



## ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental  
2425 New Holland Pike  
Lancaster, PA 17601

Report Date: March 06, 2020 15:18

### Project: Turf Testing 2020

Account #: 45141  
Group Number: 2089735  
PO Number: PATRICIA OCHOA  
State of Sample Origin: CA

Respectfully Submitted,



Mary Kate Izzo  
Project Manager

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### SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
"Super natural series" (fibers) Turf Fibers	02/01/2020	1267176

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

**Sample Description:** "Super natural series" (fibers) Turf Fibers  
Artificial Turf - PFAS Testing

**ELLE Sample #:** G5 1267176  
**ELLE Group #:** 2089735  
**Matrix:** Turf Fibers

**Project Name:** Turf Testing 2020

**Submission Date/Time:** 02/26/2020 12:44  
**Collection Date/Time:** 02/01/2020

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/g	ng/g	ng/g	
14027	9CI-PF3ONS 9CI-PF3ONS is the acronym for Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	N.D.	0.10	1.0	1
14027	11CI-PF3OUdS 11CI-PF3OUdS is the acronym for 11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	763051-92-9	N.D.	0.10	0.30	1
14027	DONA DONA is the acronym for 4,8-dioxa-3H-perfluorononanoic acid, the free acid form of ADONA.	919005-14-4	N.D.	0.10	0.30	1
14027	10:2Fluorotelomersulfonic acid	120226-60-0	N.D.	0.30	1.0	1
14027	4:2-Fluorotelomersulfonic acid	757124-72-4	N.D.	0.30	1.0	1
14027	6:2-Fluorotelomersulfonic acid	27619-97-2	N.D.	0.30	1.0	1
14027	8:2-Fluorotelomersulfonic acid	39108-34-4	N.D.	0.30	1.5	1
14027	HFPODA HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	13252-13-6	N.D.	0.20	1.5	1
14027	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	N.D.	0.10	1.0	1
14027	NEtPFOSA NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide	4151-50-2	N.D.	0.25	1.0	1
14027	NEtPFOSAE NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	1691-99-2	N.D.	0.25	1.0	1
14027	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	N.D.	0.10	1.0	1
14027	NMePFOSA NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide	31506-32-8	N.D.	0.25	1.0	1
14027	NMePFOSAE NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	24448-09-7	N.D.	0.25	1.0	1
14027	Perfluorobutanesulfonic acid	375-73-5	N.D.	0.20	1.0	1
14027	Perfluorobutanoic acid	375-22-4	0.93 J	0.40	1.0	1
14027	Perfluorodecanesulfonic acid	335-77-3	N.D.	0.10	0.30	1
14027	Perfluorodecanoic acid	335-76-2	N.D.	0.10	0.30	1
14027	Perfluorododecanesulfonic acid	79780-39-5	N.D.	0.10	1.0	1
14027	Perfluorododecanoic acid	307-55-1	N.D.	0.10	0.30	1
14027	Perfluoroheptanesulfonic acid	375-92-8	N.D.	0.10	0.30	1
14027	Perfluoroheptanoic acid	375-85-9	N.D.	0.10	0.30	1
14027	Perfluorohexadecanoic acid	67905-19-5	N.D.	0.10	0.30	1
14027	Perfluorohexanesulfonic acid	355-46-4	N.D.	0.10	0.30	1
14027	Perfluorohexanoic acid	307-24-4	N.D.	0.10	0.30	1
14027	Perfluorononanesulfonic acid	68259-12-1	N.D.	0.10	0.30	1
14027	Perfluorononanoic acid	375-95-1	N.D.	0.10	0.30	1

\*=This limit was used in the evaluation of the final result

**Sample Description:** "Super natural series" (fibers) Turf Fibers  
Artificial Turf - PFAS Testing

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**ELLE Group #:** 2089735  
**Matrix:** Turf Fibers

**Project Name:** Turf Testing 2020

**Submission Date/Time:** 02/26/2020 12:44  
**Collection Date/Time:** 02/01/2020

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
<b>LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified</b>			<b>ng/g</b>	<b>ng/g</b>	<b>ng/g</b>	
14027	Perfluorooctadecanoic acid	16517-11-6	N.D. Z	0.10	0.30	1
14027	Perfluorooctanesulfonamide	754-91-6	N.D.	0.10	0.30	1
14027	Perfluorooctanesulfonic acid	1763-23-1	N.D.	0.10	0.30	1
14027	Perfluorooctanoic acid	335-67-1	N.D.	0.10	0.30	1
14027	Perfluoropentanesulfonate	2706-91-4	N.D.	0.10	0.30	1
14027	Perfluoropentanoic acid	2706-90-3	N.D.	0.10	0.30	1
14027	Perfluorotetradecanoic acid	376-06-7	N.D.	0.10	0.30	1
14027	Perfluorotridecanoic acid	72629-94-8	N.D.	0.10	0.30	1
14027	Perfluoroundecanoic acid	2058-94-8	N.D.	0.10	0.30	1

The recovery for several sample extraction standards is outside of QC acceptance limits as noted on the QC Summary.  
Z = The target analyte PFODA is outside the QC acceptance limits in the opening continuing calibration verification standard. Since the result is high and PFODA is not detected in the sample, the data is reported.

### Sample Comments

CA ELAP Lab Certification No. 2792

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14027	PFAS 36 Compounds	EPA 537 Version 1.1 Modified	1	20064003	03/05/2020 11:46	Devon M Whooley	1
14090	PFAS Solid Prep	EPA 537 Version 1.1 Modified	1	20064003	03/04/2020 07:00	Toby Barnhart	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

Group Number: 2089735

Reported: 03/06/2020 15:18

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

### Method Blank

Analysis Name	Result	MDL**	LOQ
	ng/g	ng/g	ng/g
Batch number: 20064003	Sample number(s): 1267176		
9CI-PF3ONS	N.D.	0.20	2.0
11CI-PF3OUdS	N.D.	0.20	0.60
DONA	N.D.	0.20	0.60
10:2Fluorotelomersulfonic acid	N.D.	0.60	2.0
4:2-Fluorotelomersulfonic acid	N.D.	0.60	2.0
6:2-Fluorotelomersulfonic acid	N.D.	0.60	2.0
8:2-Fluorotelomersulfonic acid	N.D.	0.60	3.0
HFPODA	N.D.	0.40	3.0
NEtFOSAA	N.D.	0.20	2.0
NEtPFOSA	N.D.	0.50	2.0
NEtPFOSAE	N.D.	0.50	2.0
NMeFOSAA	N.D.	0.20	2.0
NMePFOSA	N.D.	0.50	2.0
NMePFOSAE	N.D.	0.50	2.0
Perfluorobutanesulfonic acid	N.D.	0.40	2.0
Perfluorobutanoic acid	N.D.	0.80	2.0
Perfluorodecanesulfonic acid	N.D.	0.20	0.60
Perfluorodecanoic acid	N.D.	0.20	0.60
Perfluorododecanesulfonic acid	N.D.	0.20	2.0
Perfluorododecanoic acid	N.D.	0.20	0.60
Perfluoroheptanesulfonic acid	N.D.	0.20	0.60
Perfluoroheptanoic acid	N.D.	0.20	0.60
Perfluorohexadecanoic acid	N.D.	0.20	0.60
Perfluorohexanesulfonic acid	N.D.	0.20	0.60
Perfluorohexanoic acid	N.D.	0.20	0.60
Perfluorononanesulfonic acid	N.D.	0.20	0.60
Perfluorononanoic acid	N.D.	0.20	0.60
Perfluorooctadecanoic acid	N.D.	0.20	0.60
Perfluorooctanesulfonamide	N.D.	0.20	0.60
Perfluorooctanesulfonic acid	N.D.	0.20	0.60
Perfluorooctanoic acid	N.D.	0.20	0.60
Perfluoropentanesulfonate	N.D.	0.20	0.60
Perfluoropentanoic acid	N.D.	0.20	0.60
Perfluorotetradecanoic acid	N.D.	0.20	0.60
Perfluorotridecanoic acid	N.D.	0.20	0.60
Perfluoroundecanoic acid	N.D.	0.20	0.60

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Group Number: 2089735

Reported: 03/06/2020 15:18

### LCS/LCSD

Analysis Name	LCS Spike Added ng/g	LCS Conc ng/g	LCSD Spike Added ng/g	LCSD Conc ng/g	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 20064003	Sample number(s): 1267176								
9Cl-PF3ONS	11.92	11.79	11.92	10.94	99	92	48-156	7	30
11Cl-PF3OUdS	12.06	12.2	12.06	10.68	101	89	49-152	13	30
DONA	12.06	11.86	12.06	11.76	98	98	60-142	1	30
10:2Fluorotelomersulfonic acid	12.34	12.94	12.34	13	105	105	45-147	0	30
4:2-Fluorotelomersulfonic acid	11.96	11.76	11.96	11.14	98	93	58-134	5	30
6:2-Fluorotelomersulfonic acid	12.14	11.84	12.14	13.25	98	109	51-144	11	30
8:2-Fluorotelomersulfonic acid	12.26	13.95	12.26	12.5	114	102	54-152	11	30
HFPODA	12.8	14.53	12.8	11.2	113	87	36-163	26	30
NEtFOSAA	12.8	13.21	12.8	13.23	103	103	51-145	0	30
NEtPFOSA	12.8	13.52	12.8	13.28	106	104	52-134	2	30
NEtPFOSAE	12.8	12.11	12.8	11.96	95	93	52-141	1	30
NMeFOSAA	12.8	13.09	12.8	13.43	102	105	55-152	3	30
NMePFOSA	12.8	14.05	12.8	13.63	110	107	40-132	3	30
NMePFOSAE	12.8	12.09	12.8	11.13	94	87	56-144	8	30
Perfluorobutanesulfonic acid	11.32	11.66	11.32	11.3	103	100	63-139	3	30
Perfluorobutanoic acid	12.8	12.6	12.8	12.59	98	98	56-188	0	30
Perfluorodecanesulfonic acid	12.32	13.13	12.32	11.47	107	93	60-142	14	30
Perfluorodecanoic acid	12.8	11.95	12.8	12.42	93	97	65-144	4	30
Perfluorododecanesulfonic acid	12.4	10.71	12.4	10.56	86	85	50-146	1	30
Perfluorododecanoic acid	12.8	12.69	12.8	11.96	99	93	62-150	6	30
Perfluoroheptanesulfonic acid	12.18	11.16	12.18	11.76	92	97	67-139	5	30
Perfluoroheptanoic acid	12.8	13.34	12.8	12.94	104	101	65-153	3	30
Perfluorohexadecanoic acid	12.8	13.58	12.8	12.6	106	98	46-164	7	30
Perfluorohexanesulfonic acid	12.1	10.82	12.1	10.89	89	90	59-139	1	30
Perfluorohexanoic acid	12.8	12.94	12.8	12.05	101	94	64-149	7	30
Perfluorononanesulfonic acid	12.28	12.97	12.28	12.16	106	99	62-145	6	30
Perfluorononanoic acid	12.8	12.88	12.8	12.09	101	94	64-151	6	30
Perfluorooctadecanoic acid	12.8	14.6	12.8	13.47	114	105	27-171	8	30
Perfluorooctanesulfonamide	12.8	13.1	12.8	12.85	102	100	61-133	2	30
Perfluorooctanesulfonic acid	12.24	10.35	12.24	10.17	85	83	54-132	2	30
Perfluorooctanoic acid	12.8	12.41	12.8	12.67	97	99	65-147	2	30
Perfluoropentanesulfonate	12	12.38	12	10.94	103	91	64-144	12	30
Perfluoropentanoic acid	12.8	13.5	12.8	13.03	105	102	71-139	4	30
Perfluorotetradecanoic acid	12.8	12.8	12.8	12.23	100	96	66-147	5	30
Perfluorotridecanoic acid	12.8	12.68	12.8	12.36	99	97	63-152	2	30
Perfluoroundecanoic acid	12.8	12.81	12.8	11.59	100	91	65-146	10	30

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Group Number: 2089735

Reported: 03/06/2020 15:18

### Labeled Isotope Quality Control

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: PFAS 36 Compounds  
Batch number: 20064003

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
1267176	110	118	119	188*	88	98
Blank	77	78	72	80	76	76
LCS	78	78	72	71	78	87
LCSD	77	79	75	79	79	81
Limits:	40-117	38-118	38-120	28-137	36-120	38-124
	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
1267176	115	312*	110	105	145*	113
Blank	72	97	80	77	86	78
LCS	82	78	78	76	74	79
LCSD	79	73	72	79	74	77
Limits:	39-120	25-154	44-115	45-118	39-123	43-118
	13C2-8:2-FTS	d3-NMeFOSAA	13C7-PFUnDA	d5-NEIFOSAA	13C2-PFDoDA	13C2-PFTeDA
1267176	297*	135	114	176*	104	88
Blank	141	83	78	110	74	59
LCS	78	89	78	90	83	84
LCSD	81	80	86	91	87	88
Limits:	26-155	10-152	34-124	10-156	28-126	26-125
	13C8-PFOSA	d7-NMePFOSAE	d9-NEIPFOSAE	d5-NEIPFOSA	d3-NMePFOSA	13C3-HFPODA
1267176	79	73	83	51	61	92
Blank	63	68	71	39	40	81
LCS	80	74	74	58	53	73
LCSD	77	79	76	63	60	88
Limits:	31-127	10-142	10-150	10-145	10-141	33-139

\*- Outside of specification

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(1) The result for one or both determinations was less than five times the LOQ.

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**Artificail Turn - PFAS Testing**

**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Date:	<u>02/26/2020</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>MD</u>		

**Arrival Condition Summary**

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	No	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

*Unpacked by Katie Hartlove*

General Comments: Rcvd. One envelope Backing Super Natural 80 and one envelope Fiber Super Natural 80.



# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>BMQL</b>	Below Minimum Quantitation Level	<b>mL</b>	milliliter(s)
<b>C</b>	degrees Celsius	<b>MPN</b>	Most Probable Number
<b>cfu</b>	colony forming units	<b>N.D.</b>	non-detect
<b>CP Units</b>	cobalt-chloroplatinate units	<b>ng</b>	nanogram(s)
<b>F</b>	degrees Fahrenheit	<b>NTU</b>	nephelometric turbidity units
<b>g</b>	gram(s)	<b>pg/L</b>	picogram/liter
<b>IU</b>	International Units	<b>RL</b>	Reporting Limit
<b>kg</b>	kilogram(s)	<b>TNTC</b>	Too Numerous To Count
<b>L</b>	liter(s)	<b>µg</b>	microgram(s)
<b>lb.</b>	pound(s)	<b>µL</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>umhos/cm</b>	micromhos/cm
<b>meq</b>	milliequivalents	<b>MCL</b>	Maximum Contamination Limit
<b>mg</b>	milligram(s)		
<b>&lt;</b>	less than		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

# Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$ . The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$ . The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$ . The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.