PLAINTIFF'S EXHIBIT

KG-344

Gold Bond

GOLD BOND BUILDING PRODUCTS

DIVISION OF NATIONAL GYPSUM COMPANY

RESEARCH CENTER • 700 MILITARY ROAD, BUFFALO, NEW YORK 14217

July 13, 1973

Mr. H. B. Carlsen, Secy.
Technical Committee
Gypsum Association
201 North Wells St.
Chicago, Illinois 60606

Dear Mr. Carlsen:

This is in reference to your letter of July 6, 1973, to the members of the Technical Committee on the subject of "Asbestos in Joint Treatment Compound".

I have been designated to represent our company on the Association Subcommittee which will handle this program. Will you please put me on the mailing list for any future correspondence on this subject matter.

In response to your request for data developed within member companies, I am forwarding two reports prepared as a result of some comprehensive laboratory studies made by us. Since trade names are irrelavent, I have modified the reports to identify the products merely as Product A, B, etc., with further notation as to whether the products are Textures, All Purpose or Topping Joint Treatment products. One report, A dated May 10, 1973, deals with Ready-Mix grade products while Report B, dated July 3, 1973, deals with dry powder joint compounds. We feel that these reports will be of interest in your program. I will be available to meet in August, preferably during the early part of any week.

We fully support the intended program and feel that the results of the work will be a good effort in providing the trade with important information dealing with OSHA regulations.

Very truly yours,

Joseph Volk, Manager
Product & Process Services

Enc.
JV:BAE
cc: E. J. Killian-GBBP
A. H. Fay-GBBP

Approval _____

NATIONAL GYPSUM COMPANY
BUILDING PRODUCTS DIVISION RESEARCH REPORT

Dept. _____

Project No. _____

Report No. A

Date May 10, 1973

Project Title:

RELEASE OF AIR CONTAMINANTS IN MIXING AND SANDING JOINT TREATMENT COMPOUNDS

Project Phase:

Evaluation of Ready-Mix Joint Treatment Products

Abstract:

Gold Bond Ready-Mix joint treatment compounds do not release airborne asbestos fiber concentrations in excess of the OSHA allowable limits, either during the sanding or sweeping (clean-up) operation.

Tests indicate that the total and respirable dust released during the sanding of joint compounds will exceed the allowable OSHA limits. Cautionary wording recommending the use of respirators and/or employee rotation should be on the label. Field tests should be conducted to establish typical dust levels.

Research is arranging for a meeting with OSHA to determine our responsibility in customer notification and, if required, how it can be implemented.

DISCUSSION

In view of the current Federal Regulations promulgated under the Occupational Safety and Health Act (OSHA) regarding the allowable limits of air contaminants, Marketing requested Research to determine the level of air contaminants which would be released in the sanding of Gold Bond Joint Treatment compounds. Of particular interest is the release of asbestos fibers, and the need for caution labeling.

In addition to asbestos, there exists other requirements relating to worker exposures to other dusts, those containing less than 1% quartz (SiO_2) classified as nuisance dust and those which contain greater than 1% quartz.

The full text of OSHA Subpart G, Section 1910.93 air contaminants is attached to this report for reference purposes.

Project was established to determine what level of air contaminants can be expected and present recommendations with reference to labeling requirements.

This report deals only with Gold Bond Ready-Mix grades of products. The survey includes asbestos, total dust and respirable dust concentrations.

Use conditions were simulated at the Research Center for the test. A room was constructed to provide three walls and a ceiling with tapered edge gypsum wallboard (concrete floor). The fourth wall opening was covered with polyethylene film to give total enclosure plus provision for daylight. The room was 11' x 13' x 8' high.

The general procedure used was to apply the joint compounds to wall and ceiling areas to simulate a treated joint. No tape was used in most instances since this was not considered to be a contributing factor. We were primarily interested in the effects of sanding joint compound and the quantity and quality of the resultant dust. The procedure provided the most sanding area per wall or ceiling area and in our opinion would result in the most severe condition presented to the sanding operation.

The joint compounds were applied and allowed to dry two weeks. The tests were conducted at 71°F and 42% RH, the ambient conditions. The joint compounds subjected to the evaluation were selected on the basis of their maximum asbestos content and relative ease of sanding which would contribute to maximum release of dust upon sanding.

The products used were:

PRODUCT A (All Purpose Ready-Mix)
PRODUCT B (All Purpose Ready-Mix)
PRODUCT C (Ready-Mix Topping)

Two men were principally involved in the sanding test. One man performed the actual sanding operation, he will be referred to as the "sander". The other man accompanied the sander and normally was about 5' from the sander. He will be referred to as the assistant. Both men were fitted with personal samplers for asbestos, total dust and respirable dust collection. The purpose of the assistant was to determine worker exposure to air contaminants at a reasonable distance from the sander.

Further, high volume samplers were placed near the point of operation to obtain gross samples for chemical analysis as needed; these were total and respirable dust fractions.

The "sander" used a pole sander fitted with Norton openkote Garnet paper 80D for the sanding operation and all sanding was done from the floor to simulate job practice. It is recognized that many sanding techniques are used on the job, and in our judgement, our procedure would be typical of most commercial job procedures.

Reference is made to the attached data pages for full disclosure of the results of this test. For matter of information we separated the sanding operation into two portions, the ceiling and sidewalls.

It was the judgement of those in attendance that the vigorous sanding operation as conducted did in fact represent a severe condition and none worse would be encountered on job conditions.

Findings Relative to Airborne Asbestos Fiber Concentration

The worker exposure to airborne concentration of asbestos fibers was determined and the 8 hour time weighted average (TWA) was based on 8 hours of continuous sanding under the conditions cited in this report. OSHA provides for two permissable exposure levels, an 8 hour time weighted average of 5 fibers per cc and a ceiling concentration of 10 fibers per cc. We sampled for 15 minute periods so the results would be indicative of both levels. Longer sampling periods would have rendered the filters too filled to permit viewing the asbestos fibers. On July 1, 1976, the TWA will be reduced to 2 fibers per cc.

	Fiber Concentration Fibers/cc	
	Ceiling	Sidewalls
PRODUCT A		
Sander	1.0	1.0
Assistant	1.0	1.0
PRODUCT B		
Sander	0.5	0.3
Assistant	0.3	0.4
PRODUCT C		
Sander	2.2	1.3
Assistant	1.4	1.2

It was found that the sanding of subject Ready-Mix Joint Treatment compounds release airborne concentrations of asbestos fibers well within the allowable limits of today's OSHA standards and in our opinion will be within the July 1, 1976 standard when projecting to practical on-the-job use situations.

A "blank" determination was made fifteen minutes after the ceiling sanding test was made with Product B ; it was found that the residual fiber concentration of that time was the same as that created during the sanding operation.

Another blank was run 18 hours after completing the sanding of Product C the residual concentration was 0.1 fibers per cc (see Filter No. B-38).

Five days after completing the sanding tests the test floor area was swept with a push broom to determine the extent of asbestos fiber concentration created during clean-up. See Filter No. AAO. The concentration was found to be 1.4 fibers per cc; this is generally in line with the concentration generated during the sanding operation.

Findings Relative to Airborne Total and Respirable Dust Concentration

The worker exposure to dust concentrations was determined and the 8 hour time weighted average was based on 8 hours of continuous sanding under the conditions cited in this report.

Analyses showed that the SiO_2 (free silica or quartz) content of the collected dust sample was greater than 1% and therefore the dust would not come under the classification of nuisance dust. The allowable concentration for dust containing greater than 1% quartz is determined by the following formula.

Respirable: $\frac{10\ mg/M^3}{\%SiO_2+2}$

Total $\frac{30\ mg/M^3}{\%SiO_2+2}$

Reference is made to the attached data pages for detailed findings relative to the dust quality and quantity. In most cases, the collected respirable portion on the personal sampler was of small quantity and did not enable determination of quartz content and the analysis of the area respirable sample was used; this is a recommended technique.

CEILING TEST
Dust Concentration in mg/M^3

	TOTAL		RESPIRABLE	
	Found	Allowable	Found	Allowable
PRODUCT A				
Sander	74.0	7.4	5.0	3.6
Assistant	15.0	5.0	0.7	3.6
PRODUCT B				
Sander	42.0	5.4	7.9	1.4
Assistant	27.0	5.8	4.0	1.4
PRODUCT C				
Sander	137.0	7.5	11.9	2.4
Assistant	89.0	5.7	1.5	2.4

SIDEWALL TEST
Dust Concentration in mg/M^3

PRODUCT A				
Sander	32.0	9.1	2.0	3.6
Assistant	72.0	12.0	7.0	3.6
PRODUCT B				
Sander	47.0	5.9	4.3	1.4
Assistant	26.0	5.7	2.2	1.4
PRODUCT C				
Sander	89.0	5.1	0.4	2.4
Assistant	30.5	3.4	0.4	2.4

It was found that in all instances the worker exposure to total dust concentration exceeded the allowable limit. The degree to which the actual exposure exceeded the allowable limits is a factor of 3 to 18, average 9. The Product C , being the easiest to sand, resulted in the greatest dust concentration conditions.

In about one half of the tests the respirable dust concentration exceeded the allowable limits.

From this limited work we project that a worker sanding Gold Bond Ready-Mix Joint Treatment compounds on normal job conditions could be exposed to dust conditions exceeding the allowable limits.

SUMMARY

OSHA 1910.93a establishes definite limits on airborne concentrations of asbestos fibers. In a simplified interpretation of the law, work practices related to product use shall be such that the emission of airborne fibers shall not exceed the exposure limits as prescribed. In instances where the exposure limits are exceeded, compliance with exposure limits may not be achieved by the use of respirators or shift rotation of employees except (a) as necessary time interval to install engineering controls (b) if it is not technically feasible to reduce concentrations or (c) in emergencies, in such cases personnel rotation shall be preferred and used. The law also states that "no employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee will be impaired by the use of a respirator.

Specific provisions are made in OSHA 1910.93a regarding the use of special clothing, cautionary signs and labeling, waste disposal. Such action is required only if during any foreseeable use, handling, storage, disposal, processing or transportation, airborne concentrations of asbestos fibers in excess of the exposure limits will be released.

Programs on Recordkeeping and Medical examinations are based not only on the criteria of exposure situations being in excess of the limits but by the simple fact that monitoring is required; monitoring is required in every place of employment where asbestos fibers are released.

Tests conducted in this series showed that Gold Bond Ready-Mix Joint Compounds do not liberate or create asbestos concentration in excess of the allowable limits when subjected to sanding (not including mechanical sanding) or sweeping the dust. Accordingly, the containers

do not need cautionary labels. However, the applicator or drywall contractor is responsible to "cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employees exposure to asbestos fibers is below the limits"prescribed by OSHA. Monitoring may be personal monitoring (actually on the job) or environmental monitoring where samples are collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees.

It is Research opinion that we can provide our customers with data on environmental monitoring and this would lend support the personal monitoring on the job by the customer.

Since it is indicated that the dust (other than asbestos) concentration will be in excess of the allowable limits, recommendation on the use of respirators or employee rotation should be made on the container label. This should be deferred until such time as typical field conditions are surveyed and discussions are completed with OSHA to permit taking a more definitive position on this item (dust) and the need to incorporate in our label the fact that the product contains asbestos, to inform the user of this fact.

J. VOLK

BAE

KNS00003535

ASBESTOS CONCENTRATION - READY MIX JOINT COMPOUND - Product A

DATE	JOB DESCRIPTION	PRODUCT	FILTER NO.	SAMPLING PERIOD			LITERS PER MINUTE	NET SAMPLE VOLUME	FIBER COUNT			FIBERS PER ML	CALCULATED TWA*	OSHA 1910.93 ALLOWABLE TWA TLV		TOTAL HOURS SAMPLED	ALLOWABLE WORKING TIME
				HOURS START	HOURS STOP	NET SAMPLING TIME-MIN.		LITERS	TOTAL FIBERS	TOTAL FIELDS	FIBERS PER FIELD		FIBERS PER ML	FIBERS PER ML	COMPLY		HOURS
24	Sander - Sanding ceiling area		B-44	---	---	15.0	2.08	31.20	18	100	.18	1.0	1.0	5	Yes	.25	8
24	Assistant - while ceiling area was being sanded		B-45	---	---	15.0	2.05	30.75	18	100	.18	1.0	1.0	5	Yes	.25	8
24	Sander - Sanding side wall area		B-46	---	---	15.0	2.08	31.20	17	100	.17	1.0	1.0	5	Yes	.25	8
24	Assistant - while side wall area was being sanded		B-33	---	---	15.0	2.05	30.75	17	100	.17	1.0	1.0	5	Yes	.25	8
24	Sander - Sanding Ceiling area (repeat)		B-122	---	---	15.0	2.05	30.75	16	100	.16	0.9	1.0	5	Yes	.25	8

*Based on 8 hours CONTINUOUS SANDING UNDER THE CONDITIONS CITED IN THIS REPORT.

KNS00003535

KNS00003536

TOTAL DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product A

Date 1973	Job Description	Filter No.	Sampling Period			Liters per Minute	Sample Volume	Sample Weight	Dust Concentration	SiO_2 Content		Calculated TWA*	OSHA 1910.93 Allowable TWA TLV		Total Hours Sampled
			Hours Start	Hours Stop	Elapsed Time Minutes		Liters	MG	MG/M^3	ug	%	M/H^3	MG/M^3	Comply	
4/24	Sander - Sanding ceiling area	3-63	---	---	15.0	1.77	26.55	2.23	84.0	42	1.9	84.0	7.8	No	.25
4/24	Assistant - while ceiling area was being sanded	2-122	---	---	15.0	1.83	27.45	0.40	15.0	16	4.0	15.0	5.0	No	.25
4/24	Sander - Sanding side walls	3-34	---	---	15.0	1.77	26.55	0.86	32.0	11	1.3	32.0	9.1	No	.25
4/24	Assistant - while side wall area was being sanded	3-48	---	---	15.0	1.83	27.45	1.98	72.0	10	0.5	72.0	12.0	No	.25
4/24	Sander - Sanding ceiling area (repeat)	5-39	---	---	15.0	1.83	27.45	1.76	64.0	41	2.3	64.0	7.0	No	.25
4/24	Area Sample (Ceiling and Side Walls)	3-1	---	---	---	9.0	---	2.43	---	26	1.2	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

KNS00003536

RESPIRABLE DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product A

Date 1973	Job Description	Filter No.	Sampling Period Hours Start	Sampling Period Hours Stop	Sampling Period Elapsed Time Minutes	Liters per Minute	Sample Volume Liters	Sample Weight MG	Dust Concentration MG/M³	SiO_2 Content UG	SiO_2 Content %	Calculated TWA * MG/M³	OSHA 1910.93 Allowable TWA TLV MG/M³	OSHA 1910.93 Allowable TWA TLV Comply	Total Hours Sampled
4/24	Sander - Sanding Ceiling Area	4-2	---	---	15.0	1.83	27.45	0.20	7.0	---	0.8**	7.0	3.6	No	.25
4/24	Assistant - While Ceiling Area was being sanded.	4-10	---	---	15.0	1.85	27.75	0.02	0.7	---	0.8**	0.7	3.6	Yes	.25
4/24	Sander - Sanding side walls	4-41	---	---	15.0	1.83	27.45	0.06	2.0	---	0.8**	2.0	3.6	Yes	.25
4/24	Assistant - While Side walls were being sanded.	5-15	---	---	15.0	1.85	27.75	0.19	7.0	---	0.8**	7.0	3.6	No	.25
4/24	Sander - Sanding ceiling area (repeat)	3-205	---	---	15.0	1.85	27.75	0.09	3.0	---	0.8**	3.0	3.6	Yes	.25
4/24	Area Sample (Ceiling and Side Walls)	4-30	---	---	---	9.0	---	2.43	---	19	0.8	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

** Insufficient sample to analyze - Area sample value used to determine % quartz.

KNS00003537

KNS0003538

ASBESTOS CONCENTRATION - READY MIX JOINT COMPOUND - Product C

DATE 1973	JOB DESCRIPTION	PRODUCT	FILTER NO.	SAMPLING PERIOD			LITERS PER MINUTE	NET SAMPLE VOLUME	FIBER COUNT			FIBERS PER ML	CALCULATED TWA *	OSHA 1910.93 ALLOWABLE TWA TLV		TOTAL HOURS SAMPLED	ALLOWABLE WORKING TIME
				HOURS START	HOURS STOP	NET SAMPLING TIME-MIN.		LITERS	TOTAL FIBERS	TOTAL FIELDS	FIBERS PER FIELD		FIBERS PER ML	FIBERS PER ML	COMPLY		HOURS
4/25	Sander - Sanding Ceiling Area		B-20	---	---	15.0	2.05	30.75	------	------	------	------	Not Readable	------	------	------	------
4/25	Assistant - While ceiling area was being sanded		B-76	---	---	15.0	2.08	31.20	25	100	.25	1.4	1.4	5	Yes	.25	8
4/25	Sander - Sanding side wall area		B-110	---	---	15.0	2.05	30.75	22	100	.22	1.3	1.3	5	Yes	.25	8
4/25	Assistant - while side wall area was being sanded		B-79	---	---	15.0	2.08	31.20	21	100	.21	1.2	1.2	5	Yes	.25	8
4/25	Sander - Sanding Ceiling area		B-2	---	---	5.0	2.05	10.25	11	100	.11	1.9	1.9	5	Yes	.08	8
4/25	Sander - Sanding Ceiling Area		B-42	---	---	5.0	2.08	10.4	15	100	.15	2.5	2.5	5	Yes	.08	8
4/26	Blank - Run 18 hours after sanding test ended		B-38	---	---	15.0	2.08	31.20	2	100	.02	0.1	0.1	5	Yes	.25	8
5/1	Sweeping floor (push groom) after completion of sanding		AAU	---	---	13.0	2.08	27.04	21	100	.21	1.4	1.4	5	Yes	.22	8

*BASED ON 8 HOURS CONTINUOUS SANDING UNDER THE CONDITIONS CITED IN THIS REPORT.

KNS0003538

KNS0003539

TOTAL DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product C

Date 1973	Job Description	Filter No.	Sampling Period			Liters per Minute	Sample Volume	Sample Weight	Dust Concentration	SiO_2 Content		Calculated 8 hr TWA	OSHA 1910.93 Allowable TWA TLV		Total Hours Sampled
			Hours Start	Hours Stop	Elapsed Time Minutes		Liters	MG	MG/M³	ug	%	MG/M³	MG/M³	Comply	
4/25	Sander - Sanding Ceiling Area	6-9	---	---	15.0	1.83	27.45	3.77	137.0	77	2.0	137.0	7.5	No	.25
4/25	Assistant - while ceiling area was being sanded	6-15	---	---	15.0	1.77	26.55	2.36	89.0	77	3.3	89.0	5.7	No	.25
4/25	Sander - Sanding side wall area	3-22	---	---	15.0	1.83	27.45	2.44	89.0	95	3.9	89.0	5.1	No	.25
4/25	Assistant - while side wall area was being sanded	6-8	---	---	15.0	1.77	26.55	0.81	30.5	56	6.9	30.5	3.4	No	.25
4/25	Area Sample (Ceiling and Side Walls)	3-55	---	---	---	9.0	---	0.68	---	35	5.2	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

KNS0003539

KNS0000354O

RESPIRABLE DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product C

Date 1973	Job Description	Filter No.	Sampling Period Hours Start	Hours Stop	Elapsed Time Minutes	Liters per Minute	Sample Volume Liters	Sample Weight MG	Dust Concentration MG/M³	SiO_2 Content UG	SiO_2 Content %	Calculated TWA* MG/M³	OSHA 1910.93 Allowable TWA TLV MG/M³	OSHA 1910.93 Allowable TWA TLV Comply	Total Hours Sampled
4/25	Sander - Sanding ceiling area	6-1	---	---	15.0	1.85	27.75	0.33	11.9	**	2.2	11.9	2.4	No	.25
4/25	Assistant - While ceiling area was being sanded	4-44	---	---	15.0	1.83	27.45	0.04	1.5	**	2.2	1.5	2.4	Yes	.25
4/25	Sander - Sanding side wall area	5-10	---	---	15.0	1.85	27.75	0.01	0.4	**	2.2	0.4	2.4	Yes	.25
4/25	Assistant - while side wall area was being sanded	4-51	---	---	15.0	1.83	27.45	0.01	0.4	**	2.2	0.4	2.4	Yes	.25
4/25	Area Sample (Ceiling and Side Wall)	B-24	---	---	---	9.0	---	5.07	---	110	2.2	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

** Insufficient sample to analyze - area sample value used to determine % quartz.

KNS0000354O

KNS00003541

ASBESTOS CONCENTRATION - READY MIX JOINT COMPOUND - Product B

DATE 1973	JOB DESCRIPTION	PRODUCT	FILTER NO.	SAMPLING PERIOD			LITERS PER MINUTE	NET SAMPLE VOLUME	FIBER COUNT			FIBERS PER ML.	CALCULATED TWA *	OSHA 1910.93 ALLOWABLE TWA TLV		TOTAL HOURS SAMPLED	ALLOWABLE WORKING TIME
				HOURS START	HOURS STOP	NET SAMPLING TIME-MIN.		LITERS	TOTAL FIBERS	TOTAL FIELDS	FIBERS PER FIELD		FIBERS PER ML	FIBERS PER ML	COMPLY		HOURS
4/25	Sander - Sanding Ceiling Area		B-30	---	---	15.0	2.05	30.75	9	100	.09	0.5	0.5	5	Yes	.25	8
4/25	Assistant - While ceiling area was being sanded		B-88	---	---	15.0	2.08	31.20	5	100	.05	0.3	0.3	5	Yes	.25	8
4/25	Blank - taken 15' after sanding of ceiling area ended		B-68	---	---	15.0	2.08	31.20	5	100	.05	0.3	0.3	5	Yes	.25	8
4/25	Sander - sanding side wall area		B-177	---	---	15.0	2.05	30.75	5	100	.05	0.3	0.3	5	Yes	.25	8
4/25	Assistant - while side wall area was being sanded		B-56	---	---	15.0	2.08	31.20	7	100	.07	0.4	0.4	5	Yes	.25	8

* BASED ON 8 HOURS CONTINUOUS SANDING UNDER THE CONDITIONS CITED IN THIS REPORT.

KNS00003541

TOTAL DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product B.

Date 1973	Job Description	Filter No.	Sampling Period: Hours Start	Sampling Period: Hours Stop	Sampling Period: Elapsed Time Minutes	Liters per Minute	Sample Volume: Liters	Sample Weight: MG	Dust Concentration: MG/M³	SiO_2 Content: UG	SiO_2 Content: %	Calculated %/M³	OSHA 1910.93 Allowable TWA TLV: MG/M³	OSHA 1910.93 Allowable TWA TLV: Comply	Total Hours Sampled
4/25	Sander - Sanding ceiling area	6-10	---	---	15.0	1.83	27.45	1.16	42.0	42	3.6	42.0	5.4	No	.25
4/25	Assistant - while ceiling area was being sanded	6-13	---	---	15.0	1.77	26.55	0.71	27.0	23	3.2	27.0	5.8	No	.25
4/25	Blank - taken 15' after sanding of ceiling ages ended	6-7	---	---	15.0	1.77	26.55	0.23	8.7	---	3.6	8.7	5.4	No	.25
4/25	Sander - sanding side wall area	6-11	---	---	15.0	1.83	27.45	1.28	47.0	40	3.1	47.0	5.9	No	.25
4/25	Assistant - while side wall area was being sanded	6-18	---	---	15.0	1.77	26.55	0.70	26.0	23	3.3	26.0	5.7	No	.25
4/25	Area Sample (ceiling and side walls)	6-12	---	---	---	9.0	---	6.29	---	95	1.5	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

KNS0003542

KNS00003543

RESPIRABLE DUST CONCENTRATION - READY MIX JOINT COMPOUND - Product B

Date 1973	Job Description	Filter No.	Sampling Period Hours Start	Sampling Period Hours Stop	Sampling Period Elapsed Time Minutes	Liters per Minute	Sample Volume Liters	Sample Weight MG	Dust Concentration MG/M³	SiO_2 Content uG	SiO_2 Content %	Calculated TWA* MG/M³	OSHA 1910.93 Allowable TWA TLV MG/M³	OSHA 1910.93 Allowable TWA TLV Comply	Total Hours Sampled
4/25	Sander - Sanding Ceiling area	6-4	---	---	15.0	1.85	27.75	0.22	7.9	---	5.1	7.9	1.4	No	.25
4/25	Assistant - while ceiling area was being sanded	6-3	---	---	15.0	1.83	27.45	0.11	4.0	---	5.1**	4.0	1.4	No	.25
4/25	Blank - taken 15' after sanding of ceiling area ended	6-6	---	---	15.0	1.83	27.45	0.12	4.4	---	5.1**	4.4	1.4	No	.25
4/25	Sander - Sanding side wall area	6-2	---	---	15.0	1.85	27.75	0.12	4.3	---	5.1	4.3	1.4	No	.25
4/25	Assistant - while side wall area was being sanded	6-5	---	---	15.0	1.83	27.45	0.06	2.2	---	5.1**	2.2	1.4	No	.25
4/25	Area Sample (ceiling and side walls)	4-52	---	---	---	9.0	---	0.41	---	21	5.1	---	---	---	---

* Based on 8 hours continuous sanding under the conditions cited in this report.

** Insufficient sample to analyze - area sample value used to determine % quartz.

KNS00003543