

Test Report
检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 1 of 28

日期: 2026 年 04 月 15 日 页码 1 of 28

Client Name: Yangzhou Kanghong Semiconductor Co., Ltd
客户名称: 扬州康虹半导体有限公司
Client Address: Building B5, Jinrong Science Park, No. 158, Ji'an South Road, Yangzhou High-tech Development Zone
客户地址: 扬州高新技术开发区吉安南路 158 号金荣科技园 B5 栋

Sample Name: Diodes、Bridge

样品名称: Diodes、Bridge

Client Ref. Information: The internal part of the product is operated with high temperature tin foil, and its composition is Pb/Sn/Ag

客户参考信息: Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.
產品内部採用高溫錫箔作業,其成份為 Pb/Sn/Ag

以上信息由客户提供及确认, SGS 不承担证实客户提供信息的准确性、适当性和(或)完整性的责任

The above sample(s) and information were provided by the client.
以上样品及信息由客户提供。

SGS Job No.: SHP26-012186
SGS 工作编号: SHP26-012186
Sample Receiving Date: Apr 09, 2026
样品接收时间: 2026 年 04 月 09 日
Testing Period: Apr 09, 2026 ~ Apr 15, 2026
检测周期: 2026 年 04 月 09 日 ~ 2026 年 04 月 15 日
Test Requested: Select test(s) as requested by the client.

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
通标标准技术服务(上海)有限公司
授权签名

Susu Zhang

Susu Zhang 张苏苏
Approved Signatory
批准签署人

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Date: Apr 15, 2026

Page 2 of 28

日期: 2026 年 04 月 15 日 页码 2 of 28

检测要求: 根据客户要求检测。

Test Method(s): Please refer to next page(s).

检测方法: 见后续页。

Test Result(s): Please refer to next page(s).

检测结果: 见后续页。

Test Requirement 检测要求	Conclusion 结论
European Regulation POPs (EU) 2019/1021 Annex I and its amendments 欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规	See Results 见检测结果

Test Result(s):
检测结果:

Test Part Description:

检测部件外观描述:

SN ID 样品序号	Sample No. 样品编号	SGS Sample ID SGS 样品 ID	Description 样品描述
SN1	A1+A3	SHA26-0092621-0002	Black body with printing + Black/gray body 黑色本体带印字 + 黑色/灰色本体

Remarks:

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

备注:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = 方法检出限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

European Regulation POPs (EU) 2019/1021 Annex I and its amendments欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规

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.

检测方法: SGS 内部方法-采用 GC-MS 或 GC-MS/MS、GC-NCI-MS, GC-ECD 和 HPLC-DAD-MS 或 LC-MS/MS 进行分析。

Test Item(s) 检测项目	CAS No.	Limit 限值	Unit(s) 单位	MDL	A1+A3
Tetrabromodiphenyl ether (TetraBDE) / 四溴二苯醚 (TetraBDE)	40088-47-9 and others 40088-47-9	-	mg/kg	5	ND



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No.: SHAEC26009262104

Date: Apr 15, 2026

Page 3 of 28

日期: 2026年04月15日 页码 3 of 28

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	和其它				
Pentabromodiphenyl ether (PentaBDE) / 五溴二苯醚 (PentaBDE)	32534-81-9 and others 32534-81-9 和其它	-	mg/kg	5	ND
Hexabromodiphenyl ether (HexaBDE) / 六溴二苯醚 (HexaBDE)	36483-60-0 and others 36483-60-0 和其它	-	mg/kg	5	ND
Heptabromodiphenyl ether (HeptaBDE) / 七溴二苯醚 (HeptaBDE)	68928-80-3 and others 68928-80-3 和其它	-	mg/kg	5	ND
Decabromodiphenyl ether (DecaBDE) / 十溴二苯醚 (DecaBDE)	1163-19-5	-	mg/kg	5	ND
Sum of PBDE* / 多溴二苯醚总和*	-	10	mg/kg	-	ND
Perfluorooctane sulfonic acid (PFOS), its salts^ / 全氟辛烷磺酸 (PFOS), 及其盐^	1763-23-1	0.025	mg/kg	0.010	ND
N-ethylperfluoro-1-octanesulfonamide (N-EtFOSA) / N-乙基全氟辛烷磺酰胺 (N- EtFOSA)	4151-50-2	-	mg/kg	0.010	ND
N-methylperfluoro-1-octanesulfonamide (N-MeFOSA) / N-甲基全氟辛烷磺酰胺 (N-MeFOSA)	31506-32-8	-	mg/kg	0.010	ND
2-(N-ethylperfluoro-1- octanesulfonamido)-ethanol (N-EtFOSE) / 2-(N-乙基全氟辛基磺酰胺)乙醇 (N- EtFOSE)	1691-99-2	-	mg/kg	0.010	ND
2-(N-methylperfluoro-1- octanesulfonamido)-ethanol (N- MeFOSE) / 2-(N-甲基全氟辛基磺酰胺)乙 醇 (N-MeFOSE)	24448-09-7	-	mg/kg	0.010	ND
Perfluorooctane sulfonamide (PFOSA), its salts^ / 全氟辛基磺酰胺 (PFOSA), 及 其盐^	754-91-6	-	mg/kg	0.010	ND
Perfluorooctane sulfonamidoacetic Acid (FOSAA), its salts^ / N-(全氟-1-辛烷磺酰 基)甘氨酸 (FOSAA), 及其盐^	2806-24-8	-	mg/kg	0.010	ND
N-Methylperfluoro-1- octanesulfonamidoacetic Acid (N- MeFOSAA), its salts^ / N-甲基-N-(全氟- 1-辛烷磺酰基)甘氨酸 (N-MeFOSAA), 及 其盐^	2355-31-9	-	mg/kg	0.010	ND
N-Ethylperfluorooctane sulfonamidoacetic Acid (N-EtFOSAA), its	2991-50-6	-	mg/kg	0.010	ND



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No.: SHAEC26009262104

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Page 4 of 28

日期: 2026年04月15日 页码 4 of 28

Test Item(s) 检测项目	CAS No.	Limit 限值	Unit(s) 单位	MDL	A1+A3
salts^ / N-乙基-N-(全氟-1-辛烷磺酰基)甘氨酸 (N-EtFOSAA), 及其盐^					
2-(N-ethylperfluorooctanesulfamido) ethyl acrylate (EtFOSAC) / 2-(N-乙基全氟辛烷磺酰氨基)丙烯酸乙酯 (EtFOSAC)	423-82-5	-	mg/kg	0.200	ND
Sum of PFOS-related compounds / PFOS 相关化合物总和	-	1	mg/kg	-	ND
DDT(1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane) / 4,4-滴滴涕	50-29-3	Prohibited 禁用	mg/kg	0.05	ND
Chlordane / 氯丹	57-74-9	Prohibited 禁用	mg/kg	0.05	ND
Hexachlorocyclohexanes, including lindane / 六氯环己烷,包括林丹	58-89-9, 319-84-6, 319-85-7, 608-73-1	Prohibited 禁用	mg/kg	0.05	ND
Dieldrin / 狄氏剂	60-57-1	Prohibited 禁用	mg/kg	0.05	ND
Endrin / 异狄氏剂	72-20-8	Prohibited 禁用	mg/kg	0.05	ND
Heptachlor / 七氯	76-44-8	Prohibited 禁用	mg/kg	0.05	ND
Endosulfan / 硫丹	115-29-7, 959-98-8, 33213-65-9	Prohibited 禁用	mg/kg	0.05	ND
Hexachlorobenzene / 六氯苯	118-74-1	10	mg/kg	5	ND
Chlordecone / 十氯酮	143-50-0	Prohibited 禁用	mg/kg	0.2	ND
Aldrin / 艾氏剂	309-00-2	Prohibited 禁用	mg/kg	0.05	ND
Pentachlorobenzene / 五氯苯	608-93-5	Prohibited 禁用	mg/kg	5	ND
Polychlorinated biphenyls (PCBs) / 多氯联苯 (PCBs)	1336-36-3 and others 1336-36-3 和其它	Prohibited 禁用	mg/kg	0.2	ND
Mirex / 灭蚁灵	2385-85-5	Prohibited 禁用	mg/kg	0.05	ND
Toxaphene / 毒杀芬	8001-35-2	Prohibited 禁用	mg/kg	0.2	ND
Hexabromobiphenyl / 六溴联苯	36355-01-8	Prohibited 禁用	mg/kg	5	ND
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) / 六溴	134237-50-6, 134237-51-7, 134237-52-8, 25637-99-4,	75	mg/kg	20	ND



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No.: SHAEC26009262104

Date: Apr 15, 2026

Page 5 of 28

日期: 2026年04月15日

页码 5 of 28

Test Item(s) 检测项目	CAS No.	Limit 限值	Unit(s) 单位	MDL	A1+A3
环十二烷(HBCDD) 及其非对映异构体(α -HBCDD, β -HBCDD, γ -HBCDD)	3194-55-6				
Hexachlorobutadiene / 六氯丁二烯	87-68-3	Prohibited 禁用	mg/kg	5	ND
Pentachlorophenol (PCP) and its salts and esters / 五氯苯酚(PCP)及其盐和酯	87-86-5 and others 87-86-5 和其它	5	mg/kg	0.5	ND
Polychlorinated naphthalenes (PCNs) / 多氯萘(PCNs)	70776-03-3 and others 70776-03-3 和其它	Prohibited 禁用	mg/kg	5	ND
Alkanes, C ₁₀ -C ₁₃ , chloro (short chain-chlorinated paraffins) (SCCPs) / C ₁₀ -C ₁₃ 氯代烃(短链氯化石蜡)(SCCPs)	85535-84-8 and others 85535-84-8 和其它	1500	mg/kg	50	ND
Perfluorooctanoic acid (PFOA), its salts [^] / 全氟辛酸 (PFOA), 及其盐 [^]	335-67-1	0.025	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS), its salts [^] / 1H,1H,2H,2H-全氟癸烷磺酸 (8:2 FTS), 及其盐 [^]	39108-34-4	1	mg/kg	0.010	ND
Methyl perfluorooctanoate (Me-PFOA) / 全氟辛酸甲酯 (Me-PFOA)	376-27-2	1	mg/kg	0.200	ND
Ethyl perfluorooctanoate (Et-PFOA) / 全氟辛酸乙酯 (Et-PFOA)	3108-24-5	1	mg/kg	0.200	ND
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA) / 1H,1H,2H,2H-全氟癸基丙烯酸酯 (8:2 FTA)	27905-45-9	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA) / 1H,1H,2H,2H-甲基丙烯酸全氟癸酯 (8:2 FTMA)	1996-88-9	1	mg/kg	0.100	ND
Perfluoro-1-iodooctane (PFOI) / 全氟辛基碘烷 (PFOI)	507-63-1	1	mg/kg	0.200	ND
2H,2H-Perfluorodecane Acid (8:2 FTCA), its salts [^] / 2H, 2H-全氟癸酸 (8:2 FTCA), 及其盐 [^]	27854-31-5	1	mg/kg	0.010	ND
1H,1H,2H,2H-Perfluoro-1-decanol (8:2 FTOH) / 1H,1H,2H,2H-全氟-1-癸醇 (8:2 FTOH)	678-39-7	1	mg/kg	0.100	ND
1-Iodo-1H,1H,2H,2H-perfluorodecane (8:2 FTI) / 1-碘-1H,1H,2H,2H-全氟癸烷 (8:2 FTI)	2043-53-0	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (8:2	101947-16-4	1	mg/kg	0.100	ND



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Page 6 of 28

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页码 6 of 28

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FTSi(OC ₂ H ₅) ₃ / 1H,1H,2H,2H-全氟癸基三乙氧基硅烷 (8:2 FTSi(OC ₂ H ₅) ₃)					
bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) hydrogen phosphate (8:2 diPAP), its salts ^ / 双[2-(全氟辛基)]乙基磷酸酯(8:2diPAP), 及其盐^	678-41-1	1	mg/kg	0.010	ND
2H,2H,3H,3H-Perfluoroundecanoic Acid (8:3 FTCA), its salts^ / 2H, 2H, 3H, 3H-全氟十一烷酸 (8:3 FTCA), 及其盐^	34598-33-9	1	mg/kg	0.010	ND
1H,1H,2H-Heptafluoro-1-decene (PFDE) / 全氟辛基乙烯 (PFDE)	21652-58-4	1	mg/kg	0.100	ND
3-Perfluoroheptyl propanoic acid (7:3 FTCA) / 3-全氟庚基丙酸 (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) / 1H,1H,2H,2H-全氟癸基三氯硅烷 (8:2 FTSiCl ₃) / 1H,1H,2H,2H-全氟癸基三甲氧基硅烷 (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) / 2H-全氟-2-癸烯酸 (8:2 FTUCA)	70887-84-2	1	mg/kg	0.010	ND
6:8 Perfluorophosphinic acid (6:8 PFPI) / 6:8 全氟次膦酸 (6:8 PFPI)	610800-34-5	1	mg/kg	0.010	ND
8:8 Perfluorophosphinic acid (8:8 PFPI), its salts^ / 8:8 全氟次膦酸 (8:8 PFPI), 及其盐^	40143-79-1	1	mg/kg	0.010	ND
1H,1H,2H,2H-perfluorodecyl acetate (8:2 FTOAc) / 1H,1H,2H,2H-全氟十二烷基乙酸酯(8:2 FTOAc)	37858-04-1	1	mg/kg	0.100	ND
8:2 Fluorotelomer phosphate monoester (8:2 monoPAP), its salts^ / 单[2-(全氟辛基)乙基]磷酸盐 (8:2 monoPAP), 及其盐^	57678-03-2	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH) / 1H,1H,2H,2H-全氟-1-十二烷醇 (10:2 FTOH)	865-86-1	1	mg/kg	0.100	ND
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH) / 1,1,2,2-四氢全氟-1-十四醇 (12:2 FTOH)	39239-77-5	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS), its salts^ /	120226-60-0	1	mg/kg	0.100	ND



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 7 of 28

日期: 2026年04月15日 页码 7 of 28

Test Item(s) 检测项目	CAS No.	Limit 限值	Unit(s) 单位	MDL	A1+A3
1H,1H,2H,2H-全氟十二烷磺酸 (10:2 FTS), 及其盐 [^]					
10:2 Fluortelomerphosphatediester (10:2 diPAP), its salts [^] / 双[2-(全氟癸基)乙基]磷酸盐 (10:2 diPAP), 及其盐 [^]	1895-26-7	1	mg/kg	0.100	ND
2H-Perfluoro-2-dodecenoic acid (10:2 FTUCA) / 2H-全氟-2-十二烯酸 (10:2 FTUCA)	70887-94-4	1	mg/kg	0.010	ND
2-Perfluorodecyl ethanoic acid (10:2 FTCA) / 2-全氟癸基乙酸 (10:2 FTCA)	53826-13-4	1	mg/kg	0.010	ND
10:2 Fluortelomerphosphatemonoester (10:2 monoPAP), its salts [^] / 单[2-(全氟癸基)乙基]磷酸酯 (10:2 monoPAP), 及其盐 [^]	57678-05-4	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA) / 1H,1H,2H,2H-全氟十二烷基丙烯酸酯 (10:2 FTA)	17741-60-5	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA) / 1H,1H,2H,2H-全氟十二烷基甲基丙烯酸酯 (10:2 FTMA)	2144-54-9	1	mg/kg	0.100	ND
1,1,2,2-Tetrahydroperfluorododecyl iodide (10:2 FTI) / 全氟癸基乙基碘 (10:2 FTI)	2043-54-1	1	mg/kg	0.100	ND
1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI) / 1H,1H,2H,2H-全氟十四烷基碘 (12:2 FTI)	30046-31-2	1	mg/kg	0.100	ND
Perfluorodecyl iodide (PFDI) / 1-碘全氟癸烷 (PFDI)	423-62-1	1	mg/kg	0.100	ND
Perfluorododecyl iodide (PFDODI) / 全氟碘代十二烷 (PFDODI)	307-60-8	1	mg/kg	0.100	ND
Sum of PFOA-related compounds / PFOA 相关化合物总和	-	1	mg/kg	-	ND
Dicofol / 三氯杀螨醇	115-32-2	Prohibited 禁用	mg/kg	0.05	ND
Perfluorohexanesulfonic acid (PFHxS), its salts [^] / 全氟己基磺酸 (PFHxS), 及其盐 [^]	355-46-4	0.025	mg/kg	0.010	ND
N-Methylperfluoro-1-hexanesulfonamide (N-Me-PFHxSA) / N-甲基全氟-1-己磺酰胺 (N-Me-PFHxSA)	68259-15-4	1	mg/kg	0.010	ND
Perfluorohexane sulfonamide (PFHxSA) / 全氟己烷磺酰胺 (PFHxSA)	41997-13-1	1	mg/kg	0.010	ND



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 8 of 28

日期: 2026年04月15日 页码 8 of 28

Test Item(s) 检测项目	CAS No.	Limit 限值	Unit(s) 单位	MDL	A1+A3
N-[3-(dimethylamino)propyl] tridecafluorohexanesulphonamide (N- AP-FHxSA) / N-[3-(二甲基氨基)丙基]十三 氟己烷磺酰胺 (N-AP-FHxSA)	50598-28-2	1	mg/kg	0.010	ND
2-[methyl[(tridecafluorohexyl) sulphonyl]amino]ethyl acrylate)) (N- MeFHSEA) / 2-[甲基[(十三氟己基)磺酰 基]氨基]乙基丙烯酸酯 (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 / 2-[甲基[(十三氟己基)磺酰基]氨基] 乙基甲基丙烯酸酯	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 / 2-[乙基[(十三氟己基)磺酰基]氨基] 乙基甲基丙烯酸酯	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) / 十三氟-N-(2-羟基乙基)-N-甲基己烷磺酰 胺 (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^ / N-乙基-N-[(十三氟己基)磺酰 基]甘氨酸(EtFHxSAA), 及其盐^	68957-32-4	1	mg/kg	0.010	ND
Sum of PFHxS-related compounds / PFHxS 相关化合物总和	-	1	mg/kg	-	ND
Methoxychlor / 甲氧滴滴涕	72-43-5 and others 72- 43-5 和其它	0.01	mg/kg	0.01	ND
2-(2H-benzotriazol-2-yl)-4,6-di-tert- pentylphenol (UV-328) / UV-328	25973-55-1	100	mg/kg	1	ND
Dechlorane Plus (DP) / 得克隆 (DP)	13560-89-9 /135821-03-3 /135821-74-8	1000	mg/kg	1	ND

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) Sum of PBDE* Means Sum of Tetrabromodiphenyl ether, Pentabromodiphenyl ether,



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 9 of 28

日期: 2026年04月15日 页码 9 of 28

Hexabromodiphenyl ether, Heptabromodiphenyl ether and Decabromodiphenyl ether.

(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) According to European Regulation POPs (EU) 2025/1482 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 five polybrominated diphenyl ethers (PBDE) flame retardants when the chemical is in substances, mixtures and articles.

Substance	Scope	Specific exemption on intermediate use or other specification	Effective date
TetraBDE PentaBDE HexaBDE HeptaBDE DecaBDE	Mixtures ¹ Articles ¹	≤ 10 mg/kg (sum)	17 November 2025
	Mixtures or articles containing or made of recovered material ¹	≤ 500 mg/kg (sum)	17 November 2025
		≤ 350 mg/kg (sum)	30 December 2025
		≤ 200 mg/kg (sum)	30 December 2027
	The following products containing or made of recovered material: - Toys ^{1, 2} , -Products facilitating children's seating, sleep, relaxation, hygiene, changing and general body care, feeding, sucking, transportation and protection ¹	≤ 500 mg/kg (sum)	17 November 2025
		≤ 350 mg/kg (sum)	30 December 2025
		≤ 10 mg/kg (sum)	17 May 2027

¹Exempts food contact materials subject to Regulation (EC) No 1935/2004

²Toys within the scope of Directive 2009/48/EC

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

(6) 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.

(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 (0,000025 % by weight) and all PFOS-related compounds equal to or below 1 mg/kg (0,0001 % by weight) where they are present in



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 10 of 28

日期: 2026年04月15日 页码 10 of 28

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 ₂ H ₄ OH) ₂)	70225-14-8
Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)	56773-42-3
N-decyl-N,N-dimethyldecyl-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 ₁₀ H ₂₁) ₂ (CH ₃) ₂)	251099-16-8
TetrabutylAmmonium perfluorooctanesulfonate (PFOS-N(C ₄ H ₉) ₄)	111873-33-7
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
Perfluorooctanesulfonate	45298-90-6
Triethylammonium perfluorooctane sulfonate (PFOS-NH(C ₂ H ₅) ₃)	54439-46-2
Tetramethylammonium perfluorooctane sulfonate (PFOS-N(CH ₃) ₄)	56773-44-5
N,N,N-Tripropylpentan-1-aminium heptafluorooctane-1-sulfonate (PFOS-N(C ₃ H ₇) ₃ (C ₅ H ₁₁))	56773-56-9
N,N-Dibutyl-N-methylbutan-1-aminium heptafluorooctane-1-sulfonate (PFOS-N(C ₄ H 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-Triethyldecyl-1-aminium heptafluorooctane-1-sulfonate	773895-92-4
Tetrabutylphosphonium perfluorooctane sulfonate (PFOS-P(C ₄ H ₉) ₄)	2185049-59-4
Perfluorooctanesulfonic acid diethylamine salt (PFOS-C ₄ H ₁₁ N)	2205029-08-7
heptyldimethyl{2-[(2-methylprop-2-enoyl)oxy]ethyl}azanium	1203998-97-3



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 11 of 28

日期: 2026年04月15日 页码 11 of 28

heptadecafluorooctane-1-sulfonate (PFOS-C ₁₅ H ₃₀ NO ₂)	
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
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 ₆ H 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 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



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No.: SHAEC26009262104

Date: Apr 15, 2026

Page 12 of 28

日期: 2026 年 04 月 15 日 页码 12 of 28

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 ₄ H 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
Tetrapropylammonium perfluorooctanoate	277749-00-5
Potassium pentadecafluorooctanoate--water (1/1/2) (PFOA-K(H ₂ O) ₂)	98065-31-7
Perfluorooctanoic acid compd. with ethanamine (1:1) (PFOA-C ₂ H ₇ N)	1376936-03-6
Pentadecafluorooctanoic acid--pyridine (1/1) (PFOA-C ₅ H ₅ N)	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
Perfluorooctanoyl Bromide (PFOA-Br)	222037-87-8
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 ₄ H 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	93776-20-6



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 13 of 28

日期: 2026 年 04 月 15 日 页码 13 of 28

diPAP-NH ₄)	
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
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
10:2 FTS, its salts	
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0
1H,1H,2H,2H-Perfluorododecanesulfonic Acid Sodium (10:2 FTS-Na)	108026-35-3
2-(Perfluorodecyl)ethane-1-sulfonyl chloride (10:2 FTS-Cl)	27619-91-6
10:2 diPAP, its salts	
10:2 Fluortelomerphosphatediester (10:2 diPAP)	1895-26-7
Bis((perfluorodecyl)ethyl) hydrogen phosphate 2,2'-iminodiethanol (10:2 diPAP-C ₄ H ₁₁ O ₂)	57677-98-2
10:2 monoPAP, its salts	
10:2 Fluortelomerphosphatemonoester (10:2 monoPAP)	57678-05-4
10:2 Fluorotelomer diammonium dihydrogen phosphate	93857-45-5
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-Henicosafuorododecyl dihydrogen phosphate cyclohexylamine	2514858-66-1

(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



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 14 of 28

日期: 2026 年 04 月 15 日 页码 14 of 28

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 \(europa.eu\)](https://echa.europa.eu/en/substances/proposed-pops)

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

Substance Name	CAS No.
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 ₄ H ₉) ₄)	108427-54-9
N,N,N-triethylethanaminium tridecafluorohexane-1-sulfonate(PFHxS-N(C ₂ H 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 ₄ H ₉)	1187817-57-7
Ethanaminium, N-[4-[[4-(diethylamino)phenyl][4-(ethylamino)-1-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)	1310480-24-0



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 15 of 28

日期: 2026 年 04 月 15 日 页码 15 of 28

(PFHxS-(NC ₁₀ H ₁₄) ₃ C ₅ H 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 ₈ H ₁₀) ₂ C 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 ₈ H ₁₀) ₂ C 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 ₂ O 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 ₆ H 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 ₆ H ₄) ₂ (C ₄ H ₉) ₂)	213740-81-9
1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, gallium salt (9Cl)(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 ₇ H ₇) ₂ C ₆ H 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



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 17 of 28

日期: 2026 年 04 月 15 日 页码 17 of 28

polymer)	
Perfluorohexane sulfonate (anion)	108427-53-8
Tetrabutylphosphonium perfluorohexane sulfonate (PFHxS-P (C ₄ H 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

(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
10:2 FTOH, its possible source	
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1
1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA) ^^	2144-54-9
1H,1H,2H,2H-Perfluorododecylacrylate (10:2 FTA) ^^	17741-60-5
1H,1H,2H,2H-perfluorododecyl acetate (10:2 FTOAc) ^^	37858-05-2
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



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 18 of 28

日期: 2026年04月15日 页码 18 of 28

(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 dm³, 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) According to European Regulation POPs (EU) 2025/1930 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 Dechlorane Plus when the chemical is in substances, mixtures and articles.

Substance	Scope	Specific exemption on intermediate use or other specifications	Effective date
Dechlorane Plus	Substances	≤ 1000 mg/kg	Until April 15, 2028
	Mixtures	≤ 1 mg/kg	After April 15, 2028
	Articles		

(15) The chemical analysis of substances is performed by means of currently available analytical techniques against substances laid down in Test Requested.

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



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Test Report
检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 19 of 28

日期: 2026年04月15日 页码 19 of 28

备注:

- (1) 欧盟POPs法规(EU) 2019/1021, 附录I 中的物质禁用在混合物及物品中使用, 除非法规有特殊豁免。
- (2) 多溴二苯醚总和*是指四溴二苯醚、五溴二苯醚、六溴二苯醚、七溴二苯醚和十溴二苯醚的总和。
- (3) 豁免: RoHS指令(2011/65/EU)定义的电子电器产品中四溴二苯醚、五溴二苯醚、六溴二苯醚、七溴二苯醚和十溴二苯醚豁免于POPs法规。
- (4) 依据欧盟POPs法规(EU) 2019/1021附录I及其修正法规 (EU) 2025/1482, 为加强《持久性有机污染物重新预测条例》的应用和执行, 当化学物质存在于物质、混合物和物品中时, 为5种多溴联苯醚(PBDE)阻燃剂设定了无意痕量污染物(UTC)值。

物质	范围	中间用途或其他规范的特殊豁免	生效日期
四溴二苯醚 五溴二苯醚 六溴二苯醚 七溴二苯醚 十溴二苯醚	混合物 ¹ 物品 ¹	≤ 10 mg/kg (总和)	2025.11.17
	含有回收材料或由回收材料制成的 混合物或物品 ¹	≤ 500 mg/kg (总和)	2025.11.17
		≤ 350 mg/kg (总和)	2025.12.30
		≤ 200 mg/kg (总和)	2027.12.30
	以下产品含有回收材料或由回收材料制成： -玩具 ¹ , ² -方便儿童就座、睡眠、 放松、卫生、 更衣和一般身体护理、喂养、 吮吸、运输和保护的产品 ¹	≤ 500 mg/kg (总和)	2025.11.17
		≤ 350 mg/kg (总和)	2025.12.30
		≤ 10 mg/kg (总和)	2027.5.17
¹ 豁免受(EC) No 1935/2004法规管控的食品接触材料			
² 2009/48/EC指令范围内的玩具			

- (5) 豁免: C10-13 氯代烃(短链氯化石蜡)在混合物中的法规限值是1.0% (w/w),在物品中的法规限值为0.15% (w/w)。
- (6) 豁免: HBCDD 做为无意添加的微量污染物, 在物质, 混合物, 物品或者物品的阻燃剂中不能超出75mg/kg, 委员会应在2026年1月1日前审查和评估规定的豁免。
- (7) 依据欧盟POPs法规 (EU) 2019/1021 附录I 及其修正法规 (EU) 2025/718, 在物质, 混合物或物品中, 全氟辛烷磺酸 (PFOS)及其盐的浓度等于或低于0.025 mg/kg(0,000025 %), PFOS相关化合物总和的浓度等于或低于1 mg/kg(0,0001%), 适用日期: 2025年12月3日起。
- (8) ^=物质是指下表PFOS, PFOA和PFOA相关化合物列出的盐/衍生物。

物质名称	CAS No.
PFOS, 及其盐&衍生物	



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 20 of 28

日期: 2026年04月15日 页码 20 of 28

全氟辛烷磺酸(PFOS)	1763-23-1
全氟辛基磺酸钾(PFOS-K)	2795-39-3
全氟辛基磺酸锂(PFOS-Li)	29457-72-5
全氟辛基磺酸钠(PFOS-Na)	4021-47-0
全氟辛基磺酸铵(PFOS-NH ₄)	29081-56-9
全氟辛基磺酸二乙醇铵(PFOS-NH ₂ (C ₂ H ₄ OH) ₂)	70225-14-8
全氟辛基磺酸四乙基铵(PFOS-N(C ₂ H ₅) ₄)	56773-42-3
全氟辛基磺酸二癸二甲基铵(PFOS-N(C ₁₀ H ₂₁) ₂ (CH ₃) ₂)	251099-16-8
全氟辛基磺酸四丁基铵(PFOS-N(C ₄ H ₉) ₄)	111873-33-7
全氟辛基磺酰氟(PFOS-F)	307-35-7
双[十七氟辛烷磺酸]镁(PFOS-Mg)	91036-71-4
全氟辛烷磺酸哌啶	71463-74-6
全氟辛烷磺酸盐	45298-90-6
全氟辛烷磺酸三乙基铵(PFOS-NH(C ₂ H ₅) ₃)	54439-46-2
全氟辛烷磺酸四甲基铵(PFOS-N(CH ₃) ₄)	56773-44-5
N, N,N-三丙基戊烷-1-七氟辛烷-1-磺酸铵(PFOS-N(C ₃ H ₇) ₃ (C ₅ H ₁₁))	56773-56-9
N,N-二丁基-N-甲基丁烷-1-胺十七氟辛烷-1-磺酸酯(PFOS-N(C ₄ H ₉) ₃ (CH ₃))	124472-68-0
双[4-(1,1-二甲基乙基)苯基]-碘鎓与全氟-1-辛烷磺酸的盐(1:1)	213740-80-8
全氟-1-辛烷磺酸二苯基(2,4,6-三甲基苯基)鎓	258341-99-0
全氟-1-辛烷磺酸1-十六烷基吡啶鎓	334529-63-4
N,N,N-三乙基癸-1-胺十七氟辛烷-1-磺酸盐	773895-92-4
全氟辛烷磺酸四丁基磷(PFOS-P(C ₄ H ₉) ₄)	2185049-59-4
全氟辛基磺酸二乙胺(PFOS-C ₄ H ₁₁ N)	2205029-08-7
全氟辛基磺酸庚基二甲基-[2-(2-甲基丙-2-烯酰氧基)乙基]胺(PFOS-C ₁₅ H ₃₀ NO ₂)	1203998-97-3
全氟辛基磺酸酐(PFOSAN)	423-92-7
全氟辛基磺酰氯(PFOS-Cl)	423-60-9
FOSAA, 及其盐	
N-(全氟-1-辛烷磺酰基)甘氨酸(FOSAA)	2806-24-8
全氟辛烷磺酰氨基乙酸盐(FOSAA(anion))	909405-47-6
全氟辛烷磺酰氨基乙酸钾(FOSAA-K)	75260-69-4
全氟辛烷磺酰氨基乙酸钠(FOSAA-Na)	115716-87-5
N-MeFOSAA, 及其盐	
N-甲基-N-(全氟-1-辛烷磺酰基)甘氨酸(N-MeFOSAA)	2355-31-9



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 21 of 28

日期: 2026年04月15日 页码 21 of 28

N-(十七氟辛基磺酰基)-N-甲基甘氨酸盐 (N-Me-FOSAA(anion))	909405-48-7
N-(十七氟辛基磺酰基)-N-甲基甘氨酸钾 (N-Me-FOSAA-K)	70281-93-5
N-EtFOSAA, 及其盐	
N-乙基-N-(全氟-1-辛烷磺酰基)甘氨酸(N-EtFOSAA)	2991-50-6
N-乙基-N-[(十七烷氟辛基)磺酰基]-甘氨酸钾盐 (N-Et-FOSAA-K)	2991-51-7
N-乙基-N-((十七氟辛基)磺酰基)甘氨酸盐 (N-Et-FOSAA(anion))	909405-49-8
N-乙基-N-((十七氟辛基)磺酰基)甘氨酸铵 (N-Et-FOSAA-NH ₄)	2991-52-8
N-乙基-N-((十七氟辛基)磺酰基)甘氨酸钠 (N-Et-FOSAA-Na)	3871-50-9
PFOSA, 及其盐	
全氟辛基磺酰胺(PFOSA)	754-91-6
全氟辛基磺酰胺锂盐(1:1)(PFOSA-Li)	76752-79-9
全氟辛基磺酰胺钠盐 (1:1) (PFOSA-Na)	76752-78-8
全氟辛基磺酰胺钾盐 (1:1) (PFOSA-K)	76752-70-0
全氟辛基磺酰胺铵盐 (1:1) (PFOSA-NH ₄)	76752-72-2
全氟辛基磺酰胺三乙胺 (PFOSA-C ₆ H ₁₅ N)	76752-82-4
PFOA, 及其盐&衍生物	
全氟辛酸(PFOA)	335-67-1
全氟辛酸钠(PFOA-Na)	335-95-5
全氟辛酸钾(PFOA-K)	2395-00-8
全氟辛酸银(PFOA-Ag)	335-93-3
全氟辛酰氟(PFOA-F)	335-66-0
全氟辛酸铵(APFO)	3825-26-1
全氟辛酸锂(PFOA-Li)	17125-58-5
全氟辛酸钴(PFOA-Co)	35965-01-6
全氟辛酸铯(PFOA-Cs)	17125-60-9
全氟辛酸铬(3+) (PFOA-Cr(3+))	68141-02-6
全氟辛酸-哌嗪(2:1) (PFOA-NH(C ₄ H ₁₀ N))	423-52-9
全氟辛酸盐	45285-51-6
全氟辛酸酐	33496-48-9
全氟辛酸四乙基胺	98241-25-9
全氟辛酸四甲基胺	32609-65-7
全氟辛酸四丙基胺	277749-00-5
全氟辛酸钾水合物 (PFOA-K(H ₂ O) ₂)	98065-31-7



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 22 of 28

日期: 2026年04月15日 页码 22 of 28

全氟辛酸乙胺 (PFOA-C ₂ H ₇ N)	1376936-03-6
全氟辛酸吡啶 (PFOA-C ₅ H ₅ N)	95658-47-2
全氟辛酸苯基吡嗪 (PFOA-C ₁₀ H ₁₄ N ₂)	1514-68-7
全氟辛酸辛基三甲基铵 (PFOA-C ₁₁ H ₂₆ N)	927835-01-6
全氟辛酰氯 (PFOA-Cl)	335-64-8
全氟辛酰溴 (PFOA-Br)	222037-87-8
8:2 FTS, 及其盐	
1H,1H,2H,2H-全氟癸烷磺酸(8:2 FTS)	39108-34-4
1H,1H,2H,2H-全氟癸磺酸钾(8:2 FTS-K)	438237-73-1
1H,1H,2H,2H-全氟癸磺酸铵(8:2 FTS-NH ₄)	149724-40-3
1H,1H,2H,2H-全氟癸磺酸钠(8:2 FTS-Na)	27619-96-1
1H,1H,2H,2H-全氟癸磺酸盐 (8:2 FTS(anion))	481071-78-7
1H,1H,2H,2H-全氟癸磺酰氯 (8:2 FTS-Cl)	27619-90-5
8:2 FTCA, 及其盐	
2H,2H-全氟癸酸(8:2 FTCA)	27854-31-5
四丁基磷2H,2H-全氟癸酸酯(8:2 FTCA-P(C ₄ H ₉) ₄)	882489-14-7
8:2diPAP, 及其盐	
双[2-(全氟辛基)]乙基磷酸酯(8:2diPAP)	678-41-1
双[2-(全氟辛基)]乙基磷酸酯钠(8:2diPAP-Na)	114519-85-6
双(2-羟乙基)铵双(全氟辛基)乙基磷酸氢	57677-97-1
双[2-(全氟辛基)]乙基磷酸酯铵盐(8:2 diPAP-NH ₄)	93776-20-6
8:2氟调聚物磷酸二酯离子	1411713-91-1
8:3 FTCA, 及其盐	
2H,2H,3H,3H-全氟十一烷酸(8:3 FTCA)	34598-33-9
2H,2H,3H,3H-全氟十一烷酸钾(8:3 FTCA-K)	83310-58-1
2H,2H,3H,3H-全氟十一酸锂(8:3 FTCA-Li)	67304-23-8
8:8 PFPI,及其盐	
8:8全氟次膦酸 (8:8 PFPI)	40143-79-1
8:8 全氟次膦酸钠盐 (8:8 PFPI-Na)	500776-69-2
8:8 全氟次膦酸铟(3+)盐 (8:8 PFPI-Er)	500776-70-5
8:8 全氟次膦酸镱(3+)盐 (8:8 PFPI-Yb)	500776-71-6
8:2 monoPAP, 及其盐	
单[2-(全氟辛基)乙基]磷酸盐 (8:2 monoPAP)	57678-03-2
8:2氟调聚物磷酸二铵盐	93857-44-4
8:2氟调聚物磷酸钠盐	438237-75-3
双[2-(全氟辛基)乙基]磷酸铵盐	1764-95-0
单[2-(全氟辛基)乙基]磷酸铵盐	92401-44-0



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 23 of 28

日期: 2026年04月15日 页码 23 of 28

单[2-(全氟辛基)乙基]磷酸单钠盐	144965-22-0
单[2-(全氟辛基)乙基]磷酸单钾盐	150033-28-6
单[2-(全氟辛基)乙基]磷酸氢铵盐	2353-52-8
10:2 FTS, 及其盐	
1H,1H,2H,2H-全氟十二烷磺酸(10:2 FTS)	120226-60-0
1H,1H,2H,2H-全氟十二烷磺酸钠 (10:2 FTS-Na)	108026-35-3
1H,1H,2H,2H-全氟十二烷磺酰氯(10:2 FTS-Cl)	27619-91-6
10:2 diPAP, 及其盐	
双[2-(全氟癸基)乙基]磷酸盐(10:2 diPAP)	1895-26-7
2,2'-亚氨基二乙醇双[2-(全氟癸基)乙基]磷酸盐 (10:2 diPAP-C ₄ H ₁₁ O ₂)	57677-98-2
10:2 monoPAP, 及其盐	
单[2-(全氟癸基)乙基]磷酸酯 (10:2 monoPAP)	57678-05-4
单[2-(全氟癸基)乙基]磷酸双铵盐	93857-45-5
二十一氟十二烷基磷酸二氢酯环己铵盐	2514858-66-1

(9) 全氟己烷磺酸(PFHxS)及其盐和相关化合物

- (a). 2023年8月8日, 欧盟委员会于欧盟官方公报发布 (EU)2023/1608法规, 修订了2023年5月30日发布的法规 (EU)2019/1021附件I中关于全氟己烷磺酸 (PFHxS)、其盐和PFHxS相关化合物清单。

物质	范围	中间用途或其他规范的特殊豁免
PFHxS 及其盐	物质或混合物, 物品	≤ 0.025 mg/kg
PFHxS相关物质	物质或混合物, 物品	≤ 1 mg/kg (单项或PFHxS相关物质总和)
PFHxS 及其盐和 PFHxS相关化合物	浓缩消防泡沫混合物	≤ 0.1 mg/kg (3年内进行审查以降低限值)

- (b). 本报告中检测的全氟己烷磺酸(PFHxS)及其盐类和PFHxS相关化合物来自欧洲化学品管理局的“持久性有机污染物官方清单”, 请通过以下网络链接查找更多信息

[List of substances proposed as POPs - ECHA \(europa.eu\)](https://europe.ec.europa.eu/en/policy-and-law/chemicals/list-of-substances-proposed-as-pops)

- (c). ^=物质是指下表PFHxS列出的盐/衍生物。

物质名称	CAS No.
PFHxS, 及其盐&衍生物	
全氟己基磺酸(PFHxS)	355-46-4
全氟己基磺酸钠(PFHxS-Na)	82382-12-5
全氟己基磺酸钾(PFHxS-K)	3871-99-6
全氟己基磺酸锂(1:1)(PFHxS-Li)	55120-77-9



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Test Report
检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 24 of 28

日期: 2026年04月15日 页码 24 of 28

全氟己基磺酸铵(PFHxS-NH ₄)	68259-08-5
全氟己基磺酸三苯基(苯基甲基)-磷鎓盐(PFHxS-BTPP)	1000597-52-3
N,N,N-三丁基丁烷-1-胺全氟己基磺酸盐(PFHxS-N(C ₄ H ₉) ₄)	108427-54-9
N,N,N-三乙基乙胺全氟己基磺酸盐(PFHxS-N(C ₂ H ₅) ₄)	108427-55-0
全氟己基磺酸与四氢吡咯络合物(PFHxS-NC ₄ H ₉)	1187817-57-7
全氟-1-己基磺酸-N-[4-[[4-(二乙氨基)苯基][4-(乙氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚基]-N-乙基-乙铵盐(PFHxS-(NC ₁₀ H ₁₄) ₃ C ₅ H ₄)	1310480-24-0
全氟-1-己基磺酸-N-[4-[[4-(二甲氨基)苯基][4-(乙氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚基]-N-甲基-甲基铵盐(PFHxS-(NC ₈ H ₁₀) ₂ C ₁₃ H ₁₂)	1310480-27-3
全氟-1-己基磺酸-N-[4-[[4-(二甲氨基)苯基][4-(苯基氨基)-1-萘基]亚甲基]-2,5-环己二烯-1-亚基]-N-甲基-甲基铵盐(PFHxS-(NC ₈ H ₁₀) ₂ C ₁₇ H ₁₂)	1310480-28-4
全氟己基磺酸与β-环糊精络合物(PFHxS-C ₄₂ H ₇₀ O ₃₅)	1329995-45-0
全氟己基磺酸与γ-环糊精络合物(PFHxS-C ₄₈ H ₈₀ O ₄₀)	1329995-69-8
全氟己基磺酸三苯基硫鎓盐(TPS-PFHxS)	144116-10-9
全氟己基磺酸喹啉, 1-(羧甲基)-4-[2-[4-[4-(2,2-二苯基噻吩基)苯基]-1,2,3a,4,8b-六氢环戊并[b]呋喃-7-基]乙烯基]盐(PFHxS-C ₄₄ H ₃₇ N ₂ O ₂)	1462414-59-0
全氟己基磺酸二苯基碘鎓盐(PFHxS-I(C ₆ H ₅) ₂)	153443-35-7
N,N,N-三甲基-全氟己基磺酸甲基铵盐(PFHxS-TMA)	189274-31-5
全氟己基磺酸与2-甲基-2-丙胺络合物(1:1)(PFHxS-NH ₂ (CH ₃) ₃)	202189-84-2
全氟己基磺酸双[4-(1,1-二甲基乙基)苯基]碘鎓盐(PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂)	213740-81-9
全氟己基磺酸镓(9CI)(PFHxS-Ga)	341035-71-0
全氟己基磺酸双(4-甲基苯基)苯基硫鎓盐(1:1)(PFHxS-S(C ₇ H ₇) ₂ C ₆ H ₅)	341548-85-4
全氟己基磺酸钪(PFHxS-Sc)	350836-93-0
全氟己基磺酸钕(PFHxS-Nd)	41184-65-0
全氟己基磺酸钇(PFHxS-Y)	41242-12-0
全氟己基磺酸(硫代二-4,1-亚苯基)双[二苯基]硫鎓盐(PFHxS-S ₃ (C ₆ H ₅) ₄ (C ₆ H ₄) ₂)	421555-73-9
全氟己基磺酸双[4-(1,1-二甲基丙基)苯基]碘鎓盐(PFHxS-I(C ₆ H ₄) ₂ (C ₅ H ₁₁) ₂)	421555-74-0
全氟己基磺酰氟(PFHxS-F)	423-50-7
全氟己基磺酸三[4-(1,1-二甲基乙基)苯基]硫鎓盐(PFHxS-S(C ₆ H ₄) ₃ (C ₄ H ₉) ₃)	425670-70-8



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Test Report
检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 25 of 28

日期: 2026年04月15日 页码 25 of 28

全氟己基磺酸锌(PFHxS-Zn)	70136-72-0
全氟己基磺酸与2,2'-亚氨基二乙醇络合物(PFHxS-NH(C ₂ H ₅ O) ₂)	70225-16-0
全氟己基磺酸与三乙胺络合物(1:1)(PFHxS-N(C ₂ H ₅) ₃)	72033-41-1
全氟己基磺酸双[(1,1-二甲基乙基)苯基]碘鎓盐(PFHxS-I(C ₆ H ₄) ₂ (C ₄ H ₉) ₂)	866621-50-3
全氟己基磺酸(4-甲基苯基)二苯硫鎓盐(PFHxS-S(C ₆ H ₅) ₂ C ₇ H ₇)	910606-39-2
全氟己基磺酸[4-[(2-甲基-1-氧代-2-丙烯酰)氧基]苯基]二苯基硫鎓盐(PFHxS-S(C ₆ H ₅) ₂ C ₁₀ H ₉ O ₂)	911027-68-4
全氟己基磺酸铯(1:1)(PFHxS-Cs)	92011-17-1
二苯并[k,n][1,4,7,13]四氧杂硫环戊二烯,19-[4-(1,1-二甲基乙基)苯基]-6,7,9,10,12,13-六氢-,全氟己基磺酸盐(PFHxS-SC ₂₈ H ₃₁ O ₄)	928049-42-7
全氟己基磺酰氯(PFHxS-Cl)	55591-23-6
PFHxS-磺酸酯聚合物	911027-69-5
全氟己基磺酸盐	108427-53-8
全氟己基磺酸四丁基磷 (PFHxS-P(C ₄ H ₉) ₄)	2310194-12-6
EtFHxSAA, 及其盐	
N-乙基-N-[(十三氟己基)磺酰基]甘氨酸(EtFHxSAA)	68957-32-4
N-乙基-N-[(十三氟己基)磺酰基]甘氨酸钾(EtFHxSAA-K)	67584-53-6
N-乙基-N-[(十三氟己基)磺酰基]甘氨酸钠(EtFHxSAA-Na)	68555-70-4

(10)针对纺织品和皮革, ^^物质是指附表中甲醇/氢氧化钠溶液提取时会水解的PFAS物质。

物质名称	CAS No.
N-EtFOSE, 及可能来源	
2- (N-乙基全氟辛基磺酰胺)乙醇 (N-EtFOSE)	1691-99-2
2- (N-乙基全氟辛基磺酰胺基)丙烯酸乙酯 (EtFOSAC) ^^	423-82-5
PFOA, 及其可能来源	
全氟辛酸 (PFOA)	335-67-1
全氟辛酸乙酯 (Et-PFOA) ^^	3108-24-5
全氟辛酸甲酯 (Me-PFOA) ^^	376-27-2
8:2 FTOH, 及其可能来源	
1H, 1H, 2H, 2H-全氟-1-癸醇 (8:2 FTOH)	678-39-7
1H, 1H, 2H, 2H-甲基丙烯酸全氟癸酯 (8:2 FTMA) ^^	1996-88-9
1H, 1H, 2H, 2H-全氟癸基丙烯酸酯 (8:2 FTA) ^^	27905-45-9
1H,1H,2H,2H-全氟十二烷基乙酸酯 (8:2 FTOAc) ^^	37858-04-1
10:2 FTOH, 及其可能来源	
1H, 1H, 2H, 2H-全氟-1-十二醇 (10:2 FTOH)	865-86-1
1H,1H,2H,2H-全氟十二烷基甲基丙烯酸酯 (10:2 FTMA) ^^	2144-54-9



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Test Report

检测报告

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 26 of 28

日期: 2026年04月15日 页码 26 of 28

1H, 1H, 2H, 2H-全氟十二烷基丙烯酸酯 (10:2 FTA)~	17741-60-5
1H, 1H, 2H, 2H-全氟癸基乙酸酯 (10:2 FTOAc) ~	37858-05-2
MeFHxSE, 及其可能来源	
十三氟-N- (2-羟基乙基)-N-甲基己烷磺酰胺 (MeFHxSE)	68555-75-9
2-[甲基[(十三氟己基)磺酰基]氨基]乙基甲基丙烯酸酯~	67584-61-6
2-[甲基[(十三氟己基)磺酰基]氨基]丙烯酸乙酯 (N-MeFHSEA) ~	67584-57-0

(11)当用甲醇/氢氧化钠溶液提取时, 化合物被水解并释放出相关的PFAS物质。由于所列PFAS会降解为未知化合物和/或无法通过甲醇/NaOH溶液提取进行分析, 因此只能通过溶剂提取方法检测和定量可提取的含量。通过溶剂提取和随后的GC-MS或GC-MS/MS或HPLC-MS/MS分析得到的结果仅反映了可提取的PFAS。

(12)在不影响指令96/59/EC的情况下, 允许使用在本法规生效时已经使用的物品。成员国应尽快但不迟于2025年12月31日确定并停止使用多氯联苯含量超过0.005%且体积大于0.05立方分米的设备(如变压器、电容器或其他含有液体库存的容器)。

(13)依据欧盟POPs法规(EU) 2019/1021附录I及其修正法规 (EU) 2025/843, 为加强《持久性有机污染物重新预测条例》的应用和执行, 当化学物质存在于物质、混合物和物品中时, 为UV-328设定了无意痕量污染物(UTC)值, 这一UTC限制值将在四年内得到加强。

物质	范围	中间用途或其他规范的特殊豁免	生效日期
UV-328	物质、混合物和物品	≤ 100 mg/kg	2025.8.4
		≤ 10 mg/kg	2027.8.4
		≤ 1.0 mg/kg	2029.8.4

(14)依据欧盟POPs法规(EU) 2019/1021附录I及其修正法规 (EU) 2025/1930, 为加强《持久性有机污染物重新预测条例》的应用和执行, 当化学物质存在于物质、混合物和物品中时, 为得克隆设定了无意痕量污染物(UTC)值。

物质	范围	中间用途或其他规范的特殊豁免	生效日期
得克隆(DP)	物质、混合物和物品	≤ 1000 mg/kg	到2028.4.15
		≤ 1 mg/kg	2028.4.15之后

(15)对POPs物质的分析检测是基于现有的技术, 根据客户要求进行检测。

(16)结论仅针对报告上的物质清单。

Remark:

备注:

Test was conducted on composite of random parts of the item as per client's request.

合测是基于客户要求, 选取合测样品中随机部位进行合样检测。

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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The test report shall only be used for clients' scientific research, teaching, internal quality control, product research and development, etc... and just for internal reference.



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Test Report

No.: SHAEC26009262104

Date: Apr 15, 2026

Page 27 of 28

检测报告

日期: 2026年04月15日 页码 27 of 28

除非另有说明, 参照 ILAC-G8:09/2019, 使用简单接受 ($w=0$) 的二元判定规则进行符合性判定。

除非另有说明, 此报告结果仅对检测的样品负责。本报告未经本公司书面许可, 不可部分复制。

检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



SGS-STD Standards Technical Services (Shanghai) Co., Ltd.
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No.: SHAEC26009262104

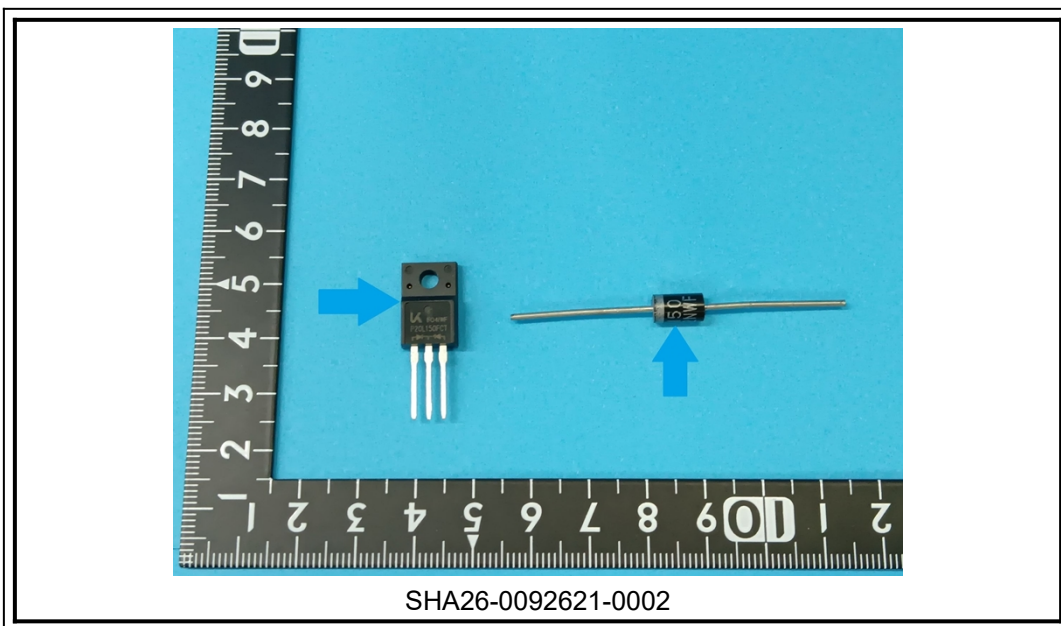
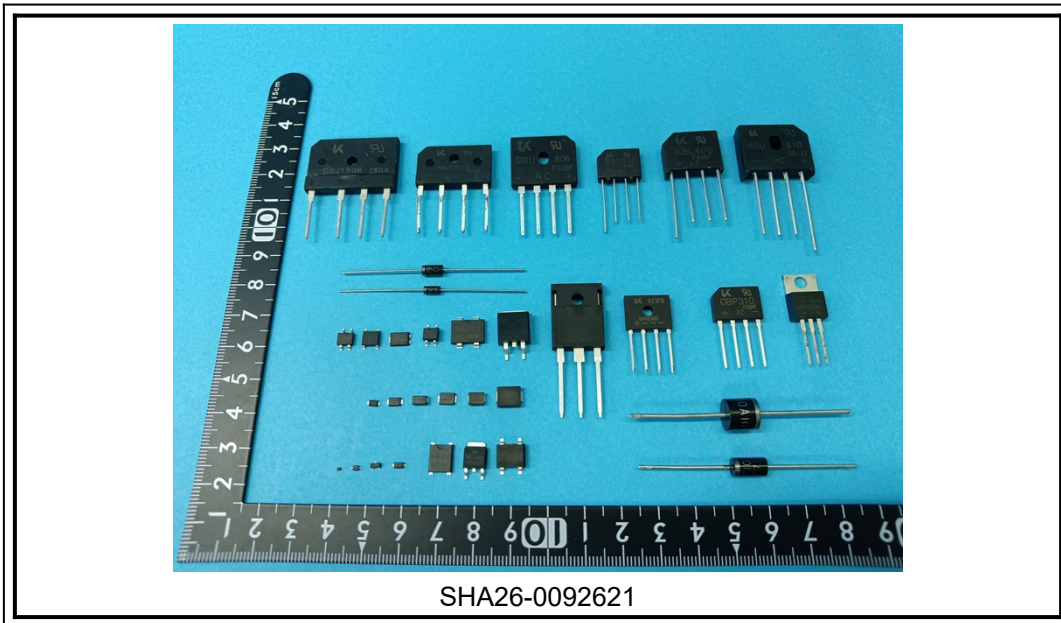
Date: Apr 15, 2026

Page 28 of 28

日期: 2026 年 04 月 15 日 页码 28 of 28

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