FILE NAME: General Electric (GE)

DATE: 1939-1967

DOC#: GE196

DOCUMENT DESCRIPTION: GE Asbestos - BC Notes & 5 Docs [From PA Archive]

General Electric Asbestos

- 1967 Application for approval of air recirculation system with asbestos dust as contaminant
- 1937 Investigation of Hazard of Asbestos Dust at General Electric Co. York Wire Works
- 1939 request for info regarding harmful effects of asbestos dust
- 1965 Operation/Hazard/Control Measure matrix with asbestos dust hazard documented Crocodolite asbestos ball milled and ground manually. Exhaust hood recommended

HIN-v 19155

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
OCCUPATIONAL HEALTH

EACH SYSTEM REQUIRES SEPARATE APPLICATION

APPLICATION FOR APPROVAL OF AIR RECIRCULATION SYSTEM

DATE Feb. 27 '67

PLANT NAME: General Electric Apparatus Service Shop

ADDRESS: 4930 Buttermilk Hollow Rd., West Mifflin, Pa.

CITY AND ZIP CODE: West Mifflin, Pa. 15122

COUNTY: Allegheny

CONTAMINANTS COLLECTED: Saw Dust

LOCATION OF AIR RECIRCULATION SYSTEM (DEPARTMENT, BUILDING, ROOM, ETC.): Coil Department

LIST OPERATIONS EXHAUST VENTILATED TO COLLECTOR AND ALL MATERIALS USED IN THESE OPERATIONS

OPERATIONS	MATERIALS USED IN OPERATION (SPECIFIC INGREDIENTS)
Table Saw	Wood, Textolite,
Scroll Saw	Glass Melamine, Oiled Asbestos
Belt Sander	Paper

AIR RECIRCULATION SYSTEM INFORMATION

MANUFACTURER OF COLLECTOR: Aget Manufacturing Co.

MODEL NUMBER: DB-2

TYPE COLLECTOR: Recirculating

AIR VOLUME RATE OF SYSTEM: 900 CFM

DAILY OPERATION TIME: 2 HR.

DESCRIPTION OF AREA TO WHICH AIR IS RECIRCULATED

LENGTH	300	FT.
WIDTH	220	FT.
HEIGHT	24	FT.
NUMBER OF EMPLOYEES IN THE AREA — FULL TIME	100	
NUMBER OF EMPLOYEES IN THE AREA — PART TIME		

QUANTITY OF MAKE-UP AIR SUPPLIED TO AREA: 126,000 CFM

LIST SPECIFIC REASONS WHY SYSTEM CANNOT BE EXHAUSTED TO THE OUTSIDE: Keep portable for layout flexibility

COLLECTOR EFFICIENCY DATA:

MAINTENANCE PROGRAM (DESCRIBE): Weekly check to clean and empty unless usage greater than normal.

SOURCE OF MAKE-UP AIR: Gas-Fired space and unit heaters

OTHER EXHAUST VENTILATION SYSTEMS IN THE AREA (DESCRIBE): 2- Power Roof Ventilators, 5800 CFM each

TITLE	SIGNATURE	PHONE	EXTENSION NUMBER
Mfg. Eng.	[signature]	462-7100	12

FOR DEPARTMENTAL USE ONLY

☐ REGION REPORT AND RECOMMENDATIONS ON REVERSE SIDE

REGION	DATE REC'D	BY
COMMITTEE	DATE REC'D	BY
REGION	DATE REC'D	BY
PLANT NOTIFIED	DATE NOTIFIED	BY

COMMITTEE ACTION: ☐ APPROVED ☐ DISAPPROVED ☒ APPROVED (CONDITIONAL)

CONDITIONS: No exhaust

USE REVERSE SIDE FOR ADDITIONAL COMMENTS

Air Recirculation

Re: General Electric Company - Apparatus Service

Points:

1. The use is very occasional.
2. The mention is made about oiled asbestos paper being used. I telephoned the company. This was used on one particular job and is not a normal operation at this machine or any where else in the plant. They had to produce blocks to be used as fillers.
3. The area is large.

OK CW 3/22/67

OK FC 3/22/67

OK JWK 3/23/67 - incomplete

AWT:ns 3/22/67

INVESTIGATION OF HAZARD OF ASBESTOS DUST

GENERAL ELECTRIC CO.,

YORK WIRE WORKS

York, Pennsylvania.

July 14, 1937

Allan K. Dooley,
Julia L. Matthews.

Investigation of Asbestos Dust Hazard

General Electric Co.
York, Penna.

Reason for Investigation.

The management of the York Wire Works of the General Electric Company requested the Division of Industrial Hygiene to determine the degree of hazard caused by the use of asbestos in the plant. Installation of an exhaust system had been contemplated to remove dust produced in the braiding operation but a question had arisen concerning whether or not the degree of hazard was sufficient to warrant the proposed installation.

Collection of the Samples.

Samples for the determination of the concentration of asbestos dust were collected by means of the modified form of the impinger dust sampling apparatus(1). Ninety-five per cent. ethyl alcohol, U. S. P., was used as the collecting medium. The use of alcohol eliminated any clumping of the asbestos particles, a condition which does occur if distilled water is used. The rate of sampling was one cubic foot per minute. All samples were collected in the breathing zone of the workers. Samples were counted within twenty-four hours after collection. A total of fourteen samples were collected at various locations in the plant.

Results.

1. Braiding Department.

There are 25 asbestos braiders in this department, arranged in two rows with an aisle for the operators between the two rows. At the time

(1). Katch, T., Warren, H., and Drinker, P.: Modified Form of the Greenburg-Smith Impinger for Field Use, with a Study of its Operating Characteristics. Jour. Ind. Hyg., Vol. 14, No. 8., October, 1932.

of the investigation a 10-cut yarn was being used on all machines. A total of six samples were collected in the braiding department. The results expressed in particles per cubic foot of air are shown in Table 1.

Table 1.

Sample No.	Location of Sample	Time Started	Cu. ft. Sampled	Particles per cubic foot of air	Date Sampled
1	#22 braider	11:30 A.M.	24.5	562,857	6-29-37
2	do.	1:18 P.M.	30	632,000	do.
3	#3-4 braiders	1:52 P.M.	29	484,827	do.
4	do.	2:54 P.M.	30	504,000	do.
5	#7-8 braiders	10:48 A.M.	30	362,666	6-30-37
6	do.	11:14 A.M.	20	236,000	do.

The average concentration in the braiding department represented by six samples is 470,391 particles per cubic foot of air.

2. Experimental hood on # 24 Braider.

The # 24 braider has been equipped with a hood in an attempt to remove the asbestos lint or "fly" which collects on the braiders during operation. They asked that dust counts be made on this braider in order to determine, if possible, the effectiveness of the exhaust ventilation. Accordingly, during the lunch period when all the other braiders were not operating two samples were collected with the # 24 braider operating. One sample was collected while the exhaust ventilation was shut off and the second one was collected at the same location with the exhaust ventilation turned on. The results are indicated in Table 2.

Table 2.

Sample No.	Time Started	Cu. ft. sampled	Particles per cubic foot of air	Conditions of ventilation	Date Sampled
7	11:37 A.M.	23	601,739	Off	6-30-37
8	12:[illegible] P.M.	25	264,000	On	do.

3. Asbestos Dust Collector.

The management was interested to know the concentration of asbestos dust produced during the daily cleaning of the asbestos dust collector. This work is done during the lunch hour by an employee who sweeps and brushes all asbestos lint and dust from the room into which the asbestos exhaust from the "K" and "M" machines is discharged. The employee wears a respirator while performing this work. The operation requires approximately forty-five minutes per day. One sample was collected and the results shown in Table 3.

Table 3.

Sample No.	Location	Time Started	Cu. ft. Sampled	Particles per cubic foot of air	Date Sampled
11	Dust collector	12:01	14	218,514,285	7-7-37

4. "K" Machines.

Each "K" machine has a small asbestos card which is used to apply a covering of asbestos to the wire prior to application of the halowax. Five samples were collected in the workers breathing zones on a group of these machines in order to determine the concentration of asbestos dust to which the operators were exposed. Results are shown in Table 4.

Table 4.

Sample No.	Location "k" machine No.	Time Started	Cu. ft. Sampled	Particles per cubic/meir	Date Sampled	Remarks
9	12-13	10:34 A.M.	23	746,086	7-7-37	Hood closed
10	do.	11:01 A.M.	30	463,733	do.	do.
12	21	1:48 P.M.	30	838,400	do.	
13	1-2-3-4	11:29 A.M.	15	1,909,800	7-13-37	Hood opened
14	do.	1:11 P.M.	30	1,172,800	do.	do.

Conclusions.

The results of this investigation indicate that the concentrations of asbestos dust at the operations enumerated, with the exception of the work of cleaning the asbestos dust collector, are well below the maximum safe concentration of asbestos dust in air. Studies up to the present time indicate that the maximum safe concentration for asbestos dust lies somewhere between five and ten millions of particles per cubic foot of air.

The installation of exhaust ventilation equipment on the asbestos braiders is unnecessary from an industrial hygiene viewpoint in light of the results obtained in this study.

Recommendations.

NONE.

July 14, 1937

2

EID Commonwealth Bldg.,
May 11, 1937

General Electric Co.,
York Wire Works,
453 S. Albemarle St.,
York, Pa.

Att: Mr. F. R. Kaimer.

Gentlemen:

There will be a little delay in our survey to determine the dust concentrations in the asbestos braiding department of your plant. This delay is due to the fact that our purchase of tax-free ethyl alcohol, which must be used in the determinations, has been held up pending approval of storage facilities by the Bureau of Internal Revenue.

That approval will be issued shortly and just as soon as alcohol is procured, we will commence the study.

We regret this delay, but, as I explained to Mr. Kaimer on my recent visit, rather anticipated it because of the numerous channels through which such a request must travel before final approval.

Yours very truly

Allen E. Cooley, Chemist,
Industrial Hygiene Division.

COPY

GENERAL ELECTRIC

York Wire Works
463 S. Albemarle St.
York, Pennsylvania

Department of Industrial Hygiene
Bureau of Industrial Standards
Harrisburg, Pa.

Gentlemen:

We have recently installed, at our York plant, new equipment for the braiding of asbestos yarn in the manufacture of asbestos insulated wires and cable. This equipment, as supplied by the manufacturer, does not incorporate provisions for exhausting the dust and particles of asbestos fiber which emanate from this operation. We have had under consideration quite recently, the problem of adequately ventilating the area surrounding each braiding machine, in order to remove the suspended particles. However, some question has arisen concerning whether or not the degree of hazard caused by these machines would be sufficient to warrant complete exhausting.

In view of our interest in this problem, we would request and appreciate your consideration of conducting a survey for us, with proper instruments of precision in order to determine by such tests the advisability of carrying out the proposed installation.

As you are already familiar with our plant conditions as a result of former surveys at which the solvent vapors were primarily considered, we would appreciate your further cooperation and advice in the immediate problem we have under consideration.

s/ F. R. Kalmer.

Reproduction of an original record
BY GLASS MACHINES

December 29, 1939

Mr. Franklin Keesey
President
York County Industrial Union
Council of the C. I. O.
York, Pennsylvania

Dear Mr. Keesey:

Your letter dated December 12, 1939, requesting information concerning the harmful effects of inhalation of asbestos dust, and information concerning chloronaphthalene and chlorodiphenyls has been referred to this Division for reply.

In recent years the Public Health Service has been studying the possible harmful effects of chlorinated diphenyls. The study has not been completed for publication. However, a similar study has been completed and reported by Dr. Cecil K. Drinker, Department of Physiology, Harvard School of Public Health, Boston, Massachusetts. This article, entitled "The Problem of Possible Systemic Effects From Certain Chlorinated Hydrocarbons", appeared on page 283 of the Journal of Industrial Hygiene and Toxicology in the September issue, 1937. A copy of this article may be obtainable through your public library.

Other references of interest on this subject are:

1. A preliminary report of the dermatological and systemic effects of exposure to hexachloronaphthalene and chlorodiphenol. W. B. Fulton and J. L. Mathews. Special Bulletin No. 43, Pennsylvania Department of Labor and Industry, Harrisburg, Pennsylvania.

2. Safe Practice Bulletin No. 21 entitled "Insulation of Wire With Synthetic Wax (Chloro Compounds)." Department of Labor and Industry, Harrisburg, Pennsylvania.

3. Flinn, F. B., and Jarvik, H. M.: Proceedings of the Society for Experimental Biology and Medicine, 35, 118 (1936).

4. The halogenated hydrocarbons, their toxicity and potential dangers. W. F. von Oettingen, Journal of Industrial Hygiene, 19, 349, October 1937.

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4. The halogenated hydrocarbons, their toxicity and potential dangers. E. F. von Oettingen, Journal of Industrial Hygiene, 19, 349, October 1937.

5. Toxicity of Halowax and chlorinated napthalene. Journal American Medical Association, 107, 1286, October 23, 1937.

This Division has recently reported a study of the effects of asbestos dust upon the health of workers in the textile industry. I am sending a copy of this report under separate cover.

With regard to your request for the services of a federal chemist or pathologist, I regret to advise that we are not prepared at this time for this work. Furthermore, this work is within the province of the State officers. It is suggested that you communicate with Dr. William B. Fulton, Director of the Division of Industrial Hygiene, State Department of Health, Harrisburg, Pennsylvania, as his department is engaged in this type of work.

If this Division can be of any further assistance in any way, we shall be glad to hear from you again.

Very truly yours,

R. R. Sayers, Senior Surgeon
Chief, Division of Industrial Hygiene
National Institute of Health

CC: Dr. Fulton
RRS:BB

July 9, 1965

Inspection of General Electric Company
Valley Forge Space Technology Center

Leon T. Gonahor
Regional Industrial Hygienist
Region VII

Through: Chief
Industrial Hygiene Section

P. G. Rantos
Industrial Hygienist III
Division of Occupational Health

Attached is the eleventh installment of the above inspection.

PGR:hl

Attachment

OPERATION	HAZARD	CONTROL
M - 9425 SPACE STRUCTURES LABORATORY		

Nondestructive structural testing of epoxy resin, Fiberglas or plastic granular filled composites. A Hydraulic Materials Testing System, Servo-Hydraulic Load Frame (100,000 lbs. pressure) is used for this purpose.

Potting of miniature electronic components	Methyl anhydride Resorcinal diglycidylether A-Aminopropyltriethoxy selane BDMA Epon Resin #826 Shell Chemical Co. New York, N. Y. Mold Release #225 Ram Chemicals, Inc. P. O. Box 192 Gardena, California Tetrahydrofurane Dermatitis	General ventilation Disposable protective gloves Hand creams
Sealing and mold casting electric 160° F.	Babbitt metal fumes Carrotrn metal fumes	Exhaust hood Occasional and intermittent operation
Ball mill and Manual asbestos grinding	Crocidolite asbestos dust	General ventilation Enclosed unit Wet operation Small quantity Intermittent and occasional exposure

Recommendation: Improve housekeeping at the epoxy resin mixing area. Potting operations should be conducted under the exhaust hood where possible.

The manual grinding of asbestos should be conducted within the exhaust hood.

BUILDING - 1 (GC & F)

Radiation Laboratory

The degradation of electronic equipment parts as a result of neutron bombardment is studied. Electronic equipment and parts are placed within reactors elsewhere (Nevada), irradiated and shipped radioactive to the laboratory where they are disassembled and studied.

The Radiation Laboratory is divided into two areas: Electronic Components and Sensor Development.