

Test Report

No.: CANEC23014135811

Date: Nov 27, 2023

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Client Name: SICHUAN DONGFANG INSULATING MATERIAL CO.,LTD.

Client Address: NO.188 SANXING RD.,MIANYANG ,SICHUAN,CHINA

Sample Name: HALOGEN-FREE FRPC FILM

Model No.: DFR117ECOB

Client Ref. Information: DFR117, DFR117ECOA, DFR117ECOB-T, DFR117ECOB-D,
DFR117ECOB-A4, DFR117ECOC, DFR117ECOC-A5, DFR117ECOB-Q

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

SGS Job No.: CQP23-004394

Sample Receiving Date: Nov 15, 2023

Testing Period: Nov 15, 2023 ~ Nov 27, 2023

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 (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass
Element(s)	See Results
Dimethyl fumarate (DMFu)	See Results
Phthalates	See Results
Polyvinyl chloride (PVC)	See Results
TBBPA	See Results

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

Jessie Li

Jessie-JX Li
Approved Signatory

scan to see the report



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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0141358-0001.C001	Black 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 (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+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, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A1
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
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether (PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND



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Test Item(s)	Limit	Unit(s)	MDL	A1
Bis-(2-ethylhexyl) Phthalate(DEHP)	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.

Element(s)

Test Method: With reference to US EPA 3052:1996, analysis was performed by ICP-OES/AAS.

Test Item(s)	Unit(s)	MDL	A1
Arsenic(As)	mg/kg	10	ND
Beryllium(Be)	mg/kg	5	ND
Cobalt(Co)	mg/kg	5	ND
Antimony(Sb)	mg/kg	10	ND
Tin(Sn)	mg/kg	5	ND

Dimethyl fumarate (DMFu)

Test Method: Solvent extraction, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Dimethyl Fumarate (DMFu)	624-49-7	mg/kg	0.1	ND

Phthalates

Test Method: With reference to EN 14372:2004, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Dibutyl Phthalate(DBP)	84-74-2	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	117-81-7	%	0.003	ND
Benzyl Butyl Phthalate(BBP)	85-68-7	%	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 /68515-48-0	%	0.010	ND
Di-n-Octyl Phthalate(DNOP)	117-84-0	%	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 /68515-49-1	%	0.010	ND
Dimethyl Phthalate(DMP)	131-11-3	%	0.003	ND
Diethyl Phthalate(DEP)	84-66-2	%	0.003	ND
Dipropyl Phthalate(DPrP)	131-16-8	%	0.003	ND
Diisobutyl Phthalate(DIBP)	84-69-5	%	0.003	ND
Dipentyl Phthalates (DnPP)	131-18-0	%	0.003	ND
Di-n-Hexyl Phthalate(DnHP)	84-75-3	%	0.003	ND
Dicyclohexyl Phthalate(DCHP)	84-61-7	%	0.003	ND
Diphenyl Phthalate(DPhP)	84-62-8	%	0.003	ND



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Test Item(s)	CAS No.	Unit(s)	MDL	A1
Dibenzyl Phthalate(DBzP)	523-31-9	%	0.003	ND
Dinonyl Phthalate(DNP)	84-76-4	%	0.003	ND
Diisooctyl Phthalate(DIOP)	27554-26-3	%	0.010	ND
Bis(2-methoxyethyl)phthalate(DMEP)	117-82-8	%	0.003	ND
Diisopentyl Phthalate(DIPP)	605-50-5	%	0.003	ND
1,2-Benzenedicarboxylic Acid,di-C6-8-branched alkyl esters,C7-rich(DIHP)	71888-89-6	%	0.010	ND
1,2-Benzenedicarboxylic Acid,Di-C7-11-Branched and Linear Alkyl Esters(DHNUP)	68515-42-4	%	0.010	ND
Di(2-propylheptyl)Phthalate(DPHpP)	53306-54-0	%	0.010	ND
Di-(2-Ethylhexyl)Adipate(DEHA)	103-23-1	%	0.003	ND

Polyvinyl chloride (PVC)

Test Method: SGS In-house method (SGS-CCL-TOP-066-01), analysis was performed by FTIR/HATR.

Test Item(s)	A1
Polyvinyl chloride (PVC)	Negative

Notes:

(1) Negative=Undetectable, Positive=Detectable

TBBPA

Test Method: With reference to SGS in house method, analysis was performed by GC-MS or LC-MS or LC-MS/MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Tetrabromobisphenol A(TBBP-A)	79-94-7	mg/kg	5	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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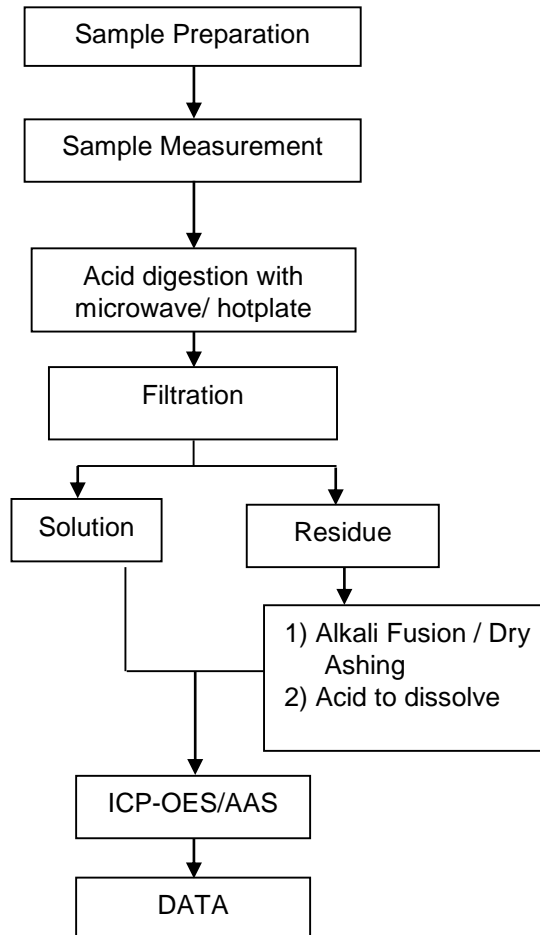
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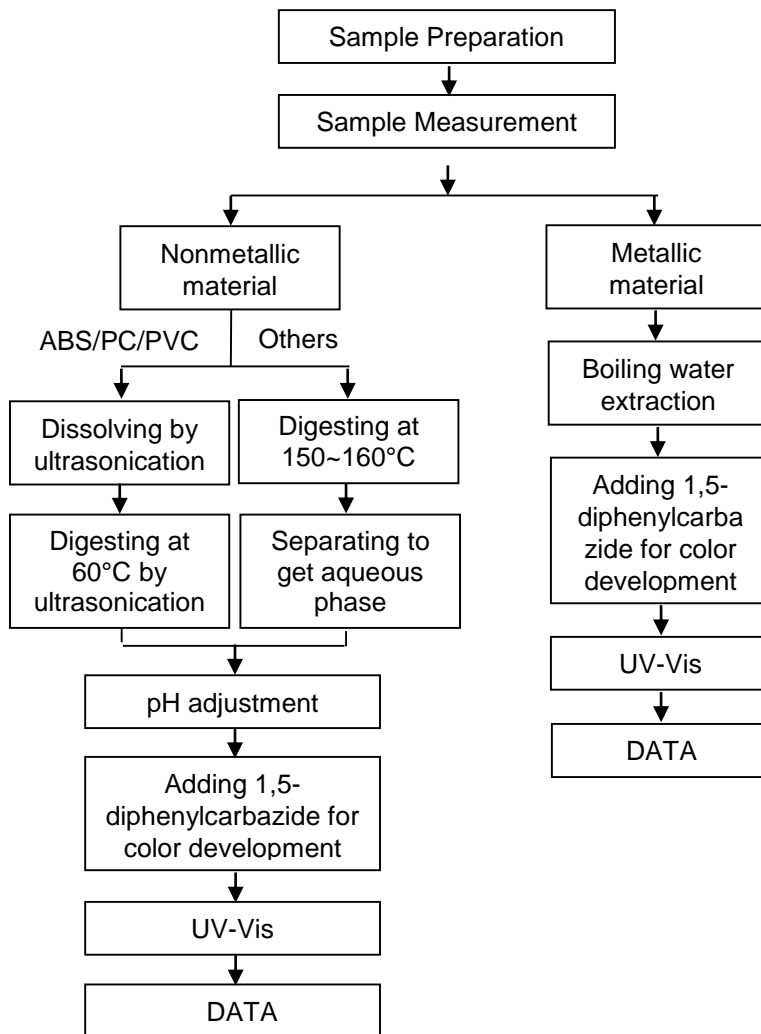
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Elements Testing Flow Chart

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



Hexavalent Chromium (Cr(VI)) Testing Flow Chart



Test Report

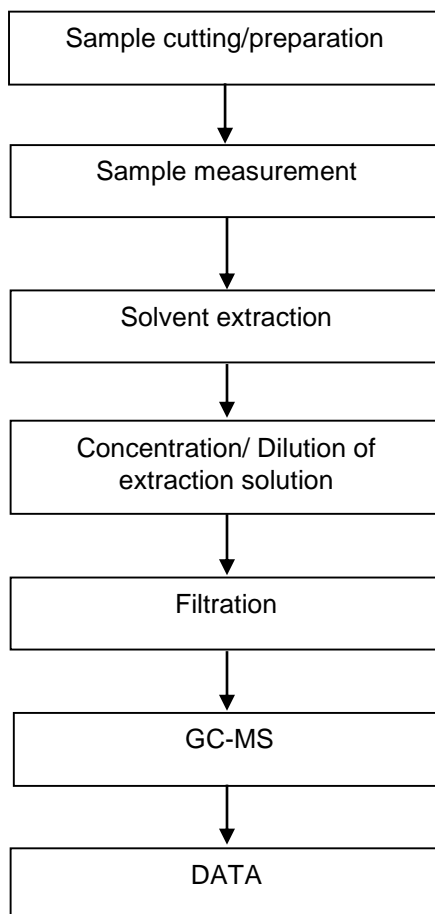
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PBBs/PBDEs Testing Flow Chart



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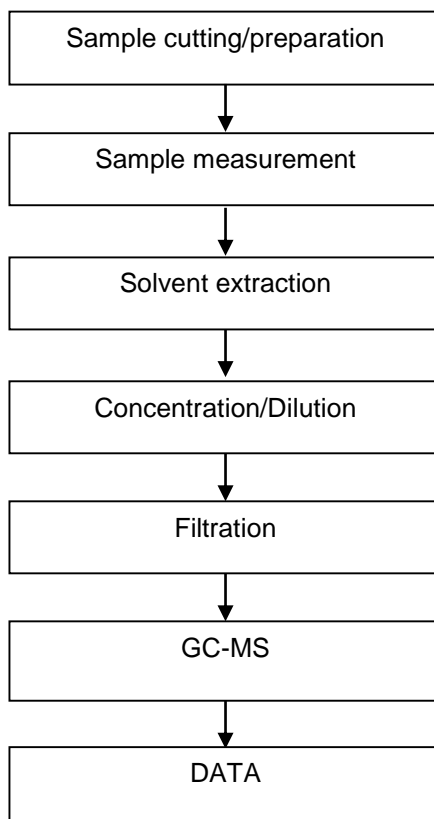
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Phthalates Testing Flow Chart



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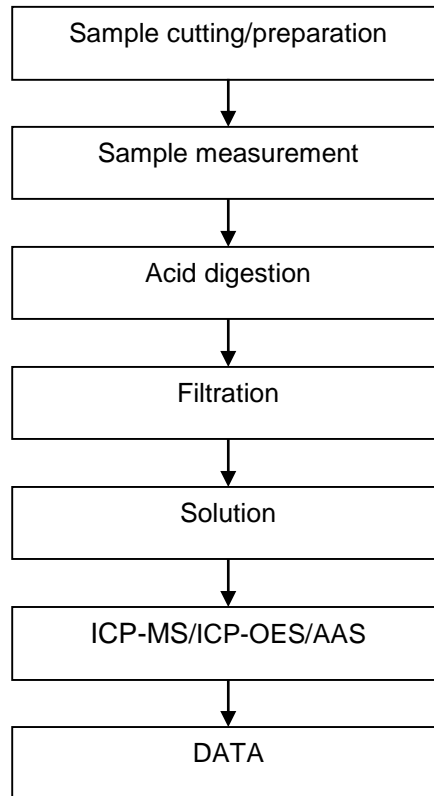
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Elements Testing Flow Chart



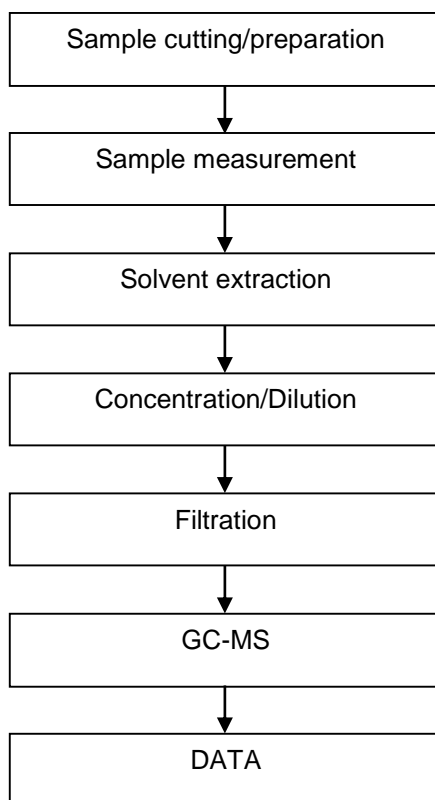
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DMF (Dimethyl fumarate) Testing Flow Chart



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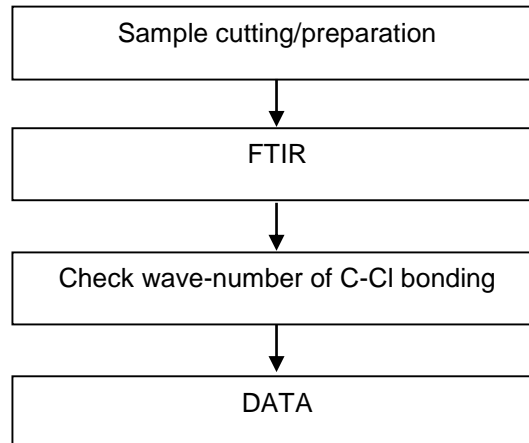
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PVC Testing Flow Chart



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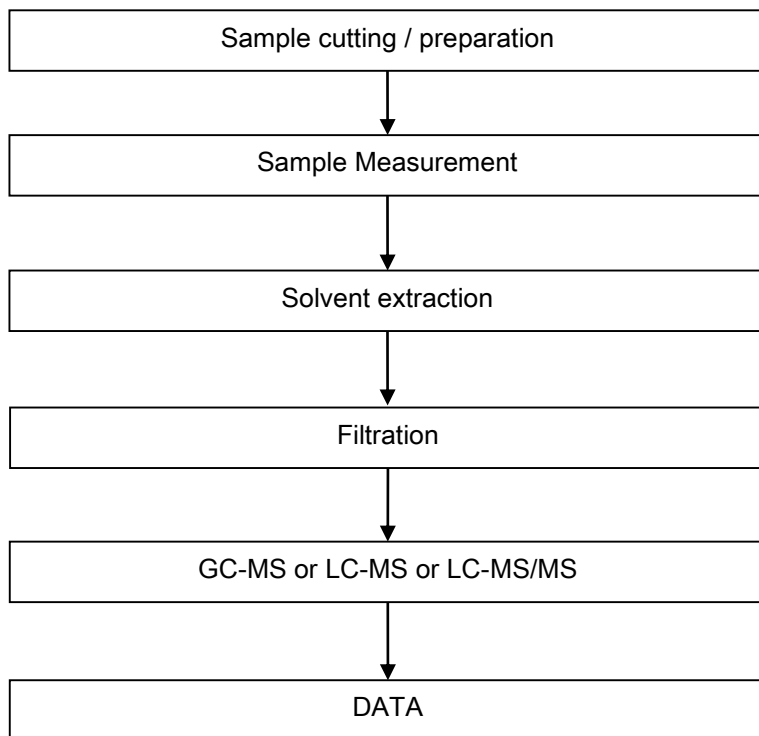
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TBBP-A Testing Flow Chart



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Sample Photo:



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