

## Test Report

No.: SHAEC24009109421

Date: May 15, 2024

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Client Name: Eterkon Semiconductor Materials Co., Ltd.

Client Address: 267 QINGYANG ROAD, KUNSHAN JIANGSU PROVINCE, CHINA

Sample Name: EPOXY MOLDING COMPOUND

Model No.: EK-5600G

Client Ref. Information: SEE ATTACHMENT

Lot No.: 2024.05

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

SGS Job No.: SHP24-013766

Sample Receiving Date: May 07, 2024

Testing Period: May 07, 2024 ~ May 14, 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)	Pass
Tetrabromobisphenol A (TBBP-A)	See Results
Alkanes C14-C17, chloro (medium- chain chlorinated paraffins) (MCCPs)	See Results
Alkanes C10-C13, chloro (short chain-chlorinated paraffins) (SCCPs)	See Results
Element(s)	See Results
Halogen	See Results
Hexabromocyclododecane (HBCDD)	See Results

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

Annie Liu

Annie Liu

Approved Signatory

scan to see the report



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Test Requirement	Conclusion
Phthalates	See Results
Polychlorinated Biphenyls (PCBs)	See Results
Polychlorinated Naphthalenes(PCNs)	See Results
Polychlorinated Terphenyls (PCTs)	See Results
Polyvinyl chloride (PVC)	See Results
Red Phosphorus	See Results
SS-00259- Twenty-first Edition- Long-chain (C9-C21, including C9-C14) perfluorocarboxylic acids (PFCAs) and its salts and related substances	See Results
Organic-tin compounds	See Results
Perfluorooctane sulfonates (PFOS) and its derivatives and Perfluorooctanoic acid (PFOA) and its salts	See Results
SS-00259- Twenty-first Edition- Perfluorohexane acid (PFHxA) and its salts	See Results
AfPS GS 2019:01 PAK-Polycyclic Aromatic Hydrocarbons (PAHs)	See Results

## Test Result(s):

### Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A4	SHA24-0091094-0001.C004	Black solid

### 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	A4
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



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Test Item(s)	Limit	Unit(s)	MDL	A4
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
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.

## Tetrabromobisphenol A (TBBP-A)

Test Method: With reference to US EPA 3550C: 2007, analysis was performed by GC-MS or LC-MS or LC-MS/MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Tetrabromobisphenol A(TBBP-A)	79-94-7	mg/kg	10	ND

## Alkanes C14-C17, chloro (medium- chain chlorinated paraffins) (MCCPs)



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Test Method: With reference to ISO 22818:2021, analysis was performed by GC-NCI-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Alkanes C <sub>14</sub> -C <sub>17</sub> , chloro (medium- chain chlorinated paraffins) (MCCPs)	85535-85-9 and others	mg/kg	50	ND

### Alkanes C<sub>10</sub>-C<sub>13</sub>, chloro (short chain-chlorinated paraffins) (SCCPs)

Test Method: With reference to ISO 18219-1:2021, analysis was performed by GC-NCI-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Short Chain Chlorinated Paraffin(C <sub>10</sub> -C <sub>13</sub> )(SCCP)	85535-84-8	mg/kg	50	ND

### Element(s)

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

Test Item(s)	Unit(s)	MDL	A4
Arsenic(As)	mg/kg	10	ND
Beryllium(Be)	mg/kg	5	ND
Phosphorus(P)	mg/kg	20	113
Antimony(Sb)	mg/kg	10	ND

### Halogen

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

Test Item(s)	Unit(s)	MDL	A4
Fluorine(F)	mg/kg	20	ND
Chlorine(Cl)	mg/kg	50	ND
Bromine(Br)	mg/kg	50	ND
Iodine(I)	mg/kg	50	ND

### Hexabromocyclododecane (HBCDD)

Test Method: With reference to IEC 62321-9:2021, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Hexabromocyclododecane (HBCDD)	134237-50-6 /134237-51-7 /134237-52-8 /25637-99-4 /3194-55-6	mg/kg	20	ND

### Phthalates

Test Method: With reference to IEC 62321-8:2017, analysis was performed by GC-MS.



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Test Item(s)	CAS No.	Unit(s)	MDL	A4
Diisononyl Phthalate (DINP)	28553-12-0 /68515-48-0	mg/kg	50	ND
Di-n-Octyl Phthalate(DNOP)	117-84-0	mg/kg	50	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 /68515-49-1	mg/kg	50	ND
Bis(2-methoxyethyl)phthalate(DMEP)	117-82-8	mg/kg	50	ND
Di-n-Hexyl Phthalate(DnHP)	84-75-3	mg/kg	50	ND
Dipentyl Phthalate (DPENP/DnPP)	131-18-0	mg/kg	50	ND
Diphenyl Phthalate(DPhP)	84-62-8	mg/kg	50	ND
Dimethyl Phthalate(DMP)	131-11-3	mg/kg	50	ND
Diethyl Phthalate(DEP)	84-66-2	mg/kg	50	ND
Dipropyl Phthalate(DPrP)	131-16-8	mg/kg	50	ND
Dicyclohexyl Phthalate(DCHP)	84-61-7	mg/kg	50	ND
Dibenzyl Phthalate(DBzP)	523-31-9	mg/kg	50	ND
Dinonyl Phthalate(DNP)	84-76-4	mg/kg	50	ND
Diisooctyl Phthalate(DIOP)	27554-26-3	mg/kg	50	ND
Diisopentyl Phthalate(DIPP)	605-50-5	mg/kg	50	ND
1,2-Benzenedicarboxylic Acid,di-C6-8- branched alkyl esters,C7-rich(DIHP)	71888-89-6	mg/kg	50	ND
1,2-Benzenedicarboxylic Acid,Di-C7-11- Branched and Linear Alkyl Esters(DHNUP)	68515-42-4	mg/kg	50	ND
1,2-Benzenedicarboxylic Acid,di-C6-10- Alkyl Esters1,2-Benzenedicarboxylic Acid,Mixed Decyl and Hexyl and Octyl Diesters with ≥ 0.3% of Dihexyl Phthalate	68515-51-5 /68648-93-1	mg/kg	100	ND

## Polychlorinated Biphenyls (PCBs)

Test Method: With reference to US EPA 8082A:2007, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
2,4,4'-Trichlorobiphenyl (PCB28)	7012-37-5	mg/kg	0.5	ND
2,2',5,5'-Tetrachlorobiphenyl (PCB52)	35693-99-3	mg/kg	0.5	ND
2,2',4,5,5'-Pentachlorobiphenyl (PCB101)	37680-73-2	mg/kg	0.5	ND
2,3',4,4',5'-Pentachlorobiphenyl (PCB118)	31508-00-6	mg/kg	0.5	ND
2,2',3,4,4',5'-Hexachlorobiphenyl (PCB138)	35065-28-2	mg/kg	0.5	ND
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB153)	35065-27-1	mg/kg	0.5	ND
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB180)	35065-29-3	mg/kg	0.5	ND
Sum of PCBs	-	mg/kg	-	ND

## Polychlorinated Naphthalenes(PCNs)



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Test Method: With reference to US EPA 8082A:2007, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
1-Chlorinated Naphthalene	90-13-1	mg/kg	5	ND
2-Chlorinated Naphthalene	91-58-7	mg/kg	5	ND
1,4- Dichlorinated Naphthalene	1825-31-6	mg/kg	5	ND
1,5-Dichlorinated Naphthalene	1825-30-5	mg/kg	5	ND
1,2-Dichlorinated Naphthalene	2050-69-3	mg/kg	5	ND
1,8-Dichlorinated Naphthalene	2050-74-0	mg/kg	5	ND
1,2,3-Trichlorinated Naphthalene	50402-52-3	mg/kg	5	ND
1,2,3,4-Tetrachlorinated Naphthalene	20020-02-4	mg/kg	5	ND
1,2,3,4,6-Pentachlorinated Naphthalene	67922-26-3	mg/kg	5	ND
Octa-chlorinated Naphthalene	2234-13-1	mg/kg	5	ND

## Polychlorinated Terphenyls (PCTs)

Test Method: With reference to US EPA 8082A: 2007, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Aroclor 5432	63496-31-1	mg/kg	0.5	ND
Aroclor 5442	12642-23-8	mg/kg	0.5	ND
Aroclor 5460	11126-42-4	mg/kg	0.5	ND
Sum of PCT	-	mg/kg	-	ND

## Polyvinyl chloride (PVC)

Test Method: With reference to SGS in house method, analysis was performed by FTIR/HATR.

Test Item(s)	A4
Polyvinyl chloride (PVC)	Negative

### Notes:

(1) Negative=Undetectable, Positive=Detectable

## Red Phosphorus

Test Method: With reference to SGS In house method, analysis was performed by ICP-OES and Pyrolysis-GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Red Phosphorus	7723-14-0	mg/kg	500	ND

### Notes:

(1) The testing result is based on the worst-case scenario, and confirmed by Pyrolysis-GC-MS.

## SS-00259- Twenty-first Edition- Long-chain (C9-C21, including C9-C14) perfluorocarboxylic acids (PFCAs) and its salts and related substances

Test Method: Modified CEN/TS 15968:2010, analysis was performed by LC-MS or LC-MS/MS and GC-MS.



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Test Item(s)	CAS No.	Unit(s)	MDL	A4
<b>C9-C14 PFCA, their salts</b>				
Perfluorononane Acid (PFNA), its salts <sup>^</sup>	375-95-1	mg/kg	0.010	ND
Perfluorodecane Acid (PFDA), its salts <sup>^</sup>	335-76-2	mg/kg	0.010	ND
Perfluoroundecanoic Acid (PFUnDA), its salts <sup>^</sup>	2058-94-8	mg/kg	0.010	ND
Perfluorododecanoic Acid (PFDoDA), its salts <sup>^</sup>	307-55-1	mg/kg	0.010	ND
Perfluorotridecanoic Acid (PFTTrDA), its salts <sup>^</sup>	72629-94-8	mg/kg	0.010	ND
Perfluorotetradecanoic Acid (PFTDA)	376-06-7	mg/kg	0.010	ND
Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	mg/kg	0.010	ND
Sum of C9-C14 PFCA, their salts	-	mg/kg	-	ND
<b>C9-C14 PFCA-related substances</b>				
Perfluorodecane Sulfonate (PFDS), its salts <sup>^</sup>	335-77-3	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA)	17741-60-5	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)	2144-54-9	mg/kg	0.100	ND
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	mg/kg	0.010	ND
1,1,2,2-Tetrahydroperfluorododecyl iodide (10:2 FTI)	2043-54-1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	mg/kg	0.100	ND
Perfluorononane sulfonic acid (PFNS), its salts <sup>^</sup>	68259-12-1	mg/kg	0.010	ND
Perfluoroundecane sulfonic acid (PFUnDS)	749786-16-1 / 441296-91-9 (anion)	mg/kg	0.010	ND
Perfluorododecane sulfonic acid (PFDoDS), its salts <sup>^</sup>	79780-39-5	mg/kg	0.010	ND
Perfluorotridecane sulfonic acid (PFTTrDS), its salts <sup>^</sup>	791563-89-8	mg/kg	0.010	ND
10:2 Fluorotelomerphosphatediester (10:2 diPAP)	1895-26-7	mg/kg	0.100	ND
Perfluorodecyl iodide (PFDI)	423-62-1	mg/kg	0.100	ND
Perfluorododecyl iodide (PFDoDI)	307-60-8	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS), its salts <sup>^</sup>	39108-34-4	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	mg/kg	0.100	ND



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Test Item(s)	CAS No.	Unit(s)	MDL	A4
2H,2H-Perfluorodecane Acid (H <sub>2</sub> PFDA/8:2 FTCA), its salts <sup>^</sup>	27854-31-5	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	mg/kg	0.100	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI)	2043-53-0	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC <sub>2</sub> H <sub>5</sub> ) <sub>3</sub> )	101947-16-4	mg/kg	0.100	ND
bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10-heptafluorodecyl) hydrogen phosphate (8:2 diPAP), its salts <sup>^</sup>	678-41-1	mg/kg	0.010	ND
2H,2H,3H,3H-Perfluoroundecanoic Acid (H <sub>4</sub> PFUnDA/ 8:3 FTCA), its salts <sup>^</sup>	34598-33-9	mg/kg	0.010	ND
1H,1H,2H-Heptafluorodecyl-1-decene (PFDE)	21652-58-4	mg/kg	0.100	ND
Sum of C9-C14 PFCA-related substances	-	mg/kg	-	ND
Perfluorohexadecanoic Acid (PFHxDA)	67905-19-5	mg/kg	0.010	ND
Perfluorooctadecanoic Acid (PFODA)	16517-11-6	mg/kg	0.010	ND
Pentadecanoic acid, nonacosafuoro (PFPeDA)	141074-63-7	mg/kg	0.010	ND
Perfluoroheptadecanoic acid (PFHpDA)	57475-95-3	mg/kg	0.100	ND
Perfluorononadecanoic acid (PFNDA)	133921-38-7	mg/kg	0.100	ND
Eicosanoic acid, nonatriacontafuoro (PFECA)	68310-12-3	mg/kg	0.100	ND
Perfluoro heneicosanoic acid (PFHEA)	-	mg/kg	0.100	ND

## Notes:

(1) <sup>^</sup>=Substances refer to its salts/derivative listed in below table.

Substance Name	CAS No.
<b>PFNA, its salts</b>	
Perfluorononane Acid (PFNA)	375-95-1
Perfluorononanoate Na-Salt (PFNA-Na)	21049-39-8
Nonanoic acid, heptafluoro-, ammonium salt (PFNA-NH <sub>4</sub> )	4149-60-4
Potassium perfluorononanoate (PFNA-K)	21049-38-7
Perfluorononanoate Li-Salt (PFNA-Li)	60871-92-3
Silver perfluorononanoate (PFNA-Ag)	7358-16-9
<b>PFDA, its salts</b>	
Perfluorodecane Acid (PFDA)	335-76-2
Sodium perfluorodecanoate (PFDA-Na)	3830-45-3
Perfluorodecanoate ammonium salt (PFDA-NH <sub>4</sub> )	3108-42-7
Potassium perfluorodecanoate (PFDA-K)	51604-85-4
Silver perfluorodecanoate (PFDA-Ag)	5784-82-7
Lithium perfluorodecanoate (PFDA-Li)	84743-32-8
<b>PFUnDA, its salts</b>	
Perfluoroundecanoic Acid (PFUnDA)	2058-94-8
Perfluoroundecanoic acid sodium salt (PFUnDA-Na)	60871-96-7
Ammonium perfluoroundecanoate (PFUnDA-NH <sub>4</sub> )	4234-23-5



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Potassium perfluoroundecanoate (PFUnDA-K)	30377-53-8
Calcium perfluoroundecanoate (PFUnDA-Ca)	97163-17-2
<b>PFDoDA, its salts</b>	
Perfluorododecanoic Acid (PFDoDA)	307-55-1
Ammonium tricosafuorododecanoate (PFDoDA-NH <sub>4</sub> )	3793-74-6
Sodium perfluorododecanoate (PFDoDA-Na)	60872-01-7
<b>PFTrDA, its salts</b>	
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8
Ammonium perfluorotridecanoate (PFTrDA-NH <sub>4</sub> )	4288-72-6
<b>PFDS, its salts</b>	
Perfluorodecane Sulfonate (PFDS)	335-77-3
Perfluorodecanesulfonate Na-salt (PFDS-Na)	2806-15-7
Perfluorodecanesulfonate K-salt (PFDS-K)	2806-16-8
Perfluorodecanesulfonic acid ammonium salt (PFDS-NH <sub>4</sub> )	67906-42-7
<b>PFNS, its salts</b>	
Perfluoro nonane sulfonic acid (PFNS)	68259-12-1
Sodium perfluoro-1-nonanesulfonate (PFNS-Na)	98789-57-2
ammonium nonadecafluorononanesulphonate (PFNS-NH <sub>4</sub> )	17202-41-4
Potassium perfluorononanesulfonate (PFNS-K)	29359-39-5
<b>PFDoDS, its salts</b>	
Perfluorododecanesulfonic acid (PFDoDS)	79780-39-5
Sodium perfluoro-1-dodecanesulfonate (PFDoDS-Na)	1260224-54-1
<b>PFTrDS, its salts</b>	
Perfluorotridecane sulfonic acid (PFTrDS)	791563-89-8
Sodium perfluoro-1-tridecanesulfonate (PFTrDS-Na)	174675-49-1
<b>8:2 FTS, its salts</b>	
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	39108-34-4
Potassium 1H,1H,2H,2H-Perfluorodecane sulfonate (8:2 FTS-K)	438237-73-1
Ammonium 1H,1H,2H,2H-Perfluorodecane sulfonate (8:2 FTS-NH <sub>4</sub> )	149724-40-3
Sodium 1H,1H,2H,2H-Perfluorodecane sulfonate (8:2 FTS-Na)	27619-96-1
<b>H<sub>2</sub>PFDA/8:2 FTCA, its salts</b>	
2H,2H-Perfluorodecane Acid (H <sub>2</sub> PFDA/8:2 FTCA)	27854-31-5
Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (8:2 FTCA-P(C <sub>4</sub> H <sub>9</sub> ) <sub>4</sub> )	882489-14-7
<b>8:2diPAP, its salts</b>	
Bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10-heptafluorodecyl)hydrogen phosphate (8:2diPAP)	678-41-1
Sodium bis(1H,1H,2H,2H-perfluorodecyl)phosphate (8:2diPAP-Na)	114519-85-6
<b>H<sub>4</sub>PFUnDA/ 8:3 FTCA, its salts</b>	
2H,2H,3H,3H-Perfluoroundecanoic acid (H <sub>4</sub> PFUnDA/ 8:3 FTCA)	34598-33-9
Potassium 2H,2H,3H,3H-Perfluoroundecanoate (H <sub>4</sub> PFUnDA-K)	83310-58-1

## Organic-tin compounds

Test Method: With reference to ISO 17353:2004, analysis was performed by GC-MS.



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Test Item(s)	Unit(s)	MDL	A4
Dibutyl tin(DBT)	mg/kg	0.02	ND
Tributyl tin(TBT)	mg/kg	0.02	ND
Diocetyl tin(DOT)	mg/kg	0.02	ND
Tri-n-propyltin(TPT)	mg/kg	0.02	ND
Bis(tributyltin) oxide (TBTO) ◆	mg/kg	0.02	ND

## Notes:

(1) ◆ TBTO is back calculated based on the worst-case scenario of TBT.

## Perfluorooctane sulfonates (PFOS) and its derivatives and Perfluorooctanoic acid (PFOA) and its salts

Test Method: Modified CEN/TS 15968:2010, analysis was performed by HPLC-MS or LC-MS/MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
<b>PFOS, its salts and related compounds</b>				
PFOS and its derivatives	-	mg/kg	-	ND
Perfluorooctane sulfonates (PFOS), its salts <sup>^</sup>	1763-23-1	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA)	4151-50-2	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA)	31506-32-8	mg/kg	0.010	ND
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol (N-EtFOSE)	1691-99-2	mg/kg	0.010	ND
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol (N-MeFOSE)	24448-09-7	mg/kg	0.010	ND
Perfluorooctane Sulfonamide (PFOSA), its salts <sup>^</sup>	754-91-6	mg/kg	0.010	ND
<b>PFOA, its salts</b>				
Perfluorooctanoic acid (PFOA), its salts <sup>^</sup>	335-67-1	mg/kg	0.010	ND

## Notes:

1. <sup>^</sup>=Substances refer to its salts/derivative listed in below table.

Substance Name	CAS No.
<b>PFOS, its salts &amp; derivatives</b>	
Perfluorooctane sulfonates (PFOS)	1763-23-1
Potassium Perfluorooctanesulfonate (PFOS-K)	2795-39-3
Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	29457-72-5
Sodium perfluorooctanesulfonate (PFOS-Na)	4021-47-0
Ammonium perfluorooctanesulfonate (PFOS-NH <sub>4</sub> )	29081-56-9
Perfluorooctane sulfonate diethanolamine salt (PFOS-NH <sub>2</sub> (C <sub>2</sub> H <sub>4</sub> OH) <sub>2</sub> )	70225-14-8
Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-N(C <sub>2</sub> H <sub>5</sub> ) <sub>4</sub> )	56773-42-3



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N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluorooctane-1-sulfonate (PFOS-N(C <sub>10</sub> H <sub>21</sub> ) <sub>2</sub> (CH <sub>3</sub> ) <sub>2</sub> )	251099-16-8
Perfluorooctane Sulfonyl fluoride (PFOS-F)	307-35-7
Magnesium bis(heptafluorooctanesulphonate) (PFOS-Mg)	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
<b>PFOSA, its salts</b>	
Perfluorooctane Sulfonamide (PFOSA)	754-91-6
Perfluorooctanesulfonamide lithium salt (1:1) (PFOSA-Li)	76752-79-9
<b>PFOA, its salts</b>	
Perfluorooctanoic acid (PFOA)	335-67-1
Sodium perfluorooctanoate (PFOA-Na)	335-95-5
Potassium perfluorooctanoate (PFOA-K)	2395-00-8
Silver perfluorooctanoate (PFOA-Ag)	335-93-3
Perfluorooctanoyl fluoride (PFOA-F)	335-66-0
Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
Lithium perfluorooctanoate(PFOA-Li)	17125-58-5

### SS-00259- Twenty-first Edition- Perfluorohexane acid (PFHxA) and its salts

Test Method: Modified CEN/TS 15968:2010, analysis was performed by LC-MS or LC-MS/MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Perfluorohexane Acid (PFHxA), its salts^	307-24-4	mg/kg	0.010	ND
Perfluorohexane Sulfonate (PFHxS)	355-46-4	mg/kg	0.010	ND

#### Notes:

(1) ^=Substances refer to its salts/derivative listed in below table.

Substance Name	CAS No.
<b>PFHxA, its salts &amp; derivatives</b>	
Perfluorohexane Acid (PFHxA)	307-24-4
Ammonium perfluorohexanoate (APFHx)	21615-47-4
Sodium perfluorohexanoate (PFHxA-Na)	2923-26-4
Potassium perfluorohexanoate(PFHxA-K)	3109-94-2
Perfluorohexanoyl fluoride (PFHxA-F)	355-38-4
Silver perfluorohexanoate (PFHxA-Ag)	336-02-7
Lithium perfluorohexanoate (PFHxA-Li)	90430-61-8

### AfPS GS 2019:01 PAK-Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method: With reference to AfPS GS 2019:01 PAK, analysis was performed by GC-MS.

Test Item(s)	CAS No.	Unit(s)	MDL	A4
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND



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Test Item(s)	CAS No.	Unit(s)	MDL	A4
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
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 Phenanthrene(PHE), Pyrene(PYR), Anthracene(ANT), Fluoranthene(FLT)	-	mg/kg	-	ND
Naphthalene(NAP)	91-20-3	mg/kg	0.1	ND
Sum of 15 PAHs	-	mg/kg	-	ND
Material Category	-	-	-	-

### Notes:

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

Parameter	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials coming into long-term contact with skin (more than 30s) during the intended use -in toys according to Directive 2009/48/EC or -for the use by children <sup>a,b</sup> up to 3 years of age.	Materials not covered by category 1, coming into long-term contact (more than 30s) or short-term repetitive contact <sup>c</sup> with skin during the intended or foreseeable use <sup>d</sup> .		Materials covered neither by category 1 nor by category 2, coming into short-term contact (up to 30s) with skin during the intended or foreseeable use.	
		a. use by children	b. other consumer products	a. use by children	b. other consumer products
Benzo(a)pyrene (BaP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene (BeP) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene (BaA) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1



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## Test Report

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Date: May 15, 2024

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Benzo(b)fluoranthene (BbF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene (BjF) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene (BkF)mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene (CHR) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene (DBA) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene (BPE) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(1,2,3-cd)pyrene (IPY) mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Phenanthrene (PHE), pyrene (PYR), anthracene (ANT), fluoranthene (FLT), mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene (NAP) mg/kg	< 1	< 2	< 10	< 20	< 50
<b>Sum of 15 PAHs</b>	<1	< 5	< 10	< 20	< 50

### Notes:

<sup>a</sup> A "Child" is legally defined as a person before reaching the age of 14 years.

<sup>b</sup> Use by children includes both active and passive contact by children.

<sup>c</sup> Definition "short-term repetitive contact" taken from REACH Annex XVII entry 50 amendment (Regulation (EC) No.1272/2013)

<sup>d</sup> According to the definition of the German Product Safety Act (ProdSG) (chapter 1 Article 2 No. 28) "foreseeable use" shall mean the use of a product in a manner that the person placing it on the market, has not intended, but which could be reasonably foreseeable.

### Remark:

The German committee on Product Safety (AfPS) published a new PAHs document (AfPS GS 2019:01 PAK) on April 10, 2020, which will be binding for the issue of GS mark certificate from July 1, 2020.

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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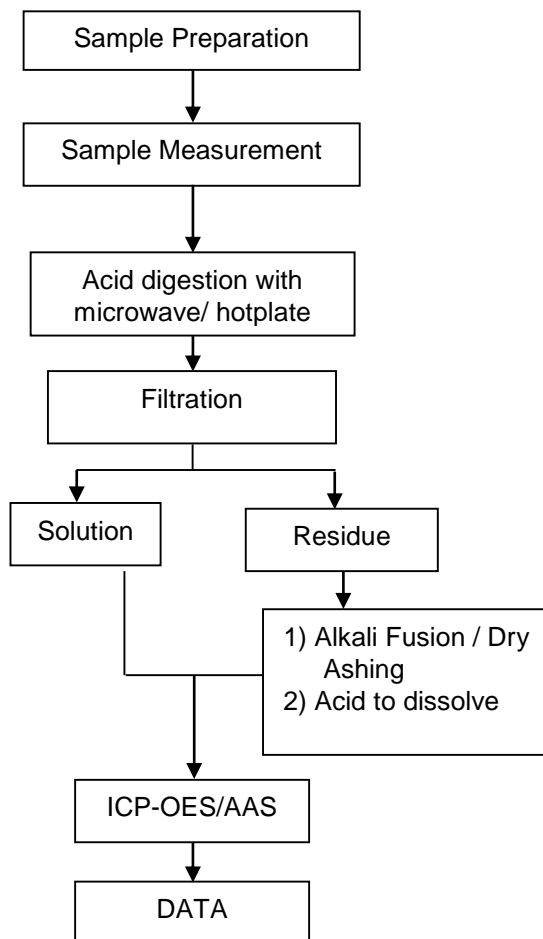
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### Elements Testing Flow Chart

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



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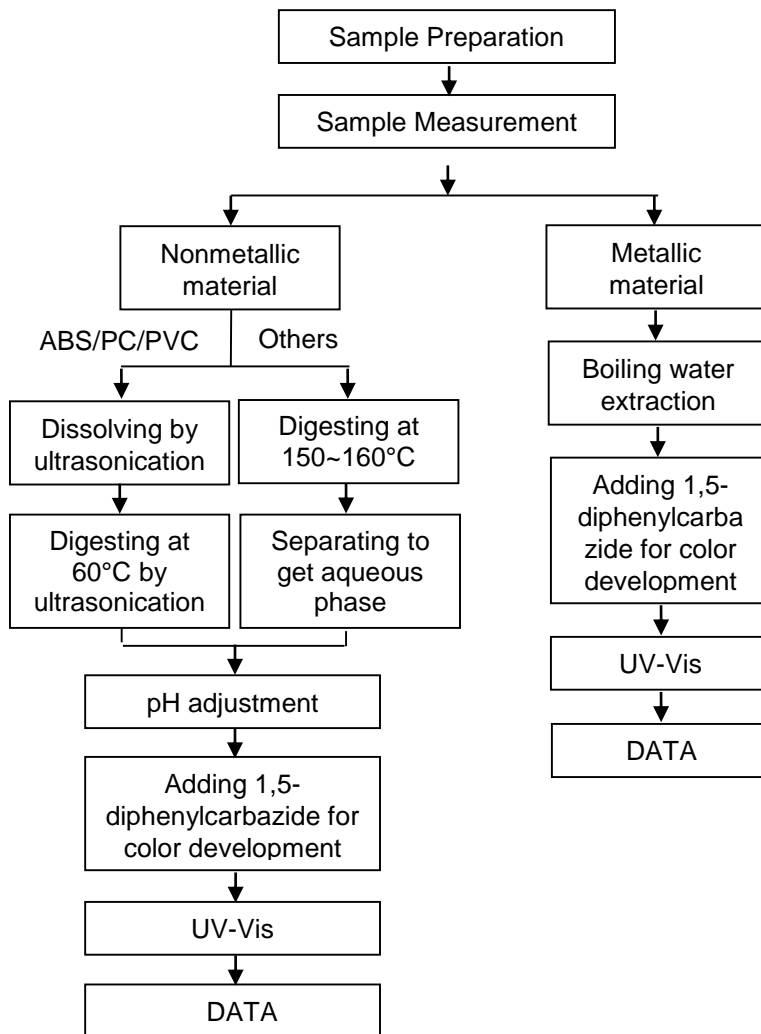
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### Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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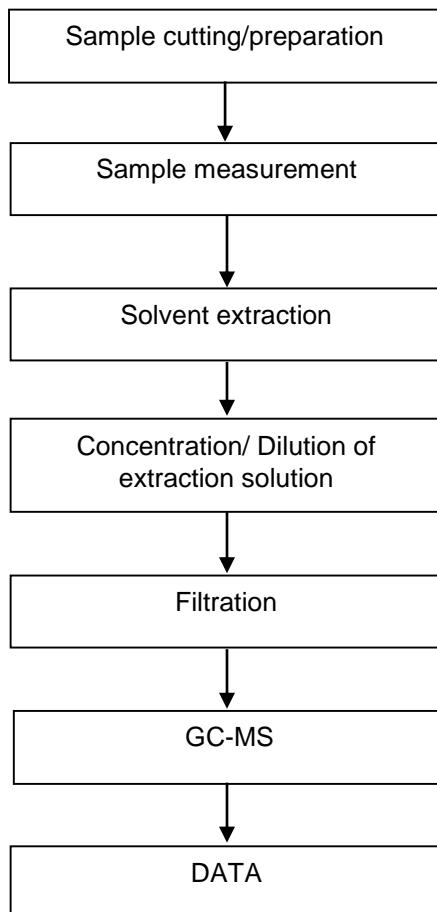
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**PBB/PBDE Testing Flow Chart**



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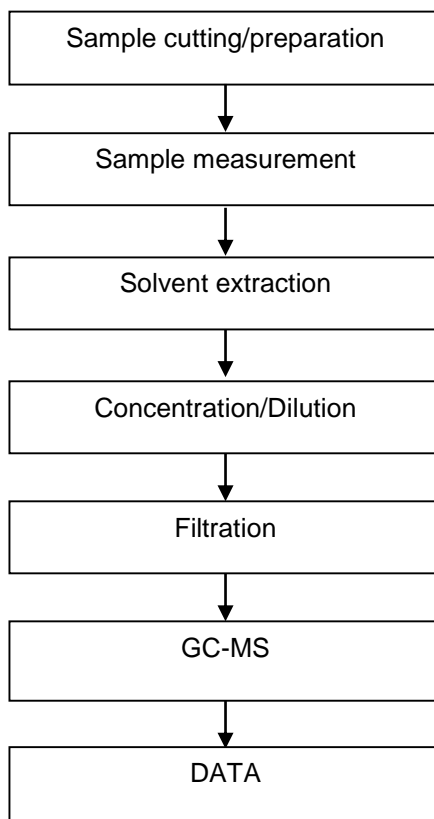
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## Phthalates Testing Flow Chart



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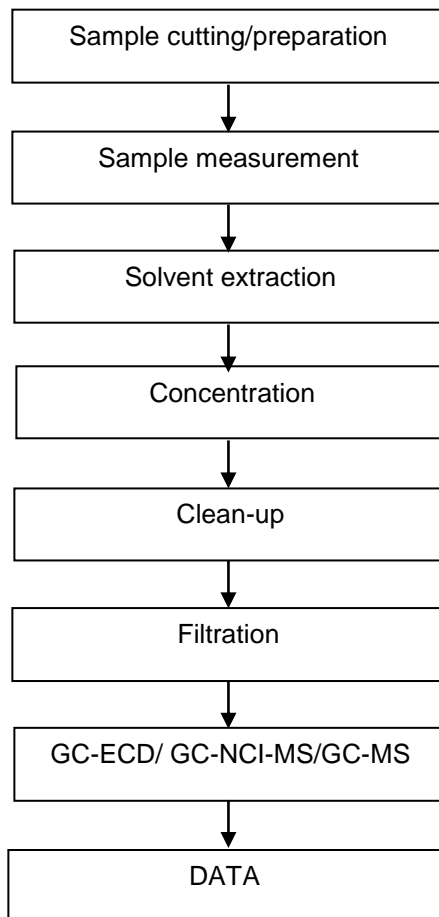
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## Chlorinated Paraffin Testing Flow Chart



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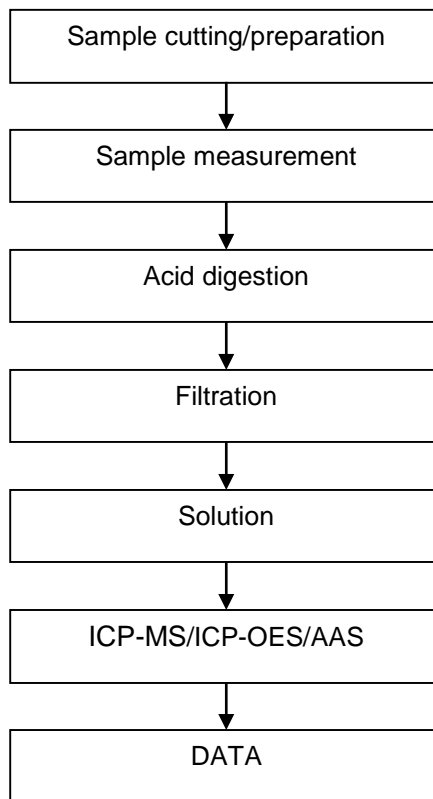
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## Elements Testing Flow Chart



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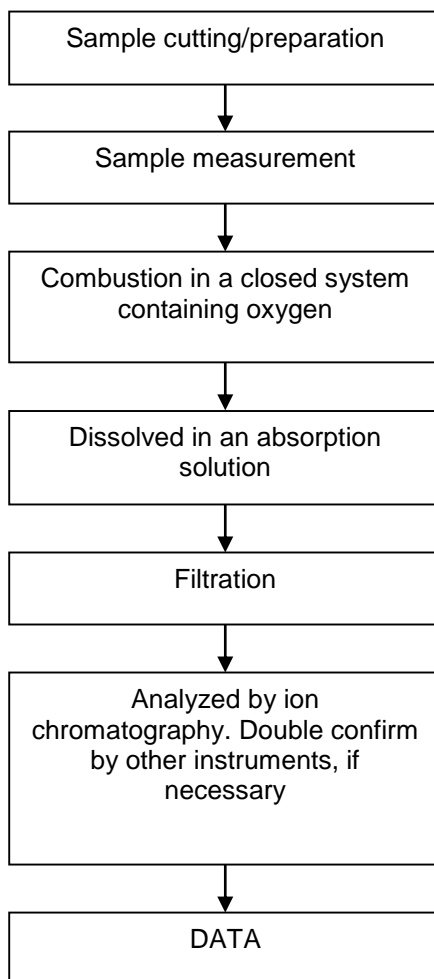
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## Halogen Testing Flow Chart



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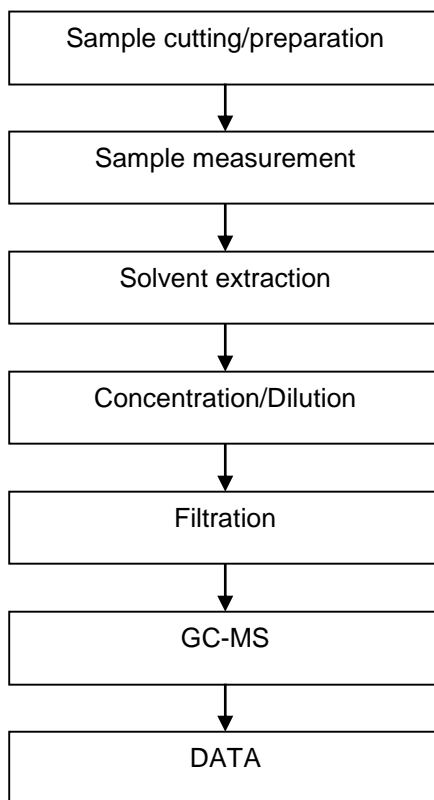
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## HBCDD Testing Flow Chart



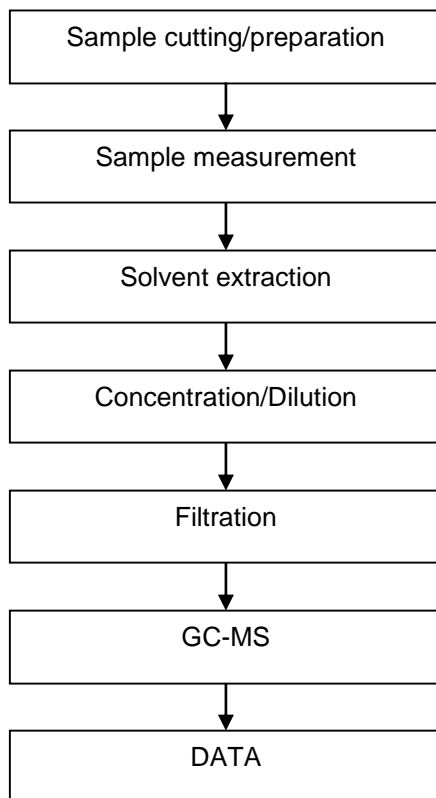
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## PCB Testing Flow Chart



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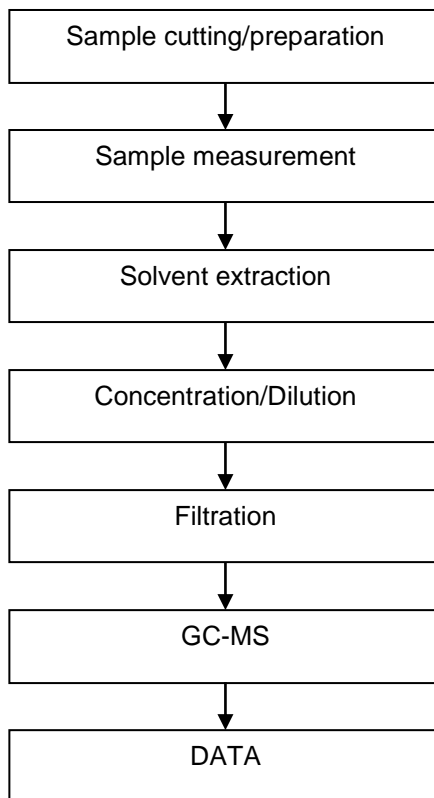
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## PCN Testing Flow Chart



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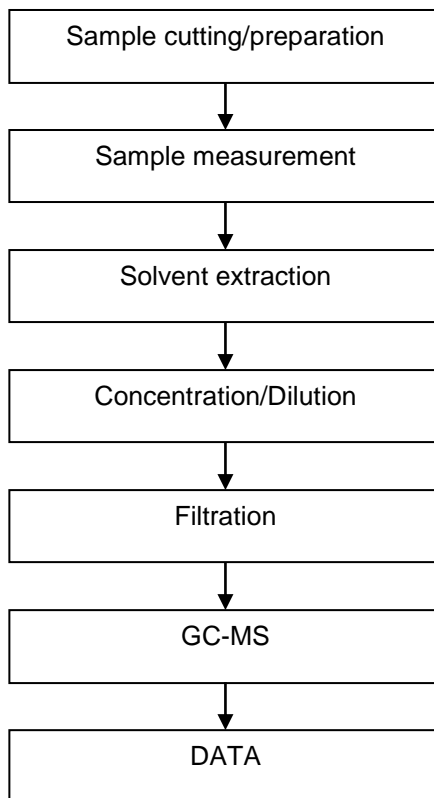
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## PCT Testing Flow Chart



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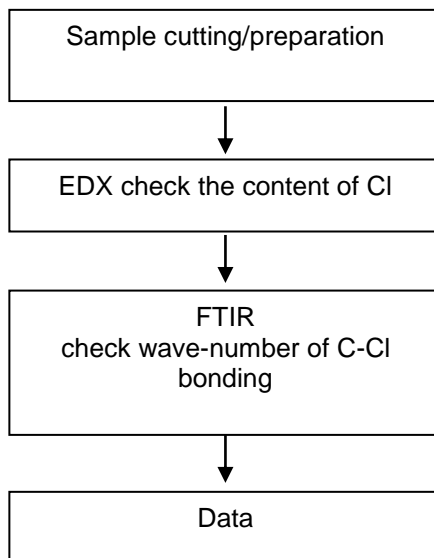
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## PVC Testing Flow Chart



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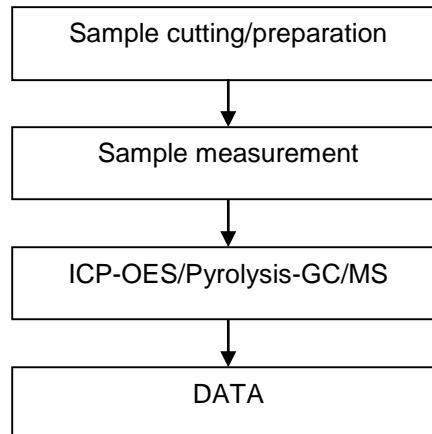
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## Red Phosphorus Testing Flow Chart



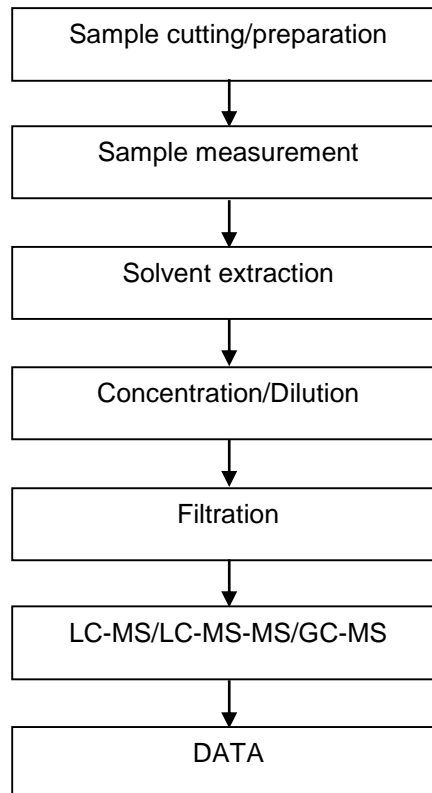
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## PFASs/ PFOS/PFOA Testing Flow Chart



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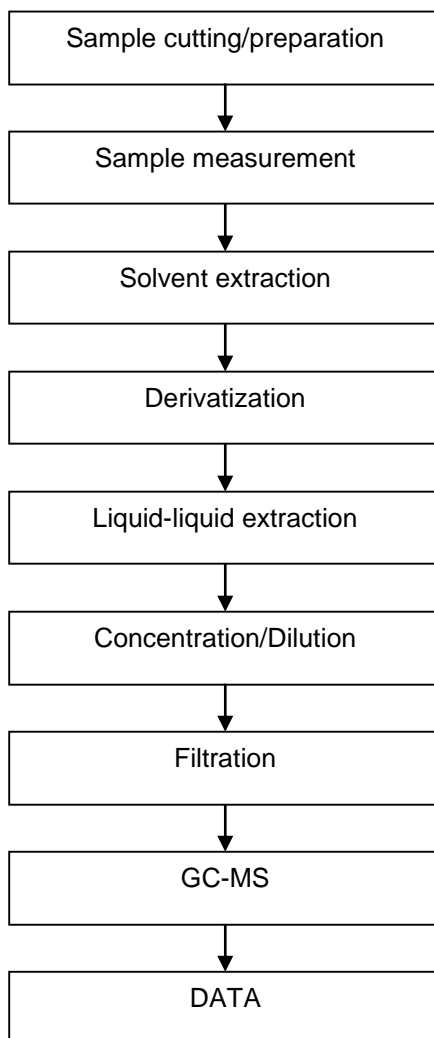
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## Organotin Testing Flow Chart



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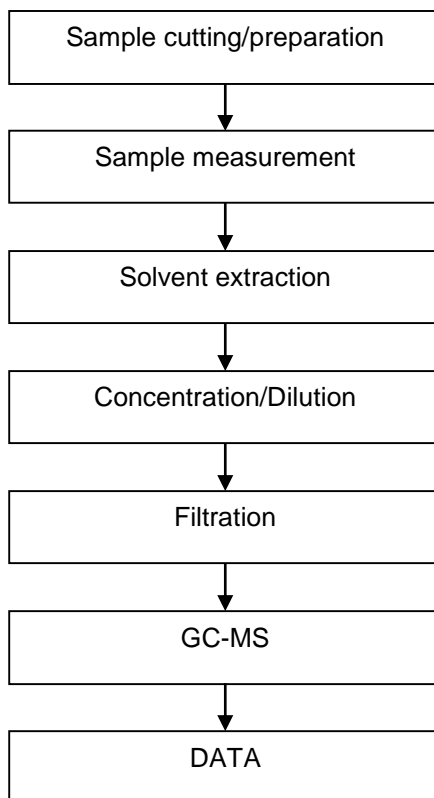
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## PAHs Testing Flow Chart



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## Test Report

No.: SHAEC24009109421

Date: May 15, 2024

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### Attachment:

EK-3600G, EK-3600GH, EK-3600GC,EK-3600GR  
 EK-3600GK, EK-3600GI,EK-3600GL,EK-3600GLR, EK-3600GLRT  
 EK-3600GHB,EK-3600GHC,EK-3600GHR,  
 EK-3600GHL, EK-3600GHJ,EK-3600GHK,  
 EK-3600GHV,EK-3600GHI,EK-3600GHQ, EK3600GHQT  
 EK-3600GHT,EK-3600GHY, EK-3600GHV-N  
 EK-3600GSA,EK-3600GKS,EK-3600GHA, EK-3600GKS-N,EK-3600GHN  
 EK-3600G-FK,EK-3600GH-CRM,EK-3600GH-J,EK-3600GM,EK-3600GHBT, EK-3600GHST,  
 EK-3600GAH3.0

EK-5600G, EK-5600GH, EK-5600GHI,EK-5600GT,EK-5600GR,EK-5600GHA, EK-5600GHV-N  
 EK-5600GK, EK-5600GDK,EK-5600GDF,EK-5600GL, EK-5600GC,EK-5600GLR,EK-5600GLRT  
 EK-5600GHC,EK-5600GHQ, EK-5600GHR, EK-5600GHV, EK-5600GHY,EK-5600GHK,  
 EK-5600GHJ, EK-5600GYG,EK-5600GLS, EK-5600GHQS  
 EK-5600GHL, EK-5600GHT,EK-5600GTR, EK-5600GTL,EK-5600GAH, EK-5600GAH3.0,  
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 EK-5600GKS,EK-5600GH-CRM,EK-5600GHR-CRM, EK-5600GHBT,EK-5600GHQT

EK-7600GS,EK-7600GL,EK-7600GH,EK-7600GK

EK-9600GMF,EK-9600GUF,EK-9600GC



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