

TEST REPORT (测试报告件)

申请公司(APPLICANT) : SAMSUNG ELECTRO-MECHANICS
公司住所(ADDRESS) : 150, Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, Korea

报告号(REPORT NO.) : RT22R-S5577-028-C1

日期(DATE) : 2022 年 11 月 02 日

样品描述(SAMPLE DESCRIPTION) :

样品名称 : MLCC F(Y5V) TYPE
(NAME/TYPE OF PRODUCT)
样品编号 : RT22R-S5577-028
(SAMPLE ID NO.)
生产商/贸易商 : SAMSUNG ELECTRO-MECHANICS
(MANUFACTURER/VENDOR)
样品收到日期 : 2022年 10月14日
(SAMPLE RECEIVED)
测试进行日期 : 2022年 10月17日至 2022年 11月01日
(TESTING DATE)
测试方法 : 参考续页.
(TEST METHOD(S)) : Please see the following page(s).
测试结果 : 参考续页.
(TEST RESULT(S)) : Please see the following page(s).

注1 : 检测结果只是针对来样所做的测试.
(Note 1 : The test results presented in this report relate only to the object tested.)

注2 : 未经测试实验室书面允许, 报告不能被部分复制.
(Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.)

测试 (Approved by) :



Jade Jang / 测试负责人

批准 (Authorized by) :



Bo Park / 实验室经理



Authenticity check

Intertek Testing Services Korea Ltd.

Seoul Office: Tel : 02-6090-9500 Fax : 02-3409-0025 Web Site : intertek.co.kr

Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea

Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea

第 1 页 共 17 页



※ You can verify the forgery and authenticity by the barcode at the end of this document.

TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期(DATE) : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

测试项目 (TEST ITEM)	单位 (UNIT)	测试方法 (TEST METHOD)	报告限量值 (MDL)	结果 (RESULT)
镉 (Cadmium, Cd)	mg/kg	参照 IEC 62321-5 Edition 1.0 : 2013, 用 ICP-OES 进行的分析	0.5	N.D.
铅 (Lead, Pb)	mg/kg		5	N.D.
汞 (Mercury, Hg)	mg/kg	参照 IEC 62321-4 : 2013/AMD1 : 2017, 用 ICP-OES 进行的分析	2	N.D.
六价铬 (Hexavalent Chromium, Cr ⁶⁺)	mg/kg	参照 IEC 62321-7-2 Edition 1.0 : 2017, by alkaline/toluene digestion 用 UV-VIS Spectrophotometer 进行的分析	8	N.D.
多溴联苯 (Polybrominated Biphenyl, PBBs)				
一溴联苯 (Monobromobiphenyl)	mg/kg	参照 IEC 62321-6 Edition 1.0 : 2015, 用 GC/MS 进行的分析	5	N.D.
二溴联苯 (Dibromobiphenyl)	mg/kg		5	N.D.
三溴联苯 (Tribromobiphenyl)	mg/kg		5	N.D.
四溴联苯 (Tetrabromobiphenyl)	mg/kg		5	N.D.
五溴联苯 (Pentabromobiphenyl)	mg/kg		5	N.D.
六溴联苯 (Hexabromobiphenyl)	mg/kg		5	N.D.
七溴联苯 (Heptabromobiphenyl)	mg/kg		5	N.D.
八溴联苯 (Octabromobiphenyl)	mg/kg		5	N.D.
九溴联苯 (Nonabromobiphenyl)	mg/kg		5	N.D.
十溴联苯 (Decabromobiphenyl)	mg/kg		5	N.D.
多溴联苯醚 (Polybrominated Diphenyl Ether, PBDEs)				
一溴联苯醚 (Monobromodiphenyl ether)	mg/kg	参照 IEC 62321-6 Edition 1.0 : 2015, 用 GC/MS 进行的分析	5	N.D.
二溴联苯醚 (Dibromodiphenyl ether)	mg/kg		5	N.D.
三溴联苯醚 (Tribromodiphenyl ether)	mg/kg		5	N.D.
四溴联苯醚 (Tetrabromodiphenyl ether)	mg/kg		5	N.D.
五溴联苯醚 (Pentabromodiphenyl ether)	mg/kg		5	N.D.
六溴联苯醚 (Hexabromodiphenyl ether)	mg/kg		5	N.D.
七溴联苯醚 (Heptabromodiphenyl ether)	mg/kg		5	N.D.
八溴联苯醚 (Octabromodiphenyl ether)	mg/kg		5	N.D.
九溴联苯醚 (Nonabromodiphenyl ether)	mg/kg		5	N.D.
十溴联苯醚 (Decabromodiphenyl ether)	mg/kg		5	N.D.

Tested by : Jooyeon Lee, Chano Kim, Hayan Park

注释 (Notes) : mg/kg = ppm = 百万分之一 (parts per million)
 < = 小于 (Less than)
 N.D.= 未检出 (Not detected (<MDL))
 MDL = 报告限量值 (Method detection limit)

Intertek Testing Services Korea Ltd.

Seoul Office: Tel : 02-6090-9500 Fax : 02-3409-0025 Web Site : intertek.co.kr

Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea

Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea



※ You can verify the forgery and authenticity by the barcode at the end of this document.

TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

测试项目 (TEST ITEM)	单位 (UNIT)	测试方法 (TEST METHOD)	报告限量值 (MDL)	结果 (RESULT)
溴 (Bromine, Br)	mg/kg	参考 EN 14582, IC 测试定量	30	N.D.
氯 (Chlorine, Cl)	mg/kg	参考 EN 14582, IC 测试定量	30	N.D.
砷 (Arsenic, As)	mg/kg	参考 US EPA 3052, 酸消化法处理样品, ICP-OES 测试定量	2	N.D.
铍 (Beryllium, Be)	mg/kg	参考 US EPA 3052, 酸消化法处理样品, ICP-OES 测试定量	2	N.D.
锑 (Antimony, Sb)	mg/kg	参考 US EPA 3052, 酸消化法处理样品, ICP-OES 测试定量	2	N.D.
聚氯乙烯 (Polyvinyl chloride, PVC)	-	参考 KS K 0210-1, FT-IR 测试定量	N.A.	Negative

Tested by : Chano Kim, Jooyeon Lee

注释 (Notes) : mg/kg = ppm = 百万分之一 (parts per million)
 <= 小于 (Less than)
 N.D.= 未检出 (Not detected (<MDL))
 MDL = 报告限量值 (Method detection limit)
 N.A. = 不适用 (Not applicable)
 Negative = Undetectable
 Positive = Detectable



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期(DATE) : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

测试项目 (TEST ITEM)	单位 (UNIT)	测试方法 (TEST METHOD)	报告限量值 (MDL)	结果 (RESULT)
六溴环十二烷 (Hexabromocyclododecane, HBCDD)	mg/kg	参考 IEC 62321-9 : 2021, 溶剂萃取法, LC/MS 和 GC/MS 测试定量	10	N.D.
SCCP (Short-chain chlorinated paraffin)	mg/kg	参考 US EPA 3540C, 溶剂萃取法, LC/MS/MS 和/或 GC/ECD 测试定量	100	N.D.
PCBs (Polychlorinated biphenyls)	mg/kg	参考 US EPA 3540C/8082, 溶剂萃取法, GC/MS 测试定量	5	N.D.
PCTs (Polychlorinated terphenyls)	mg/kg	参考 US EPA 3540C, 溶剂萃取法, GC/MS 测试定量	5	N.D.
PCNs (Polychlorinated naphthalenes)	mg/kg	参考 US EPA 3540C, 溶剂萃取法, GC/MS 测试定量	5	N.D.
PCP (Pentachlorophenol)	mg/kg	参考 ISO 17070, GC/MS 测试定量	5	N.D.
PFOA (Perfluorooctanoic acid)	mg/kg	参考 US EPA 3550C/8321B, 超声萃取法, LC/MS 或 LC/MS/MS 测试定量	0.025	N.D.
PFOS (Perfluorooctane sulfonate)	mg/kg	参考 US EPA 3550C/8321B, 超声萃取法, LC/MS 或 LC/MS/MS 测试定量	0.1	N.D.

Tested by : Hayan Park

注释 (Notes) : mg/kg = ppm = 百万分之一 (parts per million)

< = 小于 (Less than)

N.D.= 未检出 (Not detected (<MDL))

MDL = 报告限量值 (Method detection limit)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

测试项目 (TEST ITEM)	CAS 数 (CAS NO.)	单位 (UNIT)	测试方法 (TEST METHOD)	报告限量值 (MDL)	结果 (RESULT)
邻苯二甲酸酯 (Phthalates)					
邻苯二甲酸二丁酯 (Di-n-butyl Phthalate, DBP)	84-74-2	mg/kg	参考 IEC 62321-8 Edition 1.0 : 2017, 溶剂萃取法, 气相色谱/质谱联用仪 测试定量	50	N.D.
邻苯二甲酸二(2-乙基己基)酯 (Di(2-ethyl hexyl) phthalate, DEHP)	117-81-7	mg/kg		50	N.D.
邻苯二甲酸二辛酯 (Di-n-octyl phthalate, DNOP)	117-84-0	mg/kg		50	N.D.
邻苯二甲酸二异壬酯 (Diisononyl phthalate, DINP)	28553-12-0 68515-48-0	mg/kg		100	N.D.
邻苯二甲酸二异癸酯 (Diisodecyl phthalate, DIDP)	26761-40-0 68515-49-1	mg/kg		100	N.D.
邻苯二甲酸丁酯苯甲酯 (Benzyl butyl phthalate, BBP)	85-68-7	mg/kg		50	N.D.
邻苯二甲酸二异丁酯 (Diisobutyl phthalate, DIBP)	84-69-5	mg/kg		50	N.D.
酞酸二甲酯 (Dimethyl phthalate, DMP)	131-11-3	mg/kg		50	N.D.
酞酸二乙酯 (Diethyl phthalate, DEP)	84-66-2	mg/kg		50	N.D.
邻苯二甲酸二戊酯 (Di-n-pentyl phthalate, DPP)	131-18-0	mg/kg		50	N.D.
邻苯二甲酸二己酯 (Di-n-hexyl phthalate, DNHP)	84-75-3	mg/kg		50	N.D.
邻苯二甲酸二 C6-8 支链烷基酯(富 C7) (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich, DIHP)	71888-89-6	mg/kg		50	N.D.

Tested by : Hayan Park

注释 (Notes) : mg/kg = ppm = 百万分之一 (parts per million)
 < = 小于 (Less than)
 N.D.= 未检出 (Not detected (<MDL))
 MDL = 报告限量值 (Method detection limit)

第 5 页 共 17 页

Intertek Testing Services Korea Ltd.

Seoul Office: Tel : 02-6090-9500 Fax : 02-3409-0025 Web Site : intertek.co.kr

Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea

Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea



※ You can verify the forgery and authenticity by the barcode at the end of this document.

TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

测试项目 (TEST ITEM)	CAS 数 (CAS NO.)	单位 (UNIT)	测试方法 (TEST METHOD)	报告限量值 (MDL)	结果 (RESULT)
1,2-邻苯二酸二(C7-11 支鏈與直鏈)烷酯 (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters, DHNUP)	68515-42-4	mg/kg	参考 IEC 62321-8 Edition 1.0 : 2017, 溶剂萃取法, 气相色谱/质谱联用仪 测试定量	50	N.D.
邻苯二甲酸二甲氧乙酯 (Di(2-methoxyethyl) phthalate, DMEP)	117-82-8	mg/kg		50	N.D.
邻苯二甲酸二异戊酯 (Diisopentylphthalate, DIPP)	605-50-5	mg/kg		50	N.D.
邻苯二甲酸正戊基异戊基酯 (N-pentyl-isopentylphthalate, NPIP)	776297-69-9	mg/kg		50	N.D.
邻苯二甲酸二环己酯 (Dicyclohexyl phthalate, DCHP)	84-61-7	mg/kg		50	N.D.
邻苯二甲酸二(2-丙基庚基)酯 (Dipropylheptyl phthalate, DPHP)	53306-54-0	mg/kg		50	N.D.

Tested by : Hayan Park

注释 (Notes) : mg/kg = ppm = 百万分之一 (parts per million)
 < = 小于 (Less than)
 N.D.= 未检出 (Not detected (<MDL))
 MDL = 报告限量值 (Method detection limit)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE) : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

* 样品相片; -

(View of sample as received;-)



Intertek Testing Services Korea Ltd.

Seoul Office: Tel : 02-6090-9500 Fax : 02-3409-0025 Web Site : intertek.co.kr

Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea

Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea

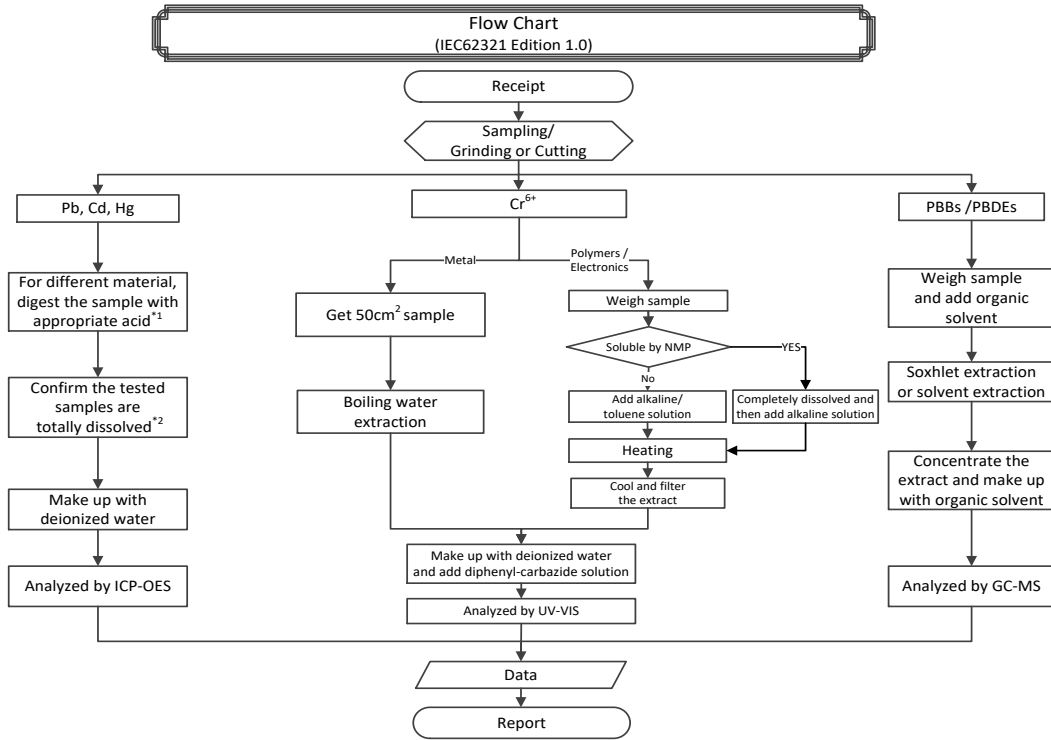
第 7 页 共 17 页



※ You can verify the forgery and authenticity by the barcode at the end of this document.

TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期(DATE) : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE



Remarks :

*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

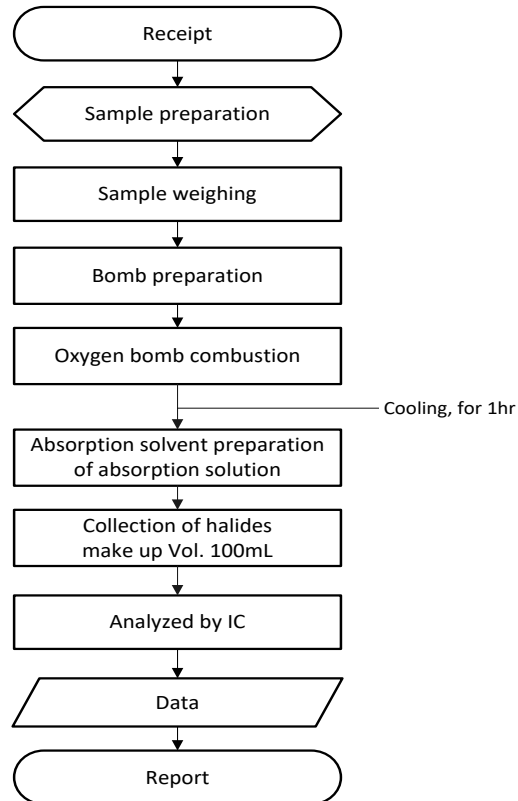
*2 : The samples were dissolved totally by pre-conditioning method according to above flow chart.



TEST REPORT (测试报告件)

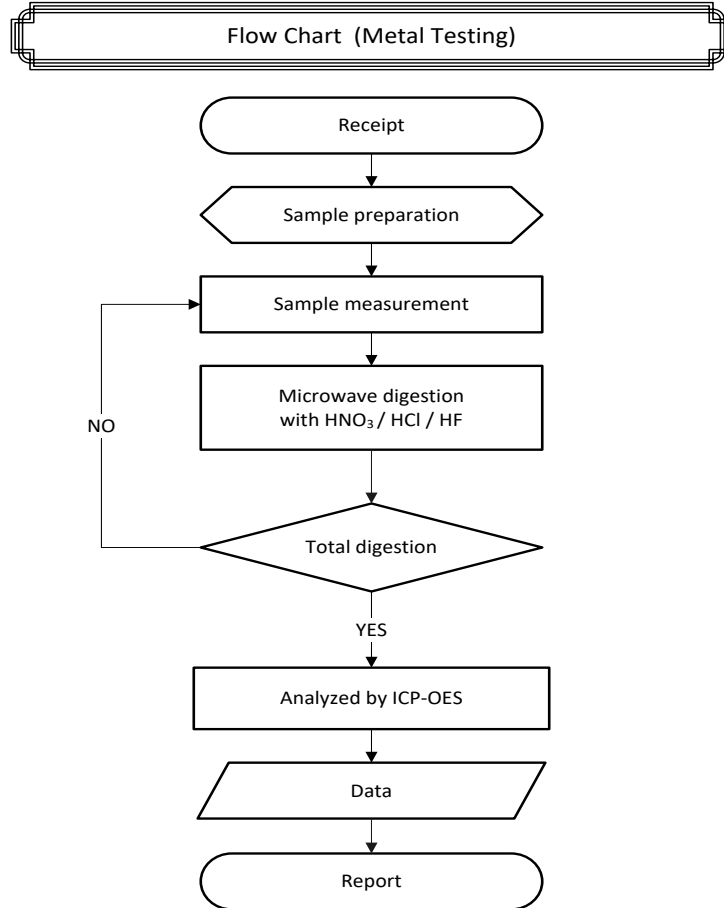
报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

Flow Chart (EN14582)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE



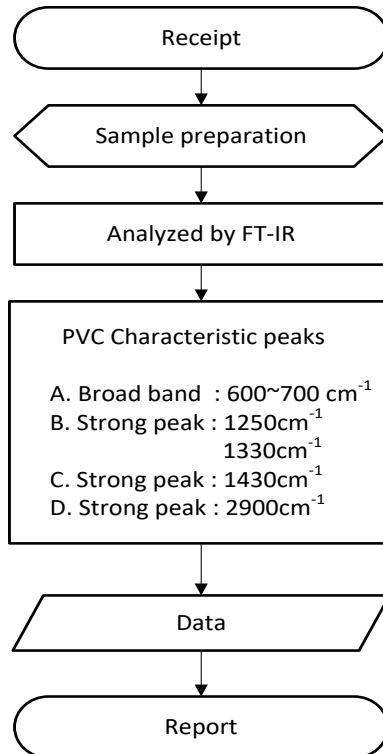
** Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

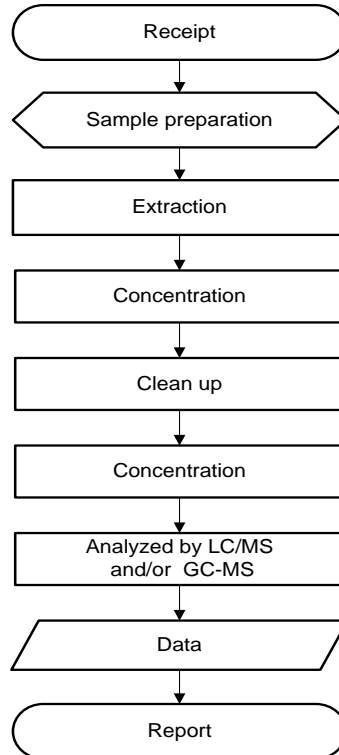
Flow Chart (PVC)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

Flow Chart (HBCDD)

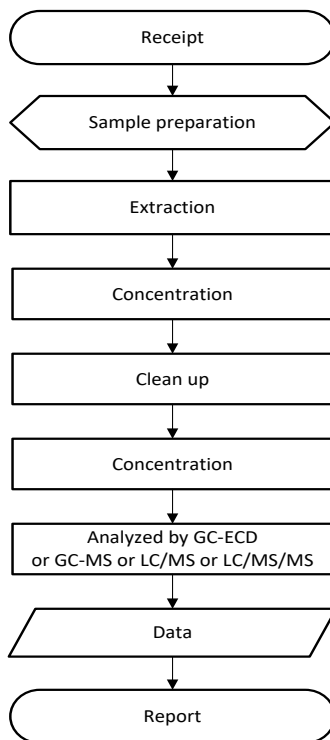


TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

日期 DATE) : 2022 年 11 月 02 日

Flow Chart (EPA 3540C)



Intertek Testing Services Korea Ltd.

Seoul Office: Tel : 02-6090-9500 Fax : 02-3409-0025 Web Site : intertek.co.kr

Seoul Lab. Address : 7, Ahasan-ro 5-gil, Seongdong-gu, Seoul, 04793 Korea

Ulsan Lab. Address : 34, Yongam-gil, Chongryang-myeon, Ulju-gun, Ulsan 44989 Korea

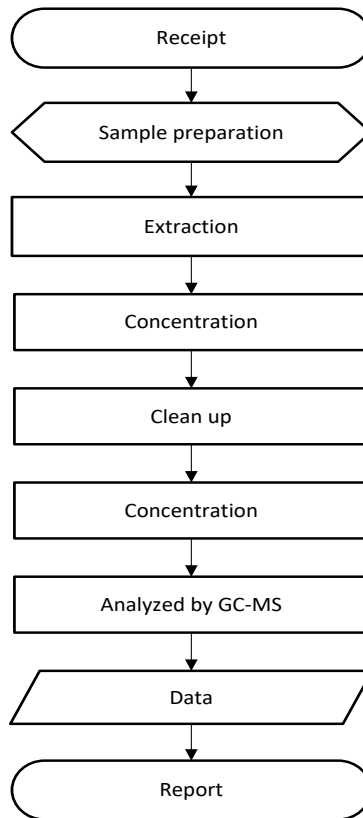


※ You can verify the forgery and authenticity by the barcode at the end of this document.

TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期(DATE) : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

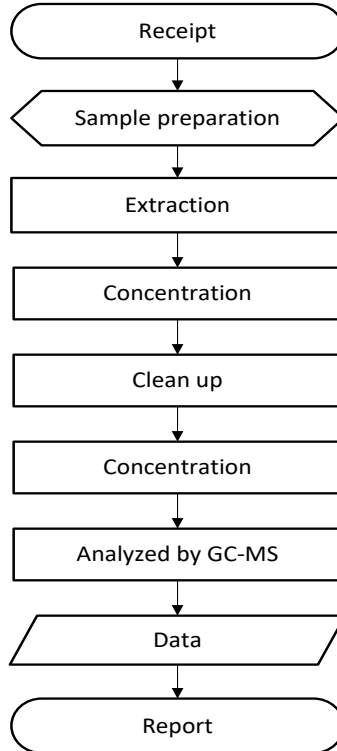
Flow Chart (PCB, PCT, PCN)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

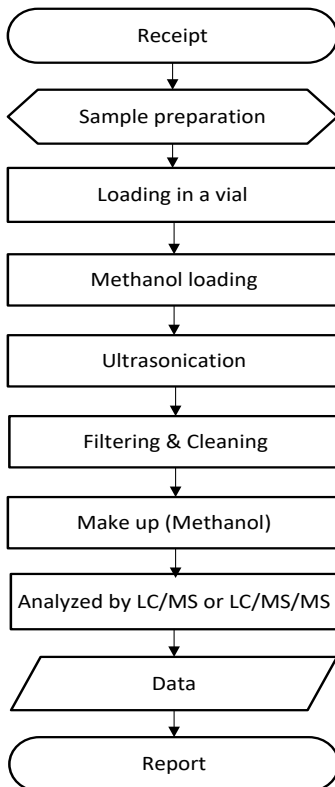
Flow Chart (PCP)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
样品编号(SAMPLE ID NO.) : RT22R-S5577-028
样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

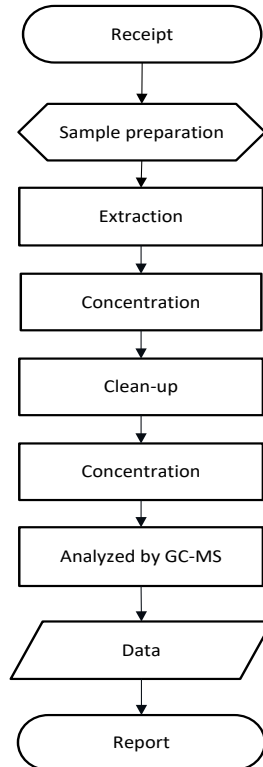
Flow Chart (PFOS, PFOA)



TEST REPORT (测试报告件)

报告号(REPORT NO.) : RT22R-S5577-028-C1 日期 DATE : 2022 年 11 月 02 日
 样品编号(SAMPLE ID NO.) : RT22R-S5577-028
 样品名称(SAMPLE DESCRIPTION) : MLCC F(Y5V) TYPE

Flow Chart (Phthalates)



***** 报告结束 *****

Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: <http://www.intertek.com/terms/>. Intertek's responsibility and liability are limited to the terms and conditions of the agreement.

This report is made solely on the basis of your instructions and / or information and materials supplied by you and provide no warranty on the tested sample(s) be truly representative of the sample source. The report is not intended to be a recommendation for any particular course of action, you are responsible for acting as you see fit on the basis of the report results. Intertek is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received and accepts no responsibility to any parties whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works. This report does not discharge or release you from your legal obligations and duties to any other person. You are the only one authorized to permit copying or distribution of this report (and then only in its entirety). Any such third parties to whom this report may be circulated rely on the content of the report solely at their own risk.

This report shall not be reproduced, except in full.
 This report is not related to the scope of Korea Laboratory Accreditation Scheme.



※ You can verify the forgery and authenticity by the barcode at the end of this document.