



RTI LABORATORIES, INC.

RTI Laboratories
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Wednesday, July 12, 2023

Kyle Horne
Sprinturf
146 Fairchild Street, Suite 150
Daniel Island, SC 29492
TEL:
FAX:

RE: PFAS on 1 solid
Work Order #: 2306531
Dear Kyle Horne:

A handwritten signature in black ink, appearing to read "Lloyd Kaufman", written in a cursive style.

Lloyd Kaufman
Vice President, Director of Materials Sciences

RTI Laboratories, Inc. - Analytical Report

WO#: 2306531

Date Reported: 7/12/2023

Original

Client: Sprinturf
 Project: PFAS on 1 solid
 Lab ID: 2306531-001
 Client Sample ID: Manchester by the Sea, Brooks DFE46

Collection Date:

 Matrix:

Analysis	Result	RL	Qual	Units	DF	Date Analyzed
Perfluorinated Compounds Solid Matrix LC/MS/MS	Method: DOD QSM5.3 B15			Analyst: LK		
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonate (11Cl-PF3OYUdS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
1H,1H,2H,2H-Perfluorodecanesulfonate (8:2 FTS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
1H,1H,2H,2H-Perfluorohexanesulfonate (4:2 FTS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
1H,1H,2H,2H-Perfluorooctanesulfonate (6:2 FTS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate (9Cl-PF3ONS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Dodecafluoro-3H-4,8-dioxanonanoate (ADONA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
HFPO-DA (GEN X)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
N-ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorobutanesulfonic acid (PFBS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorobutanoic acid (PFBA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorodecanesulfonate (PFDS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorodecanoic acid (PFDA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorododecanoic acid (PFDoA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluoroheptanesulfonate (PFHpS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluoroheptanoic acid (PFHpA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorohexanesulfonic acid (PFHxS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorohexanoic acid (PFHxA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorononanesulfonate (PFNS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorononanoic acid (PFNA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorooctanesulfonic acid (PFOS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorooctanoic acid (PFOA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorooctansulfonamide (FOSA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluoropentanesulfonate (PFPeS)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluoropentanoic acid (PFPeA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorotetradecanoic acid (PFTeDA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluorotridecanoic acid (PFTrDA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM
Perfluoroundecanoic acid (PFUdA)	ND	23000		ng/Kg	1	7/12/2023 8:34 AM

DEFINITIONS:

DF: Dilution factor; the dilution factor applied to the prepared sample.

DUP: Duplicate; aliquots of a sample taken from the same container under laboratory conditions and processed and analyzed independently, used to calculate Precision (%RPD).

LCS: Laboratory Control Sample; prepared by adding a known amount of target analytes to a specified amount of clean matrix and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: A duplicate LCS sample, used to calculate both Accuracy (%REC) and Precision (%RPD)

L+: LCS Failed High

L-: LCS Failed Low

MBLK: Method Blank; a sample of similar matrix that does not contain target analytes or interference that may impact the analytical results and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, used to assess and verify that the analytical process is free of contamination.

MDL: Method Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix.

Mg/Kg or mg/L: Units of part per million (PPM) – milligram per Kilogram (W/W) or milligram per Liter (W/V).

MS: Matrix Spike; prepared by adding a known amount of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: A duplicate MS sample, used to calculate both Accuracy (%REC) and Precision (%RPD)

% REC: Percent Recovery of a known spike (SPK); a measure of accuracy expressed as a percentage of a measured (recovered) concentration compared to the known concentration (SPK) added to the sample. This is compared to the Low Limit and High Limit.

% RPD: Relative Percent Difference; a measure of precision expressed as a percentage of the difference between two duplicates relative to the average concentration. This is compared to the RPD Limit.

PL: Permit limit; Not included on all reports. Used primarily for wastewater discharge permits.

PQL: Practical Quantitation Limit; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below PQL are reported either as ND or as a number with a "J" qualifier.

Qual: Qualifier that applies to the analyte reported

RL: Reporting Limit: See PQL

SPK: Spike; used in the QC section for both SPK Value and SPK Ref Val

Ug/Kg or ug/L: Units of part per billion (PPB) – microgram per Kilogram (W/W) or microgram per Liter (W/V).

QUALIFIERS:

*X: Reported value exceeds the maximum allowed concentration by regulation or permit

B/v: Analyte detected in the associated Method Blank at a concentration > RL.

E: Analyte concentration reported that exceeds the upper calibration standard. Greater uncertainty is associated with this result and data should be considered estimated.

H/@: Holding time for preparation or analysis has been exceeded

J/n: Analyte concentration is reported, and is less than the PQL and greater than or equal to the established MDL. Greater uncertainty is associated with this result and data reported is estimated. These analytes are not routinely reviewed nor narrated as to their potential for being laboratory artifacts.

m/M: Manual Integration used to determine area response

ND/t: Analyte concentration is less than the Reporting Limit.

P: Second column RPD exceeds 40%

R: % RPD exceeds control limits

S/Q: % REC exceeds control limits

T: MBLK result is greater than 1/2 of the LOQ

U: The analyte concentration is less than the DL.

\: Laboratory Control Sample (LCS) recovery outside of acceptable range

/: Matrix Spike (MS) recovery outside of acceptable range

Y: CCV % REC exceeds control limits

Z: ICV % REC exceeds control limits