

Test Report No.: SHAEC23000422603 **Date:** Jan 17, 2023 Page 1 of 13

Client Name: WUXI HONGGUANG MICRO-ELECTRONICS CO. LTD Client Address: LOT B-1, #93 XINZHOU ROAD, NEW DISTRICT, WUXI CITY

Sample Name: SOT223

Client Ref. Information: SOT-23/SOT-89/SOT23-3L/TO-252/SOP7/SOP8/ESOP8/SOT23-5L/SOT23-

6L/DFN/QFN/PDFN

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

SGS Job No.: SP23-000913 Sample Receiving Date: Jan 11, 2023

Testing Period: Jan 11, 2023 - Jan 17, 2023

Test Requested:

Test Method(s):

Test Result(s):



上海: UZ1-2/133832/3/133998 体剂: U/32-Z638U44/
邮箱: 1101@tang.sh.cn/1180@tang.sh.cn

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

Tom

Tom Ni

Approved Signatory





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Test Result(s):

Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A2	SHA23-0004226-0001.C002	Black body(mix all*)

Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

Halogen

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

Test Item(s)	Unit(s)	MDL	A2
Fluorine(F)	mg/kg	50	ND
Chlorine(CI)	mg/kg	<u>10</u> . 50	ND
Bromine(Br)	mg/kg	AA50	ND
lodine(I)	mg/kg	50,00	h.c. ND 678

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), Dibutyl phthalate (DBP), Butyl benzyl phthalate (BBP), Bis(2-ethylhexyl) phthalate (DEHP), 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 IEC62321-8:2017, analysis was performed by ICP-OES, AAS, 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	ND
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	ı	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND



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Test Item(s)	Limit	Unit(s)	MDL	A2
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
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.

Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA). 15802186782

Test Method: With reference to CENTS 45002030 _cn/1180@tans NG ELECTRO MS/MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A2
Perfluorooctanesulfonic acid (PFOS)^ 101 3302	1763-23-1	mg/kg	10	ND
Perfluorooctanoic Acid (PFOA) and its salts+	-	mg/kg	10	ND

Notes:

- (1) + PFOA refer to its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1);
- (2) PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)2 (CAS No.: 70225-14-8), PFOS-N(C2H5)4 (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7).

Phthalates

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

Test Item(s)	CAS No.	Unit(s)	MDL	A2
Dibutyl Phthalate(DBP)	84-74-2	%	0.003	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	117-81-7	%	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
Diisooctyl Phthalate(DIOP)	27554-26-3	%	0.010	ND

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method: With reference to AfPS GS 2014:01 PAK, analysis was performed by GC-MS.



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Test Item(s)	CAS No.	Unit(s)	MDL	A2				
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND				
Benzo(e)pyrene(BeP)	192-97-2	mg/kg	0.1	ND				
Benzo(a)anthracene(BaA)	56-55-3	mg/kg	0.1	ND				
Benzo(b)Fluoranthene(BbF)	205-99-2	mg/kg	0.1	ND				
Benzo(j)fluoranthene(BjF)	205-82-3	mg/kg	0.1	ND				
Benzo(k)Fluoranthene(BkF)	207-08-9	mg/kg	0.1	ND				
Chrysene(CHR)	218-01-9	mg/kg	0.1	ND				
Dibenzo(a,h)Anthracene(DBA)	53-70-3	mg/kg	0.1	ND				
Benzo(g,h,i)perylene(BPE)	191-24-2	mg/kg	0.1	ND				
Indeno(1,2,3-c,d)pyrene(IPY)	193-39-5	mg/kg	0.1	ND				
Acenaphthylene(ANY)	208-96-8	mg/kg	0.1	ND				
Acenaphthene(ANA)	83-32-9	mg/kg	0.1	ND				
Fluorene(FLU)	86-73-7	mg/kg	0.1	ND				
Phenanthrene(PHE)	85-01-8	mg/kg_	0.1	ND				
Pyrene(PYR)	129-00-0	mg/kg	0.1	ND				
Anthracene(ANT)	120-12-7	/mg/kg	0.1	ND				
Fluoranthene(FLT)	206-44-0	mg/kg	0.1	ND				
Sum of Acenaphthylene, Acenaphthene, Fluorene,	"ICS	ma/ka 5	104 ^A	n.CN ND =10				
Phenanthrene, Pyrene, Anthracene, Fluoranthene	CTRONICS	mg/kg 5	, tang.s	n.ch ND 678				
Naphthalene(NAP)	91-20-3	mg/kg √	0.1 13	158 ND				
Sum of 18 PAHs	153998 m	mg/kg	174162	ND				
Material Category	ang.sii.	-2198/130	-	-				
20 1 21 - 21 - 21 - 21 - 21 - 21 - 21 -								
Notes: OZI Grang.sh.Ci.								
AFRS (Corman commission for Product Safety) + GS PAHs requirements								

AfPS (German commission for Product Safety) : GS PAHs requirements

Parameter	Category 1	Category 2		Catego	ory 3
Y 家 参 在 电 子 有 他	Material intended to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 s (long-term skin) or frequent contact.		Materials not f category 1 or 2 foreseeable co skin for less th (short-term sk	2 with ontact to an 30 s
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/ 48/EC	Other products under ProdSG
Benzo(a)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1



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Chrysene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracen e mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(I,2,3-cd)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Acenaphthylene, Acenaphthene, fluorene,phenanthrene , pyrene, anthracene, fluoranthene, mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene, mg/kg	< 1	<	< 2	< 1	0
Sum of 18 PAHs	<1	< 5	< 10	< 20	< 50

^{*}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.



sample in one testing reporting is based on Binary Stater

19.

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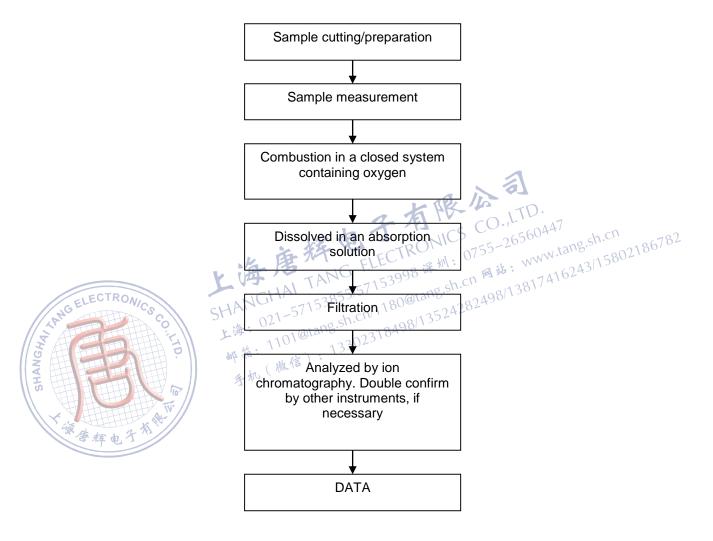
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Halogen Testing Flow Chart





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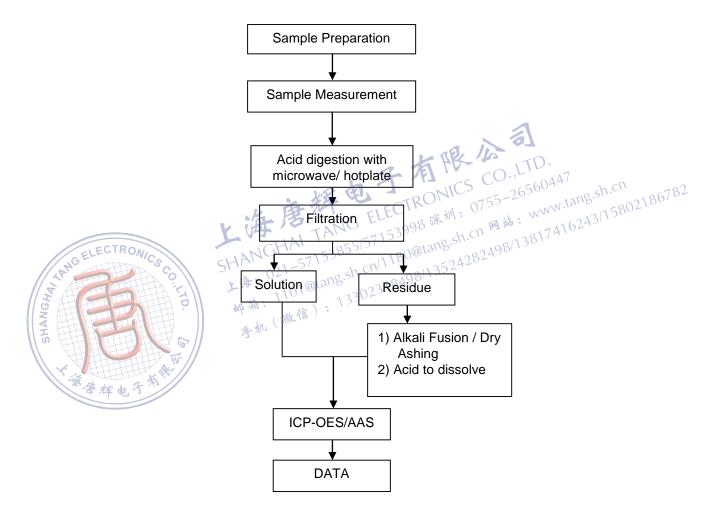
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Elements (IEC62321) Testing Flow Chart

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





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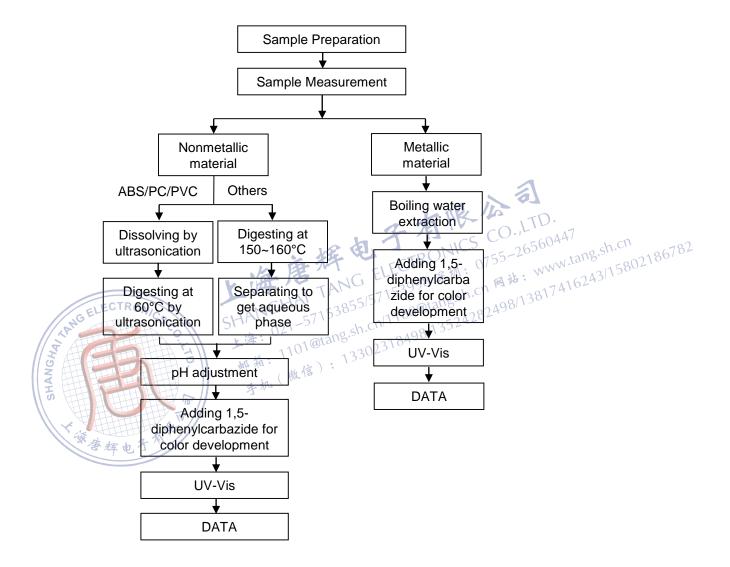


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart





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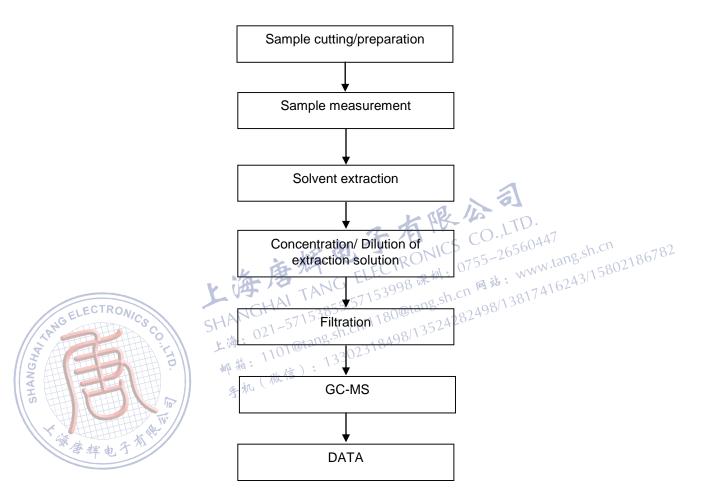
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PBBs/PBDEs Testing Flow Chart





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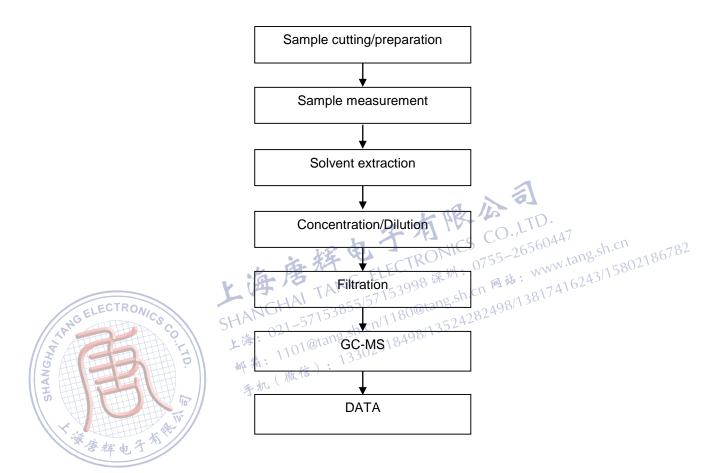
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Phthalates Testing Flow Chart





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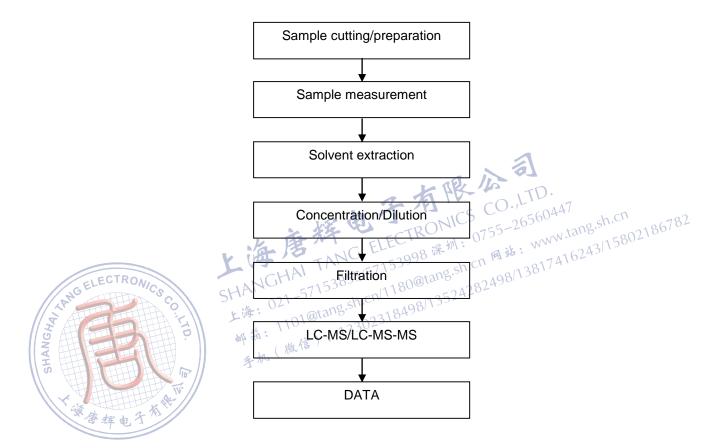
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PFASs/ PFOS/PFOA Testing Flow Chart





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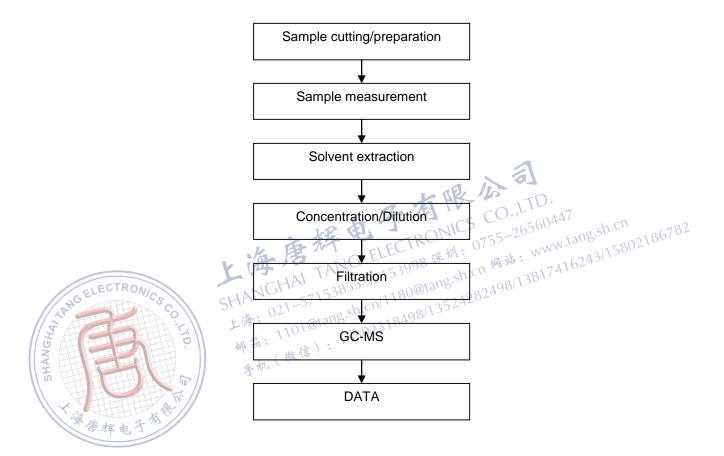
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PAHs Testing Flow Chart





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Sample Photo:

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