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January 23, 2024

Hawaii Department of Health
919 Ala Moana Blvd
Room 206
Honolulu, HI 96814

Attn: Roger Brewer

RE: PFAS by NTA Results for Eurofins Job 320-107200-1

Dear Mr. Brewer,

Enclosed are the Non-Target Analysis (NTA) results for potential PFAS parameters in the one solid sample submitted to Eurofins in Job 320-107200-1. Client and laboratory sample IDs are as follows: LAHAINA ASH DU-1 (320-107200-1). Analysis was requested via LC-QTOF MS (liquid chromatography quadrupole time-of-flight mass spectrometry) for identification of potential PFAS analytes not determined in the routine targeted analyses that are typically applied to aqueous samples. The NTA determination uses high resolution mass spectrometry (HRMS) to identify potential PFAS parameters but inherently incurs an increased level of uncertainty and certified reference standards are not used to confirm reported results.

There were no non-target analytes identified as potential PFAS parameters with acceptable confidence levels in this sample in either positive or negative ionization modes and associated SWATH HRMS acquisitions.

Sample Preparation

For sample LAHAINA ASH DU-1 (320-107200-1), a 5 g aliquot of the solid sample was extracted using the laboratory work instruction for solid samples from Hawaii DOH. A 2.5 ml subsample of the resulting extract (0.5 g sample equivalent) was neutralized, diluted to 5 ml at final composition of 50:50 MeOH/Water, and a 300 ul aliquot of the diluted sample (1 g -> 10 ml) was filtered into an LC/MS injection vial for analysis by LC-QTOF MS.

Sample Analysis

The sample extracts were introduced into the LC system utilizing an optimized gradient to enhance the identification of early eluting compounds. The gradient ramps slowly over a period of 20 minutes where the compounds are separated on a 3x50mm Phenomenex Gemini C18 analytical column using 20mM ammonium acetate in water and methanol as mobile phases. The SCIEX X500r quadrupole time-of-flight mass spectrometer (QTOF MS) was set to run in sequential Electrospray Ionization (ESI) techniques in both positive and negative polarities utilizing the same gradient and mobile phases.

Results

Data were processed with SCIEX MarkerView deconvolution software. This software extracts the raw chromatograms across a defined mass range from 0-1500 amu and examines peaks of interest utilizing exact mass and MS/MS fragmentation. The peaks are compared to comprehensive fluorinated compound libraries where the software algorithm assigns possible matches to each peak, or feature. The observed features were then evaluated by a Eurofins analyst to confirm ample signal-to-noise as well as confirming the compound fit to the library match. The reported results include only peaks with a signal-to-noise greater than 10:1 and an absolute intensity greater than 1000 counts.

One limitation the software cannot account for are multiple isomers of the same compound. While the skeletal backbone and molecular formula will be the same, the match might represent a structural isomer of the identified compound.

As noted above, no positive identifications for any PFAS parameter were generated via the sample preparation, analyses, and data processing procedures described above.

Please do not hesitate to let us know if there are any questions.