

**TEST REPORT**  
**(시험 성적서)**

신청기관 (인) : LG 화학  
APPLICANT : LG Chem, Ltd.  
주소 (한글) : 충청남도 서산시 대산읍 독곶1로 54  
ADDRESS (ENGL.) : 54, Dokgot 1-ro, Daesan-eup,  
Seosan-si, Chungcheongnam-do, Korea

발행면수 (PAGE) : 1 of 12  
발행일자 (DATE) : 2023. 01. 27.

시험성적서 번호 (REPORT NO.) : RT23R-S0389-003-K1

시료 명세 (SAMPLE DESCRIPTION) : 시료에 대한 상세한 정보는 아래와 같음  
(The following submitted sample(s) said to be)

제품명/형식 (NAME/TYPE OF PRODUCT) : PVC Resin (LS130S)  
(PVC Resin (LS130S))

재질 (NAME OF MATERIAL) : PVC Resin  
(PVC Resin)

시료고유번호 (SAMPLE ID NO.) : RT23R-S0389-003  
(RT23R-S0389-003)

제품 생산자/공급자 (MANUFACTURER/VENDOR) : LG 화학  
(LG Chem, Ltd.)

시료접수일자 (SAMPLE RECEIVED) : 2023. 01. 16.  
(Jan. 16, 2023)

시험일자 (TESTING DATE) : 2023. 01. 16. ~ 2023. 01. 27.  
(Jan. 16, 2023 ~ Jan. 27, 2023)

시험방법 (TEST METHOD) : 이 시험성적서의 다음 페이지 첨부  
(Please see the following page)

시험결과 (TEST RESULT) : 이 시험성적서의 다음 페이지 첨부  
(Please see the following page)

비고 (Notes) : 1. 이 시험성적서는 제시된 시료 및 시료명으로 시험한 결과로서 유사 대상시료에 적용할 수 없음.  
(The test results presented in this report refer only to the object tested.)  
2. 이 시험성적서는 승인없이 복사 사용을 금함.  
(This report shall not be reproduced except in full without the written approval of the testing laboratory.)

승인자 (Approved by)



장준용/기술책임자  
(Jade Jang / Lab. Technical Manager)

권한자 (Authorized by)



박병욱/소장  
(Bo Park / Lab. General Manager)



Authenticity  
check



**TEST REPORT**  
(시험 성적서)

발행면수 (PAGE) : 2 of 12  
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시험성적서 번호 (REPORT NO.) : RT23R-S0389-003-K1  
시료고유번호 (SAMPLE ID NO.) : RT23R-S0389-003  
시료명 (SAMPLE DESCRIPTION) : PVC Resin (LS130S)  
(PVC Resin (LS130S))

시험항목 (TEST ITEM)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
카드뮴 (Cadmium, Cd)	mg/kg	With reference to IEC 62321-5 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	0.5	N.D.
납 (Lead, Pb)	mg/kg		5	N.D.
수은 (Mercury, Hg)	mg/kg	With reference to IEC 62321-4 : 2013/AMD1 : 2017, by acid digestion and determined by ICP-OES	2	N.D.
6가 크롬 (Hexavalent Chromium, Cr <sup>6+</sup> )	mg/kg	With reference to IEC 62321-7-2 Edition 1.0 : 2017, by alkaline/toluene digestion and determined by UV-VIS Spectrophotometer	8	N.D.
<b>폴리브로모화비페닐 (Polybrominated Biphenyls, PBBs)</b>				
모노브로모비페닐 (MonoBB)	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	5	N.D.
다이브로모비페닐 (DiBB)	mg/kg		5	N.D.
트라이브로모비페닐 (TriBB)	mg/kg		5	N.D.
테트라브로모비페닐 (TertaBB)	mg/kg		5	N.D.
펜타브로모비페닐 (PentaBB)	mg/kg		5	N.D.
헥사브로모비페닐 (HexaBB)	mg/kg		5	N.D.
헵타브로모비페닐 (HeptaBB)	mg/kg		5	N.D.
옥타브로모비페닐 (OctaBB)	mg/kg		5	N.D.
노나브로모비페닐 (NonaBB)	mg/kg		5	N.D.
데카브로모비페닐 (DecaBB)	mg/kg		5	N.D.
<b>폴리브로모화디페닐에테르 (Polybrominated Diphenyl Ethers, PBDEs)</b>				
모노브로모디페닐에테르 (MonoBDE)	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	5	N.D.
다이브로모디페닐에테르 (DiBDE)	mg/kg		5	N.D.
트라이브로모디페닐에테르 (TriBDE)	mg/kg		5	N.D.
테트라브로모디페닐에테르 (TetraBDE)	mg/kg		5	N.D.
펜타브로모디페닐에테르 (PentaBDE)	mg/kg		5	N.D.
헥사브로모디페닐에테르 (HexaBDE)	mg/kg		5	N.D.
헵타브로모디페닐에테르 (HeptaBDE)	mg/kg		5	N.D.
옥타브로모디페닐에테르 (OctaBDE)	mg/kg		5	N.D.
노나브로모디페닐에테르 (NonaBDE)	mg/kg		5	N.D.
데카브로모디페닐에테르 (DecaBDE)	mg/kg		5	N.D.

Tested by : Jooyeon Lee, Chano Kim, Hayan Park

Notes : mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)  
< = Less than (결과 값 이하)  
N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)  
MDL = Method detection limit (검출한계)

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**TEST REPORT**  
(시험 성적서)

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시험성적서 번호 (REPORT NO.) : RT23R-S0389-003-K1  
시료고유번호 (SAMPLE ID NO.) : RT23R-S0389-003  
시료명 (SAMPLE DESCRIPTION) : PVC Resin (LS130S)  
(PVC Resin (LS130S))

시험항목 (TEST ITEM)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
브롬 (Bromine, Br)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
염소 (Chlorine, Cl)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	491000
플루오르 (Fluorine, F)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
요오드 (Iodine, I)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
안티몬 (Antimony, Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
헥사브로모시클로도데칸 (Hexabromocyclododecane, HBCDD)	mg/kg	With reference to IEC 62321-9 : 2021, by solvent extraction and determined by LC/MS and GC/MS	10	N.D.
단쇄 염화 파라핀 (Short-chain chlorinated paraffin, SCCP)	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by LC/MS/MS and/or GC/ECD	100	N.D.
비스페놀 에이 (Bisphenol A, BPA)	mg/kg	With reference to US EPA 3550C, determined by LC/MS or LC/MS/MS	1	N.D.

Tested by : Chano Kim, Jooyeon Lee, Hayan Park

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N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)  
MDL = Method detection limit (검출한계)



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시료명 (SAMPLE DESCRIPTION) : PVC Resin (LS130S)  
(PVC Resin (LS130S))

시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
디부틸프탈레이트 (Dibutyl phthalate, DBP)	84-74-2	mg/kg	With reference to IEC 62321-8 Edition 1.0 : 2017, by solvent extraction and determined by GC/MS	50	N.D.
디에틸헥실프탈레이트 (Di-(2-ethylhexyl) phthalate, DEHP)	117-81-7	mg/kg		50	N.D.
디엔옥틸프탈레이트 (Di-n-octyl phthalate, DNOP)	117-84-0	mg/kg		50	N.D.
디이소노닐프탈레이트 (Diisononyl phthalate, DINP)	28553-12-0 68515-48-0	mg/kg		100	N.D.
디이소데실프탈레이트 (Diisodecyl phthalate, DIDP)	26761-40-0 68515-49-1	mg/kg		100	N.D.
벤질부틸프탈레이트 (Benzyl butyl phthalate, BBP)	85-68-7	mg/kg		50	N.D.
디이소부틸프탈레이트 (Diisobutyl phthalate, DIBP)	84-69-5	mg/kg		50	N.D.
디엔헥실프탈레이트 (Di-n-hexyl phthalate, DNHP)	84-75-3	mg/kg		50	N.D.

Tested by : Hayan Park

Notes : mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)  
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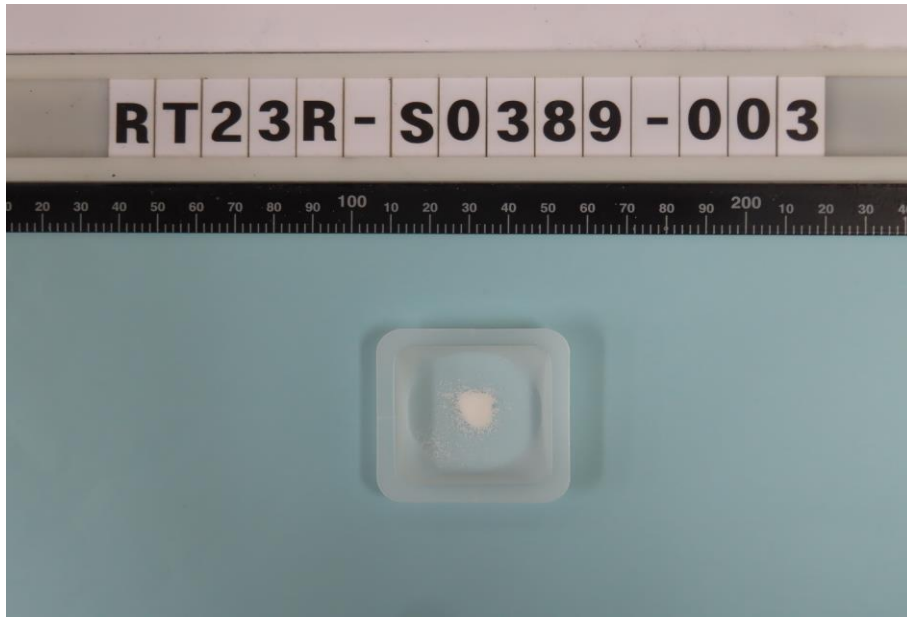
발행일자 (DATE) : 2023. 01. 27.

시험성적서 번호 (REPORT NO.) : RT23R-S0389-003-K1

시료고유번호 (SAMPLE ID NO.) : RT23R-S0389-003

시료명 (SAMPLE DESCRIPTION) : PVC Resin (LS130S)  
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\* 시료 접수 시 시료 상태 :  
(View of sample as received)



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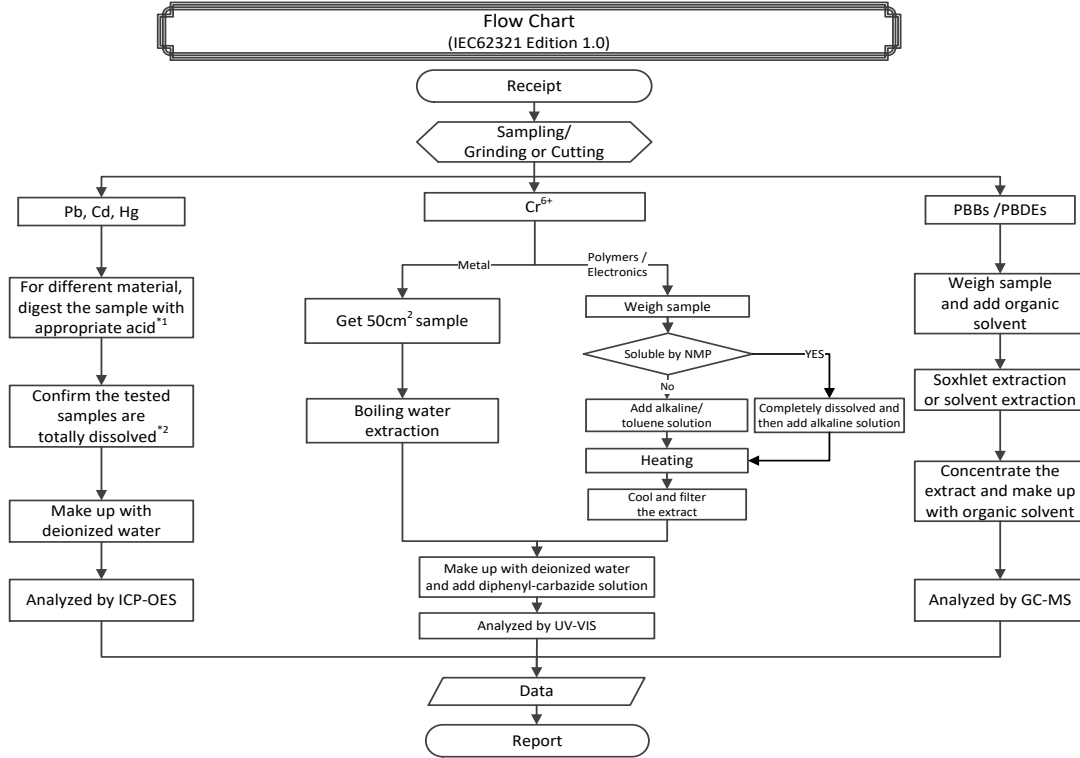
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시험성적서 번호 (REPORT NO.) : RT23R-S0389-003-K1

시료고유번호 (SAMPLE ID NO.) : RT23R-S0389-003

시료명 (SAMPLE DESCRIPTION) : PVC Resin (LS130S)  
(PVC Resin (LS130S))



Remarks :

\*1 : List of appropriate acid :

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

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

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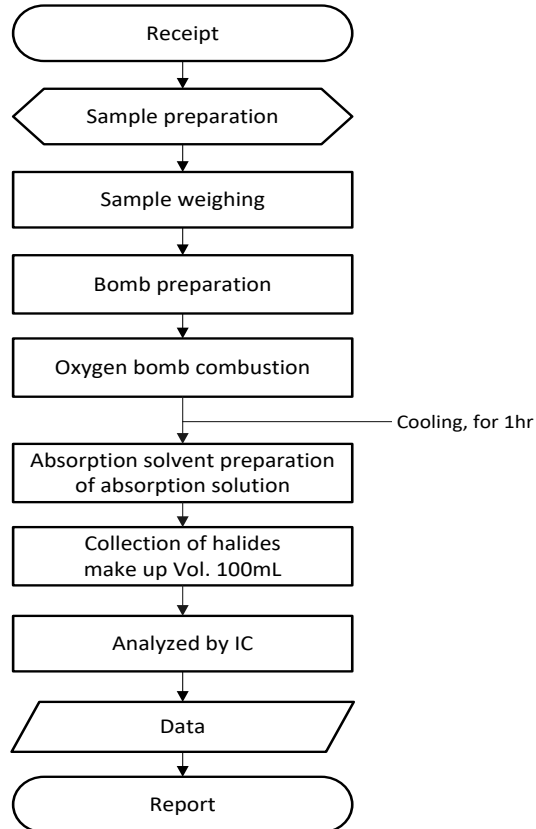
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Flow Chart (EN14582)



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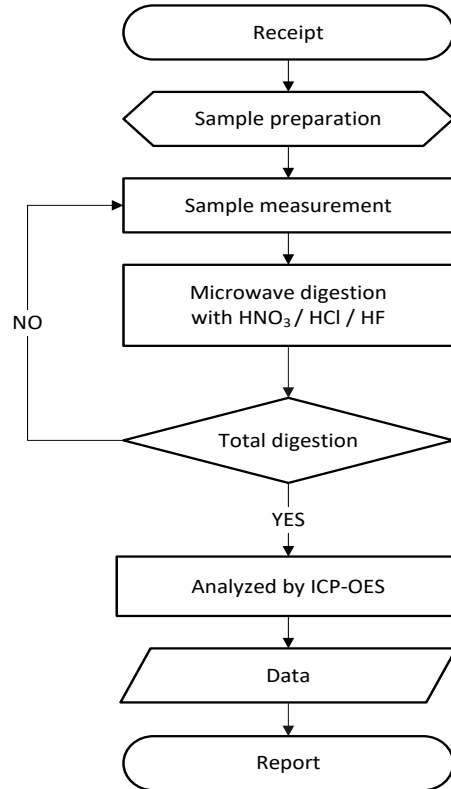
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## Flow Chart (Metal Testing)



\*\* 비고 : 이 샘플은 위의 흐름도에 따른 전처리 방법에 의해 완전용해 되었음.  
( The samples were dissolved totally by pre-conditioning method according to above flow chart.)

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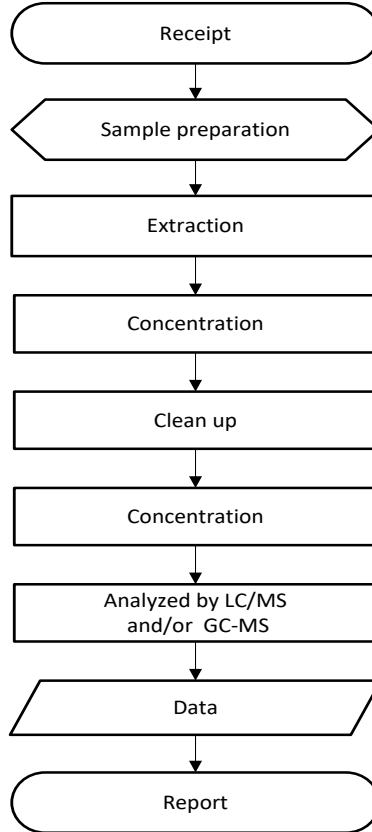
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### Flow Chart (HBCDD)



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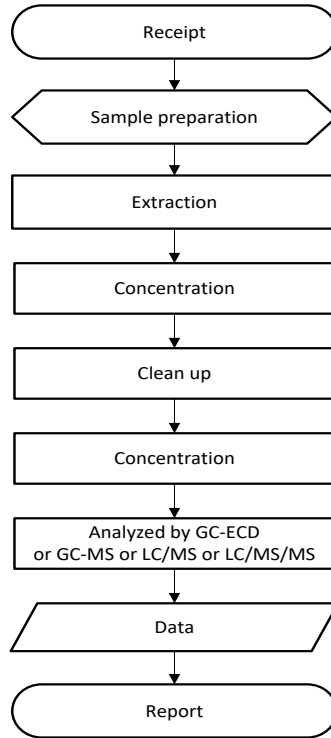
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Flow Chart (EPA 3540C)



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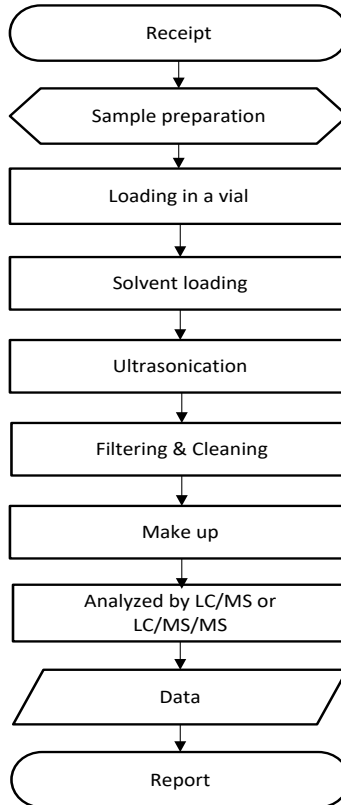
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### Flow Chart (BPA)



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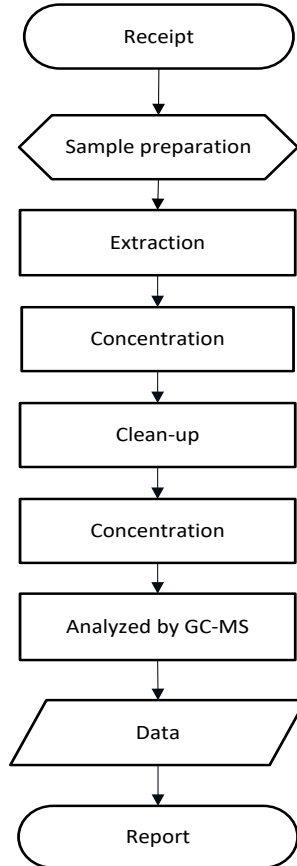
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(PVC Resin (LS130S))

Flow Chart (Phthalates)



\*\*\*\*\* End of Report \*\*\*\*\*

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