

**Test Report** No. TSNEC2303313303 A01 Date: 28 Dec 2023 Page 1 of 15

Client Name: BONDTRON ELECTRONIC MAIERIAL CO.,LTD

Client Address: BAZHOU CITY HEBEI CHINA

Sample Name : FRAMEWORK

Main Substance : ALLOY DESIGNATION:C19210

Model No. : TO-247-2L Lot No. : 23121201

Client Ref. Info. : SEE ATTACHMENT:

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

#### This report is to supersede test report TSNEC2303313301

SGS Job No.: TJP23-003428 - TJ

Date of Sample Received: 30 Nov 2023

Testing Period: 30 Nov 2023 - 06 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
European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives	PASS



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

1 Subora hou

Reabeca Zhou
Approved Signatory







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Test Result(s):

#### **Test Part Description:**

Specimen No. SGS Sample ID Description
SN1 TSN23-033133.001 coppery 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)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	24
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm²	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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Test Item(s)	<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/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  $\mu$ g/cm² and 0.13  $\mu$ g/cm² 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.

#### **Halogen**

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

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

#### 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.



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 Test Item(s)
 Unit
 MDL
 001

 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.

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

# <u>European Regulation POPs (EU) 2020/784 amending to Regulation (EU) 2019/1021 - PFOA and its salts, PFOA-Related Substances, PFOS and its derivatives</u>

Test Method: With reference to CEN/TS15968:2010, analysis was performed by LC-MS or LC-MS/MS and

GC-MS.

Test Item(s)	<u>CAS NO.</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Perfluorooctanoic Acid (PFOA) and its salts+	335-67-1	0.025	mg/kg	0.01	ND
PFOA related substances	-	1	mg/kg	-	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTS)	39108-34-4	-	mg/kg	0.2	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	-	mg/kg	0.2	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	-	mg/kg	0.2	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2	1996-88-9	-	mg/kg	0.2	ND
FTMA)					
Perfluoro-1-iodooctane (PFOI)	507-63-1	-	mg/kg	0.2	ND
Perfluorooctane Sulfonates (PFOS) and its	-	10	mg/kg	-	ND
derivatives					
Perfluorooctane Sulfonates (PFOS) ^	1763-23-1	-	mg/kg	0.01	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	-	mg/kg	0.01	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	-	mg/kg	0.01	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	1691-99-2	-	mg/kg	0.01	ND
(EtFOSE)					
2-(N-methylperfluoro- 1-octanesulfonamido) -ethanol	24448-09-7	-	mg/kg	0.01	ND
(MeFOSE)					



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<u>Test Item(s)</u>

Perfluorooctane sulfonamide (PFOSA)

CAS NO. Limit Unit MDL 001

Perfluorooctane sulfonamide (PFOSA)

754-91-6

- mg/kg 0.01

ND

#### Notes:

(1) + PFOA and its salts including 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) (2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH<sub>4</sub> (CAS No.: 29081-56-9), PFOS-NH(OH)<sub>2</sub> (CAS No.: 70225-14-8), PFOS-N( $C_2H_5$ )<sub>4</sub> (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)

This report added Main Substance, Lot No., 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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#### ATTACHMENT:

SMB, KBJ, KBP, tripod PV-JK09, ITO220, D3K, MBS matrix, TO-220, PB, SMA, D3K-4A, SMA4, matrix DIP, TOLL, PVSM, ABS, MD matrix, SMC, GBJ, PTVS, TO-263, MB matrix, TO252, D2PAK, SMBF, SMA-F, 4AKB, DIPM, MBS, SMA, GB L, TO247-2L, TO247-3L, TO247-4L, TO-263IDF, TO247-50mil, E91, 6KBJ, MDF, SHDF, ceramic header foot, ASMA Frame, TO-220FP, ISGP frame, GBJS frame, HBS, AGBJ, SMBF-384 frame, pod PV-JK09L, LB, TO-220HD, pod PV-TS306X, jumper PV-TS306X TO-218 cooling foot, TO-218 straight stripe lead frame, TO-218 bent stripe lead frame, TO-218 copper sheet, D-PAK frame, D-PAK jumper, SOD123, SOD323, DXK, TX diode, TO220 IDF, tripod diagram KBJ-2, tripod GBU-2, jumper GBU-2, jumper diagram KBJ-2, jumper PV-JK09ES, tripod PV-JK09ES, tripod GBJ-2, tripod SMA-C, PV-09E, jumper GBJ-2, tripod GBL-2, tripod M8, jumper M8, T O251, JK-09ES, jumper SMA-C, JJW-SMA frame, JJW-SMB frame, DO218 jumper, DO218 frame, TO-3P, TO-3P FP, JA-001-V01 LF-03, PV-0003-C00 frame, PV-0004-C00 Frame, XT diode-A, TO-251-IPAK-3LEAD-IDF, TO-3P, TO263-7LD, SMA frame, SMB frame, TO-220IR-3L(2R) lead frame, TO-263C-3L lead frame, tripod PV-JK09 EXY, jumper PV-JK09 EXY,TO-263 TCS-4-214, tripod PV-TS3Q Strip Cu, jumper PV-QC3Q A Reel Cu, P102-7HX-XX, KBJ-JL-04M-A01C frame, KBJ-JL-04M-A01C jumper, TO-263-7L(2R) lead frame, JBOX09, GT903, T0-263A-3L, LFPAK5×6 LF, LFPAK5×6 CLIP, (L102-A0X-XX), DFN5x6/(M102-D1X-XX), T0-247-4LF1, T0-263-7LHV, TOLL-8L(4R), TO-263US-07-219, TO-252-2L(8R), P102-7KX-XX, T0-247-2LA-HD-TSOP-12-602, TO 263 7LD IDF, T102-7LX-18AClip Frame, sTOLLReel Type, Type A, TOLT, TO-220F





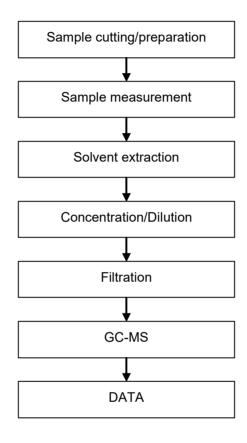
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# **HBCDD(HBCD) Testing Flow Chart**





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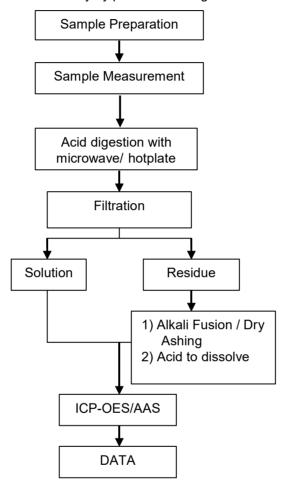
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# **Elements (IEC62321) Testing Flow Chart**

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







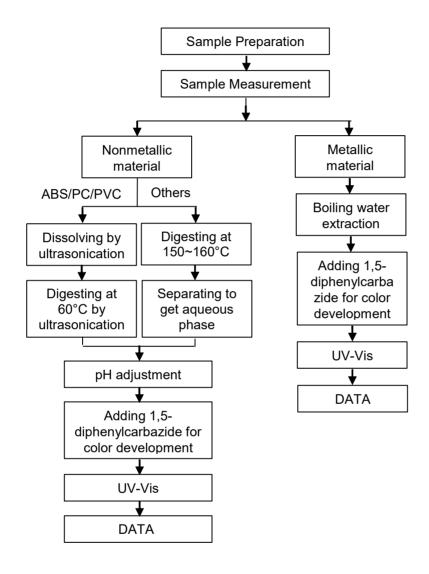
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#### **ATTACHMENTS**

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







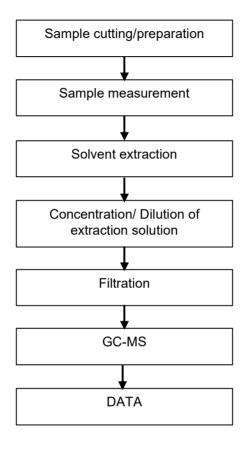
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# PBBs/PBDEs Testing Flow Chart





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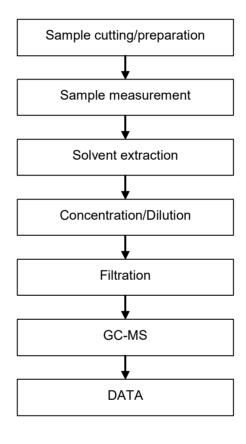
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# **Phthalates Testing Flow Chart**







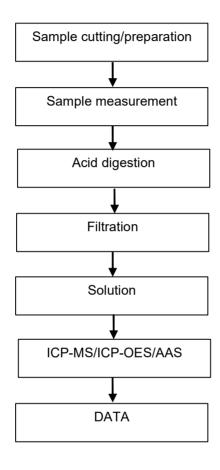
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#### **ATTACHMENTS**

# **Elementary Testing Flow Chart**







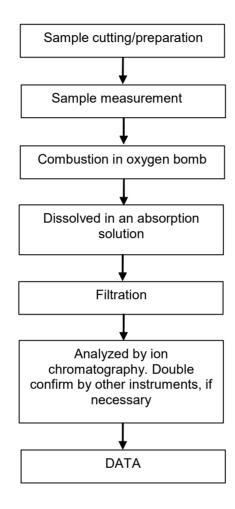
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#### **ATTACHMENTS**

# **Halogen Testing Flow Chart**







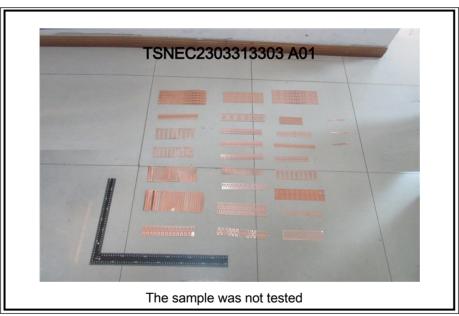
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Sample photo:





SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

