CRITERIA POLLUTANTS NEW EQUIPMENT PTE

Source Description	NOx Emissions		CO Emissions		PM-10 Emissions		SOx Emissions		VOC Emissions		Lead Emissions	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
New Hot Water Boiler (9.5 hP)	0.038	0.168	0.032	0.141	0.0029	0.0127	0.00023	0.00101	0.0021	0.0092	1.9E-07	8.4E-07
Fluidized Bed Dryer[a]	0.769	3.369	0.646	2.830	0.0585	0.2561	0.00462	0.02022	0.0423	0.1853	3.8E-06	1.7E-05
Carbo-Tech Baghouse					0.469	2.06						
EQUIPMENT	**0.81**	**3.54**	**0.68**	**2.97**	**0.53**	**2.33**	**0.00**	**0.02**	**0.04**	**0.19**	**4.0E-06**	**1.8E-05**

[a]Exhaust Through Baghouses. Dryer consists of 3 separate natural gas burners with a maximun total rating of 8 MMBtu/hr

CRITERIA POLLUTANTS EXISTING EQUIPMENT PTE

Source Description	NOx Emissions		CO Emissions		PM-10 Emissions		SOx Emissions		VOC Emissions		Lead Emissions	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
8 Space Heaters	0.16	0.68	0.13	0.57	0.012	0.05	0.0009	0.004	0.009	0.038	7.8E-07	3.4E-06
Office Furnace	0.02	0.09	0.02	0.07	0.001	0.01	0.0001	0.001	0.001	0.005	9.7E-08	4.3E-07
Hot Water Boiler[b]	0.002	0.008	0.002	0.007	0.0001	0.0006	0.00001	0.00005	0.0001	0.0005	9.7E-09	4.2E-08
Propane Tank									0.03	0.13		
Fluidized Bed Burner[a]	0.49	2.13	0.41	1.79	0.04	0.16	0.003	0.01	0.03	0.12	2.4E-06	1.1E-05
Pressure Washer	1.43	1.43	0.31	0.31	0.10	0.10	0.09	0.09	0.117	0.12	0.0E+00	0.0E+00
Baghouse North[a]					0.023	0.10						
Baghouse South					0.023	0.10						
TOTAL EMISSIONS FROM EXISTING FACILITY	**2.10**	**4.34**	**0.87**	**2.75**	**0.197**	**0.52**	**0.10**	**0.11**	**0.18**	**0.41**	**3.32E-06**	**1.45E-05**

[a]Exhaust Through Baghouses. Baghouse control efficiency 99.99% for PM_{10}

[b]To be replaced by new 9.5 hP hot water boiler. Not included in facility wide total emissions

FACILITY-WIDE TOTAL EMISSIONS	**2.90**	**7.87**	**1.54**	**5.72**	**0.73**	**2.85**	**0.10**	**0.13**	**0.23**	**0.60**	**0.00**	**0.00**

CRITERIA EMISSIONS - NATURAL GAS COMBUSTION - SUMMIT SEED COATING

Emission Factors

NOx	100 lb/10^6 scf	AP-42, Table 1.4-1, 1998
CO	84 lb/10^6 scf	AP-42, Table 1.4-1, 1998
PM-10	7.6 lb/10^6 scf	AP-42, Table 1.4-2, 1998
SOx	0.6 lb/10^6 scf	AP-42, Table 1.4-2, 1998
VOC	5.5 lb/10^6 scf	AP-42, Table 1.4-2, 1998
Lead	0.0005 lb/10^6 scf	AP-42, Table 1.4-2, 1998

			Pounds per Hour					
Description	Capacity (Btu/hr)	Throughput (scf/hr)	NOx Emissions (lb/hr)	CO Emissions (lb/hr)	PM-10 Emissions (lb/hr)	SOx Emissions (lb/hr)	VOC Emissions (lb/hr)	Lead Emissions (lb/hr)
Hot Water Boiler	398,000	382.69	0.038	0.032	0.003	0.000	0.002	1.91E-07
Fluidized Bed Dryer[a]	8,000,000	7,692.31	0.769	0.646	0.058	0.005	0.042	3.85E-06
		TOTAL=	**0.808**	**0.678**	**0.061**	**0.005**	**0.044**	**4.04E-06**

			Ton per Year					
Description	Capacity (Btu/hr)	Hours of Operation (hr/yr)	NOx Emissions (tpy)	CO Emissions (tpy)	PM-10 Emissions (tpy)	SOx Emissions (tpy)	VOC Emissions (tpy)	Lead Emissions (tpy)
Hot Water Boiler	398,000	8,760.00	0.17	0.14	0.01	0.00	0.01	8.38E-07
Fluidized Bed Dryer	8,000,000	8,760.00	3.37	2.83	0.26	0.02	0.19	1.68E-05
		TOTAL=	**3.54**	**2.97**	**0.27**	**0.02**	**0.19**	**1.77E-05**

[a] Dryer consists of 4 separate natural gas burners with a maximum total rating of 8 MMBtu/hr

PARTICULATE EMISSIONS - NEW BAGHOUSE- SUMMIT SEED COATING

Method One- Mass Balance

Description	Byproduct Captured (lb/hr)[a]	Control Factor (%)	Control Factor Reference	PM-10 Emissions (lb/hr)	PM-10 Emissions (T/yr)
Carbo-Tech Baghouse	469.5	99.9	Manf. Guarantee - Carbotech, 12/24/07 email	0.469	2.06
			TOTAL =	**0.469**	**2.06**

[a]From mass balance- maximum rate of material processed is 9390 lb/hr limestone and assuming conservative 95% coating transfer efficiency.

Method Two- Grainloading

Description	Air Flow Rate (cfm)	Emission Guarantee (gr/dscf)[b]	Control Factor Reference	PM-10 Emissions (lb/hr)	PM-10 Emissions (T/yr)
Carbo-Tech Baghouse-Southern Felt Filters	75,000	0.00073	Southern Felt Company filter bag guarantee	0.469	2.06
			TOTAL =	**0.469**	**2.06**

[b]Southern Felt Company documentation provides a guarantee of 0.0001 gr/dscf however as a conservative estimate 99.9% control with a max of 0.0007 gr/dscf was used for emission calculations.

FUGITIVE PARTICULATE EMISSIONS - PAVED ROADS- SUMMIT SEED COATING

Description	Particle Size Multiplier k1 (lb/VMT)	Silt Loading (g/m^2)[b]	Average Vehicle Weight (tons)	Number of Day in Avg. Period (N)	Number of Days with 0.01 in Precip. (P)	Emission Factor (lb/VMT)	VMT/yr	Emissions (tpy)	Emissions (lb/hr)
Trucks	0.016	12	10	365	90	0.293	206	0.030	0.007
							TOTAL =	**0.030**	**0.007**

[a] EF PM10= $[k1(sL/2)^{0.65} * (W/3)^{1.5}] * (1-P/4N)$

[b] Table 13.2.1-4, AP-42 Recommended silt loading for concrete batching.

TOXIC AIR POLLUTANTS (TAPs) COMBUSTION CALCULATIONS
SUMMIT SEED COATINGS

New Emission Unit	Fuel Usage
Hot Water Boiler	382.69 scf/hr
Fluidized Bed Dryer	7,692.31 scf/hr

NON-CARCINOGENS (POUNDS PER HOUR)

Pollutant	CAS #	EF for Natural Gas Combustion (lb/10^6 scf)[a]	TAP Emissions (lb/hr)
Antimony	7440-36-0	0.0E+00	0.00E+00
Barium	7440-39-3	4.4E-03	3.55E-05
Chromium	7440-47-3	1.4E-03	1.13E-05
Cobalt	7440-48-4	8.4E-05	6.78E-07
Copper	7440-50-8	8.5E-04	6.86E-06
Ethylbenzene	100-41-4	0.0E+00	0.00E+00
Fluoride (as F)	16984-48-8	0.0E+00	0.00E+00
Hexane	110-54-3	1.8E+00	1.45E-02
Manganese	7439-96-5	3.8E-04	3.07E-06
Mercury	7439-97-6	2.6E-04	2.10E-06
Molybdenum	7439-98-7	1.1E-03	8.88E-06
Naphthalene	91-20-3	6.1E-04	4.93E-06
Pentane	109-66-0	2.6E+00	2.10E-02
Phosphorous	7723-14-0	0.0E+00	0.00E+00
Selenium	7782-49-2	2.4E-05	1.94E-07
1,1,1-Trichloroethane	71-55-6	0.0E+00	0.00E+00
Toluene	108-88-3	3.4E-03	2.75E-05
o-Xylene	1330-20-7	0.0E+00	0.00E+00
Zinc	7440-66-6	2.9E-02	2.34E-04

CARCINOGENS (POUNDS PER HOUR)

Pollutant	CAS #	EF for Natural Gas Combustion (lb/10^6 scf)[a]	TAP Emissions (lb/hr)
Arsenic	7440-38-2	2.0E-04	1.62E-06
Benzene	71-43-2	2.1E-03	1.70E-05
Beryllium	7440-41-7	1.2E-05	9.69E-08
Cadmium	7440-43-9	1.1E-03	8.88E-06
Chromium VI	7440-47-3	0.0E+00	0.00E+00
Formaldehyde	50-00-0	7.5E-02	6.06E-04
Nickel	7440-02-0	2.1E-03	1.70E-05
Benzo(a)pyrene	50-32-8	1.2E-06	9.69E-09
Benz(a)anthracene	56-55-3	1.8E-06	1.45E-08
Benzo(b)fluoranthene	205-82-3	1.8E-06	1.45E-08
Benzo(k)fluoranthene	205-99-2	1.8E-06	1.45E-08
Chrysene	218-01-9	1.8E-06	1.45E-08
Dibenzo(a,h)anthracene	53-70-3	1.2E-06	9.69E-09
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06	1.45E-08
Total PAHs		1.1E-05	9.21E-08

[a]EFs from AP-42, Tables 1.4-3 and 1.4-4, 7/98

[b]EFs from AP-42, Table 1.3-10, 9/98

Processed Material Parameters - Summit Seed Coatings

Name of Material	Manufacturer	MSDS Sheet Date	TAPs or HAPs?	Max Application Rate (lb/hr)
Calcium Carbonate White (Limestone)[a]	Columbia River Carbonates	2004	Yes	9390
Calcium Carbonate Grey (Limestone)	J.A. Jack & Sons, Inc.	2004	Yes	9390
Calcium Sulfate (Gypsum)[b]	Diamond K, Inc.	2007	Yes	5850
Peat Based Inoculant[c]	EMD/ Nitragen Co.	2003	Yes	156
Polyvinyl Alcohol[d]	Kell Chemical	2007	Yes	189
Mica (Gimsheen 40)[e]	Georgia Industrial Minerals, Inc	2005	Yes	120
Maxim 4FS Fungicide[f]	Syngenta	2001	Yes	0.41
Sodium Molybdate[g]	North Metal & Chemical	2005	Yes	19.5
42-S Thiram Fungicide[h]	Bayer CropScience	2007	Yes	57.9
Apron XL LS	Syngenta	2004	No	-
Potassium Sulfate (Sulfate of Potash)	Diamond K, Inc.	2007	No	-
RCD9000 Red Colorant	Sun Chemical	2007	No	-
Bolster Plant Growth Supplement	Natural Fertilizer of America, Inc.	2003	No	-
Horta-Sorb	Horticultural Alliance, Inc.	2006	No	-
Borrechel FE 853 Powder	LignoTech USA, Inc	2006	No	-
Optimize Gold	EMD Crop BioScience	2007	No	-
Zeba	Absorbent Technologies, Inc.	2006	No	-
Color Coat Yellow	Becker Underwood, Inc.	2003	No	-
Color Coat Blue	Becker Underwood, Inc.	2007	No	-
Color Coat Green	Becker Underwood, Inc.	2007	No	-

[a]Calcium carbonate grey and calcium carbonate white are never run simultaneously. White limestone contains < 1% crystalline silica.

Max limestone process rate based on 6 batches centipede per hour @ 1565 lb/batch

[b]Max gypsum process rate based on 6.5 batches alfalfa per hour @ 900 lb/batch

[c]Max peat based inoculant process rate based on 6.5 batches alfalfa per hour @ 24 lb/batch

[d]Max polyvinyl alcohol process rate based on 6 batches centipede per hour @ 350 lb/batch and 9%

[e]Max mica process rate based on 6 batches centipede per hour @ 20 lb/batch

[f]Max Maxim 4FS Fungicide process rate based on 6.5 batches riviera per hr @ 0.8 liq oz per batch = 5.2 liq oz per hr SG= 1.22

[g]Max Sodium Molybdate process rate based on based on 6.5 batches alfalfa per hour @ 3 lb/batch

[h]Max 42-S Thiram process rate based on 6.5 batches alfalfa per hr @ 120 liq oz per batch = 780 liq oz per hr SG= 0.73

TAP Emission Calculations of Process Byproduct - Summit Seed Coatings

Name of Material/ TAPs	Max Material Process Rate (lb/hr)	Transfer Efficiency (%)[a]	Wt. Fraction TAP	Baghouse Collection Efficiency (%)[b]	TAP Emissions (lb/hr)	TAP Emissions (ton/yr)
Calcium Carbonate (Limestone)	9390.0	95%	0.99	99.9%	0.46	2.04
Silica Quartz (Limestone)	9390.0	95%	0.01	99.9%	0.0047	0.02
Calcium Sulfate (Gypsum)	5850.0	95%	1.0	99.9%	0.29	1.28
Crystalline Silica (Peat Based Inoculant)	156.0	95%	0.01	99.9%	0.0001	0.0003
Methyl Acetate (Polyvinyl Alcohol)	189.0	95%	0.01	-	0.0945	0.4139
Methanol (Polyvinyl Alcohol)	189.0	95%	0.03	-	0.2835	1.2417
Mica (Mica)	120.0	95%	1.0	99.9%	0.01	0.03
Ethylene Glycol (Maxim 4FS Fungicide)	0.41	95%	0.11	-	0.0023	0.0099
Molybdenum Soluble Compounds (Sodium Molybdate)	19.5	95%	1.00	99.9%	0.001	0.004
Thiram (42-S Thiram Fungicide)	57.9	95%	0.42	-	1.22	5.3256

[a]Estimated seed coating transfer efficiency provided by Summit

[b]Collection efficiency only for power coatings, potential vapors from liquid coatings are not controlled by the baghouse

PARTICULATE TAPS - BAGHOUSE EMISSIONS FROM SILO LOADING

Pollutant	Throughput (T/hr)	Mass Fraction (lb/lb)	Emission Factor (lb/T)[b]	Emission Control (%)	TAP Emissions (lb/hr)	TAP Emissions (T/yr)
Calcium Carbonate (Limestone)	50	0.99	0.46	99.9	0.023	0.100
Crystalline Silica (Limestone)[a]	50	0.01	0.46	99.9	0.00023	0.001

[a]Crystalline silica is <1% in calcium carbonate

[b]From AP-42, Table 11.12-2 Cement Unloading to Elevated Storage Silo

TOXIC AIR POLLUTANT EMISSION INVENTORY - SUMMIT SEED COATINGS

NON-CARCINOGENS

Pollutant	Hourly Emissions[a]	Screening Level	Modeling?	Emissions
	(lb/hr)	(lb/hr)	(Y/N)	(tons/yr)
Antimony	0.00E+00	3.3E-02	No	0.0E+00
Barium	3.55E-05	3.3E-02	No	1.6E-04
Calcium Carbonate	4.88E-01	6.7E-01	No	2.1E+00
Calcium Sulfate	2.93E-01	6.7E-01	No	1.3E+00
Chromium	1.13E-05	3.3E-02	No	5.0E-05
Cobalt	6.78E-07	3.3E-03	No	3.0E-06
Crystalline Silica	5.00E-03	6.7E-03	No	2.2E-02
Copper	6.86E-06	6.7E-02	No	3.0E-05
Ethylbenzene	0.00E+00	2.9E+01	No	0.0E+00
Ethylene Glycol	2.26E-03	8.5E-01	No	9.9E-03
Fluoride	0.00E+00	1.67E-01	No	0.0E+00
Hexane	1.45E-02	1.2E+01	No	6.4E-02
Manganese	3.07E-06	3.33E-01	No	1.3E-05
Mercury	2.10E-06	3.E-03	No	9.2E-06
Methanol	2.84E-01	17.3	No	1.24
Methyl Acetate	9.45E-02	40.7	No	4.1E-01
Mica	6.00E-03	0.2	No	2.6E-02
Molybdenum (insoluble)	8.88E-06	6.67E-01	No	3.9E-05
Molybdenum (soluble)	9.75E-04	3.33E-01	No	4.3E-03
Naphthalene	4.93E-06	3.33E+00	No	2.2E-05
Pentane	2.10E-02	1.18E+02	No	9.2E-02
Phosphorous	0.00E+00	7.E-03	No	0.0E+00
Selenium	1.94E-07	1.3E-02	No	8.5E-07
1,1,1 - Trichlorethane (Methyl Chloroform)	0.00E+00	1.27E+02	No	0.0E+00
Thiram	1.22	3.33E-01	Yes	5.33
Toluene	2.75E-05	2.5E+01	No	1.2E-04
o-Xylene	0.00E+00	2.9E+01	No	0.0E+00
Zinc	2.34E-04	6.67E-01	No	1.0E-03

CARCINOGENS

Pollutant	Max. Hourly Emissions	Screening Level	Modeling?	Emissions
	(lb/hr)	(lb/hr)	(Y/N)	(tons/yr)
Arsenic	1.62E-06	1.5E-06	Yes	1.31E-09
Benzene	1.70E-05	8.0E-04	No	6.97E-09
Beryllium	9.69E-08	2.8E-05	No	5.27E-10
Cadmium	8.88E-06	3.7E-06	Yes	4.14E-09
Chromium VI	0.00E+00	5.6E-07	No	4.88E-10
Formaldehyde	6.06E-04	5.1E-04	Yes	2.49E-07
Nickel	1.70E-05	2.7E-05	No	7.46E-09
Benzo(a)pyrene	9.69E-09	2.0E-06	No	3.98E-12
Benz(a)anthracene	1.45E-08	NA	NA	5.98E-12
Benzo(b)fluoranthene	1.45E-08	NA	NA	5.98E-12
Benzo(k)fluoranthene	1.45E-08	NA	NA	5.98E-12
Chrysene	1.45E-08	NA	NA	5.98E-12
Dibenzo(a,h)anthracene	9.69E-09	NA	NA	3.98E-12
Indeno(1,2,3-cd)pyrene	1.45E-08	NA	NA	5.98E-12
Total PAHs	9.21E-08	2.00E-06	No	3.79E-11

[a] Hourly TAP emissions are the sum of natural gas combustion and process byproduct emission rates.

HAPs Inventory

Pollutant	Emissions (tons/yr)
Arsenic	1.31E-09
Benzene	6.97E-09
Beryllium	5.27E-10
Cadmium	4.14E-09
Ethylbenzene	0.0E+00
Formaldehyde	2.49E-07
Chromium	4.88E-10
Lead	1.77E-05
Mercury	9.2E-06
Methanol	1.2E+00
Naphthalene	2.2E-05
Nickel	7.46E-09
Selenium	8.5E-07
Toluene	1.2E-04
Xylene	0.0E+00
Phosphorus	0.0E+00
POM	3.12E-06
Dichlorobenzene	4.24E-05
Hexane	6.37E-02
Total	**1.31E+00**

Note: Emission Factors for lead, POM, dichlorobenzene and hexane are as		
Lead	5.00E-04	lb/MMscf
POM	8.82E-05	lb/MMscf
Dichlorobenzene	1.20E-03	lb/MMscf
Hexane	1.8	lb/MMscf

Melissa Armer

Full Name:	Industrial Filtration
First Name:	Industrial
Job Title:	Rep
Company:	Industrial Filtration
Business Address:	P.O. Box 2589 (90801) 1500 Daisy Avenue (90813 Long Beach, California
Business:	((562) 436-4228
Business Fax:	(562) 437-5392

Bag material:
Southern Felt Company, Inc
Northeast Office, P.O. Box 545
Westerley, RI 02891
(401) 596-4921
(800) 754-8457 Ext 1712
Fax (401) 596-7929
J.E. Weeden, Business Mgr.

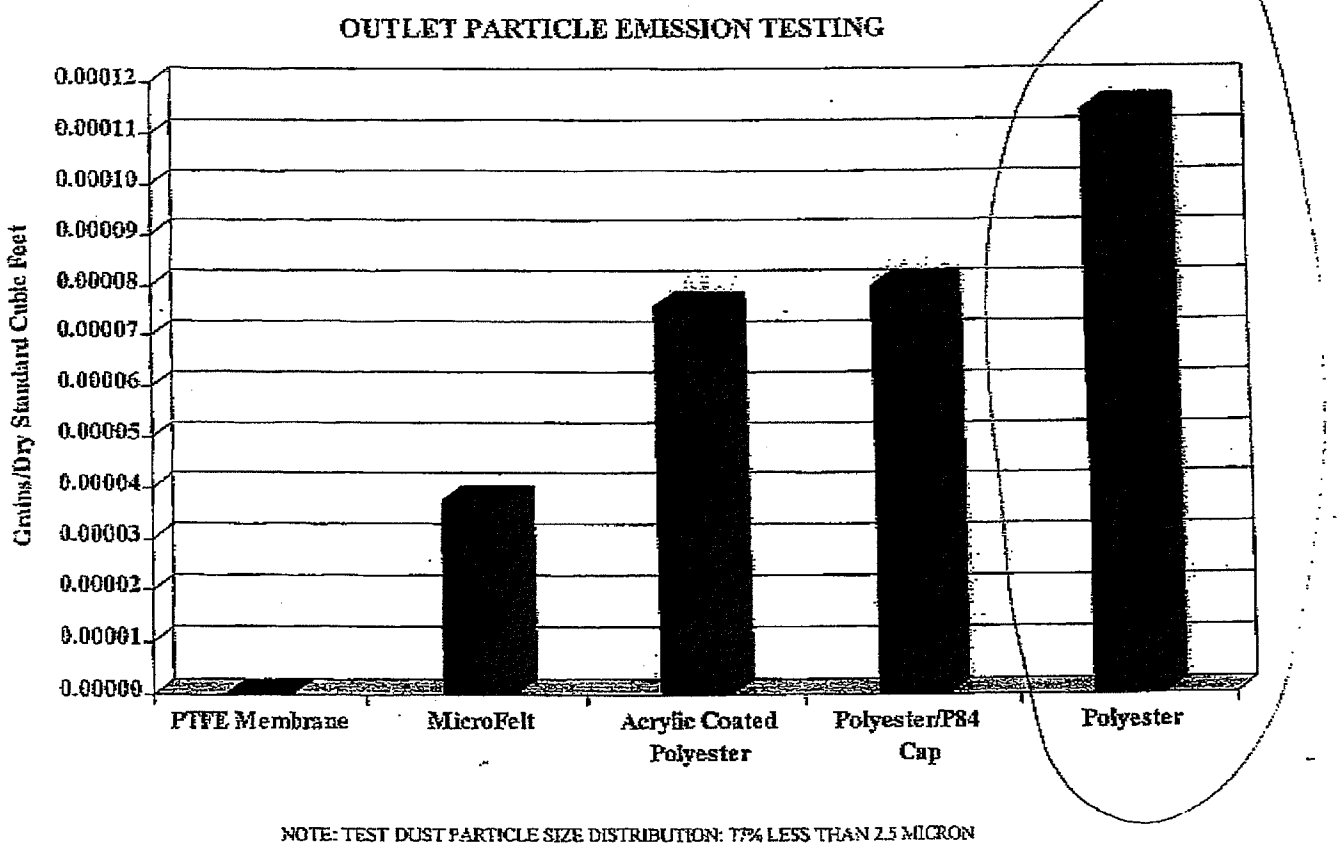
New Bag
$13.45

ATTN
Stu Barcley
208-455
8040

ETS CONTRACT NUMBER: 02-934 DATE 10/28/02

RUN ID.	934-1-1	934-2-1	934-3-1	934-4-1	934-10-1
FABRIC DESIGNATION	Polyester	Polyester / P84	MicroFelt / PE	CAC / Polyester	CTF / Polyester
MANUFACTURER	Southern Felt	Southern Felt	Southern Felt	Southern Felt	Southern Felt
DUST FEED	Pural NF	Pural NF	Pural NF	Pural NF	Pural NF
VERIFICATION TEST RESULTS	ASTM D6830-02				
Mean Outlet Particle Conc. PM 2.5 (gr/dscf)	0.0001146	0.0000600	0.0000376	0.0000745	0.0002105
Mean Outlet Particle Conc. Total mass (gr/dscf)	0.0001153	0.0000600	0.0000376	0.0000759	0.0002187
Initial Residual Pressure Drop (in. w.g.)	1.48	1.44	1.76	3.11	2.18
Change in Residual Pressure Drop (in. w.g.)	0.42	0.50	0.23	1.91	1.48
Average Residual Pressure Drop (in. w.g.)	1.74	1.75	1.90	4.34	3.06
Mass Gain of Filter Sample (g)	1.43	2.08	0.74	0.68	1.37
Average Filtration Cycle Time (s)	48	49	89	5	7
Number of Pulses	448	445	241	3599	3157
RESIDUAL PRESSURE DROP					
At Start of: Conditioning Period (in. w.g.)	0.05	0.06	0.12	0.08	0.04
Recovery Period (in. w.g.)	1.39	1.30	1.72	3.13	2.19
Performance Test Period (in. w.g.)	1.48	1.44	1.76	3.11	2.18
REMOVAL EFFICIENCY (%)					
Dust Conc (gr/dscf)	8.17	7.73	7.39	7.43	6.99
PM 2.5 *	99.99819	99.99866	99.99934	99.99870	99.99911
Total Mass **	99.99859	99.99897	99.99949	99.99898	99.99890

* (Dust Concentration * 0.7735) - PM 2.5 Outlet Concentration * 100
Dust Concentration * 0.7735



NOTE: TEST DUST PARTICLE SIZE DISTRIBUTION: 77% LESS THAN 2.5 MICRON

[redacted]

FELT SPECIFICATION

Style PE-16-SPEC

Date 4/21/03

Construction: SCRIM SUPPORTED NEEDLEFELT

Composition: 100% SCRIM SUPPORTED POLYESTER FELT WITH A GLAZE ONE SIDE FINISH.

Finish: HEATSET, GLAZED ONE SIDE.

Weight: 15.00- 17.00 ozs./yd.^{2}

Thickness: 0.0550- 0.0750 in.

Air Permeability: 20.00- 40.00 Cfm at ½in. W.G.

Minimum Breaking Strength: Warp: 75 Filling: 150 lbs.

Elongation: % at 10 lbs./2 in.

Minimum Mullen Bursting Strength: 400 lbs./in.^{2}

Dimensional Stability: 3.00 % maximum lineal shrinkage @ 300° For 2 Hours

Date : October 29, 2002
Test ID: 16 oz Eggshell-
Test Type : Fractional Efficiency
Test Aerosol : KCL, Neutralized

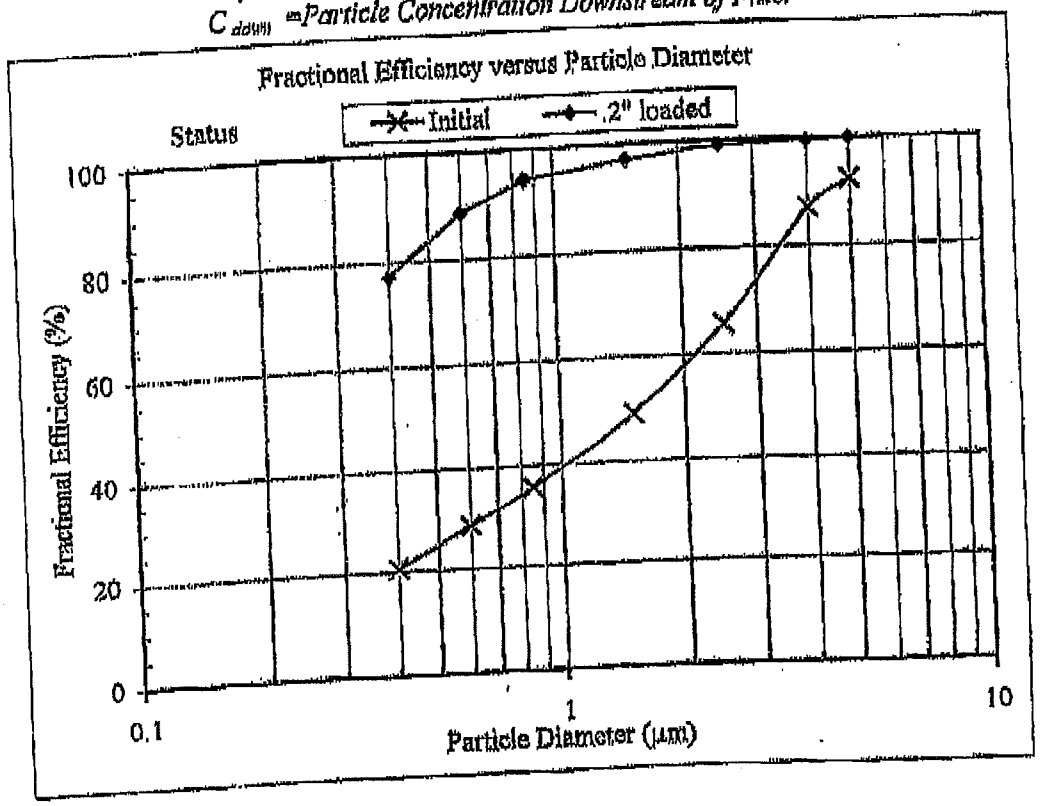
Requested By:
Bay Area Filtration
Manufacturer:
Velocity: 10fpm

OTTO MOTT
208-455-
8040

Status	Initial	.2" loaded
Δp (" H_2O)	0.190	0.390
Size Range (µm)	Fractional Efficiency (%)	
0.3-0.5	20.6	77.2
0.5-0.7	28.6	88.6
0.7-1.0	35.6	94.1
1.0-2.0	49.1	97.0
2.0-3.0	65.5	99.1
3.0-5.0	87.0	99.6
>5.0	92.3	100.0

$$F_{eff} = \frac{C_{up} - C_{down}}{C_{up}} x100\%$$

F_{eff} = *Fractional Efficiency*
C_{up} = *Particle Concentration Upstream of Filter*
C_{down} = *Particle Concentration Downstream of Filter*



TEST SUPERVISOR
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