

Test Report

No.: SHAEC23003394011

Date: Mar 30, 2023

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Client Name: LEAEMC ELECTRONICS CO.,LTD.

Client Address: 207-209, BUILDING A, XINQIAO BUSINESS CENTER,2163 WANYUAN ROAD, MINHANG DISTRICT,SHANGHAI

Sample Name: TVS ARRAY (Alias:ESD)

Model No.: SOT23

Client Ref. Information: See attachment

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

SGS Job No.: SP23-008272

Sample Receiving Date: Mar 27, 2023

Testing Period: Mar 27, 2023 ~ Mar 30, 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).

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

Sue Sheng

Sue Sheng

Approved Signatory

scan to see the report



C0F02242



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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A3	SHA23-0033940-0001.C003	Black body with silvery metal (Mix all*)

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, AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit(s)	MDL	A3
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	A3
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.

Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)

Test Method: With reference to US EPA 3550C:2007, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A3
Decabromodiphenyl ether (DecaBDE) ^{Δ1}	1163-19-5	Prohibit ed	mg/kg	5	ND
Phenol, isopropylated phosphate (3:1) (PIP 3:1) ^{Δ2}	68937-41-7	Prohibit ed	mg/kg	5	ND
2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP) ^{Δ3}	732-26-3	3000	mg/kg	5	ND
Hexachlorobutadiene (HCBd)	87-68-3	Prohibit ed	mg/kg	5	ND
Pentachlorothiophenol (PCTP)	133-49-3	10000	mg/kg	5	ND

Notes:

- (1) The regulation is available at the following link.
<https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>
- (2) ^{Δ1}: The submitted sample is exempted if it is plastic for recycling from products or articles containing Deca-BDE.
- (3) ^{Δ2}: The submitted sample is exempted from the regulated scope if it is anyone of the following:
 - Hydraulic fluids for aviation or military industry;
 - Lubricants and grease;
 - New and replacement parts for motor and aerospace vehicles;
 - Intermediate in a closed system to produce cyanoacrylate adhesive;
 - Specialized engine air filters for locomotive and marine applications;
 - Plastic for recycling from products or articles containing PIP (3:1);
 - Finished products or articles made of plastic recycled from products or articles containing PIP (3:1).
- (4) ^{Δ3}: The submitted sample is out of the regulated scope if it is not oil or lubricant.

Remark:

*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.

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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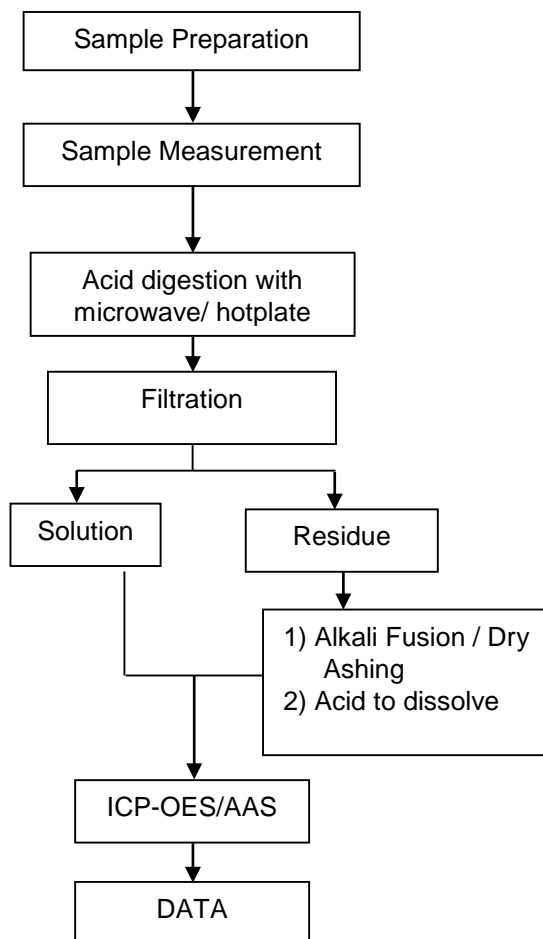
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Elements Testing Flow Chart

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



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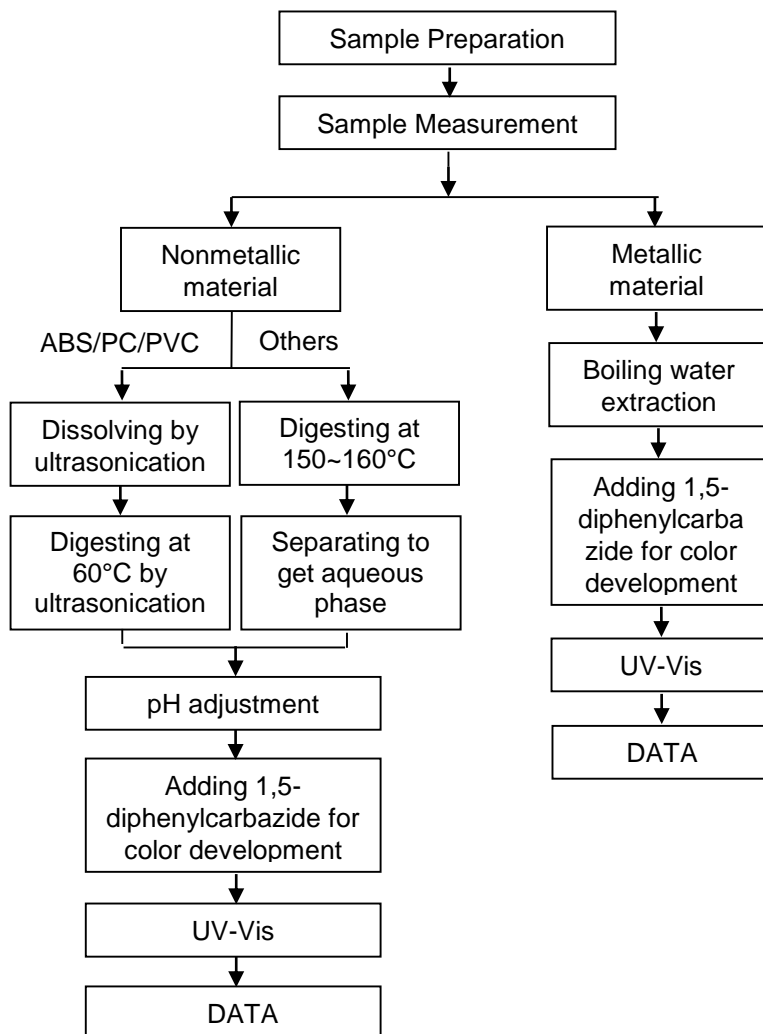
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ATTACHMENTS

Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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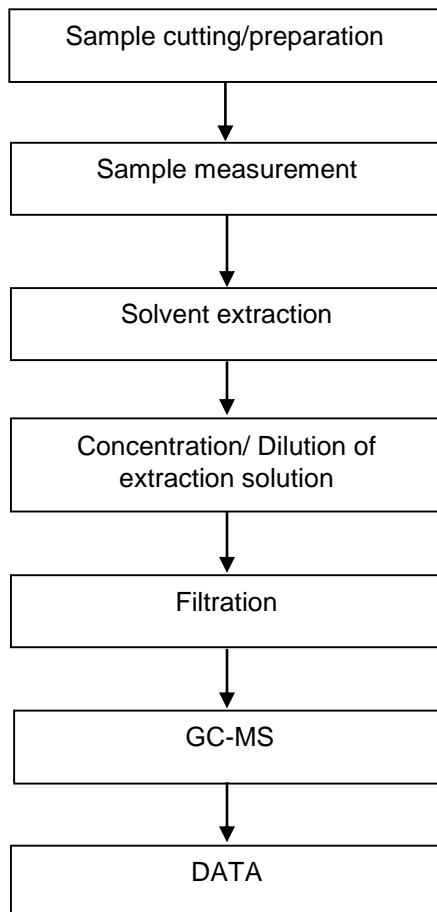
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PBBs/PBDEs Testing Flow Chart



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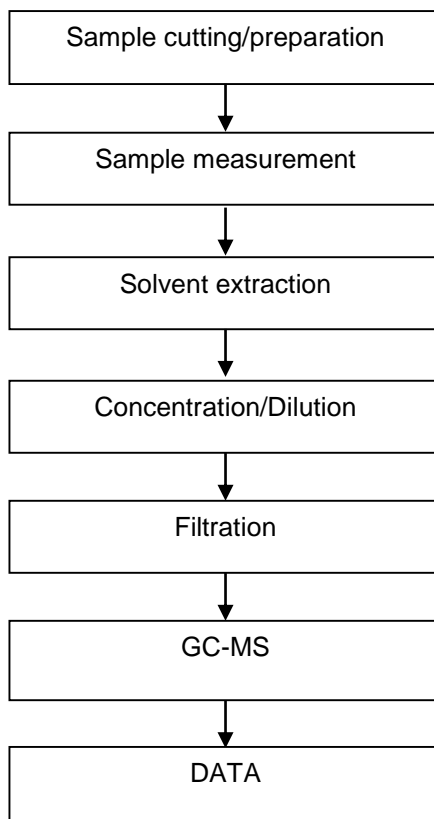
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Phthalates Testing Flow Chart



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Attachment:

0201, 0402, 0603, 0805, 1206, 1812,
SOD123, SOD123FL, SOD323, SOD523, SOD923 ,
DFN0603-2, DFN1006-2, DFN1006-3, DFN1610-2, DFN1610-6, DFN1616-6, DFN2020-3, DFN2510-10, DFN2620-10, DFN3020-10, DFN4120-10, DFN3X2-8 ,
SGP2010N5, S0-8, SOT143, SOT223, SOT23, SOT23-5, SOT23-6,
SOT323, SOT353, SOT363, SOT523, SOT553, SOT563, T0263, MSOP10.



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