EMSL Analytical, Inc.

5700 Memorial Highway, Suite 122, Tampa, FL 33615
200 Route 130 North, Cinnaminson, NJ 08077
Phone: (813)-280-8752 (856) 858-4800

[redacted]
Baseline Health LLC
[redacted]

EMSL Order No.: 362300965
Sample(s) Received: 3/16/2023
Date Reported: 3/30/2023
Date Printed: 3/30/2023
Reported By: E.Mirica

- Laboratory Report -

Analysis of Microplastics

Project: Vera Salt Spring Salt

Conclusions:

The data obtained during analysis indicates the following:

- No microplastics were detected in the samples submitted.

Procurement of Samples and Analytical Overview:

The sample submitted for analysis arrived at EMSL Analytical on 3/16/2023. The package arrived in satisfactory condition with no evidence of damage to the contents. The data reported herein has been obtained using the following equipment and methodologies.

Methods & Equipment: Polarized Light Microscopy (PLM) – *Zeiss, Universal Petrographic Microscope*
Reflected Light Microscopy (RLM) – *Nikon, DF Microscope*
Raman Spectrometry/Microscopy (RM) – *Horiba, XploRA Plus*

Analyzed by: *John Newton*, *Senior Materials Scientist* — 29 March 2023 (*Date*)

Reviewed/Approved by : *Eugenia Mirica, Ph.D.*, *Laboratory Director* — 30 March 2023 (*Date*)

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Background:

One sample was submitted for analysis. The purpose of the analysis was to determine the microplastics concentration.

Figure 1: Sample as received for analysis.

Sample ID	Description	Date/Time Sampled
#1	Vera Salt Spring Salt	3/13/2023 20:00

Sample Preparation:

See Appendix 1 for sample preparation.

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Summary of Results:

Table 1: Summary of microplastics analysis.

Sample ID	Description	Microplastics
#1	Vera Salt Spring Salt	No Microplastics Detected
NIST Spike [A]	EMSL Lab	NIST traceable polystyrene spheres present within accepted control range
Laboratory Blank [B]	EMSL Lab Water	No Microplastics Detected

Comments: A) NIST traceable polystyrene microsphere control sample prepared by laboratory for QC purposes.
B) Laboratory prepared particle-free water used during NIST sample preparation, filter rinse and glassware cleaning.

Sample Preparation:

See Appendix 1 for sample preparation.

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Results and Discussion:

Table 2: Microplastics results for sample #1.

EMSL ID:	362300965-0001		
Sample ID:	#1		
Description:	Vera Salt Springs Salt		
Amount Analyzed:	100.6(gm)	LOQ Particles/(gm):	0.0099
Preparation Parameters	Value	Units	Comments
Sub-sample (prepared):	100.6	(gm)	A
Effective Filter Area:	1370	(mm2)	
Field Area:	1370	(mm2)	
No. Fields Analyzed:	1	(No.)	
Area Analyzed:	1370	(mm2)	
Limit of Quantitation:	0.0099	P/(gm)	E
Particle Size Range (µm)	Concentration Particles/(gm)	Percent in Range	Comments
<1	<LOQ	N/A	B
1 - 5	<LOQ	N/A	B
5 - 10	<LOQ	N/A	B
10 - 50	<LOQ	N/A	B
50 - 100	<LOQ	N/A	B
100 - 500	<LOQ	N/A	B
500 - 1000	<LOQ	N/A	B,C
1000 - 5000	<LOQ	N/A	C
>5600.0	<LOQ	N/A	C, D
Total Microplastics	None Detected	N/A	N/A
Count by Morphology	(%)		(%)
Spherical	ND	Sheet	ND
Non-uniform	ND	Fibrous	ND
		Shaving	ND

Comments: LOQ = Limit of Quantitation (see Appendix 2). Sample volume based on particle concentration.

A) Parameters used in the preparation of the sample.

B) Particles observed by microscopic analysis.

C) Particles observed by sieve separation and stereo microscopic analysis.

D) Particles larger than the generally accepted definition of microplastics.

E) See appendix 2 for calculations.

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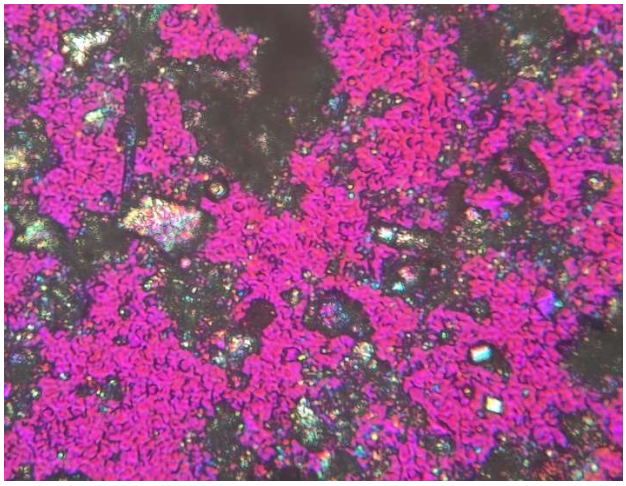

Figure 2: PLM images of sample #1 showing mineral grains present in the insoluble fraction of the salt. No microplastics were detected.

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Project Quality Control:

Figure 3: Microscopic image of 100ml filtered laboratory prepared particle free water used for sample preparation, filter rinse and glassware cleaning. No microplastic particles are detected.

Analyte	Particle Free Laboratory Water
Target Concentration	0 microplastic particles/ml
Measured Concentration	0 microplastic particles/ml
Acceptance Criteria	0 microplastic particles/ml

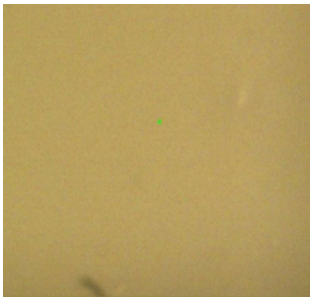

Figure 4: Microscopic image showing NIST traceable polystyrene microsphere control sample prepared by laboratory for QC purposes.

Analyte	NIST p-styrene spheres (10µm nominal diameter)
Target Concentration	6176 particles/ml
Measured Concentration	6085 particles/ml
Percent Recovery (PR)	98.5%
Acceptance Criteria	±10% (PR) (90-110%)

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Appendix 1: Sample Preparation

Preparation for Level 1 Analysis: Fluorescence Microscopy

A measured portion of the sample was dissolved in deionized, particle free water. The suspension and passed through a 0.4um pore size polycarbonate filter to collect the insoluble particulate. The filter and particles are placed into a glass vial and dried in a desiccator at ambient temperature (~23°C). Once dry the sample is covered with Nile Red reagent and sonicated to remove the particles from the filter media. The filter is removed from the suspension and analyzed to ensure all particles have been removed. The particle suspension is stored at ambient temperatures for no less than sixty minutes to complete the staining process. The resulting suspension is filtered through a clean (not introduced to Nile Red reagent) 0.8µm polycarbonate filter for analysis.

All dyed structures are counted and assumed to be microplastic particles unless obvious characteristics, such as cell structure or crystallinity detected by phase or polarized light microscopy, is observed.

Note: Analysis by Nile red stain with Fluorescence microscopy may include materials other then microplastics which may result in false positives. All attempts are made to differentiate microplastics from other stain-retaining materials.

Appendix 2: Analysis Calculations

Limit of Detection (LOD): For microscopic analysis the limit of detection is considered to be a single (1) observed particle in the sample portion analyzed.

Limit of Quantitation (LOQ): $$LOQ = \frac{\frac{LOD}{(FA \times F)} \times EFA}{SP}$$

Where:
LOD = Limit of Detection (1)
FA = Field Area (mm^2)
F = Number of Fields Analyzed
EFA = Effective Filter Area (mm^2)
SP = Sample Portion Prepared (gm or ml)
Dependent upon solid or liquid sample.

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Descriptions & Definitions:

Microplastics are generally defined as polymeric particles smaller than 5 mm in size in any one dimension, present in waste water, rivers, lakes and oceans. Due to the small size, they may not be easily removed during the waste water filtration processes and can enter the ecosystem, negatively impacting the environment. The common sources of microplastics are: additives in personal care products, synthetic fibers, resin pellets, tire recycling, medical products, abrasion and exfoliating beads used in furniture and insulation, fragments of larger plastic items as they degrade from the effects of ultraviolet rays and other weathering factors. Microplastics can potentially leach toxic chemicals, including endocrine disruption chemicals, such as bisphenol A and phthalates.

None Detected (ND) denotes the absence of analyte in the subsample analyzed. Trace levels of the analyte may be present in the sample below the limit of detection (LOD).

Limit of Detection (LOD): The minimum concentration that can be theoretically achieved for a given analytical procedure in the absence of matrix or sample processing effects. Particle analysis is limited to a single occurrence of an analyte particle in the sub-sample analyzed.

Limit of Quantitation (LOQ): The minimum concentration of an analyte that can be measured within specified limits of precision and accuracy during routine laboratory operating conditions

Important Terms, Conditions, and Limitations:

Sample Retention: Samples analyzed by EMSL will be retained for 60 days after analysis date. Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling may be returned to the client immediately. EMSL reserves the right to charge a sample disposal or return shipping fee.

Change Orders and Cancellation: All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for holding times that are exceeded due to such changes.

Warranty: EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures, when available. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

Limits of Liability: In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to ensure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

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