMI, SAMUKAWA, KOZA, KANAGAWA 253-0101, JAPAN

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

ETR24802273



** End of Report **

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Test Report

No.: EKR24400496

Date: 17-Apr-2024

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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

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

Sample Submitted By : POLYPLASTICS TAIWAN CO., LTD.

Sample Name : PBT

Style/Item No. : 310NF ED3002 / Lot No.3Z75300

Sample Receiving Date : 10-Apr-2024

Testing Period : 10-Apr-2024 to 17-Apr-2024

Test Requested : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP 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.


Ray Chang, Ph.D./Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory-Kaohsiung



PIN CODE: 2D29169D

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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Test Part Description

No.1 : ED3002 PBT

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)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.
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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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

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.
Diisobutyl phthalate (DIBP)		mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP)		mg/kg	50	n.d.
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	918
Chlorine (Cl) (CAS No.: 22537-15-1)		mg/kg	50	n.d.
Bromine (Br) (CAS No.: 10097-32-2)		mg/kg	50	n.d.
Iodine (I) (CAS No.: 14362-44-8)		mg/kg	50	n.d.

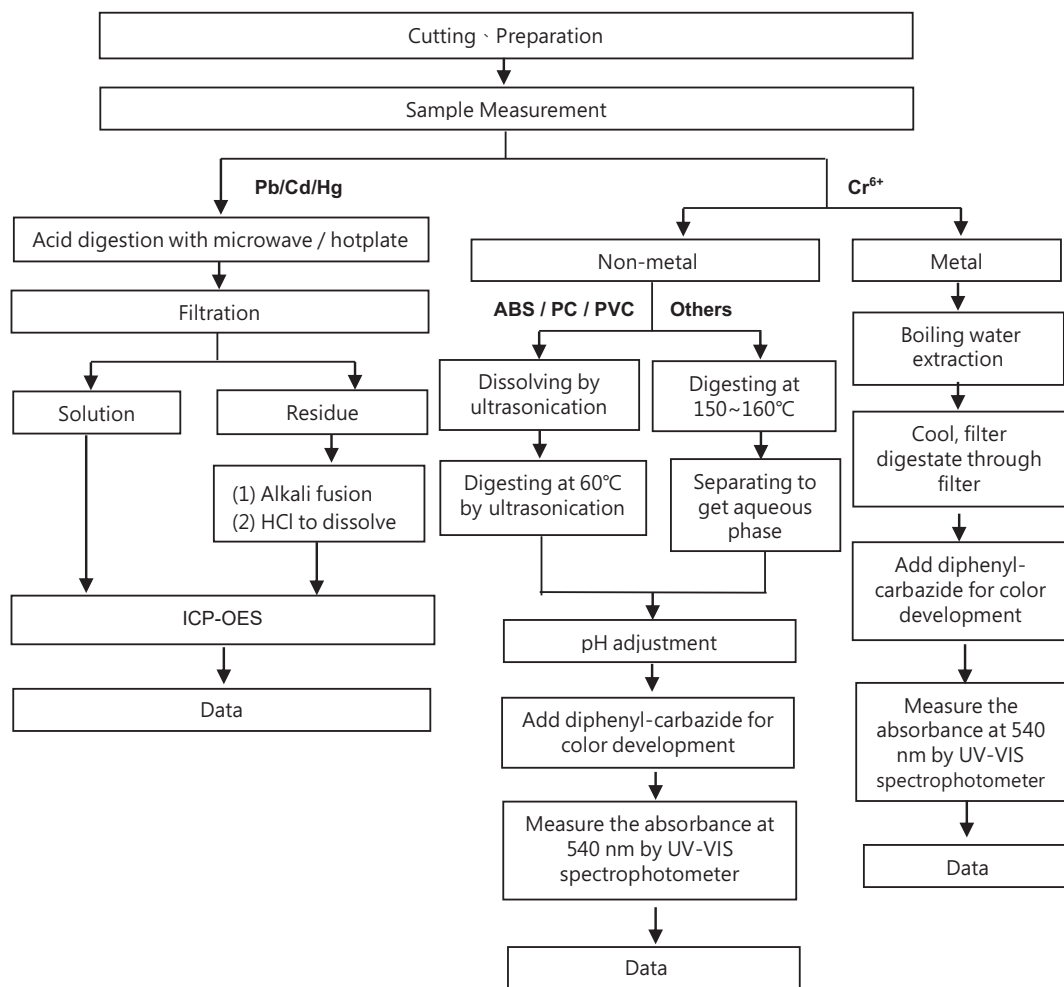
Note :

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.
(Cr^{6+} test method excluded)



Test Report

No.: EKR24400496

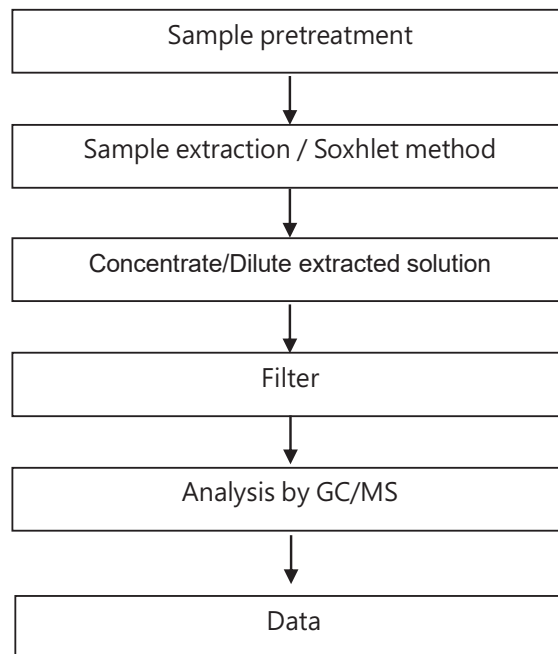
Date: 17-Apr-2024

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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

PBB/PBDE analytical FLOW CHART



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Test Report

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Date: 17-Apr-2024

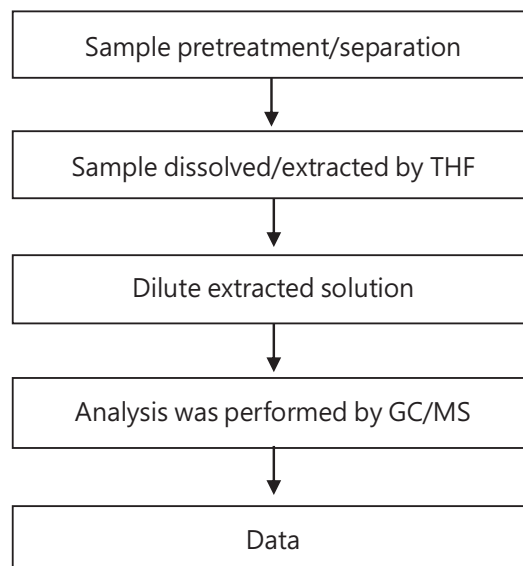
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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Analytical flow chart of phthalate content

【 Test method: IEC 62321-8 】



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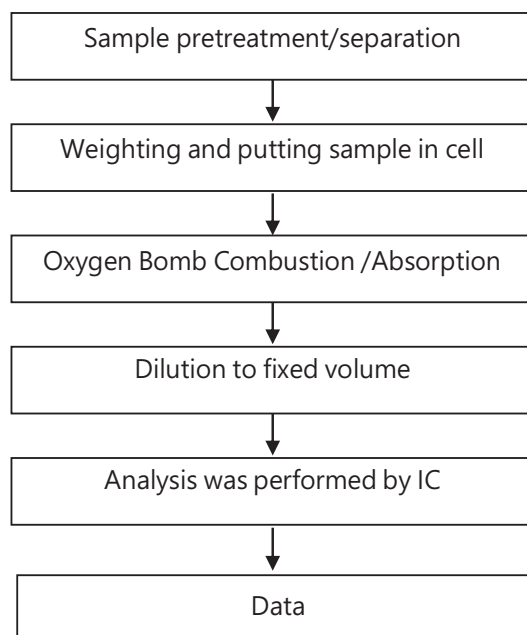
Date: 17-Apr-2024

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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

Analytical flow chart of Halogen



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POLYPLASTICS TAIWAN CO., LTD.

NO. 13, JIANYE RD., DALIAO DIST., KAOHSIUNG CITY 831, TAIWAN (R.O.C.)

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

EKR24400496



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I-PEX SINGAPORE PTE LTD

55 YISHUN INDUSTRIAL PARK A, SINGAPORE 768728

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

Sample Name : Au plating thin film sample (60g)

SGS Order No. : 10585980

Sample ID : SGA24-0000476-0001

Sample Receiving Date : 01-Jul-2024

Testing Period : 01-Jul-2024 to 19-Jul-2024

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

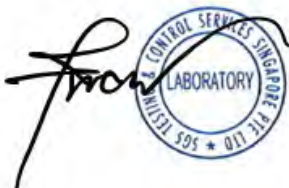
Test Method(s) : Please refer to next page(s)

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

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium **comply** with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS Testing & Control Services Singapore Pte Ltd



Foong Wei Chern

Laboratory Manager, Multi-Lab

FOLDER NUMBER : SGA24-0000476

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Test Result(s) :

Sample Description : GOLD COLORED FLAKES

Test Item(s)	Unit	Method	Results	MDL	Limit
Lead(Pb)	mg/kg	With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES	ND	2	<1000
Mercury(Hg)	mg/kg	With reference to IEC 62321-4 :2013 +AMD1:2017. Analysis was performed by ICP/OES	ND	2	<1000
Cadmium(Cd)	mg/kg	With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES	ND	2	<100
Hexavalent Chromium (Cr(VI)) ▼	µg/cm²	With reference to IEC 62321-7-1:2015. Analysis was performed by UV-Vis Spectrometry.	ND	0.10	-

Remarks:

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

Notes:

- (1) The method used for the determination of Cr(VI) is quoted as IEC 62321-7-1:2015, RoHS Directive (EU) 2015/863.
- (2) IEC 62321-7-1:2015 is equivalent to EN 62321-7-1:2015
- (3) The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI) if the result is greater than 0.13 µg/cm². The sample is negative for Cr(VI) if the result is less than 0.10 µg/cm². The coating is considered a non-Cr(VI) based coating if the result is less than 0.10 µg/cm². The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be an unavoidable coating variation which may influence the determination.

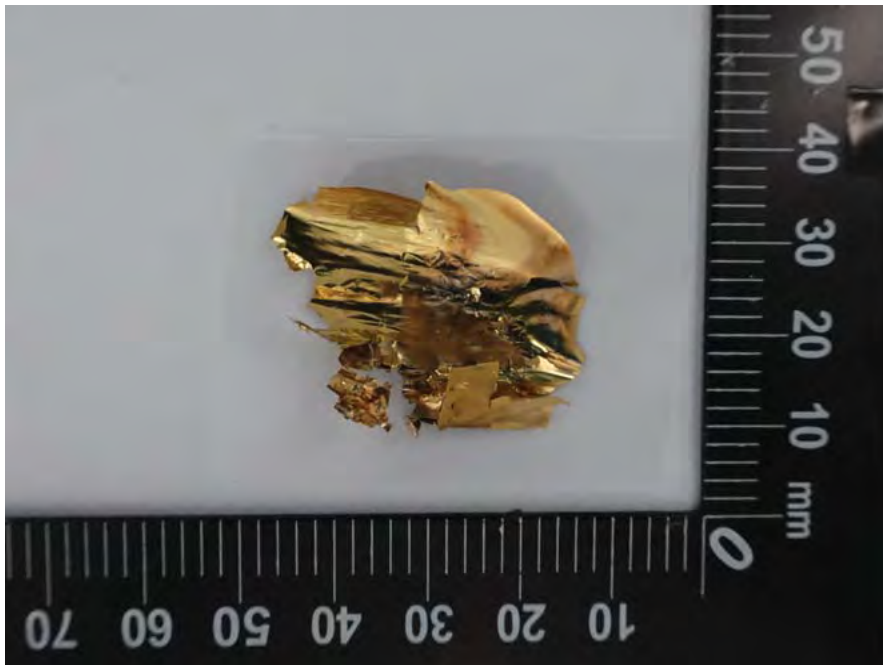
46# The results on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

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. According to this rule, the judgement of conformity is based on the comparing test results with limits.

FOLDER NUMBER : SGA24-0000476

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Sample Photo:



SGA24-0000476-0001

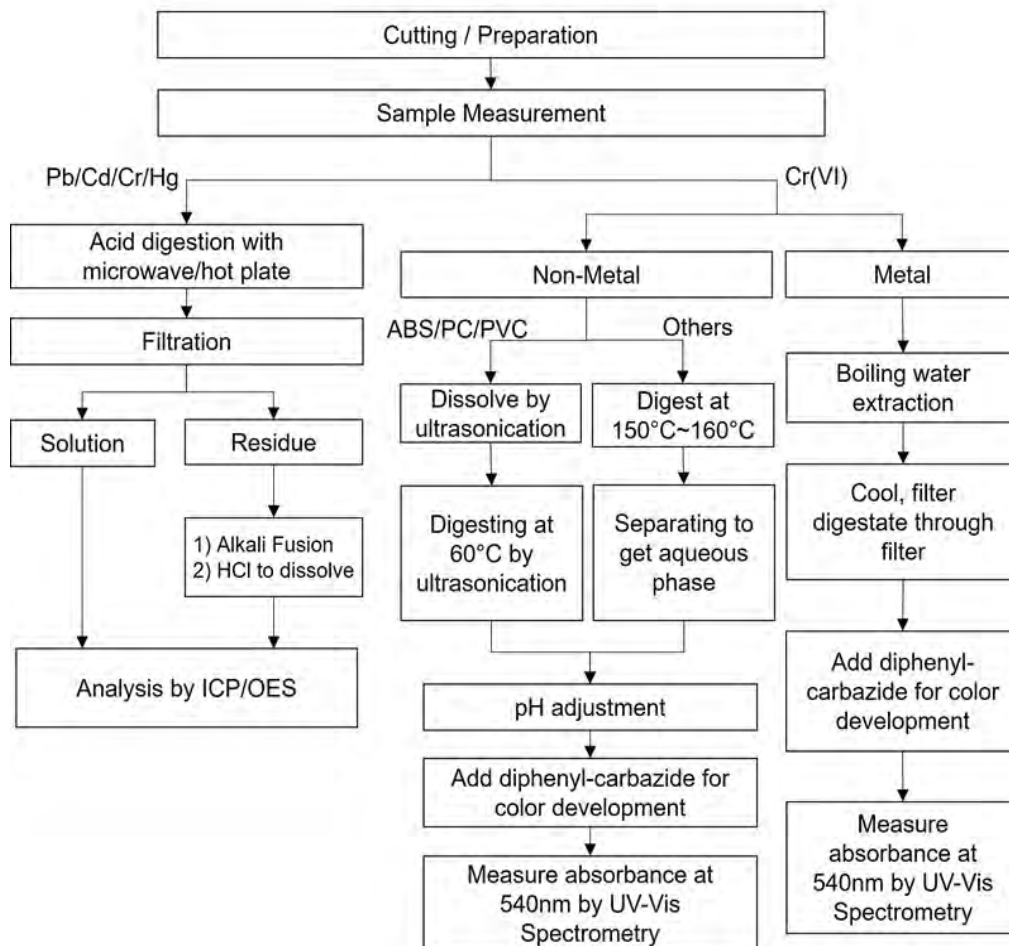
SGS authenticate the photo on original report only

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Analytical flow chart - Heavy metals

Sample received was totally dissolved by preconditioning method.
[Cr(VI) test method excluded]



End of Report

FOLDER NUMBER : SGA24-0000476

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I-PEX SINGAPORE PTE LTD

55 YISHUN INDUSTRIAL PARK A, SINGAPORE 768728

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

Sample Name : Ni plating thin film sample (64g)

SGS Order No. : 10585980

Sample ID : SGA24-0000476-0002

Sample Receiving Date : 01-Jul-2024

Testing Period : 01-Jul-2024 to 19-Jul-2024

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

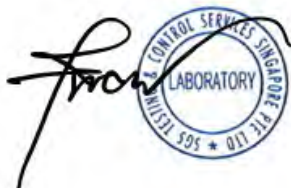
Test Method(s) : Please refer to next page(s)

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

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium **comply** with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS Testing & Control Services Singapore Pte Ltd



Foong Wei Chern

Laboratory Manager, Multi-Lab

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Test Report

No: SGACP240002406

Date: 19-Jul-2024

Page 2 of 4

Test Result(s) :

Sample Description : SILVER COLORED FLAKES

Test Item(s)	Unit	Method	Results	MDL	Limit
Lead(Pb)	mg/kg	With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES	ND	2	<1000
Mercury(Hg)	mg/kg	With reference to IEC 62321-4 :2013 +AMD1:2017. Analysis was performed by ICP/OES	ND	2	<1000
Cadmium(Cd)	mg/kg	With reference to IEC 62321-5:2013. Analysis was performed by ICP/OES	ND	2	<100
Hexavalent Chromium (Cr(VI)) ▼	µg/cm²	With reference to IEC 62321-7-1:2015. Analysis was performed by UV-Vis Spectrometry.	ND	0.10	-

Remarks:

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

Notes:

(~) The method used for the test is quoted as follows. RoHS Directive (EU) 2015/863.
(2) IEC 62321-5 is equivalent to EN 62321-5
(3) The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI) if the result is greater than 0.13 µg/cm².
The sample is negative for Cr(VI) if the result is less than 0.10 µg/cm². The coating is considered a non-Cr(VI) based coating if the result is less than 0.10 µg/cm².
The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be an unavoidable coating variation which may influence the determination.

46# The 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.

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. According to this rule, the judgement of conformity is based on the comparing test results with limits.

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Sample Photo:



SGA24-0000476-0002

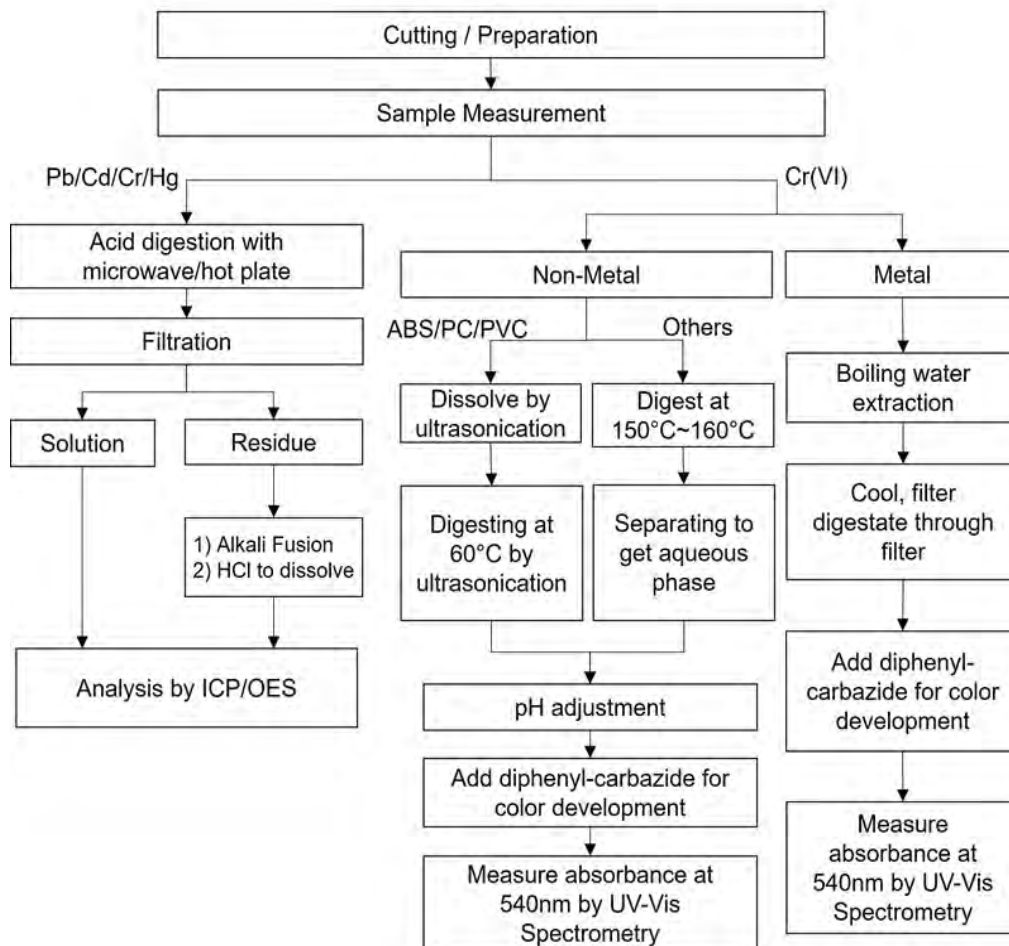
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Analytical flow chart - Heavy metals

Sample received was totally dissolved by preconditioning method.
[Cr(VI) test method excluded]



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Test Report

No.: SHAEC24000428805

Date: Jan 12, 2024

Page 1 of 9

Client Name: SUZHOU SERENGETI ELECTRONIC MATERIAL CO.,LTD

Client Address: NO.168 TAIPING NORTH ROAD,TAICANG CITY,JIANGSU PROVINCE CHINA

Sample Name: PI-CCL

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

SGS Job No.: SHP24-000434

Sample Receiving Date: Jan 08, 2024

Testing Period: Jan 08, 2024 ~ Jan 12, 2024

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 (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Halogen	See Results

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

Sue Sheng

Sue Sheng

Approved Signatory



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No.: SHAEC24000428805

Date: Jan 12, 2024

Page 2 of 9

Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A2	SHA24-0004288-0001.C002	Brown/Copper solid sheet

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 (PBB), Polybrominated diphenyl ethers (PBDE), 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/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A2
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybrominated biphenyls (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybrominated diphenyl ethers (PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND



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Test Report

No.: SHAEC24000428805

Date: Jan 12, 2024

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Test Item(s)	Limit	Unit(s)	MDL	A2
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis(2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Dibutyl phthalate (DBP)	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.

Halogen

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

Test Item(s)	Unit(s)	MDL	A2
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	85
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

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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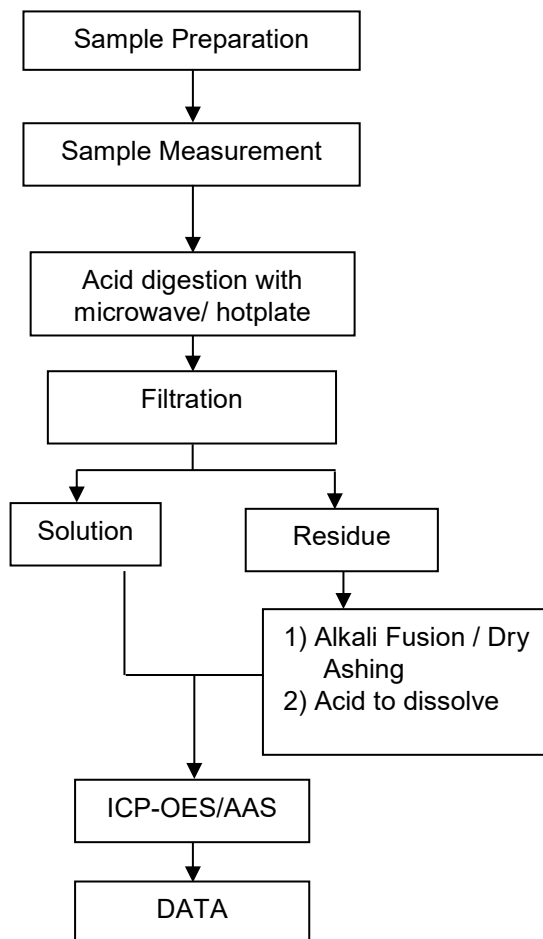
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Elements Testing Flow Chart

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



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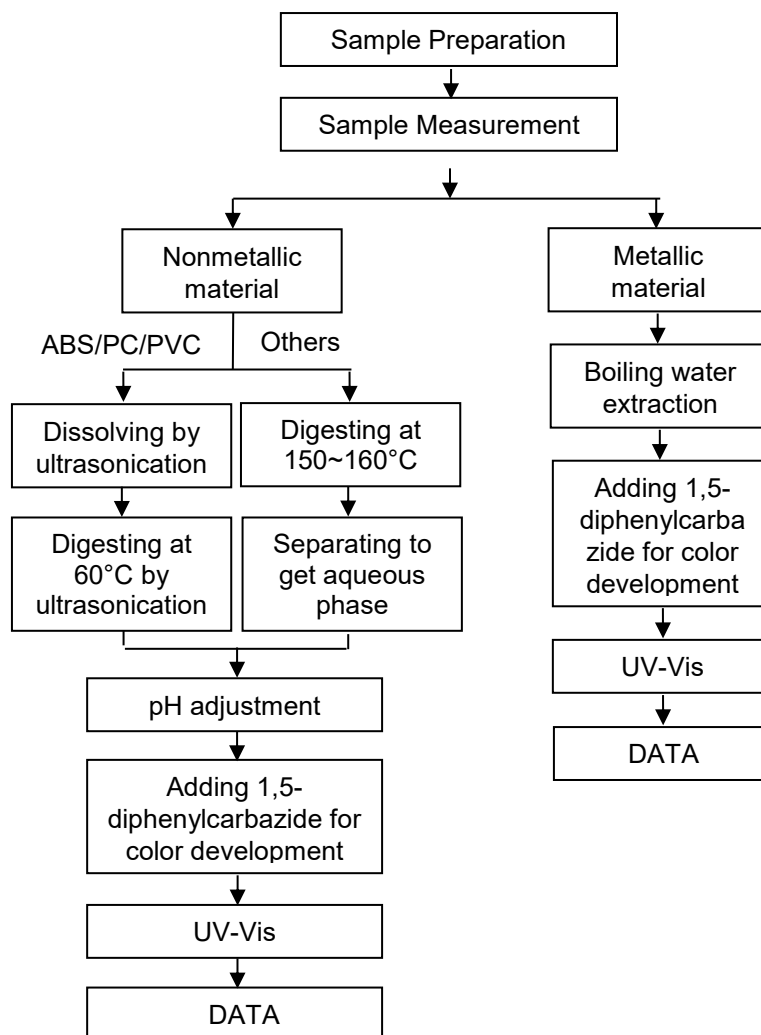
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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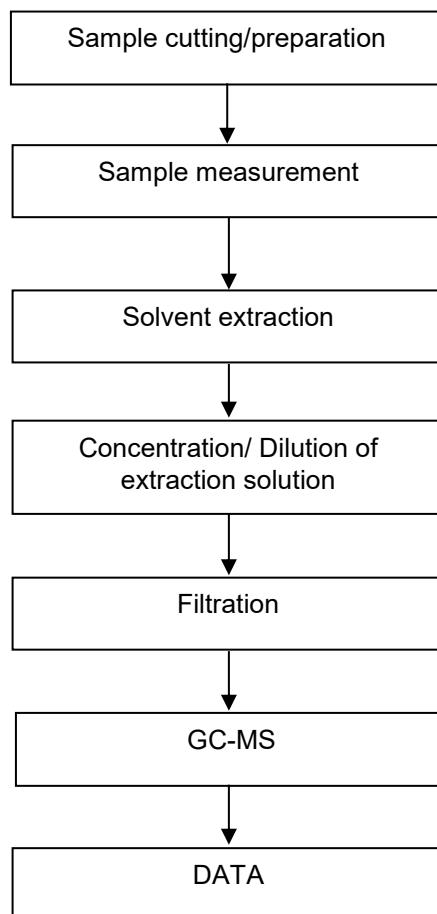
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PBBs/PBDEs Testing Flow Chart



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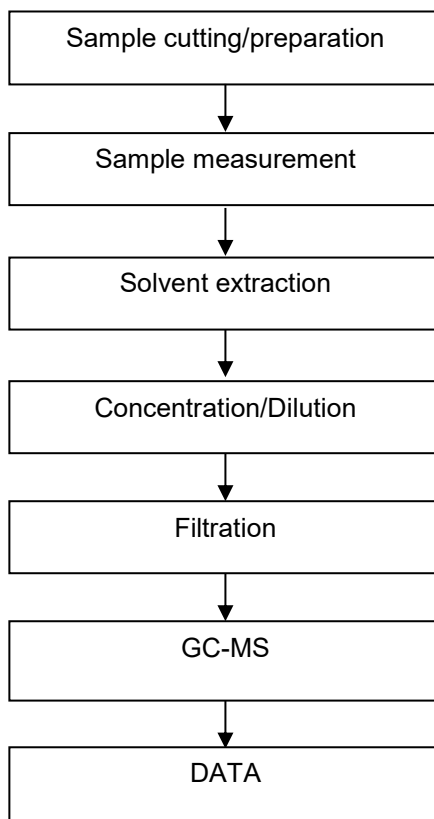
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Phthalates Testing Flow Chart



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Test Report

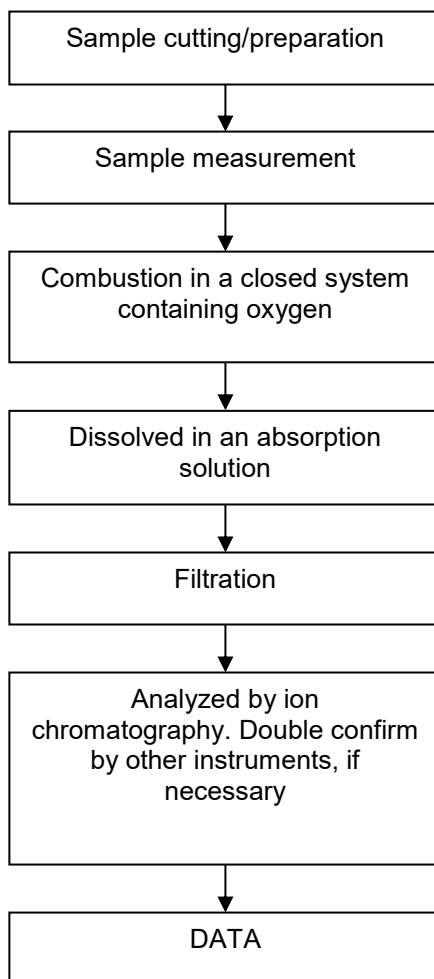
ATTACHMENTS

No.: SHAEC24000428805

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Halogen Testing Flow Chart



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Test Report

No.: SHAEC24000428805

Date: Jan 12, 2024

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Sample Photo:



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Test Report

No. TAOEC2306819101

Date: 25 Sep 2023

Page 1 of 14

Client Name : JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO.,LTD

Client Address : Huacheng Road 18,Qingyang Industried Area,Jiangyin City,Jiangsu Province

Sample Name : Liquid photoimageable solder mask
 Model No. : KSM-S6189EBK
 Material No. : KSM-19E
 Manufacturer : JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO.,LTD
 Client Ref. Information : To 75 °C pre-bake for 3 hours ;150°C,2 hours curable mixture
 The above sample(s) and information were provided by the client.

SGS Job No. : TIC1020230916151501Y7KO - QD
 Date of Sample Received : 18 Sep 2023
 Testing Period : 18 Sep 2023 - 25 Sep 2023
 Test Requested : Selected 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).

Result Summary :

Test Requested	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
Halogen	See Results
Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts	See Results
Hexabromocyclododecane (HBCDD)	See Results
Phthalates	See Results



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Test Report

No. TAOEC2306819101

Date: 25 Sep 2023

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Zhang Bo, Justin
Approved Signatory



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Test Report

No. TAOEC2306819101

Date: 25 Sep 2023

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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TAO23-068191.001	Black solid

Remarks :

- (1) 1 mg/kg = 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 62321-5:2013, IEC 62321-4:2013+AMD1:2017, 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)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	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
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (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.

Halogen

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

Test Item(s)	Unit	MDL	001
Fluorine (F)	mg/kg	20	84
Chlorine (Cl)	mg/kg	50	111
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts

Test Method : With reference to CEN/TS 15968:2010, analysis was performed by LC- MS-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Perfluorooctanesulfonate (PFOS) and its derivatives	-	mg/kg	-	ND
Perfluorooctane Sulfonates (PFOS) ^A	1763-23-1	mg/kg	0.01	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.01	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	mg/kg	0.01	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	mg/kg	0.01	ND



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Test Item(s)	CAS NO.	Unit	MDL	001
2-(N-methylperfluoro- 1-octanesulfonamido) -ethanol (MeFOSE)	24448-09-7	mg/kg	0.01	ND
Perfluorooctane sulfonamide (PFOSA)	754-91-6	mg/kg	0.01	ND
Perfluorooctanoic Acid (PFOA) and its salts+		mg/kg	0.01	ND

Notes :

- (1) ^ PFOS refer to its acid, salts/derivatives including PFOS (CAS No.: 1763-23-1), 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) and PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-N(CH₃)₂(C₁₀H₂₁)₂ (CAS No.: 251099-16-8) and POSF (CAS No.: 307-35-7).
- (2) PFOA and its salts+ refer to its acid / salts including PFOA (CAS No.: 335-67-1), 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)

Hexabromocyclododecane (HBCDD)

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

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

Phthalates

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

Test Item(s)	CAS NO.	Unit	MDL	001
Diethyl Phthalate (DEHP)	84-74-2	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%	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
Dipropyl Phthalate (DPrP)	131-16-8	%	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%	0.003	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	%	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	%	0.003	ND



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Test Item(s)	CAS NO.	Unit	MDL	001
Diphenyl Phthalate (DPhP)	84-62-8	%	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	%	0.003	ND
Dinonyl Phthalate (DNP)	84-76-4	%	0.003	ND
Diisooctyl Phthalate (DiOP)	27554-26-3	%	0.01	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%	0.003	ND

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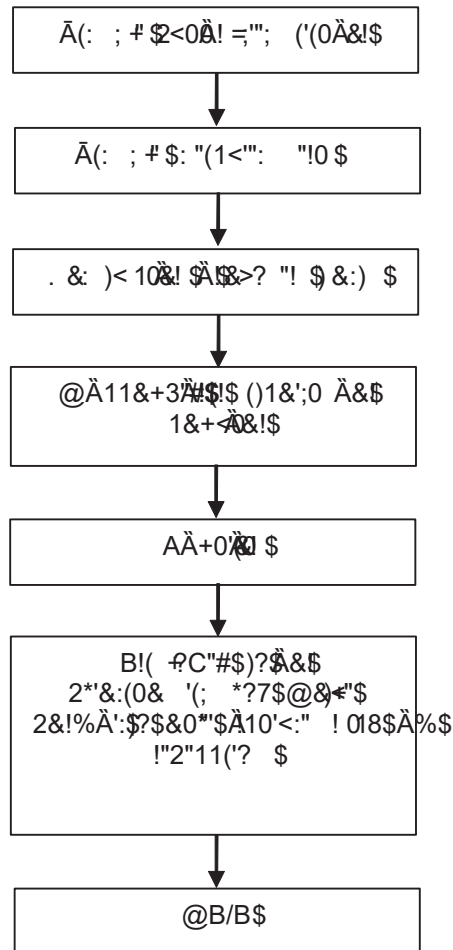
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Halogen Testing Flow Chart

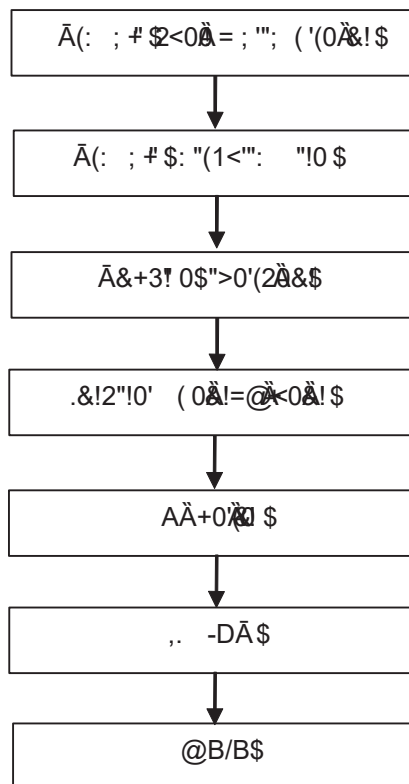


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HBCDD Testing Flow Chart



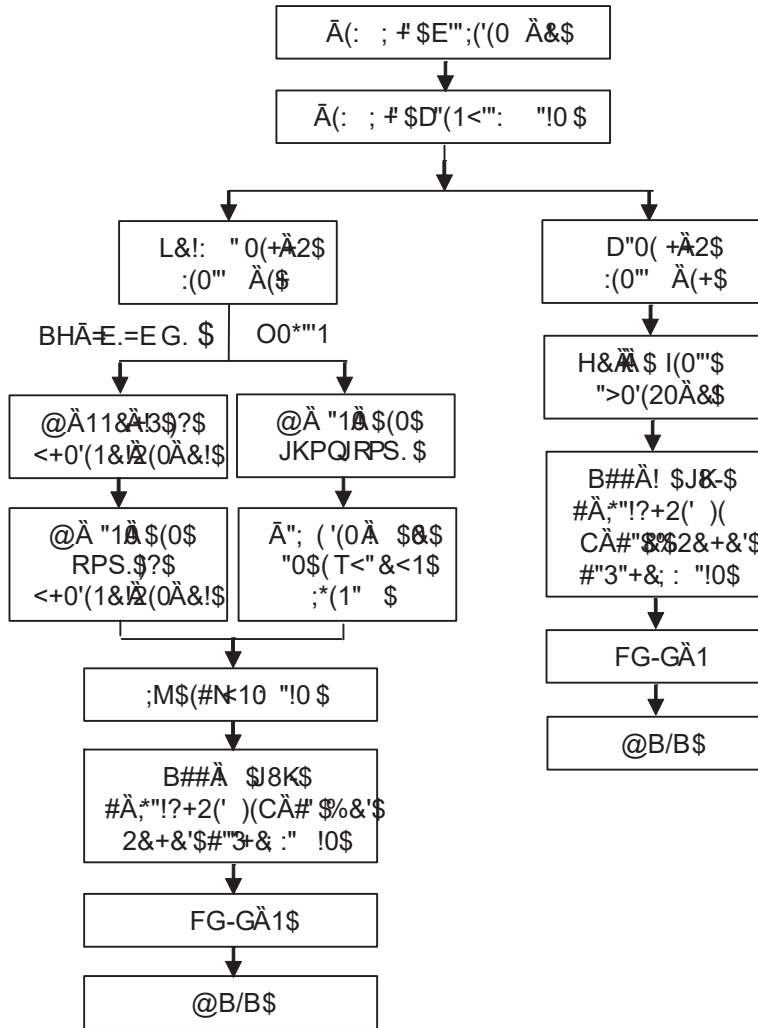
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

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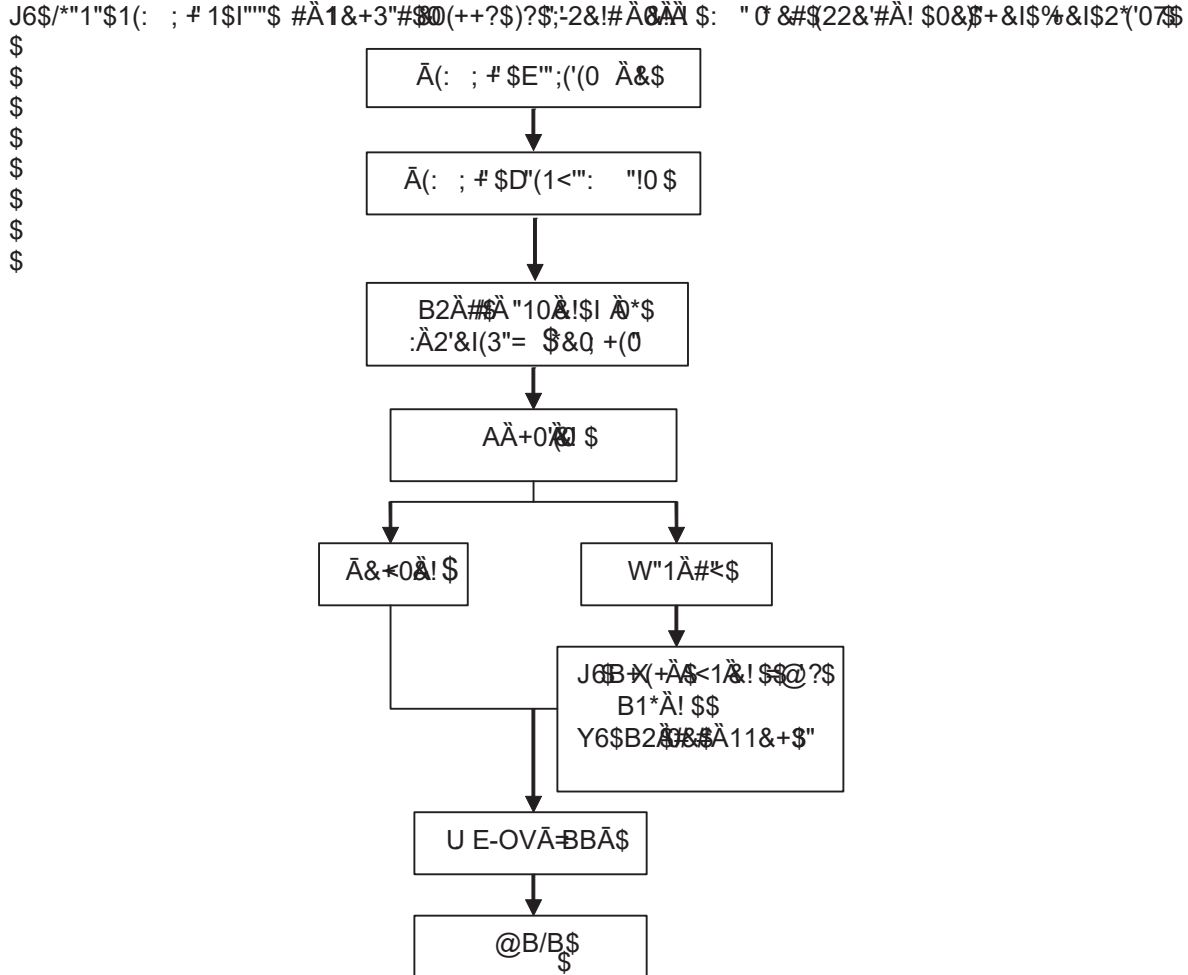


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Elements (IEC62321) Testing Flow Chart



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Date: 25 Sep 2023

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Sample photo:



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Test Report

No. TAOEC2307419101

Date: 19 Oct 2023

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Client Name : JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO.,LTD

Client Address : Huacheng Road 18,Qingyang Industried Area,Jiangyin City,Jiangsu Province

Sample Name : Liquid photoimageable solder mask
 Model No. : KSM-S6189EWT
 Material No. : KSM-19E
 Manufacturer : JIANGSU KUANGSHUN PHOTSENSITIVITY NEW-MATERIAL STOCK CO.,LTD
 Client Ref. Information : To 75 °C pre-bake for 3 hours ;150°C
 The above sample(s) and information were provided by the client.

SGS Job No. : TIC1020231011085627V47B - QD
 Date of Sample Received : 12 Oct 2023
 Testing Period : 12 Oct 2023 - 19 Oct 2023
 Test Requested : Selected 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).

Result Summary :

Test Requested	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
Halogen	See Results
Sulfur	See Results
Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts	See Results
Hexabromocyclododecane (HBCDD)	See Results
Phthalates	See Results



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Justin

Zhang Bo, Justin
Approved Signatory



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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TAO23-074191.001	White solid

Remarks :

- (1) 1 mg/kg = 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 62321-5:2013, IEC 62321-4:2013+AMD1:2017, 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)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	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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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (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.

Halogen

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Fluorine (F)	mg/kg	20	ND
Chlorine (Cl)	mg/kg	50	466
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Sulfur

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Sulfur (S)	mg/kg	50	243

Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA) and its salts



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Test Method : With reference to CEN/TS 15968:2010, analysis was performed by LC- MS-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Perfluorooctanesulfonate (PFOS) and its derivatives	-	mg/kg	-	ND
Perfluorooctane Sulfonates (PFOS)^	1763-23-1	mg/kg	0.01	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	0.01	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	mg/kg	0.01	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	mg/kg	0.01	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	24448-09-7	mg/kg	0.01	ND
Perfluorooctane sulfonamide (PFOSA)	754-91-6	mg/kg	0.01	ND
Perfluorooctanoic Acid (PFOA) and its salts+		mg/kg	0.01	ND

Notes :

(1) ^ PFOS refer to its acid, salts/derivatives including PFOS (CAS No.: 1763-23-1) , 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) and PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-N(CH₃)₂(C₁₀H₂₁)₂ (CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7).

(2) PFOA and its salts+ refer to its acid / salts including PFOA (CAS No.: 335-67-1), 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)

Hexabromocyclododecane (HBCDD)

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

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

Phthalates

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	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%	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



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Test Item(s)	CAS NO.	Unit	MDL	001
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
Dipropyl Phthalate (DPrP)	131-16-8	%	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%	0.003	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	%	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%	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
Dinonyl Phthalate (DNP)	84-76-4	%	0.003	ND
Diisooctyl Phthalate (DiOP)	27554-26-3	%	0.01	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%	0.003	ND

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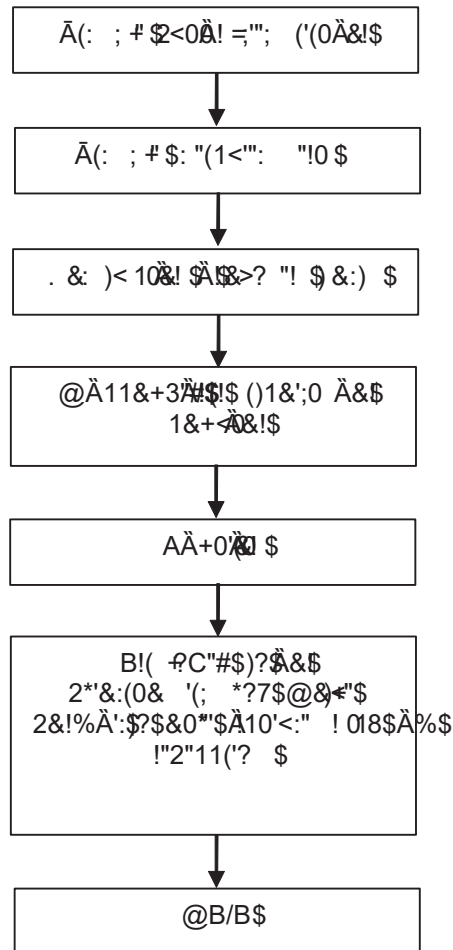
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Halogen Testing Flow Chart

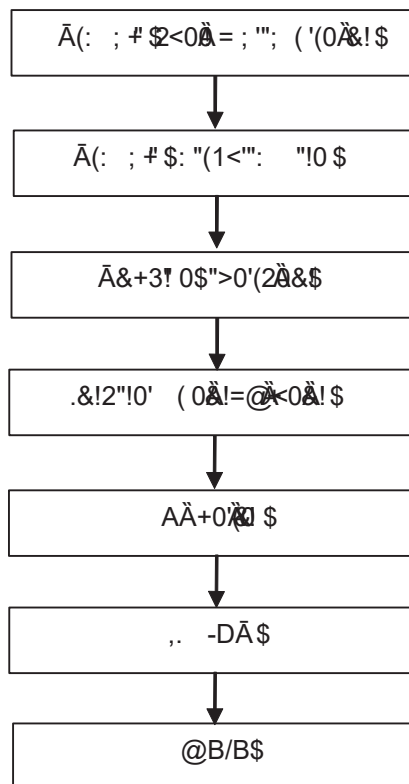


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HBCDD Testing Flow Chart



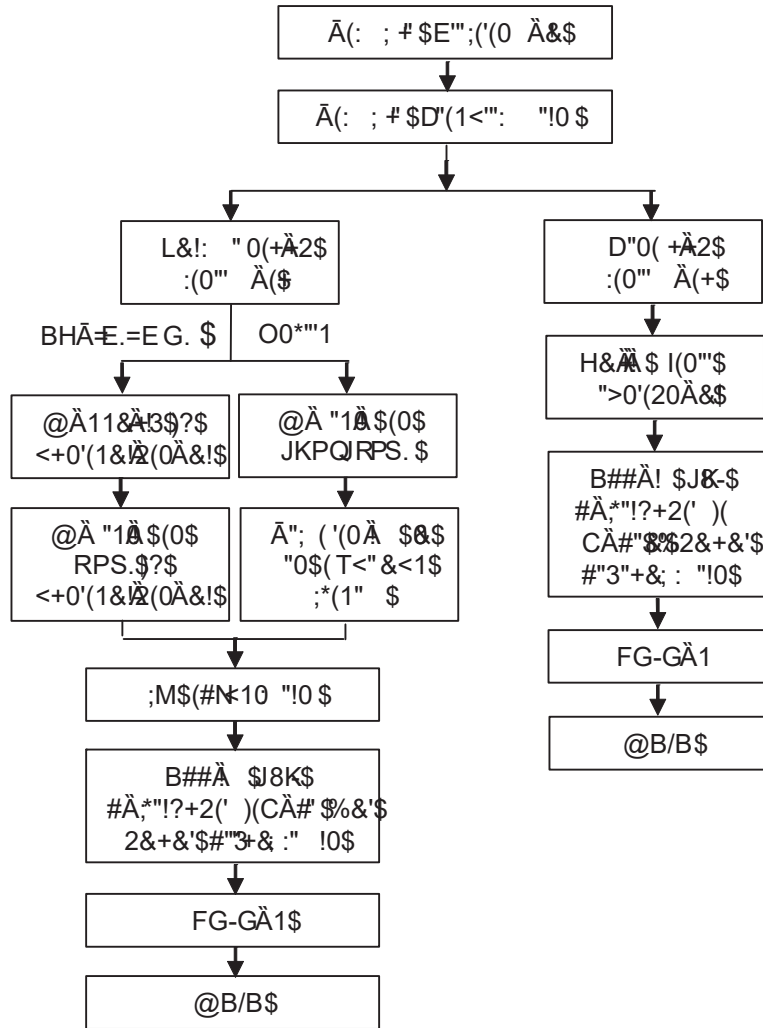
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

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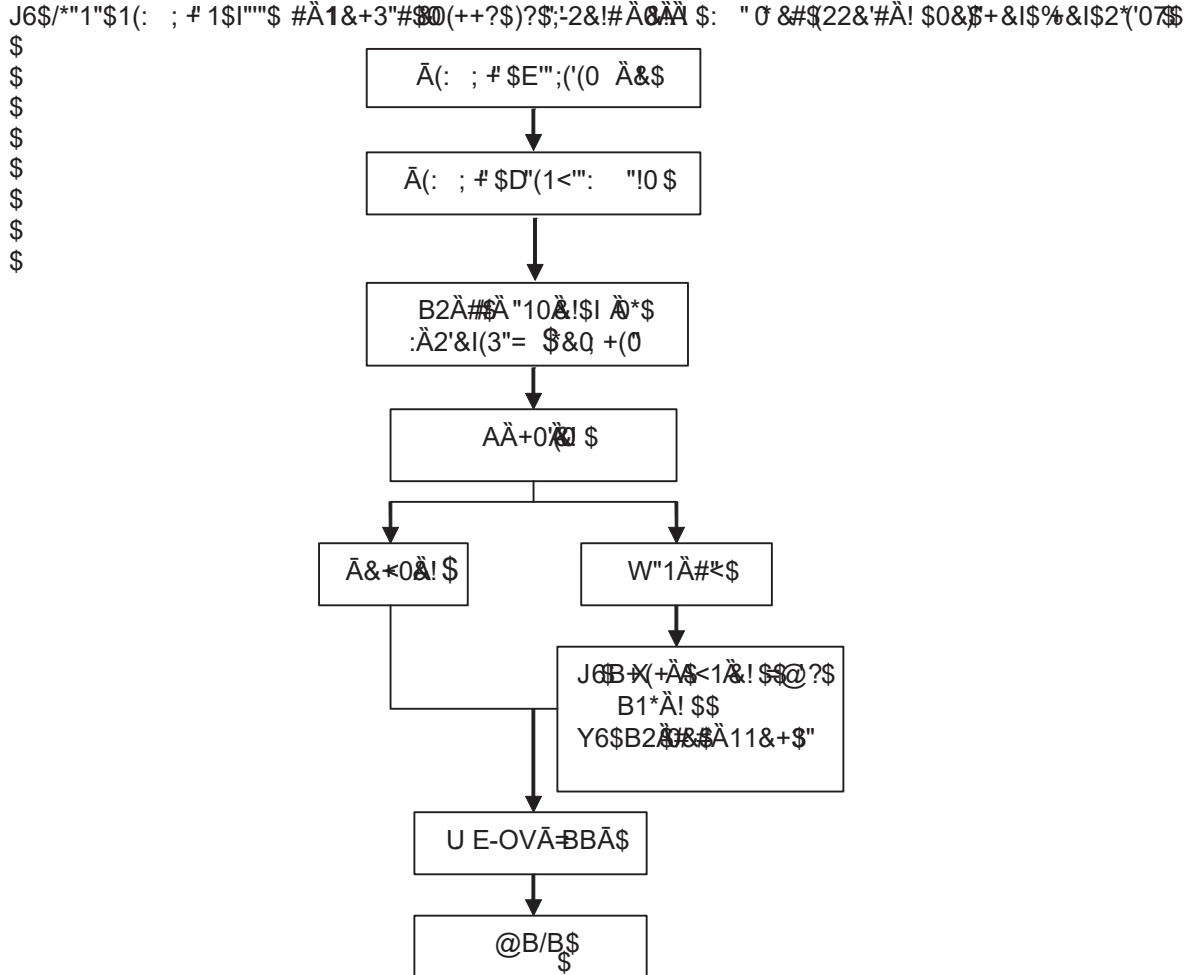
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Elements (IEC62321) Testing Flow Chart



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TEST REPORT

测试报告

LAB NO. 报告编号 : (8824)054-0003
DATE 完成日期 : Feb 28, 2024
PAGE 页码 : 1 OF 11

APPLICANT : SHENZHEN BAOXIN CHEMICAL TECHNOLOGY CO., LTD
申请公司名称 深圳市宝鑫化工技术有限公司
NO. 7, SHAJIANG EAST ROAD, SONGGANG STREET, BAO'AN
DISTRICT, SHENZHEN
深圳市宝安区松岗街道沙江东路7号

DATE OF SUBMISSION : FEB 23, 2024
样品收取日期 2024年2月23日

TEST PERIOD : FEB 23, 2024 TO FEB 28, 2024
测试周期 2024年2月23日至2024年2月28日

SAMPLE DESCRIPTION : ANTI-OXIDATION LIQUID/COPPER SURFACE PROTECTOR
样品描述 防氧化液/铜面保护剂

Style No. 型号 : KBX-108H (KBX-508)
Sample Size 样品数量 : 1
Manufacturer 制造商 : SHENZHEN BAOXIN CHEMICAL TECHNOLOGY CO., LTD
深圳市宝鑫化工技术有限公司
NO. 7, SHAJIANG EAST ROAD, SONGGANG STREET, BAO'AN
DISTRICT, SHENZHEN
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Lisa Bai

Lisa Bai
Analytical lab technical ass. manager

RT/ Min Chen

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SUMMARY OF TEST RESULTS

测试结果摘要

TEST REQUESTED 测试项目	CONCLUSION 结论	REMARK 备注
Heavy metals content requirements of the European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU. 重金属含量 - 有关欧盟委员会针对电子产品的指令(电子电器禁用某些有害物质指令), 2011/65/EU的修正案指令(EU)2015/863	PASS 合格	
Flame retardants content requirements of the European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU. 阻燃剂含量 - 有关欧盟委员会针对电子产品的指令(电子电器禁用某些有害物质指令), 2011/65/EU的修正案指令(EU)2015/863	PASS 合格	
BBP/DBP/DEHP/DIBP content requirements of the European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU 邻苯二甲酸盐测试- 指令2011/65/EU 欧洲议会和理事会关于电子电气设备中限制使用某些有害物质 (RoHS)的修正案指令(EU)2015/863	PASS 合格	



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Photo of the Submitted Sample

递交样品照片





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Tested Component(s) Description List:

测试部位的描述

Test Item(s) 测试项目	Item / Component Description(s) 项目 / 部件描述	Location(s) 位置	Style(s) 款式
I001	Transparent blue liquid 透蓝色液体	Liquid 液体	-



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TEST RESULT

测试结果

Heavy Metals Content – European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU

重金属含量 - 有关欧盟委员会针对电子产品的指令(电子电器禁用某些有害物质指令), 2011/65/EU 的修正案指令(EU)2015/863

Test Method : See Appendix I.
测试方法 : 见附录

See Analytes (Parameter) and their corresponding Maximum Allowable Limit (Req.) in Result Table 分析物 (参数) 及其对应的最大允许限 (要求) – 见结果表	Type I 类 I	Metallic material 金属材料
	Type II 类 II	Glass or ceramic material 玻璃或陶瓷材料
	Type III 类 III	Other non-metallic material except Type II 其他非金属材料, 类 II 材料除外

-	Unit 单位	Req. 要求	Result 结果
Test Item(s) 测试项目	-	-	I001
Type 类型	-	III	III
Parameter 参数	-	-	-
Lead (Pb) 铅	mg/kg	1000	ND
Cadmium (Cd) 镉	mg/kg	100	ND
Mercury (Hg) 汞	mg/kg	1000	ND
Chromium VI (Cr VI) 六价铬	mg/kg	1000	ND
Conclusion 结论	-	-	PASS 合格



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TEST RESULT

测试结果

Note / key注释:

ND = Not detected 未检出 “>” = Greater than 大于 Req. = Requirement 要求
NR = Not requested 未要求 mg/kg = milligram(s) per kilogram毫克每千克= ppm = part(s) per million
NA = Not Applicable 10000 mg/kg = 1 % % = percent百分率
Detection Limit检出限 (mg/kg) :
For Type I - Each (Pb, Cd & Hg) 10
类 I - 各 (铅, 镉和 汞) 10
For Type II - Each (Pb, Cd, Hg & Cr VI) 10
类 II - 各 (铅, 镉, 汞和六价铬) 10
For Type III- Polymers & Electronics - Each (Pb, Cd, Hg & Cr VI): 10;
Others - Each (Pb, Cd & Hg): 10; Cr VI: 3.0
类 III -聚合物及电子产品 - 各 (铅, 镉, 汞和六价铬): 10
其他材料 - 各 (铅, 镉和汞): 10; 六价铬: 3.0

Remark备注:

- The list of analytes is summarized in table of Appendix I.
分析物列表 - 见附录。
- According to European Council Directive 2011/65/EU, Article 5 “Adaptation of the Annexes to scientific and technical progress”, exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.
根据欧盟委员会 2011/65/EU 指令中, 条款 5“适应科学技术进步的附件”, 附件 III 和 IV 中列明的测试项目中的材料和部件可予以豁免。



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APPENDIX I 附录I

List of Analytes and their Corresponding Test Methods [European Council Directive 2011/65/EU] : 分析物名单及其相应的测试方法 [欧盟委员会指令 2011/65/EU]:		
No.	Name of Analytes 分析物名称	Test Method(s) 测试方法
1	Lead (Pb) 铅	With reference to International Standard IEC 62321-5: 2013. 参照国际标准 IEC 62321-5: 2013.
2	Cadmium (Cd) 镉	
3	Mercury (Hg) 汞	With reference to International Standard IEC 62321-4:2013+A1:2017. 参照国际标准 IEC 62321-4:2013+A1:2017.
4	Chromium VI (Cr VI) 六价铬	<u>Metal 金属:</u> With reference to International Standard IEC 62321-7-1: 2015. 参照国际标准 IEC 62321-7-1: 2015. <u>Polymers and Electronics 聚合物及电子产品:</u> With reference to European Standard EN 62321-7-2: 2017. 参照 EN 62321-7-2: 2017. <u>Leather 皮革:</u> International Standard ISO 17075-1:2017 国际标准 ISO 17075-1:2017 <u>Other than Metal, Leather, Polymers and Electronics 其他非金属, 皮革, 聚合物及电子产品材料:</u> With reference to International Standard ISO 17075-1:2017 参照国际标准 ISO 17075-1:2017
<p>[a] The principle of this method was evaluated and supported by two studies organized by IEC TC 111 WG3. These studies were focused on detecting the presence of Cr VI in the corrosion protection coatings on metallic samples. 该方法的原理是在由 IEC TC111 WG3 组织的两次研究中得到了充分评估并获得了认可。这些研究侧重于对金属样品上防腐涂层中六价铬的存在的检测(定性测试)。</p>		



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TEST RESULT

测试结果

Flame Retardants Content – European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU

阻燃剂含量 - 有关欧盟委员会针对电子产品的指令(电子电器禁用某些有害物质指令), 2011/65/EU 的修正案指令(EU)2015/863

Test Method : See Appendix I.
测试方法 : 见附录

-	Unit 单位	Req. 要求	Result 结果
Test Item(s) 测试项目	-	-	I001
Parameter 参数	-	-	-
PBBs 多溴联苯	mg/kg	1000	ND
MonoBB 一溴联苯	mg/kg	-	ND
DiBB 二溴联苯	mg/kg	-	ND
TriBB 三溴联苯	mg/kg	-	ND
TetraBB 四溴联苯	mg/kg	-	ND
PentaBB 五溴联苯	mg/kg	-	ND
HexaBB 六溴联苯	mg/kg	-	ND
HeptaBB 七溴联苯	mg/kg	-	ND
OctaBB 八溴联苯	mg/kg	-	ND
NonaBB 九溴联苯	mg/kg	-	ND
DecaBB 十溴联苯	mg/kg	-	ND
PBDEs 多溴联苯醚	mg/kg	1000	ND
MonoBDE 一溴联苯醚	mg/kg	-	ND
DiBDE 二溴联苯醚	mg/kg	-	ND
TriBDE 三溴联苯醚	mg/kg	-	ND
TetraBDE 四溴联苯醚	mg/kg	-	ND
PentaBDE 五溴联苯醚	mg/kg	-	ND
HexaBDE 六溴联苯醚	mg/kg	-	ND
HeptaBDE 七溴联苯醚	mg/kg	-	ND
OctaBDE 八溴联苯醚	mg/kg	-	ND
NonaBDE 九溴联苯醚	mg/kg	-	ND
DecaBDE 十溴联苯醚	mg/kg	-	ND
Conclusion 结论	-	-	PASS 合格



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TEST RESULT

测试结果

Note / key:

ND = Not detected 未检出 ">" = Greater than 大于 Req. = Requirement 要求
NR = Not requested 未要求 mg/kg = milligram(s) per kilogram毫克每千克= ppm = part(s) per million
NA = Not Applicable 10000 mg/kg = 1 % % = percent百分率
Detection Limit检出限 (mg/kg) :

Remark:

- The list of analytes is summarized in table of Appendix I.
分析物列表 – 见附录。
 - According to European Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.
根据欧盟委员会 2011/65/EU 指令中, 条款 5“适应科学技术进步的附件”, 附件 III 和 IV 中列明的测试项目中的材料和部件可予以豁免。
-



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APPENDIX I 附录I

List of Analytes and their Corresponding Test Methods [European Council Directive 2011/65/EU] : 分析物名单及其相应的测试方法 [欧盟委员会指令 2011/65/EU]:		
No.	Name of Analytes 分析物名称	Test Method(s) 测试方法
1	Polybromobiphenyls (PBBs) 多溴联苯 - Bromobiphenyl (MonoBB) 一溴联苯 - Dibromobiphenyl (DiBB) 二溴联苯 - Tribromobiphenyl (TriBB) 三溴联苯 - Tetrabromobiphenyl (TetraBB) 四溴联苯 - Pentabromobiphenyl (PentaBB) 五溴联苯 - Hexabromobiphenyl (HexaBB) 六溴联苯 - Heptabromobiphenyl (HeptaBB) 七溴联苯 - Octabromobiphenyl (OctaBB) 八溴联苯 - Nonabromobiphenyl (NonaBB) 九溴联苯 - Decabromobiphenyl (DecaBB) 十溴联苯	With reference to International Standard IEC 62321-6: 2015. 参照国际标准 IEC 62321-6: 2015.
2	Polybromodiphenyl ethers (PBDEs) 多溴联苯醚 - Bromodiphenyl ether (MonoBDE) 一溴联苯醚 - Dibromodiphenyl ether (DiBDE) 二溴联苯醚 - Tribromodiphenyl ether (TriBDE) 三溴联苯醚 - Tetrabromodiphenyl ether (TetraBDE) 四溴联苯醚 - Pentabromodiphenyl ether (PentaBDE) 五溴联苯醚 - Hexabromodiphenyl ether (HexaBDE) 六溴联苯醚 - Heptabromodiphenyl ether (HeptaBDE) 七溴联苯醚 - Octabromodiphenyl ether (OctaBDE) 八溴联苯醚 - Nonabromodiphenyl ether (NonaBDE) 九溴联苯醚 - Decabromodiphenyl ether (DecaBDE) 十溴联苯醚	
<div>[a]</div> <p>The principle of this method was evaluated and supported by two studies organized by IEC TC 111 WG3. These studies were focused on detecting the presence of Cr VI in the corrosion protection coatings on metallic samples.</p> <p>该方法的原理是在由 IEC TC111 WG3 组织的两次研究中得到了充分评估并获得了认可。这些研究侧重于对金属样品上防腐涂层中六价铬的存在的检测(定性测试)。</p>		



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TEST RESULT

测试结果

BBP/DBP/DEHP/DIBP Content – European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/863/EU

邻苯二甲酸盐测试- 指令2011/65/EU 欧洲议会和理事会关于电子电气设备中限制使用某些有害物质 (RoHS)的修正案指令(EU)2015/863.

Test Method : With reference to International Standard IEC 62321-8:2017
参照国际标准IEC 62321-8:2017

Test Parameter: 测试参数:	BBP	DBP	DEHP	DiBP	-
Limit 限值(%):	0.1	0.1	0.1	0.1	-
Test Item(s) 测试项目	Result (%)				Conclusion
I001	ND	ND	ND	ND	PASS 合格

Note / key:

BBP = Butyl benzyl phthalate (CAS No: 85-68-7)

邻苯二甲酸丁苄酯

DEHP = Di(2-ethylhexyl) phthalate (CAS No: 117-81-7)

邻苯二甲酸二异辛酯

ND = Not detected 未检出 % = percent 百分率

mg/kg = milligram(s) per kilogram 毫克每千克

检测限 (%) : 各 0.005

DBP = Dibutyl phthalate (CAS No: 84-74-2)

邻苯二甲酸二丁酯

DiBP = Diisobutyl phthalate (CAS No: 84-69-5)

邻苯二甲酸二异丁酯

10000 mg/kg = 1 %

Remark:

- The amendment will be effective on 22 July 2019. For medical devices and control instruments, effective date will be 22 July 2021.
该修正案将于 2019 年 7 月 22 生效, 对于医疗器械和控制器械的生效日期为 2021 年 7 月 22 日。
- If there is any ambiguity between English and Chinese version, please refer to the English version.
如果中英文有歧义, 以英文版为准。

*** End of Report ***

Test Report

No.: CANEC24002135402

Date: Feb 02, 2024

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Client Name: 3M MATERIAL TECHNOLOGY (GUANGZHOU) CO.,LTD.

Client Address: NO.9,NANXIANG 2 ROAD,SCIENCE CITY GUANGZHOU HIGH TECH INDUSTRY DEVELOPMENT DISTRICT

Sample Name: 9448AB

Model No.: 9448AB

Client Ref. Information: 9448A

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

SGS Job No.: GZP24-002238

Sample Receiving Date: Jan 29, 2024

Testing Period: Jan 29, 2024 ~ Feb 02, 2024

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 (PBB), Polybrominated diphenyl ethers (PBDE), 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 Co., Ltd. Guangzhou Branch

Dongyu Xie

Dongyu Xie
Approved Signatory



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Test Report

No.: CANEC24002135402

Date: Feb 02, 2024

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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN24-0021354-0001.C001	Black double-side adhesive film

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 (PBB), Polybrominated diphenyl ethers (PBDE), 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/AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A1
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Cadmium (Cd)	100	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybrominated biphenyls (PBB)	1000	mg/kg	-	ND
Monobrominated biphenyl (MonoBB)	-	mg/kg	5	ND
Dibrominated biphenyl (DiBB)	-	mg/kg	5	ND
Tribrominated biphenyl (TriBB)	-	mg/kg	5	ND
Tetrabrominated biphenyl (TetraBB)	-	mg/kg	5	ND
Pentabrominated biphenyl (PentaBB)	-	mg/kg	5	ND
Hexabrominated biphenyl (HexaBB)	-	mg/kg	5	ND
Heptabrominated biphenyl (HeptaBB)	-	mg/kg	5	ND
Octabrominated biphenyl (OctaBB)	-	mg/kg	5	ND
Nonabrominated biphenyl (NonaBB)	-	mg/kg	5	ND
Decabrominated biphenyl (DecaBB)	-	mg/kg	5	ND
Polybrominated diphenyl ethers (PBDE)	1000	mg/kg	-	ND
Monobrominated diphenyl ether (MonoBDE)	-	mg/kg	5	ND
Dibrominated diphenyl ether (DiBDE)	-	mg/kg	5	ND
Tribrominated diphenyl ether (TriBDE)	-	mg/kg	5	ND
Tetrabrominated diphenyl ether (TetraBDE)	-	mg/kg	5	ND
Pentabrominated diphenyl ether (PentaBDE)	-	mg/kg	5	ND
Hexabrominated diphenyl ether (HexaBDE)	-	mg/kg	5	ND
Heptabrominated diphenyl ether (HeptaBDE)	-	mg/kg	5	ND



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Test Report

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Test Item(s)	Limit	Unit(s)	MDL	A1
Octabrominated diphenyl ether (OctaBDE)	-	mg/kg	5	ND
Nonabrominated diphenyl ether (NonaBDE)	-	mg/kg	5	ND
Decabrominated diphenyl ether (DecaBDE)	-	mg/kg	5	ND
Bis(2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Dibutyl phthalate (DBP)	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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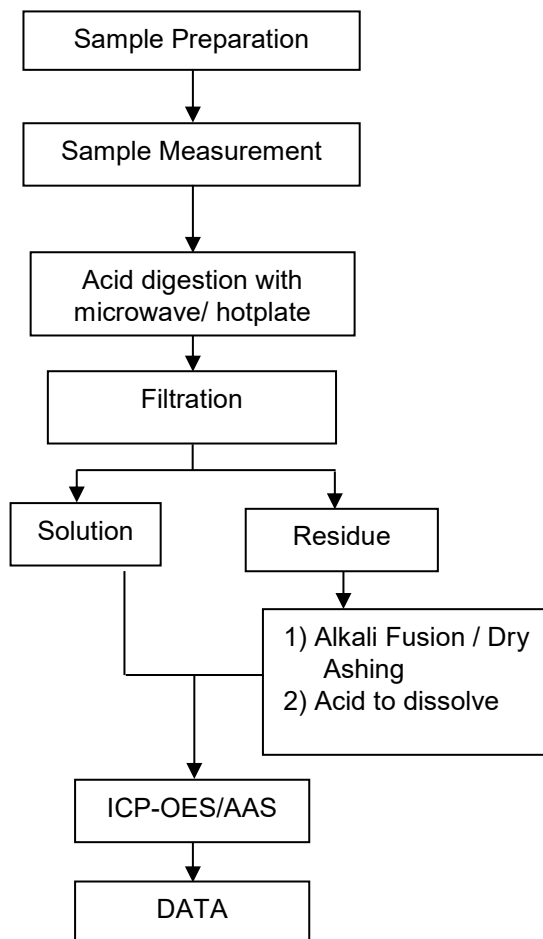
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Elements Testing Flow Chart

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



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Test Report

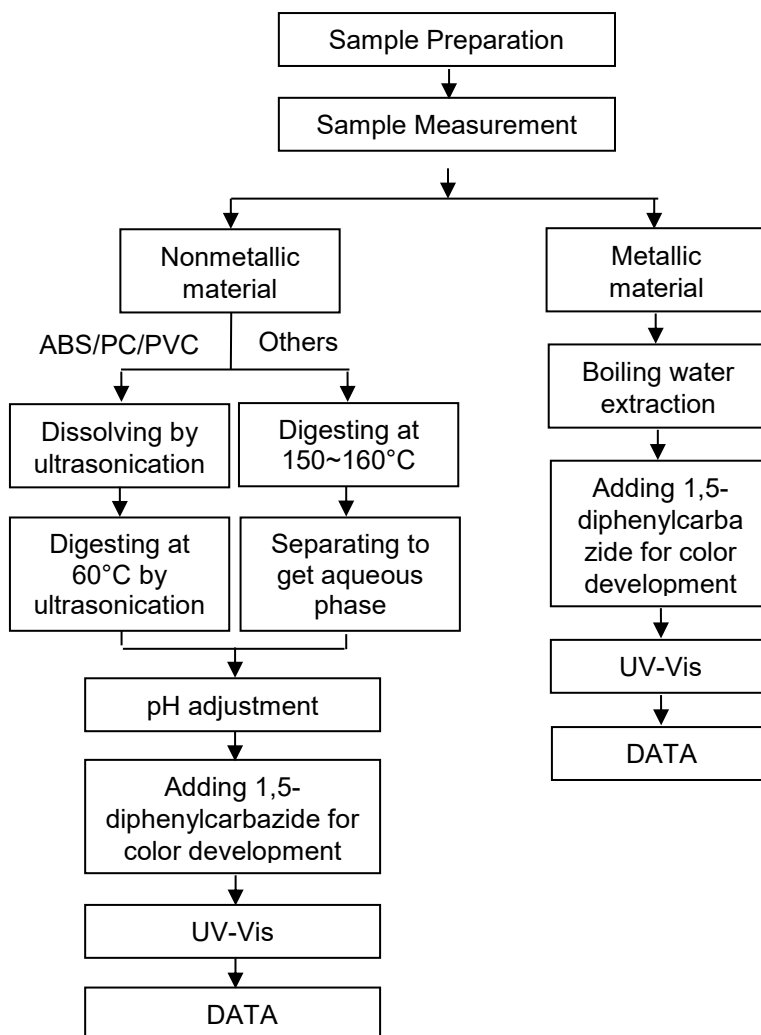
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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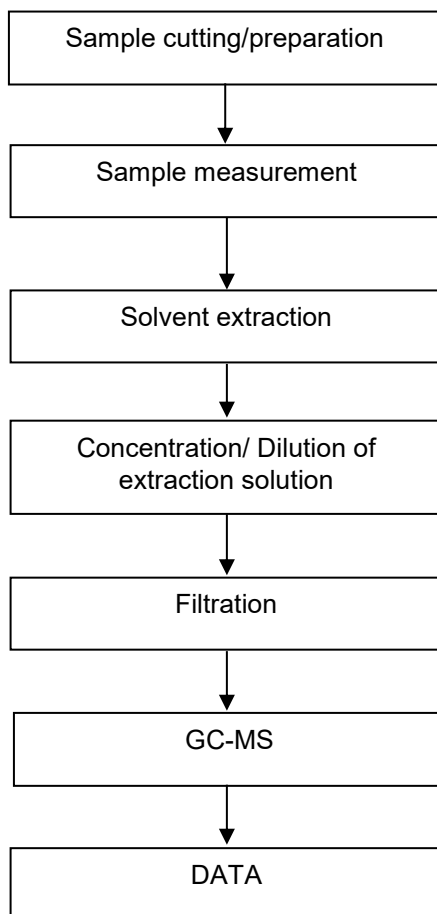
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PBB/PBDE Testing Flow Chart



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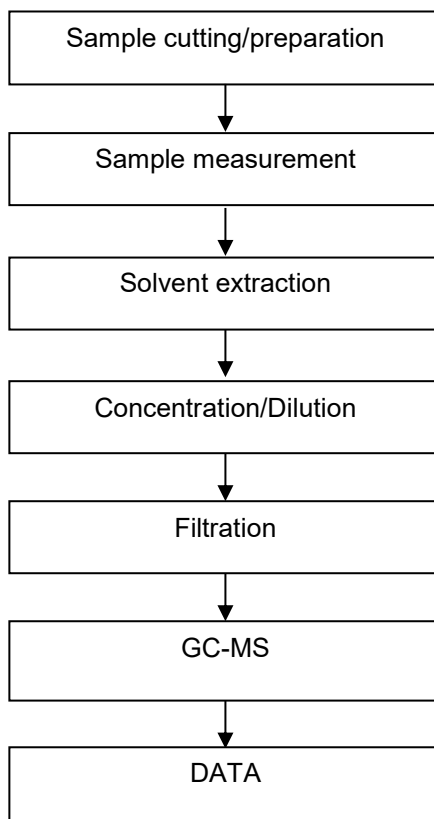
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Phthalates Testing Flow Chart



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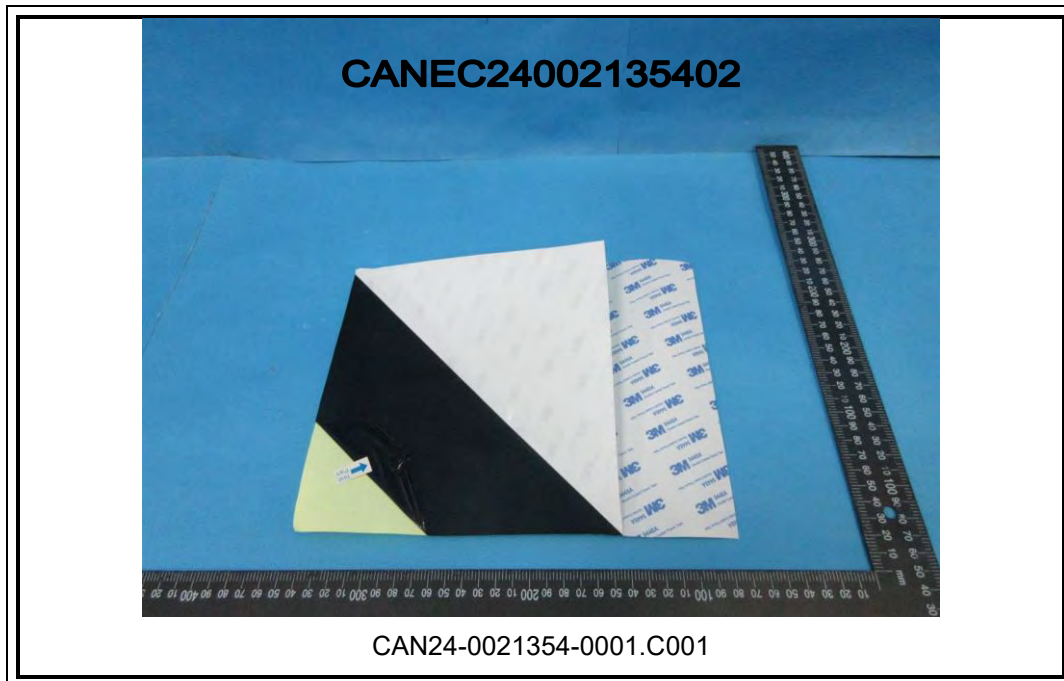
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Sample Photo:



SGS authenticate the photo on original report only

*** End of Report ***



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譚裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

RoHs 排外條款說明

RoHs Exclusive item Hazardous Substance

本公司保證，本產品均屬環保產品，皆符合 RoHs 法規要求，並適用於 RoHs 規定之排除條款。

We hereby confirm and assure that all parts and sub-materials delivered to your company with RoHs Standard and apply to RoHs Exclusive item.

RoHs 合金類排除條款如下：

RoHs Exclusive item:

合金種類 alloys item	鉛允許含量(ppm) Lead acceptance concentration
鋼材 steel	< 3,500ppm
鋁合金 aluminum alloys	< 4,000ppm
銅合金 copper alloys	< 40,000ppm
高鎔點錫料(有鉛焊錫) Lead in high melting temperature type solder	≥ 85,000 PPM

公司名稱：譚裕實業股份有限公司

Company name: WHA YU INDUSTRIAL CO., LTD

公司地址：新竹市公道五路二段 326 號

Company address: No. 326, Sec 2, Kung Tao 5 Road, Hsin Chu City, Taiwan

連絡電話：03-5714225

TEL: +886-3-5714225

負責人：鄒宓富 董事長

Sign by:

立約日期：2023.05.24

Date: 2023/05/24



MATERIAL COMPOSITION LIST

材料組成成份表

Supplier :

Customer : 東莞台霖電子通訊有限公司

Supplier Part No. : C059-510503-A

Customer Part No: QSI :

QMI:



NO: Hxxxxx

No.	Composition part	Material Name	Supplier	RoHS Report No.	Material mass (mg)	Material mass (%)	Element name composition	CAS No.	Element % (by weight)	Element Wt	Wt %	ppm		
	構成部件	部件材質名	Name	(Report Date)	材質重量	材質重量百分比	構成之元素名稱	CAS 編號	元素百分比 (以重量計)	(mg)	Of Total Unit Wt			
1	Cable	Φ0.81mm Cable-外被	KAIBO	NGBEC24000586005	120.0000	34.29%	FEP	25067-11-2	26.000	31.2000	8.9143	89142.86		
		Φ0.81mm Cable-色母		HKTEC2401654112			Pigment	-	5.000	6.0000	1.7143	17142.86		
		Φ0.81mm Cable-編織		A2230496550101001			Cu	7440-50-8	36.460	43.7520	12.5006	125005.71		
		Φ0.81mm Cable-絕緣		NGBPC24000131241			Sn	7440-31-5	1.670	2.0040	0.5726	5725.71		
		Φ0.81mm Cable-導體		SHAEC23019069713			FEP	25067-11-2	19.000	22.8000	6.5143	65142.86		
							Cu	7440-50-8	10.920	13.1040	3.7440	37440.00		
							Ag	7440-22-4	0.950	1.1400	0.3257	3257.14		
2	I-PEX 4L-Connector	MHF Connector-外殼	I-PEX	ETR24802273M01	55.0000	15.71%	Cu	7440-50-8	44.690	24.5795	7.0227	70227.14		
							Sn	7440-31-5	5.000	2.7500	0.7857	7857.14		
							P	7723-14-0	0.050	0.0275	0.0079	78.57		
							Pb	7439-92-1	0.025	0.0138	0.0039	39.29		
							Fe	7439-89-6	0.100	0.0550	0.0157	157.14		
							Zn	7440-66-6	0.100	0.0550	0.0157	157.14		
							PBT	24968-12-5	0.001	0.0006	0.0002	1.57		
		P		7723-14-0			0.065	0.0358	0.0102	102.14				
		Glass Fiber		65997-17-3			0.001	0.0006	0.000157	1.57				
		Cu		7440-50-8			44.690	24.5795	7.0227	70227.14				
		Sn		7440-31-5			5.000	2.7500	0.7857	7857.14				
		P		7723-14-0			0.050	0.0275	0.0079	78.57				
		Pb		7439-92-1			0.025	0.0138	0.0039	39.29				
		Fe		7439-89-6			0.100	0.0550	0.0157	157.14				
		Zn		7440-66-6			0.100	0.0550	0.0157	157.14				
		Au		7440-57-5			0.001	0.0006	0.000157	1.57				
		Ni		7440-02-0			0.002	0.0011	0.000314	3.14				
3	FPCB	基板	ZHINENG	SHAEC24000428805	174	49.71%	无卤环氧树脂接着剂	24969-06-0	40	69.6000	19.8857	198857.14		
							聚亚酰胺膜	25038-81-7	12.75	22.1850	6.3386	63385.71		
							銅箔	7440-50-8	45.8	79.6920	22.7691	227691.43		
		Black ink		TAOEC2306819101			phenolic epoxy resin	9003-36-5	0.500	0.8700	0.2486	2485.71		
							A phenolic epoxy resin (NPCN-704)	29690-82-2	0.060	0.1044	0.0298	298.29		
							acrylic ester (DPHA)	29570-58-9	0.100	0.1740	0.0497	497.14		
							Barium sulfate	7727-43-7	0.040	0.0696	0.0199	198.86		
							Defoaming agent	63148-62-9	0.080	0.1392	0.0398	397.71		
							Silicon Dioxide	7631-86-9	0.020	0.0348	0.0099	99.43		
							Carbon black (MA-100)	1333-86-4	0.010	0.0174	0.0050	49.71		
		White ink		TAOEC2307419101			Dibasic Ester (DBE)	95481-62-2	0.090	0.1566	0.0447	447.43		
							Ethylene Oxide	75-21-8	0.001	0.0017	0.0005	4.97		
							Hydrocarbons, C26-55, arom.-rich	97722-04-8	0.006	0.0104	0.0030	29.83		
							Bariumsulfate	7727-43-7	0.050	0.0870	0.0249	248.57		
							SILICA	14808-60-7	0.043	0.0748	0.0214	213.77		
							Benzimidazole	51-17-2	0.020	0.0348	0.0099	99.43		
							Formic Acid	64-18-6	0.040	0.0696	0.0199	198.86		
		OSP		(8824)054-0003			ID Water	7732-18-5	0.39	0.6786	0.1939	1938.86		
							Adhesive	-	45.00	0.4500	0.1286	1285.71		
							PAPER LINER	-	50.00	0.5000	0.1429	1428.57		
4	背膠	3M 9448A	JUNZHAN	CANEC24002135402	1.0000	0.29%	Tissue	-	5.00	0.0500	0.0143	142.86		
							ttl wt = 350.0000 mg							

Approved by (核准): 何四春

Reviewed by (審查): 白玉侠

(A) Element Wt Composition is derived from MSDS and/or material C of C from Vendors

(B) Wt of silver spotted on leadframe is estimated.

(C) Component Weight is based on assembly of generic parts.



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EDIMAX Technology Co., Ltd.

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公司代表: <u>吳國華</u>	
生效日期: <u>2018.6.27</u>	