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Attn: Derrick Wills
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Project: Tronox LLX Henderson, 560 W. Lake Mead Dr.,
 Henderson, NV/2027.001

Customer ID: TRNX26
 Customer PO: 2027.001
 Received: 9/22/2010 9:36 AM
 EMS LAB No: 141276
 Date Prepared: 11/10/2010 10:25 AM
 Analysis Date: 11/11/2010 10:00 AM

Report Date: November 15, 2010

Date Sampled: 10/28/2010 16:00

NIOSH 7402/ISO

DRAFT, MODIFIED ELUTRIATOR METHOD FOR THE DETERMINATION OF ASBESTOS IN SOILS AND BULK MATERIAL METHOD

EMS Laboratory Number: 141276	Mass of Respirable Dust on Filter: 147	µg
Customer Sample Number: SSAN5-05-0.33_01_BPC	Area of collection filter: 385	mm ²
Minimum Level of Analysis (chrysotile): CD	Grid openings area: 0.0094	mm ²
Minimum Level of Analysis (amphibole): ADX	Grid Openings Analyzed: 103	
Magnification used for fiber counting: 9,200 x	Min. Str. Length/Max Str. Diameter: >5/<0.4	microns
Aspect ratio for fiber definition: 3:1		

Analyst(s): Radha Singh

Dust Generator - Total Dried Sample Weight-72.6g	Soil % Moisture	10.5	%
Not Used	Air Flow Rate Through ME Opening of Dust Generator:	1370	
Used in Tumbler	Air Flow Rate Through IST Opening of Dust Generator:	100	
	Estimate Total Air Flow Through Elutriator:	1470	

Analytical Sensitivity: 2.71E+06 Structure /g PM 10 Limit of Detection: 8.10E+06 Structure /g PM 10

Test For Uniformity (Chi-Square results)

Structure Class	Min ID Level Required	Counts		Density St/mm ²	Conc. Str/g PM10	Poisson 95% Confidence Interval	
		Primary Str.	Total Str.			Lower Limit Str/g PM10	Upper Limit Str/g PM10
Asbestos Structures >5um, ≤10um	ADX/CD	7	7	7.23	1.89E+07	7.61E+06	3.90E+07
Asbestos Structures >5um, ≤10um (Chrys)	CD	7	7	7.23	1.89E+07	7.61E+06	3.90E+07
Asbestos Structures >5um, ≤10um (Amph)	ADX	0	0	0	0	0	8.10E+06
Asbestos Structure >10um (Long)	ADX/CD	3	3	3.10	8.12E+06	1.67E+06	2.37E+07
Asbestos Structure >10um (Chrys)	CD	3	3	3.10	8.12E+06	1.67E+06	2.37E+07
Asbestos Structure >10um (Amph)	ADX	0	0	0	0	0	8.10E+06
Total Protocol Asbestos Structures	ADX/CD	10	10	10.3	2.71E+07	1.30E+07	4.97E+07
Protocol Asbestos Structures (Chrys)	CD	10	10	10.3	2.71E+07	1.30E+07	4.97E+07
Protocol Asbestos Structures (Amph)	ADX	0	0	0	0	0	8.10E+06
Total Protocol Non Asbestos Structures	NAM	1	1		2.71E+06	6.8E+04	1.50E+07


 Approved by Technical Director



Client:	Derrick Willis, Tronox LLC-Henderson	Filter Type:	PC 385 mm ²
Report number:	141276	Magnification:	9200
Sample number:	SSAN5-05-033_01_BPC	Grid Opening Dimension: mm ²	0.0084
Project:	2027.001/Tronox LLC Henderson, 560 W. Lake Mead Dr.,	Grid Loading:	Moderate

Elutriation Date: 11/10/2010 by Joel Paruli
 Preparation Date: 11/10/2010 by Joel Paruli
 Analysis Date: 11/11/2010 by Radha Singh

Asbestos Structures >5um, ≤10um (Chrys) 7
 Asbestos Structures >5um, ≤10um (Amph) 0
 Asbestos Structure >10um (Chrys) 3
 Asbestos Structure >10um (Amph) 0
 Protocol Asbestos Structures (Chrys) 10
 Protocol Asbestos Structures (Amph) 0

Grid Openings 103
 Mass - ug 147
 Analytical sensitivity

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions - mm		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Width	Length	Width	Length				
1A	E23	None Detected										
1A	E26	None Detected										
1A	F23	None Detected										
1A	F26	None Detected										
1A	C34	F	1	1	0.5	65	0.05	7.07	CD	Chrysotile		
1A	E31	F	2	2	1.5	50	0.16	5.43	CD	Chrysotile		
1A	E34	MD11			80	90	8.70	9.78				
		MF			10.5	70	1.14	7.61				Non Asbestos
1A	F31	MD11			65	155	7.07	16.85				
		MF			5	65	0.54	7.07				Non Asbestos
1A	F34	None Detected										
1A	G31	None Detected										
1A	G34	MD11			50	190	5.43	20.65				
		MF			7.5	130	0.82	14.13				Non Asbestos
1A	H31	None Detected										
1A	H34	F	3	3	0.2	70	0.02	7.61	CD	Chrysotile		
1A	C33	None Detected										
1A	C36	None Detected										
1A	E33	None Detected										
1A	E36	None Detected										
1A	F33	None Detected										
1A	F36	None Detected										
1A	F41	None Detected										
1B	C23	None Detected										
1B	C26	None Detected										
1B	E23	None Detected										
1B	E26	None Detected										
1B	F23	None Detected										
1B	F26	None Detected										
1B	G23	None Detected										
1B	G26	None Detected										
1B	C31	None Detected										
1B	C34	None Detected										
1B	E31	None Detected										
1B	F31	None Detected										
1B	F34	None Detected										
1B	G33	None Detected										
1B	G36	None Detected										
1B	G41	None Detected										
1B	G44	None Detected										
1B	G51	None Detected										
1B	G54	None Detected										
1B	C53	None Detected										
1B	C56	None Detected										
1C	C26	None Detected										
1C	E23	None Detected										
1C	E26	None Detected										
1C	F23	None Detected										
1C	F26	None Detected										
1C	E31	None Detected										



Report Number: [Redacted]
Sample number: [Redacted]

Analyzed by: [Redacted]
Date of Analysis: [Redacted]

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Width	Length				
1C	E34	None Detected								
1C	F31	MD11	4		120	140	13.04	15.22		
		MF		4	1	140	0.11	15.22	CD	Chrysotile
1C	F34	None Detected								
1C	G31	None Detected								
1C	G34	None Detected								
1C	C41	None Detected								
1C	C44	None Detected								
1C	E41	None Detected								
1C	E44	None Detected								
1C	F41	None Detected								
1C	F44	None Detected								
1C	G43	None Detected								
1C	G46	None Detected								
1C	F51	None Detected								
1C	F54	MD11			90	100	9.78	10.87		
		MF			10	100	1.09	10.87		Non Asbestos
1D	C26	MD11			125	160	13.59	17.39		
		MF			2.5	125	0.27	13.59		Non Asbestos
1D	E23	None Detected								
1D	E26	None Detected								
1D	F23	MD11			45	100	4.89	10.87		
		MF			6.5	100	0.71	10.87		Non Asbestos
1D	F26	None Detected								
1D	G23	None Detected								
1D	E31	None Detected								
1D	E34	None Detected								
1D	F31	None Detected								
1D	F34	None Detected								
1D	G31	None Detected								
1D	C41	None Detected								
1D	C44	None Detected								
1D	E41	None Detected								
1D	E44	MD11			100	255	10.87	27.72		
		MF			4.5	255	0.49	27.72		Non Asbestos
1D	F41	None Detected								
1D	F44	None Detected								
1D	G41	MD11			30	64	3.26	6.96		
		MB			5.5	64	0.60	6.96		Non Asbestos
1D	G44	None Detected								
1D	H43	None Detected								
1D	H46	None Detected								
1E	C23	F	5	5	2.5	105	0.27	11.41	CD	Chrysotile
1E	C26	MD11	6		95	165	10.33	17.93		Not Double
		MF		6	1	52	0.11	5.65	CD	Chrysotile
1E	E23	None Detected								
1E	E26	F	7	7	1	50	0.11	5.43	CD	Chrysotile
1E	F23	None Detected								
1E	F31	None Detected								
1E	F34	None Detected								
1E	C41	F	8	8	0.5	52	0.05	5.65	CD	Chrysotile
1E	C44	MD22	9		72	180	7.83	19.57		
		MB		9	3	180	0.33	19.57	CD	Chrysotile
		MB		10	3	55	0.33	5.98	CD	Chrysotile
1E	E41	None Detected								
1E	E44	None Detected								
1E	F41	None Detected								
1E	G41	F			1	52	0.11	5.65		Non Asbestos
1E	H41	None Detected								
1E	H44	None Detected								
1E	E51	None Detected								
1E	E54	F			0.5	75	0.05	8.15		Non Asbestos
1E	F51	None Detected								
1E	G53	None Detected								
1E	G56	None Detected								

104-90.95

Copy

Prep Time: 1200-230

Count (Page of) NIOSH 7402/ISO

Report number: 141276
Sample number: SSANS-25-0.33-01 BPC
File name: Northgate
Sample Description: 147 mg

Filter Type: PC 385 mm²
Date Sample was Run: 11/10/10

Magnification: 9,200 X

Preparation date: 11/10/10 By JAP
Analysis date: 11/11/10 By RS
(A): ADX, ADQ
Grid loading MODACH2 Condition of Grid _____

Grid opening dimension: 0.0094 mm²
Level of Analysis: (C): CD, CDX

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
1A	E2-3							
	E2-6							
	F2-3							
	F2-6							
	C3-4				F	0.5	65	Chryso. ERD
	F3-1				F	1.5	50	" " ERD
	E3-4				MD11	80	90	Non ash.
					MF	105	70	
	F3-1				MD11	65	155	Non ash.
					MF	5	65	
	F3-4							
	F3-1							
	F3-4				MD11	50	190	Non ash.
					MF	1.5	130	
	F3-1							
	F3-4				F	0.2	70	Chryso.
	E3-3							
	C3-6							
	E3-3							
	E3-6							
	F3-3							
	F3-6							
	F4-1							
1B	C2-3							
	C2-6							
	E2-3							
	E2-6							
	E2-3							
	E2-6							
	G2-3							

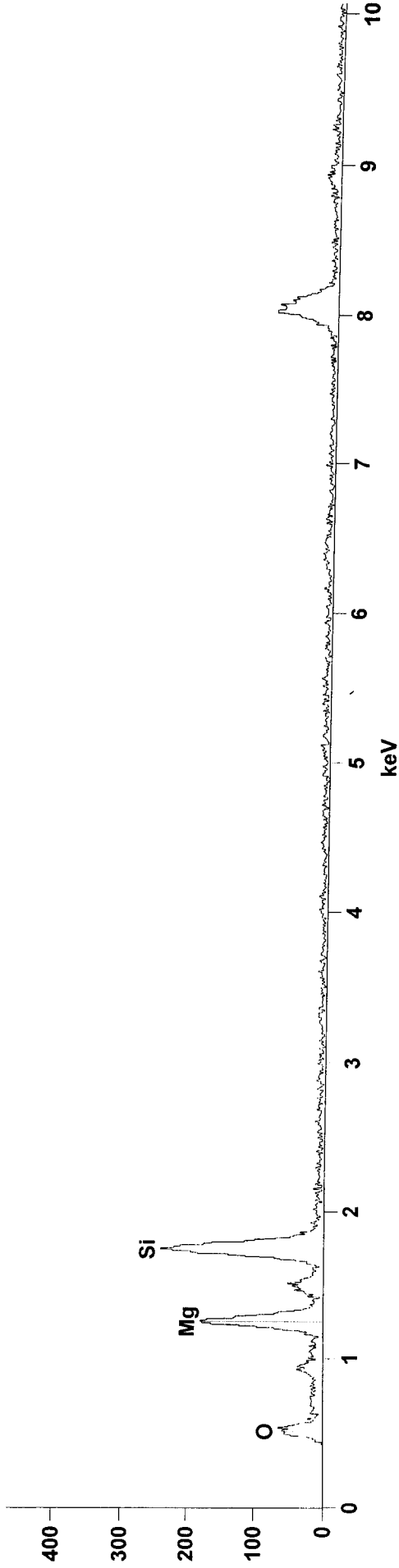
TEM Asbestos Structure Count (Page of)

Report number: 11276 SAMPLE NO: SSAN5-05-0.33-01 BPCX 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
	E5							
	E54				MD11	90	1W	Non aib
					MF	110	1W	
1D	C2-6				MD11	125	160	Non aib
					MF	2.5	125	
	E23							
	E26							
	E2-2				MD11	4.5	1W	Non aib
	E26				MF	6.5	1W	
	U23							
	E3-1							
	E3-4							
	E3							
	E3-4							
	U3-1							
	C4-1							
	C4-4							
	E4-1				MD11	100	255	Non aib
	E4-4				MF	4.5	255	
	E4-1							
	E4-4							
	U4-1				MD11	30	64	Non aib
					MB	5.1	64	
	U4-4							
	H4-3							
	H4-6							
1E	C23				E	2.5	105	chryso not double
	C26				MD11	95	165	
					MF	7	52	chryso
	E23							

Full scale counts: 426

141276-SSAN5-05-033-01BPC-A-#02



Thu Nov 11 06:44:40 2010
Gaussian Fit Chi Squared:3.319
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time:19.0 sec.
Acc.Voltage: 100.0 kV
Take Off Angle: 30.0 deg.
Detector: Det B- Nanotracer

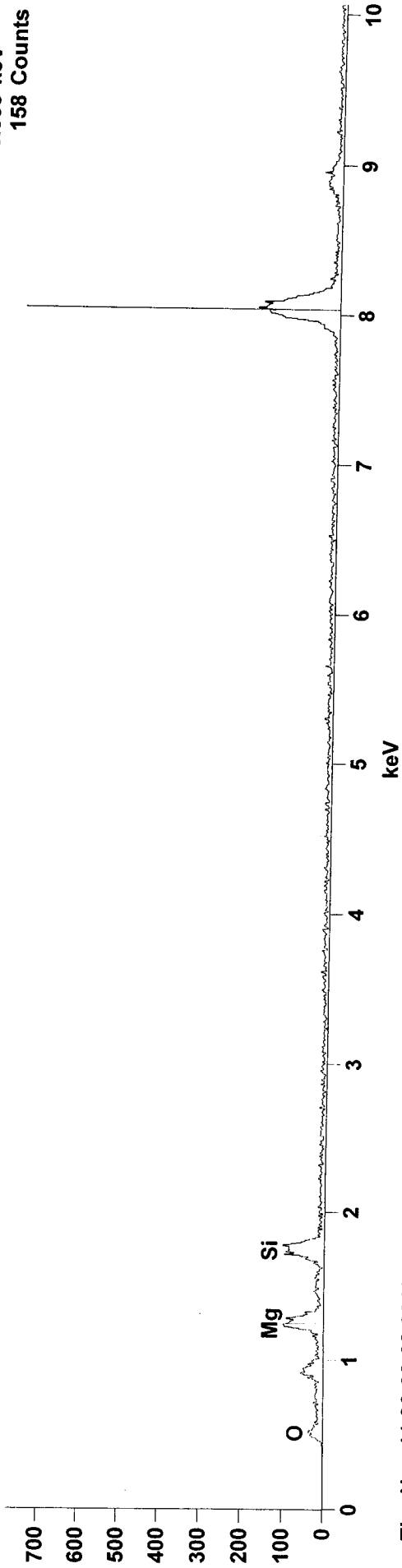
Quantitative Results 141276-SSAN5-05-033-01BPC-A-#02

Element Line	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg K	1683	66.36	+/- 1.66	69.50	+/- 1.73
Si K	2465	33.64	+/- 0.70	30.50	+/- 0.63
Total		100.00		100.00	

Full scale counts: 708

141276-SSAN5-05-033-01BPC-A-#01

Cursor: 8.035 keV
158 Counts



Thu Nov 11 06:39:38 2010

Gaussian Fit Chi Squared: 3.209

Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time: 47.9 sec.

Acc. Voltage: 100.0 kV

Take Off Angle: 30.0 deg.

Detector: Det B- Nanotracer

Quantitative Results 141276-SSAN5-05-033-01BPC-A-#01

Element Line	Net Counts	Weight % Error	Weight % Error	Atom %	Atom % Error
Mg K	889	73.86	+/- 2.58	76.55	+/- 2.67
Si K	909	26.14	+/- 0.95	23.45	+/- 0.85
Total		100.00		100.00	

Elutriator Data

Date: 11/10/10

Client: NORTHGATE

Lab #: 141276

Sample ID: SEANS-05-0-33-0183 Sample weight (g): 72.4

Time air flow started: 700

Tumbler rpm: 30

IST Flowmeter (mL/min): 100

ME Flowmeter (mL/min): 1370

Filter No.	Start Time	Tested flow rate (mL/min)	Final Filter Wt (mg)	Initial Filter Wt (mg)	Dust Weight (mg)	Time Value (min)	Avg. rate of deposition (ug/min)	Optimal time (min)
1	900	190	0.03573	0.02504	10.69	30		
2	930	190	0.03511	0.02476	10.35	20		
3	950		0.03563	0.02467	10.96	25		
4	1015		0.03243	0.02465	7.78	20		
5	1035		0.03444	0.02520	9.24	25		
6	1100			0.02415				
7								
8								
ESTIMATE								
1	939	949	4.782	4.649	0.133	10	Dep. Rate	Estimate
2	1002	10415	4.975	4.689	0.291	13		
3	1025	1034	4.866	4.719	0.147	9		
4	1047	1059	4.923	4.722	0.201	12		
5								
6								
7								
8								
9								
10								

3% loss
5% loss
OK
OK
OK

* RAISE RPM TO 30

141 276

3 Soils for moisture content

54

11-2-10

#SSAN5-05-0.00-01-BPC

dish wt.	19.24g
dish + S	119.26 (initial wt. 100.02g)
6:45 - 7:45	111.20 (91.96g)
9:00 - 10:00	111.16 (Final wt. 91.92g)

$$\% \text{ Moisture} = 100 \times \frac{100.02 - 91.92}{91.92} = 8.8\%$$

#SSAN4-01-000_01-BPC

dish wt.	31.47g
dish + S	131.54 (initial wt. 100.07g)
6:45 - 7:45	127.12 (95.65g)
9:00 - 10:00	127.10 (Final wt. - 95.63)

$$\% \text{ moisture} = 100 \times \frac{100.07 - 95.63}{95.63} = 4.64\%$$

#SSAP8-02-0.00_01-BPC

dish wt.	31.44
dish + S	131.71 (Initial wt. = 100.27g)
6:45 - 7:45	123.02 (91.58g)
9:00 - 10:00	122.61 (91.17g)
12:15 - 1:15	122.59 (Final wt. 91.15g)

$$\% \text{ Moisture} = 100 \times \frac{100.27 - 91.15}{91.15} = 10.0\%$$

BP

11-9-10

#141 276

#SSAMS-05-0.33_01-BPC

dish wt.	35.11g
d + S.	135.23 (initial wt. 100.12g)
10:35 - 11:35	126.25 (91.14g)
11:50 - 12:50	125.61 (90.50g)
1:00 - 2:00	125.60 (90.49g Final wt)

$$\% \text{ Moisture} = 100 \times \frac{100.12g - 90.49}{90.49} = 10.64\%$$

BP