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Report of Results: MVA Project Number

Particle Size Distribution Measurement

Prepared for:

Client

Respectfully Submitted by:

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Executive Director

16 April 2018

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Particle Size Distribution Measurement

Introduction

On 3 April 2018 we received three Method 5 polycarbonate filter samples with the request that we determine their particle size distributions. Upon receipt the samples were assigned unique MVA Scientific Consultants laboratory identification numbers as shown in Table 1. Analyses were performed at MVA Scientific Consultants during the period of 12 April through 16 April 2018.

Methods

Samples were prepared for analysis in accordance with MVA SOP 310, "Sample Preparation Methods for Total Particle Sizing Using Microscopical Techniques."

The particle size distribution measurements were performed using a JEOL JSM-6500F field emission scanning electron microscope operating in automated mode under the control of a Thermo Scientific Noran System 7 x-ray analysis system, utilizing MVA SOP 316, "Automated Particle Size Analysis Using the JEOL JSM-6500F FESEM and Thermo Scientific Noran System 7." The particle size data are presented in terms of particle number and in terms of estimated mass. The assumption has been made that the particles are all of similar density and therefore the particle volume distribution is equivalent to the particle mass distribution.

Results

The size distributions of the particles down to 0.5 micrometer are shown in Tables 1 and 2.

Table 1. MVA Project Number. Percentages of Particles in Various Diameter Ranges by Number of Particles

MVA#	Sample #	Sample #	Sample #
Client ID	Client Identification	Client Identification	Client Identification
Diameter Range (µm)	Number %	Number %	Number %
0.5-≤1.0	29.2	28.5	30.8
>1.0-≤2.5	37.8	37.1	36.3
>2.5-≤5.0	22.0	22.2	21.2
>5.0-≤7.5	6.5	7.0	6.7
>7.5-≤10.0	2.6	2.8	2.6
>10.0	2.0	2.4	2.3
Total Particles	29301	23395	26466

Table 2. MVA Project Number. Percentages of Particles in Various Diameter Ranges by Mass of Particles

MVA#	Sample #	Sample #	Sample #
Client ID	Client Identification	Client Identification	Client Identification
Diameter Range (µm)	Mass %	Mass %	Mass %
0.5-≤1.0	0.2	0.2	0.2
>1.0-≤2.5	3.2	2.6	2.6
>2.5-≤5.0	13.8	11.4	11.9
>5.0-≤7.5	15.9	14.8	15.5
>7.5-≤10.0	16.1	14.4	14.3
>10.0	50.8	56.6	55.4