

Test Report



Report No. A2230564251101003

Company Name shown on Report TXC CORPORATION

Address 4F, NO.16, SEC.2, CHUNG YANG S. RD., PEITOU 112, TAIPEI, TAIWAN

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name SMD CRYSTAL OSCILLATORS
Part No. 6U,B,C,D(AD),E,F SERIES;
7W(HW),7C(AC,HC),7X(AU,HX),8W(AW,HK),8N(AN,HN),8R(A5,HR) SERIES
Sample Received Date Oct. 31, 2023
Testing Period Oct. 31, 2023 to Nov. 7, 2023

Test Requested As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Fluorine (F), Chlorine (Cl), Bromine (Br) Iodine (I), Phthalates, Antimony(Sb), Arsenic(As), Beryllium(Be), Hexabromocyclododecane (HBCDD), PFOS and Related Substances, Perfluorooctanoic acid related substances and Its Salts, Polycyclic Aromatic Hydrocarbons (PAHs) in the submitted sample(s).

Test Method Please refer to the following page(s).

Test Result(s) Please refer to the following page(s).



Allen Hsu

Allen Hsu
Laboratory Manager

Date

Nov. 7, 2023

No. R392336196

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Test Method

Test Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017	UV-Vis
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Fluorine (F)	Refer to EN 14582:2016	IC
Chlorine (Cl)	Refer to EN 14582:2016	IC
Bromine (Br)	Refer to EN 14582:2016	IC
Iodine (I)	Refer to EN 14582:2016	IC
Phthalates	IEC 62321-8:2017	GC-MS
Polycyclic Aromatic Hydrocarbons (PAHs)	AfPS GS 2019:01 PAK	GC-MS
Hexabromocyclododecane (HBCDD)	IEC 62321-9:2021	GC-MS
Beryllium(Be)	Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
Arsenic(As)	Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
Antimony(Sb)	Refer to US EPA 3052:1996 & US EPA 6010D:2018	ICP-OES
Perfluorooctane sulfonates and Perfluorooctanoic acid substances (PFOS & PFOA)	Refer to CEN/TS 15968:2010	LC-MS-MS

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Test Result(s)

Tested Item(s)	Result	MDL
	003	
Lead (Pb)	N.D.	2 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg
Mercury (Hg)	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg
Tested Item(s)	Result	MDL
	003	
Polybrominated Biphenyls (PBBs)		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg
Tested Item(s)	Result	MDL
	003	
Polybrominated Diphenyl Ethers (PBDEs)		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

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Test Result(s)

Tested Item(s)	Result	MDL
	003	
Phthalates (DBP, BBP, DEHP, DIBP)		
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg
Tested Item(s)	Result	MDL
	003	
Fluorine (F)	N.D.	50 mg/kg
Chlorine (Cl)	N.D.	50 mg/kg
Bromine (Br)	N.D.	50 mg/kg
Iodine (I)	N.D.	50 mg/kg
Tested Item(s)	Result	MDL
	003	
Phthalates		
Bis(2-methoxyethyl) phthalate (DMEP) CAS#:117-82-8	N.D.	50 mg/kg
Di-n-hexyl phthalate (DNHP/DHEXP) CAS#:84-75-3	N.D.	50 mg/kg
Dipentyl phthalate (DPP/DPENP) CAS#:131-18-0	N.D.	50 mg/kg
Di-iso-decyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
Di-isononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50 mg/kg

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Test Result(s)

Tested Item(s)	Result	MDL
	003	
Antimony (Sb)	N.D.	2 mg/kg
Beryllium (Be)	N.D.	2 mg/kg
Arsenic (As)	N.D.	2 mg/kg
Tested Item(s)	Result	MDL
	003	
Polycyclic Aromatic Hydrocarbons (PAHs)		
Naphthalene	N.D.	0.2 mg/kg
Phenanthrene	N.D.	0.2 mg/kg
Anthracene	N.D.	0.2 mg/kg
Fluoranthene	N.D.	0.2 mg/kg
Pyrene	N.D.	0.2 mg/kg
Chrysene	N.D.	0.2 mg/kg
Benzo(a)anthracene	N.D.	0.2 mg/kg
Benzo(b)fluoranthene	N.D.	0.2 mg/kg
Benzo(k)fluoranthene	N.D.	0.2 mg/kg
Benzo(j)fluoranthene	N.D.	0.2 mg/kg
Benzo(a)pyrene	N.D.	0.2 mg/kg
Benzo(e)pyrene	N.D.	0.2 mg/kg
Dibenzo(a,h)anthracene	N.D.	0.2 mg/kg
Benzo(g,h,i)perylene	N.D.	0.2 mg/kg
Indeno(1,2,3-cd)pyrene	N.D.	0.2 mg/kg
Sum (Phenanthrene, Anthracene, Fluoranthene, Pyrene)	N.D.	/
Sum 15 PAHs	N.D.	/
Tested Item(s)	Result	MDL
	003	
Hexabromocyclododecane (HBCDD)	N.D.	20 mg/kg

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Test Result(s)

Tested Item(s)	CAS No.	Result	MDL
		003	
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	N.D.	0.01 mg/kg
N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)	4151-50-2	N.D.	0.05 mg/kg
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8 N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	31506-32-8	N.D.	0.05 mg/kg
2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)	1691-99-2	N.D.	0.05 mg/kg
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8 2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	24448-09-7	N.D.	0.05 mg/kg
Perfluorooctanoic Acid (PFOA)	335-67-1	N.D.	0.01 mg/kg
Perfluorooctane sulfonamide (PFOSA)	754-91-6	N.D.	0.01 mg/kg

Perfluorooctanesulfonic acid contains :

Substance Name(s)	CAS No.
Perfluorooctanesulfonic acid(PFOS)	
Perfluorooctanesulfonic acid, potassium salt	2795-39-3
Perfluorooctanesulfonic acid, lithium salt	29457-72-5
Perfluorooctanesulfonic acid, ammonium salt	29081-56-9
Perfluorooctane sulfonate diethanolamine salt	70225-14-8
Perfluorooctanesulfonic acid, tetraethylammonium salt	56773-42-3
Didecyl dimethyl ammonium perfluorooctane sulfonate	251099-16-8
Perfluoro-1-octanesulfonyl fluoride	307-35-7
Sodium perfluorooctane sulfonate	4021-47-0
1-Octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-, magnesium salt (2:1)	91036-71-4
Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8 heptafluorooctanesulfonate	71463-74-6

Perfluorooctanoic acid contains :

Substance Name(s)	CAS No.
Perfluorooctanoic acid(PFOA)	
Ammonium pentadecafluorooctanoate	3825-26-1
Sodium perfluorooctanoate	335-95-5
Potassium perfluorooctanoate	2395-00-8
Silver perfluorooctanoate	335-93-3
Perfluorooctanoyl fluoride	335-66-0

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Sample/Part Description

No.	CTI Sample ID	Description
1	003	Mixed test, electronic components

Remark: The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Antimony, Beryllium, Arsenic.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

-The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.

Note: The testing data and result(s) in this report is(are) just for scientific research, education, internal quality control and product development etc.

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Maximum PAHs limits (mg/kg) for the materials with relevant contact/grip and operating surfaces that are to be categorised based on the results of the risk assessment

Parameters	Category 1	Category 2		Category 3		
	Materials intended to be placed in the mouth or materials in toys according to Directive 2009/48/EC or materials for the use by children up to 3 years of age coming into long-term contact with skin (more than 30s) during the intended use	Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact** with skin during the intended or foreseeable use	Use by children (< 14 years) (include both active and passive direct contact)	Other consumer products	Materials not covered by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use	Use by children (< 14 years) (include both active and passive direct contact)
Benzo(a)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(e)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(a)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Indenol(1,2,3-cd)pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 0.5	< 1
Phenanthrene, Anthracene, Fluoranthene, Pyrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum	< 50 Sum
Naphthalene	< 1	< 2		< 10		
Sum 15 PAHs	< 1	< 5	< 10	< 20	< 50	

** Definition "short-term repetitive contact" taken from REACH Annex XVII entry 50 amendment (REGULATION (EU) No.1272/2013)

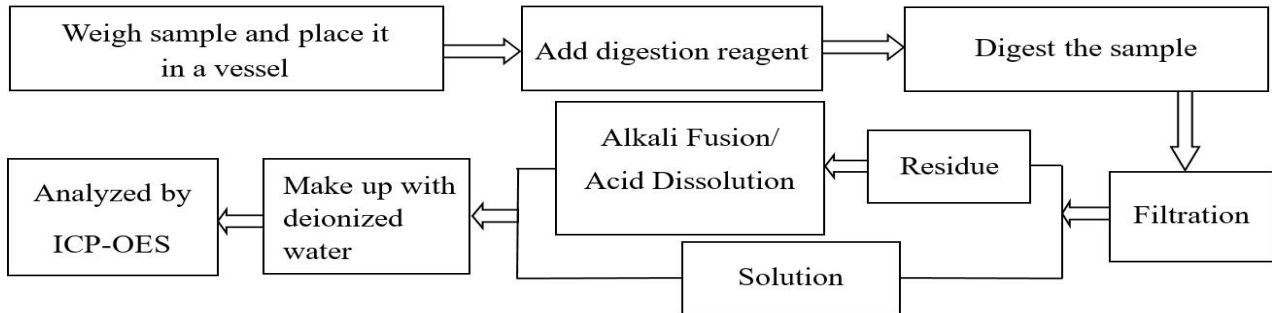
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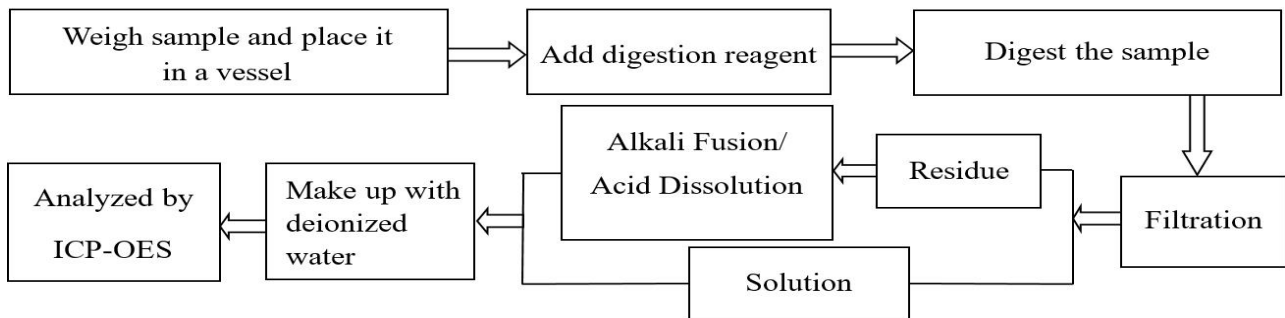
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Test Process

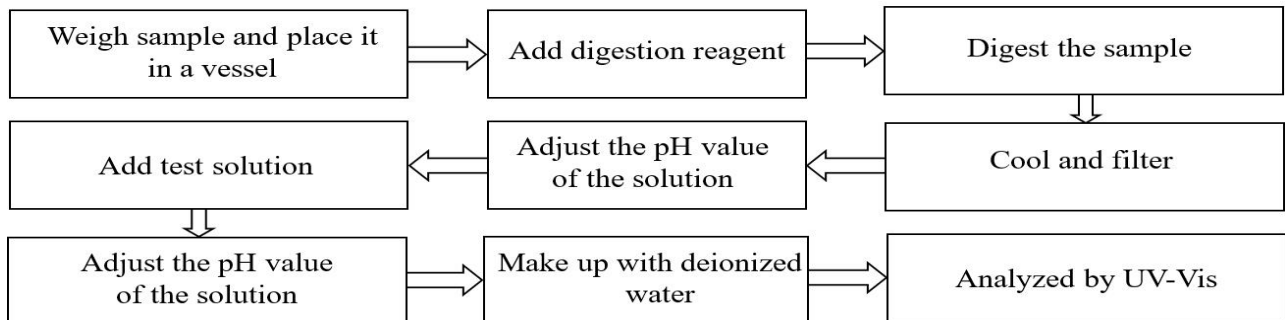
1. Lead (Pb), Cadmium (Cd)



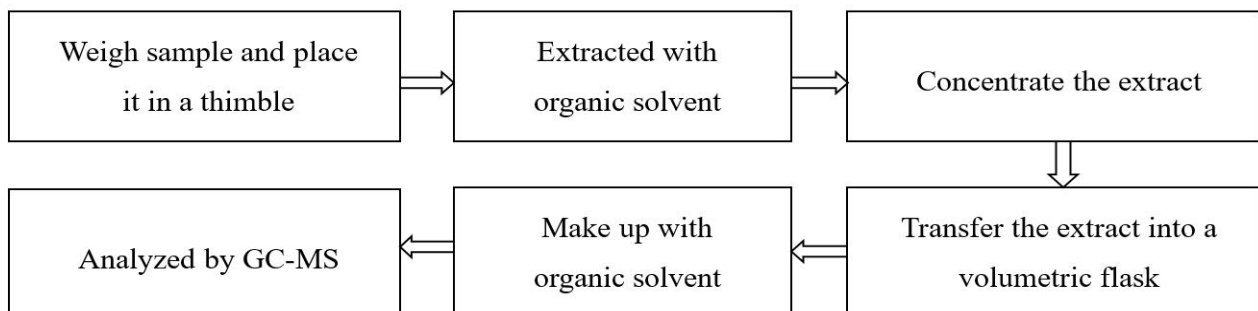
2. Mercury (Hg)



3. Hexavalent Chromium (Cr(VI))



4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)

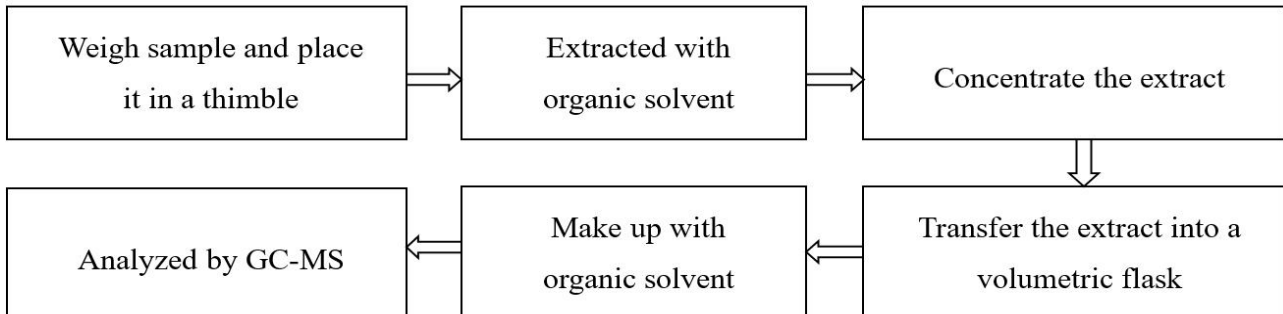


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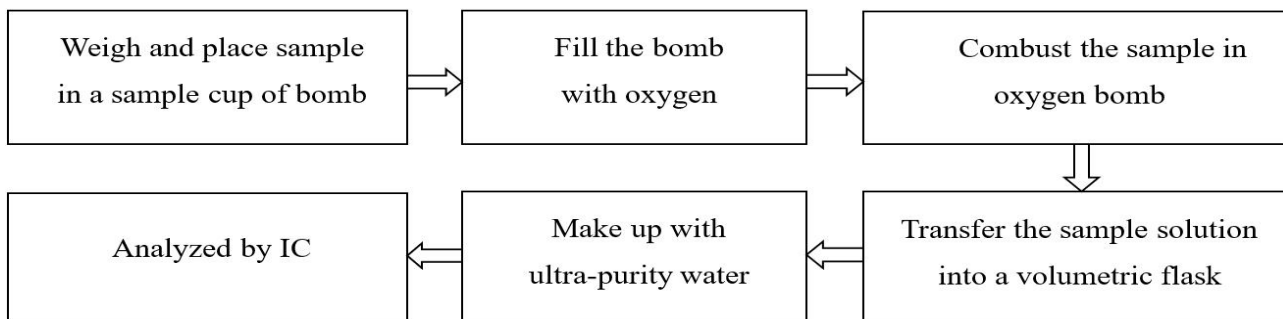
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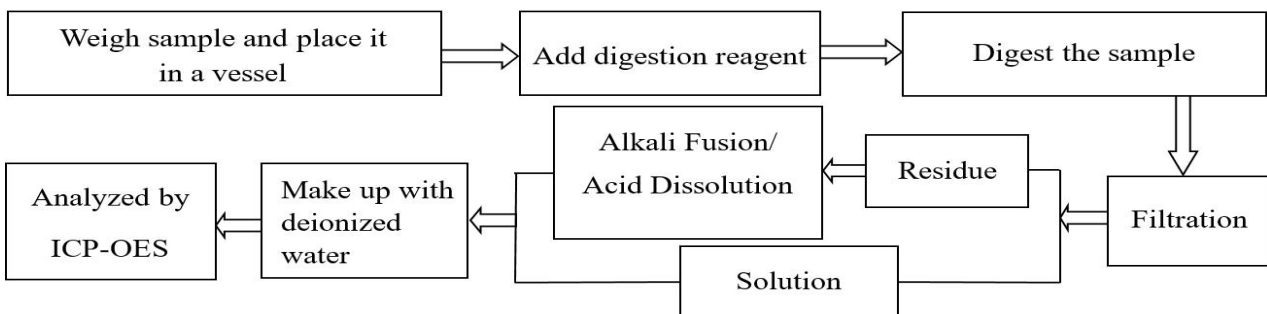
5. Phthalates (DBP, BBP, DEHP, DIBP), Phthalates



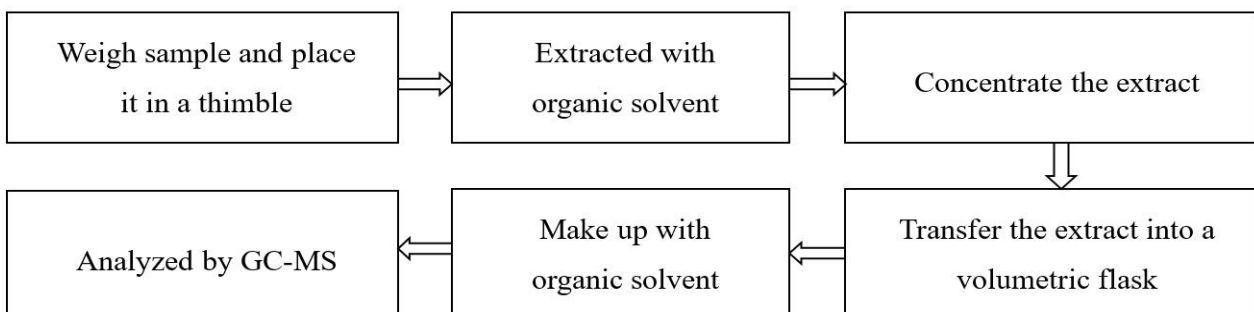
6. Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



7. Beryllium(Be), Antimony(Sb), Arsenic(As)



8. Polycyclic Aromatic Hydrocarbons (PAHs)

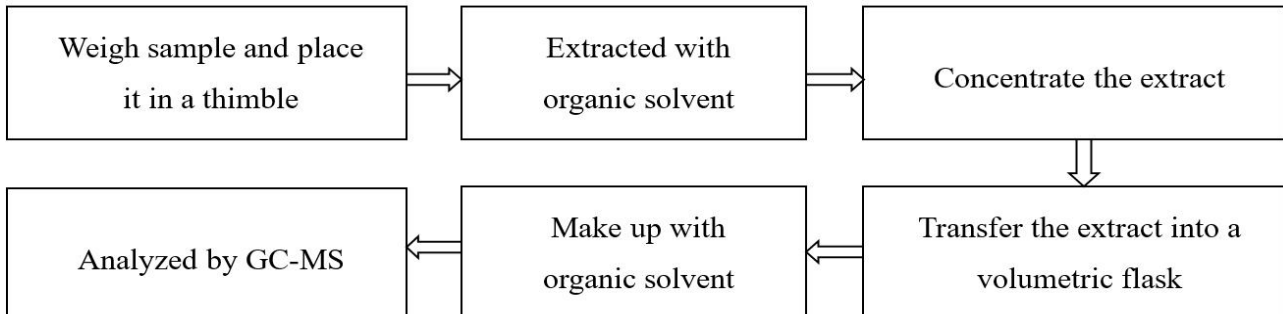


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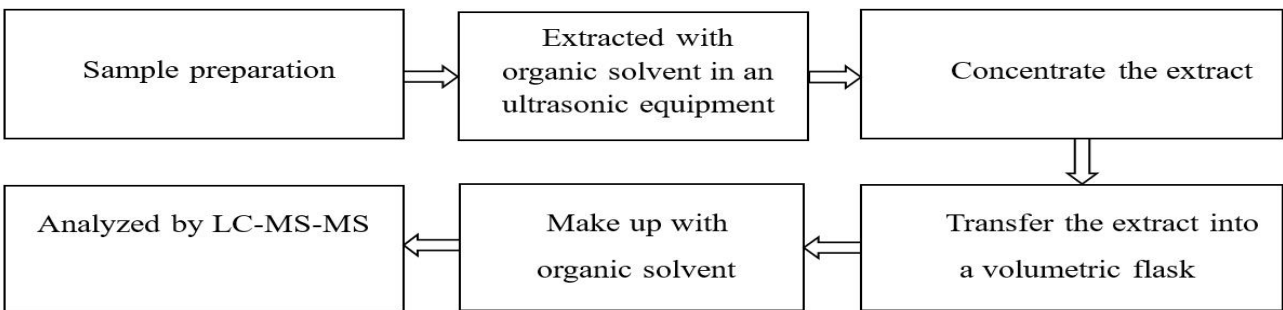
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9. Hexabromocyclododecane (HBCDD)



10. Perfluorooctanoic acid related substances and Its Salts, PFOS and Related Substances

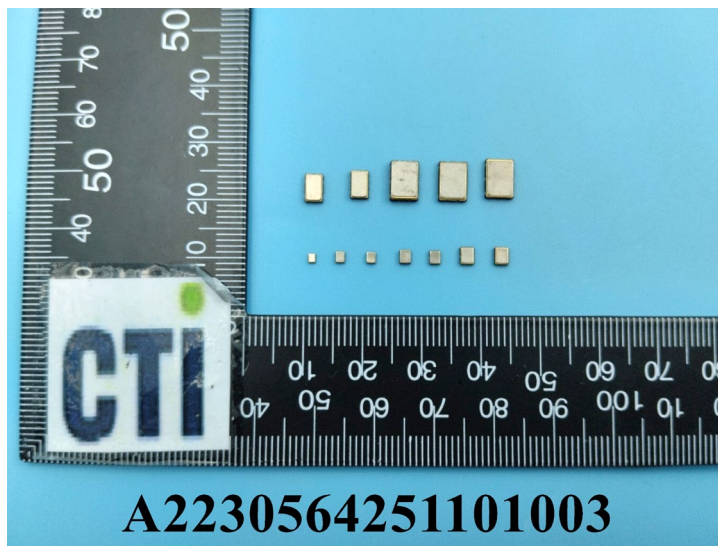
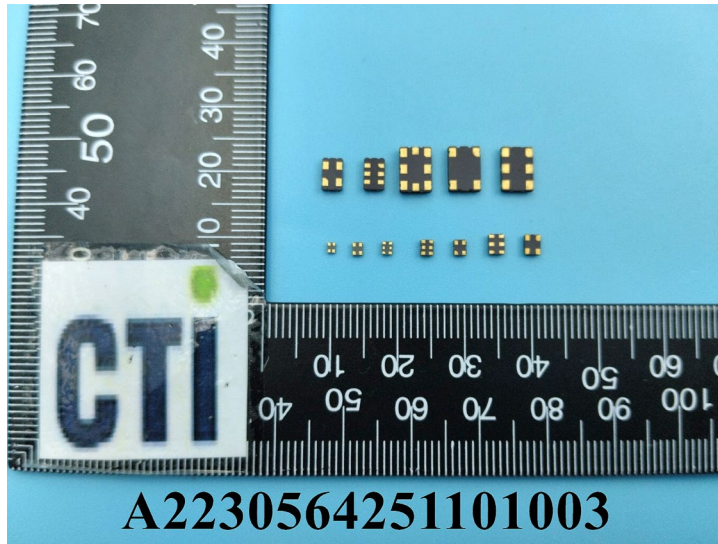


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Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

*** End of report ***