

TEST REPORT
(시험 성적서)

신청기관 (인) : (주)한샘디지텍
APPLICANT : Hansaem Digitec
주소 (한글) : 인천광역시 서구 석남로 15
ADDRESS (ENGL.) : 15, Seongnam-ro, Seo-gu,
Incheon, Korea

발행면수 (PAGE) : 1 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

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

제품명/형식 (NAME/TYPE OF PRODUCT) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

재질 (NAME OF MATERIAL) : PCB
(PCB)

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004
(RT24R-S0882-004)

제품 생산자/공급자 (MANUFACTURER/VENDOR) : (주)한샘디지텍
(Hansaem Digitec)

제출처 (NAME OF BUYER) : SEC
(SEC)

시료접수일자 (SAMPLE RECEIVED) : 2024. 01. 31.
(Jan. 31, 2024)

시험일자 (TESTING DATE) : 2024. 01. 31. ~ 2024. 02. 08.
(Jan. 31, 2024 ~ Feb. 08, 2024)

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)



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TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 2 of 14

발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

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시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
1	Perfluorooctane sulphonic acid (PFOS)	1763-23-1	mg/kg	With reference to US EPA 3550C, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
2	Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg		0.025	N.D.
3	Perfluorooctanoyl fluoride (PFOA-F)*	335-66-0	mg/kg		0.025	N.D.
4	Perfluorobutanoic acid (PFBA)	375-22-4	mg/kg		0.025	N.D.
5	Perfluoropentanoic acid (PFPeA)	2706-90-3	mg/kg		0.025	N.D.
6	Perfluorohexanoic acid (PFHxA)	307-24-4	mg/kg		0.025	N.D.
7	Ammonium perfluorohexanoate (PFHxA-NH ₄)*	21615-47-4	mg/kg		0.025	N.D.
8	Perfluoroheptanoic acid (PFHpA)	375-85-9	mg/kg		0.025	N.D.
9	Perfluorononanoic acid (PFNA)	375-95-1	mg/kg		0.025	N.D.
10	Potassium perfluorononanoate (PFNA-K)*	21049-38-7	mg/kg		0.025	N.D.
11	Lithium perfluorononanoate (PFNA-Li)*	60871-92-3	mg/kg		0.025	N.D.
12	Perfluorodecanoic acid (PFDA)	335-76-2	mg/kg		0.025	N.D.
13	Potassium perfluorodecanoate (PFDA-K)*	51604-85-4	mg/kg		0.025	N.D.
14	Perfluoroundecanoic acid (PFUnDA)	2058-94-8	mg/kg		0.025	N.D.
15	11H-Perfluoroundecanoic acid (11H-PFUnDA)	1765-48-6	mg/kg		0.025	N.D.
16	Sodium perfluoroundecanoate (PFUnDA-Na)*	60871-96-7	mg/kg		0.025	N.D.
17	Ammonium perfluoroundecanoate (PFUnDA-NH ₄)*	4234-23-5	mg/kg		0.025	N.D.
18	Perfluorododecanoic acid (PFDoDA)	307-55-1	mg/kg		0.025	N.D.
19	Ammonium tricosafuorododecanoate (PFDoDA-NH ₄)*	3793-74-6	mg/kg		0.025	N.D.

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발행면수 (PAGE) : 3 of 14
발행일자 (DATE) : 2024. 02. 08.

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시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

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번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
20	Perfluorotridecanoic acid (PFTrDA)	72629-94-8	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
21	Perfluorotetradecanoic acid (PFTeDA)	376-06-7	mg/kg		0.025	N.D.
22	Perfluorobutanesulfonic acid (PFBS)	375-73-5	mg/kg		0.025	N.D.
23	Perfluorobutanesulfonate K-salt (PFBS-K)*	29420-49-3	mg/kg		0.025	N.D.
24	Perfluorobutanesulfonic acid (PFBS-H ₂ O)*	59933-66-3	mg/kg		0.025	N.D.
25	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	mg/kg		0.025	N.D.
26	Benzyltriphenylphosphonium tridecafluorohexane-1-sulfonate (PFHxS-BTPP)*	1000597-52-3	mg/kg		0.025	N.D.
27	Perfluorohexanesulfonate Na-salt (PFHxS-Na)*	82382-12-5	mg/kg		0.025	N.D.
28	Perfluorohexanesulfonate K-salt (PFHxS-K)*	3871-99-6	mg/kg		0.025	N.D.
29	1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, lithium salt (1:1) (PFHxS-Li)*	55120-77-9	mg/kg		0.025	N.D.
30	Ammonium perfluorohexane-1-sulphonate (PFHxS-NH ₄)*	68259-08-5	mg/kg		0.025	N.D.
31	N,N,N-Tributylbutan-1-aminium tridecafluorohexane-1-sulfonate*	108427-54-9	mg/kg		0.025	N.D.
32	Tetraethylammonium perfluorohexane sulfonate*	108427-55-0	mg/kg		0.025	N.D.
33	Tridecafluorohexane-1-sulfonic acid-pyrrolidine*	1187817-57-7	mg/kg		0.025	N.D.
34	4-[[4-(Diethylamino)phenyl][4-(ethylamino)naphthalen-1-yl]methylidene]-N,N-diethylcyclohexa-2,5-dien-1-iminium tridecafluorohexane-1-sulfonate*	1310480-24-0	mg/kg	0.025	N.D.	



TEST REPORT

(시험 성적서)

발행면수 (PAGE) : 4 of 14

발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
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번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
35	4-[[4-(Dimethylamino)phenyl][4-(ethylamino)naphthalen-1-yl]methylidene]-N,N-dimethylcyclohexa-2,5-dien-1-iminium tridecafluorohexane-1-sulfonate*	1310480-27-3	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
36	4-[[4-(Dimethylamino)phenyl][4-(phenylamino)naphthalen-1-yl]methylidene]-N,N-dimethylcyclohexa-2,5-dien-1-iminium tridecafluorohexane-1-sulfonate*	1310480-28-4	mg/kg		0.025	N.D.
37	Beta-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexane-1-sulfonate*	1329995-45-0	mg/kg		0.025	N.D.
38	Gamma-Cyclodextrin, compd. with 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexane-1-sulfonate*	1329995-69-8	mg/kg		0.025	N.D.
39	Triphenylsulfanium tridecafluorohexane-1-sulfonate (TPS-PFHxS)*	144116-10-9	mg/kg		0.025	N.D.
40	1-(Carboxymethyl)-4-(2-{4-[4-(2,2-diphenylethenyl)phenyl]-1H,2H,3H,3aH,4H,8bH-cyclopenta[b]indol-7-yl} ethenyl)quinolin-1-ium tridecafluorohexane-1-sulfonate*	1462414-59-0	mg/kg		0.025	N.D.
41	Diphenyliodonium tridecafluorohexane-1-sulfonate*	153443-35-7	mg/kg		0.025	N.D.
42	Tetramethylammonium perfluorohexane sulfonate*	189274-31-5	mg/kg		0.025	N.D.
43	Tert-butylazanium; 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexane-1-sulfonate*	202189-84-2	mg/kg		0.025	N.D.
44	Bis(4-tert-butylphenyl)iodanium tridecafluorohexane-1-sulfonate*	213740-81-9	mg/kg		0.025	N.D.
45	Bis(4-methylphenyl)(phenyl)sulfanium tridecafluorohexane-1-sulfonate*	341548-85-4	mg/kg	0.025	N.D.	
46	Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with perfluorohexanesulfonic acid (1:2)*	421555-73-9	mg/kg	0.025	N.D.	

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발행면수 (PAGE) : 5 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

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번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
47	Perfluorohexanesulfonic acid, Gallium(3+) salt (3:1)*	341035-71-0	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
48	Perfluorohexanesulfonic acid, Scandium(3+) salt (3:1)*	350836-93-0	mg/kg		0.025	N.D.
49	Perfluorohexanesulfonic acid, Neodymium(3+) salt (3:1)*	41184-65-0	mg/kg		0.025	N.D.
50	Perfluorohexanesulfonic acid, Yttrium(3+) salt (3:1)*	41242-12-0	mg/kg		0.025	N.D.
51	Cesium perfluorohexanesulfonate*	92011-17-1	mg/kg		0.025	N.D.
52	Perfluorohexanesulfonic acid, Zinc salt *	70136-72-0	mg/kg		0.025	N.D.
53	Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, perfluorohexanesulfonate (1:1)*	421555-74-0	mg/kg		0.025	N.D.
54	Tris(4-tert-butylphenyl)sulfanium tridecafluorohexane-1-sulfonate*	425670-70-8	mg/kg		0.025	N.D.
55	Tridecafluorohexanesulphonic acid, compound with 2,2'-iminodiethanol (1:1)*	70225-16-0	mg/kg		0.025	N.D.
56	Triethylammonium perfluorohexane sulfonate*	72033-41-1	mg/kg		0.025	N.D.
57	Iodonium, bis[(1,1-dimethylethyl)phenyl]-, salt with perfluorohexanesulfonic acid (1:1)*	866621-50-3	mg/kg		0.025	N.D.
58	(4-Methylphenyl)diphenylsulfanium tridecafluorohexane-1-sulfonate*	910606-39-2	mg/kg		0.025	N.D.
59	{4-[(2-Methylprop-2-enoyl)oxy]phenyl}diphenylsulfanium tridecafluorohexane-1-sulfonate*	911027-68-4	mg/kg		0.025	N.D.
60	Dibenzo[k,n][1,4,7,10,13]tetraoxathiacyclo-pentadecinium, 19-[4-(1,1-dimethylethyl)phenyl]-6,7,9,10,12,13-hexahydro-, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-1-hexanesulfonate (1:1)*	928049-42-7	mg/kg	0.025	N.D.	



TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 6 of 14

발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

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(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
61	Perfluorohexylsulfanyl fluoride (PFHxS-F)*	423-50-7	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
62	Perfluorohexylsulfanyl chloride (PFHxS-Cl)*	55591-23-6	mg/kg		0.025	N.D.
63	Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	mg/kg		0.025	N.D.
64	Perfluoroheptanesulfonic acid, K-salt (PFHpS-K)*	60270-55-5	mg/kg		0.025	N.D.
65	Perfluoroheptanesulfonate Na-salt (PFHpS-Na)*	68555-66-8	mg/kg		0.025	N.D.
66	Perfluorodecanesulfonic acid (PFDS)	335-77-3	mg/kg		0.025	N.D.
67	Perfluorodecanesulfonic acid (PFDS)	126105-34-8	mg/kg		0.025	N.D.
68	Perfluorodecanesulfonate Na-salt (PFDS-Na)*	2806-15-7	mg/kg		0.025	N.D.
69	Perfluorodecanesulfonate K-salt (PFDS-K)*	2806-16-8	mg/kg		0.025	N.D.
70	Perfluoroaliphatic Dean-sulfonate , ammonium salt (PFDS-NH ₄)*	67906-42-7	mg/kg		0.025	N.D.
71	Perfluorooctanesulfonamide (PFOSA)	754-91-6	mg/kg		0.025	N.D.
72	N-Methyl-Perfluorooctanesulfonamide (N-Me-FOSA)	31506-32-8	mg/kg		0.025	N.D.
73	N-Ethyl-Perfluorooctanesulfonamide (N-Et-FOSA)	4151-50-2	mg/kg		0.025	N.D.
74	N-Methyl-Perfluorooctanesulfonamidoethanol (N-Me-FOSEalcohol)	24448-09-7	mg/kg		0.025	N.D.
75	N-Ethyl-Perfluorooctanesulfonamidoethanol (N-Et-FOSEalcohol)	1691-99-2	mg/kg		0.025	N.D.
76	1H,1H,2H,2HPerfluorooctanesulphonic acid (6:2 FTS)	27619-97-2	mg/kg		0.025	N.D.
77	1H,1H,2H,2H-Perfluorodecanesulphonic acid(8:2 FTS)	39108-34-4	mg/kg		0.025	N.D.
78	1H,1H,2H,2H-Perfluorodecanesulphonic acid, Na salt(8:2 FTS-Na)*	NA	mg/kg		0.025	N.D.

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79	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
80	2H,2H,3H,3HPerfluoroundecanoicacid (H ₄ PFUnDA / 8:3 FTCA)	34598-33-9	mg/kg		0.025	N.D.
81	Perfluoro-3,7-dimethyloctanoic Acid (PF-3,7-DMOA)	172155-07-6	mg/kg		0.025	N.D.
82	7H-Dodecafluoro heptane carboxylate (7HPFHpA)	1546-95-8	mg/kg		0.025	N.D.
83	Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (8:2 FTCA-P(C ₄ H ₉) ₄)*	882489-14-7	mg/kg		0.025	N.D.
84	Perfluoro-1-octanesulfonyl fluoride (PFOSF)*	307-35-7	mg/kg		0.025	N.D.
85	Didecyl dimethyl ammonium perfluorooctane sulfonate (PFOS-N(C ₁₀ H ₂₁) ₂ (CH ₃) ₂)*	251099-16-8	mg/kg		0.025	N.D.
86	2H,2H Perfluorodecane Acid (H ₂ PFDA)	27854-31-5	mg/kg		0.025	N.D.
87	Ammonium pentadecafluorooctanoate (APFO)*	3825-26-1	mg/kg		0.025	N.D.
88	Perfluorooctanoic acid sodium salt (PFOA-Na)*	335-95-5	mg/kg		0.025	N.D.
89	Perfluorooctanoic acid potassium salt (PFOA-K)*	2395-00-8	mg/kg		0.025	N.D.
90	Silver perfluorooctanoate (PFOA-Ag)*	335-93-3	mg/kg		0.025	N.D.
91	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, its salts and its acyl halides (HFPO-DA)	13252-13-6	mg/kg		0.025	N.D.
92	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, ammonium salts (HFPO-DA-NH ₄)*	62037-80-3	mg/kg		0.025	N.D.
93	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propionic acid, K-salts (HFPO-DA-K)*	67118-55-2	mg/kg		0.025	N.D.
94	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionyl fluoride (HFPO-DA-F)*	2062-98-8	mg/kg		0.025	N.D.

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95	1H, 1H, 2H, 2H-Perfluorohexanesulfonic Acid (H4-PFGxS(4:2 FTS))	757124-72-4	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
96	1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid, sodium salt (4:2 FTS-Na)*	NA	mg/kg		0.025	N.D.
97	N-Methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA)	2355-31-9	mg/kg		0.025	N.D.
98	N-Ethyl-N-(perfluoro-1-octanesulfonyl) glycine (N-EtFOSAA)	2991-50-6	mg/kg		0.025	N.D.
99	1H,1H,2H,2H-Perfluorohexanol (4:2 FTOH)	2043-47-2	mg/kg		0.5	N.D.
100	1H,1H,2H,2H-Perfluorooctanol (6:2 FTOH)	647-42-7	mg/kg		0.5	N.D.
101	1H,1H,2H,2H-Perfluorodecanol (8:2 FTOH)	678-39-7	mg/kg		0.5	N.D.
102	Methyl perfluorooctanoate (Me-PFOA)	376-27-2	mg/kg		0.5	N.D.
103	Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	mg/kg		0.5	N.D.
104	1H,1H,2H,2H-Perfluorododecanol (10:2 FTOH)	865-86-1	mg/kg		0.5	N.D.
105	1H,1H,2H,2H-Perfluorooctyl acrylate (6:2 FTA)	17527-29-6	mg/kg		0.5	N.D.
106	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	mg/kg		0.5	N.D.
107	1H,1H,2H,2H-Perfluorododecyl acrylate (10:2 FTA)	17741-60-5	mg/kg		0.5	N.D.
108	1H,1H,2H,2H-Perfluorohexyl methacrylate (4:2 FTMA)	1799-84-4	mg/kg	0.5	N.D.	
109	1H,1H,2H,2H-Perfluorooctyl methacrylate (6:2 FTMA)	2144-53-8	mg/kg	0.5	N.D.	
110	1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	mg/kg	0.5	N.D.	
111	1H,1H,2H,2H-Perfluorododecyl methacrylate (10:2 FTMA)	162953-69-7	mg/kg	0.5	N.D.	
112	1H,1H-Perfluorononanol (8:1 FTOH)	423-56-3	mg/kg	0.5	N.D.	
113	2-Perfluorooctyl ethyl iodide (8:2 FTI)	2043-53-0	mg/kg	0.5	N.D.	

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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



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TEST REPORT (시험 성적서)

발행면수 (PAGE) : 9 of 14

발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
114	Perfluorooctyl iodide (PFOI)	507-63-1	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.5	N.D.
115	Perfluorononanoate Na-Salt (PFNA-Na)*	21049-39-8	mg/kg		0.025	N.D.
116	Perfluorononanoate ammonium salt (PFNA-NH ₄)*	4149-60-4	mg/kg		0.025	N.D.
117	Perfluorodecanoate Na-salt (PFDA-Na)*	3830-45-3	mg/kg		0.025	N.D.
118	Perfluorodecanoate ammonium salt (PFDA-NH ₄)*	3108-42-7	mg/kg		0.025	N.D.
119	Potassium Perfluorooctanesulfonate (PFOS-K)*	2795-39-3	mg/kg		0.025	N.D.
120	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄)*	29081-56-9	mg/kg		0.025	N.D.
121	Perfluorooctane sulfonate diethanolamine salt (PFOS-NH ₂ (C ₂ H ₄ OH) ₂)*	70225-14-8	mg/kg		0.025	N.D.
122	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li*)	29457-72-5	mg/kg		0.025	N.D.
123	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)*	56773-42-3	mg/kg		0.025	N.D.
124	Sodium Perfluorooctanesulfonate (PFOS-Na)*	4021-47-0	mg/kg		0.025	N.D.
125	N-(Perfluoro-1-octanesulfonyl) Glycine (FOSAA)	2806-24-8	mg/kg		0.025	N.D.
126	2-(perfluorodecyl) ethyl methacrylate (10:2FTMA)	2144-54-9	mg/kg		0.5	N.D.
127	N,N,N,-triethylethanaminium 1,1,2,2,3,3,4,4,4-nona fluorobutane-1-sulfonate (PFBS-N(C ₂ H ₅) ₄)	25628-08-4	mg/kg		0.025	N.D.
128	Magnesium bis (perfluorooctane -1-sulfonate) (PFOS-Mg)*	91036-71-4	mg/kg		0.025	N.D.
129	Perfluorooctylethene (PFOE)	21652-58-4	mg/kg		0.5	N.D.
130	Sodium perfluoro-1-pentane sulfonate (PFPeS-Na)*	630402-22-1	mg/kg	0.025	N.D.	
131	Perfluoro hexanesulfonamide (PFHxSA)	41997-13-1	mg/kg	0.025	N.D.	

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TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 10 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
132	N-Methyl-perfluoro hexanesulfonamide (N-Me-FHxSA)	68259-15-4	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
133	N-[3-(dimethylamino)propyl] tridecafluorohexanesulphonamide (N-AP-FHxSA)	50598-28-2	mg/kg		0.025	N.D.
134	2-[methyl[(tridecafluorohexyl) sulphonyl]amino]ethyl acrylate)) (N-MeFHSEA)	67584-57-0	mg/kg		0.025	N.D.
135	N-Methyl-perfluoro hexanesulfonamidoethanol (N-Me-FHxSE alcohol)	68555-75-9	mg/kg		0.025	N.D.
136	N-Ethyl-perfluoro hexanesulfonamidoethanol (N-Et-FHxSE alcohol)	34455-03-3	mg/kg		0.025	N.D.
137	Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	mg/kg		0.025	N.D.
138	Perfluorononane sulfonic acid (PFNS)	474511-07-4	mg/kg		0.025	N.D.
139	Perfluorononane sulfonic acid (PFNS)	68259-12-1	mg/kg		0.025	N.D.
140	Sodium perfluorononanesulfonate (PFNS-Na)*	98789-57-2	mg/kg		0.025	N.D.
141	Potassium perfluorononanesulfonate (PFNS-K)*	29359-39-5	mg/kg		0.025	N.D.
142	Ammonium nonadecafluorononanesulphonate (PFNS-NH ₄)*	17202-41-4	mg/kg		0.025	N.D.
143	Perfluoroundecane sulfonic acid (PFUnDS)	749786-16-1	mg/kg		0.025	N.D.
144	Perfluorododecane sulfonic acid (PFDoDS)	79780-39-5	mg/kg		0.025	N.D.
145	Sodium perfluoro-1-dodecanesulfonate (PFDoDS-Na)*	1260224-54-1	mg/kg		0.025	N.D.
146	Perfluorotridecane sulfonic acid (PFTrDS)	791563-89-8	mg/kg		0.025	N.D.
147	Sodium perfluoro-1-tridecanesulfonate (PFTriDSNa)*	174675-49-1	mg/kg		0.025	N.D.
148	Ammonium 4,8-dioxa-3H-perfluorononanoate (ADONA)	958445-44-8	mg/kg	0.025	N.D.	



TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 11 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
149	Mono[2-perfluorodecyl]ethyl] Phosphate Cyclohexylamine Salt (10:2 monoPAP)*	NA	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.5	N.D.
150	Perfluorooctyl phosphoric acid (FPOPA)	40143-78-0	mg/kg		0.025	N.D.
151	Polyfluorinated silanes (PFO-Si)*	3102-79-2	mg/kg		0.5	N.D.
152	Dimethyl Perfluoro-1, 10-Decanedicarboxylate (PFDodiAOMe)	84750-88-9	mg/kg		0.5	N.D.
153	1H,1H,2H,2H-Perfluorodecyltriethoxysilane (PFSI)	101947-16-4	mg/kg		0.5	N.D.
154	Potassium 2H,2H,3H,3H-Perfluoroundecanoate (8:3 FTCA-K)*	83310-58-1	mg/kg		0.025	N.D.
155	1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	mg/kg		0.5	N.D.
156	1H,1H,2H,2H-Perfluorododecyl iodide (10:2 FTI)	2043-54-1	mg/kg		0.5	N.D.
157	1H,1H,2H,2H-Perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	mg/kg		0.5	N.D.
158	Sodium perfluorohexanoate (PFHxA-Na)*	2923-26-4	mg/kg		0.025	N.D.
159	Potassium perfluorohexanoate (PFHxA-K)*	3109-94-2	mg/kg		0.025	N.D.
160	Perfluorohexanoyl fluoride (PFHxA-F)*	355-38-4	mg/kg		0.025	N.D.
161	Sodium perfluorobutanoate (PFBA-Na)*	2218-54-4	mg/kg		0.025	N.D.
162	Potassium heptafluorobutanoate (PFBA-K)*	2966-54-3	mg/kg		0.025	N.D.
163	Ammonium perfluorobutanoate (PFBA-NH ₄)*	10495-86-0	mg/kg		0.025	N.D.
164	Silver perfluorobutanoate (PFBA-Ag)*	3794-64-7	mg/kg		0.025	N.D.
165	Sodium perfluorobutanesulfonate (PFBS-Na)*	60453-92-1	mg/kg	0.025	N.D.	



TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 12 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
166	Lithium perfluorobutanesulfonate (PFBS-Li)*	131651-65-5	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
167	Ammonium perfluorobutanesulfonate (PFBS-NH ₄)*	68259-10-9	mg/kg		0.025	N.D.
168	Magnesium perfluorobutanesulfonate (PFBS-Mg)*	507453-86-3	mg/kg		0.025	N.D.
169	Triphenylsulfonium perfluorobutanesulfonate (TPS-PFBS)*	144317-44-2	mg/kg		0.025	N.D.
170	Tetrabutyl-phosphonium perfluorobutanesulfonate*	220689-12-3	mg/kg		0.025	N.D.
171	N-Morpholinium perfluorobutanesulfonate*	503155-89-3	mg/kg		0.025	N.D.
172	Bis(4-tert-butylphenyl)iodonium perfluoro-1-butanesulfonate*	194999-85-4	mg/kg		0.025	N.D.
173	1,1,2,2,3,3,4,4,4-nonafluorobutane-1-sulphonic acid, compound with 2,2'-iminodiethanol (1:1)*	70225-18-2	mg/kg		0.025	N.D.
174	Perfluorobutanesulfonyl fluoride (PFBS-F)*	375-72-4	mg/kg		0.025	N.D.
175	Perfluorobutanesulphonyl chloride (PFBS-Cl)*	2991-84-6	mg/kg		0.025	N.D.
176	Sodium perfluoropentanoate (PFPeA-Na)*	2706-89-0	mg/kg		0.025	N.D.
177	Potassium perfluoropentanoate (PFPeA-K)*	336-23-2	mg/kg		0.025	N.D.
178	Ammonium perfluoropentanoate (PFPeA-NH ₄)*	68259-11-0	mg/kg		0.025	N.D.
179	Sodium perfluoroheptanoate (PFHpA-Na)*	20109-59-5	mg/kg		0.025	N.D.
180	Potassium perfluoroheptanoate (PFHpA-K)*	21049-36-5	mg/kg		0.025	N.D.
181	Ammonium perfluoroheptanoate (PFHpA-NH ₄)*	6130-43-4	mg/kg	0.025	N.D.	



TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 13 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2

시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004

시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

번호 (No.)	시험항목 (TEST ITEM)	CAS번호 (CAS NO.)	단위 (UNIT)	분석방법 (TEST METHOD)	검출한계 (MDL)	시험결과 (RESULT)
182	Sodium perfluoroheptanesulfonate (PFHpS-Na)*	21934-50-9	mg/kg	With reference to US EPA 3550C/8321B, by ultrasonic extraction and determined by GC/MS and LC/MS/MS	0.025	N.D.
183	Ammonium perfluoroheptanesulfonate (PFHpS-NH ₄)*	68259-07-4	mg/kg		0.025	N.D.
184	Potassium perfluoropentane-1-sulphonate (PFPeS-K)*	3872-25-1	mg/kg		0.025	N.D.
185	Ammonium perfluoropentanesulfonate (PFPeS-NH ₄)*	68259-09-6	mg/kg		0.025	N.D.
186	2-Perfluorohexylethyl iodide (6:2 FTI)	2043-57-4	mg/kg		0.5	N.D.
187	Mono[2-(perfluoro hexyl) ethyl]phosphate (6:2 PAP)	57678-01-0	mg/kg		0.5	N.D.
188	Bis[2-(perfluoro hexyl)ethyl] phosphate (6:2 diPAP)	57677-95-9	mg/kg		0.025	N.D.
189	Mono[2-(perfluoro octyl)ethyl] phosphate (8:2 PAP)	57678-03-2	mg/kg		0.5	N.D.
190	Bis[2-(perfluoro octyl)ethyl] phosphate (8:2 diPAP)	678-41-1	mg/kg		0.025	N.D.
191	Mono[2-(perfluoro decyl)ethyl] phosphate (10:2 PAP)	57678-05-4	mg/kg		0.5	N.D.
192	Bis[2-(perfluoro decyl)ethyl] phosphate (10:2 diPAP)	1895-26-7	mg/kg		0.025	N.D.
193	Sodium bis(1H,1H,2H,2H-perfluorodecyl)phosphate (8:2 diPAP-Na)*	114519-85-6	mg/kg		0.025	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)

Remark : * The concentration of the substance is calculated based on the amount of the related substances.

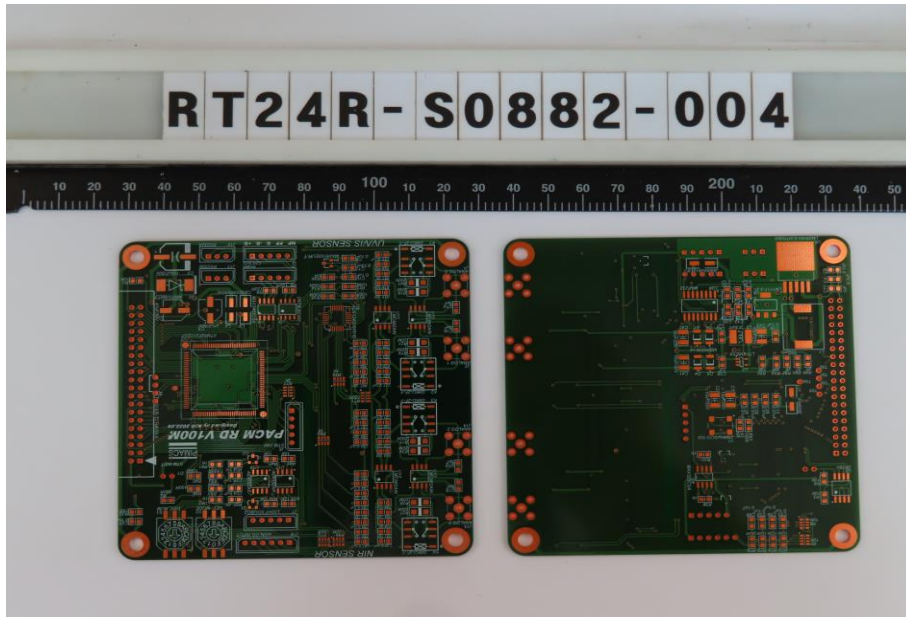


TEST REPORT
(시험 성적서)

발행면수 (PAGE) : 14 of 14
발행일자 (DATE) : 2024. 02. 08.

시험성적서 번호 (REPORT NO.) : RT24R-S0882-004-K2
시료고유번호 (SAMPLE ID NO.) : RT24R-S0882-004
시료명 (SAMPLE DESCRIPTION) : HANSAEM DIGITEC PCB-REACH
(HANSAEM DIGITEC PCB-REACH)

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



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

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