



Test Report

No.: SHAEC24004921411

Date: Mar 25, 2024

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Client Name: SHANGHAI LEADMC ELECTRONICS CO.,LTD.

Client Address: RM801, HONGYI BUILDING , NO.2158, WANYUAN ROAD, MINHANG DISTRICT, SHANGHAI.

Sample Name: TVS Array (Alias:ESD)

Model No.: SOD523

Client Ref. Information: See attachment

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

SGS Job No.: SHP24-007631

Sample Receiving Date: Mar 18, 2024

Testing Period: Mar 18, 2024 ~ Mar 25, 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)	See Results
Halogen	See Results
Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under US EPA Toxic Substances Control Act (TSCA) Section 6(h)	See Results

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

Dora Hu
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	A3	SHA24-0049214-0001.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 (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	A3
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	A3
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
Butyl benzyl 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.

Halogen

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

Test Item(s)	Unit(s)	MDL	A3
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

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) ¹	1163-19-5	Prohibited	mg/kg	5	ND
Phenol, isopropylated phosphate (3:1) (PIP 3:1) ²	68937-41-7	Prohibited	mg/kg	5	ND
2,4,6-Tris(tert-butyl)phenol (2,4,6-TTBP) ³	732-26-3	3000	mg/kg	5	ND
Hexachlorobutadiene (HCBd)	87-68-3	Prohibited	mg/kg	5	ND
Pentachlorothiophenol (PCTP)	133-49-3				



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- 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) ³: The submitted sample is out of the regulated scope if it is not oil or lubricant.

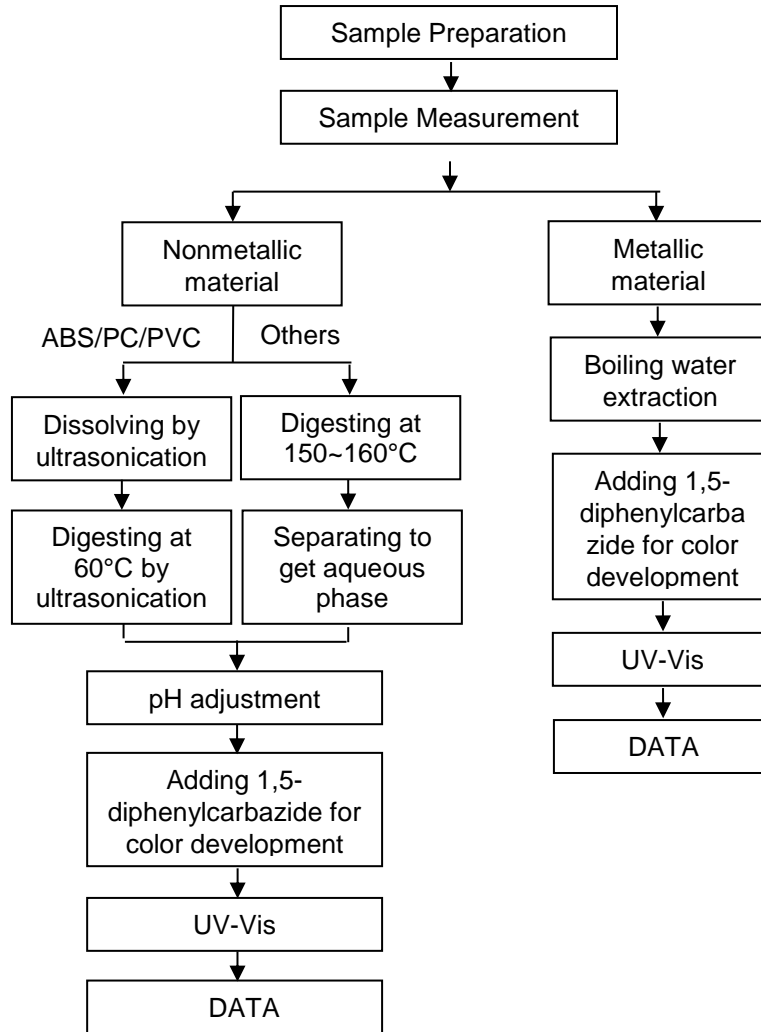
*The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value and only for reference.

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.



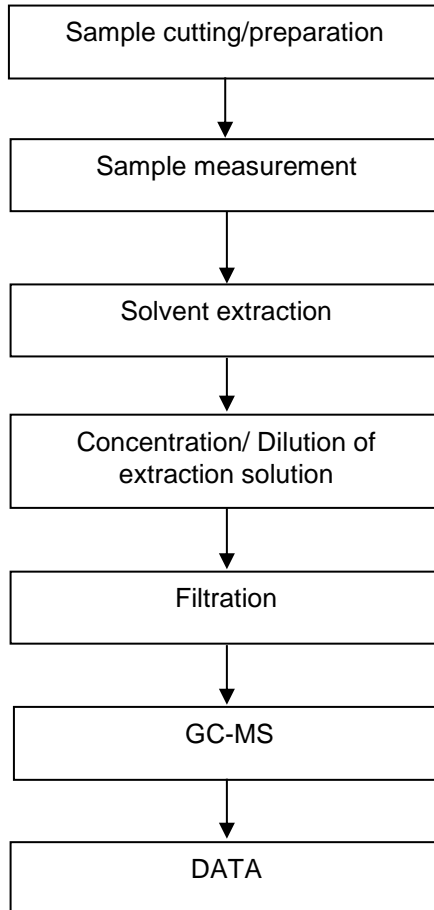


Hexavalent Chromium (Cr(VI)) Testing Flow Chart



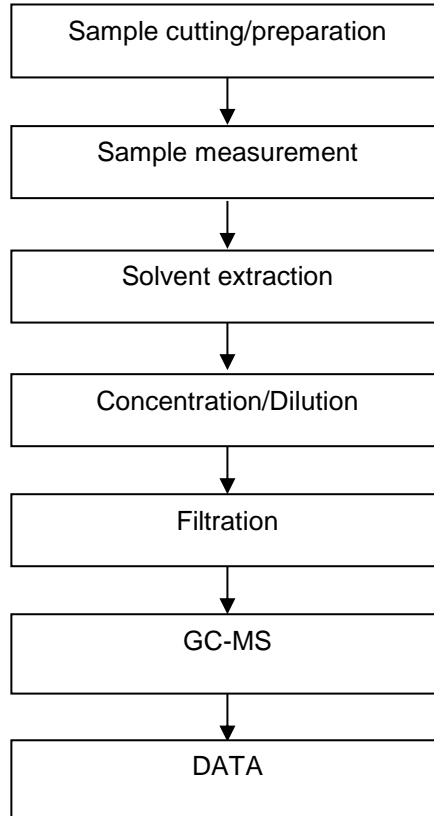


PBB/PBDE Testing Flow Chart



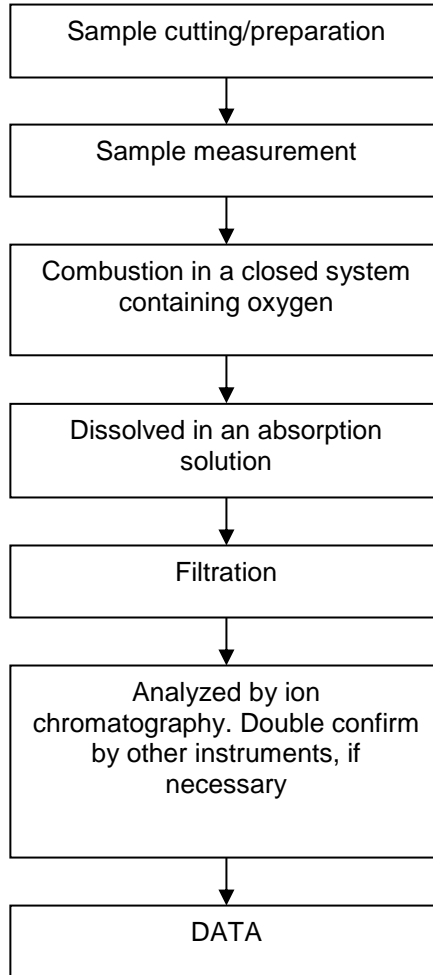


Phthalates Testing Flow Chart





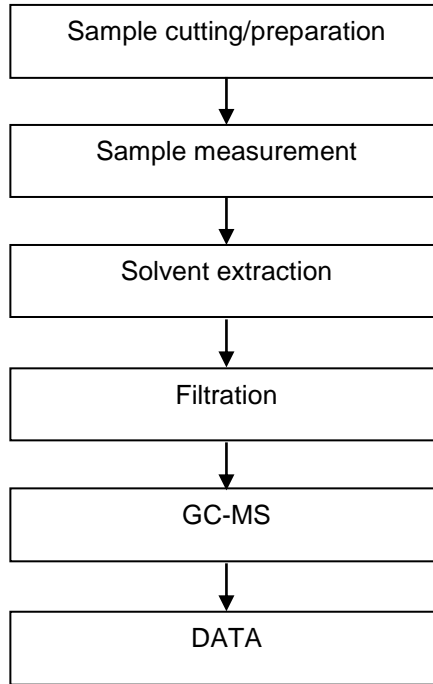
Halogen Testing Flow Chart





ATTACHMENTS

Persistent, Bioaccumulative, and Toxic (PBT) Chemicals 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, SO-





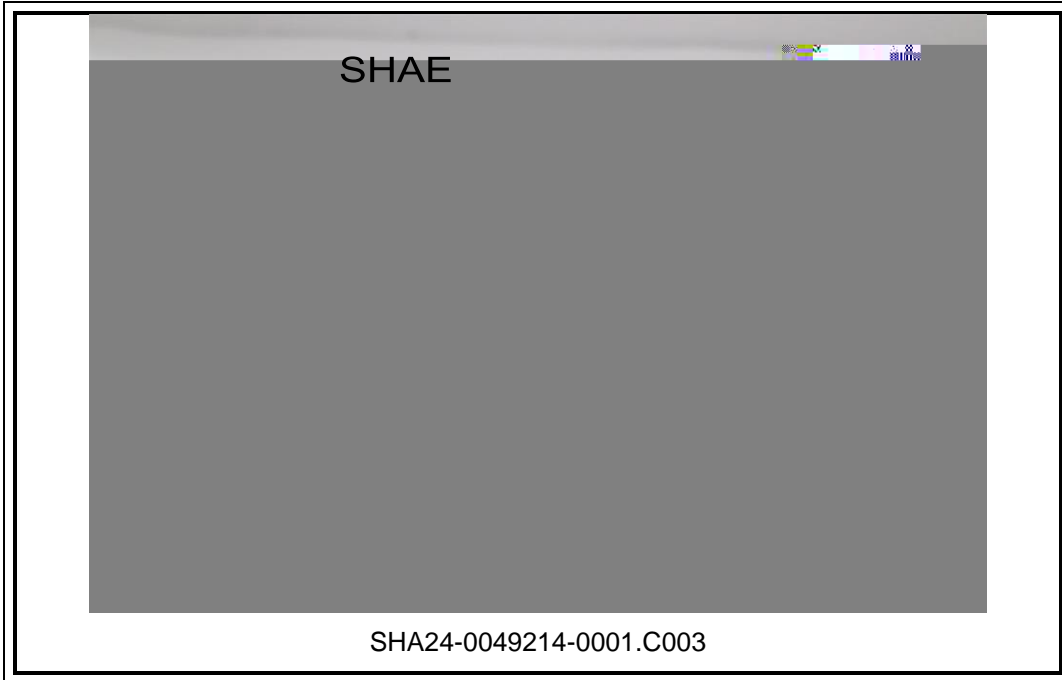
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Sample Photo:



SGS authenticate the photo on original report only
*** End of Report ***

