

检测报告

编号: CANEC2209914116

日期: 2022年06月03日 第1页,共15页

客户名称: 优耐铜材(苏州)有限公司
客户地址: 江苏省苏州市高新区金枫路567号

样品名称: 硫酸铜溶液
型号: 超纯级
客户参考信息: 最纯级/半导体级 硫酸铜溶液
以上样品及信息由客户提供。

SGS工作编号: CP22-026415 - GZ
内部编号: 22655395
样品接收日期: 2022年05月17日
检测周期: 2022年05月17日 - 2022年05月31日
检测要求: 根据客户要求检测
检测方法: 请参见下一页
检测结果: 请参见下一页
结论:

基于所送样品进行的检测, 镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸酯(如邻苯二甲酸二丁酯(DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP))的检测结果显示符合欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863的限值要求。

通标标准技术服务有限公司广州分公司
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任婷

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批准签署人

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检测报告

编号: CANEC2209914116

日期: 2022年06月03日 第2页,共15页

检测结果:

检测样品描述:

样品编号	SGS样品ID	描述
SN1	CAN22-099141.008	紫色液体

备注:

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

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

检测方法: 参考IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015
 和 IEC 62321-8:2017, 采用 ICP-OES, UV-Vis 和 GC-MS 进行分析。

检测项目	限值	单位	MDL	008
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(Cr(VI))	1,000	mg/kg	8	ND
多溴联苯之和(PBBs)	1,000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1,000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND
五溴二苯醚	-	mg/kg	5	ND



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检测项目	限值	单位	MDL	008
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND
邻苯二甲酸二丁酯 (DBP)	1,000	mg/kg	50	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	50	ND

备注:

(1)最大允许极限值引用自RoHS指令(EU) 2015/863。

(2) IEC 62321 系列等同于 EN 62321 系列

https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(3) 2021年7月22号开始, DEHP, BBP, DBP 和 DIBP的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

卤素

检测方法: 参考EN 14582:2016, 用 IC分析。

检测项目	单位	MDL	008
氟 (F)	mg/kg	50	ND
氯 (Cl)	mg/kg	50	ND
溴 (Br)	mg/kg	50	ND
碘 (I)	mg/kg	50	ND

元素分析

检测方法: SGS内部方法 (GZTC CHEM-TOP-009-01, 参考EPA 3050B:1996), 采用ICP-OES进行分析。

检测项目	单位	MDL	008
锑 (Sb)	mg/kg	10	ND



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邻苯二甲酸酯

检测方法: 参考 IEC 62321-8:2017, 采用 GC-MS 进行分析。

检测项目	CAS NO.	单位	MDL	008
邻苯二甲酸二异癸酯 (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.005	ND
邻苯二甲酸二正辛酯 (DNOP)	117-84-0	%(w/w)	0.005	ND
邻苯二甲酸二正己酯 (DnHP)	84-75-3	%(w/w)	0.005	ND

六溴环十二烷(HBCDD)

检测方法: SGS 内部方法(GZTC CHEM-TOP-073, 参考EPA 3550C:2007), 采用GC-MS进行分析。

检测项目	CAS NO.	单位	MDL	008
六溴环十二烷(HBCDD) 及其非对映异构体(α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	mg/kg	10	ND

多环芳香烃

检测方法: 参考AfPS GS 2019:01 PAK 检测, 采用 GC-MS进行分析。

检测项目	CAS NO.	单位	MDL	008
萘 (NAP)	91-20-3	mg/kg	0.1	ND
菲 (PHE)	85-01-8	mg/kg	0.1	ND
蒽 (ANT)	120-12-7	mg/kg	0.1	ND
荧蒽 (FLT)	206-44-0	mg/kg	0.1	ND
苊 (PYR)	129-00-0	mg/kg	0.1	ND
苯并(a)蒽 (BaA)	56-55-3	mg/kg	0.1	ND
䓛 (CHR)	218-01-9	mg/kg	0.1	ND
苯并(b)荧蒽 (BbF)	205-99-2	mg/kg	0.1	ND
苯并(j)荧蒽 (BjF)	205-82-3	mg/kg	0.1	ND
苯并(k)荧蒽 (BkF)	207-08-9	mg/kg	0.1	ND
苯并(a)苊 (BaP)	50-32-8	mg/kg	0.1	ND
苯并(e)苊 (BeP)	192-97-2	mg/kg	0.1	ND
茚并(1,2,3-c,d)苊 (IPY)	193-39-5	mg/kg	0.1	ND



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检测项目	CAS NO.	单位	MDL	008
二苯并(a,h)蒽(DBA)	53-70-3	mg/kg	0.1	ND
苯并(g,h,i)芘(二苯嵌苯) (BPE)	191-24-2	mg/kg	0.1	ND
蒽烯(ANY)	208-96-8	mg/kg	0.1	ND
蒽(蒽嵌戊烷) (ANA)	83-32-9	mg/kg	0.1	ND
苊 (FLU)	86-73-7	mg/kg	0.1	ND
7项多环芳香烃总和[蒽烯(ANY), 蒽(蒽嵌戊烷) (ANA), 苊 (FLU), 苊 (PHE), 苊 (PYR), 蒽 (ANT), 苊蒽 (FLT)]	-	mg/kg	-	ND
18项多环芳香烃总和	-	mg/kg	-	ND

客户要求

参数 (mg/kg)	1 类	2 类		3 类	
	设计意图为放入口中的材料, 或与皮肤长期接触 (超过 30 秒) 的材料用于 -2009/48/EC 定义的玩具, 或 -供3岁以下儿童 ^{a,b} 使用。	不属于第 1 类, 设计意图或可预见 ^d 与皮肤长期接触 (超过 30 秒) 或短期重复接触 ^c 的材料		不属于第 1 和 2 类, 设计意图或可预见与皮肤短期接触 (不超过 30 秒) 材料	
		a. 供儿童使用的产品	b. 其他产品	a. 供儿童使用的产品	b. 其他产品
苯并(a)芘 (BaP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(e)芘 (BeP)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(a)蒽 (BaA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(b)苊蒽 (BbF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(j)苊蒽 (BjF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(k)苊蒽 (BkF)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苊 (CHR)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
二苯并(a,h)蒽 (DBA)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苯并(g,h,i)苊(二苯嵌苯) (BPE)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苊苯(1,2,3-c,d)苊 (IPY)	< 0.2	< 0.2	< 0.5	< 0.5	< 1
苊 (PHE), 苊 (PYR), 蒽 (ANT), 苊蒽 (FLT), 蒽烯 (ANY), 蒽(蒽嵌戊烷) (ANA), 苊 (FLU), 7 PAH 之和	< 1 (总和)	< 5 (总和)	< 10 (总和)	< 20 (总和)	< 50 (总和)
萘 (NAP)	< 1	< 2		< 10	
18 PAH之和	< 1	< 5	< 10	< 20	< 50

注释:

^a 儿童是指法定年龄未满 14 周岁的人。^b 供儿童使用包括儿童的主动接触或被动接触。^c “短期重复接触”的定义摘自 REACH 附录 XVII 第 50 条修正案 ((EC) No. 1272/2013)。^d 根据德国产品安全法 (ProdSG) (第一章第 2 条第 28 款) 的定义, “可预见的使用”是指将产品投放市场的人无意但可以合理预见的方式使用产品。

备注: 材料的分类参考 2020 年 4 月 10 日发布的 AfPS GS 2019:01 PAK 标准。蒽烯(ANY)、蒽(蒽嵌戊烷) (ANA)和苊 (FLU) 不在 AfPS GS 2019:1 PAK 的范围内, 但是结合其在 AfPS GS 2014:01 PAK 的范围内, 以及考虑到 LFGB 章节 30 的产品安全要求, 推荐进行测试。



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全氟辛酸(PFOA)及其盐 & 全氟辛烷磺酸 (PFOS)及其衍生物

检测方法: 参考CEN/TS 15968:2010, 采用LC-MS或LC-MS/MS进行分析。

检测项目	CAS NO.	单位	MDL	008
全氟辛酸 (PFOA) 及其盐+	335-67-1	mg/kg	10.000	ND
全氟辛烷磺酸 (PFOS)^	1763-23-1	mg/kg	10.000	ND
全氟辛基磺酰胺(PFOSA)	754-91-6	mg/kg	10.000	ND
N-甲基全氟辛烷磺酰胺(MeFOSA)	31506-32-8	mg/kg	10.000	ND
N-乙基全氟辛烷磺酰胺(EtFOSA)	4151-50-2	mg/kg	10.000	ND
2-(N-甲基全氟辛基磺酰胺) 乙醇(MeFOSE)	24448-09-7	mg/kg	10.000	ND
2-(N-乙基全氟辛基磺酰胺) 乙醇(EtFOSE)	1691-99-2	mg/kg	10.000	ND
全氟辛烷磺酸 (PFOS) 及其衍生物	-	mg/kg	-	ND

备注:

(1) + PFOA 及其盐包含PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) 和 APFO (CAS No.: 3825-26-1);

(2) ^ 全氟辛烷磺酸 (PFOS) 包含 PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH₄ (CAS No.: 29081-56-9), PFOS-NH(OH)₂ (CAS No.: 70225-14-8), PFOS-N(C₂H₅)₄ (CAS No.: 56773-42-3), PFOS-DDA (CAS No.: 251099-16-8) 和 POSF (CAS No.: 307-35-7)C₁₀~C₁₃ 氯代烃(短链氯化石蜡)(SCCPs)和C₁₄~C₁₇ 氯代烃(中链氯化石蜡)(MCCPs)

检测方法: 参考ISO 18219-1:2021 & ISO 18219-2:2021, 采用GC-NCI-MS进行分析。

检测项目	CAS NO.	单位	MDL	008
C ₁₀ ~C ₁₃ 氯代烃(短链氯化石蜡)(SCCPs)	85535-84-8 和 其它	mg/kg	50	ND
C ₁₄ ~C ₁₇ 氯代烃(中链氯化石蜡)(MCCPs)	85535-85-9 和 其它	mg/kg	50	ND

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。

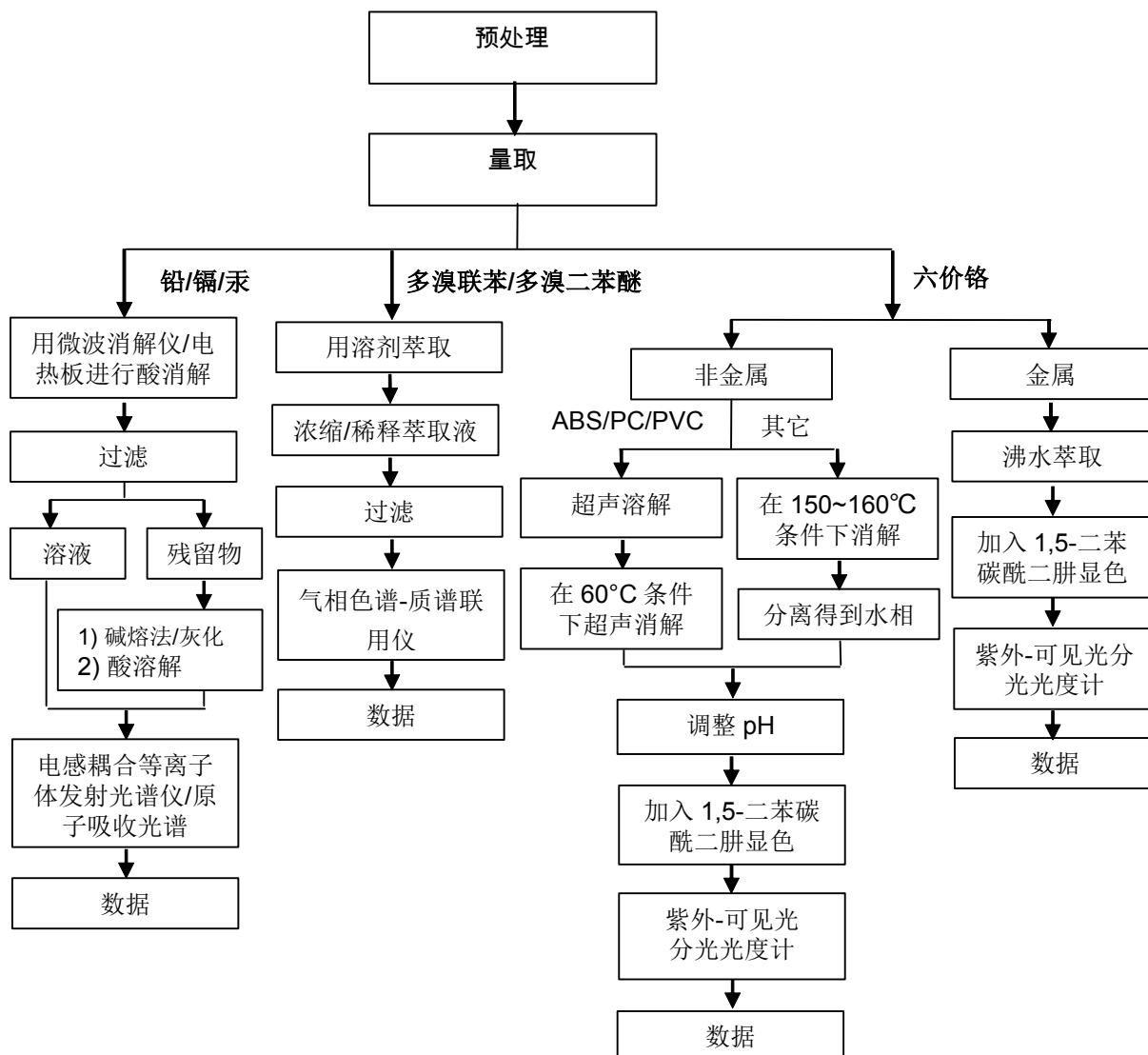
检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



附件

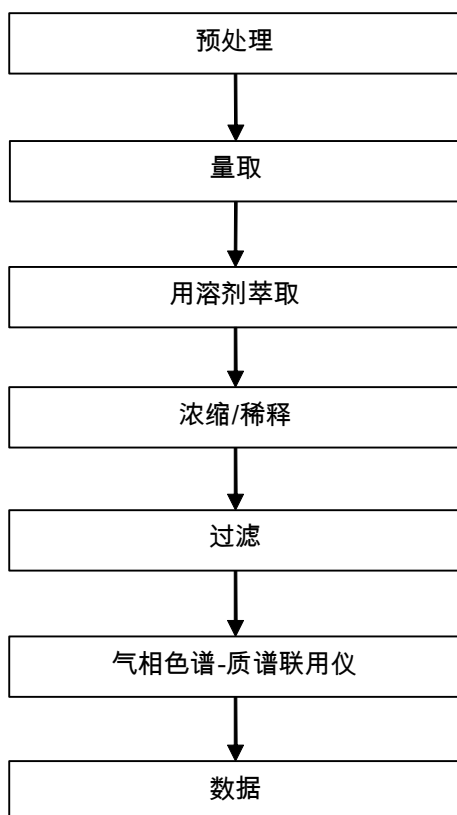
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs 检测流程图

1) 样品按照下述流程被完全消解(六价铬和多溴联苯/多溴二苯醚检测除外)。



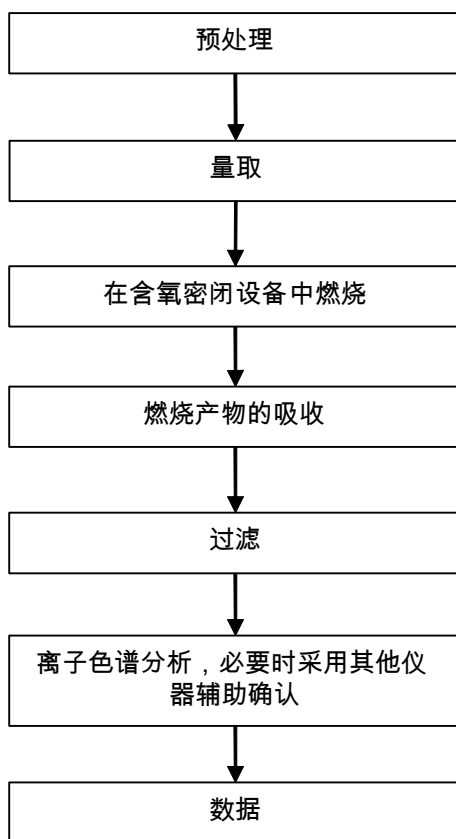
附件

Phthalates 检测流程图



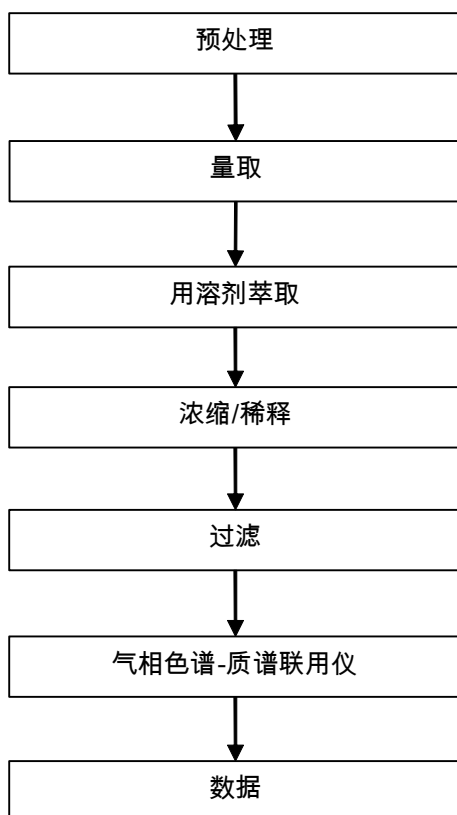
附件

Halogen 检测流程图



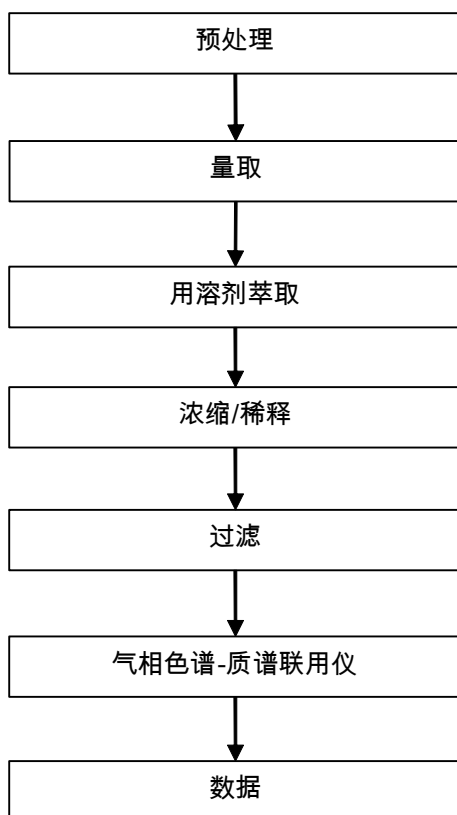
附件

HBCDD 检测流程图



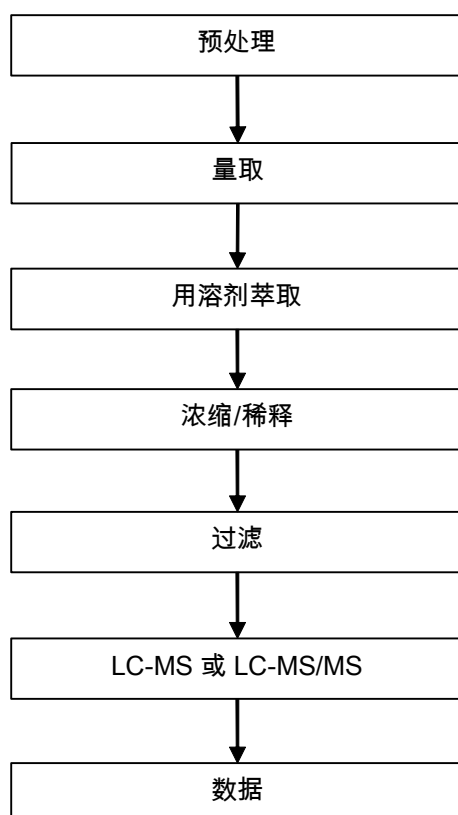
附件

PAHs 检测流程图



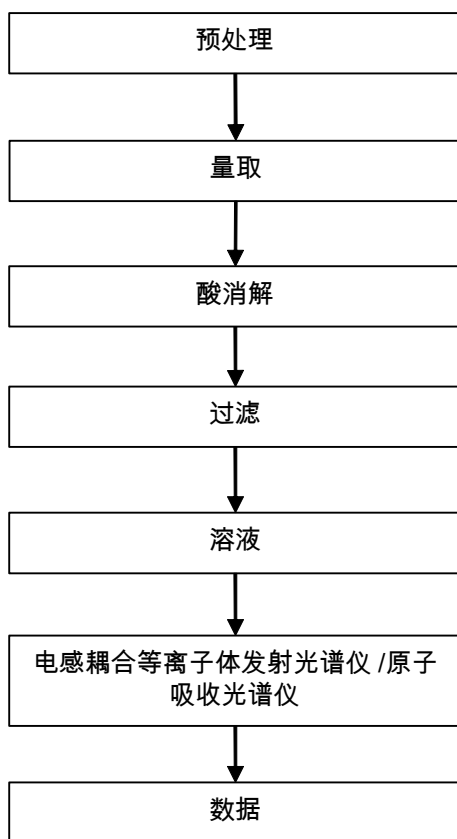
附件

PFOA / PFOS 检测流程图



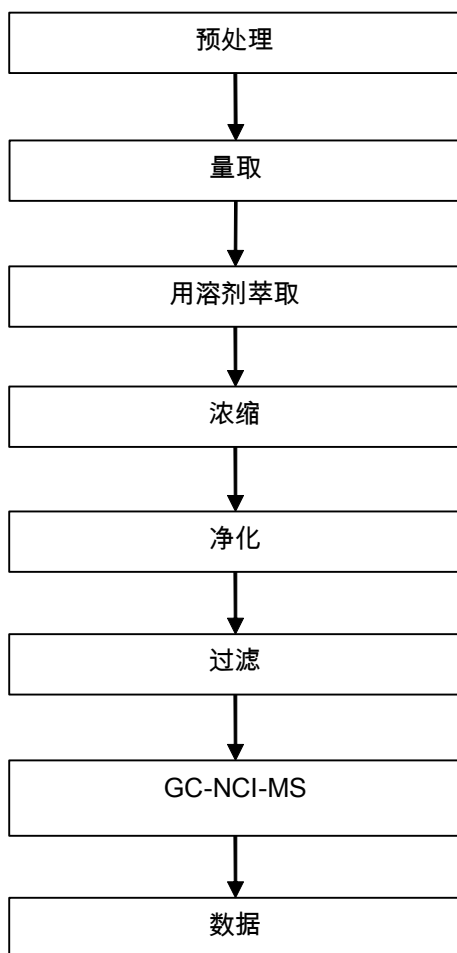
附件

元素检测流程图



附件

SCCP/MCCP/LCCP 检测流程图



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