

Test Report

No. TSNEC1900995102

Date: 26 Jun 2019

Page 1 of 9

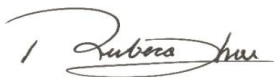
TANGSHAN GUOXIN JINGYUAN ELECTRONICS CO.,LTD

XINXING ELECTRONIC INDUSTRIAL PARK ,YUTIAN COUNTY,TANGSHAN CITY,HEBEI
64100, CHINA

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

SGS Job No. : TP19-005121 - TJ
Date of Sample Received : 18 Jun 2019
Testing Period : 18 Jun 2019 - 26 Jun 2019
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).

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



Reabeca Zhou
Approved Signatory



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Test Report

No. TSNEC1900995102

Date: 26 Jun 2019

Page 2 of 9

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN19-009951.002	black solid with yellow/silvery metal(mix all)

Remarks :

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

Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs(Polybrominated biphenyls), PBDEs (Polybrominated biphenyl ethers),Dibutyl phthalate (DBP),Butyl benzyl phthalate (BBP),Bis (2-ethylhexyl) phthalate (DEHP) and Diisobutyl Phthalates (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	002
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 Report

No. TSNEC1900995102

Date: 26 Jun 2019

Page 3 of 9

Test Item(s)	Limit	Unit	MDL	002
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. IEC 62321 series is equivalent to EN 62321 series
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.
- (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.
- (4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.
- (5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.
- (6) Hexavalent Chromium was not detected on the sample. Analysis was performed by IEC 62321-7-1:2015 boiling-water-extraction.

Halogen

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

Test Item(s)	Unit	MDL	002
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND



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Test Report

No. TSNEC1900995102

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Page 4 of 9

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

Perfluorooctane Sulfonates (PFOS) and Perfluorooctanoic Acid (PFOA)

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

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Perfluorooctane Sulfonates (PFOS)^	10	mg/kg	10	ND
Perfluorooctanoic Acid (PFOA)	-	mg/kg	10	ND

Notes :

- (1) Max. limit specified by commission regulation (EU) No. 757/2010 amending Regulation (EC) No 850/2004 (previously restricted under entry 53 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006).
- (2) ^: PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluorooctanesulfonic acid, Perfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamide, N-Ethylperfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamidoethanol and N-Ethylperfluorooctane sulfonamidoethanol.

Phthalates

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

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Diisononyl Phthalate (DINP)	28553-12-0/ 68515-48-0	% (w/w)	0.01	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	% (w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0/ 68515-49-1	% (w/w)	0.01	ND
Dimethyl Phthalate (DMP)	131-11-3	% (w/w)	0.003	ND
Diethyl Phthalate (DEP)	84-66-2	% (w/w)	0.003	ND
Dipropyl Phthalate (DPrP)	131-16-8	% (w/w)	0.003	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	% (w/w)	0.003	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	% (w/w)	0.003	ND
Dicyclohexyl Phthalate (DCHP)	84-61-7	% (w/w)	0.003	ND
Diphenyl Phthalate (DPhP)	84-62-8	% (w/w)	0.003	ND
Dibenzyl Phthalate (DBzP)	523-31-9	% (w/w)	0.003	ND



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Test Report

No. TSNEC1900995102

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Page 5 of 9

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Dinonyl Phthalate (DNP)	84-76-4	% (w/w)	0.003	ND
Diisooctyl Phthalate (DIOP)	27554-26-3	% (w/w)	0.01	ND
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (DPP)	84777-06-0	% (w/w)	0.01	ND

Notes :

- (1) DBP,BBP,DEHP Reference information: Entry 51 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):
- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1% by weight of the plasticised material, in toys and childcare articles.
 - ii) Toys and childcare articles containing these phthalates in a concentration greater than 0.1% by weight of the plasticised material shall not be placed on the market.
- Please refer to Regulation (EC) No 552/2009 to get more detail information
- DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):
- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1% by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.
 - ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1% by weight of the plasticised material shall not be placed on the market.
- Please refer to Regulation (EC) No 552/2009 to get more detail information.

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 and only for reference.



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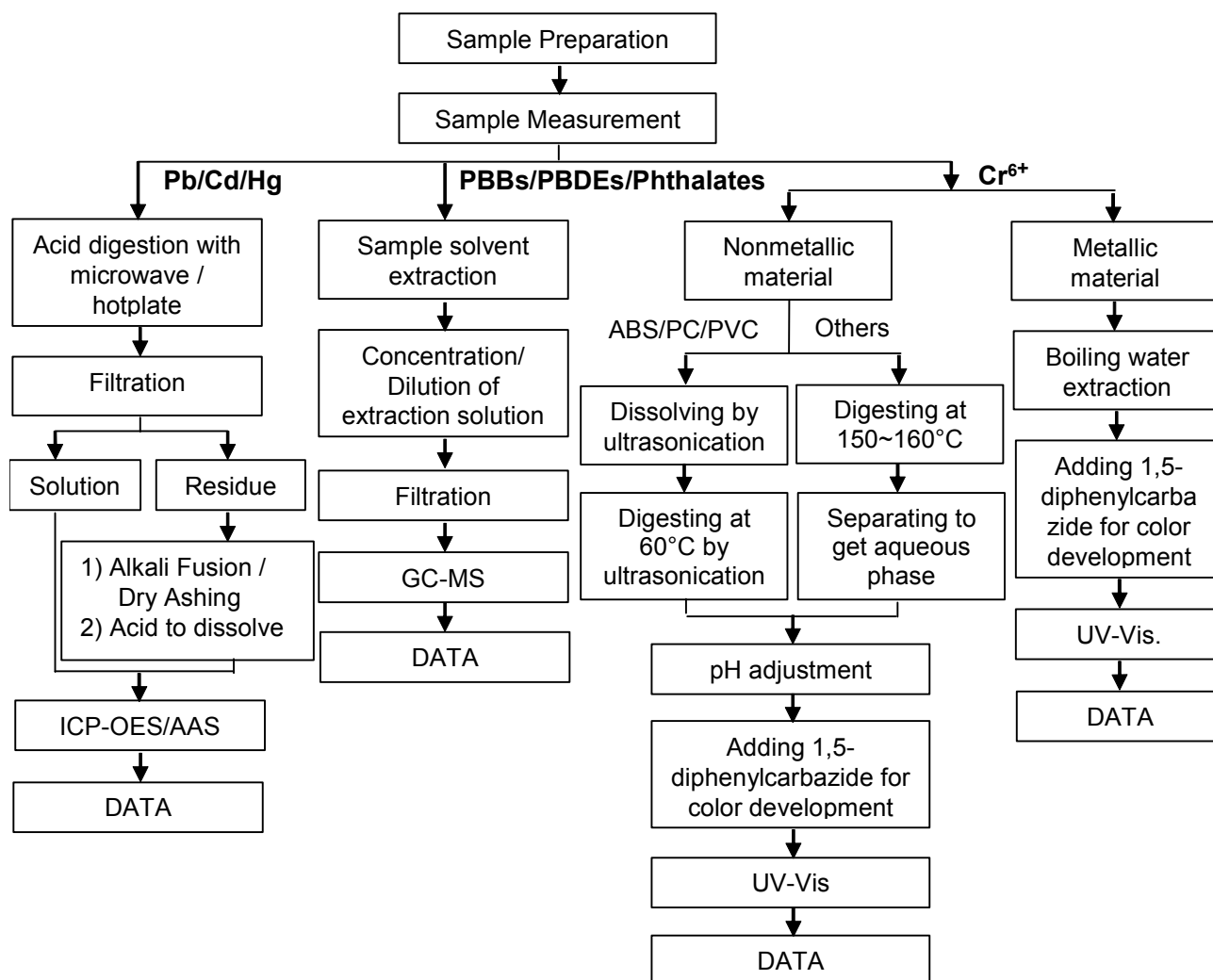
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Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs/Phthalates Testing Flow Chart

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

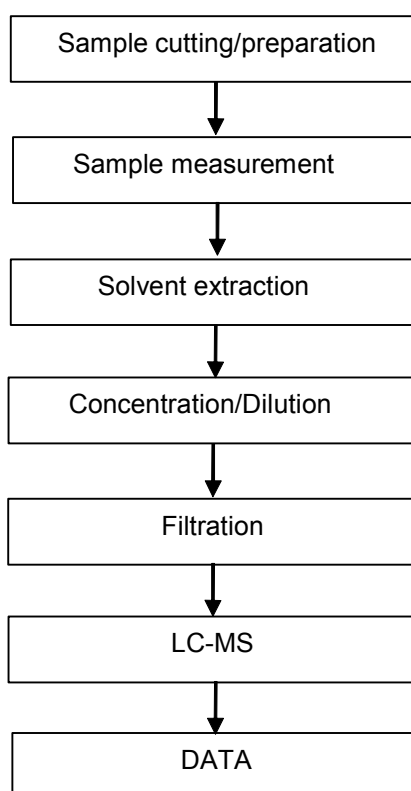


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PFOS/PFOA Testing Flow Chart



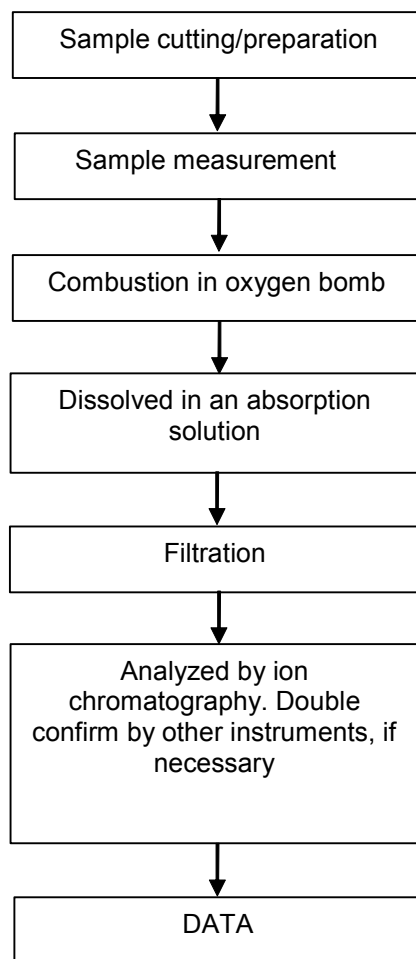
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Halogen Testing Flow Chart



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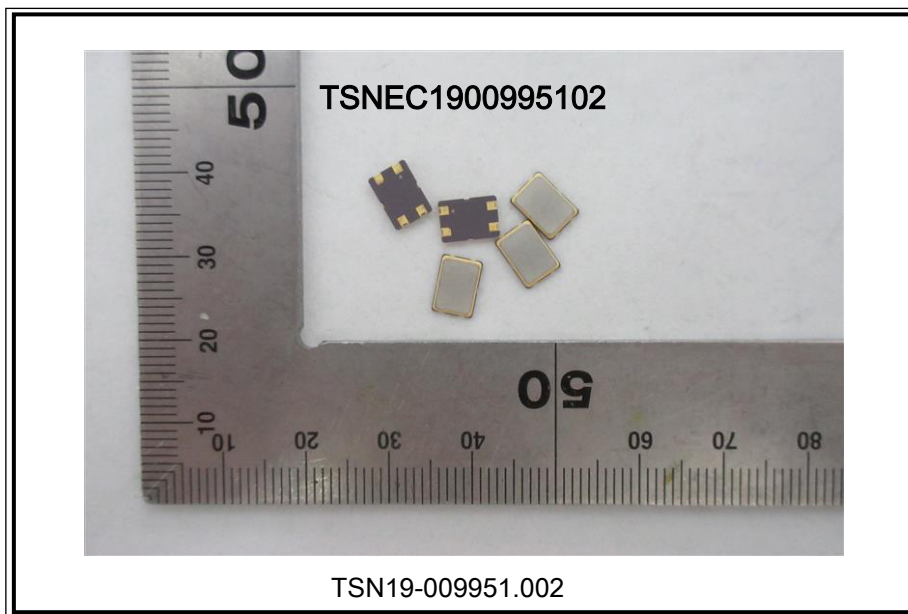
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No. TSNEC1900995102

Date: 26 Jun 2019

Page 9 of 9

Sample photo:



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