

Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 1 of 11

Client Name : Jiangsu JieJie Microelectronics Co.,Ltd

Client Address : 3000 Qiantangjiang Road, Economic Development Zone, Qidong , Jiangsu , China

Sample Name : TO-3P

Model No. : TO-3P

Client Ref. Info. : SEE REMARK

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

This report is to supersede test report CANEC2215692511

SGS Job No. : CP22-040651 - GZ

Testing Period : 21 Jul 2022 - 04 Aug 2022

Internal Reference No. : 16006404

Date of Sample Received : 21 Jul 2022

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
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium	PASS
Polyvinyl Chloride(PVC)	See Results
Halogen	See Results



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Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 2 of 11

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

Coral Qiu

Coral Qiu
Approved Signatory



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Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 3 of 11

Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-156925.001	Black material
SN2	CAN22-156925.002	Silvery metal pin
SN3	CAN22-156925.003	Silvery metal sheet with copper-colored surface, solder & chip

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

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	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



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Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 4 of 11

Test Item(s)	Limit	Unit	MDL	001
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
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
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

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

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium

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

Test Item(s)	Limit	Unit	MDL	002	003
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1000	mg/kg	2	11	14230▲
Mercury (Hg)	1000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND	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) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination



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Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 5 of 11

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.

Polyvinyl Chloride(PVC)

Test Method : SGS In-house method (GZTC CHEM-TOP-194-01), analysis was performed by Pyrolysis-GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Polyvinyl chloride component	9002-86-2	%(w/w)	0.05	ND

Notes :

(1) Polyvinyl chloride component includes its present in copolymer.

Halogen

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

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	66
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Remark 1▲:According to the declaration from the client, Lead (Pb) in specimen 003 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 7(a)]: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

Remark 2: Results & photo(s) of this report refer to test report CANEC2215692507.

This report updates Client Ref. Info.

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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Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 6 of 11

REMARK:

TO-92, TO-220A, TO-92CR, TO-92UR, TO-92-2L, TO-92KR, TO-92KRF, TO-251, TO-251-3L, TO-251L-3L, TO-251S, TO-252, TO-252-3L, TO-252-2L, TO-252-4R, TO-251-4R, TO-220FP-6L, TO-220A-3L, TO-220A-2L, TO-220A-2D-3L, TO-220A-2D-2L, TO-220B, TO-220B-3L, TO-220C, TO-220C-3L, TO-220C-2L, TO-220F, TO-220FA, TO-220FA-3L, TO-220FP, TO-220FP-3L, TO-220FP-2L, TO-247, TO-247-3L, TO-247-4L, TO-247S, TO-247S-3L, TO-247S-2L, TO-247J, ITO-247, ITO-247-3L, TO-3PF-3L, TO-220H-3L, TO-126, TO-202, TO-202-3, TO-262, TO-262-3L, TO-263, TO-263-3L, TO-277B, SOT-89, SOT-89-3L, SOT-89R-2L, SOT-89-2L, SOT-223, SOT-223-3L, SOT-223-2L, SOT-223-2, SOT-82, SOT-23-3L, SOT-23-2L, PDFN5x6-8L, DFN5x6-8L, TO-247J-2L, STOLL7x8-5L, PDFN5x6-8L-D, PDFN3.3x3.3-8L, TOLL9.9x10.38-8L, PDFN5x6-8L, DFN2x2-3L, DFN2x2-6L, DFN2x2-6L-D, DFN3.3x3.3-8L, DFN3.3x3.3-8L (type B) , PDFN3.3x3.3-8L-D, DFN8x8-2L, DFN8x8-4L, DFN3.0x3.0-8L-SD, DFN3.0x3.0-8L-SD (Type B) , DFN5x6-8L-SS, DFN3.3x3.3-8L-SS, DFN10x15-5L-SS



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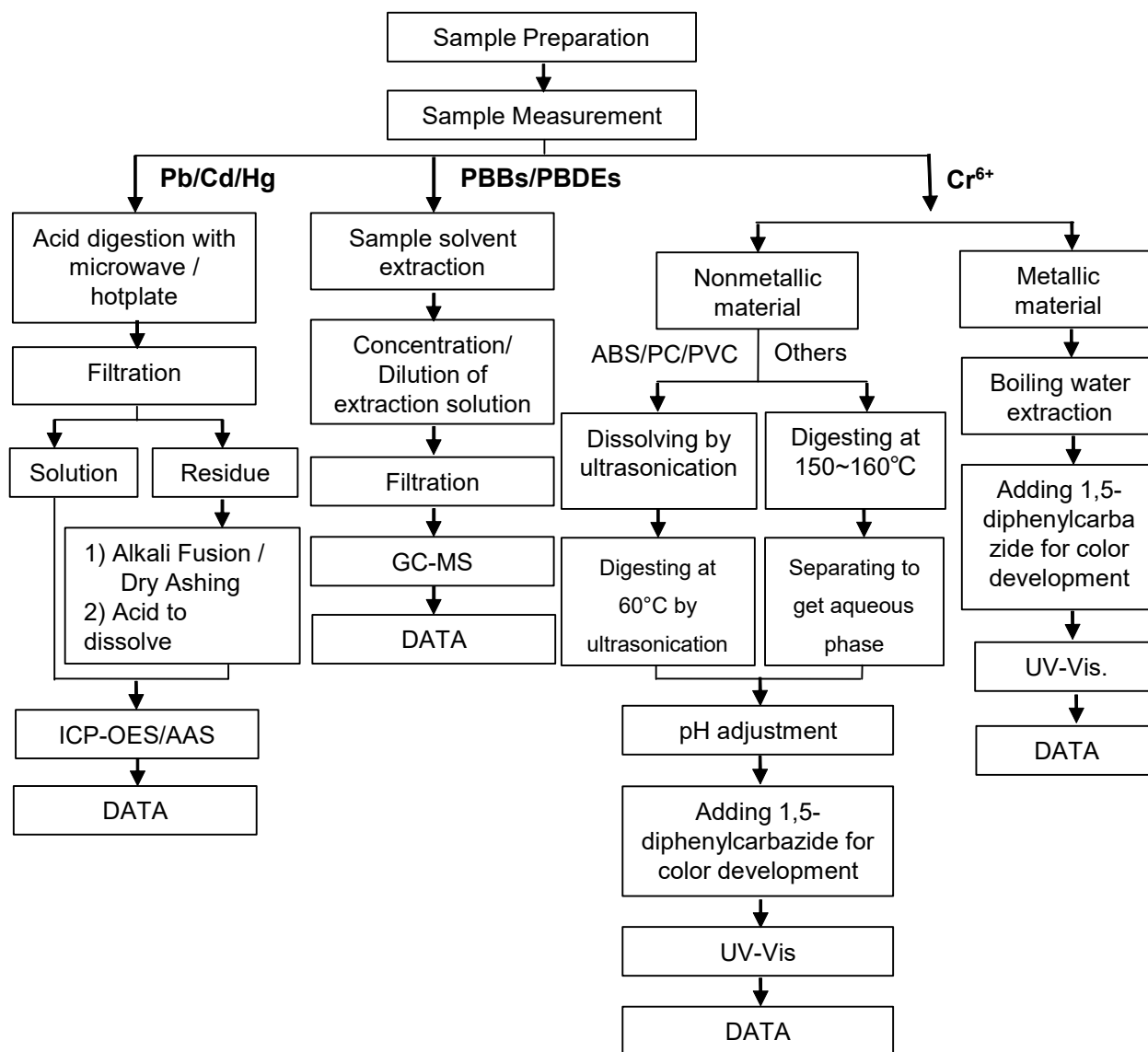
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Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded).

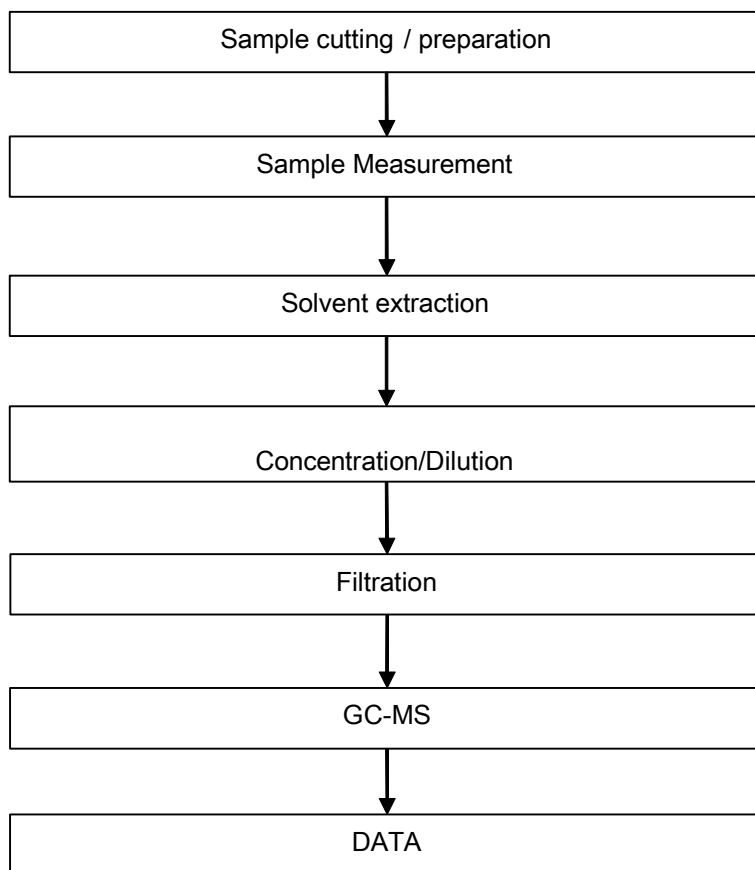


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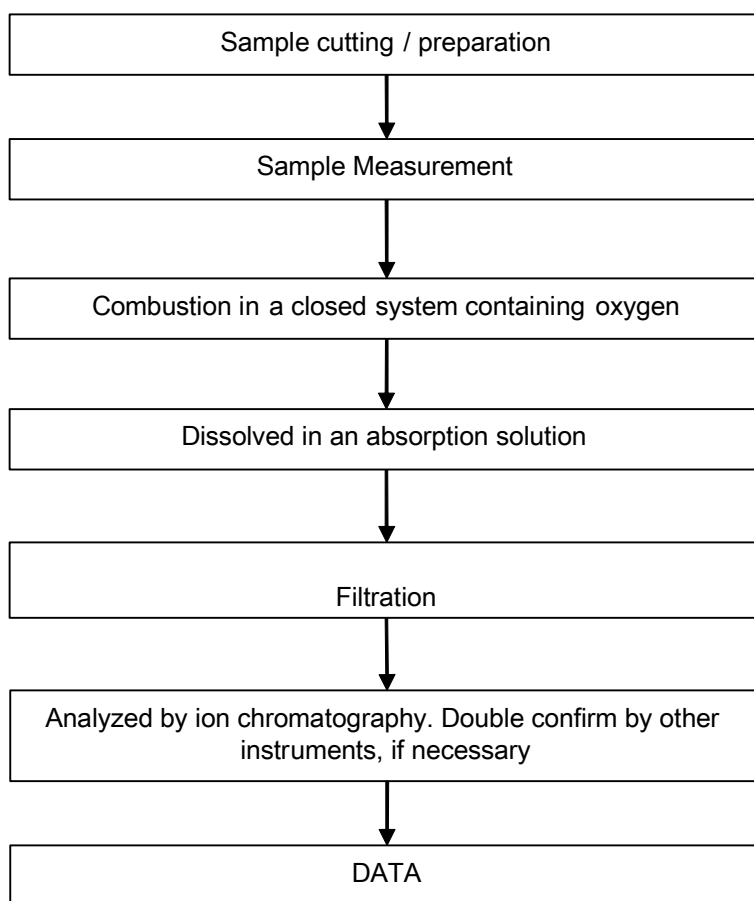
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Phthalates Testing Flow Chart



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Halogen Testing Flow Chart



Test Report

No. CANEC2215692514

Date: 10 Jan 2023

Page 10 of 11

Sample photo:



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