

## Test Report

No.: SHAEC22001615405

Date: Sep 21, 2022

Page 1 of 10

Client name : UNIROYAL ELECTRONICS INDUSTRY(KUNSHAN) CO.,LTD.

Client address : 88 Longteng Road, Economic & Technical Development Zone, Kunshan City, Jiangsu, CHINA

Sample Name : Complete Pb-Free Thick Film Chip Resistors

Buyer : Uniroyal Electronics Global Co.,Ltd

Manufacturer : Uniroyal Electronics Industry Co., Ltd/Aeon Technology Corporation  
CO.,LTD./Royal Electronic Factory (Thailand) Co.,Ltd./Royal Technology  
(Thailand) Co.,Ltd./UNUS TECHNOLOGY CORPORATION

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

SGS Job No. : SP22-021095

Sample Receiving Date : Sep 15, 2022

Testing Period : Sep 15, 2022 to Sep 21, 2022

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
Halogen	See Results

Signed for and on behalf of

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.



Jenny Lan

Approved Signatory

scan to see the report



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No.: SHAEC22001615405

Date: Sep 21, 2022

Page 2 of 10

Test Results:

## Test Part Description:

SN ID	Sample No	SGS Sample ID	Description
SN1	A3	SHA22-0016154-0001.C003	Black / White / Silver body

Remarks:

- (1) 1 mg/kg = 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	Units	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



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# Test Report

No.: SHAEC22001615405

Date: Sep 21, 2022

Page 3 of 10

Test Item(s)	Limit	Units	MDL	A3
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
Pentabromodiphenyl ethers (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether(HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenyl ethers (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenyl ether (DecaBDE)	-	mg/kg	5	ND
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. IEC 62321 series is equivalent to EN 62321 series
- (2) 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.



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## Test Report

No.: SHAEC22001615405

Date: Sep 21, 2022

Page 4 of 10

Test Item(s)	Units	MDL	A3
Fluorine(F)	mg/kg	50	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 ( $n=0$ ) stated in ILAC-G8:09/2019.



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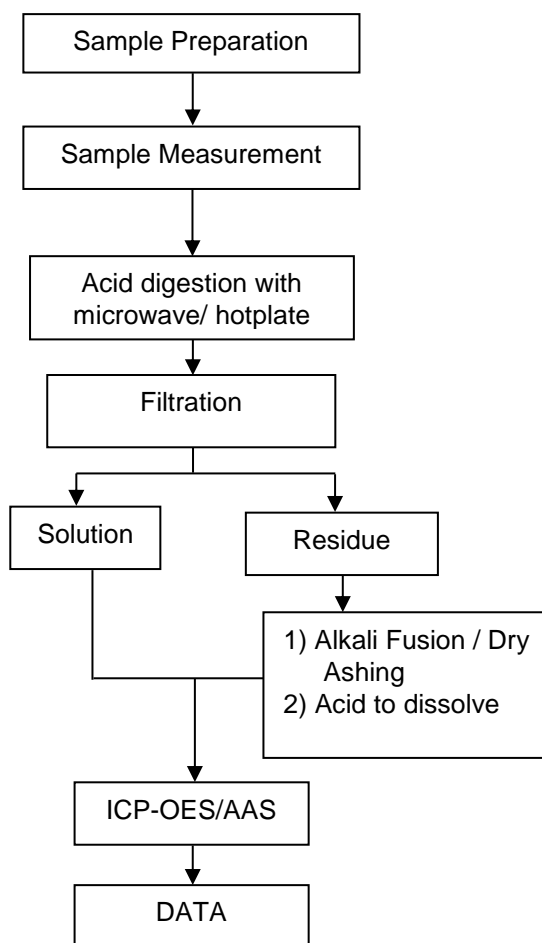
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#### Elements (IEC62321) Testing Flow Chart

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



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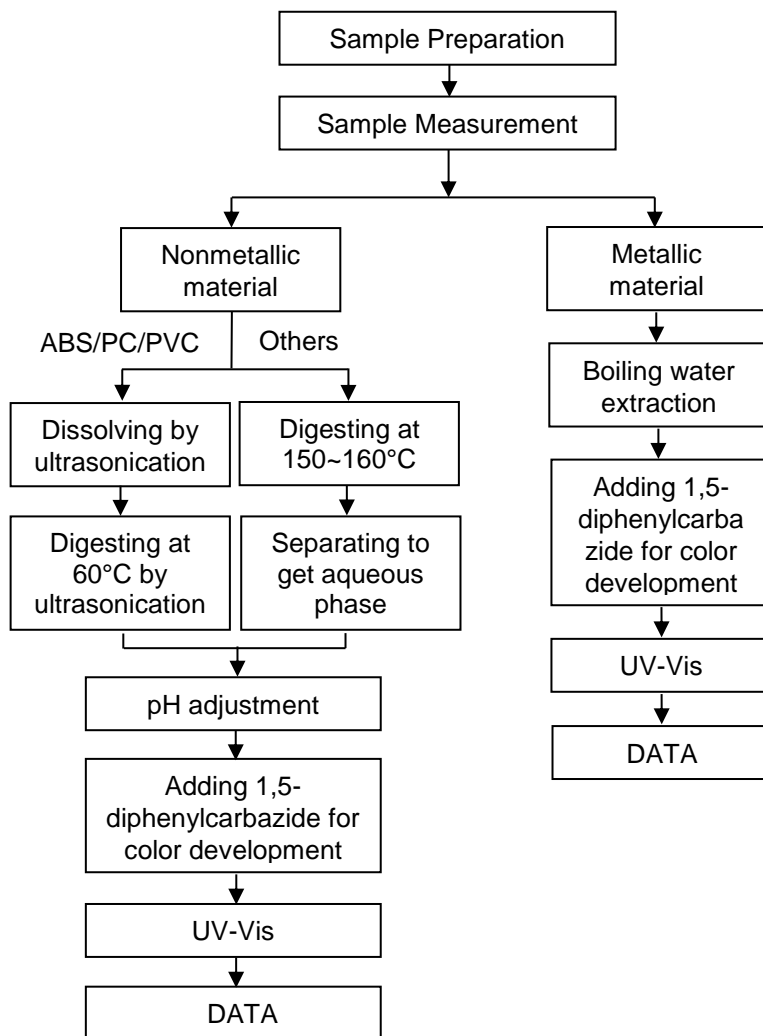
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#### Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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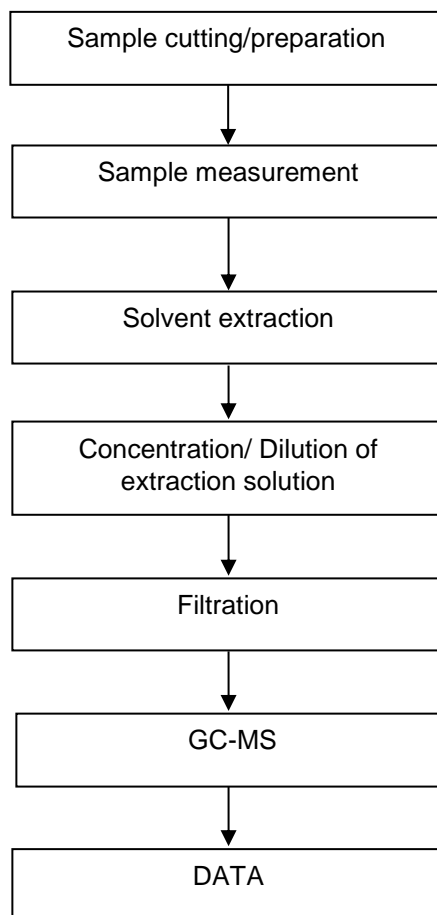
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#### PBBs/PBDEs Testing Flow Chart



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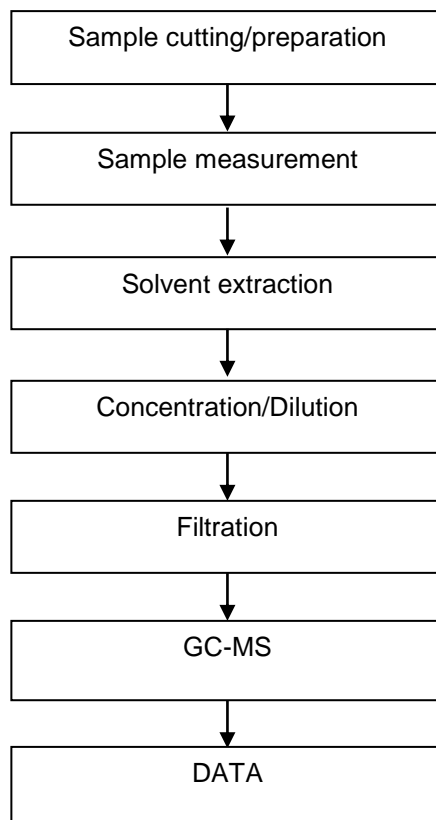
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Page 8 of 10

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#### Phthalates Testing Flow Chart



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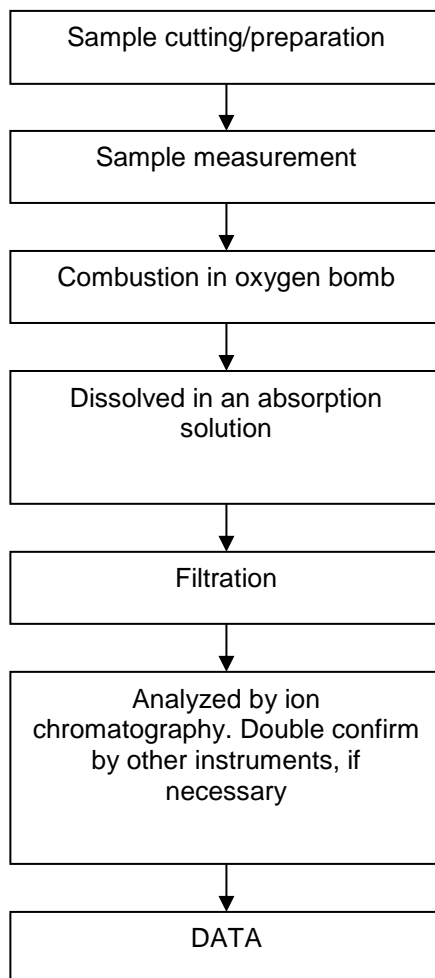
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### Halogen Testing (oxygen bomb) Flow Chart



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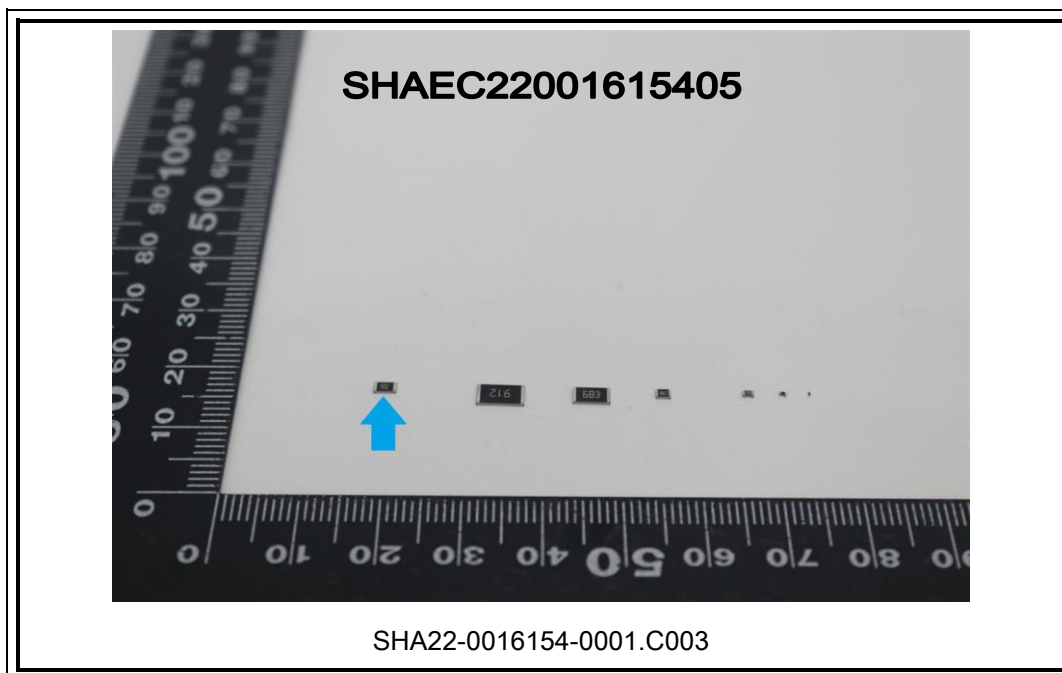
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