Report of Results: MVA6655

Particle Sizing
STL Project Number 142541

Prepared for:

Severn Trent
5815 Middlebrook Pike
Knoxville, TN 37921

Respectfully Submitted by:

Tim B. Vander Wood, Ph.D.
Executive Director

Bryan R. Bandli
Research Microscopist

MVA Scientific Consultants
3300 Breckinridge Boulevard
Suite 400
Duluth, GA 30096

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MVA SCIENTIFIC CONSULTANTS

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INTRODUCTION

This report includes the results of particle size analysis of eight particulate samples delivered to MVA Scientific Consultants on 18 April 2006. The samples were assigned MVA sample numbers as follows:

MVA#	Description
R0612	G-2949-R1-Particle Size Distribution Filter
R0613	G-2950-R1-Particle Size Distribution Acetone Probe Rinse
R0614	G-2951-R1-Particle Size Distribution Filter RB
R0615	G-2952-R1-Particle Size Distribution Acetone Probe Rinse RB
R0616	G-3055-R2-Particle Size Distribution Filter
R0617	G-3056-R2-Particle Size Distribution Acetone Probe Rinse
R0618	G-3139-R3-Particle Size Distribution Filter
R0619	G-3140-R3-Particle Size Distribution Acetone Probe Rinse

Analyses were performed at MVA Scientific Consultants during the period 18 April through 28 April 2006.

METHODS

The analyses were performed using a JEOL JSM-6500F field emission scanning electron microscope operating in automated mode under the control of a Noran Vantage x-ray analysis system, utilizing MVA SOP 317. The loading on the samples was variable and at least several hundred particles from each sample were individually sized and classified according to six client-requested size categories: 0.1-0.5, 0.5-1.0, 1.0-5.0, 5.0-10.0, 10.0-100.0, and >100.0 µm. The blank samples and two of the particle size distribution samples were very lightly loaded and fewer than one hundred particles from each were sized. 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.

DISCUSSION AND RESULTS

The size distributions of the particles down to 0.1 micrometers are shown in Tables 1 and 2.

Table 1. MVA 6655. STL Project Number 142541
Percentages of Particles in Various Diameter Ranges by Number of Particles

MVA#	R0612	R0613	R0614	R0615	R0616	R0617	R0618	R0619
Client ID	G-2949-R1	G-2950-R1	G-2951-R1	G-2952-R1	G-3055-R2	G-3056-R2	G-3139-R3	G-3140-R3
Diameter Range (µm)								
0.1-0.5	99.8	74.5	85.0	93.0	79.2	74.0	87.4	97.2
0.5-1.0	0.2	13.8	5.0	3.1	2.1	16.1	8.1	2.8
1.0-5.0	0.1	11.0	10.0	3.9	16.7	9.6	3.6	0.0
5.0-10.0	0.0	0.5	0.0	0.0	2.1	0.3	0.5	0.0
10.0-100.0	0.0	0.2	0.0	0.0	0.0	0.0	0.5	0.0
>100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Particles	2000	1999	20	129	48	1192	222	36

Table 2. MVA 6655. STL Project Number 142541
Percentages of Particles in Various Diameter Ranges by Estimated Mass of Particles

MVA#	R0612	R0613	R0614	R0615	R0616	R0617	R0618	R0619
Client ID	G-2949-R1	G-2950-R1	G-2951-R1	G-2952-R1	G-3055-R2	G-3056-R2	G-3139-R3	G-3140-R3
Diameter Range (µm)								
0.1-0.5	14.2	0.1	2.4	13.3	0.3	1.4	0.2	85.9
0.5-1.0	1.1	0.4	1.5	12.3	0.0	4.4	0.3	14.1
1.0-5.0	84.7	9.2	96.1	74.3	39.2	50.3	9.1	0.0
5.0-10.0	0.0	8.2	0.0	0.0	60.5	43.8	6.0	0.0
10.0-100.0	0.0	82.1	0.0	0.0	0.0	0.0	84.5	0.0
>100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0