

**TEST REPORT**  
(시험 성적서)

신청기관 (인) : (주)두산전자  
APPLICANT : Doosan Corporation Electro-Materials  
주소 (한글) : 충청북도 증평군 증평읍 두산로 40  
ADDRESS (ENGL.) : 40, Doosan-ro, Jeungpyeong-eup,  
Jeungpyeong-gun, Chungcheongbuk-do, Korea

발행면수 (PAGE) : 1 of 9  
발행일자 (DATE) : 2026. 06. 16.

시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-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) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))

시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003  
(RT26R-S4297-003)

제품 생산자/공급자 (MANUFACTURER/VENDOR) : (주)두산전자  
(Doosan Corporation Electro-Materials)

시료접수일자 (SAMPLE RECEIVED) : 2026. 06. 10.  
(Jun. 10, 2026)

시험일자 (TESTING DATE) : 2026. 06. 10. ~ 2026. 06. 16.  
(Jun. 10, 2026 ~ Jun. 16, 2026)

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.  
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승인자 (Approved by)



이청수/기술책임자  
(Nikkie Lee / Lab. Technical Manager)

권한자 (Authorized by)



장준용/소장  
(Jade Jang / Lab. General Manager)



Authenticity check



**TEST REPORT**  
(시험 성적서)

발행면수 (PAGE) : 2 of 9  
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시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-K1

시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003

시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))

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		2	N.D.
수은 (Mercury, Hg)	mg/kg	With reference to IEC 62321-4:2013+AMD1:2017 CSV, 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>폴리브로모디페닐에테르 (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)

발행면수 (PAGE) : 3 of 9  
발행일자 (DATE) : 2026. 06. 16.

시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-K1  
 시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003  
 시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
 (DS-7409HG BS (LE))

시험항목 (TEST ITEM)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
베릴륨 (Beryllium, Be)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
안티몬 (Antimony, Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
퍼플루오로옥타노익에시드 (Perfluorooctanoic acid, PFOA)	mg/kg	With reference to EN 17681-1:2025, determined by LC/MS or LC/MS/MS	0.01	N.D.
퍼플루오로옥탄설포네이트 (Perfluorooctane sulfonate, PFOS)	mg/kg	With reference to EN 17681-1:2025, determined by LC/MS or LC/MS/MS	0.01	N.D.

Tested by : Jooyeon Lee, Hayan Park

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



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발행면수 (PAGE) : 4 of 9  
발행일자 (DATE) : 2026. 06. 16.

시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-K1

시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003

시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))

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		50	N.D.
디이소데실프탈레이트 (Diisodecyl phthalate, DIDP)	26761-40-0 68515-49-1	mg/kg		50	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.
디메틸프탈레이트 (Dimethyl phthalate, DMP)	131-11-3	mg/kg		50	N.D.
디에틸프탈레이트 (Diethyl phthalate, DEP)	84-66-2	mg/kg		50	N.D.
디엔펜틸프탈레이트 (Di-n-pentyl phthalate, DPP)	131-18-0	mg/kg		50	N.D.
디엔헥실프탈레이트 (Di-n-hexyl phthalate, DNHP)	84-75-3	mg/kg		50	N.D.
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

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



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발행면수 (PAGE) : 5 of 9

발행일자 (DATE) : 2026. 06. 16.

시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-K1

시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003

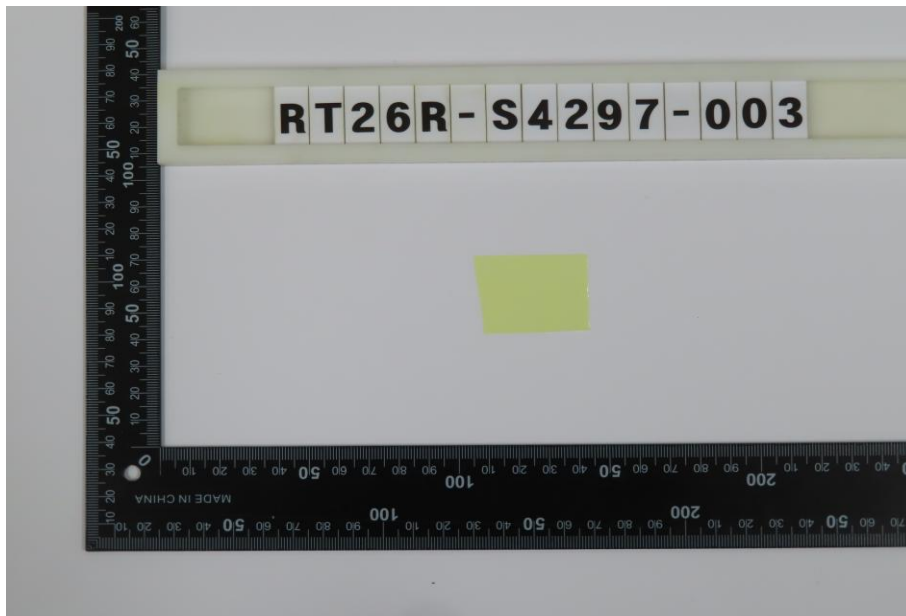
시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))

시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	mg/kg	With reference to IEC 62321-8 Edition 1.0 : 2017, by solvent extraction and determined by GC/MS	50	N.D.
디(2-메톡시에틸)프탈레이트 (Di(2-methoxyethyl) phthalate, DMEP)	117-82-8	mg/kg		50	N.D.
디이소펜틸프탈레이트 (Diisopentylphthalate, DIPP)	605-50-5	mg/kg		50	N.D.
디사이클로헥실프탈레이트 (Dicyclohexyl phthalate, DCHP)	84-61-7	mg/kg		50	N.D.
엔펜틸이소펜틸프탈레이트 (N-pentyl-isopentylphthalate, NPIP)	776297-69-9	mg/kg		50	N.D.

Tested by : 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)

\* 시료 접수 시 시료 상태 :  
(View of sample as received)



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# TEST REPORT

## (시험성적서)

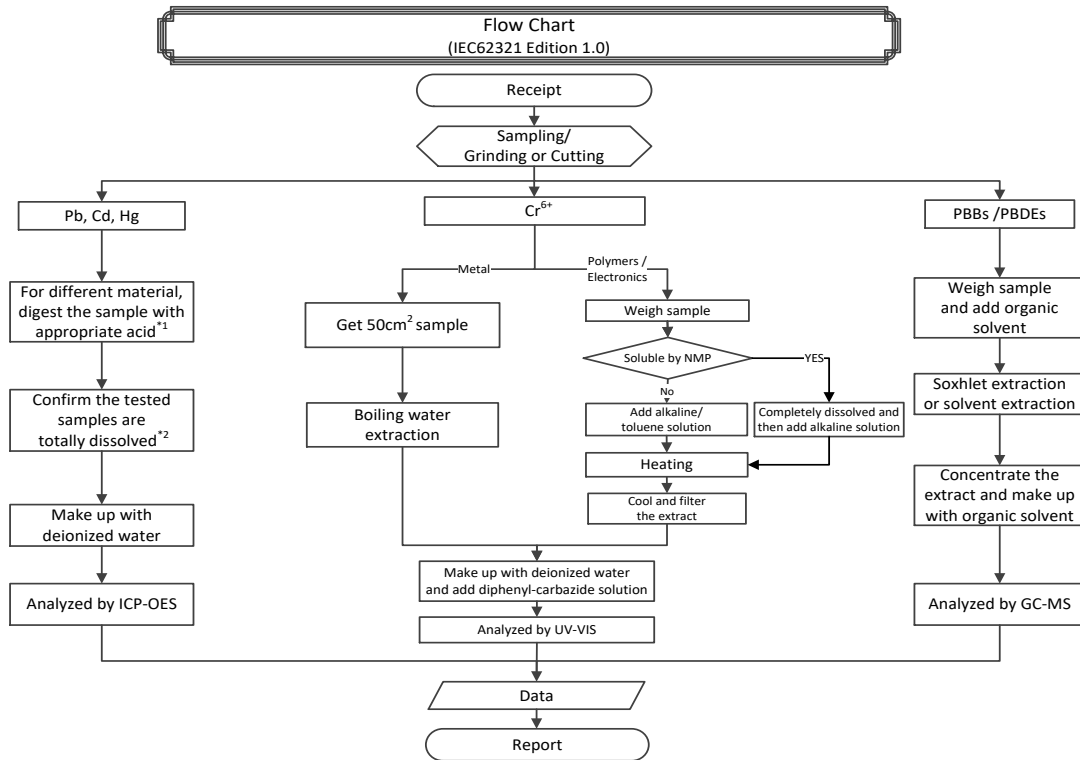
발행면수 (PAGE) : 6 of 9

발행일자 (DATE) : 2026. 06. 16.

시험성적서 번호 (REPORT NO.) : RT26R-S4297-003-K1

시료고유번호 (SAMPLE ID NO.) : RT26R-S4297-003

시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))



**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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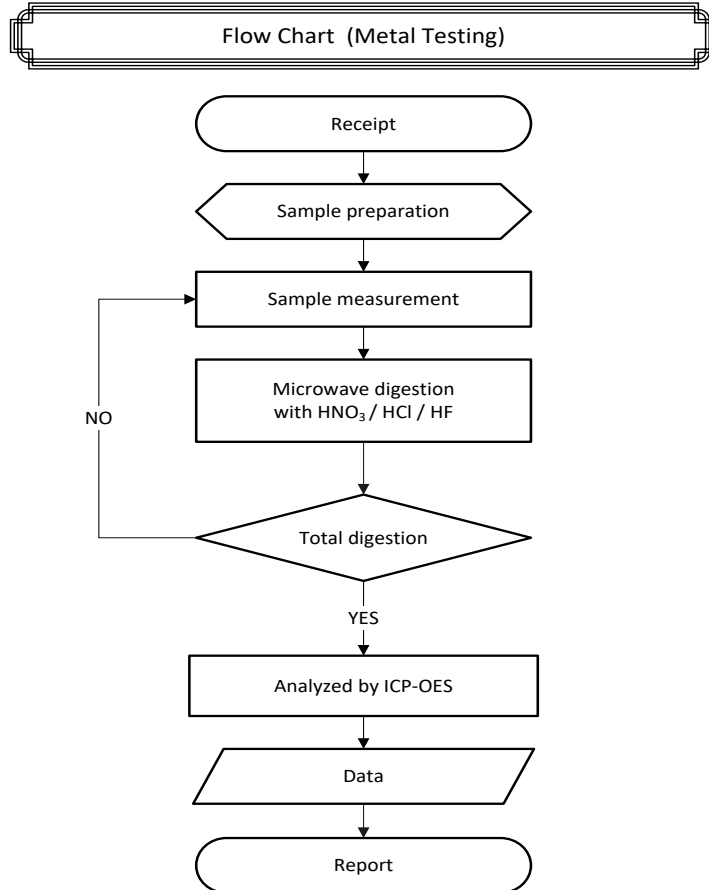
발행면수 (PAGE) : 7 of 9

발행일자 (DATE) : 2026. 06. 16.

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시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))



\*\* 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.)



# TEST REPORT (시험 성적서)

발행면수 (PAGE) : 8 of 9

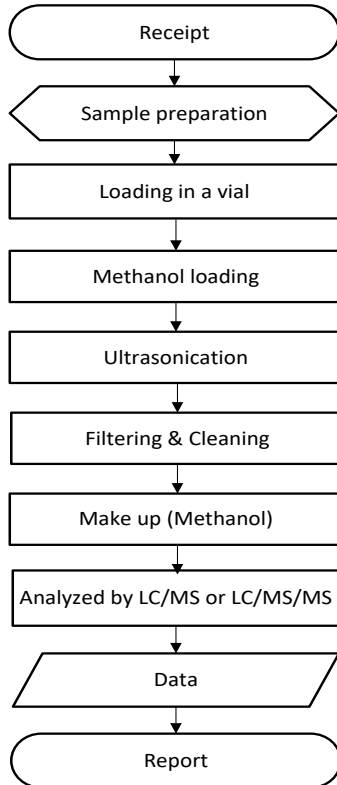
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## Flow Chart (PFOS, PFOA)



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발행면수 (PAGE) : 9 of 9

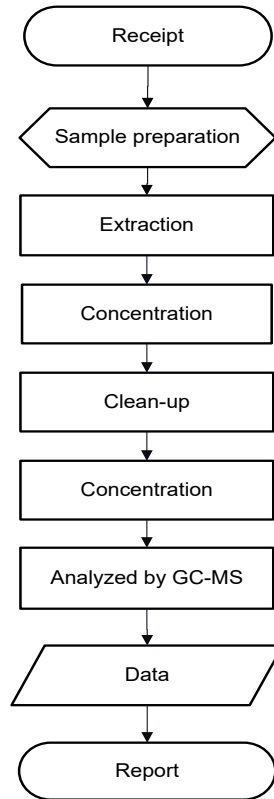
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시료명 (SAMPLE DESCRIPTION) : DS-7409HG BS (LE)  
(DS-7409HG BS (LE))

### Flow Chart (Phthalates)



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

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