

FILE NAME: Scotts (SCTS)

DATE: 1978 Jan 30

DOC#: SCTS019

DOCUMENT DESCRIPTION: Report - Product Application Test [Testing Scott Products as Source Asbestos & Levels of Exposure]

PRODUCT APPLICATION TEST

BY: Dick Gruenbaum
Allan Davidson

Date: January 30, 1978

cc: Dr. J. Kilsheimer
Ron Wietelmann
Jim Simmons
Sarge Chamberlain
Pete Griffin
Bill Hillegass

PRODUCT APPLICATION TEST

PURPOSE:

To determine if key Scott products are a source of asbestos fibers and if so at what level of exposure would a user be exposed.

INTRODUCTION:

Turf Builder and Turf Builder Plus 2 were selected for the test. Test sites selected were Darby Glen Sod Farm, Marysville, Ohio, and Saticoy Golf Course in Saticoy, California. Turf was representative of each region; bluegrass in Marysville and bermudagrass in California. Vermiculite was included in the Marysville portion of the test. The California test was conducted under the guidance of Dr. W. Clark Cooper, Consultant.

TEST EQUIPMENT AND MATERIAL:

1. New Scotts PF-1 Drop Spreader modified to allow Millipore Cassette filters to be located at the drop zone of spreader.
2. Turf Builder and Turf Builder Plus 2 at both test sites and vermiculite added at Marysville test site.
3. Miscellaneous equipment to lay out plots.
4. Samplers - Three (3) Bendix Micronaire Model 390010 calibrated between 1.6 and 1.7 liters per minute and one (1) Bendix C-110 calibrated at 2.0 liters per minute. Samplers calibrated just prior to each test. Flow meter checked after each 10,000 sq. ft. plot.

5. Cassettes with Millipore 0.8 micron filters - Catalog No. AAWP03700.
6. Stopwatch.

TEST PROCEDURE:

General:

Test procedure was essentially that as presented by J. Simmons in Project Outline dated 9/7/77, copy of which is attached. Materials were applied at a 2X rate over 10,000 sq. ft. plots. Each product was replicated three times. A total of four samplers and filters were used for each plot. Two samplers and filters were mounted on the spreader such that the filter cassettes were located just behind the drop zone of the spreader. Two samplers and filters were worn by the spreader operator with cassettes in the breathing zone of the operator. One cassette was removed from the spreader and one from the operator after one-half of the plot (5,000 sq. ft.) was covered. The remaining two cassettes were removed at the completion of the plot. A total of three checks were obtained using an empty spreader over a plot area. All filters were submitted to McCrone Associates, Chicago, Illinois for fiber counts. Fiber counts completed by the OSHA/NIOSH phase contrast method.

Marysville:

The Marysville test was completed on Oct. 24, 1977 at the Darby Glen Sod Farm. The area selected was slightly rolling with one year old Windsor bluegrass sod. Sod was being harvested to the west and about 500 yards from the test site. Wind was from the southwest and generally calm at the start to windy midway through and calm again at end of test. Turf was moist at beginning of test. The area was layed out in nine 10,000 sq. ft.

plots. Soil samples were taken from each plot prior to product application. Turf Builder Plus 2 was applied first, then Turf Builder and vermiculite. The vermiculite spreader setting was the same as would be used for a 2X rate of Kwit. A set of check filters were taken prior to each product type. Sampling periods varied from 12 to 15 minutes and 23 to 33 minutes for the 5,000 and 10,000 sq. ft. areas respectively. A total of fifty filters were submitted to McCrone Associates for fiber counts. Two (2) blank or unopened filters were included. Fiber counts given in Table I.

California

The California test was completed on Nov. 15, 1977 at the Saticoy Golf Course. Area was in a small canyon which was part of the Driving Range. Turf varied from none to bermuda with patches of rye. Turf slightly damp at start of test, dry within one hour of start. Wind was calm at the start to mild (5-10 mph) from the northeast with some swirling at completion of test. Plot plan same as at Marysville except only six 10,000 sq. ft. plots needed. Three checks were taken during the period of the test at the beginning, middle, and just prior to last Turf Builder plot. Sampling same as for Marysville test with times varying from 10 to 12 minutes and 21 to 24 minutes for the 5,000 and 10,000 ft. areas respectively. A total of 37 filters were submitted to McCrone Associates for fiber counts. One (1) blank or unopened filter was included. Fiber counts are shown in Table I. A copy of Dr. Cooper's observations is attached.

DISCUSSION:

The apparent difference in fiber counts between the Marysville and California test is not readily apparent. A memo dated January 12, 1978 from Dick Gruenbaum

on his discussion of this difference with Millipore Corporation is attached. Mr. Ian Stewart of McCrone Associates could not explain the difference except for possibly in handling of the filters the fibers were knocked off. Contaminated filters were also a possibility.

Very little observable dust was noted on any of the filters except for the vermiculite test with the filters in the drop zone of the spreader. Twelve filters from the Marysville test and all but one filter in the California test have lower fiber counts than the blank filters. All fiber counts, except for the vermiculite portion of the test and one (1) Turf Builder filter from the Marysville test, are essentially the same as the check filters. This would indicate that except for the vermiculite portion of the test, no more fibers are obtained from product application than from simply running an empty spreader over an equivalent plot area for the same time period.

ACKNOWLEDGEMENT:

We would like to thank Chet Baker for his assistance in obtaining the Marysville site and in laying out the initial plots; Gene Moffett for his assistance in making the applications; and Dr. Hari Bhalla for his assistance in the California portion of the test.

TABLE I. PRODUCT APPLICATION TEST

Product and Location	Spreader				Operator			
	5 M		10 M		5 M		10 M	
	Fibers	Fibers/cc	Fibers	Fibers/cc	Fibers	Fibers/cc	Fibers	Fibers/cc
<u>Turf Builder</u>								
Marysville	2769	0.13	2769	0.051	19383	1.0	554	0.012
	6646	0.27	13292	0.24	0	0	0	0
	1661	0.067	2215	0.040	554	0.022	1661	0.037
California	0	0	111	0.002	166	0.008	111	0.002
	111	0.005	0	0	111	0.005	55	0.001
	0	0	222	0.005	0	0	166	0.004
<u>Turf Builder + 2</u>								
Marysville	554	0.024	6646	0.14	1661	0.07	2215	0.047
	1108	0.048	554	0.01	1661	0.07	1108	0.021
	554	0.028	1661	0.04	4431	0.22	554	0.014
California	166	0.009	277	0.006	0	0	0	0
	0	0	609	0.013	111	0.005	0	0
	222	0.10	277	0.006	0	0	55	0.001
<u>Check</u>								
Marysville	3323	0.15	1108	0.023	554	0.023	554	0.012
	554	0.026	8861	0.170	4431	0.053	554	0.013
	3323	0.17	2215	0.048	554	0.028	1661	0.042
California	0	0	0	0	55	0.003	55	0.001
	111	0.006	277	0.006	55	0.003	111	0.003
	111	0.006	166	0.004	55	0.003	0	0
<u>Vermiculite</u>								
Marysville	31567	1.58	50951	1.02	2215	0.11	0	0
	32675	1.64	24368	0.53	554	0.027	0	0
	26029	1.34	3544	0.074	0	0	0	0
Marysville Blank Filters 0 and 554 Fibers								
California Blank Filters 388								

Marysville Field Data

Date: October 10, 1977

Filter Numbers 7-297-

Operation	5M						10M						Remarks
	Spreader			Operator			Spreader			Operator			
	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	
													Soil Moisture medium, Foilage moist Soil Type - Loam Dry at end of test.
10:00 start Check	6	2	14	1	3	14	4			2	4	29.5	Wind calm to windy S.W.
TB +2 - 1	4	8	14	1	5	14	6	6	29	2	7	29	Spreader setting #2 Approximately 2/3 thru first 5M went to #8 at 5M went to 9 at 7.5 went 11.5
TB +2 - 2	4	11	14	1	10	14	6	9	33	2	12	33	Spreader setting 11.5 at 5M changed to 10.5 after 5M
TB +2 - 3 12:45 stop	6	15	12	1	13	12	4	14	25	2	16	25	Spreader setting 10.5
14:10 Check 2:10	4	18	13	2	19	13	C-110	17	26	1	20	26	Foilage dry - soil med. soil type loam.
TB - 1	4	23	13	2	21	12	C-110	24	27	1	22	27	Spreader setting 2.5 to 10 5M to 10.5.
TB - 2	4	28	15	2	25	15	C-110	26	28	1	27	28	Spreader setting 11.5 Windy from S.W.
TB - 3	4	39	15	1	29	1.5	C-110	37	28	2	34	28	Spreader setting 11.5 5M to 11.0 Cloudy about 16:00

Marysville Field Data

Date: October 10, 1977

Filter Numbers 7-297-

Operation	5M						10M						Remarks
	Spreader			Operator			Spreader			Operator			
	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	Samp. #	Filter #	Run Time (Min)	
													Soil Moisture medium. Foilage moist Soil Type - Loam Dry at end of test.
Check 16:25	4	40	12	2	30	12	C-110	31	23	1	48	23	
Vermiculite 1	4	36	12	1	42	12	C-110	33	25	2	32	25	Verm. in fiber drums wind S.W. to calm Spreader setting 8 (Xwit)
Vermiculite 2 17:20	4	41	12	1	44	12	C-110	43	23	2	46	23	Verm. from #2 system feeder 7-272 11:30am.
Vermiculite 3	6	47	12	2	45	12	C-110	35	24	1	38	24	

End approximately 18:15

Filter No. 49 & 50 were blanks

MARYSVILLE FIELD DATA
Sampler Calibrations
Date: October 10, 1977
Filter Numbers 7-297-

<u>Sampler #</u>	<u>Date</u>	<u>Flow Setting</u>	<u>Sec/1000 ML</u>	<u>In Line With</u>
#2	10-24-77	tape	36,36,36	8 μ Filter
		Set at tape to get 1.66 L.P.M.		
#6	10-24-77	tape	38,38,38	8 μ Filter
		Set at tape to get 1.57 L.P.M.		
#4	10-24-77	tape	35,35,35	8 μ Filter
		Set at tape to get 1.7 L.P.M.		
#1	10-24-77	tape	37,37,37	8 μ Filter
		Set at tape to get 1.62 L.P.M.		
#3	10-24-77	tape	35,35,35	8 μ Filter
		Set at tape to get 1.7 L.P.M.		

CALIFORNIA FIELD DATA

Date: November 15, 1977

Filter Numbers 7-319-

Operation	5M			10M			10M			10M			Remarks
	Spreader	Filter	Run	Operator	Filter	Run	Spreader	Filter	Run	Operator	Filter	Run	
	Samp. #	#	Time (Min)	Samp. #	#	Time (Min)	Samp. #	#	Time (Min)	Samp. #	#	Time (Min)	
7:40 a.m. Check	4	2	10	6	4	10	C-110	1	21	1	3	21	Turf almost dry.
TB + 2 8:15 a.m. #1	4	12	11	6	16	11	C-110	34	23	1	23	23	
TB + 2 08:40 #2	4	21	12	6	10	12	C-110	36	23	1	9	23	
TB + 2 09:05 #3	4	24	12	6	7	12	C-110	18	23	1	20	23	Dry turf, start Dr. Cooper got sample.
Check 09:30	4	25	11	6	27	11	C-110	33	22	1	26	22	Soil temp. 55 to 60°C Air temp. 82 to 84°F.
Turf Buil. 10:00 #1	4	22	12	6	19	12	C-110	32	24	1	17	24	R.H. 15 to 20%
T.B. 10:30 #2	4	13	12	6	6	12	C-110	31	23	1	30	23	C-110 sampler - filt #31, hose was off er
Check 11:00	4	28	11	6	35	11	C-110	11	21	1	8	21	Wind - slight from North
TB #3	4	29	10	6	5	10	C-110	15	22	1	14	22	

CALIFORNIA FIELD DATA
Sampler Calibrations
Date: November 15, 1977
Filter Numbers 7-319-

<u>Sampler #</u>	<u>Date</u>	<u>Flow Setting</u>	<u>Sec/1000 ML</u>	<u>In Line with</u>
C-110	11-14-77	tape	30,30,30	8 μ Filter
		Set at tape to get 2.0 L.P.M.		
#1	11-14-77	tape	35,35,35	8 μ Filter
		Set at tape to get 1.7 L.P.M.		
#2	11-14-77	tape	37,37,37	8 μ Filter
		Set at tape to get 1.62 L.P.M.		
#6	11-14-77	tape	37,37,37	8 μ Filter
		Set at tape to get 1.62 L.P.M.		
#4	11-14-77	tape	36,36,36	8 μ Filter
		Set at tape to get 1.66 L.P.M.		