



RTI Laboratories
33080 Industrial Rd.
Livonia, MI 48150
TEL: (734) 422-8000
Website: www.rtilab.com

Thursday, September 07, 2023

Grayson Anderson
Sprinturf
146 Fairchild Street, Suite 150
Daniel Island, SC 29492
TEL: (843) 936-6023
FAX:

RE: Manchester BTS - Brooks

Work Order #: 2308550

Dear Grayson Anderson:

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

This report may only be reproduced in its entirety. Individual pages, reproduced without supporting documentation, do not contain related information and may be misinterpreted by other data reviewers.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Lloyd Kaufman".

Lloyd Kaufman

Vice President, Director of Materials Sciences

RTI Laboratories, Inc. - Analytical Report

WO#: 2308550

Date Reported: 9/7/2023

Original

Client:	Sprinturf	Collection Date:	8/14/2023 12:00:00 AM
Project:	Manchester BTS - Brooks		
Lab ID:	2308550-001	Matrix:	Solid
Client Sample ID:	Black Solid		

Analysis	Result	RL	Qual	Units	DF	Date Analyzed
Perfluorinated Compounds Solid Matrix LC/MS/MS		Method: EPA-1633				Analyst: DKS
Perfluorobutanoic acid (PFBA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoropentanoic acid (PFPeA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorohexanoic acid (PFHxA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoroheptanoic acid (PFHpA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorooctanoic acid (PFOA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorononanoic acid (PFNA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorodecanoic acid (PFDA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoroundecanoic acid (PFUdA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorododecanoic acid (PFDoA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorotridecanoic acid (PFTDA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
PFTA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorobutanesulfonic acid (PFBS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoropentanesulfonate (PFPeS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorohexanesulfonic acid (PFHxS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoroheptanesulfonate (PFHpS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluorooctanesulfonic acid (PFOS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
PFNS	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
PFDS	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
PFDoS	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
1H,1H,2H,2H-Perfluorohexanesulfonate (4:2 FTS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
1H,1H,2H,2H-Perfluorooctanesulfonate (6:2 FTS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
1H,1H,2H,2H-Perfluorodecanesulfonate (8:2 FTS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
FOSA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NMeFOSA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NEtFOSA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NMeFOSAA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NEtFOSAA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NMeFOSE	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
NEtFOSE	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
HFPO-DA (GEN X)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Dodecafluoro-3H-4,8-dioxanonanoate (ADONA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate (9Cl-PF3ONS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonate (11Cl-PF3OYUdS)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
3:3FTCA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
5:3FTCA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
7:3FTCA	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM
Nonafluoro-3,6-dioheptanoic acid (NFDHA)	ND	4.0		µg/Kg	1	8/31/2023 3:51 PM

RTI Laboratories, Inc. - Analytical Report

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Original

Client:	Sprinturf	Collection Date:	8/14/2023 12:00:00 AM
Project:	Manchester BTS - Brooks		
Lab ID:	2308550-001	Matrix:	Solid
Client Sample ID:	Black Solid		

Analysis	Result	RL	Qual	Units	DF	Date Analyzed
Surr: 13C2-4:2FTS	35.5	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C2-6:2FTS	47.7	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C2-8:2FTS	39.4	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C2-PFTeDA	37.6	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C3-PFBS	39.0	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C3-PFHxS	35.6	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: 13C8-PFOSA	13.9	20-150	S	%Rec	1	8/31/2023 3:51 PM
Surr: D3-NMeFOSA	39.2	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: D3-NMeFOSAA	34.2	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: D5-NEtFOSA	61.1	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: D5-NEtFOSAA	34.2	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: D7-NMeFOSE	37.4	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: D9-NEtFOSE	22.1	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M2PFDoA	37.9	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M3HFPODA	31.3	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M4PFHpA	27.4	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M5PFHxA	59.0	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M5PFPeA	43.8	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M6PFDA	37.0	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M7PFUnA	38.6	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M8PFOA	30.2	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M8PFOS	20.2	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: M9PFNA	44.4	20-150		%Rec	1	8/31/2023 3:51 PM
Surr: MFPBA	48.2	20-150		%Rec	1	8/31/2023 3:51 PM

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