Test report ID 24234-1

Customer

Tanya Botha
Amec Foodpack
1 Nelson Mandela Blvd, George Industria, George, 6536, South Africa

Assignment

Measurlabs provided testing services as requested by the customer.

Samples

Sampling was performed by the customer.

Measurlabs sample ID	Sample name	Details	Performed measurements
ID 24234-1	Virgin HDPE Bag	**Sample material:** High Densisty Polyethylene	PFAS in plastic, paper, and other solid materials (165 compounds)

Samples Received

14/04/2026 (dd/mm/yyyy)

Results

The results presented on the next page(s) relate to the tested sample(s) only.

Photograph of the sampe



Summary of the results

Test performed	Compliance
PFAS in plastic, paper, and other solid materials	Compliant[1]

[1] Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste

On Friday, May 8, 2026, issued by

Amruta Kulkarni
Project Manager

+358 50 542 4468
amruta.kulkarni@measurlabs.com

Measurlabs (Measur Oy)

Teollisuuskatu 33
00510 Helsinki
Finland

Test results - perfluoroalkyl substances (PFAS) content (TIL & BV CPS)

Extraction method

Samples were extracted in accordance with EN 17681-1:2025 (MeOH/NaOH extraction under sonication) to release non-polymeric PFAS from the sample.

Analysis methods

In-house LC-MSMS method CPSD-AN-00668-MTHD (based on ISO 23702-1, CNS 15808 and CEN/TS 15968)[1,2]

In-house LC-MSMS method CE0295 (based on EN 17681-1:2025)[3,4]

Volatile Perfluorinated Compounds (VPFCs)[1] : In-house GC-MS method CPSD-AN-00667-MTHD

[1]Accredited test methods for textile, leather, plastic print and wood products and paints
[2]Testing was performed by an ISO/IEC 17025 accredited external service provider with an accreditation number TL-961 (IAS) and AB-0505-T (TÜRKAK).
[3]Accredited test methods for textiles
[4]Testing was performed by an ISO/IEC 17025 accredited external service provider with an accreditation number 01866 (ACCREDIA).

Results

The results of the analyses are tabulated in **Table 1**, and the entire substance scope is tabulated in **Appendix.** SCOPE OF SUBSTANCES OF THE PFAS MULTIMETHOD SCREENING

Table 1. Conclusions of the analysis results

Substance / parameter	Unit[1]	Result	Criteria	Compliant[3]
Poly-and perfluorinated substances (PFAS)	mg/kg	not detected[2]	≤ 0.025	compliant
Sum of detected PFAS	mg/kg	all results below limit of detection	≤ 0.25	complaint

[1]Content of substance as mass in sample
[2]Detection limit: 0.01 mg/kg, per analyte (exception 2-Perfluorodecyl ethanoic acid & 2-Perfluorohexyl ethanoic acid: 0.025 mg/kg)
[3]Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste, amending Regulation (EU) 2019/1020 and Directive (EU) 2019/904, and repealing Directive 94/62/EC

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APPENDIX. SCOPE OF SUBSTANCES OF THE PFAS MULTIMETHOD SCREENING

No.	Analyte name	Acronym	CAS No.
Fluorotelomer alcohols (FTOH)			
1	2-Perfluorobutylethanol	4:2 FTOH	2043-47-2
2	2-Pertfluorohexylethanol	6:2 FTOH	647-42-7
3	2-Perfluorooctylethanol	8:2 FTOH	678-39-7
4	2-Pertfluorodecylethanol	10:2 FTOH	865-86-1
5	2-Perfluorododecylethanol	12:2 FTOH	39239-77-5
Fluorotelomer acrylates (FTAC)			
6	1H,1H,2H,2H-Perfluorooctyl acrylate	6:2 FTA	17527-29-6
7	1H,1H,2H,2H-Perfluorodecyl acrylate	8:2 FTA	27905-45-9
8	1H,1H,2H,2H-Perfluorododecyl acrylate	10:2 FTA	17741-60-5
Fluorotelomer methacrylates (FTMAC)			
9	1H,1H,2H,2H-Perfluorooctyl methacrylate	6:2 FTMA	2144-53-8
10	1H,1H,2H,2H-Perfluorodecyl methacrylate	8:2 FTMA	1996-88-9
11	1H,1H,2H,2H-Perfluorododecyl methacrylate	10:2 FTMA	2144-54-9
Perfluoroalkyl iodide and its telomeres (PFAI)			
12	Perfluorooctyl iodide	PFOI	507-63-1
13	1H,1H,2H,2H-Perfluorodecyl iodide	8:2 FTI	2043-53-0
14	1H,1H,2H,2H-Perfluorododecyl iodide	10:2 FTI	2043-54-1
15	1H,1H,2H,2H-Perfluorotetradecyl iodide	12:2 FTI	30046-31-2
Perfluoroalkyl carboxylic acids (PFCA, C3-C20)			
16	Perfluoropropionic acid	PFPrA	422-64-0
17	Perfluorobutyric acid	PFBA	375-22-4
18	Perfluoropentanoic acid	PFPeA	2706-90-3
19	Perfluorohexanoic acid	PFHxA	307-24-4
20	Perfluoroheptanoic acid	PFHpA	375-85-9
21	Perfluorooctanoic acid	PFOA	335-67-1
22	Perfluorononanoic acid	PFNA	375-95-1
23	Perfluorodecanoic acid	PFDA	335-76-2
24	Perfluoroundecanoic acid	PFUnDA	2058-94-8
25	Perfluorododecanoic acid	PFDoDA	307-55-1

No.	Analyte name	Acronym	CAS No.
26	Perfluorotridecanoic acid	PFTrDA	72629-94-8
27	Perfluorotetradecanoic acid	PFTeDA	376-06-7
28	Perfluoropentadecanoic acid	PFPEDA	141074-63-7
29	Perfluorohexadecanoic acid	PFHxDA	67905-19-5
30	Perfluoroheptadecanoic acid	PFHpDA	57475-95-3
31	Perfluorooctadecanoic acid	PFODA	16517-11-6
32	Perfluorononadecanoic acid	PFNDA	133921-38-7
33	Perfluoroeicosanoic acid	C20 PFCA	68310-12-3
Perfluoroalkyl carboxylic acid salts and derivatives (C4)			
34	Lithium perfluorobutanoate	PFBA-Li	4146-76-3
35	Sodium perfluorobutanoate	PFBA-Na	2218-54-4
36	Potassium heptafluorobutanoate	PFBA-K	2966-54-3
37	Ammonium perfluorobutanoate	PFBA-NH_4	10495-86-0
38	Silver perfluorobutanoate	PFBA-Ag	3794-64-7
Perfluoroalkyl carboxylic acid salts and derivatives (C5)			
39	Lithium perfluoropentanoate	PFPeA-Li	198482-22-3
40	Sodium perfluoropentanoate	PFPeA-Na	2706-89-0
41	Potassium perfluoropentanoate	PFPeA-K	336-23-2
42	Silver perfluoropentanoate	PFPeA-Ag	2795-30-4
43	Ammonium perfluoropentanoate	PFPeA-NH_4	68259-11-0
Perfluoroalkyl carboxylic acid salts and derivatives (C6)			
44	Lithium perfluorohexanoate	PFHxA-Li	90430-61-8
45	Sodium perfluorohexanoate	PFHxA-Na	2923-26-4
46	Potassium perfluorohexanoate	PFHxA-K	3109-94-2
47	Silver perfluorohexanoate	PFHxA-Ag	336-02-7
48	Ammonium perfluorohexanoate	PFHxA-NH_4	21615-47-4
49	Methyl perfluorohexanoate	Me-PFHxA	424-18-0
50	Perfluorohexanoyl fluoride	PFHxA-F	355-38-4
51	Perfluorohexanoyl chloride	PFHxA-Cl	335-53-5
52	Perfluorohexanoic anhydride	PFHxAA	308-13-4
Perfluoroalkyl carboxylic acid salts and derivatives (C7)			
53	Lithium perfluoroheptanoate	PFHpA-Li	60871-90-1

No.	Analyte name	Acronym	CAS No.
54	Sodium perfluoroheptanoate	PFHpA-Na	20109-59-5
55	Potassium perfluoroheptanoate	PFHpA-K	21049-36-5
56	Silver perfluoroheptanoate	PFHpA-Ag	424-05-5
57	Cesium perfluoroheptanoate	PFHpA-Cs	171198-24-6
58	Ammonium perfluoroheptanoate	PFHpA-NH_4	6130-43-4
59	Sodium 7H-perfluoroheptanoate	HPFHpA-Na	2264-25-7
60	Ammonium 7H-perfluoroheptanoate	HPFHpA-NH_4	376-34-1
Perfluoroalkyl carboxylic acid salts and derivatives (C8)			
61	Lithium perfluorooctanoate	PFOA-Li	17125-58-5
62	Sodium perfluorooctanoate	PFOA-Na	335-95-5
63	Potassium perfluorooctanoate	PFOA-K	2395-00-8
64	Silver perfluorooctanoate	PFOA-Ag	335-93-3
65	Cesium perfluorooctanoate	PFOA-Cs	17125-60-9
66	Cobalt perfluorooctanoate	PFOA-Co	35965-01-6
67	Chromium(3+) perfluorooctanoate	PFOA-Cr(3+)	68141-02-6
68	Ammonium perfluorooctanoate	PFOA-NH_4	3825-26-1
69	Perfluorooctanoyl fluoride	PFOA-F	335-66-0
70	Perfluorooctanoyl chloride	PFOA-Cl	335-64-8
71	Methyl perfluorooctanoate	Me-PFOA	376-27-2
72	Ethyl perfluorooctanoate	Et-PFOA	3108-24-5
73	Tetramethylammonium perfluorooctanoate	PFOA-N(CH3)4	32609-65-7
74	Tetraethylammonium perfluorooctanoate	PFOA-N(C2H5)4	98241-25-9
75	Tetrapropylammonium perfluorooctanoate	PFOA-N(C3H7)4	277749-00-5
76	Compound of perfluorooctanoic acid and piperazine	PFOA-NH(C4H10N)	423-52-9
Perfluoroalkyl carboxylic acid salts and derivatives (C9)			
77	Lithium perfluorononanoate	PFNA-Li	60871-92-3
78	Sodium perfluorononanoate	PFNA-Na	21049-39-8
79	Potassium perfluorononanoate	PFNA-K	21049-38-7
80	Silver perfluorononanoate	PFNA-Ag	7358-16-9
81	Ammonium perfluorononanoate	PFNA-NH_4	4149-60-4
82	Methanaminium perfluorononanoate	PFNA-NH3(CH3)	77032-23-6
83	Piperidinium perfluorononanoate	PFNA-NH2(C5H10)	95682-66-9

No.	Analyte name	Acronym	CAS No.
84	Cyclohexanaminium perfluorononanoate	PFNA-NH3(C6H11)	328531-06-2
Perfluoroalkyl carboxylic acid salts and derivatives (C10)			
85	Lithium perfluorodecanoate	PFDA-Li	84743-32-8
86	Sodium perfluorodecanoate	PFDA-Na	3830-45-3
87	Potassium perfluorodecanoate	PFDA-K	51604-85-4
88	Silver perfluorodecanoate	PFDA-Ag	5784-82-7
89	Ammonium perfluorodecanoate	PFDA-NH_4	3108-42-7
Perfluoroalkyl carboxylic acid salts and derivatives (C11)			
90	Sodium perfluoroundecanoate	PFUnDA-Na	60871-96-7
91	Potassium perfluoroundecanoate	PFUnDA-K	30377-53-8
92	Calcium perfluoroundecanoate	PFUnDA-Ca	97163-17-2
93	Ammonium perfluoroundecanoate	PFUnDA-NH_4	4234-23-5
Perfluoroalkyl carboxylic acid salts and derivatives (C12 and C13)			
94	Sodium perfluorododecanoate	PFDoDA-Na	60872-01-7
95	Ammonium perfluorododecanoate	PFDoDA-NH_4	3793-74-6
96	Ammonium perfluorotridecanoate	PFTrDA-NH_4	4288-72-6
Fluorotelomer carboxylic acids			
97	7H-Perfluoroheptanoic acid	HPFHpA	1546-95-8
98	2H-perfluoro-2-decenoic acid	8:2 FTUCA	70887-84-2
99	2-Perfluorodecyl ethanoic acid	10:2 FTUCA	53826-13-4
100	2-Perfluorohexyl ethanoic acid	6:2 FTCA	53826-12-3
Perfluoroalkyl sulfonic acids (C1-C13)			
101	Perfluoromethanesulfonic acid	PFMS	1493-13-6
102	Perfluoroethanesulfonic acid	PFEtS	354-88-1
103	Perfluoropropanesulfonic acid	PFPrS	423-41-6
104	Perfluorobutanesulfonic acid	PFBS	375-73-5
105	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
106	Perfluorohexanesulfonic acid	PFHxS	355-46-4
107	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
108	Perfluorooctanesulfonic acid	PFOS	1763-23-1
109	Perfluorononanesulfonic acid	PFNS	68259-12-1
110	Perfluorodecanesulfonic acid	PFDS	335-77-3

No.	Analyte name	Acronym	CAS No.
111	Perfluoroundecanesulfonic acid	PFUnDS	749786-16-1
112	Perfluorododecansulfonic acid	PFDoDS	79780-39-5
113	Perfluorotridecansulfonic acid	PFTrDS	791563-89-8
Perfluoroalkyl sulfonic acid salts and derivatives (C4)			
114	Lithium perfluorobutanesulfonate	PFBS-Li	131651-65-5
115	Sodium perfluorobutanesulfonate	PFBS-Na	60453-92-1
116	Potassium perfluorobutanesulfonate	PFBS-K	29420-49-3
117	Magnesium perfluorobutanesulfonate	PFBS-Mg	507453-86-3
118	Ammonium perfluorobutanesulfonate	PFBS-NH_4	68259-10-9
119	Perfluorobutanesulfonyl chloride	PFBS-Cl	2991-84-6
120	Perfluorobutanesulfonic acid hydrate	PFBS-H_2O	59933-66-3
121	Tetraethylazanium perfluorobutanesulfonate	PFBS-N(C2H5)4	25628-08-4
122	Dimethyl(phenyl)sulfonium perfluorobutanesulfonate	PFBS-S(CH3)2C6H5	220133-51-7
123	Triphenylsulfonium perfluorobutanesulfonate	TPS-PFBS	144317-44-2
124	Morpholinium perfluorobutanesulfonate	PFBS-NC4H9O	503155-89-3
125	Bis(4-tert-butylphenyl)iodonium perfluorobutanesulfonate	PFBS-I(C6H4)2 (C4H9)2	194999-85-4
126	Diethanolamine perfluorobutanesulfonate	PFBS-NH(C2H5O)2	70225-18-2
127	1-(4-butoxy-1-naphthyl)tetrahydrothiophenium perfluorobutanesulfonate	PFBS-SC18H23O	209482-18-8
Perfluoroalkyl sulfonic acid salts and derivatives (C5)			
128	Potassium perfluoropentanesulfonate	PFPeS-K	3872-25-1
129	Sodium perfluoropentanesulfonate	PFPeS-Na	630402-22-1
Perfluoroalkyl sulfonic acid salts and derivatives (C6)			
130	Lithium perfluorohexanesulfonate	PFHxS-Li	55120-77-9
131	Sodium perfluorohexanesulfonate	PFHxS-Na	82382-12-5
132	Potassium perfluorohexanesulfonate	PFHxS-K	3871-99-6
133	Ammonium perfluorohexanesulfonate	PFHxS-NH_4	68259-08-5
134	Zinc perfluorohexanesulfonate	PFHxS-Zn	70136-72-0
135	Perfluorohexylsulfonyl fluoride	PFHxS-F	423-50-7
136	Perfluorohexylsulfonyl chloride	PFHxS-Cl	55591-23-6
Perfluoroalkyl sulfonic acid salts and derivatives (C7)			
137	Lithium perfluoroheptanesulfonate	PFHpS-Li	117806-54-9

No.	Analyte name	Acronym	CAS No.
138	Sodium perfluoroheptanesulfonate	PFHpS-Na	21934-50-9
139	Potassium perfluoroheptanesulfonate	PFHpS-K	60270-55-5
140	Ammonium perfluoroheptanesulfonate	PFHpS-NH_4	68259-07-4
141	Diethanolamine perfluoroheptanesulfonate	PFHpS-NH2(C2H4OH)2	70225-15-9
Perfluoroalkyl sulfonic acid salts and derivatives (C8)			
142	Lithium perfluorooctanesulfonate	PFOS-Li	29457-72-5
143	Sodium perfluorooctanesulfonate	PFOS-Na	4021-47-0
144	Potassium perfluorooctanesulfonate	PFOS-K	2795-39-3
145	Magnesium bis(perfluorooctanesulfonate)	PFOS-Mg	91036-71-4
146	Ammonium perfluorooctanesulfonate	PFOS-NH_4	29081-56-9
147	Perfluorooctanesulfonyl fluoride	PFOS-F	307-35-7
148	Piperidinium perfluorooctanesulfonate	PFOS-NH2(C5H10)	71463-74-6
149	Tetrabutylammonium perfluorooctanesulfonate	PFOS-N(C4H9)4	111873-33-7
150	Diethanolamine perfluoroctanesulfonate	PFOS-NH2(C2H4OH)2	70225-14-8
151	Tetraethylammonium perfluorooctanesulfonate	PFOS-N(C2H5)4	56773-42-3
152	N-decyl-N,N-dimethyl-1-decanaminium perfluorooctanesulfonate	PFOS-N(C10H21)2(CH3)2	251099-16-8
153	Sodium 8-chloropefluoro-1-octanesulfonate	8Cl-PFOS	2481740-05-8
Perfluoroalkyl sulfonic acid salts and derivatives (C9)			
154	Potassium perfluorononanesulfonate	PFNS-K	29359-39-5
155	Ammonium perfluorononanesulfonate	PFNS-NH_4	17202-41-4
156	Perfluorononanesulfonate anion	PFNS (anion)	474511-07-4
Perfluoroalkyl sulfonic acid salts and derivatives (C10)			
157	Sodium perfluorodecanesulfonate	PFDS-Na	2806-15-7
158	Potassium perfluorodecanesulfonate	PFDS-K	2806-16-8
159	Ammonium perfluorodecanesulfonate	PFDS-NH4	67906-42-7
Fluorotelomer sulfonic acids			
160	1H,1H,2H,2H-Perfluorohexanesulfonic acid	4:2 FTS	757124-72-4
161	1H,1H,2H,2H-Perfluorooctanesulfonic acid	6:2 FTS	27619-97-2
162	1H,1H,2H,2H-Perfluorodencanesulfonic acid	8:2 FTS	39108-34-4
163	1H,1H,2H,2H-Perfluorododecanesulfonic acid	10:2 FTS	120226-60-0

No.	Analyte name	Acronym	CAS No.
Fluorotelomer sulfonic acid salts			
164	Sodium 1H,1H,2H,2H-Perfluorohexanesulfonate	4:2 FTS-Na	27619-93-8
165	1H,1H,2H,2H-Perfluorooctanesulfonate	6:2 FTS (anion)	425670-75-3
166	Sodium 1H,1H,2H,2H-Perfluorooctanesulfonate	6:2 FTS-Na	27619-94-9
167	Potassium 1H,1H,2H,2H-Perfluorooctanesulfonate	6:2 FTS-K	59587-38-1
168	Ammonium 1H,1H,2H,2H-Perfluorooctanesulfonate	6:2 FTS-NH_4	59587-39-2
169	Sodium 1H,1H,2H,2H-Perfluorodecanesulfonate	8:2 FTS-Na	27619-96-1
170	Potassium 1H,1H,2H,2H-Perfluorodecanesulfonate	8:2 FTS-K	438237-73-1
171	Ammonium 1H,1H,2H,2H-Perfluorodecanesulfonate	8:2 FTS-NH_4	149724-40-3
172	Sodium 1H,1H,2H,2H-perfluoro-1-dodecane sulfonate	10:2 FTS-Na	108026-35-3
Perfluorooctane sulfonamides (FOSA)			
173	Perfluorooctanesulfonamide	PFOSA	754-91-6
174	N-methyl perfluorooctanesulfonamide	NMeFOSA	31506-32-8
175	N-ethyl perfluorooctanesulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamide salts			
176	Perfluorooctanesulfonamide lithium salt (1:1)	PFOSA-Li	76752-79-9
177	2-(N-ethylperfluorooctanesulfonamido) ethyl acrylate	EtFOSAC	423-82-5
Perfluorooctane sulfonamide ethanols (FOSE)			
178	N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
179	N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
Perfluorooctane sulfonamidoacetic acids (FOSAA)			
180	Perfluorooctanesulfonamidoacetic acid	FOSAA	2806-24-8
181	N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
Per- and polyfluoroether carboxylic acids (PFECA)			
182	Perfluoro-3,7-dimethyloctanoic acid	PF-3,7-DMOA	172155-07-6
183	Perfluoro-2-methyl-3-oxahexanoic acid (common name: hexafluoropropylene oxide dimer acid)	HFPO-DA	13252-13-6
184	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	863090-89-5
185	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Per- and polyfluoroether carboxylic acid salts and derivatives			
186	Potassium perfluoro-2-methyl-3-oxahexanoate	HFPO-DA-K	67118-55-2
187	Ammonium perfluoro-2-methyl-3-oxahexanoate	HFPO-DA-NH_4	62037-80-3

No.	Analyte name	Acronym	CAS No.
188	Perfluoro(2-methyl-3-oxahexanoyl) fluoride	HFPO-F	2062-98-8
189	Sodium dodecafluoro-3H-4,8-dioxanonanoate	ADONA-Na	2250081-67-3
190	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Fluorotelomer carboxylic acids (FTCA)			
191	2H,2H-Perfluorodecanoic acid	8:2 FTCA	7854-31-5
192	2H,2H,3H,3H-Perfluoroundecanoic acid	8:3 FTCA	34598-33-9
Fluorotelomer carboxylic acid salts			
193	Tetrabutylphosphonium 2H,2H-perfluorodecanoate	8:2 FTCA-P(C4H9)4	882489-14-7
194	Potassium 2H,2H,3H,3H-perfluoroundecanoate	8:3 FTCA-K	83310-58-1
Other perfluorosulfonamides			
195	Perfluorobutanesulfonamide	PFBSA	30334-69-1
196	Perfluorohexanesulfonamide	PFHxSA	41997-13-1
197	N-methyl perfluorohexanesulfonamide	NMeFHxSA	68259-15-4
198	N-Ethyl perfluorohexanesulfonamide	NEtFHxSA	87988-56-5
Phosphate fluorotelomers			
199	Sodium 1H,1H,2H,2H-pefluorodecyl phosphate	8:2 PAP	57678-03-02
200	Di(1H,1H,2H,2H-pefluorodecyl) phosphate	8:2 diPAP	678-41-1
Other			
201	F-DIOX	C604	1190931-41-9
202	Potassium 9-chloroeicosanfluoro-3-oxaundecane-1-sulfonate	9Cl-PF3OUdS	83329-89-9
203	Potassium 9-chlorohexadecafluoro-3-oxanonana-1-sulfonate	9Cl-PF3ONS	73606-19-6