

检测报告

编号: SHAEC26014293218

日期: 2026年05月28日

第1页, 共16页

客户名称: 捷捷半导体有限公司
客户地址: 南通市苏通科技产业园井冈山路6号

样品名称: TO-220A
客户参考信息: 见附件
以上样品及信息由客户提供。

SGS 工作编号: SHP26-017926
样品接收时间: 2026年05月20日
检测周期: 2026年05月20日 ~ 2026年05月28日
检测要求: 根据客户要求检测。
检测方法: 见后续页。
检测结果: 见后续页。

| 检测要求 | 结论 |
|---|----|
| 欧盟 POPs 法规(EU) 2019/1021 附录 I-C ₁₀ -C ₁₃ 氯代烃(短链氯化石蜡)(SCCPs) | 符合 |
| 欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2024/2570-六溴环十二烷(HBCDD) 及其非对映异构体(α -HBCDD, β -HBCDD, γ -HBCDD) | 符合 |
| 欧盟 POPs 法规 (EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/718 - 全氟辛酸(PFOA)及其盐, 全氟辛酸(PFOA)相关化合物, 全氟辛烷磺酸(PFOS)及其盐和全氟辛烷磺酸(PFOS)相关化合物 | 符合 |
| 欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2021/277- 五氯苯酚(PCP)及其盐和酯 | 符合 |
| 欧盟 POPs 法规 (EU) 2019/1021 及其修正法规(EU) 2023/1608-全氟己烷磺酸(PFHxS)及其盐和相关化合物 | 符合 |
| 欧盟 POPs 法规(EU) 2019/1021 附录 I-卤代化合物 | 符合 |
| 欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/843- UV-328 | 符合 |

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罗萍

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批准签署人

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| 检测要求 | 结论 |
|---|----|
| 欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/1930- 得克隆 (DP) | 符合 |

检测结果:

检测部件外观描述:

| 样品序号 | 样品编号 | SGS 样品 ID | 样品描述 |
|------|------|-------------------------|------|
| SN1 | A1 | SHA26-0142932-0001.C001 | 黑色固体 |

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

欧盟 POPs 法规(EU) 2019/1021 附录 I-C₁₀-C₁₃ 氯代烃(短链氯化石蜡)(SCCPs)

检测方法: 参考 ISO 22818:2021, 采用 GC-NCI-MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|---|----------------|------|-------|-----|----|
| C ₁₀ -C ₁₃ 氯代烃(短链氯化石蜡)(SCCPs) | 85535-84-8 及其它 | 1500 | mg/kg | 50 | ND |
| 结论 | | | | | 符合 |

欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2024/2570-六溴环十二烷(HBCDD) 及其非对映异构体(α-HBCDD, β-HBCDD, γ-HBCDD)

检测方法: SGS 内部方法, 采用 GC-MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|---|--|----|-------|-----|----|
| 六溴环十二烷(HBCDD) 及其非对映异构体(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 |
| 结论 | | | | | 符合 |

备注:

- (1) 委员会应在 2026 年 1 月 1 日前审查和评估规定的豁免。

欧盟 POPs 法规 (EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/718 - 全氟辛酸(PFOA)及其盐, 全氟辛酸(PFOA)相关化合物, 全氟辛烷磺酸(PFOS)及其盐和全氟辛烷磺酸(PFOS)相关化合物

检测方法: 优化的 EN 17681-1:2025, 采用 LC-MS 或 LC-MS/MS 和 GC-MS 或 GC-MS/MS 进行分析。



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| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|--|------------------------|-------|-------|-------|----|
| PFOS, 及其盐 | | | | | |
| 全氟辛烷磺酸 (PFOS), 及其盐 [^] | 1763-23-1 | 0.025 | mg/kg | 0.010 | ND |
| PFOS 相关化合物 | | | | | |
| N-乙基全氟辛烷磺酰胺 (N-EtFOSA) | 4151-50-2 | - | mg/kg | 0.010 | ND |
| N-甲基全氟辛烷磺酰胺 (N-MeFOSA) | 31506-32-8 | - | mg/kg | 0.010 | ND |
| 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-甲基全氟辛基磺酰胺)乙醇 (N-MeFOSE) | 24448-09-7 | - | mg/kg | 0.010 | ND |
| 全氟辛基磺酰胺 (PFOSA), 及其盐 [^] | 754-91-6 | - | mg/kg | 0.010 | ND |
| 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-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-乙基-N-(全氟-1-辛烷磺酰基)甘氨酸 (N-EtFOSAA), 及其盐 [^] | 2991-50-6 | - | mg/kg | 0.010 | ND |
| 2-(N-乙基全氟辛烷磺酰胺基)丙烯酸乙酯 (EtFOSAC) | 423-82-5 | - | mg/kg | 0.200 | ND |
| PFOS 相关化合物总和 | - | 1 | mg/kg | - | ND |
| PFOA, 及其盐 | | | | | |
| 全氟辛酸 (PFOA), 及其盐 [^] | 335-67-1 | 0.025 | mg/kg | 0.010 | ND |
| PFOA 相关化合物 | | | | | |
| 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 |
| 全氟辛酸甲酯 (Me-PFOA) | 376-27-2 | 1 | mg/kg | 0.200 | ND |
| 全氟辛酸乙酯 (Et-PFOA) | 3108-24-5 | 1 | mg/kg | 0.200 | ND |
| 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-甲基丙烯酸全氟癸酯 (8:2 FTMA) | 1996-88-9 | 1 | mg/kg | 0.100 | ND |
| 全氟辛基碘烷 (PFOI) | 507-63-1 | 1 | mg/kg | 0.200 | ND |
| 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-全氟-1-癸醇 (8:2 FTOH) | 678-39-7 | 1 | mg/kg | 0.100 | ND |
| 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-全氟癸基三乙氧基硅烷 (8:2 FTSi(OC ₂ H ₅) ₃) | 101947-16-4 | 1 | mg/kg | 0.100 | ND |
| 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-全氟十一烷酸 (8:3 FTCA), 及其盐 [^] | 34598-33-9 | 1 | mg/kg | 0.010 | ND |
| 全氟辛基乙烯 (PFDE) | 21652-58-4 | 1 | mg/kg | 0.100 | ND |
| 3-全氟庚基丙酸 (7:3 FTCA) | 812-70-4 | 1 | mg/kg | 0.010 | ND |
| 1H,1H,2H,2H-全氟癸基三氯硅烷 (8:2 FTSiCl ₃)/ | 78560-44-8 /83048-65-1 | 1 | mg/kg | 0.100 | ND |



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| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|--|-------------|----|-------|-------|----|
| 1H,1H,2H,2H-全氟癸基三甲氧基硅烷 (8:2 FTSi(OCH ₃) ₃) | | | | | |
| 2H-全氟-2-癸烯酸 (8:2 FTUCA) | 70887-84-2 | 1 | mg/kg | 0.010 | ND |
| 6:8 全氟次磷酸 (6:8 PFPI) | 610800-34-5 | 1 | mg/kg | 0.010 | ND |
| 8:8 全氟次磷酸 (8:8 PFPI), 及其盐 [^] | 40143-79-1 | 1 | mg/kg | 0.010 | ND |
| 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 |
| 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-全氟-1-十二烷醇 (10:2 FTOH) | 865-86-1 | 1 | mg/kg | 0.100 | ND |
| 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-全氟十二烷磺酸 (10:2 FTS), 及其盐 [^] | 120226-60-0 | 1 | mg/kg | 0.100 | ND |
| 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-全氟-2-十二烯酸 (10:2 FTUCA) | 70887-94-4 | 1 | mg/kg | 0.010 | ND |
| 2-全氟癸基乙酸 (10:2 FTCA) | 53826-13-4 | 1 | mg/kg | 0.010 | ND |
| 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-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-全氟十二烷基甲基丙烯酸酯 (10:2 FTMA) | 2144-54-9 | 1 | mg/kg | 0.100 | ND |
| 全氟癸基乙基碘 (10:2 FTI) | 2043-54-1 | 1 | mg/kg | 0.100 | ND |
| 1H,1H,2H,2H-全氟十四烷基碘 (12:2 FTI) | 30046-31-2 | 1 | mg/kg | 0.100 | ND |
| 1-碘全氟癸烷 (PFDI) | 423-62-1 | 1 | mg/kg | 0.100 | ND |
| 全氟碘代十二烷 (PFDoDI) | 307-60-8 | 1 | mg/kg | 0.100 | ND |
| PFOA 相关化合物总和 | - | 1 | mg/kg | - | ND |
| 结论 | | | | | 符合 |

备注:

- (1) 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。
- (2) [^]=物质是指下表中列出的盐/衍生物。

| 物质名称 | CAS No. |
|--------------------------------|------------|
| PFOS, 及其盐&衍生物 | |
| 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 |



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| | |
|---|--------------|
| 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 |
| 全氟辛烷磺酸吡啶 | 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)脒 | 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 |
| 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 |



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| | |
|---|--------------|
| 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 |
| 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 |
| 全氟辛酸苯基哌嗪 (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 |



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| | |
|--|--------------|
| 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全氟次磷酸(8:8 PFPI) | 40143-79-1 |
| 8:8全氟次磷酸钠盐(8:8 PFPI-Na) | 500776-69-2 |
| 8:8全氟次磷酸铟(3+)盐(8:8 PFPI-Er) | 500776-70-5 |
| 8:8全氟次磷酸镱(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 |
| 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 |



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(3) 结论仅针对报告上的物质清单。

欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2021/277- 五氯苯酚(PCP)及其盐和酯

检测方法: 参考 EN 17134-2:2023, 采用 GC-MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|----------------|----------------|----|-------|-----|----|
| 五氯苯酚(PCP)及其盐和酯 | 87-86-5 和其它 | 5 | mg/kg | 0.5 | ND |
| 结论 | | | | | 符合 |

欧盟 POPs 法规 (EU) 2019/1021 及其修正法规(EU) 2023/1608-全氟己烷磺酸(PFHxS)及其盐和相关化合物

检测方法: 优化的 EN 17681-1:2025, 采用 LC-MS 或 LC-MS/MS 和 GC-MS 或 GC-MS/MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|---|------------|-------|-------|-------|----|
| PFHxS, 及其盐 | | | | | |
| 全氟己基磺酸 (PFHxS), 及其盐^ | 355-46-4 | 0.025 | mg/kg | 0.010 | ND |
| PFHxS 相关化合物 | | | | | |
| N-甲基全氟-1-己磺酰胺 (N-Me-PFHxSA) | 68259-15-4 | 1 | mg/kg | 0.010 | ND |
| 全氟己烷磺酰胺 (PFHxSA) | 41997-13-1 | 1 | mg/kg | 0.010 | ND |
| 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-[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-[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-[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 |
| 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 |
| 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 |
| PFHxS 相关化合物总和 | - | 1 | mg/kg | - | ND |
| 结论 | | | | | 符合 |

备注:

(1) 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) |



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| | | |
|------------------------|-----------|----------------------------|
| 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) |
|------------------------|-----------|----------------------------|

(2) 本报告中检测的全氟己烷磺酸(PFHxS)及其盐类和PFHxS相关化合物参考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:

<https://echa.europa.eu/list-of-substances-proposed-as-pops>

(3) ^=物质是指下表列出的盐/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 |
| 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-(2,2-二苯基噁吩基)苯基]-1,2,3a,4,8b-六氢环戊并[b]呋啉-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ethyl)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(9Cl)(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 |
| 全氟己基磺酸铈(PFHxS-Sc) | 350836-93-0 |



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| | |
|---|--------------|
| 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 |
| 全氟己基磺酸锌(PFHxS-Zn) | 70136-72-0 |
| 全氟己基磺酸与2,2'-亚氮二乙醇络合物(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 |

(4) 结论仅针对报告上的物质清单。

欧盟 POPs 法规(EU) 2019/1021 附录 I-卤代化合物

检测方法: SGS 内部方法, 采用 GC-ECD 或 GC-MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|-------------|------------------|----|-------|-----|----|
| 六氯丁二烯 | 87-68-3 | 禁用 | mg/kg | 5 | ND |
| 五氯苯 | 608-93-5 | 禁用 | mg/kg | 5 | ND |
| 多氯联苯 (PCBs) | 1336-36-3 和其它 | 禁用 | mg/kg | 0.2 | ND |
| 多氯萘(PCNs) | 70776-03-3 | 禁用 | mg/kg | 5 | ND |



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| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|------------------|-------------------|----|-------|-----|-----------|
| | 和其它 | | | | |
| 六溴联苯 | 36355-01-8 | 禁用 | mg/kg | 5 | ND |
| 四溴二苯醚 (TetraBDE) | 40088-47-9 和其它 | - | mg/kg | 5 | ND |
| 五溴二苯醚 (PentaBDE) | 32534-81-9 和其它 | - | mg/kg | 5 | ND |
| 六溴二苯醚 (HexaBDE) | 36483-60-0 和其它 | - | mg/kg | 5 | ND |
| 七溴二苯醚 (HeptaBDE) | 68928-80-3 和其它 | - | mg/kg | 5 | ND |
| 十溴二苯醚 (DecaBDE) | 1163-19-5 | - | mg/kg | 5 | ND |
| 多溴二苯醚总和* | - | 10 | mg/kg | - | ND |
| 结论 | | | | | 符合 |

备注:

- (1) 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。
- (2) 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。
- (3) 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

²2009/48/EC 指令范围内的玩具

(4) 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)。

欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/843- UV-328

检测方法: SGS 内部方法, 采用 GC-MS 进行分析。



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| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|--------|------------|-----|-------|-----|----|
| UV-328 | 25973-55-1 | 100 | mg/kg | 1 | ND |
| 结论 | | | | | 符合 |

备注:

(1) 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 |

欧盟 POPs 法规(EU) 2019/1021 附录 I 及其修正法规 (EU) 2025/1930- 得克隆 (DP)

检测方法: SGS 内部方法, 采用 GC-MS 进行分析。

| 检测项目 | CAS No. | 限值 | 单位 | MDL | A1 |
|----------|--|------|-------|-----|----|
| 得克隆 (DP) | 13560-89-9 /135821-03-3 /135821-74-8 | 1000 | mg/kg | 1 | ND |
| 结论 | | | | | 符合 |

备注:

(1) 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 |

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。



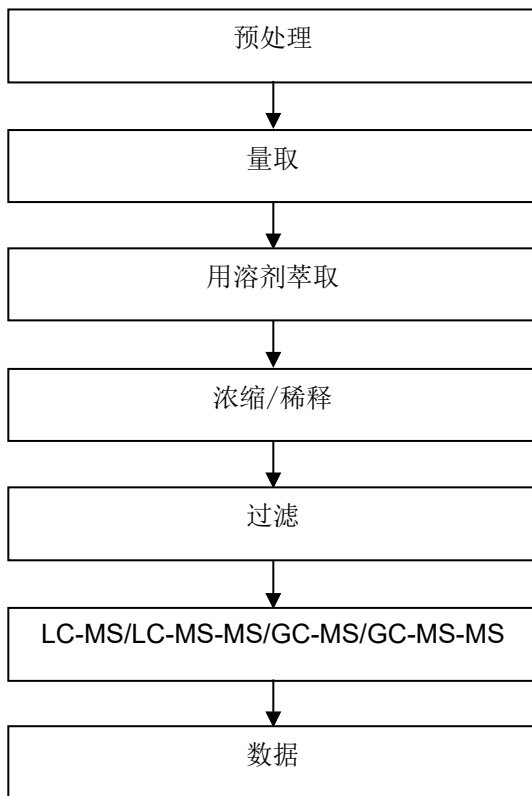
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PFASs/ PFOS/PFOA 检测流程图



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编号: SHAEC26014293218

日期: 2026年05月28日

第15页, 共16页

附件:

402、603、2510、62mm、ABS、DBS、DFN0603-2L、DFN1006-2L、DFN1006-3L、DFN10x15-5L、DFN10x15-5L-XX、DFN1610-2L、DFN1610-6L、DFN2010-5L、DFN2010-8L、DFN2020-2L、DFN2020-3L、DFN2020-6L、DFN2020-6L-XX、DFN2020-8L、DFN2510-10L、DFN2626-10L、DFN2x2-3L、DFN2x2-6L、DFN2x2-6L-D、DFN2x2-6L-XX、DFN3.0x3.0-8L、DFN3.0x3.0-8L-SD (Type、B)、DFN3.3x3.3-8L-XX、DFN3.0x3.0-8L-XX、DFN3.3x3.3-8L、DFN3.3x3.3-8L (Type、B)、DFN3.3x3.3-8L-XX、DFN3020-10L、DFN3030-8L、DFN3030-8L-XX、DFN3030-12L、DFN3333-2L、DFN3333-8L、DFN3810-9L、DFN3x3-8L-XX、DFN4120-10L、DFN5060-8L、DFN5060-8L-XX、DFN5515-18L、DFN5x6-8L、DFN5x6-8L(Dual)、DFN5x6-8L-XX、DFN8080-2L、DFN8080-4L、DFN8x8-2L、DFN8x8-4L、DFN8x8-4L-XX、DIP-4、DIP-5、DO-15、DO-218AB、DO-27、DO-41、DriveJM-34、DriveJM-62、DriveJM-DC、DriveJM-E1、DriveJM-E2、DriveJM-EC、DriveJM-ED、DriveJM-H1、DriveJM-H2、EasyPack1B、EconoDual、ESOP-8、F3、FBP-02C-A、GBJ、GBL、GBU、IGBT-34mm、ITO-247、ITO-247-XX、KBL、KBP、LFPK5x6-8L、LSOP-4、MBF、MBS、P6、PDFN3.3x3.3-8L、PDFN3.3x3.3-8L-XX、PDFN3x3-8L、PDFN3x3-8L-XX、PDFN5x6-8L、PDFN5x6-8L-XX、PDFN5x7-10L-XX、PowerJE10x12、PowerJE5x6、PowerJE7x8、PowerJE8x8、PPTC、R6、SGBJ、SGD0201、SGD0402、SMA、SMAF、SMAW、SMB、SMBF、SMC、SMC-3、SMD-3225、SMD-4032、SMD-5、SMT、SMT-4、SMTF、SMTJ、SMTO-218Tab、SOD-123、SOD-123FL、SOD-123FLT、SOD-323、SOD-323F、SOD-323FL、SOD-523、SOD-723、SOD-923、SOP-10、SOP-16、SOP-4、SOP-5、SOP-7、SOP-8、SOP-8-XX、SOT-143、SOT-143-XX、SOT-223、SOT-223-XX、SOT-227、SOT-227-XX、SOT-23、SOT-23-XX、SOT-323、SOT-323-XX、SOT-353、SOT-353-XX、SOT-363、SOT-363-XX、SOT-523、SOT-523-XX、SOT-563、SOT-563-XX、SOT-723、SOT-723-XX、SOT-82、SOT-89、SOT-89R-XX、SOT-89-XX、SSOP-16、SSOP-4、STOLL7x8-5L、T2B、TO-126、TO-202、TO-202-XX、TO-220A、TO-220A-2D-XX、TO-220AB、TO-220A-XX、TO-220B、TO-220B-XX、TO-220C、TO-220C-XX、TO-220F、TO-220FA、TO-220FA-XX、TO-220FP、TO-220FP-XX、TO-220HF、TO-220H-XX、TO-220MF-3L、TO-220-XX、TO-247、TO-247-XX、TO-247i-XX、TO-247iL-XX、TO-247iPS-XX、TO-247J、TO-247J-XX、TO-247plus、TO-247S、TO-247S-XX、TO-251、TO-251L-XX、TO-251S、TO-251-XX、TO-252、TO-252-XX、TO-262、TO-262-XX、TO-263、TO-263-XX、TO-277B、TO-3P、TO-3P-3L、TO-3PF-3L、TO-3PN-3L、TO-92、TO-92CR、TO-92KR、TO-92KRF、TO-92UR、TO-92-XX、TOLL9.9x10.38-8L、TOLT、TSSOP-8、TSSOP-8、WSOP-6



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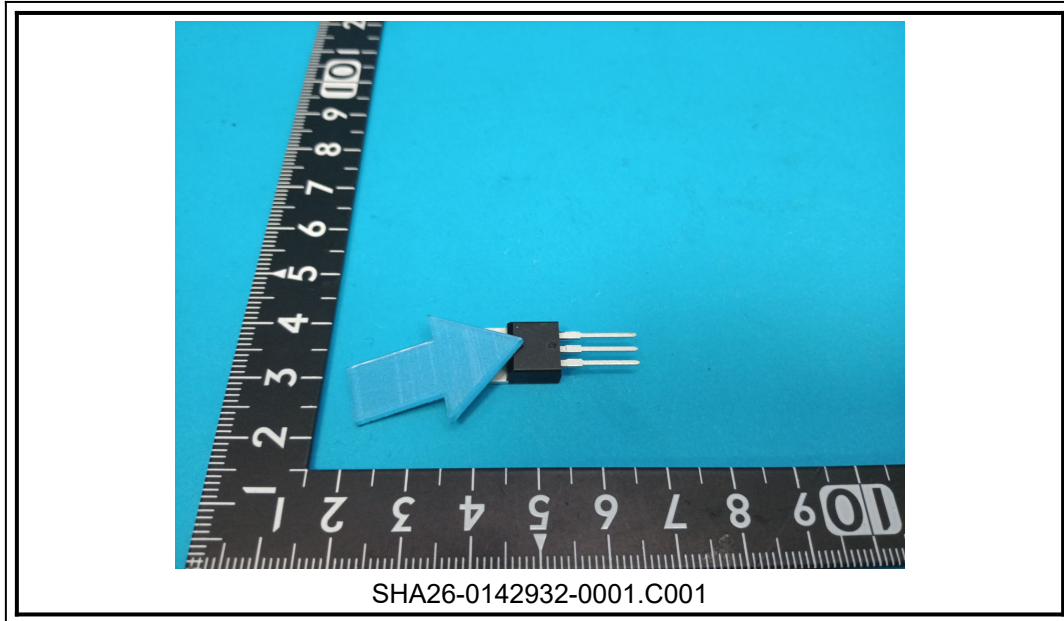
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第 16 页, 共 16 页

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