

# Test Report

No. TSNEC2303351403

Date: 27 Jun 2024

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Client Name : BONDTRON ELECTRONIC MATERIAL CO.,LTD

Client Address : BAZHOU CHAHEJI TOWNSHIP, LANGFANG CITY, HEBEI PROVINCE

Sample Name : SOLDER PASTE

Model No. : Pb92.5Sn5Ag2.5

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

SGS Job No. : TJP24-003759 - TJ

Date of Sample Received : 05 Dec 2023

Testing Period : 05 Dec 2023 - 11 Dec 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
Element(s)	See Results
Hexabromocyclododecane (HBCDD/HBCD)	See Results
Phthalates	See Results

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



Jaccy Liu  
Approved Signatory



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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	TSN23-033514.001	grey metal

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 62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	-	mg/kg	2	924628▲
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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<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
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) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm<sup>2</sup>. 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/cm<sup>2</sup>). The coating is considered a non-CrVI based coating  
 c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive - unavoidable coating variations may influence the determination

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

- (4)▲According to the declaration from the client, Lead (Pb) in No.001 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).

More information about exemption can be found via the following link:

[https://rohs.sgsonline.com.cn/PDFLinks/en/RSTS-TP-037%20RoHS%20Exemption%20\(EN\).pdf](https://rohs.sgsonline.com.cn/PDFLinks/en/RSTS-TP-037%20RoHS%20Exemption%20(EN).pdf)

- (5) The reported result of Pb is for reference only.

### 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	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND



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**Element(s)**

Test Method : SGS in house method -TJChemLab-TOP-004-2(With reference to US EPA 3052:1996 or US EPA3050B:1996), analyzed by ICP-OES.

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

**Hexabromocyclododecane (HBCDD/HBCD)**

Test Method : SGS in house method-TJChemLab-TOP-059 (With reference to US EPA 3550C:2007 、 US EPA 8270D:2014), analyzed by GC-MS.

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

**Phthalates**

Test Method : With reference to IEC 62321-8:2017, determination of phthalates by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Diisodecyl Phthalate (DIDP)	26761-40-0/	% (w/w)	0.005	ND
	68515-49-1			
Diisononyl Phthalate (DINP)	28553-12-0/	% (w/w)	0.005	ND
	68515-48-0			
Di-n-octyl Phthalate (DNOP)	117-84-0	% (w/w)	0.005	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	% (w/w)	0.005	ND

Results & photo(s) of this report refer to test report TSNEC2303351401.

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.



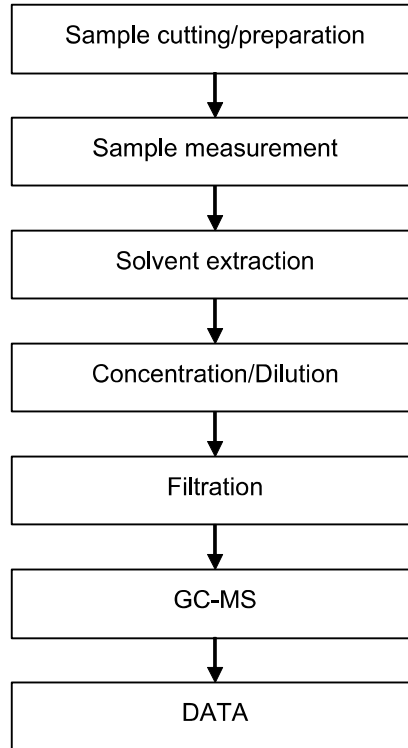
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**HBCDD(HBCD) Testing Flow Chart**



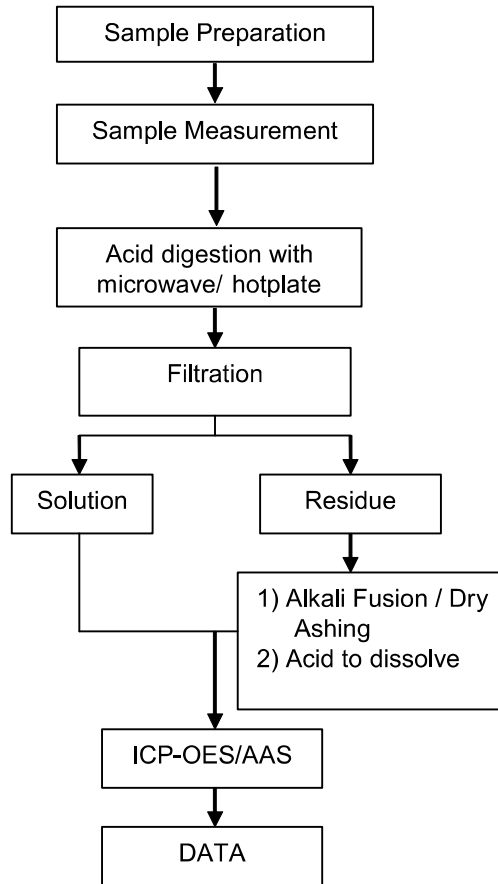
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**Elements (IEC62321) Testing Flow Chart**

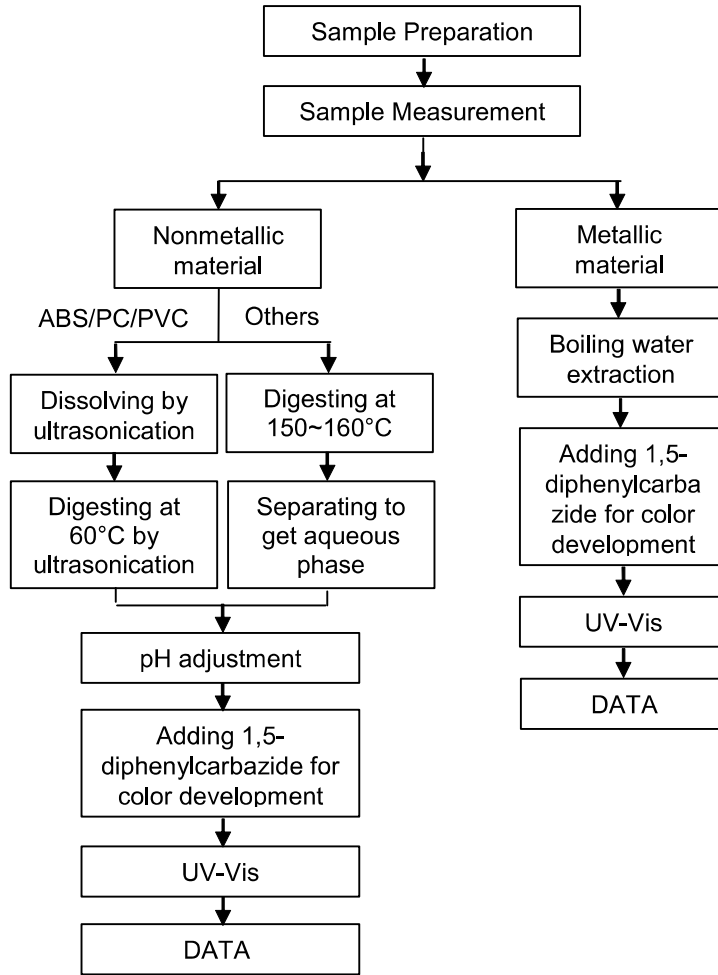
1) These samples were dissolved totally by pre-conditioning method according to below flow chart.



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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

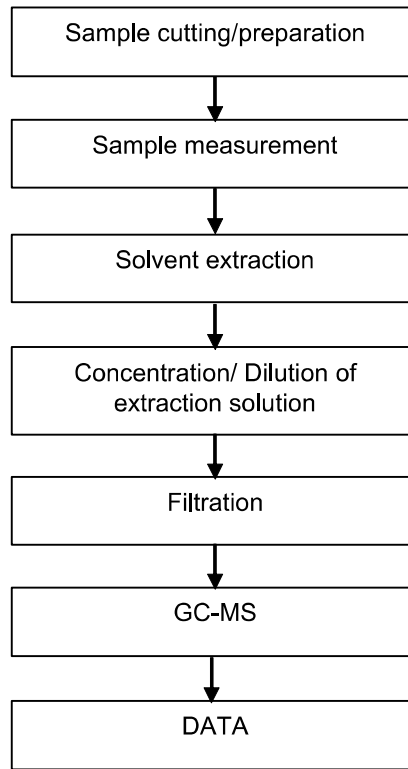


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**PBBs/PBDEs Testing Flow Chart**



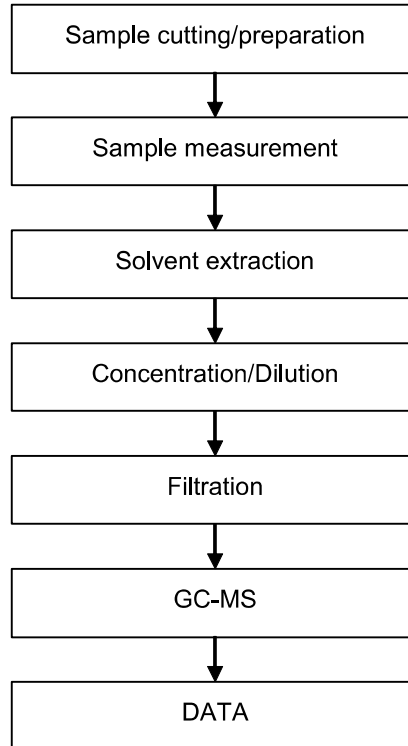
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Phthalates Testing Flow Chart

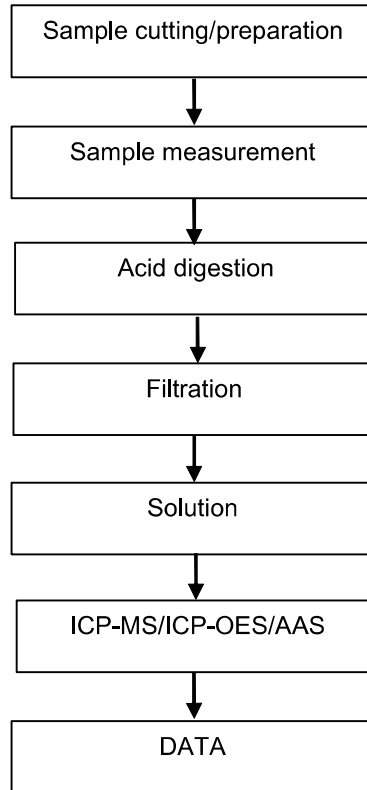


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### Elementary Testing Flow Chart

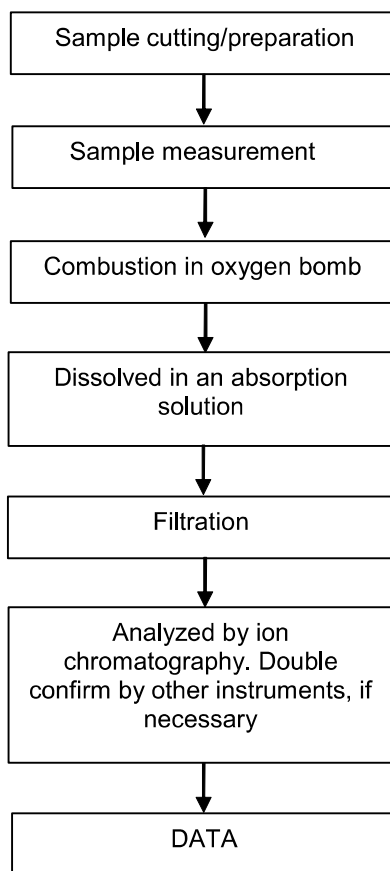


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### Halogen Testing Flow Chart



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