

Test Report

No.: TSNEC24001093801

Date: Jun 06, 2024

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Client Name: TIANJIN LAIRD TECHNOLOGIES LTD.

Client Address: BUILDING C3&C4, HONGTAI INDUSTRY PARK, NO.87 TAI FENG ROAD, TEDA, TIANJIN

Sample Name: Thermally conductive material

Model No.: SF 4

Main Substance: aluminium polyolefin

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

SGS Job No.: TIC1020240530154210ZWMT

Sample Receiving Date: May 31, 2024

Testing Period: May 31, 2024 ~ Jun 05, 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
Hexabromocyclododecane (HBCDD)	See Results
Phthalates	See Results
Halogen	See Results

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

Reabeca Zhou 周艳
Approved Signatory



This report is English version of TSNEC24001093802.



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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	TSN24-0010938-0001.C001	gray 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	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
Polybromobiphenyl (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
Polybromodiphenyl ether(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 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
Benzyl Butyl 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.

Hexabromocyclododecane (HBCDD)

Test Method: With reference to IEC 62321-9:2021, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Hexabromocyclododecane (HBCDD)	134237-50-6 /134237-51-7 /134237-52-8 /25637-99-4 /3194-55-6	mg/kg	20	ND

Phthalates

Test Method: With reference to IEC 62321-8:2017, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Diisononyl Phthalate (DINP)	28553-12-0 /68515-48-0	mg/kg	50	ND
Di-n-Octyl Phthalate(DNOP)	117-84-0	mg/kg	50	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 /68515-49-1	mg/kg	50	ND
Dimethyl Phthalate(DMP)	131-11-3	mg/kg	50	ND
Diethyl Phthalate(DEP)	84-66-2	mg/kg	50	ND
Dipentyl Phthalate (DnPP)	131-18-0	mg/kg	50	ND
Di-n-Hexyl Phthalate(DnHP)	84-75-3	mg/kg	50	ND
Dicyclohexyl Phthalate(DCHP)	84-61-7	mg/kg	50	ND
Diisooctyl Phthalate(DIOP)	27554-26-3	mg/kg	50	ND
Bis(2-methoxyethyl)phthalate(DMEP)	117-82-8	mg/kg	50	ND
Diisopentyl Phthalate(DIPP)	605-50-5	mg/kg	50	ND
1,2-Benzenedicarboxylic Acid,di-C6-8-branched alkyl esters,C7-rich(DIHpP)	71888-89-6	mg/kg	50	ND



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Test Item(s)	CAS No.	Unit(s)	MDL	A1
1,2-Benzenedicarboxylic Acid,Dipentyl Ester,Branched and Linear(DPP)	84777-06-0	mg/kg	50	ND
1,2-Benzenedicarboxylic Acid,Di-C7-11-Branched and Linear Alkyl Esters(DHNUP)	68515-42-4	mg/kg	50	ND
n-pentyl Isopentyl Phthalate(nPIPP)	776297-69-9	mg/kg	50	ND
1,2-benzenedicarboxylic Acid,dihexyl ester branched and linear(DHP)	68515-50-4	mg/kg	50	ND
Di-iso-hexylphalate (DIHxP)	71850-09-4	mg/kg	50	ND

Halogen

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

Test Item(s)	Unit(s)	MDL	A1
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	ND
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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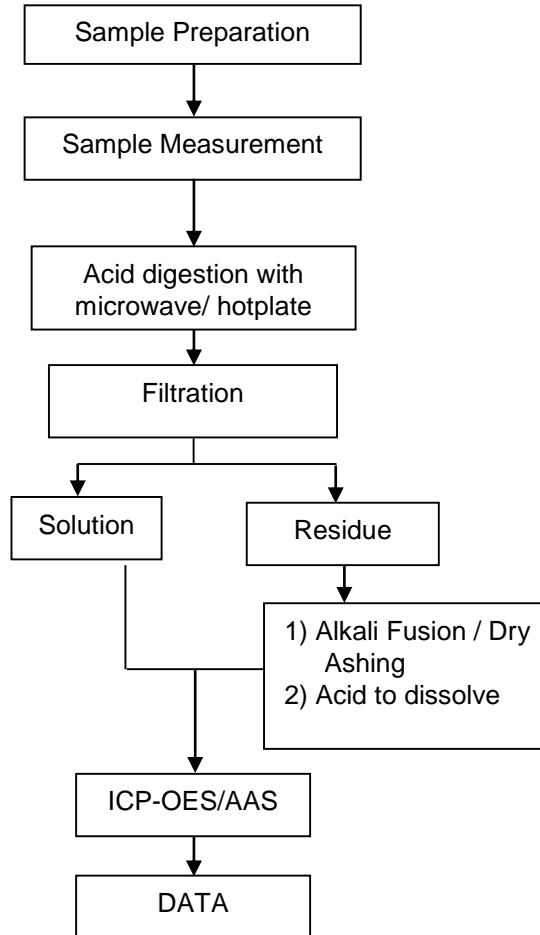
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ATTACHMENTS

Elements Testing Flow Chart

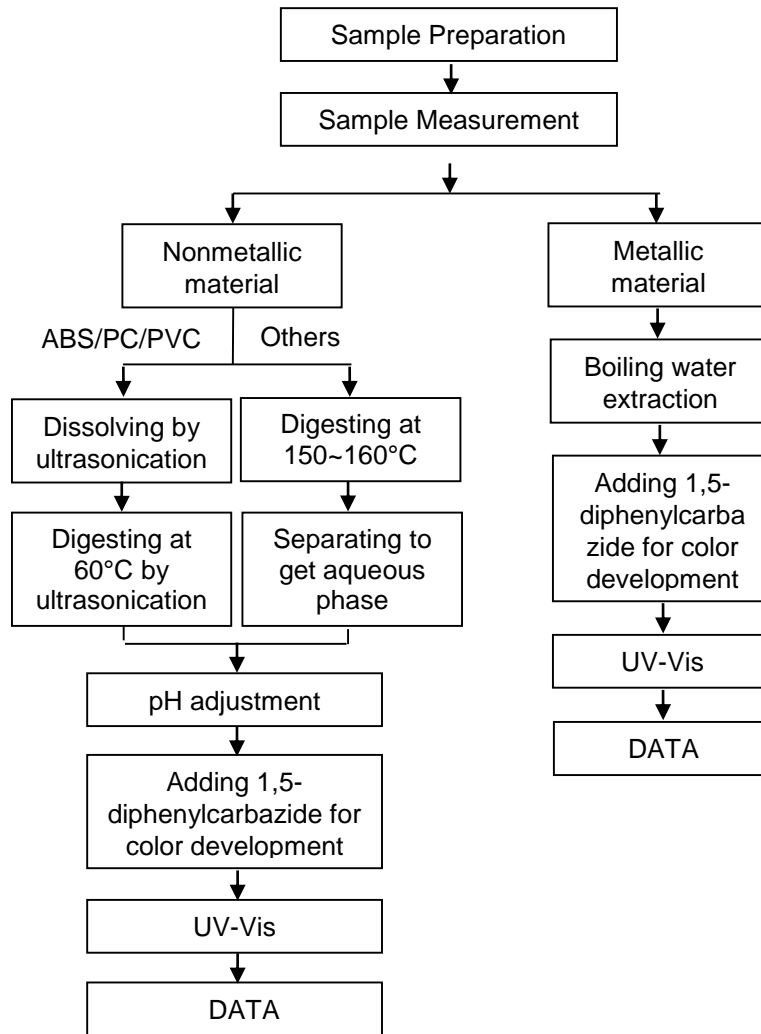
These samples were dissolved totally by pre-conditioning method according to below flow chart.



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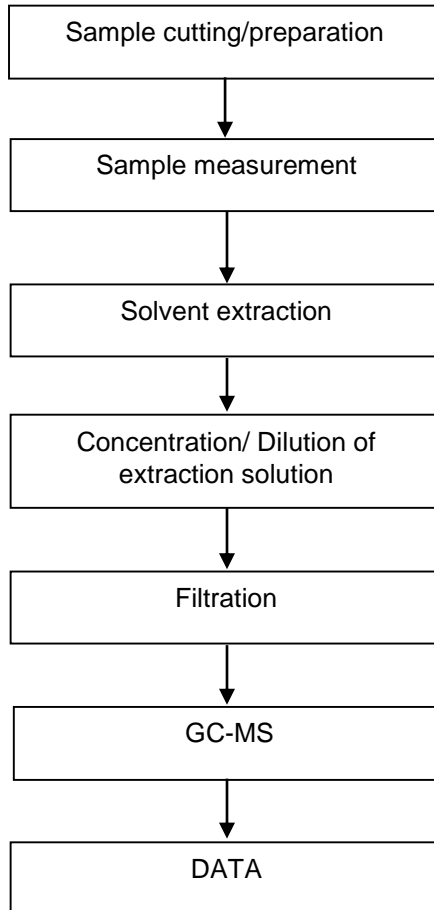
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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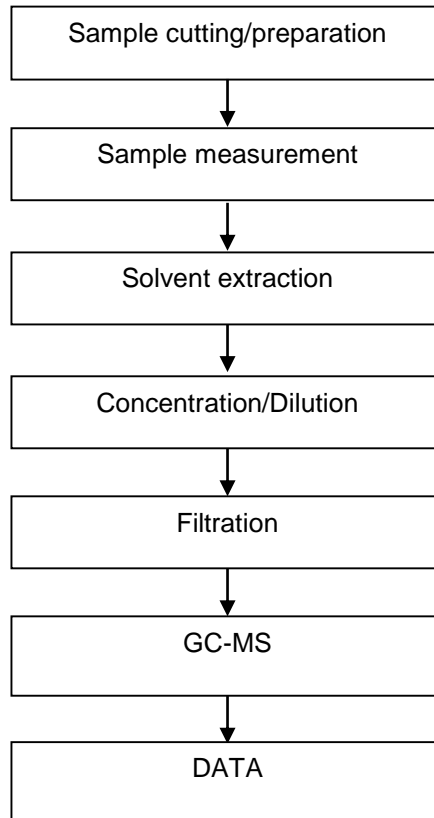
PBB/PBDE Testing Flow Chart



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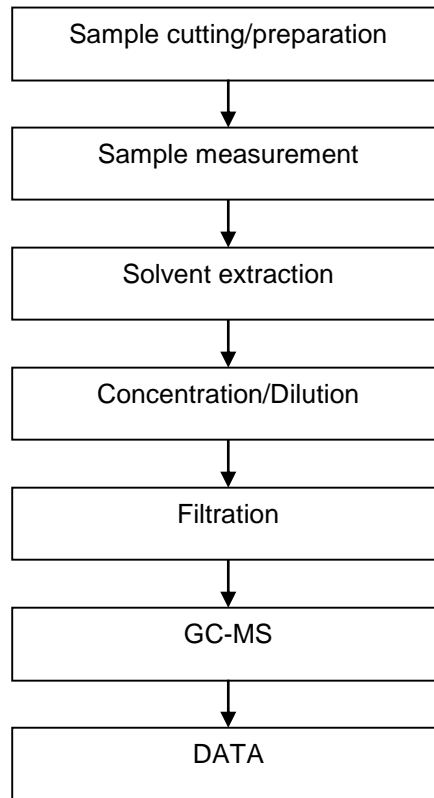
Phthalates Testing Flow Chart



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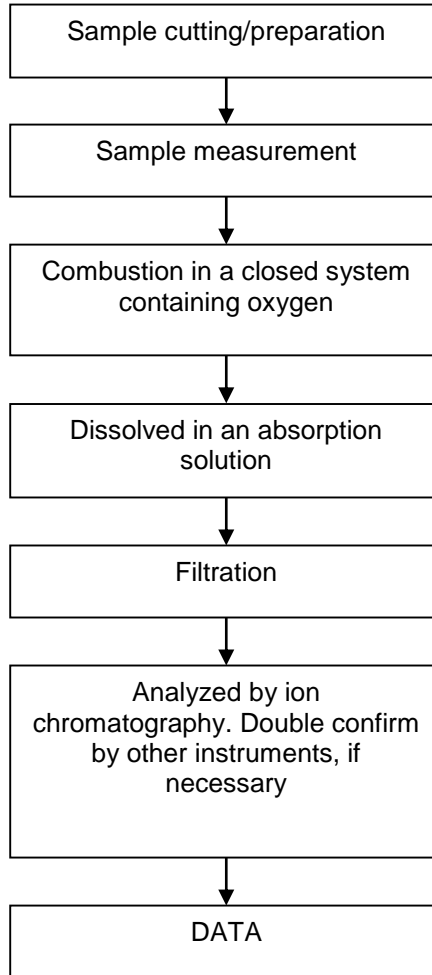
HBCDD Testing Flow Chart



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Halogen Testing Flow Chart



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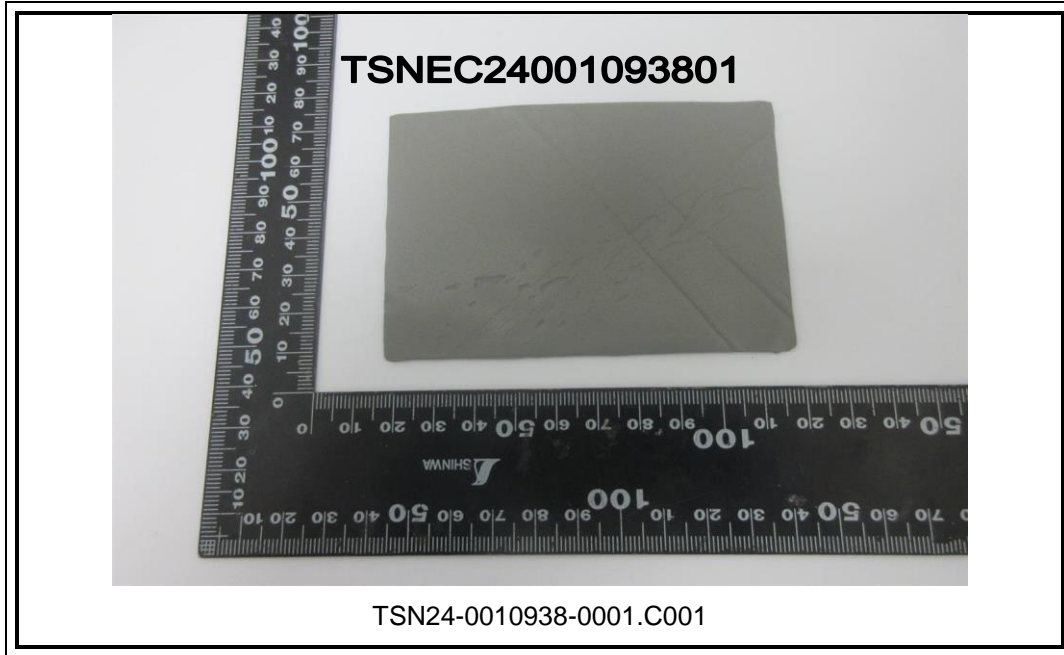
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Sample Photo:



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