ABSTRACT

Christopher P.C. Sherman. Outlet Mass Flux From a Pulse-Jet Cleaned Fabric Filter: Testing a Theoretical model (Under the direction of Dr. David H. Leith)

A theoretical model for mass penetration through a pulse-jet cleaned fabric filter as a function of particle size was evaluated. Particle penetration data were collected for 24 different operating conditions of a three-bag, pilot-scale filter using polyester felt fabric bags with a rough untreated surface or a smooth ptfe-laminated surface. Each bag filtered limestone dust or fly-ash for 30, 120, or 480 seconds and was then cleaned either on-line or off-line. The fabric bags were conditioned by 150 cleaning cycles before data were collected. The model was analyzed for 13 particle diameters along a geometric progression of sizes ranging from 0.10 to 6.7 μm . Model parameters were found to be strongly dependent on particle size. Fabric surface treatment significantly affected filter performance. Fabric cleaning mode and cleaning pulse cycle time were not significant. Model variation with dust type is not clear. The model predicted results for an independent data set well. Fabrics should be well conditioned with dust for the model to predict outlet mass flux adequately.

TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGEMENTS	IV
I. Introduction	1
II. Outlet Mass Flux From a Pulse-Jet Cleaned Fabric Filter: Testing a theoretical Model ...	8
A. Abstract	9
B. Introduction	10
C. Penetration Model	10
D. Experiments	11
E. Data Analysis	12
F. Results	
1. Total Outlet Mass Flux.....	13
2. Particle Size	14
3. Model Exponent	14
4. Model Constant	15
5. Flux as a Function of Particle size ...	16
G. Discussion	
1. Fabric Surface Treatment	16
2. Dust Type	17
3. Cleaning Mode	17
4. Time Between Cleaning pulses	17
5. Model Validation	18
H. Conclusions	19
I. Tables of Experimental Results	21
J. Figures 1 through 7	24
K. References	32
I. Appendix A - Phase 3 Data Tables	A-1
II. Appendix B - Phase 2 Data Tables	B-1
III. Appendix C - Statistical Analysis	C-1
IV. Appendix D - Figures	D-1

INTRODUCTION

Efficient methods are needed for the removal of toxic and nuisance dusts generated during industrial operations and power production. High dust concentrations in the workplace and outside air can lead to reduced visibility, property damage, unpleasant aesthetics, and deleterious health affects. One method to reduce the amount of dusts emitted is the use of fabric filters.

Fabric filters can be divided into inside or outside collectors. Inside collecting filters clean dusts from gas as it passes up through the inside of the cylindrical filter bag and radially out through the fabric. Dust collection occurs on the inner bag surface. Outside fabric filters remove dust from gas that flows radially inward through a bag supported by a wire cage and out through the top. Dust collection occurs on the outer bag surface. Fabric filters can be further divided on the method used to clean the accumulated dust from the bag.

The two common methods employed to clean fabric filter bags are: (a) reverse gas flow with or without shaking and (b) pulse-jet cleaning¹. With reverse gas cleaning, used for inside collectors, cleaned gas is directed backwards through the bag as a steady stream. If the fabric is sufficiently strong, the bags can be shaken at 6-12 Hz during the

reverse gas flow. Reverse gas flow with or without shaking causes dust to separate from the fabric and fall into a hopper where it is removed. Reverse gas cleaning always occurs with the bags off-line.

Pulse-jet cleaning, used for outside collectors, can be divided into on-line cleaning and off-line cleaning. During off-line pulse-jet cleaning the flow of dusty gas is stopped and a pulse of high pressure air, lasting a few tenths of a second, is directed into each bag. The bag snaps open away from the supporting cage and the collected dust is dislodged. The dust is then allowed to settle for a minute or so under quiescent conditions to fall into the hopper before gas flow resumes. During on-line cleaning a pulse of compressed air is directed to a bag in a fraction of a second without stopping dusty gas flow to the other bags within the baghouse. This method allows continuous filtering of the gas stream but can be less effective than off-line cleaning for fine dusts.

Pulse-jet cleaned fabric filters are increasingly being used by industry to remove dusts from gases because they provide high collection efficiencies². The filtration velocity through an outside collecting pulse-jet cleaned fabric filter is several times higher than that through an inside collecting filter. Thus, a pulse-jet cleaned filter may be smaller and less expensive to buy than an inside collecting filter^{2,3}.

Pulse-jet cleaned filters usually use felt fabrics instead of the woven fabrics used with inside collecting gas filters, because woven fabrics tend to be over-cleaned by pulsing resulting in excessive leakage following cleaning⁴. An advantage is that the thick felt reduces dust penetration into the cleaned gas stream for more complete particle removal^{3,4}. A disadvantage is that the thick felt requires a greater pressure drop across the bag surface during filtering. Investigations have been conducted to determine what factors are primarily involved in particle removal from the gas stream, fabric cleaning mechanisms, and pressure drop across the bag surface. Further research is needed to determine dust collection and penetration as a function of particle diameter, dust type, fabric surface type, filtering duration between cleaning pulses, and mode of cleaning.

Research has been conducted on the performance of pulse-jet cleaned fabric filters under EPA grant R808001-02, "Pulse-Jet Fabric Filter Performance" conducted at the Harvard School of Public Health under the direction of David Leith. Data were obtained using a three bag, pilot-scale pulse-jet filter operated at various filtration velocities, with various fabrics and dusts, with on-line and off-line cleaning, and with various times between cleaning pulses. As a result of this work a model for pressure drop in a pulse-jet cleaned fabric filter has been developed⁵. Extensive measurements of particle penetration versus particle diameters were made in the course of this work. A substan-

tial fraction of these data has not been analyzed until now.

Work was conducted in three phases. The first phase determined the effect of dust size distribution on filter pressure drop and particle collection. The second phase (Appendix B, Table 1) studied the effect of filtration velocity, dust type, and fabric type on pressure drop and penetration. Phase three studied the effects of time between cleaning pulses and on-line versus off-line cleaning. Also, studies of fabric type and dust type were continued from phases one and two. No analysis of the particle penetration data from phase three was made. Analysis of these data comprises the study made here. Pressure drop data from phase three were analyzed by University of North Carolina MSEE student B. R. Templin⁶ and compared with a theoretical model for pressure drop in a pulse-jet cleaned fabric filter developed by Leith and Ellenbecker⁵.

During phase three 24 experimental conditions were examined with each condition repeated to give a total of 48 experiments performed in random order (Appendix A, Table 1). Particle collection data were obtained using polyester felt fabric bags with a rough untreated surface or a smooth surface of polytetrafluoroethylene (ptfe) laminate. Each bag filtered limestone dust or fly ash for 30, 120, or 480 seconds and was then cleaned either on-line or off-line. A constant dust inlet concentration of 1.7 g m^{-3} and a superficial filtration velocity of 0.075 m s^{-1} were maintained during all the experiments. Each cleaning pulse was 690 kPa

(6.9 bar, 100 psi) and experiments were conducted at room temperature and pressure.

For each of these 48 experiments, isokinetic samples of the aerosol were taken upstream and downstream of the fabric filter on Nucleopore filters. The Nucleopore filters were then examined using a scanning electron microscope at magnifications of 1000X and 10000X; the concentrations of particles in 18 size categories from 0.10 to 37.9 μm were determined. From the concentration data, penetration, outlet flux and outlet concentration for particles of each size range were determined in each of the 48 experiments. These experiments from phase three comprise the set of data analyzed in this study.

Because of the increasing use of pulse-jet cleaned filters, a better understanding of the factors influencing their performance is needed⁴. Until recently prediction of dust penetration through a pulse-jet cleaned fabric filter has not been possible. Leith and Ellenbecker have presented a theoretical model⁷ that explains penetration of particles through these filters in terms of the emitted mass flux. Their theoretical model depends on accurate measurements of the mass areal density of the dust deposit on the filter fabric, the superficial filtration velocity, and the time between cleaning pulses.

The following paper, prepared for publication, presents a study of the data from phase three applied to the Leith and Ellenbecker model for mass flux from a pulse-jet cleaned

fabric filter. The fit of the phase three data to the theoretical model is determined and the model variables and coefficients influencing mass outlet flux as a function of particle diameter is evaluated. Work on this subject does not appear in the literature.

REFERENCES

1. Licht, William, "Filtration", Chapter 8 in Air Pollution Control Engineering, Second Edition, Marcel Dekker, Inc., New York, NY, 1988.
2. Billings, C. E. and J. E. Wilder, Handbook of Fabric Filter Technology, Document No. 200-648, National Technical Information Service, U. S. Department of Commerce, Springfield, VA, 1970.
3. Leith, D and R.W.K. Allen, "Dust Filtration by Fabric Filters", Chapter 1 in Progress in Filtration and Separation, R.J. Wakeman, ed., Elsevier Science Publishers B.V., New York, NY, 1986.
4. Dennis, R. and J. Wilder, "Pulse Cleaning Studies", Fabric Filter Cleaning Studies, Environmental Protection Series, Office of Research and Development, U.S. Environmental Protection Agency, Document No. EPA-650/2-75-009, Washington, D.C., January 1975.
5. Leith, David and Michael J. Ellenbecker, "Theory for Pressure Drop in a Pulse-Jet Cleaned Fabric Filter", Atmospheric Environment, Vol. 14, 845-852, 1980.
6. Templin, B. R. and D. Leith, "Effect of Operating Conditions on Pressure Drop in a Pulse-Jet Cleaned Fabric Filter", Plant and Operations Progress, Vol. 7, No. 3, 1988.
7. Leith, David and Ellenbecker, Michael J., "Theory for Penetration in a Pulse-Jet Cleaned Fabric Filter", APCA Journal, Vol 30, No. 8, August, 1980.

OUTLET MASS FLUX FROM A PULSE-JET CLEANED
FABRIC FILTER: TESTING A THEORETICAL MODEL

Christopher P. C. Sherman

D. Leith

Department of Environmental Sciences and Engineering
School of Public Health
University of North Carolina at Chapel Hill
Chapel Hill, NC 27599

Abstract - A theoretical model for mass penetration through a pulse-jet cleaned fabric filter as a function of particle size was evaluated. Particle penetration data were collected for 24 different operating conditions of a three-bag, pilot-scale filter using polyester felt fabric bags with a rough untreated surface or a smooth ptfe-laminated surface. Each bag filtered limestone dust or fly-ash for 30, 120, or 480 seconds and was then cleaned either on-line or off-line. The fabric bags were conditioned by 150 cleaning cycles before data were collected. The model was analyzed for 13 particle diameters along a geometric progression of sizes ranging from 0.10 to 6.7 μm . Model parameters were found to be strongly dependent on particle size. Fabric surface treatment significantly affected filter performance. Fabric cleaning mode and cleaning pulse cycle time were not significant. Model variation with dust type is not clear. The model predicted results for an independent data set well. Fabrics should be well conditioned with dust for the model to predict outlet mass flux adequately.

INTRODUCTION

Penetration through a fabric filter is of interest to regulators, designers, and users of fabric filter systems. Pulse-jet cleaned filters are increasingly used by industry to remove dusts from gases because they provide high collection efficiencies at costs that are relatively lower than those for other filter systems¹. Because of the increasing use of these filters, a better understanding of the factors influencing their performance is needed^{2,3}. The work presented here extends a theoretical model from the literature that explains overall mass penetration through a pulse-jet filter to predict mass penetration as a function of particle size.

PENETRATION MODEL

Leith and Ellenbecker⁴ developed a theoretical model that explains penetration through a pulse-jet cleaned fabric filter in terms of the outlet mass flux: the mass of dust that penetrates bag area per unit time. Their model is based on the assumption that essentially all dust is initially collected by the filter and that seepage of particles through the fabric accounts for essentially all dust emitted once the filter is conditioned^{5,6}. Seepage occurs due to the momentum of the residual dust within the fabric developing a separation force sufficient to dislodge dust particles as the fabric strikes its retaining cage after a cleaning pulse.

The filtration velocity of the gas then carries the loosened particles into the outlet gas stream. These considerations lead to⁴

$$N = kw^2v/t, \quad (1)$$

where N is the outlet mass flux in $\text{kg m}^{-2} \text{ s}^{-1}$, v is the superficial filtration velocity in m s^{-1} , w is the residual mass of dust per unit area on the fabric (areal mass density) in kg m^{-2} , t is the time between cleaning pulses in seconds, s , and k is a constant in m s kg^{-1} .

EXPERIMENTS

Tests were conducted using a pilot scale three-bag pulse-jet cleaned filter described previously⁷. Tests measured the mass and size of particles that passed through a filter as well as the areal density of the dust deposit on the fabric as detailed elsewhere^{6,7,8}.

Twenty-four experimental operating conditions were examined at two points in time (48 total experiments); the pairs were averaged before data analysis, see Tables. The independent variables tested were fabric type, dust type, cleaning mode, and time between cleaning pulses. Tests were performed with polyester felt bags with a rough untreated surface and bags with a smooth surface produced by laminating a polytetrafluoroethylene (ptfe) layer onto the surface of the felt fabric. Each bag filtered limestone dust or fly-ash dust for 30, 120, or 480 seconds and then was

cleaned on-line or off-line. A constant dust inlet concentration of 1.7 g m^{-3} and a superficial filtration velocity of 0.075 m s^{-1} were maintained during all experiments. Each cleaning pulse was 690 kPa (97 bar) and experiments were conducted at room temperature and pressure. New bags were used for each of the 24 experimental conditions. The bags were conditioned by 150 cleaning cycles before data were recorded.

On-line and off-line cleaning were employed to remove dust from the filter fabric. During off-line cleaning the flow of dusty gas was stopped and a pulse of high pressure air directed into each bag⁹. This caused the bag to snap open and dust to dislodge and fall into a hopper. During these tests the dust was allowed to settle for two minutes before gas flow resumed. During on-line cleaning a pulse of compressed air was directed to a bag without stopping dusty gas flow⁹. This method allows continuous filtering of the gas stream.

DATA ANALYSIS

These data were analyzed by multiple linear regression procedures using standard programs^{10,11}. The model⁴ was modified to allow for an exponent, n , as follows:

$$N = k(w^2v/t)^n, \quad (2)$$

This model was then made linear by taking logs so that the constant k and exponent n could be determined by linear re-

gression. The group w^2v/t was calculated from the data and used in the model as a single grouped term. The model was analyzed by analysis of variance (ANOVA) and covariance (ANACOVA) to determine the constant, exponent, and the influence of operating variables on particle penetration through the filter bag.

Initially, the model was analyzed without regard to particle diameter to determine the overall constant, exponent, and significant operating conditions. Next, the model was analyzed as a function of particle diameter for 13 diameters along a geometric progression of particle sizes ranging from 0.10 μm to 6.7 μm for 22 experimental conditions. Two outlier conditions were eliminated because their measurements were greater than four standard deviations from the mean.

RESULTS

Total Outlet Mass Flux. Figure 1 is a log-log plot of measured total outlet mass flux, N , versus the term w^2v/t without regard to particle diameter for ptfe-laminated and untreated polyester felt fabrics. The data plot as parallel lines that differ by a constant, k , with a common slope, i.e., common exponent, n . These data show that fabric type accounts for a large portion of the variability. A least squares fit for equation (2) to the data shown in Figure 1 gives $k = 0.016 \text{ m s/kg}$ for ptfe-laminated felt fabric with coefficient of determination, $r^2 = 0.91$, and $k = 0.06 \text{ m s/kg}$

for untreated felt fabric with $r^2 = 0.95$ with $n = 1.28$ for both fabrics.

Analysis of covariance showed that virtually all variability could be explained by the grouped term (covariate) according to fabric type ($p < 0.0001$) with the other two main effects insignificant, i.e., dust type and cleaning mode. Based on these results, further statistics were conducted by fabric type using a constant, k , that varied directly by fabric type but not by dust type or cleaning mode.

Figure 2 is a log-log plot of the measured total outlet mass flux, N , against the predicted total outlet mass flux calculated using equation (2) with the constant, k , and exponent, n , determined by linear regression according to fabric type, across all treatments without regard to particle diameters. The least squares coefficient of determination, r^2 , was 0.98. The data for both fabric types scatter about the 45 degree line of perfect agreement as should occur if equation (2) adequately describes penetration.

Outlet Mass Flux as a Function of Particle Diameter.

The above analysis is in terms of total mass flux without regard to particle size. Subsequent analysis, presented below, the variation of the parameters k and n as a function of particle diameter was examined.

Exponent. Figure 3 is a log-log plot of the model exponent, n , against particle diameter. Linear regression of

the model indicated that the best fit lines for measured total outlet mass flux versus the grouped term, w^2v/t , by fabric type were parallel, as seen in Figure 1. This showed that n was constant across fabric types. The model, equation (2), was then analyzed as a function of particle size for the conditions tested and n was determined for each particle diameter. The calculation of n as a function of particle diameter (dp) is

$$n = 0.916(dp)^{0.257} , \quad (3)$$

for both fabrics, with $r^2 = 0.87$. This equation is plotted in Figure 3. The model exponent increases as particle size increases for the dusts and fabrics tested and indicates that n is strongly dependent on particle size.

Model Constant. Figure 4 is a log-log plot of the model constant, k , against particle diameter according to fabric type. It can be seen from the plot that k increases substantially with increasing particle diameter for the fabrics tested. The constant, k , varies according to the bag surface treatment ($p < 0.0001$) but not significantly with dust type or cleaning mode, as shown in Figure 1. Filtration time between cleaning pulses is contained in the grouped term, $w^2 v/t$, accounting for effects due to time.

These findings were used to include fabric type into a combined constant in the statistical model. The calculation of k as a function of particle diameter (dp) is

$$k = a(dp)^{4.82} , \quad (4)$$

with the coefficient $a = 4.45 \times 10^{-6}$ for ptfe laminated fabric and $a = 2.28 \times 10^{-5}$ for untreated fabric using a common exponent of $b = 4.82$.

Flux As a Function of Particle Diameter. Figure 5 is a log-log plot of measured mass outlet flux versus predicted mass outlet flux calculated using equation (2) with parameters k and n calculated with equations (3) and (4) respectively according to fabric type as a function of particle diameter. As above, the data for both fabric types scatter about the 45 degree line of perfect agreement as should occur if equation (2) adequately describes penetration.

Figure 6 is a log-log plot of measured total outlet mass flux versus particle diameter for ptfe-laminated and untreated fabrics filtering limestone and fly-ash dusts. Data were separated by dust and fabric type combination and averaged over the remaining conditions at each particle diameter to produce the plot. The plot shows that ptfe-laminated fabric had a lower mass flux than untreated fabric for both dusts across all experimental conditions.

DISCUSSION

Fabric Surface Treatment. Fabric surface treatment is a highly significant $p < 0.0001$ factor affecting filter performance, for the experimental conditions tested. Figures 2 and 5 show a lower mass flux overall and when calculated by particle size for the felt fabric bags with a ptfe-laminated

surface; the ptfe data cluster near the lower portion of the plots by fabric treatment. Table 1 and Figure 6 show that the ptfe-laminated bags had lower residual dust areal densities and lower total outlet mass flux for all experimental conditions tested. The lower mass penetration of the ptfe-fabric may be due to a smoother surface that inhibits dust cake adhesion and reduces particle seepage^{8,12}. This fact accounts for the model parameters, i.e., k and n to be separated by fabric type.

Dust type. Figure 6 shows that the fabric filtering limestone dust generally had a lower mass flux than a fabric filtering fly-ash. The data plot along fabric and dust type with an apparent correlation but insufficient data were available to say definitely that dust type affects model parameters k or n . Irregularly-shaped particles such as limestone may not migrate through the fabric as easily as spherically-shaped fly-ash⁸. Further research is necessary to determine whether dust type has a predictable effect on parameters that affect particle penetration.

Cleaning Mode. No significant effect on outlet mass flux could be attributed to cleaning mode.

Time Between Cleaning Pulses. No significant effect on mass flux could be attributed to filtration time between cleaning pulses. This was an expected result if cleaning

cycle time, t , included in the model equation, equation (2), sufficiently describes the influence of filtration time between fabric cleaning on mass flux. Table 1 shows that the mass areal density of the dust on the fabric increases as the time between cleaning pulses increases for all experimental conditions.

Model Validation. Figure 7 is a log-log plot of measured outlet mass flux against predicted outlet mass flux for an independent set of data from the literature⁸ calculated using equation (2) with the parameters k and n calculated from equations (3) and (4) according to the fabric used in the bags. Included in Figure 7 are data for a polyester felt bag with a singed surface. The singed fabric is the same as that used in the other bags but the protruding surface fibers were melted or burned off to give a smoother surface that lies between the ptfe-laminated surface and the untreated surface in roughness. Predicted outlet mass flux was calculated as before but the values used for the parameters k and n were averages of the values used for ptfe-laminated and untreated felt fabric, because the singed fabric should be between the ptfe-laminated and untreated surfaces in roughness.

In the independent data set the fabric bags were conditioned for about 1200 cleaning cycles versus about 150 cleaning cycles for the data presented here. This fact could account for the scatter of the data plotted in Fig. 7.

The plot shows a measured mass flux generally greater than predicted flux for most data possibly because the fabrics tested in the present tests, and on which the equations described here are based, had not become fully conditioned with dust. This could cause predicted penetration to be less than actual penetration measured for bags more fully conditioned with dust.

CONCLUSIONS

In this work, equation (2) for outlet mass flux was found to be compatible with the trends in data for outlet flux from a pulse-jet cleaned filter for 48 experiments that involved fabrics with two different surface treatments, for two different dusts, with cleaning at three different time intervals, and for on-line as well as off-line cleaning. Equation (2) was extended to allow calculation of outlet flux as a function of particle size by expressing parameters in the equation as a function of particle diameter.

Analysis of the data presented here showed that fabric surface treatment had an important effect on the ability of the model to predict outlet flux by influencing the parameters k and n in the flux model. No independent effect on the models predictive ability was found for cleaning mode or time between cleaning pulses. Dust type may have had an effect on the model. Outlet flux for fly-ash was greater than that for limestone; however, this effect could not be determined statistically significant.

The model developed here was applied to an independent data set for particle penetration through a pulse-jet cleaned filter, and found to predict these data reasonably well. Measured outlet fluxes for the independent data were somewhat higher than predicted; this may have occurred because the fabrics in the independent data set had been conditioned longer before testing.

**TABLES OF EXPERIMENTAL
RESULTS AND CONDITIONS**

TABLE 1. Experimental conditions and results for total outlet mass flux.

	BAG (B) TYPE	DUST (D) TYPE	CLEAN (C) MODE	TIME (T) (sec)	OUTLET FLUX MASS (NT) (kg/m ² s)	AREAL DENSITY (Wr) (kg/m ²)
1	PTFE	LIM	ON	30	1.02E-09	0.032
2	PTFE	LIM	ON	120	3.22E-10	0.044
3	PTFE	LIM	ON	480	1.15E-10	0.059
4	PTFE	LIM	OFF	30	2.75E-09	0.045
5	PTFE	LIM	OFF	120	5.60E-10	0.052
6	PTFE	LIM	OFF	480	1.87E-10	0.070
7	PTFE	FLY	ON	30	3.78E-09	0.067
8	PTFE	FLY	ON	120	2.19E-09	0.088
9	PTFE	FLY	ON	480	4.65E-10	0.165
10	PTFE	FLY	OFF	30	4.59E-09	0.044
11	PTFE	FLY	OFF	120	1.44E-09	0.058
12	PTFE	FLY	OFF	480	5.17E-10	0.084
13	UNT	LIM	ON	30	4.12E-08	0.067
14	UNT	LIM	ON	120	1.37E-08	0.083
15	UNT	LIM	ON	480	2.81E-09	0.118
16	UNT	LIM	OFF	30	2.88E-08	0.076
17	UNT	LIM	OFF	120	4.76E-09	0.089
18	UNT	LIM	OFF	480	1.10E-09	0.153
19	UNT	FLY	ON	30	2.20E-07	0.173
20	UNT	FLY	ON	120	8.79E-08	0.226
21	UNT	FLY	ON	480	1.06E-07	0.415
22	UNT	FLY	OFF	30	5.00E-07	0.197
23	UNT	FLY	OFF	120	1.08E-07	0.213
24	UNT	FLY	OFF	480	3.18E-08	0.308

TABLE 2. Experimental conditions and results for outlet mass flux as a function of particle size.

BAG B TYPE	DUST D TYPE	CLEAN C MODE	TIME T (sec)	Particle diameter in micrometers by geometric progression of sizes												
				0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70
PTFE	LIN	ON	30	1.09E-14	1.06E-13	1.52E-12	3.72E-12	6.65E-12	1.29E-11	1.37E-11	1.21E-11	6.14E-11	4.67E-11	4.98E-11	4.90E-11	5.65E-11
PTFE	LIN	ON	120	1.91E-14	2.45E-13	1.47E-12	4.92E-12	1.01E-11	1.17E-11	1.06E-11	5.31E-12	5.32E-11	4.37E-11	2.78E-11	4.26E-11	3.31E-11
PTFE	LIN	ON	480	5.10E-15	4.23E-14	4.41E-13	1.32E-12	2.15E-12	2.25E-12	3.24E-12	3.04E-12	8.56E-12	9.65E-12	1.08E-11	8.98E-12	6.97E-12
PTFE	LIN	OFF	30	1.76E-13	2.08E-12	7.04E-12	1.65E-11	2.66E-11	7.08E-11	7.88E-11	1.60E-10	1.61E-10	2.20E-10	2.99E-10	4.30E-10	4.75E-10
PTFE	LIN	OFF	120	7.45E-15	5.54E-14	2.98E-13	9.56E-13	2.10E-12	3.81E-12	4.55E-12	4.29E-12	7.87E-12	1.02E-11	2.17E-11	2.58E-11	3.41E-11
PTFE	LIN	OFF	480	1.10E-13	1.09E-12	4.00E-12	5.82E-12	5.58E-12	5.87E-12	5.42E-12	7.73E-12	2.97E-11	1.96E-11	1.87E-11	2.80E-11	2.88E-11
PTFE	FLY	ON	30	1.64E-13	7.64E-13	2.99E-12	1.30E-11	2.68E-11	5.53E-11	5.23E-11	1.28E-10	1.24E-10	3.15E-10	4.70E-10	6.50E-10	6.04E-10
PTFE	FLY	ON	120	1.27E-14	1.03E-13	1.27E-12	6.86E-12	9.69E-12	2.13E-11	1.57E-11	3.63E-11	1.28E-10	2.15E-10	3.35E-10	3.51E-10	3.34E-10
PTFE	FLY	ON	480	7.84E-15	1.47E-13	1.11E-12	2.63E-12	3.93E-12	3.49E-12	3.04E-12	5.90E-12	2.09E-11	4.05E-11	4.71E-11	5.99E-11	3.90E-11
PTFE	FLY	OFF	30	3.83E-14	3.86E-13	2.38E-12	1.18E-11	2.22E-11	3.31E-11	5.13E-11	1.16E-10	2.91E-10	4.98E-10	5.77E-10	5.17E-10	8.30E-10
PTFE	FLY	OFF	120	6.21E-14	9.66E-13	3.28E-12	5.85E-12	6.74E-12	6.81E-12	1.74E-11	2.42E-11	6.61E-11	1.46E-10	1.95E-10	2.04E-10	2.50E-10
PTFE	FLY	OFF	480	1.69E-14	1.42E-13	6.58E-13	1.54E-12	2.00E-12	2.27E-12	5.31E-12	7.11E-12	2.40E-11	5.17E-11	6.28E-11	1.17E-10	1.09E-10
UNT	LIN	ON	30	3.76E-13	1.49E-12	1.81E-11	1.51E-10	6.25E-10	1.26E-09	2.15E-09	2.69E-09	7.39E-09	5.35E-09	3.47E-09	1.65E-09	1.55E-09
UNT	LIN	ON	120	1.66E-13	2.53E-12	3.13E-11	1.47E-10	4.41E-10	9.11E-10	1.59E-09	1.14E-09	2.54E-09	2.18E-09	1.41E-09	7.21E-10	8.84E-10
UNT	LIN	ON	480	1.50E-13	2.92E-12	2.30E-11	9.14E-11	1.90E-10	3.10E-10	2.64E-10	2.07E-10	6.56E-10	4.34E-10	2.17E-10	1.78E-10	2.34E-10
UNT	LIN	OFF	30	2.34E-13	2.86E-12	2.41E-11	1.44E-10	4.57E-10	9.58E-10	1.36E-09	1.17E-09	1.15E-08	4.86E-09	1.38E-09	8.52E-10	2.06E-09
UNT	LIN	OFF	120	4.56E-14	5.95E-13	6.74E-12	4.03E-11	1.32E-10	2.50E-10	3.02E-10	2.41E-10	6.48E-10	2.30E-10	6.01E-11	9.08E-11	4.48E-11
UNT	LIN	OFF	480	1.68E-14	6.79E-13	6.49E-12	3.36E-11	7.43E-11	1.02E-10	1.04E-10	3.18E-11	3.44E-10	1.42E-10	6.85E-11	1.05E-10	8.42E-11
UNT	FLY	ON	30	2.33E-13	8.93E-12	1.08E-10	5.71E-10	1.51E-09	2.37E-09	4.16E-09	5.55E-09	2.67E-08	3.76E-08	3.82E-08	3.77E-08	2.48E-08
UNT	FLY	ON	120	8.23E-13	2.00E-11	1.96E-10	6.94E-10	1.33E-09	2.08E-09	2.83E-09	4.64E-09	1.41E-08	1.74E-08	1.32E-08	1.30E-08	9.36E-09
UNT	FLY	ON	480	3.50E-13	2.52E-12	1.56E-11	3.30E-11	6.31E-11	1.49E-10	4.74E-10	1.19E-09	2.96E-09	6.83E-09	9.61E-09	1.19E-08	1.28E-08
UNT	FLY	OFF	30	2.87E-12	3.53E-11	1.56E-10	6.95E-10	1.54E-09	2.73E-09	4.02E-09	3.30E-09	1.18E-08	1.83E-08	2.39E-08	2.69E-08	3.10E-08
UNT	FLY	OFF	120	2.21E-13	4.99E-12	4.42E-11	1.15E-10	2.77E-10	3.50E-10	5.81E-10	8.16E-10	2.89E-09	5.85E-09	8.78E-09	1.32E-08	1.70E-08
UNT	FLY	OFF	480	1.76E-13	1.56E-12	9.75E-12	5.74E-11	8.98E-11	1.35E-10	1.72E-10	2.69E-10	7.57E-10	1.16E-09	1.55E-09	1.72E-09	2.19E-09

FIGURES 1 - 7

Figure 1. Measured total outlet mass flux, N , versus w^2v/t , for bags made from ptfe-laminated and untreated polyester felt fabric.

Figure 3. Exponent, n , versus particle diameter (d_p) in micrometers. The value of $n = 0.916(d_p)^{0.257}$ for both ptfe-laminated and untreated polyester felt fabrics.

Figure 4. Model constant, k , versus particle diameter, d_p , in micrometers with $k = 4.45 \times 10^{-6} (d_p)^{4.82}$ for ptfe-laminated fabric and $k = 2.28 \times 10^{-5} (d_p)^{4.82}$ for untreated felt fabric.

Figure 5. Measured outlet mass flux versus predicted outlet mass flux calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 as a function of particle size for ptfе-laminated and untreated polyester felt fabric bags.

Figure 6. Measured total outlet mass flux versus particle diameter for ptfе-laminated and untreated felt fabric bags for limestone and fly-ash dusts averaged across all experimental conditions.

Figure 7. Measured outlet mass flux versus predicted outlet mass flux for independent data set⁸ calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 for PTFE-laminated, untreated, and singed surface polyester felt fabrics.

REFERENCES

1. Billings, C. E. and J. E. Wilder, Handbook of Fabric Filter technology, Document No. 200-648, National Technical Information service, U. S. Department of Commerce, Springfield, VA, 1970
2. Dennis, R. and J. E. Wilder, "Fabric Filter Cleaning Studies", Environmental Protection technology Series, Office of Research and Development, U. S. Environmental Protection Agency, Document No. 650/2-75-009, Washington, D. C., 1975
3. Dennis, Richard, "Collection Efficiency as a Function of Particle size, Shape and Density: Theory and Experience", APCA Journal, Vol. 24, No. 12, December 1974.
4. Leith, David H. and Michael J. Ellenbecker, "Theory for Penetration in a Pulse-jet Fabric Filter", APCA Journal, Vol. 30, No. 8, August 1980
5. Leith, David H. and Melvin W. First, "Performance of a Pulse-Jet Filter at High Filtration Velocity: Penetration by Fault Processes", APCA Journal, vol. 27, No. 8, August 1977
6. Leith, David H. and Michael J. Ellenbecker, "Effect of Dust Size Distribution on the Collection Efficiency of Pulse-Jet Fabric Filters", APCA Journal, Vol. 32, no. 7, July 1982.
7. Leith, D. and Ellenbecker, M.J., "Dust Deposit Profiles in a High Velocity Pulse-Jet Fabric Filter", APCA Journal, Vol. 29, No. 12, December 1979.
8. Leith, David H. and Michael J. Ellenbecker, "Dust Emissions from a Pulse-Jet Fabric Filter", Filtration and Separation, July/August, 1983
9. Licht, William, "Filtration", Air Pollution Control Engineering, Second Edition, Chapter 8, Marcel Dekker, INC., New York, NY, 1988
10. Kleinbaum, D., Kupper, L., and Muller, K., Applied Regression Analysis and Other Multivariable Methods, Second Edition, PWS-Kent Publishing Co., Boston, MA, 1988
11. Wilkinson, L., SYSTAT: The System for Statistics, SYSTAT, INC., Evanston, IL, 1988.
12. Leith, D., and Ellenbecker, M.J., "Dust Removal Characteristics of Fabrics used in Pulse-jet Fabric Filters", Powder Technology, Vol. 36, 1983.

**APPENDIX A
MEASURED AND CALCULATED DATA
PHASE 3**

TABLE A1. MEASURED AND CALCULATED DATA PHASE 3

PHASE SEQ NO.	EXP RUN NO.	BAG (B) TYPE	DUST (D) TYPE	CLEAN (C) MODE	TIME (T) (sec)	FILTER VEL (V) (m/s)	INLET DUST CONC (CI) (g/m ³)	TOTAL OUTLET FLUX (OT) (kg/m ² s)	MEASURED AREAL DENSITY (M) (kg/m ²)	REDUCED AREAL DENSITY (MR) (kg/m ²)	ADDED AREAL DENSITY (MA) (kg/m ²)	CORRECT AREAL DENSITY (CM) (kg/m ²)	DUST & FABRIC PRESS DROP (P) (Pa)	AVG TOTAL PRESS DROP (PT) (Pa)	FRACT DUST REN (E)	
1	55	11	PTFE	LIM	ON	30	0.075	1.69	8.00E-10	0.032	0.031	0.0038	0.035	673	996	0.11
2	56	22	PTFE	LIM	ON	120	0.075	1.69	2.33E-10	0.048	0.043	0.0152	0.058	972	1295	0.26
3	57	20	PTFE	LIM	ON	480	0.075	1.69	1.60E-10	0.076	0.056	0.0608	0.117	997	1320	0.52
4	58	8	PTFE	LIM	OFF	30	0.075	1.69	2.10E-09	0.033	0.033	0.0038	0.037	636	959	0.10
5	59	12	PTFE	LIM	OFF	120	0.075	1.69	7.10E-10	0.050	0.050	0.0152	0.065	897	1220	0.23
6	60	9	PTFE	LIM	OFF	480	0.075	1.69	2.80E-10	0.069	0.069	0.0608	0.130	1084	1407	0.47
7	61	6	PTFE	FLY	ON	30	0.075	1.69	5.98E-09	0.054	0.053	0.0038	0.057	959	1282	0.07
8	62	24	PTFE	FLY	ON	120	0.075	1.69	2.07E-09	0.077	0.072	0.0152	0.087	1345	1668	0.17
9	63	21	PTFE	FLY	ON	480	0.075	1.69	5.90E-10	0.157	0.137	0.0608	0.193	2167	2490	0.31
10	64	1	PTFE	FLY	OFF	30	0.075	1.69	7.00E-09	0.036	0.036	0.0038	0.040	872	1195	0.10
11	65	15	PTFE	FLY	OFF	120	0.075	1.69	2.12E-09	0.049	0.049	0.0152	0.064	1022	1345	0.24
12	66	16	PTFE	FLY	OFF	480	0.075	1.69	7.19E-10	0.069	0.069	0.0608	0.130	1146	1469	0.47
13	67	4	UNT	LIM	ON	30	0.075	1.69	4.23E-08	0.065	0.064	0.0038	0.068	125	448	0.06
14	68	10	UNT	LIM	ON	120	0.075	1.69	1.64E-08	0.083	0.078	0.0152	0.093	138	461	0.16
15	69	14	UNT	LIM	ON	480	0.075	1.69	3.50E-09	0.119	0.099	0.0608	0.160	424	747	0.38
16	70	3	UNT	LIM	OFF	30	0.075	1.69	3.98E-08	0.073	0.073	0.0038	0.077	262	585	0.05
17	71	13	UNT	LIM	OFF	120	0.075	1.69	4.79E-09	0.087	0.087	0.0152	0.102	262	585	0.15
18	72	2	UNT	LIM	OFF	480	0.075	1.69	7.44E-10	0.155	0.155	0.0608	0.216	1993	2316	0.28
19	73	23	UNT	FLY	ON	30	0.075	1.69	2.56E-07	0.168	0.167	0.0038	0.171	225	548	0.02
20	74	18	UNT	FLY	ON	120	0.075	1.69	8.80E-08	0.230	0.225	0.0152	0.240	262	585	0.06
21	75	19	UNT	FLY	ON	480	0.075	1.69	6.15E-08	0.407	0.387	0.0608	0.448	1445	1768	0.14
22	76	7	UNT	FLY	OFF	30	0.075	1.69	8.03E-07	0.155	0.155	0.0038	0.159	225	548	0.02
23	77	17	UNT	FLY	OFF	120	0.075	1.69	1.74E-07	0.204	0.204	0.0152	0.219	300	623	0.07
24	78	5	UNT	FLY	OFF	480	0.075	1.69	5.55E-08	0.242	0.242	0.0608	0.303	673	996	0.20
25	79	44	PTFE	LIM	ON	30	0.075	1.69	1.24E-09	0.034	0.033	0.0038	0.037	922	1245	0.10
26	80	27	PTFE	LIM	ON	120	0.075	1.69	4.10E-10	0.050	0.045	0.0152	0.060	1047	1370	0.25
27	81	30	PTFE	LIM	ON	480	0.075	1.69	7.00E-11	0.083	0.063	0.0608	0.124	1420	1743	0.49
28	82	42	PTFE	LIM	OFF	30	0.075	1.69	3.40E-09	0.057	0.056	0.0038	0.060	1022	1345	0.06
29	83	31	PTFE	LIM	OFF	120	0.075	1.69	4.10E-10	0.054	0.054	0.0152	0.069	997	1320	0.22
30	84	25	PTFE	LIM	OFF	480	0.075	1.69	9.40E-11	0.070	0.070	0.0608	0.131	1320	1643	0.46
31	85	29	PTFE	FLY	ON	30	0.075	1.69	1.58E-09	0.083	0.082	0.0038	0.086	1171	1494	0.04
32	86	40	PTFE	FLY	ON	120	0.075	1.69	2.31E-09	0.109	0.104	0.0152	0.119	1644	1967	0.13
33	87	28	PTFE	FLY	ON	480	0.075	1.69	3.40E-10	0.213	0.193	0.0608	0.254	1594	1917	0.24
34	88	36	PTFE	FLY	OFF	30	0.075	1.69	2.18E-09	0.052	0.052	0.0038	0.056	1171	1494	0.07
35	89	39	PTFE	FLY	OFF	120	0.075	1.69	7.58E-10	0.066	0.066	0.0152	0.081	1370	1693	0.19
36	90	37	PTFE	FLY	OFF	480	0.075	1.69	3.15E-10	0.099	0.099	0.0608	0.160	1395	1718	0.38
37	91	41	UNT	LIM	ON	30	0.075	1.69	4.01E-08	0.071	0.070	0.0038	0.074	150	473	0.05
38	92	46	UNT	LIM	ON	120	0.075	1.69	1.09E-08	0.093	0.088	0.0152	0.103	349	672	0.15
39	93	45	UNT	LIM	ON	480	0.075	1.69	2.13E-09	0.157	0.137	0.0608	0.198	798	1121	0.31
40	94	26	UNT	LIM	OFF	30	0.075	1.69	1.78E-08	0.078	0.078	0.0038	0.082	225	548	0.05
41	95	32	UNT	LIM	OFF	120	0.075	1.69	4.72E-09	0.090	0.090	0.0152	0.105	324	647	0.14
42	96	35	UNT	LIM	OFF	480	0.075	1.69	1.45E-09	0.151	0.151	0.0608	0.212	499	822	0.29
43	97	38	UNT	FLY	ON	30	0.075	1.69	1.84E-07	0.181	0.180	0.0038	0.184	250	573	0.02
44	98	43	UNT	FLY	ON	120	0.075	1.69	8.78E-08	0.233	0.228	0.0152	0.243	673	996	0.06
45	99	48	UNT	FLY	ON	480	0.075	1.69	1.50E-07	0.464	0.444	0.0608	0.505	2341	2664	0.12
46	100	47	UNT	FLY	OFF	30	0.075	1.69	1.97E-07	0.239	0.239	0.0038	0.243	524	847	0.02
47	101	34	UNT	FLY	OFF	120	0.075	1.69	4.10E-08	0.221	0.221	0.0152	0.236	598	921	0.06
48	102	33	UNT	FLY	OFF	480	0.075	1.69	8.13E-09	0.374	0.374	0.0608	0.435	972	1295	0.14

TABLE A2. PARTICLE COUNTS BY GEOMETRIC SIZE RANGE

SEA DCP NO. NO.			AVERAGE PARTICLE DIAMETER IN MICRONS (µm)																	
			0.10	0.15	0.21	0.30	0.42	0.53	0.64	1.18	1.67	2.37	3.35	4.74	6.70	9.40	13.40	19.55	26.10	37.50
1	55	11	1.05E+02	1.04E+03	1.77E+03	3.67E+03	2.05E+03	1.36E+03	6.92E+02	2.10E+02	2.60E+02	6.70E+01	2.40E+01	1.10E+01	4.60E+00	3.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00
2	56	22	0.00E+00	2.10E+03	4.54E+03	3.51E+03	1.89E+03	7.87E+02	2.10E+02	1.05E+02	2.05E+02	6.20E+01	1.90E+01	1.00E+01	1.00E+00	4.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	57	30	2.62E+02	2.83E+03	1.01E+04	6.97E+03	2.94E+03	1.42E+03	4.20E+02	2.10E+02	3.70E+02	1.02E+02	3.10E+01	9.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
4	58	0	6.30E+02	2.52E+03	2.89E+03	2.10E+03	9.97E+02	6.62E+02	2.62E+02	2.10E+02	1.17E+02	4.50E+01	1.90E+01	5.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	59	12	2.62E+02	0.39E+02	1.31E+03	1.15E+03	6.62E+02	3.15E+02	1.57E+02	5.25E+01	6.00E+01	3.90E+01	2.50E+01	1.10E+01	7.00E+00	1.20E+01	3.00E+00	0.00E+00	1.00E+00	0.00E+00
6	60	9	5.42E+03	1.90E+04	2.47E+04	1.26E+04	4.20E+03	1.52E+03	4.72E+02	2.10E+02	3.00E+02	5.90E+01	2.00E+01	1.10E+01	4.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	61	6	4.72E+02	6.02E+02	0.39E+02	1.31E+03	1.26E+03	0.39E+02	3.15E+02	2.62E+02	4.30E+01	8.20E+01	4.20E+01	2.10E+01	7.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
8	62	24	9.44E+02	1.31E+03	2.03E+03	2.94E+03	2.31E+03	3.04E+03	2.20E+03	1.42E+03	1.20E+03	8.70E+02	4.70E+02	2.35E+02	1.23E+02	5.19E+01	9.00E+00	0.00E+00	0.00E+00	0.00E+00
9	63	21	3.15E+02	2.20E+03	9.23E+03	8.34E+03	4.30E+03	1.15E+03	3.67E+02	2.62E+02	5.24E+02	3.41E+02	1.10E+02	5.10E+01	0.00E+00	0.00E+00	1.00E+00	0.00E+00	1.00E+00	0.00E+00
10	64	1	2.10E+02	0.39E+02	1.68E+03	2.52E+03	1.10E+03	5.77E+02	5.77E+02	3.15E+02	3.70E+02	2.32E+02	1.07E+02	2.40E+01	1.00E+01	3.00E+00	2.00E+00	1.00E+00	0.00E+00	0.00E+00
11	65	15	2.10E+03	1.41E+04	1.43E+04	7.50E+03	1.26E+03	1.40E+03	8.92E+02	7.34E+02	5.90E+02	4.50E+02	2.22E+02	8.50E+01	3.00E+01	1.30E+01	5.00E+00	0.00E+00	0.00E+00	0.00E+00
12	66	16	1.05E+03	2.52E+03	2.89E+03	1.73E+03	7.34E+02	5.25E+02	2.62E+02	2.62E+02	2.37E+02	1.09E+02	7.90E+01	5.10E+01	1.70E+01	5.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00
13	67	4	7.34E+02	8.92E+02	2.26E+03	2.73E+03	5.25E+03	4.25E+03	2.10E+03	1.05E+03	3.82E+02	1.54E+02	4.40E+01	1.40E+01	9.00E+00	3.00E+00	2.00E+00	1.00E+00	1.00E+00	0.00E+00
14	68	10	5.77E+02	2.57E+03	0.97E+03	1.89E+04	1.88E+04	1.30E+04	7.71E+03	2.62E+03	2.75E+03	8.40E+02	1.50E+02	3.60E+01	1.70E+01	4.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00
15	69	14	4.20E+02	5.35E+03	2.04E+04	3.25E+04	2.56E+04	1.51E+04	4.98E+03	1.15E+03	2.29E+03	4.50E+02	7.20E+01	1.50E+01	1.10E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	70	3	0.00E+00	0.92E+02	2.62E+03	6.45E+03	7.95E+03	5.40E+03	2.60E+03	1.21E+03	4.17E+03	0.30E+02	0.50E+01	2.30E+01	1.30E+01	5.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00
17	71	13	4.20E+02	1.70E+03	4.20E+03	7.50E+03	8.24E+03	5.09E+03	2.05E+03	3.67E+02	7.61E+02	1.12E+02	1.50E+01	5.00E+00	2.00E+00	0.00E+00	1.00E+00	0.00E+00	1.00E+00	0.00E+00
18	72	2	1.05E+02	1.89E+03	7.24E+03	1.08E+04	5.77E+03	1.09E+03	3.15E+02	5.25E+01	4.81E+02	4.40E+01	5.00E+00	6.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	73	23	1.05E+02	0.92E+02	1.99E+03	2.20E+03	1.63E+03	1.73E+03	1.31E+03	8.92E+02	9.04E+02	7.47E+02	3.31E+02	1.18E+02	3.40E+01	5.00E+00	4.00E+00	0.00E+00	0.00E+00	0.00E+00
20	74	10	2.62E+02	2.62E+03	9.50E+03	9.97E+03	6.02E+03	4.20E+03	1.60E+03	1.05E+03	1.27E+03	5.20E+02	1.35E+02	5.00E+01	1.30E+01	4.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	75	19	1.05E+02	9.44E+02	2.31E+03	2.41E+03	1.99E+03	1.63E+03	1.10E+03	1.38E+03	1.03E+03	1.06E+03	5.11E+02	2.26E+02	5.00E+01	2.60E+01	9.00E+00	2.00E+00	1.00E+00	0.00E+00
22	76	7	2.62E+02	2.62E+03	5.35E+03	5.35E+03	4.70E+03	3.15E+03	1.99E+03	1.63E+03	0.86E+02	6.30E+02	3.25E+02	1.44E+02	7.40E+01	5.20E+01	1.10E+01	8.00E+00	1.00E+00	2.00E+00
23	77	17	3.67E+02	2.89E+03	0.50E+03	6.90E+03	5.62E+03	2.57E+03	1.63E+03	8.39E+02	1.07E+03	7.81E+02	4.07E+02	2.09E+02	9.50E+01	3.50E+01	1.40E+01	4.00E+00	0.00E+00	0.00E+00
24	78	5	5.77E+02	6.30E+02	2.57E+03	2.94E+03	2.57E+03	2.26E+03	1.04E+03	9.44E+02	8.26E+02	4.32E+02	1.54E+02	5.70E+01	1.70E+01	1.40E+01	1.00E+01	1.80E+01	0.00E+00	0.00E+00
25	79	44	2.62E+02	2.10E+02	1.21E+03	1.57E+03	1.31E+03	9.44E+02	1.57E+02	5.25E+01	2.30E+02	6.50E+01	2.60E+01	6.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
26	80	27	5.25E+02	1.42E+03	2.94E+03	4.35E+03	3.46E+03	1.40E+03	4.72E+02	5.25E+01	2.61E+02	7.50E+01	1.90E+01	8.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	81	30	3.15E+02	4.20E+02	1.63E+03	2.15E+03	1.70E+03	5.77E+02	3.67E+02	1.05E+02	6.50E+01	3.70E+01	1.70E+01	5.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	82	42	1.05E+02	5.25E+02	7.34E+02	8.39E+02	6.30E+02	7.87E+02	3.15E+02	2.10E+02	4.20E+01	2.90E+01	1.60E+01	1.20E+01	3.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
29	83	31	3.15E+02	7.34E+02	1.57E+03	1.99E+03	1.68E+03	1.15E+03	4.72E+02	1.57E+02	8.10E+01	3.20E+01	2.70E+01	1.10E+01	4.00E+00	6.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00
30	84	25	5.25E+02	1.73E+03	2.57E+03	2.10E+03	1.21E+03	7.34E+02	4.20E+02	4.20E+02	4.61E+02	1.89E+02	8.20E+01	3.00E+01	1.10E+01	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
31	85	29	4.20E+02	9.44E+02	1.57E+03	2.36E+03	9.44E+02	8.92E+02	2.10E+02	2.10E+02	9.00E+01	6.00E+01	3.50E+01	1.60E+01	5.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	86	40	1.05E+02	4.72E+02	2.41E+03	4.93E+03	2.36E+03	1.68E+03	2.62E+02	2.62E+02	3.98E+02	2.15E+02	1.19E+02	3.70E+01	7.00E+00	5.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
33	87	38	7.87E+02	5.09E+03	1.04E+04	8.18E+03	4.41E+03	1.57E+03	4.72E+02	3.15E+02	2.87E+02	1.60E+02	8.70E+01	4.10E+01	1.30E+01	4.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00
34	88	34	1.57E+02	4.20E+02	1.15E+03	2.68E+03	2.68E+03	1.40E+03	3.67E+02	5.25E+02	3.11E+02	1.82E+02	5.60E+01	2.70E+01	1.20E+01	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	89	21	1.05E+02	2.82E+03	5.46E+03	4.62E+03	2.68E+03	4.20E+02	6.82E+02	1.05E+02	1.94E+02	1.57E+02	6.00E+01	2.30E+01	9.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
36	90	37	5.25E+01	6.82E+02	2.70E+03	2.41E+03	1.15E+03	2.62E+02	3.67E+02	5.25E+01	1.29E+02	9.10E+01	4.10E+01	2.80E+01	9.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	91	41	0.00E+00	5.25E+01	8.39E+02	3.99E+03	5.35E+03	3.62E+03	2.36E+03	9.97E+02	1.22E+03	2.89E+02	6.30E+01	8.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	92	46	1.05E+02	6.82E+02	3.46E+03	5.09E+03	5.46E+03	4.14E+03	2.62E+03	5.25E+02	2.63E+02	7.90E+01	2.70E+01	3.00E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	93	45	9.44E+02	5.46E+03	1.29E+04	1.64E+04	1.23E+04	6.40E+03	1.70E+03	5.77E+02	2.25E+02	8.50E+01	1.90E+01	8.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	94	26	2.62E+02	7.34E+02	2.20E+03	4.25E+03	4.62E+03	3.51E+03	1.70E+03	3.67E+02	1.29E+03	9.80E+01	9.00E+00	0.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	95	32	5.25E+01	3.15E+02	2.62E+03	6.19E+03	7.40E+03	5.14E+03	2.26E+03	7.34E+02	5.05E+02	5.60E+01	3.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00
42	96	35	5.25E+01	5.77E+02	1.57E+03	3.13E+03	4.25E+03	2.47E+03	1.05E+03	1.05E+02	2.89E+02	5.20E+01	1.60E+01	4.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	97	34	0.00E+00	3.67E+02	2.89E+03	6.35E+03	6.24E+03	2.89E+03	1.63E+03	5.77E+02	1.41E+03	4.94E+02	1.34E+02	4.50E+01	6.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
44	98	43	2.62E+02	1.94E+03	6.40E+03	9.69E+03	6.45E+03	3.20E+03	1.84E+03	9.97E+02	9.55E+02	4.34E+02	1.23E+02	4.00E+01	1.00E+01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
45	99	48	1.30E+02	1.31E+03	2.70E+03	1.70E+03	1.05E+03	8.92E+02	1.31E+03	9.97E+02	9.56E+02	6.84E+02	3.47E+02	1.52E+02	6.70E+01	3.00E+01	1.00E+00	2.00E+00	2.00E+00	0.00E+00
46	100	47	2.10E+02	7.34E+02	9.97E+02	1.94E+03	1.52E+03	8.92E+02	4.20E+02	0.00E+00	1.35E+02	5.60E+01	2.20E+01	7.00E+00	1.00E+00	1.00E+00	2.00E+00	0.00E+00		

FILE 03. PARTICLE COUNT FREQUENCY BY GEOMETRIC SIZE RANGE

SEQ	EXP	NO	NO	AVERAGE PARTICLE DIAMETER IN MICRONS (UM)																	
				0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.10	1.67	2.37	3.35	4.74	6.70	9.48	13.40	19.95	26.60	37.90
1	55	11		4.97E-03	1.22E-01	3.17E-01	2.44E-01	1.36E-01	9.06E-02	4.53E-02	1.39E-02	1.73E-02	4.40E-03	1.59E-03	7.30E-04	2.66E-04	1.99E-04	1.33E-04	0.00E+00	0.00E+00	0.00E+00
2	56	22		0.00E+00	1.56E-01	3.29E-01	2.61E-01	1.40E-01	5.84E-02	1.50E-02	7.79E-03	1.54E-02	4.60E-03	1.34E-03	7.42E-04	7.42E-05	2.97E-04	0.00E+00	0.00E+00	0.00E+00	
3	57	20		9.47E-03	1.02E-01	3.10E-01	3.24E-01	1.06E-01	5.11E-02	1.52E-02	7.58E-03	1.34E-02	3.60E-03	1.12E-03	3.25E-04	1.44E-04	3.61E-05	0.00E+00	0.00E+00	3.61E-05	0.00E+00
4	58	8		4.01E-02	2.40E-01	2.75E-01	2.00E-01	9.52E-02	6.51E-02	2.50E-02	2.00E-02	1.12E-02	4.30E-03	1.81E-03	4.77E-04	3.32E-04	9.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	59	12		5.31E-02	1.70E-01	2.65E-01	2.34E-01	1.38E-01	6.37E-02	3.19E-02	1.05E-02	1.38E-02	7.19E-03	5.06E-03	2.23E-03	1.42E-03	2.43E-03	6.97E-04	0.00E+00	2.02E-04	0.00E+00
6	60	9		7.96E-02	2.77E-01	3.60E-01	1.84E-01	6.12E-02	2.22E-02	6.89E-03	3.06E-03	4.30E-03	8.61E-04	2.32E-04	1.60E-04	5.44E-05	1.46E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	61	6		7.59E-02	1.10E-01	1.35E-01	2.11E-01	2.02E-01	1.35E-01	5.06E-02	4.22E-02	1.33E-02	1.32E-02	6.75E-03	3.38E-03	1.13E-03	4.02E-04	1.61E-04	0.00E+00	0.00E+00	0.00E+00
8	62	24		4.73E-02	6.57E-02	1.42E-01	1.47E-01	1.11E-01	1.52E-01	1.10E-01	7.09E-02	6.01E-02	4.40E-02	2.39E-02	1.18E-02	6.16E-03	2.55E-03	4.51E-04	0.00E+00	0.00E+00	0.00E+00
9	63	21		1.16E-02	8.09E-02	3.39E-01	3.06E-01	1.58E-01	4.24E-02	1.32E-02	9.83E-03	1.92E-02	1.25E-02	4.33E-03	1.87E-03	2.94E-04	2.94E-04	3.67E-05	0.00E+00	3.67E-05	0.00E+00
10	64	1		7.44E-02	9.70E-02	1.94E-01	2.93E-01	1.20E-01	6.72E-02	6.72E-02	3.67E-02	4.40E-02	3.70E-02	1.25E-02	3.26E-03	2.10E-03	3.49E-04	2.33E-04	1.14E-04	0.00E+00	0.00E+00
11	65	15		4.73E-02	3.07E-01	3.10E-01	1.63E-01	5.59E-02	3.00E-02	1.94E-02	1.60E-02	1.39E-02	9.07E-03	4.83E-03	1.85E-03	8.26E-04	2.83E-04	1.09E-04	0.00E+00	0.00E+00	0.00E+00
12	66	16		9.95E-02	2.34E-01	2.74E-01	1.84E-01	6.96E-02	4.97E-02	2.49E-02	2.49E-02	2.25E-02	1.79E-02	7.49E-03	4.04E-03	1.61E-03	4.74E-04	1.90E-04	0.00E+00	0.00E+00	0.00E+00
13	67	4		3.70E-02	4.49E-02	1.14E-01	1.37E-01	2.44E-01	2.14E-01	1.04E-01	5.20E-02	1.92E-02	7.75E-03	2.22E-03	7.05E-04	4.53E-04	1.01E-04	5.03E-05	5.03E-05	0.00E+00	0.00E+00
14	68	10		7.50E-02	3.38E-02	1.18E-01	2.58E-01	2.40E-01	1.71E-01	1.01E-01	3.45E-02	3.61E-02	1.10E-02	1.97E-03	4.73E-04	2.23E-04	5.26E-05	2.63E-05	0.00E+00	0.00E+00	0.00E+00
15	69	14		3.88E-03	4.94E-02	1.88E-01	3.00E-01	2.37E-01	1.40E-01	4.51E-02	1.07E-02	2.11E-02	4.24E-03	6.85E-04	1.39E-04	1.02E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	70	3		0.00E+00	2.79E-02	8.21E-02	2.02E-01	2.37E-01	1.69E-01	8.31E-02	3.70E-02	1.31E-01	2.60E-02	2.44E-03	7.20E-04	4.07E-04	1.57E-04	9.39E-05	0.00E+00	0.00E+00	0.00E+00
17	71	13		1.37E-02	5.84E-02	1.37E-01	2.44E-01	2.70E-01	1.67E-01	6.70E-02	1.70E-02	2.49E-02	3.67E-03	4.91E-04	1.64E-04	6.55E-05	0.00E+00	3.67E-05	0.00E+00	3.67E-05	0.00E+00
18	72	2		3.67E-03	6.60E-02	2.53E-01	3.78E-01	2.02E-01	6.60E-02	1.10E-02	1.03E-03	1.68E-02	1.54E-03	1.75E-04	2.10E-04	6.99E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	73	23		8.14E-03	6.91E-02	1.55E-01	1.71E-01	1.26E-01	1.24E-01	1.02E-01	6.91E-02	7.01E-02	5.79E-02	2.57E-02	9.15E-03	2.64E-03	3.88E-04	3.10E-04	0.00E+00	0.00E+00	0.00E+00
20	74	18		6.89E-03	6.89E-02	2.49E-01	2.62E-01	1.79E-01	1.10E-01	4.41E-02	2.75E-02	3.33E-02	1.34E-02	3.54E-03	1.31E-03	3.41E-04	1.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	75	19		7.10E-03	6.39E-02	1.91E-01	1.43E-01	1.35E-01	1.10E-01	7.46E-02	9.23E-02	6.95E-02	7.10E-02	3.46E-02	1.53E-02	3.92E-03	1.75E-03	6.09E-04	1.35E-04	6.77E-05	0.00E+00
22	76	7		9.03E-03	9.03E-02	2.00E-01	2.00E-01	1.57E-01	1.18E-01	7.47E-02	6.09E-02	3.32E-02	2.39E-02	1.22E-02	5.39E-03	2.77E-03	1.95E-03	4.12E-04	3.00E-04	3.75E-05	2.49E-05
23	77	17		1.14E-02	8.96E-02	2.64E-01	2.17E-01	1.81E-01	7.98E-02	5.05E-02	2.61E-02	3.33E-02	2.43E-02	1.26E-02	6.49E-03	2.95E-03	1.09E-03	4.35E-04	1.24E-04	0.00E+00	0.00E+00
24	78	5		3.64E-02	3.97E-02	1.62E-01	1.85E-01	1.62E-01	1.42E-01	1.16E-01	5.96E-02	5.21E-02	2.73E-02	9.94E-03	3.60E-03	1.07E-03	8.83E-04	6.31E-04	1.14E-03	0.00E+00	0.00E+00
25	79	44		4.34E-02	3.47E-02	1.99E-01	2.60E-01	2.37E-01	1.56E-01	2.66E-02	8.67E-03	3.80E-02	1.07E-02	4.30E-03	9.92E-04	4.96E-04	1.15E-04	0.00E+00	0.00E+00	1.65E-04	0.00E+00
26	80	27		3.50E-02	9.44E-02	1.94E-01	2.90E-01	2.31E-01	9.44E-02	3.15E-02	3.50E-03	1.74E-02	5.00E-03	1.00E-03	5.33E-04	2.00E-04	6.67E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	81	30		4.21E-02	5.62E-02	2.18E-01	2.89E-01	2.39E-01	7.73E-02	4.92E-02	1.40E-02	8.70E-03	4.92E-03	2.25E-03	6.69E-04	1.34E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	82	42		2.47E-02	1.24E-01	1.73E-01	1.38E-01	1.48E-01	1.05E-01	7.41E-02	4.94E-02	9.89E-03	6.83E-03	3.77E-03	2.83E-03	7.06E-04	0.00E+00	2.35E-04	0.00E+00	0.00E+00	0.00E+00
29	83	31		3.02E-02	8.91E-02	1.91E-01	2.42E-01	2.04E-01	1.40E-01	5.73E-02	1.91E-02	9.03E-03	3.08E-03	3.29E-03	1.33E-03	4.05E-04	7.29E-04	2.43E-04	0.00E+00	0.00E+00	0.00E+00
30	84	25		5.02E-02	1.66E-01	2.46E-01	2.01E-01	1.15E-01	7.02E-02	4.01E-02	4.01E-02	4.41E-02	1.70E-02	5.93E-03	2.87E-03	1.05E-03	2.87E-04	9.56E-05	0.00E+00	0.00E+00	0.00E+00
31	85	29		5.41E-02	1.22E-01	2.03E-01	3.04E-01	1.22E-01	1.15E-01	2.70E-02	2.70E-02	1.16E-02	7.73E-03	4.51E-03	2.06E-03	6.44E-04	3.86E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	86	40		7.91E-03	3.54E-02	1.82E-01	3.72E-01	1.78E-01	1.27E-01	1.98E-02	1.98E-02	3.00E-02	1.62E-02	8.97E-03	2.79E-03	5.28E-04	3.77E-04	7.54E-05	0.00E+00	0.00E+00	0.00E+00
33	87	28		2.40E-02	1.60E-01	3.27E-01	2.58E-01	1.39E-01	4.94E-02	1.49E-02	9.92E-03	6.52E-03	5.04E-03	2.74E-03	1.29E-03	4.10E-04	1.28E-04	9.45E-05	0.00E+00	0.00E+00	0.00E+00
34	88	36		1.50E-02	4.21E-02	1.16E-01	2.68E-01	2.68E-01	1.42E-01	3.68E-02	5.26E-02	3.12E-02	1.82E-02	5.61E-03	2.71E-03	1.20E-03	2.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	89	29		6.20E-03	1.67E-01	3.22E-01	2.73E-01	1.33E-01	2.43E-02	4.03E-02	6.20E-03	1.15E-02	9.27E-03	4.02E-03	1.36E-03	5.32E-04	2.34E-04	5.91E-05	0.00E+00	0.00E+00	0.00E+00
36	90	37		7.01E-03	9.11E-02	2.94E-01	3.22E-01	1.54E-01	3.50E-02	4.91E-02	7.01E-03	1.72E-02	1.22E-02	5.40E-03	3.74E-03	1.20E-03	1.34E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	91	41		0.00E+00	2.79E-03	4.47E-02	2.12E-01	2.05E-01	1.93E-01	1.26E-01	5.31E-02	6.47E-02	1.54E-02	3.29E-03	4.26E-04	5.32E-05	8.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	92	46		4.67E-03	3.04E-02	1.54E-01	2.27E-01	2.43E-01	1.85E-01	1.17E-01	2.34E-02	1.17E-02	3.52E-03	1.20E-03	1.34E-04	4.45E-05	4.45E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	93	45		1.65E-02	9.53E-02	2.26E-01	2.88E-01	2.15E-01	1.12E-01	3.12E-02	1.01E-02	3.94E-03	1.49E-03	3.33E-04	1.40E-04	3.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	94	26		1.37E-02	3.84E-02	1.15E-01	2.22E-01	2.41E-01	1.04E-01	9.32E-02	1.92E-02	6.73E-02	5.12E-03	4.70E-04	0.00E+00	1.57E-04	8.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	95	32		2.00E-03	1.25E-02	1.04E-01	2.45E-01	2.35E-01	2.03E-01	0.92E-02	2.91E-02	2.00E-02	2.22E-03	1.19E-04	1.19E-04	0.00E+00	0.00E+00	0.00E+00	3.56E-05	0.00E+00	0.00E+00
42	96	35		7.15E-03	4.02E-02	1.10E-01	2.74E-01	2.96E-01	1.72E-01	7.31E-02	7.31E-02	1.95E-02	3.62E-03	6.97E-04	2.79E-04	6.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	97	20		0.00E+00	1.40E-02	1.23E-01	2.76E-01	2.72E-01	1.26E-01	7.00E-02	2.51E-02	1.14E-02	2.15E-02	5.03E-03	1.96E-03	2.61E-04	1.31E-04	4.35E-05	0.00E+00	0.00E+00	0.00E+00
44	98	43		8.13E-03	6.02E-02	1.91E-01	2.58E-01	2.00E-01	9.30E-02	5.69E-02	3.09E-02	2.96E-02	1.73E-02	3.81E-03	1.24E-03	3.10E-04	3.10E-05	3.10E-05	0.00E+00	0.00E+00	0.00E+00
45	99	48		4.04E-02	1.01E-01	2.14E-01	1.37E-01	8.07E-02	6.88E-02	1.01E-01	7.94E-02	7.35E-02	5.26E-02	2.67E-02	1.17E-02	5.31E-03	7.31E-03	6.92E-04	1.54E-04	1.54E-04	0.00E+00
46	100	47																			

TABLE 14. PARTICLE MASS FREQUENCY

PAUSE EXP			PARTICLE DIAMETER IN		MICRONS BY GEOMETRIC SIZE RANGE																	
SEC	RUN	NO	NO	NO	0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70	9.40	13.40	18.95	25.80	37.50
1	55	11	0.55E-06	4.23E-04	3.11E-03	6.77E-03	1.07E-02	2.01E-02	2.85E-02	2.40E-02	0.64E-02	6.33E-02	6.41E-02	6.31E-02	0.54E-02	1.01E-01	3.42E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	58	22	0.00E+00	0.53E-04	5.25E-03	1.14E-02	1.74E-02	2.05E-02	1.54E-02	2.18E-02	1.22E-01	1.03E-01	0.48E-02	1.33E-01	3.77E-02	4.24E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	57	20	1.00E-05	3.29E-04	3.32E-03	8.33E-03	7.72E-03	1.05E-02	8.82E-03	1.25E-02	6.22E-02	4.85E-02	4.17E-02	3.42E-02	4.30E-02	3.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	58	8	1.37E-04	1.56E-03	5.04E-03	1.04E-02	1.39E-02	2.70E-02	2.93E-02	6.63E-02	1.05E-01	1.14E-01	1.36E-01	1.01E-01	2.29E-01	1.62E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	51	12	7.15E-06	6.47E-05	2.84E-04	7.12E-04	1.19E-03	1.55E-03	2.20E-03	2.07E-03	7.60E-03	1.23E-02	2.23E-02	2.78E-02	5.00E-02	2.43E-01	1.72E-01	0.00E+00	0.00E+00	4.58E-01	0.00E+00	0.00E+00
6	64	9	7.70E-04	7.66E-03	2.82E-02	4.06E-02	3.83E-02	3.93E-02	3.45E-02	4.34E-02	1.75E-01	9.75E-02	9.35E-02	1.45E-01	1.50E-01	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	61	8	4.00E-05	1.67E-04	5.00E-04	2.54E-03	6.96E-03	1.31E-02	1.39E-02	3.29E-02	2.94E-02	8.20E-02	1.19E-01	1.84E-01	1.58E-01	1.92E-01	1.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	62	24	6.49E-04	7.55E-05	1.54E-04	4.57E-04	1.02E-03	3.79E-03	7.78E-03	1.41E-02	3.30E-02	6.99E-02	1.08E-01	1.50E-01	2.22E-01	2.82E-01	1.30E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	63	21	7.33E-04	1.45E-04	1.72E-03	4.40E-03	6.42E-03	4.87E-03	4.38E-03	9.85E-03	5.00E-02	9.21E-02	9.01E-02	1.10E-01	4.89E-02	1.28E-01	4.09E-02	0.00E+00	0.00E+00	3.91E-01	0.00E+00	0.00E+00
10	64	1	7.39E-06	8.36E-05	4.73E-04	2.01E-03	2.48E-03	3.18E-03	1.04E-02	1.60E-02	5.45E-02	9.45E-02	1.23E-01	9.14E-02	1.64E-01	7.83E-02	1.40E-01	2.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	65	15	5.61E-05	7.23E-04	2.07E-03	3.08E-03	2.98E-03	4.83E-03	8.27E-03	1.93E-02	4.36E-02	9.53E-02	1.32E-01	1.40E-01	1.01E-01	1.75E-01	1.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	64	16	4.45E-05	3.02E-04	9.80E-04	1.58E-03	2.00E-03	4.03E-03	5.70E-03	1.61E-02	4.12E-02	9.29E-02	1.10E-01	2.01E-01	1.03E-01	1.57E-01	1.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	67	4	1.70E-05	8.10E-05	4.34E-04	1.49E-03	8.42E-03	1.88E-02	2.60E-02	3.67E-02	3.70E-02	4.31E-02	3.49E-02	3.14E-02	5.70E-02	5.30E-02	1.01E-01	1.43E-01	4.04E-01	0.00E+00	0.00E+00	0.00E+00
14	64	10	1.10E-05	1.38E-04	1.56E-03	7.73E-03	2.29E-02	4.47E-02	7.50E-02	7.21E-02	2.14E-01	1.05E-01	9.33E-02	6.34E-02	8.46E-02	5.63E-02	7.97E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	61	14	1.36E-05	4.92E-04	5.29E-03	2.39E-02	5.32E-02	8.80E-02	8.11E-02	5.43E-02	3.05E-01	1.73E-01	7.64E-02	4.52E-02	9.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
16	70	3	0.00E+00	5.07E-05	4.22E-04	2.93E-03	9.71E-03	1.97E-02	2.75E-02	3.51E-02	3.43E-01	1.50E-01	5.60E-02	4.20E-02	6.85E-02	7.45E-02	1.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	71	13	1.50E-05	1.80E-04	1.20E-03	6.06E-03	1.88E-02	3.29E-02	3.74E-02	1.90E-02	1.11E-01	4.63E-02	1.76E-02	1.65E-02	1.07E-02	0.00E+00	7.45E-02	0.00E+00	5.99E-01	0.00E+00	0.00E+00	
18	72	2	2.11E-05	1.07E-03	1.14E-02	4.91E-02	7.42E-02	6.98E-02	3.24E-02	1.52E-02	3.96E-01	1.02E-01	3.29E-02	1.12E-01	1.05E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
19	73	23	1.82E-06	4.58E-05	2.77E-04	9.16E-04	1.81E-03	5.44E-03	1.17E-02	2.24E-02	6.40E-02	1.50E-01	1.88E-01	1.96E-01	1.53E-01	6.44E-02	1.44E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	74	10	8.56E-06	2.42E-04	2.48E-03	7.38E-03	1.42E-02	2.40E-02	2.88E-02	4.96E-02	1.69E-01	2.00E-01	1.44E-01	1.51E-01	1.11E-01	9.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
21	75	19	7.54E-07	1.92E-05	1.33E-04	3.92E-04	9.16E-04	2.11E-03	4.05E-03	1.42E-02	3.02E-02	9.83E-02	1.20E-01	1.50E-01	1.09E-01	1.38E-01	1.34E-01	8.52E-02	1.21E-01	0.00E+00	0.00E+00	0.00E+00
22	76	7	9.38E-07	2.65E-05	1.53E-04	4.33E-04	9.61E-04	2.04E-03	3.65E-03	8.42E-03	1.30E-02	2.64E-02	3.81E-02	4.77E-02	6.94E-02	1.28E-01	8.25E-02	1.70E-01	6.00E-02	3.39E-01	0.00E+00	0.00E+00
23	77	17	2.40E-06	5.33E-05	4.44E-04	1.03E-03	2.43E-03	3.04E-03	5.44E-03	7.93E-03	2.86E-02	5.91E-02	8.71E-02	1.26E-01	1.63E-01	1.89E-01	1.92E-01	1.55E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
24	78	5	3.51E-06	1.08E-05	1.25E-04	4.05E-04	1.00E-03	2.40E-03	5.72E-03	8.32E-03	2.06E-02	3.05E-02	3.11E-02	3.21E-02	2.71E-02	6.32E-02	1.29E-01	6.50E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25	79	44	1.00E-05	2.71E-05	4.41E-04	1.63E-03	3.84E-03	7.82E-03	3.69E-03	3.47E-03	4.31E-02	3.44E-02	3.90E-02	2.54E-02	3.60E-02	3.39E-02	0.00E+00	0.00E+00	7.67E-01	0.00E+00	0.00E+00	0.00E+00
26	80	27	9.32E-05	7.13E-04	4.18E-03	1.73E-02	3.94E-02	4.58E-02	4.30E-02	1.35E-02	1.90E-01	1.55E-01	8.74E-02	1.32E-01	1.40E-01	1.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	81	30	1.21E-04	4.57E-04	5.01E-03	1.87E-02	4.39E-02	4.02E-02	7.23E-02	5.05E-02	1.02E-01	1.65E-01	2.14E-01	1.78E-01	1.01E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	82	42	1.04E-05	2.60E-04	1.03E-03	3.33E-03	7.07E-03	2.50E-02	2.83E-02	5.33E-02	3.02E-02	5.09E-02	9.19E-02	1.35E-01	1.30E-01	0.00E+00	3.68E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	83	31	2.30E-05	1.88E-04	9.58E-04	3.43E-03	8.17E-03	1.59E-02	1.84E-02	1.73E-02	2.52E-02	2.82E-02	6.73E-02	7.76E-02	7.96E-02	3.34E-01	3.15E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	84	25	3.06E-05	2.85E-04	1.20E-03	2.77E-03	4.90E-03	7.74E-03	1.25E-02	3.54E-02	1.10E-01	1.26E-01	1.10E-01	1.62E-01	1.68E-01	1.30E-01	1.22E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	85	29	5.29E-05	3.37E-04	1.59E-03	6.74E-03	7.62E-03	2.84E-02	1.35E-02	3.83E-02	4.65E-02	9.76E-02	1.45E-01	1.87E-01	1.65E-01	2.85E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	86	40	5.20E-06	6.61E-05	9.56E-04	5.52E-03	7.48E-03	1.51E-02	6.45E-03	1.88E-02	8.07E-02	1.23E-01	1.93E-01	1.70E-01	9.09E-02	1.84E-01	1.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
33	87	28	3.34E-05	6.11E-04	3.53E-03	7.88E-03	1.20E-02	1.21E-02	1.03E-02	1.93E-02	3.60E-02	7.67E-02	1.21E-01	1.61E-01	1.45E-01	1.25E-01	2.67E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
34	88	36	1.14E-05	8.61E-05	6.69E-04	4.39E-03	1.24E-02	1.85E-02	1.38E-02	5.51E-02	9.23E-02	1.53E-01	1.33E-01	1.81E-01	2.28E-01	1.07E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	89	39	6.87E-06	5.25E-04	2.80E-03	6.84E-03	9.45E-03	4.37E-03	2.29E-02	9.95E-03	5.28E-02	1.19E-01	1.44E-01	1.40E-01	1.54E-01	1.94E-01	1.37E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
36	90	37	5.78E-06	2.12E-04	1.94E-03	6.01E-03	8.13E-03	5.23E-03	2.07E-02	6.37E-03	5.42E-02	1.16E-01	1.40E-01	2.88E-01	2.60E-01	8.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	91	41	0.00E+00	9.80E-06	4.44E-04	5.96E-03	2.26E-02	4.33E-02	7.98E-02	9.53E-02	3.29E-01	2.21E-01	1.36E-01	4.90E-02	1.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	92	46	1.40E-05	2.57E-04	3.69E-03	1.53E-02	4.65E-02	1.00E-01	1.79E-01	1.01E-01	1.44E-01	1.22E-01	1.18E-01	3.70E-02	3.49E-02	9.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	93	45	1.16E-04	1.93E-03	1.29E-02	4.68E-02	9.85E-02	1.45E-01	1.14E-01	1.05E-01	1.16E-01	1.23E-01	7.80E-02	9.29E-02	6.57E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	94	26	2.63E-05	2.08E-04	1.77E-03	9.63E-03	2.96E-02	6.37E-02	9.15E-02	5.33E-02	5.29E-01	1.14E-01	2.95E-02	0.00E+00	7.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	95	32	4.09E-06	6.95E-05	1.64E-03	1.09E-02	3.69E-02	7.25E-02	9.01E-02	0.30E-02	1.62E-01	5.06E-02	7.67E-03	2.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.63E-01	0.00E+00	0.00E+00	0.00E+00
42	96	35	1.24E-05	3.87E-04	2.98E-03	2.11E-02	6.44E-02	1.86E-01	1.27E-01	3.60E-02	2.72E-01	1.43E-01	7.76E-02	8.78E-02	6.21E-02	0.00E+00	0.00E+00	0.00E+00	0.0			

FILE 15, CALCULATED JWS OUTLET FLUX

FIRSE SEQ NO	EXP NO	AVERAGE PARTICLE DIAMETER BY GEOMETRIC SIZE RANGE																		
		0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.10	1.47	2.37	3.35	4.74	6.70	9.48	13.40	19.95	26.80	37.90	
1	55	11	6.14E-15	3.39E-13	2.49E-12	5.40E-12	8.54E-12	1.61E-11	2.28E-11	1.98E-11	6.94E-11	5.04E-11	5.13E-11	6.65E-11	6.04E-11	1.45E-10	2.73E-10	0.00E+00	0.00E+00	0.00E+00
2	56	22	0.00E+00	1.99E-13	1.22E-12	2.66E-12	4.05E-12	4.77E-12	3.60E-12	5.09E-12	2.15E-11	2.40E-11	1.97E-11	3.10E-11	8.70E-12	9.93E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	57	20	1.72E-15	5.26E-14	5.32E-13	1.33E-12	1.23E-12	1.64E-12	1.41E-12	2.00E-12	9.95E-12	7.76E-12	6.67E-12	5.40E-12	6.09E-12	4.87E-12	0.00E+00	0.00E+00	1.10E-10	0.00E+00
4	58	8	2.89E-13	3.27E-12	1.06E-11	2.18E-11	2.32E-11	5.66E-11	6.16E-11	1.39E-10	2.20E-10	2.39E-10	2.85E-10	2.12E-10	4.81E-10	3.40E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	59	12	5.08E-15	4.60E-14	2.03E-13	5.06E-13	8.45E-13	1.10E-12	1.56E-12	1.47E-12	5.39E-12	8.75E-12	1.59E-11	1.97E-11	3.55E-11	1.72E-10	1.22E-10	0.00E+00	3.25E-10	0.00E+00
6	60	9	2.18E-13	2.15E-12	7.30E-12	1.14E-11	1.07E-11	1.10E-11	9.66E-12	1.21E-11	4.71E-11	2.73E-11	2.62E-11	4.07E-11	4.19E-11	2.96E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	61	6	2.44E-13	9.95E-13	3.47E-12	1.53E-11	4.16E-11	7.05E-11	8.32E-11	1.96E-10	1.76E-10	4.91E-10	7.11E-10	1.00E-09	9.47E-10	1.15E-09	1.08E-09	0.00E+00	0.60E-09	0.00E+00
8	62	24	1.34E-14	5.28E-14	3.23E-13	9.46E-13	2.10E-12	7.04E-12	1.61E-11	2.92E-11	7.00E-11	1.45E-10	2.23E-10	3.10E-10	4.59E-10	5.38E-10	2.67E-10	0.00E+00	0.00E+00	0.00E+00
9	63	21	4.33E-15	8.57E-14	1.02E-12	2.59E-12	3.79E-12	2.07E-12	2.58E-12	5.22E-12	2.95E-11	5.43E-11	5.32E-11	6.50E-11	2.88E-11	8.15E-11	2.80E-11	0.00E+00	2.31E-10	0.00E+00
10	64	1	5.17E-14	5.85E-13	3.31E-12	1.40E-11	1.74E-11	2.57E-11	7.28E-11	1.12E-10	3.62E-10	6.62E-10	8.64E-10	6.40E-10	1.16E-09	5.40E-10	1.83E-09	1.46E-09	0.00E+00	0.00E+00
11	65	15	1.19E-13	1.53E-12	4.39E-12	6.52E-12	6.32E-12	9.05E-12	1.75E-11	4.09E-11	9.26E-11	2.02E-10	2.79E-10	3.03E-10	3.83E-10	3.70E-10	4.03E-10	0.00E+00	0.00E+00	0.00E+00
12	66	16	3.20E-14	2.17E-13	7.04E-13	1.20E-12	1.43E-12	2.90E-12	4.10E-12	1.15E-11	2.96E-11	6.18E-11	7.90E-11	1.44E-10	1.36E-10	1.13E-10	1.28E-10	0.00E+00	0.00E+00	0.00E+00
13	67	4	7.51E-13	2.58E-12	1.85E-11	6.31E-11	3.43E-10	7.07E-10	1.10E-09	1.55E-09	1.60E-09	1.82E-09	1.47E-09	1.33E-09	2.41E-09	2.29E-09	4.29E-09	6.07E-09	1.72E-08	0.00E+00
14	68	10	1.00E-13	2.25E-12	2.24E-11	1.27E-10	3.75E-10	7.33E-10	1.23E-09	1.18E-09	3.51E-09	3.03E-09	1.53E-09	1.04E-09	1.39E-09	9.24E-10	1.31E-09	0.00E+00	0.00E+00	0.00E+00
15	69	14	4.77E-14	1.72E-12	1.85E-11	8.37E-11	1.86E-10	3.11E-10	2.84E-10	1.90E-10	1.07E-09	6.05E-10	2.68E-10	1.58E-10	3.29E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	70	3	0.00E+00	2.02E-12	1.68E-11	1.17E-10	3.87E-10	7.82E-10	1.10E-09	1.40E-09	1.17E-09	7.69E-09	2.23E-09	1.70E-09	2.73E-09	2.96E-09	5.03E-09	0.00E+00	0.00E+00	0.00E+00
17	71	13	7.18E-14	8.63E-13	5.74E-12	2.90E-11	9.02E-11	1.50E-10	1.79E-10	9.10E-11	5.33E-10	2.22E-10	8.41E-11	7.93E-11	8.97E-11	0.00E+00	3.57E-10	0.00E+00	2.87E-09	0.00E+00
18	72	2	1.57E-14	7.48E-13	8.89E-12	3.65E-11	5.52E-11	5.11E-11	2.41E-11	1.13E-11	2.94E-11	7.61E-11	2.45E-11	8.31E-11	7.83E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	73	23	4.66E-13	1.12E-11	7.09E-11	2.22E-10	4.63E-10	1.39E-09	2.98E-09	5.74E-09	1.43E-08	3.05E-08	4.86E-08	3.96E-08	3.73E-08	1.65E-08	3.73E-08	0.00E+00	0.00E+00	0.00E+00
20	74	18	2.53E-13	2.13E-11	2.18E-10	6.48E-10	1.25E-09	2.18E-09	2.47E-09	4.36E-09	1.49E-08	1.71E-08	1.27E-08	1.33E-08	9.79E-09	8.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	75	19	4.83E-14	1.18E-12	8.16E-12	2.41E-11	5.64E-11	1.30E-10	2.49E-10	8.73E-10	1.84E-09	5.43E-09	7.40E-09	9.25E-09	6.72E-09	8.52E-09	8.34E-09	5.24E-09	7.41E-09	0.00E+00
22	76	7	7.53E-14	2.13E-11	1.23E-10	3.48E-10	7.72E-10	1.64E-09	2.93E-09	6.76E-09	1.64E-08	2.12E-08	3.06E-08	3.83E-08	5.57E-08	1.11E-07	6.63E-08	1.36E-07	4.82E-08	2.73E-07
23	77	17	4.17E-13	3.27E-12	7.72E-11	1.79E-10	4.23E-10	5.29E-10	9.46E-10	1.38E-09	4.98E-09	1.03E-08	1.51E-08	2.20E-08	2.83E-08	2.95E-08	3.33E-08	2.69E-08	0.00E+00	0.00E+00
24	78	5	1.92E-13	6.01E-13	6.95E-12	2.25E-11	5.56E-11	1.38E-10	3.18E-10	4.62E-10	1.14E-09	1.63E-09	1.73E-09	1.78E-09	1.51E-09	3.51E-09	7.04E-09	3.61E-08	0.00E+00	0.00E+00
25	79	44	1.49E-14	3.37E-14	5.47E-13	2.02E-12	4.74E-12	9.69E-12	4.57E-12	4.31E-12	5.34E-11	4.77E-11	4.83E-11	3.15E-11	4.46E-11	4.20E-11	0.00E+00	0.00E+00	9.51E-10	0.00E+00
26	80	27	3.83E-14	2.92E-13	1.71E-12	7.19E-12	1.62E-11	1.87E-11	1.75E-11	5.54E-12	7.10E-11	6.34E-11	3.59E-11	5.41E-11	5.74E-11	5.41E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	81	30	8.49E-15	3.20E-14	3.50E-13	1.31E-12	3.07E-12	2.81E-12	5.06E-12	4.09E-12	7.17E-12	1.15E-11	1.50E-11	1.25E-11	7.06E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	82	42	6.24E-14	8.05E-13	3.50E-12	1.13E-11	2.40E-11	8.49E-11	9.61E-11	1.81E-10	1.03E-10	2.00E-10	3.13E-10	6.63E-10	4.63E-10	0.00E+00	1.25E-09	0.00E+00	0.00E+00	0.00E+00
29	83	31	9.02E-15	6.40E-14	3.93E-13	1.41E-12	3.35E-12	6.52E-12	7.54E-12	7.11E-12	1.83E-11	1.16E-11	2.76E-11	3.18E-11	3.27E-11	1.35E-10	1.31E-10	0.00E+00	0.00E+00	0.00E+00
30	84	25	2.07E-15	2.68E-14	1.13E-13	2.60E-13	4.23E-13	7.20E-13	1.18E-12	3.33E-12	1.03E-11	1.10E-11	1.11E-11	1.52E-11	1.58E-11	1.22E-11	1.15E-11	0.00E+00	0.00E+00	0.00E+00
31	85	29	8.24E-14	5.32E-13	2.51E-12	1.08E-11	1.29E-11	3.22E-11	2.14E-11	6.05E-11	7.34E-11	1.30E-10	2.28E-10	2.95E-10	2.61E-10	4.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	86	40	1.20E-14	1.53E-13	2.21E-12	1.28E-11	1.73E-11	3.48E-11	1.54E-11	4.35E-11	1.87E-10	2.85E-10	4.46E-10	3.92E-10	2.10E-10	4.24E-10	2.49E-10	0.00E+00	0.00E+00	0.00E+00
33	87	28	1.14E-14	2.08E-13	1.20E-12	2.67E-12	4.07E-12	4.18E-12	3.49E-12	6.58E-12	1.22E-11	2.67E-11	4.11E-11	5.40E-11	4.92E-11	9.08E-11	9.08E-11	0.00E+00	0.00E+00	0.00E+00
34	88	36	2.49E-14	1.08E-13	1.46E-12	9.57E-12	2.71E-11	4.05E-11	2.97E-11	1.20E-10	2.81E-10	3.33E-10	2.90E-10	3.95E-10	4.97E-10	2.34E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	89	39	5.21E-15	3.94E-13	2.17E-12	5.16E-12	7.17E-12	3.77E-12	1.73E-11	7.54E-12	3.94E-11	9.82E-11	1.11E-10	1.06E-10	1.17E-10	1.47E-10	1.04E-10	0.00E+00	0.00E+00	0.00E+00
36	90	37	1.82E-15	6.69E-14	6.11E-13	1.89E-12	2.55E-12	1.95E-12	6.52E-12	2.64E-12	1.83E-11	3.66E-11	4.64E-11	9.00E-11	9.18E-11	2.57E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	91	41	0.00E+00	3.93E-13	1.78E-11	2.39E-10	9.07E-10	1.74E-09	3.20E-09	3.82E-09	1.32E-08	8.87E-09	5.47E-09	1.96E-09	6.94E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	92	46	1.52E-13	2.80E-12	4.02E-11	1.87E-10	5.07E-10	1.89E-09	1.95E-09	1.10E-09	1.54E-09	1.33E-09	1.28E-09	4.04E-10	3.81E-10	1.08E-09	8.00E+00	0.00E+00	0.00E+00	0.00E+00
39	93	45	2.52E-13	4.12E-12	2.76E-11	9.92E-11	2.10E-10	3.09E-10	2.44E-10	2.23E-10	2.46E-10	2.43E-10	1.64E-10	1.90E-10	1.40E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	94	26	4.68E-13	3.70E-12	3.14E-11	1.71E-10	5.27E-10	1.13E-09	1.63E-09	9.48E-10	9.40E-09	2.02E-09	5.25E-10	0.00E+00	1.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	95	32	1.93E-14	3.20E-13	7.73E-12	5.16E-11	1.74E-10	3.43E-10	4.25E-10	3.92E-10	7.63E-10	2.39E-10	3.62E-11	1.02E-10	0.00E+00	0.00E+00	0.00E+00	2.11E-09	0.00E+00	0.00E+00
42	96	35	1.89E-14	5.61E-13	4.33E-12	3.04E-11	9.34E-11	1.53E-10	1.05E-10	5.22E-11	2.94E-10	2.07E-10	1.13E-10	1.27E-10	9.01E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	97	38	0.00E+00	6.66E-12	1.45E-10	9.20E-10	2.55E-09	3.35E-09	5.34E-09	5.35E-09	3.70E-08	3.67E-08	2.81E-08	2.67E-08	1.81E-08	1.43E-08	1.34E-08	0.00E+00	0.00E+00	0.00E+00
44	98	43	8.93E-13	1.87E-11	1.74E-10	7.40E-10	1.41E-09	2.97E-09	3.20E-09	4.91E-09	1.33E-08	1.71E-08	1.37E-08	1.26E-08	8.93E-09	2.52E-09	7.14E-09	0.00E+00	0.00E+00	0.00E+00
45	99	48	5.54E-13	3.86E-12	2.31E-11	4.19E-11	6.98E-11	1.68E-10	6.90E-10	1.50E-09	4.07E-09	8.24E-09	1.18E-08	1.46E-08	1.88E-08	2.31E-08	1.94E-08	1.23E-08	3.49E-08	0.00E+00
46	100	47	4.88E-12	4.93E-11	1.89E-10	1.04E-09	2.31E-09	3.83E-09	5.10E-09	0.00E+00	1.31E-08	1.54E-08	1.71E-08	1.54E-08	6.22E-09	1.76E-08	9.90E-08			

FILE #6. AVERAGED MASS FLUX OF DUPLICATE EXPERIMENTS

I	D	C	T	PARTICLE DIAMETER IN MICRONS BY GEOMETRIC SIZE RANGE																	
				0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70	9.48	13.40	18.95	26.80	37.90
TE	L	ON	30	1.09E-14	1.86E-13	1.52E-12	3.72E-12	6.65E-12	1.29E-11	1.37E-11	1.21E-11	6.14E-11	4.67E-11	4.98E-11	4.90E-11	5.65E-11	9.35E-11	1.37E-10	0.00E+00	4.76E-10	0.00E+00
TE	L	ON	120	1.91E-14	2.45E-13	1.47E-12	4.92E-12	1.01E-11	1.17E-11	1.06E-11	5.31E-12	5.32E-11	4.37E-11	2.78E-11	4.26E-11	3.31E-11	7.67E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TE	L	ON	480	5.10E-15	4.23E-14	4.41E-13	1.32E-12	2.15E-12	2.25E-12	3.24E-12	3.04E-12	8.56E-12	9.65E-12	1.08E-11	8.98E-12	6.97E-12	2.43E-12	0.00E+00	0.00E+00	5.51E-11	0.00E+00
TE	L	OFF	30	1.76E-13	2.08E-12	7.04E-12	1.65E-11	2.66E-11	7.08E-11	7.88E-11	1.60E-10	1.61E-10	2.20E-10	2.99E-10	4.38E-10	4.75E-10	1.70E-10	6.25E-10	0.00E+00	0.00E+00	0.00E+00
TE	L	OFF	120	7.45E-15	5.54E-14	2.98E-13	9.56E-13	2.10E-12	3.81E-12	4.55E-12	4.29E-12	7.87E-12	1.02E-11	2.17E-11	2.58E-11	3.41E-11	1.56E-10	1.26E-10	0.00E+00	1.62E-10	0.00E+00
TE	L	OFF	480	1.10E-13	1.09E-12	4.00E-12	5.82E-12	5.58E-12	5.87E-12	5.42E-12	7.73E-12	2.97E-11	1.94E-11	1.87E-11	2.80E-11	2.88E-11	2.09E-11	5.74E-12	0.00E+00	0.00E+00	0.00E+00
TE	F	ON	30	1.64E-13	7.64E-13	2.99E-12	1.30E-11	2.68E-11	5.53E-11	5.23E-11	1.28E-10	1.24E-10	3.15E-10	4.70E-10	6.50E-10	6.04E-10	7.96E-10	5.41E-10	0.00E+00	0.00E+00	0.00E+00
TE	F	ON	120	1.27E-14	1.03E-13	1.27E-12	6.86E-12	9.69E-12	2.13E-11	1.57E-11	3.63E-11	1.28E-10	2.15E-10	3.35E-10	3.51E-10	3.34E-10	4.81E-10	2.54E-10	0.00E+00	0.00E+00	0.00E+00
TE	F	ON	480	7.84E-15	1.47E-13	1.11E-12	2.63E-12	3.93E-12	3.49E-12	3.04E-12	5.90E-12	2.09E-11	4.05E-11	4.71E-11	5.99E-11	3.90E-11	6.22E-11	5.98E-11	0.00E+00	1.15E-10	0.00E+00
TE	F	OFF	30	3.83E-14	3.86E-13	2.38E-12	1.18E-11	2.22E-11	3.31E-11	5.13E-11	1.16E-10	2.91E-10	4.98E-10	5.77E-10	5.17E-10	8.30E-10	3.91E-10	5.17E-10	7.31E-10	0.00E+00	0.00E+00
TE	F	OFF	120	6.21E-14	9.66E-13	3.28E-12	5.85E-12	6.74E-12	6.81E-12	1.74E-11	2.42E-11	6.61E-11	1.46E-10	1.95E-10	2.04E-10	2.50E-10	2.59E-10	2.53E-10	0.00E+00	0.00E+00	0.00E+00
TE	F	OFF	480	1.69E-14	1.42E-13	6.58E-13	1.54E-12	2.00E-12	2.27E-12	5.31E-12	7.11E-12	2.40E-11	5.17E-11	6.28E-11	1.17E-10	1.09E-10	6.94E-11	6.40E-11	0.00E+00	0.00E+00	0.00E+00
II	L	ON	30	3.76E-13	1.49E-12	1.81E-11	1.51E-10	6.25E-10	1.26E-09	2.15E-09	2.69E-09	7.39E-09	5.35E-09	3.47E-09	1.65E-09	1.55E-09	1.14E-09	2.14E-09	3.03E-09	8.58E-09	0.00E+00
II	L	ON	120	1.66E-13	2.53E-12	3.13E-11	1.47E-10	4.41E-10	9.11E-10	1.59E-09	1.14E-09	2.54E-09	2.18E-09	1.41E-09	7.21E-10	8.84E-10	1.00E-09	6.53E-10	0.00E+00	0.00E+00	0.00E+00
II	L	ON	480	1.50E-13	2.92E-12	2.30E-11	9.14E-11	1.98E-10	3.10E-10	2.64E-10	2.07E-10	6.56E-10	4.34E-10	2.17E-10	1.78E-10	2.34E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
II	L	OFF	30	2.34E-13	2.86E-12	2.41E-11	1.44E-10	4.57E-10	9.58E-10	1.36E-09	1.17E-09	1.15E-08	4.84E-09	1.38E-09	8.52E-10	2.06E-09	1.48E-09	2.52E-09	0.00E+00	0.00E+00	0.00E+00
II	L	OFF	120	4.56E-14	5.95E-13	6.74E-12	4.03E-11	1.32E-10	2.50E-10	3.02E-10	2.41E-10	6.48E-10	2.30E-10	6.01E-11	9.08E-11	4.48E-11	0.00E+00	1.79E-10	1.09E-09	1.43E-09	0.00E+00
II	L	OFF	480	1.68E-14	6.79E-13	6.49E-12	3.34E-11	7.43E-11	1.02E-10	1.04E-10	3.18E-11	3.44E-10	1.42E-10	6.85E-11	1.05E-10	8.42E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
II	F	ON	30	2.33E-13	8.93E-12	1.08E-10	5.71E-10	1.51E-09	2.37E-09	4.16E-09	5.55E-09	2.67E-08	3.76E-08	3.82E-08	3.77E-08	2.48E-08	1.54E-08	2.54E-08	0.00E+00	0.00E+00	0.00E+00
II	F	ON	120	8.23E-13	2.00E-11	1.96E-10	6.94E-10	1.33E-09	2.08E-09	2.83E-09	4.64E-09	1.41E-08	1.74E-08	1.32E-08	1.30E-08	9.36E-09	5.52E-09	3.57E-09	0.00E+00	0.00E+00	0.00E+00
II	F	ON	480	3.50E-13	2.52E-12	1.56E-11	3.30E-11	6.31E-11	1.49E-10	4.74E-10	1.19E-09	2.96E-09	6.83E-09	9.61E-09	1.19E-08	1.28E-08	1.58E-08	1.40E-08	8.78E-09	2.11E-08	0.00E+00
II	F	OFF	30	2.87E-12	3.53E-11	1.58E-10	6.95E-10	1.54E-09	2.73E-09	4.02E-09	3.38E-09	1.18E-08	1.83E-08	2.39E-08	2.69E-08	3.10E-08	6.42E-08	8.29E-08	6.82E-08	2.41E-08	1.36E-07
II	F	OFF	120	2.21E-13	4.99E-12	4.42E-11	1.15E-10	2.77E-10	3.50E-10	5.81E-10	8.16E-10	2.89E-09	5.85E-09	8.78E-09	1.32E-08	1.70E-08	1.79E-08	2.06E-08	1.91E-08	0.00E+00	0.00E+00
II	F	OFF	480	1.76E-13	1.56E-12	9.75E-12	5.74E-11	8.98E-11	1.35E-10	1.72E-10	2.69E-10	7.57E-10	1.16E-09	1.55E-09	1.72E-09	2.19E-09	2.12E-09	3.54E-09	1.80E-08	0.00E+00	0.00E+00

TABLE AT. LOGARITHMS OF AVERAGED MEASURED AND CALCULATED DATA

J	D	C	T	LOG MEASURED FLUX NT	MEASURED OUTLET FLUX NT	LOG CALCULATED M ² 2V/T CALC	CALCULATED M ² 2V/T CALC	AVERAGE PARTICLE SIZE IN MICRONS BY GEOMETRIC SIZE RANGE												
				G/g/m2s	G/g/m2s	G/g2/m3s2	G/g2/m3s2	0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70
IFE	LIM	ON	30	-8.9914	1.02E-09	-5.5999	2.51E-06	-13.9643	-12.7302	-11.8186	-11.4297	-11.1773	-10.8896	-10.8643	-10.9187	-10.2117	-10.3311	-10.3028	-10.3098	-10.2481
IFE	LIM	ON	120	-9.4928	3.22E-10	-5.9192	1.20E-06	-13.7182	-12.6100	-11.8332	-11.3076	-10.9955	-10.9305	-10.9741	-11.2746	-10.2737	-10.3594	-10.5560	-10.3710	-10.4806
IFE	LIM	ON	480	-9.9393	1.15E-10	-6.2615	5.48E-07	-14.2925	-13.3738	-12.3555	-11.8789	-11.6667	-11.6481	-11.4898	-11.5166	-11.0675	-11.0154	-10.9651	-11.0468	-11.1566
IFE	LIM	OFF	30	-8.5607	2.75E-09	-5.3053	4.95E-06	-12.7555	-11.6830	-11.1522	-10.7813	-10.5745	-10.1502	-10.1033	-9.7952	-9.7928	-9.6582	-9.5243	-9.3587	-9.3235
IFE	LIM	OFF	120	-9.2518	5.60E-10	-5.7721	1.69E-06	-14.1279	-13.2566	-12.5259	-12.0194	-11.6781	-11.4191	-11.3419	-11.3675	-11.1040	-10.9933	-10.6629	-10.5889	-10.4670
IFE	LIM	OFF	480	-9.7282	1.87E-10	-6.1222	7.55E-07	-12.9569	-11.9640	-11.3974	-11.2350	-11.2536	-11.2317	-11.2662	-11.1116	-10.5270	-10.7088	-10.7292	-10.5532	-10.5400
IFE	FLY	ON	30	-8.4225	3.78E-09	-4.9473	1.13E-05	-12.7859	-12.1169	-11.5246	-10.8866	-10.5715	-10.2572	-10.2814	-9.8916	-9.9049	-9.5024	-9.3283	-9.1870	-9.2187
IFE	FLY	ON	120	-8.6596	2.19E-09	-5.3161	4.83E-06	-13.8954	-12.9880	-11.8977	-11.1639	-11.0135	-10.6715	-10.8038	-10.4398	-9.8920	-9.6678	-9.4756	-9.4545	-9.4757
IFE	FLY	ON	480	-9.3325	4.65E-10	-5.3728	4.24E-06	-14.1056	-12.8336	-11.9558	-11.5795	-11.4059	-11.4570	-11.5176	-11.2292	-10.6805	-10.3922	-10.3266	-10.2225	-10.4089
IFE	FLY	OFF	30	-8.3382	4.59E-09	-5.3152	4.84E-06	-13.4169	-12.4130	-11.6226	-10.9280	-10.6533	-10.4798	-10.2902	-9.9348	-9.5355	-9.3030	-9.2388	-9.2861	-9.0809
IFE	FLY	OFF	120	-8.8419	1.44E-09	-5.6848	2.07E-06	-13.2072	-12.0152	-11.4847	-11.2326	-11.1712	-11.1668	-10.7585	-10.6162	-10.1795	-9.8352	-9.7099	-9.6899	-9.6022
IFE	FLY	OFF	480	-9.2865	5.17E-10	-5.9576	1.10E-06	-13.7716	-12.8473	-12.1818	-11.8111	-11.6993	-11.6435	-11.2749	-11.1479	-10.6202	-10.2866	-10.2020	-9.9313	-9.9629
IT	LIM	ON	30	-7.3851	4.12E-08	-4.9538	1.11E-05	-12.4253	-11.8278	-10.7418	-9.8209	-9.2039	-8.8992	-8.6675	-8.5705	-8.1313	-8.2719	-8.4595	-8.7837	-8.8086
IT	LIM	ON	120	-7.8649	1.37E-08	-5.3670	4.30E-06	-12.7798	-11.5964	-10.5046	-9.8326	-9.3553	-9.0402	-8.7986	-8.9419	-8.5958	-8.6616	-8.8515	-9.1418	-9.0534
IT	LIM	ON	480	-8.5505	2.81E-09	-5.6646	2.16E-06	-12.8242	-11.5346	-10.6376	-10.0389	-9.7033	-9.5085	-9.5786	-9.6850	-9.1831	-9.3628	-9.6631	-9.7496	-9.6310
IT	LIM	OFF	30	-7.5406	2.88E-08	-4.8462	1.43E-05	-12.6310	-11.5435	-10.6178	-9.8413	-9.3403	-9.0184	-8.8658	-8.9307	-7.9382	-8.3136	-8.8612	-9.0694	-8.6853
IT	LIM	OFF	120	-8.3228	4.76E-09	-5.3102	4.90E-06	-13.3415	-12.2252	-11.1716	-10.3945	-9.8785	-9.6017	-9.5195	-9.6173	-9.1882	-9.6374	-10.2208	-10.0417	-10.3484
IT	LIM	OFF	480	-8.9598	1.10E-09	-5.4368	3.66E-06	-13.7734	-12.1679	-11.1878	-10.4742	-10.1290	-9.9905	-9.9816	-10.4979	-9.4632	-9.8491	-10.1642	-9.9779	-10.0747
IT	FLY	ON	30	-6.6576	2.20E-07	-4.1250	7.50E-05	-12.6323	-11.0490	-9.9664	-9.2434	-8.8206	-8.6253	-8.3809	-8.2559	-7.5728	-7.4252	-7.4183	-7.4240	-7.6047
IT	FLY	ON	120	-7.0560	8.79E-08	-4.4944	3.20E-05	-12.0845	-10.6990	-9.7072	-9.1589	-8.8762	-8.6826	-8.5475	-8.3336	-7.8505	-7.7601	-7.8790	-7.8872	-8.0289
IT	FLY	ON	480	-6.9757	1.06E-07	-4.5697	2.69E-05	-12.4556	-11.5990	-10.8058	-10.4810	-10.2001	-9.8271	-9.3247	-8.9258	-8.5281	-8.1654	-8.0174	-7.9228	-7.8942
IT	FLY	OFF	30	-6.3010	5.00E-07	-4.0131	9.70E-05	-11.5424	-10.4520	-9.8065	-9.1578	-8.8120	-8.5631	-8.3961	-8.4708	-7.9290	-7.7371	-7.6225	-7.5707	-7.5090
IT	FLY	OFF	120	-6.9686	1.08E-07	-4.5494	2.82E-05	-12.6557	-11.3023	-10.3548	-9.9395	-9.5578	-9.4563	-9.2358	-9.0882	-8.5387	-8.2327	-8.0563	-7.8810	-7.7696
IT	FLY	OFF	480	-7.4974	3.18E-08	-4.8291	1.48E-05	-12.7545	-11.8071	-11.0108	-10.2409	-10.0469	-9.8687	-9.7641	-9.5705	-9.1207	-8.9344	-8.8097	-8.7633	-8.6593

FILE #4. SYSTAT DATA FILE

CODE DOCT)	B	D	C	T	NT	CALC	PRESS	AREAL	FRACT	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13
1111	1	1	1	1	-8.9914	-5.5999	798	0.0317	0.105	-13.9643	-12.7302	-11.8186	-11.4297	-11.1773	-10.8896	-10.8643	-10.9187	-10.2117	-10.3311	-10.3028	-10.3098	-10.2481
1112	1	1	1	2	-9.4928	-5.9192	1010	0.0439	0.255	-13.7182	-12.6100	-11.8332	-11.3076	-10.9955	-10.9305	-10.9741	-11.2746	-10.2737	-10.3594	-10.5560	-10.3710	-10.4806
1113	1	1	1	3	-9.9393	-6.2615	1209	0.0592	0.505	-14.2925	-13.3738	-12.3555	-11.8769	-11.6667	-11.6481	-11.4890	-11.5166	-11.0675	-11.0154	-10.9651	-11.0468	-11.1566
1121	1	1	2	1	-8.5607	-5.3053	829	0.0445	0.080	-12.7555	-11.6830	-11.1522	-10.7813	-10.5745	-10.1502	-10.1033	-9.7952	-9.7928	-9.6582	-9.5243	-9.3587	-9.3235
1122	1	1	2	2	-9.2518	-5.7721	947	0.0520	0.225	-14.1279	-13.2566	-12.5259	-12.0194	-11.6781	-11.4191	-11.3419	-11.3675	-11.1040	-10.9933	-10.6629	-10.5889	-10.4670
1123	1	1	2	3	-9.7282	-6.1222	1202	0.0695	0.470	-12.9549	-11.9640	-11.3974	-11.2350	-11.2536	-11.2317	-11.2662	-11.1116	-10.5270	-10.7088	-10.7292	-10.5532	-10.5400
1211	1	2	1	1	-8.4225	-4.9473	1065	0.0672	0.055	-12.7859	-12.1169	-11.5246	-10.8866	-10.5715	-10.2572	-10.2814	-9.8916	-9.9049	-9.5024	-9.3283	-9.1870	-9.2187
1212	1	2	1	2	-8.6596	-5.3161	1495	0.0879	0.150	-13.8954	-12.9880	-11.8977	-11.1639	-11.0135	-10.6715	-10.8038	-10.4398	-9.8920	-9.6678	-9.4756	-9.4545	-9.4757
1213	1	2	1	3	-9.3325	-5.3728	1881	0.1647	0.275	-14.1056	-12.8336	-11.9558	-11.5795	-11.4059	-11.4570	-11.5176	-11.2232	-10.6805	-10.3922	-10.3266	-10.2225	-10.4089
1221	1	2	2	1	-8.3382	-5.3152	1022	0.0440	0.085	-13.4169	-12.4130	-11.6226	-10.9280	-10.6533	-10.4798	-10.2902	-9.9340	-9.5355	-9.3030	-9.2388	-9.2861	-9.0809
1222	1	2	2	2	-8.8419	-5.6848	1196	0.0575	0.215	-13.2072	-12.0152	-11.4847	-11.2326	-11.1712	-11.1668	-10.7585	-10.6162	-10.1795	-9.8352	-9.7099	-9.6899	-9.6022
1223	1	2	2	3	-9.2865	-5.9576	1271	0.0840	0.425	-13.7716	-12.8473	-12.1818	-11.8111	-11.6993	-11.6435	-11.2749	-11.1479	-10.6202	-10.2866	-10.2020	-9.9313	-9.9629
2111	2	1	1	1	-7.3851	-4.9538	130	0.0667	0.065	-12.4253	-11.8278	-10.7418	-9.8209	-9.2039	-8.8992	-8.6675	-8.5705	-8.1313	-8.2719	-8.4595	-8.7037	-8.8086
2112	2	1	1	2	-7.8649	-5.3670	244	0.0829	0.155	-12.7798	-11.5964	-10.5046	-9.8326	-9.3553	-9.0402	-8.7986	-8.9419	-8.5958	-8.6616	-8.8515	-9.1418	-9.0534
2113	2	1	1	3	-8.5505	-5.6646	611	0.1177	0.345	-12.8242	-11.5346	-10.6376	-10.0389	-9.7033	-9.5085	-9.5786	-9.6850	-9.1831	-9.3628	-9.6631	-9.7496	-9.6310
2121	2	1	2	1	-7.5406	-4.8462	244	0.0755	0.050	-12.6310	-11.5435	-10.6178	-9.8413	-9.3403	-9.0184	-8.8658	-8.9307	-7.9382	-8.3136	-8.8612	-9.0694	-8.6853
2122	2	1	2	2	-8.3228	-5.3102	293	0.0885	0.145	-13.3415	-12.2252	-11.1716	-10.3945	-9.8785	-9.6017	-9.5195	-9.6173	-9.1882	-9.6374	-10.2208	-10.0417	-10.3484
2123	2	1	2	3	-8.9598	-5.4368	1246	0.1530	0.285	-13.7734	-12.1679	-11.1878	-10.4742	-10.1290	-9.9905	-9.9816	-10.4979	-9.4632	-9.8491	-10.1642	-9.9779	-10.0747
2211	2	2	1	1	-6.6576	-4.1250	238	0.1732	0.020	-12.6323	-11.0490	-9.9664	-9.2434	-8.8206	-8.6253	-8.3809	-8.2559	-7.5728	-7.4252	-7.4183	-7.4240	-7.6047
2212	2	2	1	2	-7.0560	-4.4944	468	0.2264	0.060	-12.0845	-10.6990	-9.7072	-9.1589	-8.8762	-8.6826	-8.5475	-8.3336	-7.8505	-7.7601	-7.8790	-7.8872	-8.0289
2213	2	2	1	3	-6.9757	-4.5697	1893	0.4152	0.130	-12.4556	-11.5990	-10.8058	-10.4810	-10.2001	-9.8271	-9.3247	-8.9258	-8.5281	-8.1654	-8.0174	-7.9228	-7.8942
2221	2	2	2	1	-6.3010	-4.0131	375	0.1970	0.020	-11.5424	-10.4520	-9.8065	-9.1578	-8.8120	-8.5631	-8.3961	-8.4708	-7.9290	-7.7371	-7.6225	-7.5707	-7.5090
2222	2	2	2	2	-6.9606	-4.5494	449	0.2125	0.065	-12.6557	-11.3023	-10.3548	-9.9395	-9.5578	-9.4563	-9.2358	-9.0882	-8.5387	-8.2327	-8.0563	-7.8810	-7.7696
2223	2	2	2	3	-7.4974	-4.8291	823	0.3080	0.170	-12.7545	-11.8071	-11.0108	-10.2409	-10.0469	-9.8687	-9.7641	-9.5705	-9.1207	-8.9344	-8.8097	-8.7633	-8.6593

* BAG TYPE: PTFE LAMINATED FELT FABRIC (1) AND UNTREATED FELT FABRIC (2)

* DUST TYPE: Limestone (1) AND FLY-ASH (2)

* CLEANING MODE: ON-LINE CLEANING (1) AND OFF-LINE CLEANING (2)

* TIME BETWEEN CLEANINGS: 30 sec (1), 120 sec (2), AND 480 sec (3)

TABLE A9. PTFE LAMINATED BAGS MEASURED AND CALCULATED DATA WITH OUTLIERS DELETED

DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	BAG CODE		MEASURED OUTLET FLUX										
					k	n	1111	1112	1113	1121	1122	1123	1211	1212	1221	1222	1223
N1	0.10	-10.3780	4.19E-11	0.432	1.13E-10	0.635	1.09E-14	1.91E-14	5.10E-15	1.76E-13	7.45E-15	1.10E-13	1.64E-13	1.27E-14	3.83E-14	6.21E-14	1.69E-14
N2	0.15	-9.3740	4.23E-10	0.556	1.52E-09	0.659	1.85E-13	2.45E-13	4.23E-14	2.08E-12	5.54E-14	1.09E-12	7.64E-13	1.03E-13	3.84E-13	9.66E-13	1.42E-13
N3	0.21	-9.3950	4.03E-10	0.823	2.68E-09	0.571	1.52E-12	1.47E-12	4.41E-13	7.04E-12	2.98E-13	4.00E-12	2.99E-12	1.27E-12	2.38E-12	3.24E-12	6.58E-13
N4	0.30	-8.8070	1.56E-09	0.969	1.45E-08	0.618	3.72E-12	4.92E-12	1.32E-12	1.65E-11	9.56E-13	5.82E-12	1.30E-11	6.86E-12	1.18E-11	5.85E-12	1.54E-12
N5	0.42	-8.7990	1.59E-09	1.163	2.32E-08	0.618	6.65E-12	1.01E-11	2.15E-12	2.66E-11	2.10E-12	5.58E-12	2.61E-11	9.69E-12	2.22E-11	6.74E-12	2.00E-12
N6	0.59	-8.0760	8.39E-09	1.150	1.19E-07	0.712	1.29E-11	1.17E-11	2.25E-12	7.02E-11	3.81E-12	5.07E-12	5.53E-11	2.13E-11	3.31E-11	6.81E-12	2.27E-12
N7	0.84	-7.8420	1.44E-08	1.208	2.32E-07	0.747	1.37E-11	1.06E-11	3.24E-12	7.88E-11	4.55E-12	5.42E-12	5.23E-11	1.57E-11	5.13E-11	1.74E-11	5.31E-12
N8	1.18	-6.0700	0.51E-07	0.932	7.20E-06	0.989	1.21E-11	5.31E-12	3.04E-12	1.60E-10	4.29E-12	7.73E-12	1.28E-10	3.63E-11	1.14E-10	2.42E-11	7.11E-12
N9	1.67	-6.3430	4.54E-07	1.099	5.70E-06	0.891	6.14E-11	5.32E-11	8.56E-12	1.61E-10	7.87E-12	2.97E-11	1.24E-10	1.28E-10	2.91E-10	6.61E-11	2.40E-11
N10	2.37	-4.0580	8.75E-05	0.706	4.45E-04	1.202	4.67E-11	4.37E-11	9.65E-12	2.20E-10	1.02E-11	1.94E-11	3.15E-10	2.15E-10	4.98E-10	1.46E-10	5.17E-11
N11	3.35	-2.1020	7.91E-03	0.275	1.49E-02	1.457	4.98E-11	2.78E-11	1.08E-11	2.99E-10	2.17E-11	1.87E-11	4.70E-10	3.35E-10	5.77E-10	1.95E-10	6.28E-11
N12	4.74	-1.4660	3.42E-02	0.100	4.31E-02	1.523	4.90E-11	4.26E-11	8.98E-12	4.38E-10	2.58E-11	2.00E-11	6.50E-10	3.51E-10	5.17E-10	2.04E-10	1.17E-10
N13	6.70	-1.3850	4.12E-02	0.094	5.12E-02	1.533	5.65E-11	3.31E-11	6.97E-12	4.75E-10	3.41E-11	2.88E-11	6.04E-10	3.34E-10	8.30E-10	2.50E-10	1.09E-10

DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	k	n	CALCULATED OUTLET FLUX FROM STATISTICS										
							2.51E-04	1.20E-06	5.48E-07	4.95E-06	1.69E-06	7.55E-07	1.13E-05	4.83E-06	4.84E-06	2.07E-06	1.10E-06
							1111	1112	1113	1121	1122	1123	1211	1212	1221	1222	1223
N1	0.10	-10.3780	4.19E-11	0.432	1.13E-10	0.635	3.15E-14	1.97E-14	1.20E-14	4.84E-14	2.45E-14	1.47E-14	8.17E-14	4.77E-14	4.77E-14	2.78E-14	1.87E-14
N2	0.15	-9.3740	4.23E-10	0.556	1.52E-09	0.659	3.10E-13	1.91E-13	1.14E-13	4.85E-13	2.39E-13	1.40E-13	8.35E-13	4.77E-13	4.78E-13	2.73E-13	1.80E-13
N3	0.21	-9.3950	4.03E-10	0.823	2.68E-09	0.571	1.70E-12	1.12E-12	7.12E-13	2.50E-12	1.34E-12	8.55E-13	4.01E-12	2.47E-12	2.47E-12	1.52E-12	1.06E-12
N4	0.30	-8.8070	1.56E-09	0.969	1.45E-08	0.618	5.03E-12	3.19E-12	1.96E-12	7.64E-12	3.93E-12	2.39E-12	1.27E-11	7.53E-12	7.54E-12	4.45E-12	3.02E-12
N5	0.42	-8.7990	1.59E-09	1.163	2.32E-08	0.618	8.02E-12	5.09E-12	3.13E-12	1.22E-11	6.28E-12	3.81E-12	2.03E-11	1.20E-11	1.20E-11	7.11E-12	4.82E-12
N6	0.59	-8.0760	8.39E-09	1.150	1.19E-07	0.712	1.22E-11	7.24E-12	4.13E-12	1.98E-11	9.21E-12	5.19E-12	3.56E-11	1.94E-11	1.95E-11	1.06E-11	6.79E-12
N7	0.84	-7.8420	1.44E-08	1.208	2.32E-07	0.747	1.52E-11	8.80E-12	4.88E-12	2.53E-11	1.13E-11	6.20E-12	4.68E-11	2.48E-11	2.49E-11	1.32E-11	8.23E-12
N8	1.18	-6.0700	8.51E-07	0.932	7.28E-06	0.989	2.11E-11	1.02E-11	4.67E-12	4.12E-11	1.42E-11	6.41E-12	9.31E-11	4.02E-11	4.03E-11	1.74E-11	9.33E-12
N9	1.67	-6.3430	4.54E-07	1.099	5.70E-06	0.891	5.84E-11	3.03E-11	1.50E-11	1.07E-10	4.10E-11	2.09E-11	2.23E-10	1.05E-10	1.05E-10	4.91E-11	2.80E-11
N10	2.37	-4.0580	8.75E-05	0.706	4.45E-04	1.202	8.26E-11	3.41E-11	1.32E-11	1.87E-10	5.13E-11	1.95E-11	5.03E-10	1.81E-10	1.82E-10	6.53E-11	3.07E-11
N11	3.35	-2.1020	7.91E-03	0.275	1.49E-02	1.457	1.03E-10	3.54E-11	1.12E-11	2.77E-10	5.79E-11	1.79E-11	9.22E-10	2.68E-10	2.68E-10	7.77E-11	3.11E-11
N12	4.74	-1.4660	3.42E-02	0.100	4.31E-02	1.523	1.27E-10	4.16E-11	1.25E-11	3.58E-10	6.97E-11	2.04E-11	1.28E-09	3.45E-10	3.46E-10	9.46E-11	3.64E-11
N13	6.70	-1.3850	4.12E-02	0.094	5.12E-02	1.533	1.33E-10	4.31E-11	1.29E-11	3.77E-10	7.25E-11	2.11E-11	1.33E-09	3.63E-10	3.64E-10	9.87E-11	3.77E-11

CALCULATED OUTLET FLUX FROM GRAPHS OF MODEL STATISTICS (POWER FUNCTIONS)																
	DIAM	k	CALC n	2.51E-04 1111	1.20E-06 1112	5.48E-07 1113	4.95E-06 1121	1.69E-06 1122	7.55E-07 1123	1.13E-05 1211	4.83E-06 1212	4.84E-06 1221	2.07E-06 1222	1.10E-06 1223		
N(d1) = k*(CALC)*n	0.10	6.74E-11	0.507	9.80E-14	6.75E-14	4.53E-14	1.38E-13	8.02E-14	5.33E-14	2.10E-13	1.36E-13	1.37E-13	8.88E-14	6.46E-14		
	0.15	4.75E-10	0.562	3.38E-13	2.23E-13	1.43E-13	4.94E-13	2.70E-13	1.72E-13	7.88E-13	4.87E-13	4.88E-13	3.02E-13	2.12E-13		
CALC = M*2*U/T	0.21	2.41E-09	0.613	8.88E-13	5.66E-13	3.49E-13	1.35E-12	6.94E-13	4.25E-13	2.23E-12	1.33E-12	1.33E-12	7.07E-13	5.34E-13		
	0.30	1.34E-08	0.672	2.32E-12	1.42E-12	8.33E-13	3.66E-12	1.78E-12	1.03E-12	6.37E-12	3.60E-12	3.60E-12	2.03E-12	1.33E-12		
k = 4.45X10 ⁻⁶ *X(DIAM) ^{0.482}	0.42	6.80E-08	0.733	5.37E-12	3.15E-12	1.76E-12	8.82E-12	4.01E-12	2.22E-12	1.81E-11	8.66E-12	8.68E-12	4.65E-12	2.94E-12		
	0.59	3.50E-07	0.799	1.17E-11	6.48E-12	3.45E-12	2.01E-11	8.49E-12	4.46E-12	3.88E-11	1.97E-11	1.97E-11	9.98E-12	6.04E-12		
n = 0.9456X(DIAM) ^{0.257}	0.84	1.92E-06	0.875	2.40E-11	1.26E-11	6.33E-12	4.35E-11	1.70E-11	8.39E-12	8.96E-11	4.26E-11	4.27E-11	2.03E-11	1.17E-11		
	1.18	9.88E-06	0.955	4.41E-11	2.19E-11	1.03E-11	8.44E-11	3.02E-11	1.40E-11	1.85E-10	8.24E-11	8.26E-11	3.66E-11	2.01E-11		
	1.67	5.27E-05	1.045	7.45E-11	3.46E-11	1.52E-11	1.51E-10	4.92E-11	2.12E-11	3.58E-10	1.47E-10	1.48E-10	6.08E-11	3.15E-11		
	2.37	2.85E-04	1.143	1.13E-10	4.89E-11	1.99E-11	2.46E-10	7.20E-11	2.87E-11	6.31E-10	2.39E-10	2.40E-10	9.07E-11	4.42E-11		
	3.35	1.51E-03	1.249	1.53E-10	6.09E-11	2.27E-11	3.58E-10	9.30E-11	3.40E-11	9.97E-10	3.45E-10	3.46E-10	1.20E-10	5.45E-11		
	4.74	8.05E-03	1.366	1.81E-10	6.63E-11	2.20E-11	4.57E-10	1.05E-10	3.50E-11	1.41E-09	4.41E-10	4.43E-10	1.38E-10	5.87E-11		
	6.70	4.27E-02	1.493	1.86E-10	6.22E-11	1.92E-11	5.13E-10	1.03E-10	3.10E-11	1.78E-09	4.94E-10	4.96E-10	1.39E-10	5.45E-11		

TABLE A10. UNFITTED DATA MEASURED AND CALCULATED DATA WITH OUTLIERS DELETED

DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	k	n	BAG CODE			MEASURED OUTLET FLUX								
							2111	2112	2113	2121	2122	2211	2212	2213	2221	2222	2223	
N1	0.10	-10.3780	4.19E-11	0.864	3.06E-10	0.635	3.76E-13	1.66E-13	1.50E-13	2.34E-13	4.54E-14	2.33E-13	8.23E-13	3.50E-13	2.87E-12	2.21E-13	1.76E-13	
N2	0.15	-9.3740	4.23E-10	1.112	5.47E-09	0.659	1.49E-12	2.53E-12	2.92E-12	2.86E-12	5.95E-13	8.93E-12	2.00E-11	2.52E-12	3.53E-11	4.99E-12	1.56E-12	
N3	0.21	-9.3950	4.03E-10	1.646	1.78E-08	0.571	1.81E-11	3.13E-11	2.30E-11	2.41E-11	6.74E-12	1.08E-10	1.96E-10	1.54E-11	1.54E-10	4.42E-11	9.75E-12	
N4	0.30	-8.8070	1.56E-09	1.938	1.35E-07	0.618	1.51E-10	1.47E-10	9.14E-11	1.44E-10	4.03E-11	5.71E-10	6.94E-10	3.30E-11	6.95E-10	1.15E-10	5.74E-11	
N5	0.42	-8.7900	1.59E-09	2.326	3.37E-07	0.618	6.25E-10	4.41E-10	1.98E-10	4.57E-10	1.32E-10	1.51E-09	1.33E-09	6.31E-11	1.54E-09	2.77E-10	8.98E-11	
N6	0.59	-8.0760	8.39E-09	2.300	1.67E-06	0.712	1.26E-09	9.11E-10	3.10E-10	9.50E-10	2.50E-10	2.37E-09	2.08E-09	1.49E-10	2.73E-09	3.50E-10	1.35E-10	
N7	0.84	-7.8420	1.44E-08	2.416	3.75E-06	0.747	2.15E-09	1.59E-09	2.64E-10	1.34E-09	3.02E-10	4.16E-09	2.83E-09	4.74E-10	4.02E-09	5.81E-10	1.72E-10	
N8	1.10	-6.0700	8.51E-07	1.864	6.22E-05	0.909	2.69E-09	1.14E-09	2.07E-10	1.17E-09	2.41E-10	5.55E-09	4.64E-09	1.19E-09	3.38E-09	8.16E-10	2.64E-10	
N9	1.67	-6.3430	4.54E-07	2.198	7.16E-05	0.891	7.39E-09	2.54E-09	6.56E-10	1.15E-09	6.48E-10	2.67E-08	1.41E-08	2.96E-09	1.18E-08	2.89E-09	7.57E-10	
N10	2.37	-4.0580	8.75E-05	1.412	2.26E-03	1.202	5.35E-09	2.18E-09	4.34E-10	4.86E-09	2.30E-10	3.76E-08	1.74E-08	6.80E-09	1.83E-08	5.85E-09	1.16E-09	
N11	3.35	-2.1020	7.91E-03	0.550	2.81E-02	1.457	3.47E-09	1.41E-09	2.17E-10	1.30E-09	6.01E-11	3.82E-08	1.32E-08	9.61E-09	2.39E-08	8.78E-09	1.55E-09	
N12	4.74	-1.4660	3.42E-02	0.200	5.42E-02	1.523	1.65E-09	7.21E-10	1.78E-10	8.52E-10	9.08E-11	3.77E-08	1.30E-08	1.19E-08	2.69E-08	1.32E-08	1.72E-09	
N13	6.70	-1.3850	4.12E-02	0.188	6.35E-02	1.533	1.55E-09	8.84E-10	2.34E-10	2.06E-09	4.48E-11	2.48E-08	9.36E-09	1.28E-08	3.10E-08	1.70E-08	2.19E-09	

CALCULATED OUTLET FLUX FROM MODEL STATISTICS																					
DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	k	n	1.11E-05	4.30E-06	2.16E-06	1.43E-05	4.90E-06	7.50E-05	3.20E-05	2.69E-05	9.70E-05	2.82E-05	1.48E-05				
							2111	2112	2113	2121	2122	2211	2212	2213	2221	2222	2223				
N1	0.10	-10.3780	4.19E-11	0.864	3.06E-10	0.635	2.19E-13	1.20E-13	7.74E-14	2.56E-13	1.30E-13	7.36E-13	4.29E-13	3.84E-13	8.66E-13	3.95E-13	2.63E-13				
N2	0.15	-9.3740	4.23E-10	1.112	5.47E-09	0.659	2.97E-12	1.59E-12	1.01E-12	3.50E-12	1.73E-12	1.05E-11	5.97E-12	5.33E-12	1.24E-11	5.49E-12	3.53E-12				
N3	0.21	-9.3950	4.03E-10	1.646	1.78E-08	0.571	2.64E-11	1.54E-11	1.04E-11	3.05E-11	1.66E-11	7.86E-11	4.84E-11	4.38E-11	9.11E-11	4.50E-11	3.12E-11				
N4	0.30	-8.8070	1.56E-09	1.938	1.35E-07	0.618	1.17E-10	6.52E-11	4.27E-11	1.37E-10	7.07E-11	3.82E-10	2.26E-10	2.03E-10	4.48E-10	2.09E-10	1.40E-10				
N5	0.42	-8.7900	1.59E-09	2.326	3.37E-07	0.618	2.93E-10	1.63E-10	1.06E-10	3.41E-10	1.76E-10	9.52E-10	5.63E-10	5.06E-10	1.12E-09	5.21E-10	3.54E-10				
N6	0.59	-8.0760	8.39E-09	2.300	1.67E-06	0.712	4.98E-10	2.53E-10	1.55E-10	5.94E-10	2.77E-10	1.94E-09	1.06E-09	9.34E-10	2.33E-09	9.66E-10	6.11E-10				
N7	0.84	-7.8420	1.44E-08	2.416	3.75E-06	0.747	7.47E-10	3.67E-10	2.20E-10	8.99E-10	4.05E-10	3.11E-09	1.65E-09	1.45E-09	3.77E-09	1.50E-09	9.26E-10				
N8	1.10	-6.0700	8.51E-07	1.864	6.22E-05	0.909	7.85E-10	3.06E-10	1.55E-10	1.00E-09	3.48E-10	5.18E-09	2.23E-09	1.88E-09	6.68E-09	1.97E-09	1.04E-09				
N9	1.67	-6.3430	4.54E-07	2.198	7.16E-05	0.891	2.76E-09	1.18E-09	6.42E-10	3.44E-09	1.33E-09	1.51E-08	7.09E-09	6.07E-09	1.90E-08	6.33E-09	3.57E-09				
N10	2.37	-4.0580	8.75E-05	1.412	2.26E-03	1.202	2.51E-09	8.00E-10	3.51E-10	3.38E-09	9.36E-10	2.49E-08	8.95E-09	7.27E-09	3.39E-08	7.68E-09	3.54E-09				
N11	3.35	-2.1020	7.91E-03	0.550	2.81E-02	1.457	1.70E-09	4.25E-10	1.57E-10	2.44E-09	5.14E-10	2.74E-08	7.94E-09	6.17E-09	3.93E-08	6.60E-09	2.58E-09				
N12	4.74	-1.4660	3.42E-02	0.200	5.42E-02	1.523	1.55E-09	3.63E-10	1.28E-10	2.26E-09	4.43E-10	2.83E-08	7.75E-09	5.95E-09	4.19E-08	8.39E-09	2.48E-09				
N13	6.70	-1.3850	4.12E-02	0.188	6.35E-02	1.533	1.62E-09	3.76E-10	1.32E-10	2.36E-09	4.60E-10	3.02E-08	8.19E-09	6.28E-09	4.48E-08	6.74E-09	2.51E-09				

CALCULATED OUTLET FLUX FROM GRAPHS OF MODEL STATISTICS (POWER FUNCTIONS)																					
	DIAM	K	EXPON	1.11E-05	4.30E-06	2.16E-06	1.43E-05	4.90E-06	7.50E-05	3.20E-05	2.69E-05	9.70E-05	2.82E-05	1.48E-05							
N(1) = k*(CRLC)^n	0.10	3.45E-10	0.507	1.07E-12	6.59E-13	4.64E-13	1.21E-12	7.04E-13	2.81E-12	1.82E-12	1.67E-12	3.20E-12	1.71E-12	1.23E-12							
	0.15	2.44E-09	0.562	3.99E-12	2.34E-12	1.59E-12	4.59E-12	2.52E-12	1.17E-11	7.24E-12	6.54E-12	1.35E-11	6.74E-12	4.51E-12							
CRLC = W^2U/T	0.21	1.23E-08	0.613	1.13E-11	6.32E-12	4.15E-12	1.32E-11	6.05E-12	3.65E-11	2.17E-11	1.95E-11	4.27E-11	2.60E-11	1.35E-11							
	0.30	6.88E-08	0.672	3.23E-11	1.70E-11	1.08E-11	3.81E-11	1.86E-11	1.16E-10	6.57E-11	5.85E-11	1.38E-10	6.04E-11	3.92E-11							
K = 2.28X10^-5*(DIAM)^4.82	0.42	3.48E-07	0.733	8.18E-11	4.07E-11	2.47E-11	9.81E-11	4.48E-11	3.31E-10	1.78E-10	1.56E-10	4.00E-10	1.62E-10	1.01E-10							
	0.59	1.79E-06	0.799	1.67E-10	9.17E-11	5.30E-11	2.39E-10	1.02E-10	9.03E-10	4.57E-10	3.98E-10	1.11E-09	4.13E-10	2.47E-10							
EXP = 0.9156*(DIAM)^0.257	0.84	9.84E-06	0.875	4.53E-10	1.97E-10	1.08E-10	5.63E-10	2.21E-10	2.41E-09	1.14E-09	9.82E-10	3.02E-09	1.02E-09	5.82E-10							
	1.10	5.08E-05	0.955	9.37E-10	3.77E-10	1.94E-10	1.19E-09	4.20E-10	5.80E-09	2.57E-09	2.18E-09	7.42E-09	2.28E-09	1.23E-09							
	1.67	2.70E-04	1.045	1.81E-09	6.69E-10	3.27E-10	2.34E-09	7.66E-10	1.33E-08	5.45E-09	4.55E-09	1.74E-08	4.78E-09	2.44E-09							
	2.37	1.46E-03	1.143	3.18E-09	1.07E-09	4.90E-10	4.22E-09	1.24E-09	2.82E-08	1.07E-08	8.74E-09	3.78E-08	9.22E-09	4.42E-09							
	3.35	7.74E-03	1.249	5.01E-09	1.53E-09	6.49E-10	6.83E-09	1.80E-09	5.44E-08	1.88E-08	1.51E-08	7.50E-08	1.60E-08	7.19E-09							
	4.74	4.12E-02	1.366	7.07E-09	1.93E-09	7.56E-10	9.92E-09	2.30E-09	9.58E-08	3.00E-08	2.37E-08	1.36E-07	2.52E-08	1.05E-08							
	6.70	2.19E-01	1.493	8.80E-09	2.13E-09	7.44E-10	1.27E-08	2.58E-09	1.52E-07	4.27E-08	3.38E-08	2.23E-07	3.53E-08	1.35E-08							

APPENDIX B
MEASURED AND CALCULATED DATA
PHASE 2

TABLE B1. MEASURED AND CALCULATED DATA PHASE 2

PHASE	EXP	DAG	DUST	CLDN	TIME	FILTER	INLET	TOTAL	MEASURED	RESIDUAL	ADDED	CORRECT	DUST & FIBRIC	TOTAL
SEQ	RUN	(B)	(D)	(C)	(T)	VEL	CONC	OUTLET	AREAL	AREAL	AREAL	AREAL	PRESS	DROP
ID	ID	TYPE	TYPE	MODE	(sec)	(m/sec)	(g/m ³)	(kg/m ² s)	(kg/m ²)	(kg/m ²)	(kg/m ²)	(kg/m ²)	(Pa)	(Pa)
1	9	PIFE	G	Q1	60	0.050	1.480	9.78E-10	0.031	0.0295	0.0044	0.030	391	535
2	15	PIFE	G	Q1	60	0.075	1.110	3.56E-09	0.033	0.0308	0.0050	0.031	741	1064
3	27	PIFE	G	Q1	60	0.100	0.640	2.66E-09	0.044	0.0423	0.0038	0.042	1246	1821
4	16	PIFE	L	Q1	60	0.050	1.400	1.39E-09	0.037	0.0351	0.0042	0.035	391	535
5	18	PIFE	L	Q1	60	0.075	0.800	5.74E-10	0.039	0.0376	0.0036	0.038	741	1064
6	3	PIFE	L	Q1	60	0.100	0.610	3.10E-09	0.045	0.0437	0.0037	0.044	1280	1855
7	2	PIFE	F	Q1	60	0.050	1.090	3.16E-09	0.035	0.0339	0.0033	0.034	329	473
8	11	PIFE	F	Q1	60	0.075	0.890	2.20E-09	0.055	0.0537	0.0040	0.054	947	1270
9	19	PIFE	F	Q1	60	0.100	0.690	3.34E-09	0.067	0.0657	0.0041	0.066	1218	1793
10	20	SIHG	G	Q1	60	0.050	1.290	1.93E-09	0.091	0.0895	0.0039	0.090	198	342
11	12	SIHG	G	Q1	60	0.075	0.830	1.04E-09	0.061	0.0598	0.0037	0.060	362	605
12	17	SIHG	G	Q1	60	0.100	0.670	1.61E-09	0.078	0.0768	0.0040	0.077	259	834
13	24	SIHG	L	Q1	60	0.050	1.410	1.11E-09	0.084	0.0828	0.0042	0.083	167	311
14	7	SIHG	L	Q1	60	0.075	0.930	1.10E-09	0.081	0.0796	0.0042	0.080	237	560
15	1	SIHG	L	Q1	60	0.100	0.590	1.27E-09	0.082	0.0808	0.0035	0.081	259	834
16	23	SIHG	F	Q1	60	0.050	1.280	1.30E-07	0.206	0.2047	0.0038	0.205	149	293
17	22	SIHG	F	Q1	60	0.075	0.820	9.04E-09	0.232	0.2308	0.0037	0.231	275	598
18	26	SIHG	F	Q1	60	0.100	0.680	1.22E-07	0.230	0.2286	0.0041	0.229	284	859
19	13	UNIT	G	Q1	60	0.050	1.190	3.06E-09	0.100	0.0988	0.0036	0.099	155	299
20	6	UNIT	G	Q1	60	0.075	1.470	3.44E-09	0.095	0.0932	0.0066	0.093	-62	261
21	10	UNIT	G	Q1	60	0.100	0.750	2.48E-09	0.093	0.0915	0.0045	0.092	624	1199
22	21	UNIT	L	Q1	60	0.050	1.390	4.03E-09	0.098	0.0961	0.0042	0.096	124	268
23	4	UNIT	L	Q1	60	0.075	0.760	2.72E-09	0.097	0.0959	0.0034	0.096	163	486
24	25	UNIT	L	Q1	60	0.100	0.640	1.54E-09	0.093	0.0913	0.0038	0.091	228	803
25	14	UNIT	F	Q1	60	0.050	1.460	4.13E-07	0.296	0.2945	0.0044	0.295	117	261
26	5	UNIT	F	Q1	60	0.075	0.800	2.11E-07	0.220	0.2188	0.0036	0.219	131	454
27	8	UNIT	F	Q1	60	0.100	0.700	3.36E-07	0.312	0.3106	0.0042	0.311	247	822
28	53	PIFE	G	Q1	60	0.050	1.320	1.55E-09	0.034	0.0328	0.0040	0.033	516	660
29	44	PIFE	G	Q1	60	0.075	0.850	7.64E-09	0.036	0.0345	0.0038	0.035	810	1133
30	42	PIFE	G	Q1	60	0.100	0.580	1.16E-09	0.048	0.0468	0.0035	0.047	1255	1830
31	50	PIFE	L	Q1	60	0.050	1.290	5.75E-10	0.044	0.0422	0.0039	0.042	516	660
32	52	PIFE	L	Q1	60	0.075	0.810	1.25E-09	0.045	0.0442	0.0036	0.044	835	1158
33	40	PIFE	L	Q1	60	0.100	0.590	3.68E-09	0.048	0.0465	0.0035	0.047	1342	1917
34	29	PIFE	F	Q1	60	0.050	1.310	1.08E-09	0.048	0.0464	0.0039	0.046	528	672
35	32	PIFE	F	Q1	60	0.075	0.840	6.28E-09	0.063	0.0620	0.0038	0.062	847	1170
36	48	PIFE	F	Q1	60	0.100	0.590	5.30E-09	0.090	0.0891	0.0035	0.089	1491	2066
37	49	SIHG	G	Q1	60	0.050	1.340	1.12E-09	0.101	0.0997	0.0040	0.100	248	392
38	34	SIHG	G	Q1	60	0.075	0.840	9.46E-09	0.077	0.0759	0.0038	0.076	312	635
39	51	SIHG	G	Q1	60	0.100	0.620	9.90E-09	0.100	0.0986	0.0037	0.099	501	1076
40	45	SIHG	L	Q1	60	0.050	1.350	2.98E-09	0.094	0.0922	0.0041	0.092	292	436
41	39	SIHG	L	Q1	60	0.075	0.850	1.00E-09	0.089	0.0877	0.0038	0.088	250	573
42	28	SIHG	L	Q1	60	0.100	0.650	9.12E-09	0.091	0.0893	0.0039	0.089	371	946
43	30	SIHG	F	Q1	60	0.050	1.290	1.06E-07	0.227	0.2257	0.0039	0.226	254	398
44	36	SIHG	F	Q1	60	0.075	0.950	1.82E-07	0.234	0.2326	0.0043	0.233	300	623
45	41	SIHG	F	Q1	60	0.100	0.680	2.14E-07	0.260	0.2586	0.0041	0.259	384	959
46	35	UNIT	G	Q1	60	0.050	1.340	4.98E-09	0.122	0.1207	0.0040	0.121	180	324
47	46	UNIT	G	Q1	60	0.075	0.830	1.97E-09	0.106	0.1052	0.0037	0.105	219	542
48	31	UNIT	G	Q1	60	0.100	0.630	1.79E-09	0.101	0.0997	0.0038	0.100	259	834
49	37	UNIT	L	Q1	60	0.050	1.280	2.02E-09	0.123	0.1217	0.0038	0.122	130	274
50	54	UNIT	L	Q1	60	0.075	0.800	2.26E-09	0.109	0.1078	0.0036	0.108	181	504
51	43	UNIT	L	Q1	60	0.100	0.630	1.12E-09	0.108	0.1067	0.0038	0.107	315	890
52	38	UNIT	F	Q1	60	0.050	1.310	2.68E-07	0.357	0.3557	0.0039	0.356	105	249
53	47	UNIT	F	Q1	60	0.075	0.800	1.62E-07	0.262	0.2608	0.0036	0.261	187	510
54	33	UNIT	F	Q1	60	0.100	0.620	1.63E-07	0.302	0.3008	0.0037	0.301	272	847

TABLE 02: PARTICLE COUNTS BY GEOMETRIC SIZE RANGE

		PARTICLE COUNT DATA																		
SER	EXP	MINIMUM PARTICLE DIAMETER BY REGIONS																	37.50	
		0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70	9.40	13.40	18.95	26.00		
1	9	2.20E+03	4.20E+02	7.97E+03	8.32E+03	7.24E+03	3.80E+03	2.10E+03	5.25E+02	2.54E+02	5.30E+01	1.00E+01	1.00E+00	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2	15	1.40E+03	3.30E+03	5.93E+03	7.12E+03	6.30E+03	2.83E+03	5.25E+02	2.10E+02	2.37E+02	7.90E+01	2.20E+01	4.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3	27	2.62E+02	1.26E+03	2.89E+03	3.46E+03	1.93E+03	1.47E+03	9.40E+02	4.72E+02	2.15E+02	1.40E+02	6.00E+01	2.00E+01	6.00E+00	2.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	
4	10	5.09E+01	2.03E+02	9.67E+02	3.10E+03	3.92E+03	2.44E+03	9.14E+02	2.03E+02	6.70E+01	2.10E+01	6.00E+00	0.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
5	19	4.98E+03	1.77E+04	1.74E+04	1.61E+04	9.09E+03	4.77E+03	1.84E+03	8.39E+02	2.55E+02	1.00E+02	1.50E+01	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
6	3	2.68E+03	4.67E+03	1.25E+04	1.21E+04	7.08E+03	2.15E+03	8.39E+02	7.87E+02	1.61E+02	1.09E+02	5.80E+01	3.10E+01	1.10E+01	2.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	
7	2	9.18E+01	1.22E+03	1.81E+03	1.81E+03	1.62E+03	1.53E+03	6.73E+02	3.98E+02	3.50E+01	1.20E+01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
8	11	3.72E+03	4.14E+03	4.93E+03	4.25E+03	3.31E+03	2.10E+03	1.89E+03	9.44E+02	3.50E+02	1.57E+02	6.00E+01	1.50E+01	4.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
9	19	6.30E+02	9.44E+02	1.78E+03	1.68E+03	1.47E+03	1.15E+03	7.87E+02	7.34E+02	2.95E+02	2.40E+02	1.09E+02	3.80E+01	1.00E+01	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
10	29	3.72E+03	8.29E+03	1.96E+04	2.53E+04	2.10E+04	1.20E+04	6.24E+03	3.04E+03	7.61E+02	3.95E+02	1.83E+02	7.40E+01	2.30E+01	9.00E+00	2.00E+00	1.00E+00	0.00E+00	0.00E+00	
11	32	8.81E+03	1.30E+04	1.66E+04	1.52E+04	1.02E+04	6.78E+03	2.94E+03	1.68E+03	6.22E+02	1.82E+02	5.40E+01	1.60E+01	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
12	17	3.67E+03	7.24E+03	1.31E+04	1.58E+04	1.19E+04	8.24E+03	3.93E+03	1.31E+03	3.11E+02	1.00E+02	1.40E+01	5.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
13	24	1.21E+03	1.64E+03	5.77E+03	6.98E+03	6.56E+03	3.57E+03	5.25E+02	3.15E+02	2.32E+02	5.10E+01	5.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
14	7	1.47E+03	4.77E+03	9.80E+03	1.21E+04	1.10E+04	7.03E+03	2.73E+03	1.73E+03	3.25E+02	1.11E+02	3.50E+01	1.10E+01	5.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
15	1	1.40E+02	2.10E+02	7.12E+03	1.64E+03	1.82E+03	1.43E+03	1.33E+03	6.20E+02	4.57E+02	3.33E+02	9.40E+01	2.80E+01	7.00E+00	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
16	23	2.15E+03	4.83E+03	9.60E+03	1.25E+04	1.47E+04	1.24E+04	8.45E+03	4.51E+03	5.62E+02	2.68E+02	6.70E+01	1.30E+01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
17	22	9.88E+03	1.16E+04	1.53E+04	1.64E+04	1.64E+04	1.41E+04	8.39E+03	5.04E+03	8.48E+02	5.36E+02	2.59E+02	1.24E+02	5.00E+01	2.00E+01	7.00E+00	1.00E+00	0.00E+00	0.00E+00	
18	26	1.47E+03	1.87E+03	2.64E+03	2.55E+03	2.71E+03	1.94E+03	7.17E+02	5.07E+02	2.38E+02	1.57E+02	7.10E+01	2.70E+01	1.20E+01	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
19	13	3.84E+03	8.29E+03	1.15E+04	1.23E+04	9.81E+03	8.76E+03	4.04E+03	2.64E+03	6.17E+02	4.61E+02	2.54E+02	9.90E+01	2.50E+01	1.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
20	6	7.92E+03	1.33E+04	2.00E+04	1.75E+04	1.34E+04	1.02E+04	7.34E+03	4.20E+03	1.20E+03	7.87E+02	3.01E+02	1.18E+02	3.20E+01	8.00E+00	3.00E+00	0.00E+00	0.00E+00	0.00E+00	
21	10	4.67E+03	7.24E+03	7.92E+03	7.40E+03	6.77E+03	4.46E+03	2.05E+03	1.15E+03	1.81E+02	1.59E+02	3.10E+01	2.10E+01	7.00E+00	1.00E+00	2.00E+00	1.00E+00	0.00E+00	0.00E+00	
22	31	9.97E+02	2.83E+03	4.67E+03	7.71E+03	5.72E+03	4.04E+03	2.20E+03	1.34E+03	3.54E+02	2.87E+02	9.10E+01	2.50E+01	8.00E+00	1.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	
23	4	7.61E+03	1.46E+04	2.38E+04	2.56E+04	2.09E+04	1.63E+04	8.97E+03	4.93E+03	1.48E+03	9.80E+02	4.18E+02	1.83E+02	6.00E+01	2.20E+01	3.00E+00	0.00E+00	0.00E+00	0.00E+00	
24	25	1.10E+03	2.75E+03	3.92E+03	4.72E+03	4.89E+03	2.45E+03	1.40E+03	6.85E+02	2.08E+02	1.04E+02	3.30E+01	9.00E+00	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
25	14	3.94E+03	9.44E+03	1.81E+04	1.60E+04	9.44E+03	7.29E+03	5.41E+03	4.30E+03	1.64E+03	1.19E+03	5.69E+02	2.51E+02	4.90E+01	1.20E+01	3.00E+00	0.00E+00	0.00E+00	0.00E+00	
26	5	4.72E+02	1.57E+03	3.72E+03	5.25E+03	7.34E+03	6.24E+03	6.61E+03	5.09E+03	1.64E+03	1.22E+03	6.46E+02	3.25E+02	1.53E+02	5.60E+01	2.20E+01	1.30E+01	2.00E+00	0.00E+00	
27	8	1.31E+03	3.67E+03	6.56E+03	9.71E+03	9.50E+03	7.55E+03	6.38E+03	5.25E+03	9.91E+02	6.85E+02	4.45E+02	2.12E+02	8.30E+01	3.70E+01	1.10E+01	2.00E+00	0.00E+00	0.00E+00	
28	53	7.34E+02	1.52E+03	2.13E+03	2.94E+03	1.89E+03	1.68E+03	8.39E+02	1.57E+02	4.10E+01	2.20E+01	1.50E+01	4.00E+00	3.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
29	44	5.25E+02	1.47E+03	2.78E+03	3.83E+03	3.41E+03	1.47E+03	7.87E+02	4.20E+02	2.22E+02	1.38E+02	4.70E+01	2.00E+01	1.30E+01	1.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	
30	42	8.39E+02	1.73E+03	3.46E+03	3.83E+03	3.41E+03	1.26E+03	1.10E+03	8.39E+02	2.40E+02	1.54E+02	8.20E+01	5.00E+01	2.60E+01	5.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	
31	50	6.82E+02	1.21E+03	1.05E+03	5.77E+02	7.34E+02	4.72E+02	2.19E+02	5.25E+01	3.80E+01	1.90E+01	9.00E+00	2.00E+00	2.00E+00	2.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
32	52	3.15E+02	6.82E+02	1.31E+03	1.84E+03	2.05E+03	7.87E+02	3.15E+02	3.00E+01	2.60E+01	1.20E+01	5.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
33	40	5.77E+02	1.49E+03	2.28E+03	2.38E+03	1.56E+03	9.44E+02	3.67E+02	2.10E+02	7.30E+01	5.60E+01	2.60E+01	1.60E+01	4.00E+00	2.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	
34	29	3.15E+02	1.52E+03	3.20E+03	3.15E+03	2.10E+03	1.68E+03	1.05E+03	4.20E+02	8.91E+02	4.31E+02	1.00E+02	2.60E+01	1.00E+01	3.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	
35	32	3.44E+02	3.62E+03	3.99E+03	2.15E+03	2.10E+03	1.25E+03	1.21E+03	9.44E+02	5.86E+02	3.04E+02	1.19E+02	3.10E+01	1.00E+01	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
36	48	2.65E+03	3.78E+03	3.72E+03	3.41E+03	1.84E+03	8.39E+02	1.47E+03	1.10E+03	5.50E+02	3.72E+02	1.87E+02	6.10E+01	1.40E+01	1.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
37	49	2.10E+02	8.39E+02	2.42E+03	4.25E+03	2.73E+03	1.63E+03	1.05E+03	3.67E+02	1.25E+02	5.00E+01	1.50E+01	1.10E+01	5.00E+00	4.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	
38	34	3.36E+03	4.09E+03	4.46E+03	5.25E+03	4.62E+03	2.94E+03	1.31E+03	4.72E+02	3.64E+02	1.17E+02	2.40E+01	1.30E+01	8.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
39	51	1																		

TABLE D4: PARTICLE MASS FREQUENCY

SER NO	EXP NO	PARTICLE DIAMETER IN MICRONS BY GEOMETRIC SIZE RANGE																	
		0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70	9.48	13.40	18.95	26.00	37.90
1	9	4.00E-04	2.20E-04	1.17E-02	3.74E-02	8.58E-02	1.90E-01	1.79E-01	1.41E-01	1.33E-01	1.38E-01	6.07E-02	1.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	15	2.30E-04	1.54E-03	7.60E-03	2.62E-02	6.53E-02	9.31E-02	4.35E-02	4.93E-02	1.57E-01	1.40E-01	1.17E-01	6.01E-02	0.00E+00	2.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	27	2.12E-05	2.87E-04	1.86E-03	6.32E-03	1.03E-02	2.14E-02	3.90E-02	5.51E-02	7.10E-02	1.31E-01	1.52E-01	1.49E-01	1.27E-01	5.96E-02	1.89E-01	0.00E+00	0.00E+00	0.00E+00
4	16	1.03E-05	2.04E-04	2.79E-03	2.53E-02	9.04E-02	1.59E-01	1.69E-01	1.04E-01	9.89E-02	9.77E-02	7.09E-02	0.00E+00	1.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	18	6.75E-04	4.89E-03	1.89E-02	4.97E-02	7.87E-02	1.17E-01	1.27E-01	1.55E-01	1.42E-01	1.57E-01	6.88E-02	3.77E-02	3.55E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	3	1.64E-04	0.27E-04	6.28E-03	1.71E-02	2.84E-02	2.44E-02	2.69E-02	7.14E-02	4.13E-02	7.91E-02	1.19E-01	1.80E-01	1.01E-01	9.29E-02	1.31E-01	0.00E+00	0.00E+00	0.00E+00
7	2	5.19E-05	1.94E-03	9.17E-03	2.31E-02	5.87E-02	1.57E-01	1.95E-01	3.26E-01	9.11E-02	7.06E-02	1.05E-02	5.24E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	11	3.47E-04	1.09E-03	3.68E-03	8.96E-03	1.97E-02	3.54E-02	9.01E-02	1.27E-01	1.34E-01	1.69E-01	1.83E-01	1.30E-01	9.77E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	19	1.50E-05	6.37E-05	3.40E-04	9.06E-04	2.24E-03	4.98E-03	9.61E-03	2.54E-02	2.88E-02	6.63E-02	0.52E-02	8.40E-02	6.25E-02	8.84E-02	0.00E+00	1.41E-01	4.00E-01	0.00E+00
10	20	6.96E-05	4.31E-04	2.89E-03	1.05E-02	2.40E-02	3.99E-02	5.68E-02	0.11E-02	5.74E-02	0.42E-02	1.10E-01	1.24E-01	1.35E-01	0.15E-02	7.72E-02	1.09E-01	0.00E+00	0.00E+00
11	32	5.16E-04	2.34E-03	0.62E-03	2.21E-02	4.20E-02	0.04E-02	0.65E-02	1.53E-01	1.63E-01	1.35E-01	1.14E-01	9.51E-02	8.41E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	17	2.97E-04	1.66E-03	0.40E-03	2.90E-02	6.16E-02	1.21E-01	1.63E-01	1.54E-01	1.03E-01	9.37E-02	3.71E-02	3.75E-02	2.12E-02	0.00E+00	1.70E-01	0.00E+00	0.00E+00	0.00E+00
13	24	2.02E-04	7.93E-04	7.71E-03	2.64E-02	7.01E-02	1.08E-01	4.49E-02	7.61E-02	1.59E-01	9.87E-02	2.74E-02	3.10E-02	0.00E+00	0.00E+00	3.50E-01	0.00E+00	0.00E+00	0.00E+00
14	7	1.69E-04	9.27E-04	5.42E-03	1.88E-02	4.82E-02	8.74E-02	9.99E-02	1.72E-01	9.14E-02	0.03E-02	7.87E-02	7.00E-02	9.00E-02	1.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	1	2.61E-06	1.11E-05	1.72E-04	6.94E-04	2.17E-03	4.85E-03	1.30E-02	3.59E-02	4.84E-02	9.88E-02	2.64E-01	1.63E-01	1.37E-01	9.69E-02	1.94E-01	0.00E+00	0.00E+00	0.00E+00
16	23	0.17E-05	5.10E-04	2.92E-03	1.08E-02	3.57E-02	0.53E-02	1.64E-01	2.40E-01	0.74E-02	1.18E-01	0.34E-02	4.58E-02	9.98E-03	2.82E-02	7.96E-02	0.00E+00	0.00E+00	0.00E+00
17	22	0.04E-05	3.42E-04	1.09E-03	3.28E-03	9.43E-03	2.25E-02	3.81E-02	6.46E-02	3.06E-02	5.50E-02	7.52E-02	1.02E-01	1.38E-01	1.31E-01	1.34E-01	5.74E-02	1.49E-01	0.00E+00
18	26	1.11E-04	3.19E-04	1.60E-03	4.37E-03	1.31E-02	2.68E-02	2.78E-02	5.53E-02	7.37E-02	1.30E-01	1.76E-01	1.89E-01	2.38E-01	5.61E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	13	0.11E-05	4.90E-04	1.93E-03	5.80E-03	1.31E-02	3.31E-02	4.32E-02	0.09E-02	5.28E-02	1.17E-01	1.74E-01	1.92E-01	1.37E-01	1.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	6	1.15E-04	5.40E-04	2.33E-03	5.70E-03	1.25E-02	2.68E-02	5.46E-02	0.03E-02	7.51E-02	1.32E-01	1.43E-01	1.59E-01	1.22E-01	0.42E-02	9.14E-02	0.00E+00	0.00E+00	0.00E+00
21	10	1.95E-04	0.55E-04	2.65E-03	6.99E-03	1.81E-02	3.37E-02	4.37E-02	6.90E-02	3.10E-02	7.69E-02	4.24E-02	0.13E-02	7.64E-02	5.29E-02	1.75E-01	2.48E-01	0.00E+00	0.00E+00
22	21	4.08E-05	3.70E-04	1.63E-03	7.14E-03	1.50E-02	2.99E-02	4.62E-02	0.08E-02	5.53E-02	9.81E-02	1.72E-01	9.40E-02	0.88E-02	3.03E-02	0.58E-02	2.43E-01	0.00E+00	0.00E+00
23	4	7.37E-05	3.99E-04	1.89E-03	5.61E-03	1.30E-02	2.09E-02	4.45E-02	6.92E-02	5.85E-02	1.10E-01	1.33E-01	1.64E-01	1.52E-01	1.58E-01	6.09E-02	0.00E+00	0.00E+00	0.00E+00
24	25	4.78E-05	3.12E-04	1.20E-03	4.73E-03	1.14E-02	1.78E-02	2.95E-02	3.07E-02	3.42E-02	4.04E-02	4.25E-02	2.35E-02	3.14E-02	2.90E-02	0.00E+00	0.00E+00	6.74E-01	0.00E+00
25	14	3.55E-05	2.30E-04	7.27E-04	2.02E-03	5.38E-03	1.18E-02	2.58E-02	5.53E-02	5.97E-02	1.22E-01	1.64E-01	2.07E-01	2.08E-01	7.93E-02	5.61E-02	0.00E+00	0.00E+00	0.00E+00
26	5	1.85E-06	1.37E-05	9.18E-05	3.66E-04	1.45E-03	3.40E-03	1.04E-02	2.27E-02	2.07E-02	4.55E-02	6.52E-02	9.20E-02	1.23E-01	1.24E-01	1.42E-01	2.34E-01	1.03E-01	0.00E+00
27	8	9.13E-06	7.23E-05	3.69E-04	1.53E-03	4.25E-03	3.52E-03	2.41E-02	5.29E-02	2.82E-02	5.52E-02	1.01E-01	1.37E-01	1.51E-01	1.91E-01	1.61E-01	0.21E-02	0.00E+00	0.00E+00
28	53	1.55E-04	9.11E-04	3.64E-03	1.41E-02	2.34E-02	6.43E-02	9.09E-02	4.82E-02	3.53E-02	5.39E-02	1.04E-01	7.85E-02	1.66E-01	1.14E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	44	2.02E-05	1.10E-04	3.56E-04	2.34E-03	8.40E-03	1.02E-02	1.95E-02	2.94E-02	3.50E-02	6.15E-02	5.93E-02	7.13E-02	1.31E-01	2.05E-02	3.23E-01	2.20E-01	0.00E+00	0.00E+00
30	42	2.25E-05	1.31E-04	7.43E-04	2.32E-03	5.85E-03	6.11E-03	1.51E-02	3.26E-02	2.87E-02	4.78E-02	7.21E-02	1.24E-01	1.83E-01	9.94E-02	2.25E-01	1.53E-01	0.00E+00	0.00E+00
31	50	1.73E-04	0.65E-04	2.15E-03	3.31E-03	1.19E-02	2.72E-02	1.93E-02	3.94E-02	5.58E-02	7.47E-02	9.47E-02	4.70E-02	1.33E-01	5.84E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	52	7.53E-05	4.12E-04	2.51E-03	9.94E-03	3.13E-02	3.41E-02	3.86E-02	3.44E-02	3.72E-02	7.31E-02	9.41E-02	1.11E-01	0.00E+00	5.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
33	40	7.05E-05	6.89E-04	2.21E-03	6.53E-03	1.07E-02	2.09E-02	2.90E-02	3.71E-02	3.65E-02	7.93E-02	1.04E-01	1.13E-01	1.28E-01	1.81E-01	2.56E-01	0.00E+00	0.00E+00	0.00E+00
34	29	1.37E-05	1.07E-04	1.12E-03	3.10E-03	5.85E-03	1.32E-02	2.34E-02	2.15E-02	1.59E-01	2.18E-01	1.43E-01	1.05E-01	1.14E-01	9.69E-02	9.14E-02	0.00E+00	0.00E+00	0.00E+00
35	32	5.11E-05	5.54E-04	1.72E-03	3.63E-03	7.26E-03	1.23E-02	3.34E-02	7.39E-02	1.30E-01	1.90E-01	2.11E-01	1.53E-01	1.42E-01	4.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
36	48	3.68E-05	1.92E-04	5.36E-04	1.39E-03	2.11E-03	2.73E-03	1.35E-02	2.87E-02	4.05E-02	7.95E-02	1.10E-01	1.82E-01	6.40E-02	1.47E-01	0.00E+00	1.07E-01	3.02E-01	0.00E+00
37	49	7.66E-06	0.88E-05	7.66E-04	3.51E-03	6.37E-03	1.07E-02	1.94E-02	1.94E-02	1.87E-02	2.11E-02	1.79E-02	3.72E-02	4.78E-02	1.09E-01	7.65E-02	0.00E+00	6.12E-01	0.00E+00
38	34	1.57E-04	5.41E-04	1.67E-03	5.55E-03	1.38E-02	2.53E-02	3.14E-02	3.20E-02	6.97E-02	6.34E-02	3.68E-02	5.14E-02	7.28E-02	3.47E-02	0.00E+00	5.55E-01	0.00E+00	0.00E+00
39	51	0.58E-05	4.70E-04	1.97E-03	7.03E-03	2.04E-02	3.81E-02	4.96E-02	1.40E-02	2.85E-02	2.51E-02	4.32E-02	7.33E-02	0.90E-02	7.87E-02	2.21E-01	3.13E-01	0.00E+00	0.00E+00
40	45	4.36E-05	3.08E-04	2.51E-03	9.07E-03	2.76E-02	4.02E-02	4.91E-02	2.53E-02	1.84E-02	1.64E-02	2.45E-02	3.08E-02	2.18E-02	6.16E-02	1.74E-01	4.93E-01	0.00E+00	0.00E+00
41	39	1.17E-04	5.89E-04	4.37E-03	1.73E-02	3.49E-02	6.64E-02	0.32E-02	1.03E-01	1.41E-01	1.27E-01	0.89E-02	8.10E-02	1.25E-01	1.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42	28	4.94E-05	4.33E-04	2.42E-03	9.82E-03	2.04E-02	3.97E-02	5.89E-02	5.58E-02	1.15E-01	1.02E-01	1.40E-01	9.79E-02	9.03E-02	6.81E-02	6.01E-02	0.00E+00	0.00E+00	0.00E+00
43	30	7.41E-05	3.13E-04	1.15E-03	3.17E-03	8.08E-03	1.47E-02	4.27E-02	5.62E-02	4.44E-02	6.03E-02	8.18E-02	4.12E-02	4.79E-02	0.00E+00	1.33E-01	3.75E-01	0.00E+00	0.00E+00
44	36	3.07E-04	1.04E-03	3.15E-03	5.61E-03	1.32E-02	2.92E-02	8.71E-02	9.51E-02	8.16E-02	1.61E-01	1.27E-01	1.48E-01	4.47E-02	8.44E-02	1.19E-01	0.00E+00	0.00E+00	0.00E+00
45	41	1.27E-04	6.17E-04	2.24E-03	4.90E-03	8.72E-03	2.35E-02	4.10E-02	7.14E-02	1.29E-01	1.77E-01	1.57E-01	1.13E-01	0.81E-02	1.13E-01	6.41E-02	0.00E+00	0.00E+00	0.00E+00
46	35	4.81E-05	1.42E-04	4.78E-04	1.93E-03	5.46E-03	7.77E-03	3.11E-02	4.53E-02	6.77E-02	1.13E-01	1.80E-01	1.04E-01	1.21E-01	1.21E-01	1.14E-01	0.00E+00	0.00E+00	0.00E+00
47	46	2.01E-05	1.02E-04	5.80E-04	2.36E-03	1.18E-02	3.85E-02	4.11E-02	6.98E-02	7.33E-02	1.27E-01	1.38E-01	1.77E-01	4.81E-02	1.61E-01	1.61E-01	0.00E+00	0.00E+00	0.00E+00
48	31	2.18E-05	0.22E-05	5.17E-04	2.														

TABLE B5. CALCULATED PUGS OUTLET FLUX

SEQ	EXP	AVERAGE PARTICLE DIAMETER BY GEOMETRIC SIZE RANGE																		
NO	NO	0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.19	1.67	2.37	3.35	4.74	6.70	9.49	13.40	18.95	26.80	37.90	
1	9	3.99E-13	2.15E-13	1.14E-11	3.65E-11	8.39E-11	1.27E-10	1.92E-10	1.35E-10	1.60E-10	1.22E-10	5.95E-11	1.64E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2	15	9.17E-13	5.40E-12	2.74E-11	9.32E-12	2.33E-10	2.96E-10	1.55E-10	1.75E-10	5.60E-10	5.20E-10	4.16E-10	2.14E-10	0.00E+00	8.56E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3	17	5.63E-14	7.64E-13	4.45E-12	1.64E-11	2.74E-11	5.70E-11	1.04E-10	1.47E-10	1.89E-10	3.40E-10	4.22E-10	5.90E-10	3.37E-10	3.59E-10	4.50E-10	0.00E+00	0.00E+00	0.00E+00	
4	16	2.55E-14	2.89E-13	3.80E-12	3.52E-11	1.26E-10	2.22E-10	2.35E-10	1.40E-10	1.38E-10	1.22E-10	3.85E-11	0.00E+00	2.63E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
5	10	3.01E-13	2.80E-12	1.00E-11	2.83E-11	4.52E-11	6.73E-11	7.31E-11	9.46E-11	8.12E-11	9.01E-11	3.82E-11	2.11E-11	2.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
6	3	5.33E-13	2.63E-12	2.66E-11	5.44E-11	9.03E-11	7.74E-11	8.56E-11	2.27E-10	1.31E-10	2.52E-10	3.79E-10	5.72E-10	5.75E-10	2.95E-10	4.18E-10	0.00E+00	0.00E+00	0.00E+00	
7	2	1.64E-13	6.19E-12	2.55E-11	7.20E-11	1.05E-10	4.95E-10	6.18E-10	1.03E-09	2.56E-10	2.40E-10	5.06E-11	1.66E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
8	11	7.63E-12	2.40E-11	0.09E-11	1.97E-10	4.34E-10	7.79E-10	1.90E-09	2.80E-09	2.94E-09	3.73E-09	4.03E-09	2.85E-09	2.15E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
9	19	5.01E-13	2.13E-12	1.14E-11	3.02E-11	7.49E-11	1.66E-10	9.21E-10	8.47E-10	9.62E-10	2.21E-09	2.04E-09	2.80E-09	2.09E-09	2.95E-09	0.00E+00	4.72E-09	1.34E-08	0.00E+00	
10	20	1.12E-12	8.33E-12	5.96E-11	2.03E-10	4.70E-10	7.69E-10	1.14E-09	1.57E-09	1.11E-09	1.62E-09	2.15E-09	2.44E-09	2.61E-09	1.50E-09	1.49E-09	2.11E-09	0.00E+00	0.00E+00	
11	12	1.04E-11	4.24E-11	1.59E-10	4.04E-10	7.73E-10	1.40E-09	1.78E-09	2.87E-09	3.01E-09	2.49E-09	2.09E-09	1.75E-09	1.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
12	17	4.78E-12	2.67E-11	1.37E-10	4.67E-10	9.92E-10	1.94E-09	2.62E-09	2.47E-09	1.64E-09	1.51E-09	5.97E-10	6.03E-10	3.41E-10	0.00E+00	2.73E-09	0.00E+00	0.00E+00	0.00E+00	
13	24	2.24E-12	0.90E-12	0.56E-11	2.93E-10	7.70E-10	1.20E-09	4.08E-09	0.45E-09	1.76E-09	1.10E-09	3.04E-10	3.44E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
14	7	1.01E-12	1.02E-11	5.96E-11	2.07E-10	5.30E-10	9.61E-10	1.89E-09	1.01E-09	9.71E-10	8.66E-10	7.70E-10	9.10E-10	1.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
15	1	3.32E-14	1.41E-13	2.19E-12	0.02E-12	2.76E-11	6.15E-11	1.64E-10	4.56E-10	6.15E-10	1.02E-09	2.59E-09	2.07E-09	1.74E-09	1.23E-09	2.49E-09	0.00E+00	0.00E+00	0.00E+00	
16	23	1.04E-11	6.74E-11	3.79E-10	1.40E-09	4.64E-09	1.11E-08	2.12E-08	3.23E-08	1.14E-08	1.52E-08	1.08E-08	5.95E-09	1.29E-08	3.66E-09	1.04E-08	0.00E+00	0.00E+00	0.00E+00	
17	22	7.27E-12	3.09E-11	9.82E-11	2.97E-10	8.53E-10	2.04E-09	3.44E-09	5.84E-09	2.70E-09	4.40E-09	6.80E-09	9.21E-09	1.22E-08	1.19E-08	1.11E-08	4.75E-09	1.34E-08	0.00E+00	
18	26	1.34E-11	4.75E-11	1.95E-10	5.33E-10	1.60E-09	3.24E-09	3.39E-09	6.78E-09	9.00E-09	1.60E-08	2.15E-08	2.31E-08	2.90E-08	5.80E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
19	13	3.13E-12	1.09E-11	7.44E-11	2.24E-10	5.06E-10	1.29E-09	1.67E-09	3.12E-09	2.04E-09	4.30E-09	6.71E-09	7.40E-09	8.23E-09	5.98E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
20	6	3.94E-12	1.88E-11	8.01E-11	1.90E-10	4.29E-10	9.21E-10	1.88E-09	3.04E-09	2.58E-09	4.58E-09	4.93E-09	5.40E-09	4.19E-09	2.96E-09	3.14E-09	0.00E+00	0.00E+00	0.00E+00	
21	10	4.04E-12	2.62E-11	6.56E-11	1.73E-10	4.49E-10	8.36E-10	1.09E-09	1.73E-09	7.68E-10	1.41E-09	1.95E-09	2.02E-09	1.90E-09	2.30E-09	4.34E-09	6.14E-09	0.00E+00	0.00E+00	
22	21	1.64E-12	1.32E-11	6.16E-11	2.89E-10	6.04E-10	1.21E-09	1.88E-09	2.39E-09	2.76E-09	3.76E-09	3.82E-09	3.46E-09	1.22E-09	3.46E-09	9.78E-09	0.00E+00	0.00E+00	0.00E+00	
23	4	2.00E-12	1.09E-11	5.02E-11	1.53E-10	3.53E-10	7.85E-10	1.21E-09	1.80E-09	1.59E-09	2.49E-09	3.61E-09	4.47E-09	4.14E-09	4.30E-09	1.66E-09	0.00E+00	0.00E+00	0.00E+00	
24	25	7.34E-13	4.81E-12	1.94E-11	6.61E-11	1.93E-10	2.74E-10	4.55E-10	5.98E-10	5.27E-10	7.40E-10	6.69E-10	5.16E-10	4.07E-10	4.59E-10	0.00E+00	0.00E+00	1.04E-08	0.00E+00	
25	14	1.47E-11	9.83E-11	2.90E-10	8.24E-10	2.22E-09	4.80E-09	1.00E-08	2.29E-08	2.46E-08	5.06E-08	8.88E-08	8.96E-08	8.96E-08	3.27E-08	2.32E-08	0.00E+00	0.00E+00	0.00E+00	
26	5	3.07E-13	2.89E-12	1.94E-11	7.72E-11	3.06E-10	7.35E-10	2.20E-09	4.79E-09	4.34E-09	9.18E-09	1.34E-08	1.96E-08	2.71E-08	2.70E-08	3.00E-08	5.01E-08	2.11E-08	0.00E+00	
27	8	3.07E-12	2.42E-11	1.23E-10	5.14E-10	1.42E-09	3.20E-09	8.16E-09	1.78E-08	9.49E-09	1.04E-08	3.41E-08	4.59E-08	5.09E-08	6.41E-08	5.39E-08	2.77E-08	0.00E+00	0.00E+00	
28	53	2.41E-11	1.41E-12	5.64E-12	2.11E-11	3.96E-11	9.97E-11	1.41E-10	7.40E-11	5.51E-11	8.36E-11	1.61E-10	1.22E-10	2.50E-10	4.86E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
29	44	1.54E-13	1.22E-12	6.54E-12	2.55E-11	6.42E-11	7.80E-11	1.19E-10	1.79E-10	2.67E-10	4.70E-10	4.52E-10	5.45E-10	1.00E-09	2.10E-10	2.47E-09	1.74E-09	0.00E+00	0.00E+00	
30	42	2.61E-14	1.62E-13	8.62E-13	2.70E-12	6.73E-12	1.09E-12	1.79E-11	3.78E-11	3.10E-11	5.55E-11	0.34E-11	1.44E-10	2.12E-10	1.15E-10	2.61E-10	1.05E-10	0.00E+00	0.00E+00	
31	50	9.94E-14	4.97E-13	1.23E-12	1.90E-12	6.85E-12	1.25E-11	1.57E-11	1.11E-11	7.27E-11	3.21E-11	4.30E-11	2.70E-11	7.64E-11	3.24E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
32	52	9.40E-14	5.77E-13	3.14E-12	1.24E-11	3.92E-11	4.26E-11	4.80E-11	4.55E-11	4.66E-11	9.01E-11	1.18E-10	1.39E-10	0.00E+00	6.65E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
33	40	2.60E-13	2.54E-12	8.12E-12	2.40E-11	3.93E-11	7.69E-11	8.40E-11	1.37E-10	1.34E-10	2.92E-10	3.98E-10	4.17E-10	4.72E-10	6.67E-10	9.43E-10	0.00E+00	0.00E+00	0.00E+00	
34	29	1.40E-13	2.02E-12	1.20E-11	3.35E-11	8.32E-11	1.43E-10	2.53E-10	2.80E-10	1.72E-09	2.35E-09	1.54E-09	1.13E-09	1.23E-09	1.05E-09	9.87E-10	0.00E+00	0.00E+00	0.00E+00	
35	32	3.21E-12	3.40E-11	1.00E-10	1.65E-10	4.56E-10	7.74E-10	2.10E-09	4.64E-09	8.15E-09	1.20E-08	1.32E-08	9.75E-09	8.90E-09	2.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
36	48	1.95E-12	1.02E-11	2.04E-11	7.25E-11	1.12E-10	1.45E-10	7.17E-10	1.52E-09	2.15E-09	4.11E-09	5.84E-09	5.39E-09	3.50E-09	7.77E-09	0.00E+00	5.65E-09	1.62E-08	0.00E+00	
37	49	8.57E-14	9.70E-13	8.57E-12	3.93E-11	7.13E-11	1.20E-10	2.20E-10	2.17E-10	2.09E-10	2.37E-10	2.01E-10	4.17E-10	5.36E-10	1.21E-09	8.57E-10	0.00E+00	6.84E-09	0.00E+00	
38	34	1.49E-12	5.17E-12	1.90E-11	5.25E-11	1.31E-10	2.40E-10	2.97E-10	3.03E-10	6.60E-10	6.00E-10	3.40E-10	5.33E-10	6.94E-10	3.28E-10	0.00E+00	5.25E-09	0.00E+00	0.00E+00	
39	51	8.54E-13	4.69E-12	7.97E-11	7.81E-11	2.03E-10	3.80E-10	4.95E-10	1.60E-10	2.85E-10	2.50E-10	4.31E-10	7.32E-10	8.21E-10	7.81E-10	2.21E-09	3.12E-09	0.00E+00	0.00E+00	
40	45	1.34E-13	9.19E-13	7.79E-12	2.94E-11	8.24E-11	1.32E-10	1.48E-10	7.53E-11	5.48E-11	4.80E-11	7.31E-11	9.10E-11	6.49E-11	1.84E-10	5.20E-10	1.47E-09	0.00E+00	0.00E+00	
41	39	1.17E-12	5.89E-12	4.37E-11	1.73E-10	3.49E-10	6.64E-10	8.32E-10	1.03E-09	1.41E-09	1.27E-09	9.89E-10	8.10E-10	1.25E-09	1.10E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
42	28	4.50E-13	3.92E-12	2.21E-11	8.23E-11	2.05E-10	3.62E-10	5.34E-10	5.09E-10	1.69E-09	1.66E-09	1.28E-09	8.92E-10	8.23E-10	6.21E-10	4.79E-10	0.00E+00	0.00E+00	0.00E+00	
43	30	7.81E-12	3.37E-11	1.22E-10	3.36E-10	8.54E-10	1.54E-09	4.47E-09	5.34E-09	4.70E-09	6.29E-09	8.65E-09	9.26E-09	4.36E-09	5.29E-09	0.00E+00	1.41E-08	3.79E-08	0.00E+00	
44	36	5.60E-11	1.09E-10	5.74E-10	1.02E-09	2.40E-09	5.31E-09	1.59E-08	1.73E-08	1.40E-08	2.93E-08	2.31E-08	2.69E-08	3.14E-08	1.54E-08	2.17E-08	0.00E+00	0.04E+00	0.00E+00	
45	41	2.71E-11	1.32E-10	4.00E-10	1.05E-09	1.87E-09	5.03E-09	8.70E-09	1.64E-08	2.73E-08	3.10E-08	3.36E-08	2.42E-08	1.89E-08	2.42E-08	1.77E-08	0.00E+00	0.00E+00	0.00E+00	
46	35	2.41E-12	7.21E-12	2.30E-11	9.61E-11	2.72E-10	3.85E-10	4.40E-10	2.27E-09	3.37E-09	5.63E-09	9.30E-09	9.26E-09	6.37E-09	5.00E-09	5.84E-09	0.00E+00	8.00E+00	0.00E+00	
47	46	3.94E-13	2.01E-12	1.00E-11	4.63E-11	2.33E-10	7.59E-10	8.10E-10	1.37E-09	1.58E-09	2.50E-09	2.70E-09	3.49E-09	7.11E-10	2.24E-09	3.16E-09	0.00E+00	8.00E+00	0.00E+00	
48	31	3.90E-13	1.47E-12	9.25E-12	4.0															

FILE B6: AVERAGED MASS FLUX OF DUPLICATE EXPERIMENTS

PARTICLE DIAMETER IN MICRONS BY GEOMETRIC SIZE RANGE

I	D	C	T	0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.10	1.67	2.37	3.35	4.74	6.70	9.48	13.40	18.95	26.80	37.90
FE	G	ON	60	3.20E-13	8.13E-13	8.52E-12	2.92E-11	6.18E-11	1.13E-10	1.68E-10	1.06E-10	1.22E-10	1.03E-10	1.10E-10	6.92E-11	1.29E-10	2.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE	G	ON	60	4.86E-13	3.35E-12	1.70E-11	5.93E-11	1.48E-10	1.87E-10	1.37E-10	1.77E-10	4.14E-10	4.99E-10	4.34E-10	3.80E-10	5.01E-10	5.37E-10	1.23E-09	8.72E-10	0.00E+00	0.00E+00
FE	G	ON	60	4.12E-14	4.58E-13	2.91E-12	9.75E-12	1.71E-11	3.21E-11	6.06E-11	9.22E-11	1.10E-10	2.02E-10	2.53E-10	2.71E-10	2.75E-10	1.37E-10	3.55E-10	9.23E-11	0.00E+00	0.00E+00
FE	L	ON	60	6.24E-14	3.93E-13	2.55E-12	1.85E-11	6.62E-11	1.17E-10	1.25E-10	7.94E-11	8.01E-11	7.70E-11	7.08E-11	1.35E-11	1.70E-10	1.62E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE	L	ON	60	2.41E-13	1.69E-12	6.99E-12	2.03E-11	4.22E-11	5.49E-11	6.07E-11	7.00E-11	6.39E-11	9.01E-11	7.79E-11	8.01E-11	1.02E-11	3.33E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE	L	ON	60	3.96E-13	2.58E-12	1.41E-11	3.92E-11	6.48E-11	7.72E-11	8.51E-11	1.82E-10	1.33E-10	2.72E-10	3.81E-10	4.95E-10	5.23E-10	4.81E-10	6.80E-10	0.00E+00	0.00E+00	0.00E+00
FE	F	ON	60	1.56E-13	4.11E-12	1.89E-11	5.33E-11	1.24E-10	3.19E-10	4.34E-10	6.58E-10	9.87E-10	1.30E-09	8.00E-10	6.50E-10	6.17E-10	5.23E-10	4.93E-10	0.00E+00	0.00E+00	0.00E+00
FE	F	ON	60	5.42E-12	2.94E-11	9.46E-11	1.81E-10	4.46E-10	7.76E-10	2.04E-09	3.72E-09	5.54E-09	7.84E-09	8.63E-09	6.30E-09	5.52E-09	1.26E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FE	F	ON	60	1.23E-12	6.15E-12	1.99E-11	5.19E-11	9.34E-11	1.54E-10	5.19E-10	1.18E-09	1.55E-09	3.16E-09	4.34E-09	4.10E-09	2.79E-09	5.36E-09	0.00E+00	5.19E-09	1.47E-08	0.00E+00
IG	G	ON	60	7.04E-13	4.65E-12	3.22E-11	1.21E-10	2.75E-10	4.46E-10	6.77E-10	8.91E-10	6.58E-10	9.31E-10	1.17E-09	1.43E-09	1.57E-09	1.40E-09	1.17E-09	1.05E-09	3.43E-09	0.00E+00
IG	G	ON	60	5.95E-12	2.43E-11	8.72E-11	2.29E-10	4.52E-10	8.60E-10	1.04E-09	1.59E-09	1.83E-09	1.54E-09	1.22E-09	1.14E-09	1.12E-09	1.64E-10	0.00E+00	2.62E-09	0.00E+00	0.00E+00
IG	G	ON	60	2.82E-12	1.57E-11	7.81E-11	2.72E-10	5.98E-10	1.16E-09	1.56E-09	1.32E-09	9.71E-10	8.79E-10	5.14E-10	6.68E-10	5.85E-10	3.90E-10	2.47E-09	1.56E-09	0.00E+00	0.00E+00
IG	L	ON	60	1.18E-12	4.86E-12	4.65E-11	1.61E-10	4.30E-10	6.64E-10	3.22E-10	4.60E-10	9.08E-10	5.72E-10	1.88E-10	2.18E-10	3.25E-11	9.18E-11	2.20E-09	7.35E-10	0.00E+00	0.00E+00
IG	L	ON	60	1.51E-12	8.05E-12	5.16E-11	1.90E-10	4.40E-10	8.12E-10	9.43E-10	1.46E-09	1.21E-09	1.12E-09	9.28E-10	7.90E-10	1.12E-09	1.43E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
IG	L	ON	60	2.42E-13	2.04E-12	1.21E-11	4.55E-11	1.16E-10	2.12E-10	3.50E-10	4.83E-10	1.15E-09	1.46E-09	1.93E-09	1.48E-09	1.28E-09	9.26E-10	1.46E-09	0.00E+00	0.00E+00	0.00E+00
IG	F	ON	60	9.24E-12	5.03E-11	2.50E-10	8.60E-10	2.75E-09	6.33E-09	1.29E-08	1.91E-08	8.03E-09	1.09E-08	9.74E-09	7.60E-09	2.83E-09	4.47E-09	5.18E-09	7.05E-09	1.99E-08	0.00E+00
IG	F	ON	60	3.16E-11	1.10E-10	3.36E-10	6.59E-10	1.63E-09	3.67E-09	9.65E-09	1.16E-08	8.81E-09	1.71E-08	1.49E-08	1.80E-08	1.02E-08	1.36E-08	1.67E-08	2.38E-08	6.72E-08	0.00E+00
IG	F	ON	60	2.03E-11	8.97E-11	3.38E-10	7.91E-10	1.73E-09	4.14E-09	6.09E-09	1.16E-08	1.83E-08	2.74E-08	2.76E-08	2.37E-08	2.39E-08	1.53E-08	6.86E-09	0.00E+00	0.00E+00	0.00E+00
HT	G	ON	60	2.77E-12	1.31E-11	4.91E-11	1.60E-10	3.89E-10	8.31E-10	1.38E-09	2.69E-09	2.70E-09	4.97E-09	8.04E-09	8.33E-09	5.83E-09	5.99E-09	2.83E-09	0.00E+00	0.00E+00	0.00E+00
HT	G	ON	60	2.18E-12	1.04E-11	4.54E-11	1.22E-10	3.31E-10	8.40E-10	1.34E-09	2.21E-09	2.07E-09	3.53E-09	3.82E-09	4.48E-09	2.49E-09	2.60E-09	3.15E-09	0.00E+00	0.00E+00	0.00E+00
HT	G	ON	60	2.61E-12	1.13E-11	3.74E-11	1.07E-10	2.82E-10	5.29E-10	7.57E-10	1.40E-09	1.07E-09	2.27E-09	1.95E-09	2.18E-09	1.74E-09	1.56E-09	2.75E-09	4.71E-09	0.00E+00	0.00E+00
HT	L	ON	60	1.07E-12	7.20E-12	3.57E-11	1.61E-10	3.62E-10	7.58E-10	1.19E-09	2.08E-09	3.35E-09	4.08E-09	3.67E-09	3.35E-09	1.27E-09	1.73E-09	6.20E-09	0.00E+00	0.00E+00	0.00E+00
HT	L	ON	60	1.41E-12	8.79E-12	4.12E-11	1.49E-10	3.78E-10	7.96E-10	1.38E-09	2.07E-09	1.97E-09	3.12E-09	3.69E-09	3.95E-09	3.02E-09	3.49E-09	8.29E-10	0.00E+00	0.00E+00	0.00E+00
HT	L	ON	60	1.09E-12	6.76E-12	4.25E-11	1.63E-10	4.32E-10	7.75E-10	9.87E-10	1.40E-09	9.63E-10	1.07E-09	9.83E-10	7.17E-10	3.34E-10	2.30E-10	0.00E+00	0.00E+00	5.19E-09	0.00E+00
HT	F	ON	60	1.28E-11	6.96E-11	1.85E-10	5.34E-10	1.75E-09	3.18E-09	8.46E-09	2.09E-08	1.89E-08	3.58E-08	4.68E-08	5.92E-08	5.84E-08	3.58E-08	1.16E-08	3.89E-08	0.00E+00	0.00E+00
HT	F	ON	60	1.07E-12	1.03E-11	5.50E-11	1.54E-10	4.13E-10	1.27E-09	3.31E-09	6.19E-09	6.70E-09	1.21E-08	1.62E-08	2.21E-08	2.27E-08	1.90E-08	2.55E-08	3.99E-08	1.09E-08	0.00E+00
HT	F	ON	60	7.61E-12	4.71E-11	1.40E-10	4.37E-10	1.13E-09	2.96E-09	6.66E-09	1.49E-08	1.29E-08	2.04E-08	2.63E-08	3.18E-08	3.87E-08	3.50E-08	5.21E-08	1.39E-08	0.00E+00	0.00E+00

TABLE B7: AVERAGED MEASURED AND CALCULATED DATA

B	D	C	T	FILTER VEL (m/sec)	INLET CONC. (g/m ³)	MEASURED	CALCULATED	MASS OUTLET FLUX AS A FUNCTION OF PARTICLE DIAMETER												
						OUTLET FLUX (g/m ² s)	W ² V/T CALC (kg ² /m ³ s ²)	0.10	0.15	0.21	0.30	0.42	0.59	0.84	1.18	1.67	2.37	3.35	4.74	6.70
GT	B	OM	60	0.050	1.400	1.26E-09	8.09E-07	3.20E-13	8.13E-13	8.52E-12	2.92E-11	6.18E-11	1.13E-10	1.68E-10	1.06E-10	1.22E-10	1.03E-10	1.10E-10	6.92E-11	1.29E-10
GT	B	OM	60	0.075	0.980	5.60E-09	1.33E-06	4.86E-13	3.35E-12	1.70E-11	5.93E-11	1.48E-10	1.87E-10	1.37E-10	1.77E-10	4.14E-10	4.99E-10	4.34E-10	3.80E-10	5.01E-10
GT	B	OM	60	0.100	0.610	1.91E-09	3.31E-06	4.12E-14	4.58E-13	2.91E-12	9.75E-12	1.71E-11	3.21E-11	6.06E-11	9.22E-11	1.10E-10	2.02E-10	2.53E-10	2.71E-10	2.75E-10
GT	L	OM	60	0.050	1.345	9.83E-10	1.25E-06	6.24E-14	3.93E-13	2.55E-12	1.85E-11	6.62E-11	1.17E-10	1.25E-10	7.94E-11	8.01E-11	7.70E-11	7.08E-11	1.35E-11	1.70E-10
GT	L	OM	60	0.075	0.805	9.12E-10	2.09E-06	2.41E-13	1.61E-12	6.99E-12	2.03E-11	4.22E-11	5.49E-11	6.07E-11	7.00E-11	6.39E-11	9.01E-11	7.79E-11	8.01E-11	1.02E-11
GT	L	OM	60	0.100	0.600	3.43E-09	3.39E-06	3.96E-13	2.58E-12	1.41E-11	3.92E-11	6.48E-11	7.72E-11	8.51E-11	1.82E-10	1.33E-10	2.72E-10	3.81E-10	4.95E-10	5.23E-10
GT	F	OM	60	0.050	1.200	6.98E-09	1.34E-06	1.56E-13	4.11E-12	1.89E-11	5.33E-11	1.24E-10	3.19E-10	4.34E-10	6.58E-10	9.87E-10	1.30E-09	8.00E-10	6.50E-10	6.17E-10
GT	F	OM	60	0.075	0.845	4.24E-08	4.10E-06	5.42E-12	2.94E-11	9.46E-11	1.81E-10	4.45E-10	7.76E-10	2.04E-09	3.72E-09	5.54E-09	7.84E-09	8.63E-09	6.30E-09	5.52E-09
GT	F	OM	60	0.100	0.640	4.32E-08	9.99E-06	1.23E-12	6.15E-12	1.99E-11	5.19E-11	9.34E-11	1.56E-10	5.19E-10	1.18E-09	1.55E-09	3.16E-09	4.34E-09	4.10E-09	2.79E-09
S	B	OM	60	0.050	1.315	1.53E-08	7.46E-06	7.04E-13	4.65E-12	3.22E-11	1.21E-10	2.75E-10	4.45E-10	6.77E-10	8.91E-10	6.58E-10	9.31E-10	1.17E-09	1.43E-09	1.57E-09
S	B	OM	60	0.075	0.835	1.39E-08	5.75E-06	5.95E-12	2.43E-11	8.72E-11	2.29E-10	4.52E-10	8.60E-10	1.04E-09	1.59E-09	1.83E-09	1.54E-09	1.22E-09	1.14E-09	1.12E-09
S	B	OM	60	0.100	0.645	1.30E-08	1.28E-05	2.82E-12	1.57E-11	7.81E-11	2.72E-10	5.98E-10	1.16E-09	1.56E-09	1.32E-09	9.71E-10	8.79E-10	5.14E-10	6.68E-10	5.85E-10
S	L	OM	60	0.050	1.380	7.04E-09	6.38E-06	1.18E-12	4.86E-12	4.63E-11	1.61E-10	4.30E-10	6.64E-10	3.22E-10	4.64E-10	9.08E-10	5.72E-10	1.88E-10	2.18E-10	3.25E-11
S	L	OM	60	0.075	0.890	1.05E-08	8.75E-06	1.51E-12	8.05E-12	5.16E-11	1.90E-10	4.40E-10	8.12E-10	9.43E-10	1.46E-09	1.21E-09	1.12E-09	9.28E-10	7.90E-10	1.12E-09
S	L	OM	60	0.100	0.620	1.09E-08	1.21E-05	2.42E-13	2.04E-12	1.21E-11	4.55E-11	1.16E-10	2.12E-10	3.50E-10	4.83E-10	1.15E-09	1.46E-09	1.93E-09	1.48E-09	1.28E-09
S	F	OM	60	0.050	1.285	1.18E-07	3.86E-05	9.24E-12	5.03E-11	2.50E-10	8.68E-10	2.75E-09	6.33E-09	1.29E-08	1.91E-08	8.03E-09	1.09E-08	9.74E-09	7.60E-09	2.83E-09
S	F	OM	60	0.075	0.885	1.36E-07	6.71E-05	3.16E-11	1.10E-10	3.36E-10	6.59E-10	1.63E-09	3.67E-09	9.65E-09	1.16E-08	8.81E-09	1.71E-08	1.49E-08	1.80E-08	1.02E-08
S	F	OM	60	0.100	0.680	1.68E-07	9.89E-05	2.03E-11	8.97E-11	3.30E-10	7.91E-10	1.73E-09	4.14E-09	6.09E-09	1.16E-08	1.83E-08	2.74E-08	2.76E-08	2.37E-08	2.39E-08
U	B	OM	60	0.050	1.265	4.42E-08	1.00E-05	2.77E-12	1.31E-11	4.91E-11	1.60E-10	3.89E-10	8.31E-10	1.38E-09	2.69E-09	2.70E-09	4.97E-09	8.04E-09	8.33E-09	5.83E-09
U	B	OM	60	0.075	1.150	2.71E-08	1.23E-05	2.18E-12	1.04E-11	4.54E-11	1.22E-10	3.31E-10	8.40E-10	1.34E-09	2.21E-09	2.07E-09	3.53E-09	3.82E-09	4.40E-09	2.49E-09
U	B	OM	60	0.100	0.690	2.14E-08	1.52E-05	2.61E-12	1.13E-11	3.74E-11	1.07E-10	2.82E-10	5.29E-10	7.57E-10	1.40E-09	1.07E-09	2.27E-09	1.95E-09	2.18E-09	1.74E-09
U	L	OM	60	0.050	1.335	3.03E-08	9.89E-06	1.07E-12	7.20E-12	3.57E-11	1.61E-10	3.62E-10	7.58E-10	1.19E-09	2.08E-09	2.00E-09	3.35E-09	4.08E-09	3.67E-09	3.35E-09
U	L	OM	60	0.075	0.780	2.49E-08	1.30E-05	1.41E-12	8.79E-12	4.12E-11	1.49E-10	3.78E-10	7.96E-10	1.38E-09	2.07E-09	1.97E-09	3.12E-09	3.69E-09	3.95E-09	3.02E-09
U	L	OM	60	0.100	0.635	1.33E-08	1.63E-05	1.09E-12	6.76E-12	4.25E-11	1.63E-10	4.32E-10	7.75E-10	9.87E-10	1.40E-09	9.63E-10	1.07E-09	9.83E-10	7.17E-10	3.36E-10
U	F	OM	60	0.050	1.385	3.41E-07	8.11E-05	1.28E-11	6.96E-11	1.85E-10	5.34E-10	1.75E-09	3.18E-09	8.46E-09	2.09E-08	1.89E-08	3.58E-08	4.68E-08	5.92E-08	5.84E-08
U	F	OM	60	0.075	0.800	1.87E-07	7.19E-05	1.07E-12	1.03E-11	5.58E-11	1.54E-10	4.13E-10	1.27E-09	3.31E-09	6.19E-09	6.70E-09	1.21E-08	1.62E-08	2.21E-08	2.27E-08
U	F	OM	60	0.100	0.660	2.50E-07	1.56E-04	7.61E-12	4.71E-11	1.40E-10	4.37E-10	1.13E-09	2.96E-09	6.64E-09	1.49E-08	1.29E-08	2.04E-08	2.63E-08	3.18E-08	3.07E-08

TABLE 00. PTFE LAMINATED BAGS MEASURED AND CALCULATED DATA

BIG CORE BAG	CALC	PTCALC	NEARHT	AREAL	DIAM		LOGCONST	CONSTANT	BAG	k	n	MEASURED OUTLET FLUX									
					CODE	DIAM						131	132	133	111	112	113	121	122	123	
131	1	8.09E-07	2.45E-10	1.26E-09	0.0312	M1	0.10	-10.3780	4.19E-11	0.432	1.13E-10	0.635	3.20E-13	4.88E-13	4.12E-14	6.24E-14	2.41E-13	3.96E-13	1.56E-13	5.42E-12	1.23E-12
132	1	1.33E-06	4.67E-10	5.60E-09	0.0327	M2	0.15	-9.3740	4.23E-10	0.556	1.52E-09	0.659	8.13E-13	3.35E-12	4.50E-13	3.93E-13	1.69E-12	2.53E-12	4.11E-12	2.94E-11	6.15E-12
133	1	3.31E-06	1.50E-09	1.91E-09	0.0446	M3	0.21	-9.3950	4.03E-10	0.823	2.68E-09	0.571	8.52E-12	1.70E-11	2.91E-12	2.55E-12	6.99E-12	1.41E-11	1.89E-11	9.46E-11	1.99E-11
111	1	1.25E-06	4.27E-10	9.83E-10	0.0387	M4	0.30	-8.8070	1.56E-09	0.969	1.45E-08	0.618	2.92E-11	5.93E-11	9.75E-12	1.85E-11	2.03E-11	3.92E-11	5.33E-11	1.81E-10	5.19E-11
112	1	2.09E-06	8.30E-10	9.12E-10	0.0409	M5	0.42	-8.7980	1.59E-09	1.163	2.32E-08	0.618	6.18E-11	1.48E-10	1.71E-11	6.62E-11	4.22E-11	6.48E-11	1.24E-10	4.45E-10	9.34E-11
113	1	3.39E-06	1.54E-09	3.43E-09	0.0451	M6	0.59	-8.0760	8.39E-09	1.150	1.19E-07	0.712	1.13E-10	1.87E-10	3.21E-11	1.17E-10	5.49E-11	7.72E-11	3.19E-10	7.76E-10	1.56E-10
121	1	1.34E-06	4.71E-10	6.98E-09	0.0402	M7	0.84	-7.8420	1.44E-09	1.208	2.32E-07	0.747	1.68E-10	1.37E-10	6.06E-11	1.25E-10	6.07E-11	8.51E-11	4.34E-10	2.04E-09	5.19E-10
122	1	4.18E-06	2.02E-09	4.24E-08	0.0575	M8	1.18	-6.0700	8.51E-07	0.932	7.28E-06	0.989	1.04E-10	1.77E-10	9.22E-11	7.94E-11	7.00E-11	1.82E-10	6.50E-10	3.72E-09	1.18E-09
123	1	9.99E-06	6.19E-09	4.32E-08	0.0774	M9	1.67	-6.3430	4.54E-07	1.099	5.70E-06	0.891	1.22E-10	4.14E-10	1.10E-10	8.01E-11	6.39E-11	1.33E-10	9.87E-10	5.54E-09	1.55E-09
						M10	2.37	-4.0580	8.75E-05	0.706	4.45E-04	1.202	1.03E-10	4.99E-10	2.02E-10	7.70E-11	9.01E-11	2.72E-10	1.30E-09	7.84E-09	3.16E-09
						M11	3.35	-2.1020	7.91E-03	0.275	1.49E-02	1.457	1.10E-10	4.34E-10	2.53E-10	7.08E-11	7.79E-11	3.81E-10	8.00E-10	8.63E-09	4.34E-09
						M12	4.74	-1.4660	3.42E-02	0.100	4.31E-02	1.523	6.92E-11	3.80E-10	2.71E-10	1.20E-11	8.01E-11	4.95E-10	6.50E-10	6.30E-09	4.10E-09
						M13	6.70	-1.3850	4.12E-02	0.094	5.12E-02	1.533	1.29E-10	5.01E-10	2.75E-10	1.70E-10	1.02E-11	5.23E-10	6.17E-10	5.52E-09	2.79E-09
CALCULATED OUTLET FLUX FROM SYSTAT STATISTICAL MODEL																					
					DIAM							CALC	8.09E-07	1.33E-06	3.31E-06	1.25E-06	2.09E-06	3.39E-06	1.34E-06	4.18E-06	9.99E-06
					CODE	DIAM						n	131	132	133	111	112	113	121	122	123
						M1	0.10	-10.3780	4.19E-11	0.432	1.13E-10	0.635	1.53E-14	2.11E-14	3.75E-14	2.02E-14	2.80E-14	3.81E-14	2.12E-14	4.35E-14	7.56E-14
						M2	0.15	-9.3740	4.23E-10	0.556	1.52E-09	0.659	1.47E-13	2.04E-13	3.72E-13	1.95E-13	2.75E-13	3.78E-13	2.05E-13	4.34E-13	7.70E-13
						M3	0.21	-9.3950	4.03E-10	0.823	2.68E-09	0.571	8.90E-13	1.18E-12	1.99E-12	1.14E-12	1.53E-12	2.02E-12	1.19E-12	2.27E-12	3.74E-12
						M4	0.30	-8.8070	1.56E-09	0.969	1.45E-08	0.618	2.45E-12	3.40E-12	5.96E-12	3.26E-12	4.49E-12	6.05E-12	3.41E-12	6.89E-12	1.18E-11
						M5	0.42	-8.7980	1.59E-09	1.163	2.32E-08	0.618	3.95E-12	5.43E-12	9.52E-12	5.20E-12	7.16E-12	9.65E-12	5.45E-12	1.10E-11	1.88E-11
						M6	0.59	-8.0760	8.39E-09	1.150	1.19E-07	0.712	5.45E-12	7.79E-12	1.49E-11	7.41E-12	1.07E-11	1.51E-11	7.82E-12	1.76E-11	3.26E-11
						M7	0.84	-7.8420	1.44E-09	1.208	2.32E-07	0.747	6.53E-12	9.50E-12	1.87E-11	9.02E-12	1.33E-11	1.91E-11	9.54E-12	2.23E-11	4.27E-11
						M8	1.18	-6.0700	8.51E-07	0.932	7.28E-06	0.989	6.87E-12	1.13E-11	2.77E-11	1.05E-11	1.76E-11	2.83E-11	1.13E-11	3.49E-11	8.25E-11
						M9	1.67	-6.3430	4.54E-07	1.099	5.70E-06	0.891	2.13E-11	3.33E-11	7.47E-11	3.13E-11	4.96E-11	7.63E-11	3.34E-11	9.20E-11	2.00E-10
						M10	2.37	-4.0580	8.75E-05	0.706	4.45E-04	1.202	2.11E-11	3.88E-11	1.15E-10	3.55E-11	6.62E-11	1.18E-10	3.89E-11	1.52E-10	4.34E-10
						M11	3.35	-2.1020	7.91E-03	0.275	1.49E-02	1.457	1.98E-11	4.11E-11	1.54E-10	3.71E-11	7.90E-11	1.60E-10	4.15E-11	2.17E-10	7.72E-10
						M12	4.74	-1.4660	3.42E-02	0.100	4.31E-02	1.523	2.27E-11	4.87E-11	1.94E-10	4.38E-11	9.63E-11	2.01E-10	4.91E-11	2.77E-10	1.04E-09
						M13	6.70	-1.3850	4.12E-02	0.094	5.12E-02	1.533	2.34E-11	5.05E-11	2.03E-10	4.54E-11	1.00E-10	2.11E-10	5.10E-11	2.91E-10	1.10E-09
CALCULATED OUTLET FLUX FROM GRAPHS																					
					DIAM							CALC	8.09E-07	1.33E-06	3.31E-06	1.25E-06	2.09E-06	3.39E-06	1.34E-06	4.18E-06	9.99E-06
												n	131	132	133	111	112	113	121	122	123
													5.52E-14	7.11E-14	1.13E-13	6.87E-14	8.93E-14	1.14E-13	7.14E-14	1.27E-13	1.97E-13
													1.78E-13	2.37E-13	3.94E-13	2.27E-13	3.04E-13	3.99E-13	2.37E-13	4.50E-13	7.34E-13
													4.43E-13	6.02E-13	1.05E-12	5.77E-13	7.93E-13	1.07E-12	6.05E-13	1.21E-12	2.07E-12
													1.08E-12	1.52E-12	2.79E-12	1.45E-12	2.05E-12	2.84E-12	1.52E-12	3.27E-12	5.00E-12
													2.34E-12	3.38E-12	6.57E-12	3.21E-12	4.63E-12	6.69E-12	3.39E-12	7.80E-12	1.40E-11
													4.71E-12	7.03E-12	1.45E-11	6.65E-12	1.01E-11	1.49E-11	7.07E-12	1.75E-11	3.52E-11
													8.91E-12	1.38E-11	3.06E-11	1.30E-11	2.05E-11	3.12E-11	1.39E-11	3.76E-11	8.05E-11
													1.18E-11	9.88E-12	0.955	1.49E-11	2.41E-11	5.75E-11	2.26E-11	3.70E-11	5.88E-11
													1.67E-11	5.27E-11	0.045	2.28E-11	3.85E-11	9.95E-11	3.50E-11	6.15E-11	1.02E-10
													2.37E-11	2.05E-11	0.143	3.10E-11	5.50E-11	1.55E-10	5.08E-11	9.19E-11	1.60E-10
													3.35E-11	1.51E-11	0.249	3.70E-11	6.93E-11	2.16E-10	6.35E-11	1.21E-10	2.22E-10
													4.74E-11	8.05E-11	0.366	3.85E-11	7.63E-11	2.64E-10	6.93E-11	1.41E-10	2.72E-10
													6.70E-11	4.27E-11	0.493	3.43E-11	7.25E-11	2.82E-10	6.54E-11	1.42E-10	2.91E-10

TABLE 09. UNTREATED BAG MEASURED AND CALCULATED DATA

BAG CODE	BAG	CALC	PTCALC	MEASMT	AREA	DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	k	n	BAG CODE	231	232	233	211	212	213	221	222	223
231	2	1.00E-05	2.29E-08	4.42E-08	0.1097	M1	0.10	-10.3780	4.19E-11	0.864	3.06E-10	0.635	2.77E-12	2.18E-12	2.61E-12	1.07E-12	1.41E-12	1.09E-12	1.28E-11	1.07E-12	7.61E-11	
232	2	1.23E-05	2.97E-08	2.71E-08	0.0992	M2	0.15	-9.3740	4.23E-10	1.112	5.47E-09	0.659	1.31E-11	1.04E-11	1.13E-11	7.20E-12	8.79E-12	6.76E-12	6.96E-11	1.03E-11	4.71E-11	
233	2	1.52E-05	3.92E-08	2.14E-08	0.0956	M3	0.21	-9.3950	4.03E-10	1.646	1.78E-08	0.571	4.91E-11	4.54E-11	3.74E-11	3.57E-11	4.12E-11	4.25E-11	1.85E-10	5.58E-11	1.40E-10	
211	2	9.81E-06	2.25E-08	3.03E-08	0.1089	M4	0.30	-8.8070	1.56E-09	1.938	1.35E-07	0.618	1.60E-10	1.22E-10	1.07E-10	1.61E-10	1.49E-10	1.63E-10	5.34E-10	1.54E-10	4.37E-10	
212	2	1.30E-05	3.18E-08	2.49E-08	0.1018	M5	0.42	-8.7980	1.59E-09	2.326	3.37E-07	0.618	3.89E-10	3.31E-10	2.82E-10	3.62E-10	3.70E-10	4.32E-10	1.75E-09	4.13E-10	1.13E-09	
213	2	1.63E-05	4.29E-08	1.33E-08	0.0990	M6	0.59	-8.0760	8.39E-09	2.300	1.67E-06	0.712	8.31E-10	8.40E-10	5.29E-10	7.58E-10	7.96E-10	7.75E-10	3.18E-09	1.27E-09	2.96E-09	
221	2	8.81E-05	3.73E-07	3.41E-07	0.3251	M7	0.84	-7.8420	1.44E-08	2.416	3.75E-06	0.747	1.38E-09	1.34E-09	7.57E-10	1.19E-09	1.38E-09	9.87E-10	8.46E-09	3.31E-09	6.64E-09	
222	2	7.19E-05	2.87E-07	1.87E-07	0.2398	M8	1.18	-6.0700	8.51E-07	1.864	6.22E-05	0.989	2.69E-09	2.21E-09	1.40E-09	2.08E-09	2.07E-09	1.40E-09	2.09E-08	6.19E-09	1.49E-08	
223	2	1.54E-04	7.74E-07	2.50E-07	0.3057	M9	1.67	-6.3430	4.54E-07	2.198	7.16E-05	0.891	2.70E-09	2.07E-09	1.07E-09	2.00E-09	1.97E-09	9.63E-10	1.89E-09	6.70E-09	1.29E-08	
						M10	2.37	-4.0580	8.75E-05	1.412	2.26E-03	1.202	4.97E-09	3.53E-09	2.27E-09	3.35E-09	3.12E-09	1.07E-09	3.58E-08	1.21E-08	2.04E-08	
						M11	3.35	-2.1020	7.91E-03	0.550	2.81E-02	1.457	8.04E-09	3.82E-09	1.95E-09	4.08E-09	3.69E-09	9.83E-10	4.68E-08	1.62E-08	2.63E-08	
						M12	4.74	-1.4660	3.42E-02	0.200	5.42E-02	1.523	8.33E-09	4.48E-09	2.18E-09	3.67E-09	3.95E-09	7.17E-10	5.92E-08	2.21E-08	3.18E-08	
						M13	6.70	-1.3850	4.12E-02	0.188	6.35E-02	1.533	5.83E-09	2.49E-09	1.74E-09	3.35E-09	3.02E-09	3.36E-10	5.84E-08	2.27E-08	3.07E-08	
CALCULATED OUTLET FLUX FROM ACTUAL STATISTICAL DATA																						
						DIAM CODE	DIAM	LOGCONST	CONSTANT	BAG	k	n		1.00E-05	1.23E-05	1.52E-05	9.89E-06	1.30E-05	1.63E-05	8.81E-05	7.19E-05	1.54E-04
														231	232	233	211	212	213	221	222	223
						M1	0.10	-10.3780	4.19E-11	0.864	3.06E-10	0.635	2.05E-13	2.33E-13	2.67E-13	2.03E-13	2.41E-13	2.80E-13	8.15E-13	7.16E-13	1.17E-12	
						M2	0.15	-9.3740	4.23E-10	1.112	5.47E-09	0.659	2.78E-12	3.18E-12	3.66E-12	2.75E-12	3.29E-12	3.83E-12	1.16E-11	1.02E-11	1.69E-11	
						M3	0.21	-9.3950	4.03E-10	1.646	1.78E-08	0.571	2.49E-11	2.80E-11	3.17E-11	2.47E-11	2.89E-11	3.29E-11	8.62E-11	7.68E-11	1.19E-10	
						M4	0.30	-8.8070	1.56E-09	1.938	1.35E-07	0.618	1.10E-10	1.25E-10	1.43E-10	1.09E-10	1.29E-10	1.49E-10	4.22E-10	3.72E-10	6.00E-10	
						M5	0.42	-8.7980	1.59E-09	2.326	3.37E-07	0.618	2.75E-10	3.11E-10	3.56E-10	2.72E-10	3.22E-10	3.71E-10	1.05E-09	9.28E-10	1.50E-09	
						M6	0.59	-8.0760	8.39E-09	2.300	1.67E-06	0.712	4.62E-10	5.34E-10	6.23E-10	4.58E-10	5.55E-10	6.55E-10	2.17E-09	1.88E-09	3.21E-09	
						M7	0.84	-7.8420	1.44E-08	2.416	3.75E-06	0.747	6.92E-10	8.05E-10	9.45E-10	6.84E-10	8.38E-10	9.96E-10	3.51E-09	3.01E-09	5.37E-09	
						M8	1.18	-6.0700	8.51E-07	1.864	6.22E-05	0.989	7.09E-10	8.66E-10	1.07E-09	6.98E-10	9.13E-10	1.15E-09	6.07E-09	4.97E-09	1.07E-08	
						M9	1.67	-6.3430	4.54E-07	2.198	7.16E-05	0.891	2.52E-09	3.02E-09	3.66E-09	2.45E-09	3.17E-09	3.89E-09	1.75E-08	1.46E-08	2.90E-08	
						M10	2.37	-4.0580	8.75E-05	1.412	2.26E-03	1.202	2.22E-09	2.83E-09	3.66E-09	2.18E-09	3.02E-09	3.99E-09	3.02E-08	2.36E-08	5.99E-08	
						M11	3.35	-2.1020	7.91E-03	0.550	2.81E-02	1.457	1.46E-09	1.97E-09	2.69E-09	1.43E-09	2.12E-09	2.98E-09	3.47E-08	2.58E-08	7.95E-08	
						M12	4.74	-1.4660	3.42E-02	0.200	5.42E-02	1.523	1.32E-09	1.80E-09	2.50E-09	1.29E-09	1.95E-09	2.78E-09	3.61E-08	2.65E-08	8.61E-08	
						M13	6.70	-1.3850	4.12E-02	0.188	6.35E-02	1.533	1.38E-09	1.89E-09	2.62E-09	1.35E-09	2.05E-09	2.92E-09	3.86E-08	2.83E-08	9.25E-08	
CALCULATED OUTLET FLUX FROM GRAPH																						
						DIAM	k	CALC n						1.00E-05	1.23E-05	1.52E-05	9.89E-06	1.30E-05	1.63E-05	8.81E-05	7.19E-05	1.54E-04
														231	232	233	211	212	213	221	222	223
						0.10	3.45E-10	0.507	1.01E-12	1.12E-12	1.25E-12	1.00E-12	1.15E-12	1.30E-12	3.04E-12	2.75E-12	4.06E-12					
						0.15	2.44E-09	0.562	3.77E-12	4.22E-12	4.77E-12	3.74E-12	4.35E-12	4.96E-12	1.28E-11	1.14E-11	1.76E-11					
						0.21	1.23E-08	0.613	1.06E-11	1.20E-11	1.37E-11	1.05E-11	1.24E-11	1.43E-11	4.03E-11	3.55E-11	5.71E-11					
						0.30	6.88E-08	0.672	3.01E-11	3.45E-11	3.99E-11	2.98E-11	3.58E-11	4.18E-11	1.30E-10	1.13E-10	1.90E-10					
						0.42	3.48E-07	0.733	7.59E-11	8.80E-11	1.03E-10	7.50E-11	9.15E-11	1.08E-10	3.73E-10	3.21E-10	5.66E-10					
						0.59	1.79E-06	0.799	1.81E-10	2.13E-10	2.52E-10	1.79E-10	2.12E-10	2.67E-10	1.03E-09	8.73E-10	1.62E-09					
						0.84	9.04E-06	0.875	4.14E-10	4.94E-10	5.97E-10	4.08E-10	5.18E-10	6.34E-10	2.77E-09	2.32E-09	4.57E-09					
						1.18	5.06E-05	0.955	8.49E-10	1.03E-09	1.27E-09	8.37E-10	1.08E-09	1.35E-09	6.76E-09	5.57E-09	1.17E-08					
						1.67	2.70E-04	1.045	1.62E-09	2.01E-09	2.51E-09	1.60E-09	2.12E-09	2.70E-09	1.57E-08	1.27E-08	2.84E-08					
						2.37	1.46E-03	1.143	2.83E-09	3.57E-09	4.56E-09	2.78E-09	3.79E-09	4.94E-09	3.38E-08	2.68E-08	6.49E-08					
						3.35	7.74E-03	1.249	4.41E-09	5.68E-09	7.43E-09	4.33E-09	6.07E-09	8.11E-09	6.85E-08	5.16E-08	1.36E-07					
						4.74	4.12E-02	1.346	6.14E-09	8.11E-09	1.09E-08	6.02E-09	8.71E-09	1.20E-08	1.19E-07	9.04E-08	2.60E-07					
						6.70	2.19E-01	1.493	7.55E-09	1.02E-08	1.41E-08	7.38E-09	1.11E-08	1.56E-08	1.93E-07	1.43E-07	4.52E-07					
						k = 2.28X10 ⁻⁵ *DIAM ^{4.82}																
						n = 0.9156*DIAM ^{0.257}																

TABLE B10: STINKED SURFACE FELT FABRIC BAGS MEASURED AND CALCULATED DATA

BAG CODE	DMM	CALC	PTCALC	MEASNT	AREAL	DMM		LOGCONST	CONSTANT	BAG	k	n	MEASURED OUTLET FLUX								
						CODE	DMM						331	332	333	311	312	313	321	322	323
131	1	7.46E-06	4.25E-09	1.53E-08	0.0946	M1	0.10	-10.3780	4.19E-11	0.432	2.10E-10	0.635	7.04E-13	5.95E-12	2.02E-12	1.10E-12	1.51E-12	2.42E-13	9.24E-12	3.16E-11	2.03E-11
132	1	5.75E-06	3.05E-09	1.39E-08	0.0678	M2	0.15	-9.3740	4.23E-10	0.556	3.50E-09	0.659	5.95E-12	2.43E-11	1.57E-11	4.86E-12	8.05E-12	2.04E-12	5.03E-11	1.10E-10	8.97E-11
133	1	1.26E-05	8.51E-09	1.30E-08	0.0877	M3	0.21	-9.3950	4.03E-10	0.823	1.03E-08	0.571	2.82E-12	1.57E-11	7.81E-11	4.65E-11	5.16E-11	1.21E-11	2.50E-10	3.36E-10	3.38E-10
111	1	6.38E-06	3.49E-09	7.04E-09	0.0875	M4	0.30	-8.6070	1.56E-09	0.969	7.43E-08	0.618	1.10E-12	4.86E-12	4.65E-11	1.61E-10	1.90E-10	4.55E-11	8.68E-10	6.59E-10	7.91E-10
112	1	8.75E-06	5.22E-09	1.05E-08	0.0837	M5	0.42	-8.7980	1.59E-09	1.163	1.80E-07	0.618	1.51E-12	8.05E-12	5.16E-11	1.90E-10	4.40E-10	1.16E-10	2.75E-09	1.63E-09	1.73E-09
113	1	1.21E-05	7.88E-09	1.09E-08	0.0851	M6	0.59	-8.0760	8.39E-09	1.150	8.97E-07	0.712	2.42E-13	2.04E-12	1.21E-11	4.55E-11	1.16E-10	2.12E-10	6.33E-09	3.67E-09	4.14E-09
121	1	3.86E-05	3.51E-09	1.18E-07	0.2152	M7	0.84	-7.8420	1.44E-08	1.208	1.99E-06	0.747	9.24E-12	5.03E-11	2.50E-10	8.68E-10	2.75E-09	6.33E-09	1.29E-08	9.65E-09	6.07E-09
122	1	6.71E-05	7.14E-08	1.36E-07	0.2317	M8	1.18	-6.0700	8.51E-07	0.932	3.48E-05	0.989	3.16E-11	1.10E-10	3.36E-10	6.59E-10	1.63E-09	3.67E-09	9.65E-09	1.16E-08	1.16E-08
123	1	9.89E-05	1.17E-07	1.68E-07	0.2436	M9	1.67	-6.3430	4.54E-07	1.099	3.07E-05	0.891	2.03E-11	8.97E-11	3.38E-10	7.91E-10	1.73E-09	4.14E-09	6.09E-09	1.16E-08	1.83E-08
													CALCULATED OUTLET FLUX FROM SYSTAT STATISTICAL MODEL								
													7.46E-06	5.75E-06	1.20E-05	6.38E-06	8.75E-06	1.21E-05	3.86E-05	6.71E-05	9.89E-05
													331	332	333	311	312	313	321	322	323
1	M1	0.10	-10.3780	4.19E-11	0.432	2.10E-10	0.635	1.16E-13	9.87E-14	1.64E-13	1.05E-13	1.29E-13	1.58E-13	3.30E-13	4.69E-13	6.01E-13	6.01E-13	6.01E-13	6.01E-13	6.01E-13	6.01E-13
1	M2	0.15	-9.3740	4.23E-10	0.556	3.50E-09	0.659	1.46E-12	1.23E-12	2.09E-12	1.32E-12	1.62E-12	2.00E-12	4.32E-12	6.21E-12	8.02E-12	8.02E-12	8.02E-12	8.02E-12	8.02E-12	8.02E-12
1	M3	0.21	-9.3950	4.03E-10	0.823	1.03E-08	0.571	1.21E-11	1.04E-11	1.65E-11	1.11E-11	1.33E-11	1.59E-11	3.10E-11	4.24E-11	5.30E-11	5.30E-11	5.30E-11	5.30E-11	5.30E-11	5.30E-11
1	M4	0.30	-8.6070	1.56E-09	0.969	7.43E-08	0.618	5.09E-11	4.32E-11	7.09E-11	4.61E-11	5.60E-11	6.83E-11	1.40E-10	1.97E-10	2.51E-10	2.51E-10	2.51E-10	2.51E-10	2.51E-10	2.51E-10
1	M5	0.42	-8.7980	1.59E-09	1.163	1.80E-07	0.618	1.22E-10	1.04E-10	1.71E-10	1.11E-10	1.35E-10	1.64E-10	3.38E-10	4.75E-10	6.04E-10	6.04E-10	6.04E-10	6.04E-10	6.04E-10	6.04E-10
1	M6	0.59	-8.0760	8.39E-09	1.150	8.97E-07	0.712	2.00E-10	1.79E-10	2.95E-10	1.79E-10	2.25E-10	2.82E-10	6.46E-10	9.58E-10	1.20E-09	1.20E-09	1.20E-09	1.20E-09	1.20E-09	1.20E-09
1	M7	0.84	-7.8420	1.44E-08	1.208	1.99E-06	0.747	2.94E-10	2.43E-10	4.41E-10	2.62E-10	3.32E-10	4.22E-10	1.01E-09	1.52E-09	2.03E-09	2.03E-09	2.03E-09	2.03E-09	2.03E-09	2.03E-09
1	M8	1.18	-6.0700	8.51E-07	0.932	3.48E-05	0.989	2.95E-10	2.28E-10	5.04E-10	2.53E-10	3.46E-10	4.75E-10	1.50E-09	2.59E-09	3.81E-09	3.81E-09	3.81E-09	3.81E-09	3.81E-09	3.81E-09
1	M9	1.67	-6.3430	4.54E-07	1.099	3.07E-05	0.891	1.04E-09	8.29E-10	1.69E-09	9.09E-10	1.20E-09	1.60E-09	4.52E-09	7.39E-09	1.04E-08	1.04E-08	1.04E-08	1.04E-08	1.04E-08	1.04E-08
1	M10	2.37	-4.0580	8.75E-05	0.706	1.35E-03	1.202	9.28E-09	6.80E-09	1.78E-09	7.70E-10	1.13E-09	1.65E-09	6.70E-09	1.30E-08	2.09E-08	2.09E-08	2.09E-08	2.09E-08	2.09E-08	2.09E-08
1	M11	3.35	-2.1020	7.91E-03	0.275	2.15E-02	1.457	7.26E-10	4.98E-10	1.60E-09	5.79E-10	9.17E-10	1.46E-09	7.97E-09	1.70E-08	3.14E-08	3.14E-08	3.14E-08	3.14E-08	3.14E-08	3.14E-08
1	M12	4.74	-1.4660	3.42E-02	0.100	4.86E-02	1.523	7.54E-10	5.09E-10	1.72E-09	5.96E-10	9.63E-10	1.57E-09	9.23E-09	2.14E-08	3.87E-08	3.87E-08	3.87E-08	3.87E-08	3.87E-08	3.87E-08
1	M13	6.70	-1.3850	4.12E-02	0.094	5.74E-02	1.533	7.91E-10	5.32E-10	1.81E-09	6.23E-10	1.01E-09	1.65E-09	9.83E-09	2.30E-08	4.16E-08	4.16E-08	4.16E-08	4.16E-08	4.16E-08	4.16E-08
													CALCULATED OUTLET FLUX FROM GRAPHS OF MODEL STATISTICS (POWER FUNCTIONS)								
													7.46E-06	5.75E-06	1.20E-05	6.38E-06	8.75E-06	1.21E-05	3.86E-05	6.71E-05	9.89E-05
													331	332	333	311	312	313	321	322	323
						DMM	k														
						0.10	2.06E-10	0.507	5.21E-13	4.57E-13	6.85E-13	4.81E-13	5.65E-13	6.64E-13	1.20E-12	1.58E-12	1.93E-12	1.93E-12	1.93E-12	1.93E-12	1.93E-12
						0.15	1.46E-09	0.562	1.91E-12	1.65E-12	2.58E-12	1.75E-12	2.08E-12	2.50E-12	4.00E-12	6.55E-12	8.15E-12	8.15E-12	8.15E-12	8.15E-12	8.15E-12
						0.21	7.37E-09	0.613	5.29E-12	4.52E-12	7.39E-12	4.81E-12	5.84E-12	7.11E-12	1.45E-11	2.04E-11	2.58E-11	2.58E-11	2.58E-11	2.58E-11	2.58E-11
						0.30	4.11E-08	0.672	1.47E-11	1.24E-11	2.12E-11	1.33E-11	1.64E-11	2.04E-11	4.45E-11	6.45E-11	8.30E-11	8.30E-11	8.30E-11	8.30E-11	8.30E-11
						0.42	2.08E-07	0.733	3.65E-11	3.02E-11	5.42E-11	3.25E-11	4.10E-11	5.19E-11	1.22E-10	1.82E-10	2.42E-10	2.42E-10	2.42E-10	2.42E-10	2.42E-10
						0.59	1.07E-06	0.799	8.52E-11	6.93E-11	1.31E-10	7.52E-11	9.68E-11	1.25E-10	3.17E-10	4.93E-10	6.73E-10	6.73E-10	6.73E-10	6.73E-10	6.73E-10
						0.84	5.88E-06	0.875	1.91E-10	1.52E-10	3.06E-10	1.66E-10	2.19E-10	2.90E-10	8.04E-10	1.31E-09	1.83E-09	1.83E-09	1.83E-09	1.83E-09	1.83E-09
						1.18	3.03E-05	0.955	3.82E-10	2.98E-10	6.41E-10	3.29E-10	4.45E-10	6.05E-10	1.84E-09	3.12E-09	4.52E-09	4.52E-09	4.52E-09	4.52E-09	4.52E-09
						1.67	1.61E-04	1.045	7.11E-10	5.42E-10	1.25E-09	6.04E-10	8.40E-10	1.17E-09	3.96E-09	7.05E-09	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08
						2.37	8.72E-04	1.143	1.20E-09	8.95E-10	2.23E-09	1.01E-09	1.44E-09	2.08E-09	7.88E-09	1.48E-08	2.31E-08	2.31E-08	2.31E-08	2.31E-08	2.31E-08
						3.35	4.62E-03	1.249	1.82E-09	1.32E-09	3.57E-09	1.50E-09	2.22E-09	3.31E-09	1.42E-08	2.83E-08	4.60E-08	4.60E-08	4.60E-08	4.60E-08	4.60E-08
						4.74	2.46E-02	1.366	2.45E-09	1.72E-09	5.12E-09	1.93E-09	3.04E-09	4.72E-09	2.31E-08	4.92E-08	8.36E-08	8.36E-08	8.36E-08	8.36E-08	8.36E-08
						6.70	1.31E-01	1.493	2.69E-09	1.97E-09	6.49E-09	2.30E-09	3.60E-09	5.93E-09	3.37E-08	7.69E-08	1.37E-07	1.37E-07	1.37E-07	1.37E-07	1.37E-07

APPENDIX C
STATISTICAL ANALYSIS

TABLE OF CONTENTS

Statistical Analysis	C1
I. Outlet Mass Flux Statistical Model	
A. Total Outlet Mass Flux (NT)	C4
B. Mass Flux by Particle Size (N)	C5
II. Outlet Mass Flux Analysis of Covariance (ANACOVA)	
A. Total Outlet Mass Flux (NT)	C11
B. Mass Flux by Particle Size (N)	C14
III. Outlet Mass Flux Analysis of Variance (ANOVA) ...	C19
IV. Model Constant, k, (ANOVA)	C21
V. Model Exponent, n, (ANOVA)	C25

STATISTICAL ANALYSIS

The mass flux model, Eq. 2, was analyzed to determine the effects of fabric type, dust type, cleaning mode, and cleaning cycle time on mass penetration. Initially the model was analyzed without regard to particle diameter to determine the overall constant, exponent, and significant operating conditions. Next, the model was analyzed as a function of particle size along a geometric progression of particle diameters ranging from 0.10 μm to 6.7 μm for 24 experimental conditions. Two outlier conditions were eliminated because they gave data greater than 4 standard deviations from the mean, for a total of 22 conditions analyzed.

Data were analyzed by linear regression (LR), analysis of covariance (ANACOVA), and analysis of variance (ANOVA) using the SYSTAT[®] statistical computer program. Initially, complete models incorporating dummy variables were analyzed by LR and ANOVA so that different categories of operating variables could be identified, i.e., fabric type, B, and dust type, D. Tests were then conducted to determine whether the regression lines were parallel, intersecting, or coincident. These results were then used to determine the reduced model.

The reduced model was analyzed by ANACOVA to determine the effects of operating conditions. LR and ANOVA were used to determine the effect of particle size on the model parameters, i.e., constant, k, and exponent, n. LR and ANOVA were used to calculate the regression coefficients and p

values for the variables and parameters used to plot the best fit least squares lines.

Symbols and abbreviations used are:

Independent variables/ Operating conditions

- B Fabric/ Bag type
- D Dust type
- C Cleaning Mode
- T Time between cleaning pulses

Dependent Variables

- NT Total outlet mass flux without regard to particle size
- N1 Outlet mass flux for 0.10 um particle diameter
- N2 Outlet mass flux for 0.15 um particle diameter
- N3 Outlet mass flux for 0.21 um particle diameter
- N4 Outlet mass flux for 0.30 um particle diameter
- N5 Outlet mass flux for 0.42 um particle diameter
- N6 Outlet mass flux for 0.59 um particle diameter
- N7 Outlet mass flux for 0.84 um particle diameter
- N8 Outlet mass flux for 1.18 um particle diameter
- N9 Outlet mass flux for 1.67 um particle diameter
- N10 Outlet mass flux for 2.37 um particle diameter
- N11 Outlet mass flux for 3.35 um particle diameter
- N12 Outlet mass flux for 4.74 um particle diameter
- N13 Outlet mass flux for 6.70 um particle diameter

$$MODEL = CONSTANT + CALS + B * CALS$$

DEF VAL 1 23 MULTIPLE 48 585 SQUARED MULTIPLE R: .977
ADJUSTED PARTIAL R: .975 STANDARD ERROR OF ESTIMATE: 0.1704

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	F	P(2 TAIL)
CONSTANT	1.117	0.000			11.898	0.127
CALS	0.000	0.000	0.000	0.000	0.000	0.000
CALS	0.000	0.000	0.000	0.000	0.000	0.000

ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	P
REGRESSION	0.000	1	0.000	0.000	0.000
RESIDUAL	0.000	1	0.000		

STANDARDIZED COEFFICIENTS

PART 1

OUTLET MASS FLUX MODEL

DEF VAL 1 23 MULTIPLE 51 585 SQUARED MULTIPLE R: .948
ADJUSTED PARTIAL R: .945 STANDARD ERROR OF ESTIMATE: 0.2537

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	F	P(2 TAIL)
CONSTANT	1.117	0.000			11.898	0.127
CALS	0.000	0.000	0.000	0.000	0.000	0.000
CALS	0.000	0.000	0.000	0.000	0.000	0.000

ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	P
REGRESSION	0.000	3	0.000	0.000	0.000
RESIDUAL	0.000	19	0.000		

STANDARDIZED COEFFICIENTS

$$MODEL = CONSTANT + CALS + B$$

DEF VAL 1 23 MULTIPLE 58 585 SQUARED MULTIPLE R: .967
ADJUSTED PARTIAL R: .975 STANDARD ERROR OF ESTIMATE: 0.1850

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	F	P(2 TAIL)
CONSTANT	1.117	0.000			11.898	0.127
CALS	0.000	0.000	0.000	0.000	0.000	0.000
CALS	0.000	0.000	0.000	0.000	0.000	0.000

ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	P
REGRESSION	0.000	2	0.000	0.000	0.000
RESIDUAL	0.000	27	0.000		

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-10.3776	1.3486	0.0000	.	-7.6951	.30E-06
B	0.4316	0.2493	0.3155	0.5104384	1.7317	0.0995
CALC	0.6348	0.2024	0.5714	0.5104384	3.1366	0.0052

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	6.9840	2	3.4920	20.0203	.211079E-04
RESIDUAL	3.3141	19	0.1744		

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-9.3737	1.4621	0.0000	.	-6.4109	.38E-05
B	0.5558	0.2702	0.3659	0.5104384	2.0567	0.0537
CALC	0.6592	0.2194	0.5344	0.5104384	3.0040	0.0072

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	8.7966	2	4.3983	21.4518	.130915E-04
RESIDUAL	3.8956	19	0.2050		

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-9.3947	1.2178	0.0000	.	-7.7148	.29E-06
B	0.8234	0.2251	0.5235	0.5104384	3.6585	0.0017
CALC	0.5709	0.1828	0.4470	0.5104384	3.1238	0.0052

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	10.9042	2	5.4521	38.3357	0.0000
RESIDUAL	2.7022	19	0.1422		

~~~~~

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-8.8067	1.1257	0.0000	.	-7.8236	.23E-04
B	0.9694	0.2081	0.5622	0.5104384	4.6592	0.0001
CALC	0.6184	0.1689	0.4417	0.5104384	3.6604	0.0012

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	14.0398	2	7.0199	57.7668	.507441E-06
RESIDUAL	2.3089	19	0.1215		

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-8.7983	1.1882	0.0000	.	-7.4049	.52E-06
B	1.1634	0.2196	0.6097	0.5104384	5.2976	.41E-04
CALC	0.6185	0.1783	0.3992	0.5104384	3.4685	0.0028

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	17.4552	2	8.7276	64.4611	0.0000
RESIDUAL	2.5725	19	0.1354		

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-8.0764	1.2597	0.0000	.	-6.4111	.38E-05
B	1.1497	0.2328	0.5729	0.5104384	4.9379	.91E-04
CALC	0.7121	0.1891	0.4370	0.5104384	3.7667	0.0012

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	19.2612	2	9.6306	63.2773	0.0000
RESIDUAL	2.8917	19	0.1522		

~~~~~

DEP VAR: N(7) N: 22 MULTIPLE R: .950 SQUARED MULTIPLE R: .902
ADJUSTED SQUARED MULTIPLE R: .891 STANDARD ERROR OF ESTIMATE: 0.3493

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-7.8419	1.1279	0.0000	.	-6.9524	.13E-05
B	1.2079	0.2085	0.5837	0.5104384	5.7941	.14E-04
CALC	0.7472	0.1693	0.4446	0.5104384	4.4138	0.0003

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	21.2365	2	10.6183	87.0227	.141498E-05
RESIDUAL	2.3183	19	0.1220		

[illegible]

DEP VAR: N(8) N: 22 MULTIPLE R: .948 SQUARED MULTIPLE R: .899
ADJUSTED SQUARED MULTIPLE R: .888 STANDARD ERROR OF ESTIMATE: 0.3589

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-6.0698	1.1589	0.0000	.	-5.2378	.47E-04
B	0.9321	0.2142	0.4451	0.5104384	4.3516	0.0003
CALC	0.9887	0.1739	0.5815	0.5104384	5.6849	.18E-04

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	21.6676	2	10.8338	84.1164	.235662E-06
RESIDUAL	2.4471	19	0.1288		

[illegible]

DEP VAR: N(9) N: 22 MULTIPLE R: .949 SQUARED MULTIPLE R: .900
ADJUSTED SQUARED MULTIPLE R: .889 STANDARD ERROR OF ESTIMATE: 0.3635

VARIABLE	COEFFICIENT	STD ERROR	STD COEF TOLERANCE	T	P(2 TAIL)
CONSTANT	-6.3425	1.1739	0.0000	-5.4030	.33E-04
B	1.0987	0.2170	0.5148	5.0640	.69E-04
CALC	0.8911	0.1762	0.5142	5.0580	.70E-04

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	22.5438	2	11.2719	85.2911	.834918E-06
RESIDUAL	2.5110	19	0.1322		

=====;

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-4.0584	1.0838	0.0000	.	-3.7446	0.0014
B	0.7057	0.2003	0.3312	0.5104384	3.5231	0.0023
CALC	1.2023	0.1627	0.6948	0.5104384	7.3915	.53E-06

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	22.8396	2	11.4198	101.3720	0.0000
RESIDUAL	2.1404	19	0.1127		

DEP VAR: N(11) N: 22 MULTIPLE R: .951 SQUARED MULTIPLE R: .905
ADJUSTED SQUARED MULTIPLE R: .895 STANDARD ERROR OF ESTIMATE: 0.3473

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	21.9178	2	10.9589	90.8716	.927535E-06
RESIDUAL	2.2914	19	0.1206		

DEP VAR: N(12) N: 22 MULTIPLE R: .956 SQUARED MULTIPLE R: .914
ADJUSTED SQUARED MULTIPLE R: .905 STANDARD ERROR OF ESTIMATE: 0.3215

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	20.8617	2	10.4309	100.8889	0.0000
RESIDUAL	1.9644	19	0.1034		

~~~~~

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-1.3851	1.1722	0.0000	.	-1.1816	0.2519
B	0.0939	0.2167	0.0454	0.5104384	0.4335	0.6695
CALC	1.5330	0.1759	0.9129	0.5104384	8.7140	.46E-07

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	21.0171	2	10.5085	79.7437	0.0000
RESIDUAL	2.5038	19	0.1318		

[illegible]

PART 2
OUTLET MASS FLUX
(ANACOVA)

$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + \text{B}$$

CATEGORY B=2

TP VAR: NT N: 22 MULTIPLE R: .989 SQUARED MULTIPLE R: .977

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	7.0163	1	7.0163	254.7600	.183686E-11
B	0.8992	1	0.8992	32.6493	.165627E-04
ERROR	0.5233	19	0.0275		

[illegible]
$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + \text{D}$$

CATEGORY D=2

DEP VAR: NT N: 22 MULTIPLE R: .970 SQUARED MULTIPLE R: .941

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	16.4460	1	16.4460	233.0387	.404032E-11
D	0.0816	1	0.0816	1.1561	0.2957
ERROR	1.3409	19	0.0706		

[illegible]
$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + \text{C}$$

CATEGORY C=2

DEP VAR: NT N: 22 MULTIPLE R: .968 SQUARED MULTIPLE R: .938

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	21.4761	1	21.4761	287.0373	.634826E-12
C	0.0009	1	0.0009	0.0117	0.9148
ERROR	1.4216	19	0.0748		

[illegible]

$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + \text{T}$$

CATEGORY T=3

TEMP VAR: NT N: 22 MULTIPLE R: .973 SQUARED MULTIPLE R: .946

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	18.8580	1	18.8580	274.7568	.294453E-11
T	0.1870	2	0.0935	1.3624	0.2812
ERROR	1.2354	18	0.0686		

[illegible]
$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + \text{B} + \text{D}$$

CATEGORY B=2,D=2

DEP VAR: NT N: 22 MULTIPLE R: .989 SQUARED MULTIPLE R: .979

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	3.3803	1	3.3803	124.9427	.156772E-08
B	0.8539	1	0.8539	31.5608	.248772E-04
D	0.0363	1	0.0363	1.3411	0.2620
ERROR	0.4870	18	0.0271		

[illegible]
$$\text{MODEL NT} = \text{CONSTANT} + \text{CALC} + B + C$$

CATEGORY B=2,C=2

DEP VAR: NT N: 22 MULTIPLE R: .989 SQUARED MULTIPLE R: .978

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
CALC	6.9815	1	6.9815	246.6618	.649847E-11
B	0.9121	1	0.9121	32.2257	.219941E-04
C	0.0138	1	0.0138	0.4877	0.4939
ERROR	0.5095	18	0.0283		

~~~~~

Figure 1

APPENDIX 2

5

1

[illegible]

●

●

●

[illegible]

PART 3
OUTLET MASS FLUX
(ANOVA)

PART 4
MODEL CONSTANT, 1

$$\text{MODEL LK} = \text{CONSTANT} + \text{LDIAM} + \text{B} + \text{B*LDIAM}$$

DEP VAR: LK N: 26 MULTIPLE R: .987 SQUARED MULTIPLE R: .973
 ADJUSTED SQUARED MULTIPLE R: .970 STANDARD ERROR OF ESTIMATE: 0.4931

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-6.0620	0.3087	0.0000	.	-19.6398	.25E-12
LDIAM	5.2354	0.5416	1.0614	0.1000000	9.6660	.22E-08
B	0.7099	0.1952	0.1275	0.9814132	3.6364	0.0015
B*						
LDIAM	-0.2759	0.3426	-0.0885	0.0998110	-0.8055	0.4292

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	196.2732	3	65.4244	269.1256	0.0000
RESIDUAL	5.3482	22	0.2431		

[illegible]

PART 5
MODEL EXPONENT, n

MODEL LEXP = CONSTANT + LDIAH

DEP VAR: LEXP N: 13 MULTIPLE R: .933 SQUARED MULTIPLE R: .870
ADJUSTED SQUARED MULTIPLE R: .858 STANDARD ERROR OF ESTIMATE: 0.0610

VARIABLE	COEFFICIENT	STD ERROR	STD COEF	TOLERANCE	T	P(2 TAIL)
CONSTANT	-0.0386	0.0171	0.0000	.	-2.2629	0.0449
LDIAM	0.2566	0.0299	0.9328	.100E+01	8.5831	.33E-05

ANALYSIS OF VARIANCE

SOURCE	SUM-OF-SQUARES	DF	MEAN-SQUARE	F-RATIO	P
REGRESSION	0.2743	1	0.2743	73.6697	.332574E-05
RESIDUAL	0.0410	11	0.0037		

[illegible]

APPENDIX D
FIGURES

Figure D1. Measured total outlet mass flux, N , versus w^2v/t , for bags made from ptfe-laminated and untreated polyester felt fabric.

Figure D2. Measured total outlet mass flux, N , versus predicted total outlet mass flux calculated using Eq. 2 with $k = 0.016$ ms/kg and $k = 0.06$ ms/kg for ptfe-laminated and untreated polyester felt fabric respectively. The model exponent, n , is 1.28 for both fabric types.

Figure D3. Measured total outlet mass flux, N, versus predicted total outlet mass flux calculated using Eq. 2 with $k = 0.016 \text{ ms/kg}$ and $k = 0.06 \text{ ms/kg}$ for ptfe laminated and untreated polyester felt fabric respectively. The model exponent, n , is 1.284 for both fabric types.

Figure D4. Measured total outlet mass flux, N, versus predicted total outlet mass flux calculated using Eq. 2 with $k = 0.016$ ms/kg and $k = 0.06$ ms/kg for ptfе laminated and untreated polyester felt fabric respectively and $n = 1.28$ for both fabric types.

Figure D5. Measured total outlet mass flux, N , versus predicted total outlet mass flux calculated using Eq. 2 with $k = 0.016$ ms/kg and $k = 0.06$ ms/kg for ptfe laminated and untreated polyester felt fabric respectively and $n = 1.28$ for both fabric types.

Figure D6. Exponent, n , versus particle diameter (dp) in micrometers. The value of $n = 0.916(dp)^{0.257}$ for both ptfе-laminated and untreated polyester felt fabrics.

Figure D7. Exponent, n , versus particle diameter (dp) in micrometers. The value of $n = 0.916(dp)^{0.257}$ for both ptfe-laminated and untreated polyester felt fabrics.

Figure D8. Model constant, k , versus particle diameter in micrometers with $k = 4.45 \times 10^{-6} (d_p)^{4.82}$ for ptfе laminated fabric and $k = 2.28 \times 10^{-5} (d_p)^{4.82}$ for untreated felt fabric.

Figure D9. Model constant, k , versus particle diameter in microns, with $k = 4.45 \times 10^{-6} (dp)^{4.82}$ for PTFE laminated fabric.

Figure D10. Model constant, k , versus particle diameter in microns with $k = 2.28 \times 10^{-5} (dp)^{4.82}$ for untreated felt fabric.

Figure D11. Measured outlet mass flux versus predicted outlet mass flux calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 as a function of particle diameter for ptfе-laminated polyester felt fabric bags.

Figure D12. Measured outlet mass flux versus predicted outlet mass flux calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 as a function of particle diameter for untreated polyester felt fabric bags.

Figure D13. Measured outlet mass flux versus predicted outlet mass flux calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 as a function of particle diameter for PTFE laminated and untreated polyester felt fabric bags.

Figure D14. Measured outlet mass flux versus predicted outlet mass flux for phase 2 data set calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 for Ptfе laminated polyester felt fabric bags.

Figure D15. Measured outlet mass flux versus predicted outlet mass flux for phase 2 data set calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 for untreated polyester felt fabric bags.

Figure D16. Measured outlet mass flux versus predicted outlet mass flux for phase 2 data set calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 for singed surface felt fabric. An average of the values calculated for Ptfе laminated and untreated felt fabric were used.

Figure D17. Measured outlet mass flux versus predicted outlet mass flux for phase 2 data set calculated using Eq. 2 with k and n calculated using Eqs. 3 and 4 for Ptfе laminated, untreated, and singed surface polyester felt fabrics.

Figure D18. Measured total outlet mass flux versus particle diameter for ptfе-laminated and untreated felt fabric bags for limestone and fly-ash dusts averaged across all experimental conditions.