

Test Report No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 1 of 13

Client Name: JIEJIE SEMICONDUCTOR CO.,LTD

Client Address: NO.6, JINGGANGSHAN ROAD, SU TONG SCIENCE AND TECHNOLOGY INDUSTRIAL

PARK, NANTONG CITY, JIANGSU PROVINCE, China

Sample Name: AKS Model No.: AKS

Client Ref. Information: MOV、AK、TPS

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

SGS Job No.: TIC1020230701095007YGNB

Sample Receiving Date: Jul 03, 2023

Testing Period: Jul 03, 2023 ~ Jul 13, 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
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium	Pass
Element(s)	See Results
Halogen	See Results
Polyvinyl Chloride(PVC)	See Results

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

Dora Hu

Approved Signatory





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Test Report No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 2 of 13

Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0093775-0001.C001	Blue coating
SN2	A2	SHA23-0093775-0001.C002	Blue body
SN3	A3	SHA23-0093775-0001.C003	Silvery metal pin

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	A2
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	49100▲
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	ı	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



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Test Report No.: SHAEC23009377501 **Date**: Jul 13, 2023 Page 3 of 13

Test Item(s)	Limit	Unit(s)	MDL	A2
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND
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.
- (4) ▲ According to the declaration from the client, Lead (Pb) in No.A2 is exempted by EU RoHS directive 2011/65/EU based on |ANNEX III 7(a)|: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-

1:2015, analysis was performed by ICP-OES and UV-Vis .

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))▼	-	μg/cm²	0.10	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 Cr(VI) if the Cr(VI)concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI)
 - b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 μg/cm²). The coating is considered a non-Cr(VI) based coating
 - c. The result between $0.10 \,\mu g/cm^2$ and $0.13 \,\mu g/cm^2$ 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.

Element(s)

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

Test Item(s)	Unit(s)	MDL	A2
Beryllium(Be)	mg/kg	5	ND
Antimony(Sb)	mg/kg	10	ND



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Test Report Page 4 of 13 No.: SHAEC23009377501 **Date:** Jul 13, 2023

<u>Halogen</u>

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(CI)	mg/kg	50	277
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

Polyvinyl Chloride(PVC)

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

Test Item(s)	CAS No.	Unit(s)	MDL	A1
Polyvinyl chloride (PVC)	9002-86-2	%	0.05	ND

Notes:

(1) Polyvinyl chloride component includes its present in copolymer.

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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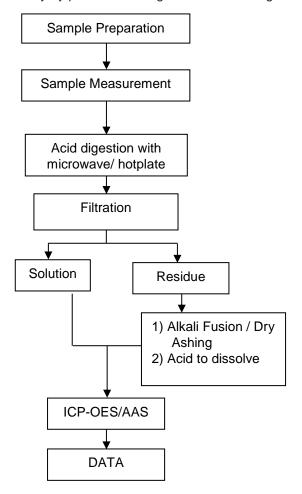
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ATTACHMENTS

No.: SHAEC23009377501 **Date:** Jul 13, 2023

Elements Testing Flow Chart

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





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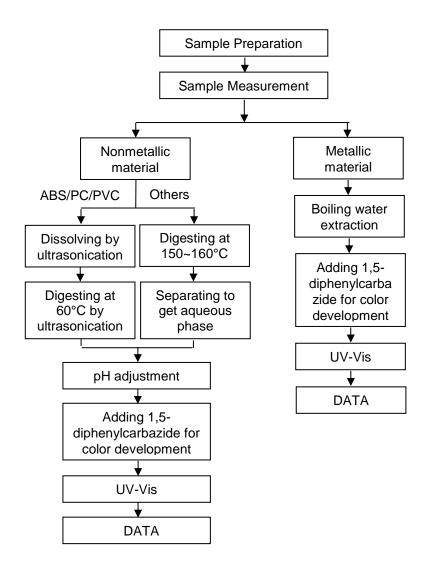
Page 5 of 13



No.: SHAEC23009377501 **Date:** Jul 13, 2023

Page 6 of 13

Hexavalent Chromium (Cr(VI)) Testing Flow Chart





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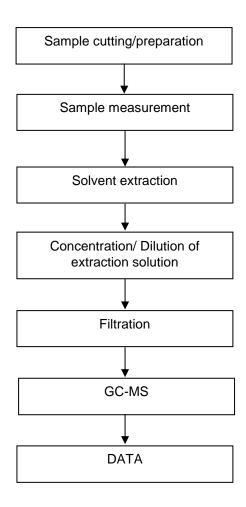
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No.: SHAEC23009377501 Page 7 of 13 **Date:** Jul 13, 2023

PBBs/PBDEs Testing Flow Chart





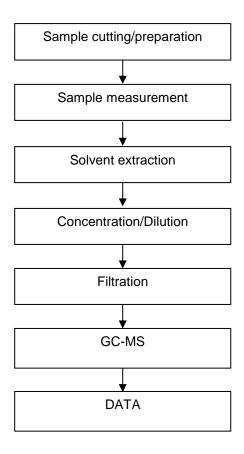
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No.: SHAEC23009377501 Page 8 of 13 **Date:** Jul 13, 2023

Phthalates Testing Flow Chart





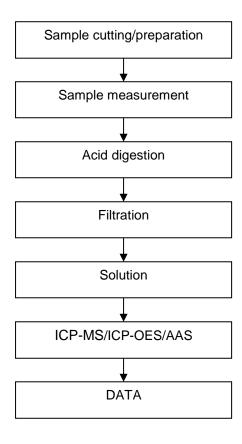
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No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 9 of 13

Elements Testing Flow Chart





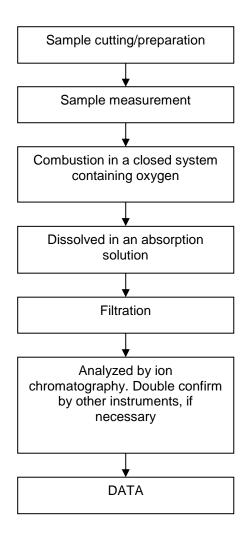
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No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 10 of 13

Halogen Testing Flow Chart





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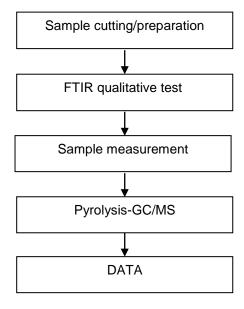
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No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 11 of 13

PVC Testing Flow Chart





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Test Report No.: SHAEC23009377501 **Date:** Jul 13, 2023 Page 12 of 13

Sample Photo:





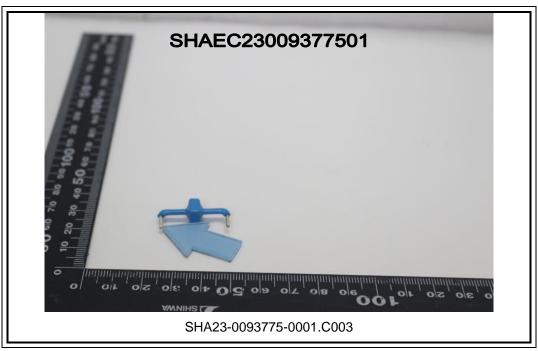


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Test Report SHAEC23009377501 No.: **Date:** Jul 13, 2023 Page 13 of 13



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