Test Report

No.: CANEC25019768423 **Date:** Aug 19, 2025

Client Name: FOSHAN BLUE ROCKET ELECTRONICS CO.,LTD.

Client Address: NO.45 GUXIN ROAD,CHANCHENG DISTRICT,FOSHAN,GUANGDONG,P.R.C.

Sample Name: SOT-23 Semiconductor Device

Model No.: SOT-23

Client Ref. Information: SOT-323,SOD-123,SOD-323,SOD-123FL,SOT-89,SOP-8,SOP-7,ESOP-8,SOT-363,SOT-223,SOT23-6,SOT23-5,SOT23-3,SOT-523,SOD-523,TO-92,TO-92LM，TO-126F,TO-126,TO-277,TO-252,TO-251,TO-263,TO-262,TO-220,TO-220F,TO-220FL，TO-3P,TO-3PH,TO-3PL,TO-3PN,TSOT23-6，PDFN3×3,PDFN5×6，DFN8×8，PDFN3×2，HTSS0P-16,DFN0603,DFN1×1,DFN2×2,DFN3×3,DFN1006,DFN1.6×1.2,DFN3×2,DFN5×4,QFN3×3,QFN4×4,UMSB,SMC,GBU,SMA,GBJ,SMB ,MBS,SMBF ,KBP,SMAF ,MBF,ABS,ABF,UMB,KBP,DO-41,DBF ， DBS ， KBJ， GBP， TOLL-8L,DFN9*6,DFN5*6,QFN2*2

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

SGS Job No.: GZP25-023039

Sample Receiving Date: Aug 12, 2025

Testing Period: Aug 12, 2025 ~ Aug 18, 2025

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
European Regulation POPs (EU) 2019/1021 Annex I and its amendments	Pass

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Allie Chen

Allie Chen
Approved Signatory

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN25-0197684-0001.C001	“SOT-23 Semiconductor Device”

Remarks:

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

European Regulation POPs (EU) 2019/1021 Annex I and its amendments

Test Method: SGS In-House method, analysis was performed by GC-MS or GC-MS/MS, GC-NCI-MS, GC-ECD and HPLC-DAD/MS or LC-MS/MS.

Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
Tetrabromodiphenyl ether	40088-47-9 and others	-	mg/kg	5	ND
Pentabromodiphenyl ether	32534-81-9 and others	-	mg/kg	5	ND
Hexabromodiphenyl ether	36483-60-0 and others	-	mg/kg	5	ND
Heptabromodiphenyl ether	68928-80-3 and others	-	mg/kg	5	ND
Decabromodiphenyl ether (decaBDE)	1163-19-5	-	mg/kg	5	ND
Sum of PBDEs*	-	500	mg/kg	-	ND
Perfluorooctane sulfonic acid (PFOS), its salts^	1763-23-1	0.025	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^	754-91-6	-	mg/kg	0.010	ND
Perfluorooctane sulfonamidoacetic Acid (FOSAA), its salts^	2806-24-8	-	mg/kg	0.010	ND
N-Methylperfluoro-1-octanesulfonamidoacetic Acid (N-MeFOSAA), its salts^	2355-31-9	-	mg/kg	0.010	ND
N-Ethylperfluorooctane sulfonamidoacetic Acid (N-EtFOSAA), its salts^	2991-50-6	-	mg/kg	0.010	ND
Sum of PFOS-related compounds	-	1	mg/kg	-	ND

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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
DDT(1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane)	50-29-3	Prohibited	mg/kg	0.05	ND
Chlordane	57-74-9	Prohibited	mg/kg	0.05	ND
Hexachlorocyclohexanes, including lindane	58-89-9, 319-84-6, 319-85-7, 608-73-1	Prohibited	mg/kg	0.05	ND
Dieldrin	60-57-1	Prohibited	mg/kg	0.05	ND
Endrin	72-20-8	Prohibited	mg/kg	0.05	ND
Heptachlor	76-44-8	Prohibited	mg/kg	0.05	ND
Endosulfan	115-29-7, 959-98-8, 33213-65-9	Prohibited	mg/kg	0.05	ND
Hexachlorobenzene	118-74-1	10	mg/kg	5	ND
Chlordecone	143-50-0	Prohibited	mg/kg	0.2	ND
Aldrin	309-00-2	Prohibited	mg/kg	0.05	ND
Pentachlorobenzene	608-93-5	Prohibited	mg/kg	5	ND
Polychlorinated biphenyls (PCBs)	1336-36-3 and others	Prohibited	mg/kg	0.2	ND
Mirex	2385-85-5	Prohibited	mg/kg	0.05	ND
Toxaphene	8001-35-2	Prohibited	mg/kg	0.2	ND
Hexabromodiphenyl	36355-01-8	Prohibited	mg/kg	5	ND
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	134237-50-6, 134237-51-7, 134237-52-8, 25637-99-4, 3194-55-6	75	mg/kg	20	ND
Hexachlorobutadiene	87-68-3	Prohibited	mg/kg	5	ND
Pentachlorophenol (PCP) and its salts and esters	87-86-5 and others	5	mg/kg	0.5	ND
Polychlorinated naphthalenes (PCNs)	70776-03-3 and others	Prohibited	mg/kg	5	ND
Alkanes,C_{10}-C_{13}, chloro (short chain-chlorinated paraffins) (SCCPs)	85535-84-8 and others	1500	mg/kg	50	ND
Perfluorooctanoic acid (PFOA), its salts^	335-67-1	0.025	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS), its salts^	39108-34-4	1	mg/kg	0.010	ND
Methyl perfluorooctanoate (Me-PFOA)	376-27-2	1	mg/kg	0.200	ND
Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	1	mg/kg	0.200	ND

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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	1	mg/kg	0.100	ND
Perfluoro-1-iodooctane (PFOI)	507-63-1	1	mg/kg	0.200	ND
2H,2H-Perfluorodecane Acid (8:2 FTCA), its salts^	27854-31-5	1	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7	1	mg/kg	0.100	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI)	2043-53-0	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2 FTSi(OC_2H_5)$_3$)	101947-16-4	1	mg/kg	0.100	ND
bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl) hydrogen phosphate (8:2 diPAP) , its salts ^	678-41-1	1	mg/kg	0.010	ND
2H,2H,3H,3H-Perfluoroundecanoic Acid (8:3 FTCA), its salts^	34598-33-9	1	mg/kg	0.010	ND
1H,1H,2H-Heptadecafluoro-1-decene (PFDE)	21652-58-4	1	mg/kg	0.100	ND
3-Perfluoroheptyl propanoic acid (7:3 FTCA)	812-70-4	1	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluorodecyltrichlorosilane (8:2 FTSiCl_3)/ 1H,1H,2H,2H-Perfluorodecyltrimethoxysilane (8:2 FTSi(OCH_3)$_3$)	78560-44-8 /83048-65-1	1	mg/kg	0.100	ND
2H-Perfluoro-2-decenoic acid (8:2 FTUCA)	70887-84-2	1	mg/kg	0.010	ND
6:8 Perfluorophosphinic acid (6:8 PFPi)	610800-34-5	1	mg/kg	0.010	ND
8:8 Perfluorophosphinic acid (8:8 PFPi), its salts^	40143-79-1	1	mg/kg	0.010	ND
1H,1H,2H,2H-perfluorodecyl acetate (8:2 FTOAc)	37858-04-1	1	mg/kg	0.100	ND
8:2 Fluorotelomer phosphate monoester (8:2 monoPAP), its salts^	57678-03-2	1	mg/kg	0.100	ND
Sum of PFOA-related compounds	-	1	mg/kg	-	ND
Dicofol	115-32-2	Prohibited	mg/kg	0.05	ND
Perfluorohexanesulfonic acid (PFHxS), its salts^	355-46-4	0.025	mg/kg	0.010	ND
N-Methylperfluoro-1-hexanesulfonamide (N-Me-PFHxSA)	68259-15-4	1	mg/kg	0.010	ND
Perfluorohexane sulfonamide (PFHxSA)	41997-13-1	1	mg/kg	0.010	ND
N-[3-(dimethylamino)propyl] tridecafluorohexanesulphonamide (N-AP-FHxSA)	50598-28-2	1	mg/kg	0.010	ND

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Test Item(s)	CAS No.	Limit	Unit(s)	MDL	A1
2-[methyl[(tridecafluorohexyl) sulphonyl]amino]ethyl acrylate)) (N-MeFHSEA)	67584-57-0	1	mg/kg	0.200	ND
2-Propenoic acid, 2-methyl-, 2-[methyl[(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexyl)sulfonyl]amino]ethyl ester	67584-61-6	1	mg/kg	0.200	ND
2-Propenoic acid, 2-methyl-, 2-[ethyl[(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexyl)sulfonyl]amino]ethyl ester	67906-70-1	1	mg/kg	0.200	ND
1-Hexanesulfonamide, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-N-(2-hydroxyethyl)-N-methyl-(MeFHxSE)	68555-75-9	1	mg/kg	0.010	ND
Glycine, N-ethyl-N-[(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexyl)sulfonyl] (EtFHxSAA), its salts^	68957-32-4	1	mg/kg	0.010	ND
Sum of PFHxS-related compounds	-	1	mg/kg	-	ND
Methoxychlor	72-43-5 and others	0.01	mg/kg	0.01	ND
2-(2H-benzotriazol-2-yl)-4,6-di-tert-pentylphenol (UV-328)	25973-55-1	100	mg/kg	1	ND
Conclusion					**Pass**

Notes:

(1) Substances in Annex I of European Regulation POPs (EU) 2019/1021 Annex I are prohibited in preparations and constituents of articles unless otherwise specified.

(2) Exemptions: Tetrabromodiphenyl ether, pentabromodiphenyl ether, hexabromodiphenyl ether, heptabromodiphenyl ether and decabromodiphenyl ether are ≤ 10 mg/kg for substances, and Sum of tetra-, penta-, hexa-, hepta- and decaBDE ≤500 mg/kg for mixtures or articles, this restriction is subject to subject to review and assessment by the European by 16 July 2021.

(3) Exemption: Tetrabromodiphenyl ether, pentabromodiphenyl ether, hexabromodiphenyl ether, heptabromodiphenyl ether and decabromodiphenyl ether in electrical and electronic equipment within the scope of Directive 2011/65/EU are exempted.

(4) Exemption: Alkanes C10-13, chloro (short chain-chlorinated paraffins) (SCCPs) < 1.0% (w/w) in preparation, <0.15% (w/w) for articles.

(5) Exemptions: HBCDD no more than 75 mg/kg as an unintentional trace contaminant in substances, mixtures, articles or flame-retarded parts of articles, the exemptions laid down shall be reviewed and assessed by the Commission by 1 January 2026.

(6) Sum of PBDEs* Means Sum of Tetrabromodiphenyl ether, Pentabromodiphenyl ether, Hexabromodiphenyl ether, Heptabromodiphenyl ether and Decabromodiphenyl ether.

(7) According to Regulation (EU) 2025/718 amending Regulation (EU) 2019/1021 Annex I, the concentrations of PFOS or any of its salts equal to or below 0,025 mg/kg (0,0000025 % by weight) and all PFOS-related compounds equal to or below 1 mg/kg (0,0001 % by weight) where they are present in substances, mixtures or in articles. Date of applicability: From 3 December 2025.

(8) ^=Substances of PFOS, PFOA and PFOA-related compounds refer to their salts/derivatives listed in below

table.

Substance Name	CAS No.
PFOS, its salts & derivatives	
Perfluorooctane sulfonic acid (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_4)	29081-56-9
Perfluorooctane sulfonate diethanolamine salt (PFOS-$NH_2(C_2H_4OH)_2$)	70225-14-8
Perfluorooctanesulfonic acid,tetraethylammonium salt (PFOS-$N(C_2H_5)_4$)	56773-42-3
N-decyl-N,N-dimethyldecan-1-aminium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctane-1-sulfonate (PFOS-$N(C_{10}H_{21})_2(CH_3)_2$)	251099-16-8
TetrabutylAmmonium perfluorooctanesulfonate (PFOS-$N(C_4H_9)_4$)	111873-33-7
Perfluorooctane Sulfonyl fluoride (PFOS-F)	307-35-7
Magnesium bis(heptadecafluorooctanesulphonate) (PFOS-Mg)	91036-71-4
Piperidine 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluorooctanesulfonate	71463-74-6
Perfluorooctanesulfonate	45298-90-6
Triethylammonium perfluorooctane sulfonate (PFOS-$N(C_2H_5)_3$)	54439-46-2
Tetramethylammonium perfluorooctane sulfonate (PFOS-$N(CH_3)_4$)	56773-44-5
N,N,N-Tripropylpentan-1-aminium heptadecafluorooctane-1-sulfonate (PFOS-$N(C_3H_7)_3(C_5H_{11})$)	56773-56-9
N,N-Dibutyl-N-methylbutan-1-aminium heptadecafluorooctane-1-sulfonate (PFOS-$N(C_4H_9)_3(CH_3)$)	124472-68-0
Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with perfluoro-1-octanesulfonic acid (1:1)	213740-80-8
Diphenyl(2,4,6-trimethylphenyl)sulfonium perfluoro-1-octanesulfonate	258341-99-0
1-Hexadecylpyridinium perfluoro-1-octanesulfonate	334529-63-4
N,N,N-Triethyldecan-1-aminium heptadecafluorooctane-1-sulfonate	773895-92-4
Tetrabutylphosphonium perfluorooctane sulfonate (PFOS-$P(C_4H_9)_4$))	2185049-59-4
Perfluorooctanesulfonic acid diethylamine salt (PFOS-$C_4H_{11}N$)	2205029-08-7
heptyldimethyl{2-[(2-methylprop-2-enoyl)oxy]ethyl}azanium heptadecafluorooctane-1-sulfonate (PFOS-$C_{15}H_{30}NO_2$)	1203998-97-3
Perfluorooctane sulfonic anhydride (PFOSAN)	423-92-7
Perfluoro-1-octanesulfonyl chloride (PFOS-Cl)	423-60-9
FOSAA, its salts	
Perfluorooctane sulfonamidoacetic Acid (FOSAA)	2806-24-8
N-[(Perfluorooctyl)sulfonyl]glycinate (FOSAA(anion))	909405-47-6

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N-[(Perfluorooctyl)sulfonyl]glycine potassium salt (1:1) (FOSAA-K)	75260-69-4
N-[(Perfluorooctyl)sulfonyl]glycine sodium salt (1:1) (FOSAA-Na)	115716-87-5
N-MeFOSAA, its salts	
N-Methylperfluoro-1-octanesulfonamidoacetic Acid (N-MeFOSAA)	2355-31-9
2-(N-Methylperfluorooctanesulfonamido)acetate (N-Me-FOSAA(anion))	909405-48-7
Potassium N-((heptadecafluorooctyl)sulphonyl)-N-methylglycinate (N-Me-FOSAA-K)	70281-93-5
N-EtFOSAA, its salts	
N-Ethylperfluorooctane sulfonamidoacetic Acid (N-EtFOSAA)	2991-50-6
Glycine, N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]-, potassium salt (N-Et-FOSAA-K)	2991-51-7
2-(N-Ethyl-perfluorooctanesulfonamido)acetate (N-Et-FOSAA(anion))	909405-49-8
Ammonium 2-(N-ethylperfluorooctanesulfonamido)acetate (N-Et-FOSAA-NH_4)	2991-52-8
Sodium 2-(N-ethylperfluorooctanesulfonamido)acetate (N-Et-FOSAA-Na)	3871-50-9
PFOSA, its salts	
Perfluorooctane Sulfonamide (PFOSA)	754-91-6
Perfluorooctanesulfonamide lithium salt (1:1) (PFOSA-Li)	76752-79-9
Perfluorooctanesulfonamide Sodium salt (1:1) (PFOSA-Na)	76752-78-8
Perfluorooctanesulfonamide Potassium salt (1:1) (PFOSA-K)	76752-70-0
Perfluorooctanesulfonamide Ammonium salt (1:1) (PFOSA-NH_4)	76752-72-2
Heptadecafluorooctane-1-sulphonamide, compound with triethylamine (1:1) (PFOSA-$C_6H_{15}N$)	76752-82-4
PFOA, its salts & derivatives	
Perfluorooctanoic acid (PFOA)	335-67-1
Sodium perfluorooctanoate (PFOA-Na)	335-95-5
Potassium perfluorooctanoate (PFOA-K)	2395-00-8
Silver perfluorooctanote (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
Cobalt perfluorooctanoate (PFOA-Co)	35965-01-6
Cesium perfluorooctanoate (PFOA-Cs)	17125-60-9
Octanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, chromium(3+) (PFOA-Cr(3+))	68141-02-6
Pentadecafluorooctanoic acid--piperazine (2/1) (PFOA-NH($C_4H_{10}N$))	423-52-9
Pentadecafluorooctanoate (anion)	45285-51-6
Perfluorooctanoic Anhydride	33496-48-9
N,N,N-Triethylethanaminium perfluorooctanoate	98241-25-9
Perfluorooctanoate N,N,N-Trimethylmethanaminium	32609-65-7

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Tetrapropylammonium perfluorooctanoate	277749-00-5
Potassium pentadecafluorooctanoate--water (1/1/2) (PFOA-$K(H_2O)_2$)	98065-31-7
Perfluorooctanoic acid compd. with ethanamine (1:1) (PFOA-C_2H_7N)	1376936-03-6
Pentadecafluorooctanoic acid--pyridine (1/1) (PFOA-C_5H_5N)	95658-47-2
pentadecafluorooctanoic acid- 1-phenylpiperazine(1:1) (PFOA-$C_{10}H_{14}N_2$)	1514-68-7
N,N,N-Trimethyloctan-1-aminium pentadecafluorooctanoate (PFOA-$C_{11}H_{26}N$)	927835-01-6
Pentadecafluorooctanoyl chloride (PFOA-Cl)	335-64-8
8:2 FTS, its salts	
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	39108-34-4
Potassium 1H,1H,2H,2H-Perfluorodencane sulfonate (8:2 FTS-K)	438237-73-1
Ammonium 1H,1H,2H,2H-Perfluorodencane sulfonate (8:2 FTS-NH_4)	149724-40-3
Sodium 1H,1H,2H,2H-Perfluorodencane sulfonate (8:2 FTS-Na)	27619-96-1
2-(Perfluorooctyl)ethane-1-sulfonate (8:2 FTS(anion))	481071-78-7
2-(Perfluorooctyl)ethanesulfonyl chloride (8:2 FTS-Cl)	27619-90-5
8:2 FTCA, its salts	
2H,2H-Perfluorodecane Acid (8:2 FTCA)	27854-31-5
Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (8:2 FTCA-$P(C_4H_9)_4$)	882489-14-7
8:2diPAP, its salts	
Bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl) hydrogen phosphate (8:2diPAP)	678-41-1
Sodium bis(1H,1H,2H,2H-perfluorodecyl)phosphate (8:2diPAP-Na)	114519-85-6
Bis(2-hydroxyethyl)ammonium bis((perfluorooctyl)ethyl) hydrogen phosphate	57677-97-1
Bis[2-(perfluorooctyl)ethyl] phosphate ammonium salt (8:2 diPAP-NH_4)	93776-20-6
8:2 Fluorotelomer phosphate diester ion (1-)	1411713-91-1
8:3 FTCA, its salts	
2H,2H,3H,3H-Perfluoroundecanoic acid (8:3 FTCA)	34598-33-9
Potassium 2H,2H,3H,3H-Perfluoroundecanoate (8:3 FTCA-K)	83310-58-1
2H,2H,3H,3H-Perfluoroundecanoate (8:3 FTCA-Li)	67304-23-8
8:8 PFPi, its salts	
8:8 Perfluorophosphinic acid (8:8 PFPi)	40143-79-1
Bis(heptadecafluorooctyl)phosphinic Acid Sodium Salt (8:8 PFPi-Na)	500776-69-2
Bis(perfluorooctyl) phosphinic acid erbium(3+) salt (8:8 PFPi-Er)	500776-70-5
Bis(perfluorooctyl) phosphinic acid ytterbium(3+) salt (8:8 PFPi-Yb)	500776-71-6
8:2 monoPAP, its salts	
8:2 Fluorotelomer phosphate monoester (8:2 monoPAP)	57678-03-2

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8:2 Fluorotelomer diammonium phosphate	93857-44-4
Disodium 1H,1H,2H,2H-perfluorodecylphosphate	438237-75-3
Ammonium bis[2-(perfluorohexyl)ethyl] phosphate	1764-95-0
3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctanol phosphate ammonium salt	92401-44-0
Sodium 1H,1H,2H,2H-perfluorooctylphosphate	144965-22-0
Monopotassium monoperfluorohexyl ethylphosphate	150033-28-6
Ammonium 2-(perfluorohexyl)ethyl hydrogen phosphate	2353-52-8

(9) PFHxS, its salts and PFHxS related compounds:

(a) Commission Delegated Regulation (EU) 2023/1608 of May 30, 2023, amending Annex I to Regulation (EU) 2019/1021 Annex I as regards the listing of perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds, Official Journal of the EU, August 8, 2023.

Substance	**Scope**	**Specific exemption on intermediate use or other specification**
PFHxS and its salts	Substances, mixtures or articles	≤ 0.025 mg/kg
PFHxS-related compounds	Substances, mixtures or articles	≤ 1 mg/kg (individual or sum of all)
PFHxS, its salts and PFHxS-related compounds	Concentrated firefighting foam	≤ 0.1 mg/kg (to be reviewed within three years after entry into force of this amending regulation with a view to lower the limit)

(b) The tested perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds in this report comes from the “Listed under the POPs Regulation” of ECHA, please find more information via below weblink: List of substances proposed as POPs - ECHA (europa.eu)

(c) ^=Substances of PFHxS refer its salts/derivative listed in below table.

PFHxS, its salts & derivatives	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4
Perfluorohexanesulfonate Na-salt (PFHxS-Na)	82382-12-5
Perfluorohexanesulfonate K-salt (PFHxS-K)	3871-99-6
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, lithium salt (1:1) (PFHxS-Li)	55120-77-9
Ammonium perfluorohexane-1-sulphonate (PFHxS-NH_4)	68259-08-5
Phosphonium, triphenyl(phenylmethyl)-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-BTPP)	1000597-52-3
N,N,N-tributylbutan-1-aminium tridecafluorohexane-1-sulfonate(PFHxS-$N(C_4H_9)_4$)	108427-54-9
N,N,N-triethylethanaminium tridecafluorohexane-1-sulfonate(PFHxS-$N(C_2H_5)_4$)	108427-55-0
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. With pyrrolidine (1:1) (PFHxS-NC_4H_9)	1187817-57-7
Ethanaminium, N-[4-[[4-(diethylamino)phenyl][4-(ethylamino)-1-	1310480-24-0

naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-ethyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (Calculated in terms of PFHxS) (PFHxS-$(NC_{10}H_{14})_3C_5H_4$)	
Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(ethylamino)-1-naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-$(NC_8H_{10})_2C_{13}H_{12}$)	1310480-27-3
Methanaminium, N-[4-[[4-(dimethylamino)phenyl][4-(phenylamino)-1-naphthalenyl]methylene]-2,5-cyclohexadien-1-ylidene]-N-methyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-$(NC_8H_{10})_2C_{17}H_{12}$)	1310480-28-4
Beta-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-)(1:1) (PFHxS-$C_{42}H_{70}O_{35}$)	1329995-45-0
Gamma-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid ion(1-)(1:1)(PFHxS-$C_{48}H_{80}O_{40}$)	1329995-69-8
Sulfonium, triphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (TPS-PFHxS)	144116-10-9
Quinolinium, 1-(carboxymethyl)-4-[2-[4-[4-(2,2-diphenylethenyl)phenyl]-1,2,3,3a,4,8b-hexahydrocyclopent[b]indol-7-yl]ethenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)(PFHxS-$C_{44}H_{37}N_2O_2$)	1462414-59-0
Iodonium, diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-$I(C_6H_5)_2$)	153443-35-7
Methanaminium, N,N,N-trimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (PFHxS-TMA)	189274-31-5
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd.with 2-methyl-2-propanamine (1:1)(PFHxS-$NH_2(CH_3)_3$)	202189-84-2
Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)(PFHxS-$I(C_6H_4)_2(C_4H_9)_2$)	213740-81-9
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, gallium salt (9CI)(PFHxS-Ga)	341035-71-0
Sulfonium, bis(4-methylphenyl)phenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)(PFHxS-$S(C_7H_7)_2C_6H_5$)	341548-85-4
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, scandium(3+) salt (3:1)(PFHxS-Sc)	350836-93-0
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, neodymium(3+) salt (3:1)(PFHxS-Nd)	41184-65-0
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, yttrium(3+) salt (3:1)(PFHxS-Y)	41242-12-0
Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:2)(PFHxS-$S_3(C_6H_5)_4(C_6H_4)_2$)	421555-73-9
Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with	421555-74-0

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1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic(PFHxS-I $(C_6H_4)_2(C_5H_{11})$	
Perflurohexane sulphonyl fluoride(PFHxS-F)	423-50-7
Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)(PFHxS-S$(C_6H_4)_3(C_4H_9)_3$)	425670-70-8
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, zinc salt (PFHxS-Zn)	70136-72-0
Tridecafluorohexanesulphonic acid, compound with 2,2'-iminodiethanol (1:1)(PFHxS-NH$(C_2H_5O)_2$)	70225-16-0
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, compd. with N,N-diethylethanamine (1:1)(PFHxS-N$(C_2H_5)_3$)	72033-41-1
Iodonium, bis[(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1) (9CI) (PFHxS-I$(C_6H_4)_2(C_4H_9)_2$)	866621-50-3
Sulfonium, (4-methylphenyl)diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)(PFHxS-S$(C_6H_5)_2C_7H_7$)	910606-39-2
Sulfonium, [4-[(2-methyl-1-oxo-2-propen-1-yl)oxy]phenyl]diphenyl-, 1,1,2,2,3,3,4,4,5,5,6,6,67tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S$(C_6H_5)_28_{10}H_9O_2$)	911027-68-4
1-Hexanesulfonic acid, 9,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, cesium salt (1:1) (PFHxS-Cs) (PFHxS-Cs)	92011-17-1
Dibenzo[k,n][1,4,7,10,13]tetraoxathiacyclopentadecinium, 19-[4-(1,1-dimethylethyl)phenyl]-6,7,9,10,12,13-hexahydro-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1) (PFHxS-S$C_{28}H_{31}O_4$)	928049-42-7
Perfluorohexylsulfonyl chloride (PFHxS-Cl)	55591-23-6
Sulfonium, [4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonic acid (1:1), polymer with 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (PFHxS-Sulfonium, propenoate polymer)	911027-69-5
Perfluorohexane sulfonate (anion)	108427-53-8
Tetrabutylphosphonium perfluorohexane sulfonate (PFHxS-P $(C_4H_9)_4$))	2310194-12-6
EtFHxSAA, its salts	
Glycine, N-ethyl-N-[(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexyl)sulfonyl] (EtFHxSAA)	68957-32-4
Potassium N-ethyl-n-[(tridecafluorohexyl)sulfonyl]glycinate (EtFHxSAA-K)	67584-53-6
Sodium N-ethyl-N-((tridecafluorohexyl)sulphonyl)glycinate (EtFHxSAA-Na)	68555-70-4

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(10)List of PFAS hydrolysed ^^ when extracted by methanol/sodium hydroxide solution in below table:

Substances Name	CAS No.
N-EtFOSE, its possible source	
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)	1691-99-2
2-(N-ethylperfluorooctanesulfamido)ethyl acrylate (EtFOSAC) ^^	423-82-5
PFOA, its possible source	
Perfluorooctanoic Acid (PFOA)	335-67-1
Ethyl perfluorooctanoate (Et-PFOA) ^^	3108-24-5
Methyl perfluorooctanoate (Me-PFOA) ^^	376-27-2
8:2 FTOH, its possible source	
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH)	678-39-7
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) ^^	1996-88-9
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) ^^	27905-45-9
1H,1H,2H,2H-perfluorodecyl acetate (8:2 FTOAc) ^^	37858-04-1
MeFHxSE, its possible source	
1-Hexanesulfonamide, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-N-(2-hydroxyethyl)-N-methyl-(MeFHxSE)	68555-75-9
2-Propenoic acid, 2-methyl-, 2-[methyl[(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexyl)sulfonyl]amino]ethyl ester ^^	67584-61-6
2-[methyl[(tridecafluorohexyl) sulphonyl]amino]ethyl acrylate)) (N-MeFHSEA) ^^	67584-57-0

(11)Compound is hydrolysed and releases related PFAS substances when extracted by methanol/sodium hydroxide solution.Since the listed PFAS will be degraded to unknown compounds and/or can not be analysed by extraction with methanol/NaOH solution, only extractable content can be detected and quantified with solvent extraction methods .The results received by solvent extraction with subsequent GC-MS or GC-MS/MS or HPLC-MS/MS analysis reflect only extractable PFAS

(12)Without prejudice to Directive 96/59/EC, articles already in use at the time of the entry into force of this Regulation are allowed to be used. Member States shall identify and remove from use equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) containing more than 0,005 % PCBs and volumes greater than 0,05 dm^3, as soon as possible but no later than 31 December 2025.

(13)According to European Regulation POPs (EU) 2025/843 amending Regulation (EU) 2019/1021 Annex I，To reinforce the application and enforcement of the POP Recast Regulation, an unintentional trace contaminant (UTC) value has been set for UV-328 when the chemical is in substances, mixtures and articles. This UTC limit value will be strengthened over a four-year period.

Substance	Scope	Specific exemption on intermediate use or other specifications	Effective date
UV-328	Substances	≤ 100 mg/kg	August 4, 2025
	Mixtures	≤ 10 mg/kg	August 4, 2027
	Articles	≤ 1.0 mg/kg	August 4, 2029

(14)The chemical analysis of substances is performed by means of currently available analytical techniques

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against substances laid down in Test Requested.

(15)The conclusion is only applicable to the substance list in the report.

Remark: Results & photo(s) of this report refer to test report CANEC25019768405.
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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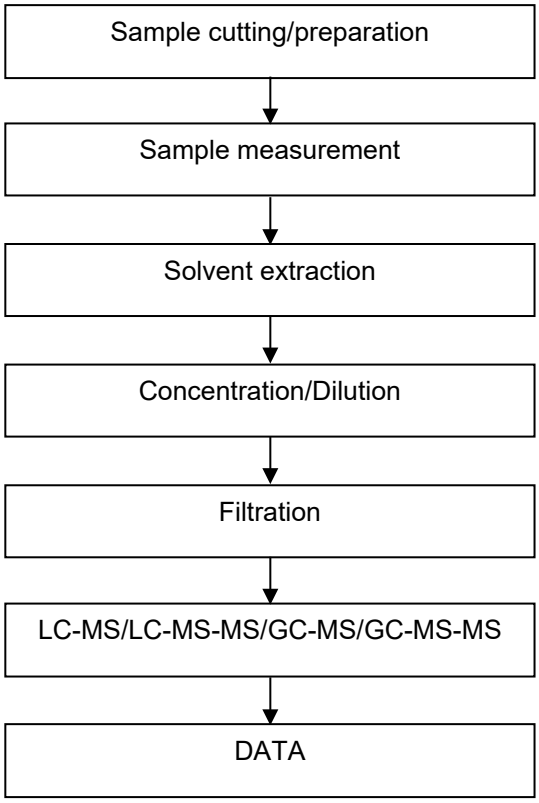
ATTACHMENTS

PFASs/ PFOS/PFOA Testing Flow Chart



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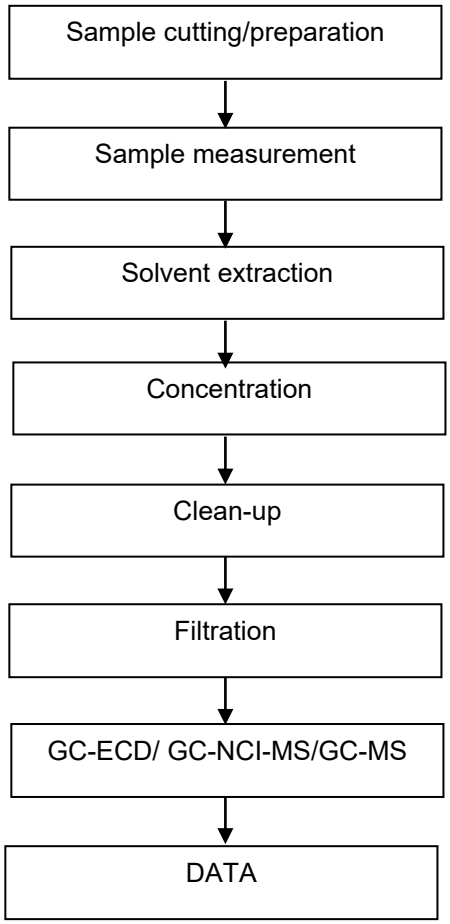
Chlorinated Paraffin Testing Flow Chart



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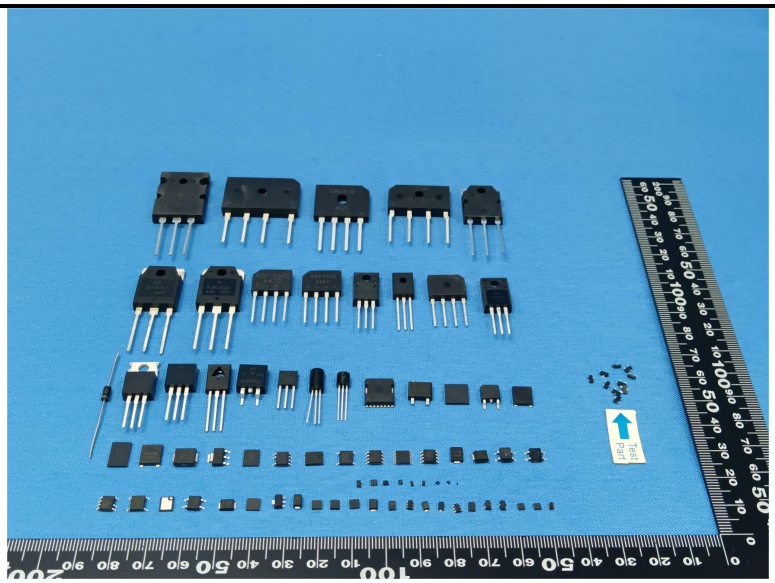
Sample Photo:



CAN25-0197684-0001.C001

SGS authenticate the photo on original report only

*** End of Report ***

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