

FILE NAME: Quigley (QUIG)

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SPECIAL HAZARDS SURVEY

OCCUPATIONAL DISEASE SURVEY

PREPARED FOR

QUIGLEY COMPANY, INC.
OLD BRIDGE AND SAYREVILLE, NEW JERSEY

DECEMBER 11, 1959

BY

B. R. ROY
RESEARCH DIVISION

ANOTHER SERVICE FROM THE OFFICE OF

NEWARK SAFETY ENGINEERING DEPARTMENT

Safety Engineering Department

AETNA LIFE AFFILIATED COMPANIES

Hartford, Connecticut

AETNA LIFE INSURANCE COMPANY • AETNA CASUALTY & SURETY COMPANY • STANDARD FIRE INSURANCE COMPANY
C-2071)

QUIOLEY COMPANY, INC.
OLD BRIDGE AND SAYREVILLE, NEW JERSEY

DECEMBER 11, 1959

PURPOSE:

The purpose of this visit was to make an Industrial Hygienic Survey of your Old Bridge refractory plant and your Sayreville paint plant. It was to assist you in evaluating the occupation disease exposure associated with your manufacturing operations.

CONTACTS:

In company with our Newark Safety Engineering representative, Mr. R. Brewster, I contacted your vice president, Mr. E. Waugh; your general plant superintendent, Mr. R. Loughrey; and your Dr. Landeau of the Paint Division. We found these gentlemen to be very courteous and cooperative in giving us the information and time required for our survey. Following this survey our recommendations were discussed with them.

PROCEDURE:

In your refractory plant, air samples were taken at various locations using the midget impinger with distilled water and iso propyl alcohol as collecting mediums. The sampling rate was 0.1 cubic feet of air per minute. Dust counts were made on a light field following the procedure outlined by the United States Public Health Service. Ledge dust samples were returned to our Home Office Research Laboratory for further analysis. They were analyzed for their free silica contents by the phosphoric and fluoroboric acid method.

In your paint plant, air samples were taken with a Davis Vapometer or Combustible Gas Indicator, Model 6. This instrument was calibrated prior to and following use. Readings were taken utilizing both the explosion and the health scales of the indicator. These readings enabled us to evaluate the fire and health exposure to the employees in the areas surveyed. A sample of the plasticizer was then returned to our Home Office Laboratory for a flash point determination.

Sound Pressure Levels were taken with a General Radio Sound Level Meter. This instrument was calibrated prior to and following the survey with a General Radio Transistor Oscillator Sound Level Calibrator. Observations were made at operator's ear level and in the general vicinity of the units and departments studied. These readings enabled us to evaluate the operator's exposure as well as the exposure to other employees in the surrounding areas.

FINDINGS:

I - Refractory Plant:

The following are the results of the dust counts and the free silica analysis of the ledge dusts for the locations indicated;

Air Sample No. 1 - taken in the casting department at operator's breathing level while he was mixing the ingredients for panel construction.

Results - 41 million particles, 10 microns or less
in size, per cubic ft. of air.
Ledge Dust - asbestos

Air Sample No. 2 - taken near the dryer elevator in the operator's breathing zone during the shoveling operation.

Results - 1.2 million particles, 10 microns or less
in size, per cubic ft. of air.
Ledge Dust - 29% free silica.

Air Sample No. 3 - Roofchrome mixing operation - taken in employee's breathing zone.

Results - 29 million particles, 10 microns or less
in size, per cubic ft. of air.
Ledge Dust - 34% free silica.

Air Sample No. 4 - Roofchrome bagging operation - taken in the employees' breathing zone.

Results - 25.4 million particles, 10 microns or less
in size, per cubic ft. of air.
Ledge Dust - same as No. 3.

Air Sample No. 5 - Roofchrome mixing and bagging operation - taken at operator's breathing level at top of staircase.

Results - 47 million particles, 10 microns or less in
size, per cubic ft. of air.
Ledge Dust - same as No. 3

Air Sample No. 6 - Insulag bagging operation - sample taken at operator's breathing level.

Results - 24 million particles, 10 microns or less in
size, per cubic ft. of air.

Air Sample No. 7 - Insulag bagging operation, sample taken in the employee's breathing zone at top of staircase.

Results - 6.4 million particles, 10 microns or less in
size, per cubic ft. of air.
Ledge Dust - same as No. 6

Air Sample No. 8 - Brick Cutting operation - sample taken at the operator's breathing level.

Results - 11.0 million particles, 10 microns or less in
size, per cubic ft. of air.

Air Sample No. 9 - Chrome Oxide grinding department - sample taken in general area of department.

Results - 15.3 million particles, 10 microns or less in size, per cubic ft. of air.

II - Paint Plant:

Sample No. 1 - taken directly over mixing kettle.

Results - explosion scale - negative
Health scale - 55 ppm

Sample No. 2 - Plasticizer

Results - nonflammable.

III - Noise:

1. Chrome Oxide grinding department:

C-100 decibels
B-97 decibels
A-92 decibels

2. Paper crusher

C-100 decibels
B-97 decibels
A-94 decibels

CRITERIA:

To assist you in the interpretation of the above listed results, may we point out that the threshold limit adopted at the 20th annual meeting of the American Conference of Governmental Industrial Hygienists is 20 million particles per cubic ft. of air for medium silica dust (5 to 50% free silica); 5 million particles per cubic ft. of air for asbestos; and 200 parts of vapor or gas per million parts of air by volume for Xylene.

From a noise standpoint, the committee of consultants appointed by the New York Workman's Compensation Board feel that "The hearing of a few very susceptible persons may be permanently damaged by exposure for many years to certain noises at levels between 90 and 100 decibels".

OBSERVATION AND DISCUSSION:

I - Refractory Plant:

With regards to air sample No. 1 it should be mentioned that air was sampled throughout the entire cycle of opening the cement and asbestos bags, adding the water to the mixture in the mixing vat, and the entire mixing operation. The operator is exposed intermittently to these levels for an approximate total of 42 to 50 minutes a day. It can easily be seen that

the threshold limit for this operation has been exceeded. It is advisable that a study be made to ascertain whether a better enclosure of the mixing vat can be provided during this mixing operation.

The employee shoveling clay and sand in the dryer elevator section is exposed to the levels noted continuously for eight hours a day. These levels do not exceed the maximum allowable concentration listed above. No recommendations are being submitted at this time.

Samples Nos. 3, 4, and 5 were taken in the breathing zone of the employees associated with the mixing and bagging of Roofchrome. Roofchrome, as I understand, is a mixture of sodium silicate, chrome oxide, and bentonite. The amount of free silica found in the ledge dust of this operation would place it in a nuisance category. The threshold limit for a nuisance dust is 50 million particles per cubic ft. of air. During our visit it was noted that one of the employees was not wearing his respirator. It is highly advisable that this condition be corrected.

Samples Nos. 6 and 7 were taken in the operator's breathing zone near the Insulag bagging operation and also in the breathing zone of the employees working on top of the staircase. Insulag, we were told, is a mixture of cement, asbestos, and brick dust. This mixture presents an asbestosis exposure. It can be readily seen by the above listed criterions that here the exposure is well above the prescribed threshold limit. It is recommended that a study be made to improve the enclosure and the collecting exhaust system of this bagging operation. During our visit it was noticed that although the employees are provided with respirators they were not wearing them. It is essential that these be worn and cleaned periodically to insure that asbestos dust is filtered and is not inhaled by the employees.

A brief study was also made in your chrome oxide grinding department. The air samples were taken in the afternoon when the doors in the department were left open. In the morning, when all doors were closed, we noticed an appreciable amount of air borne dust. Although the entire system in this department is relatively new, there still was a considerable amount of dust escaping from the duct system above the dust collectors. Your Mr. Loughrey informed us that this condition would be corrected. No recommendations are being submitted at this time.

After our survey we were informed by your Mr. Waugh and Mr. Loughrey that U.S. Bureau of Mine's approved type respirators are now provided instead of the Martindale types. We noticed during our survey that some employees were still wearing the Martindales. As discussed, these respirators are not U.S. Bureau of Mine's approved type respirators for silica and asbestos dusts.

It should be mentioned at this point that respirators in general should not be used in lieu of ventilation but like other safety equipment, they should supplement to the safety of the employees.

II - Paint Plant:

Your Mr. Landeau informed us that the thinners being used in your formulation of paints are mineral spirits, solvent naphtha, and Xylene. They are listed

To have an open cup flash point of 105 degrees, 115, and 85 degrees Fahrenheit respectively. Xylene vapors could present a fire and health hazard if permitted to accumulate in the area. As noted under the findings itemized above, the conditions noted during our survey were well below the criteria listed. General area ventilation appeared to be adequate during the time of our survey. It should be mentioned, however, that the bulk of the work in this plant is done during the summer months. It would be highly advisable for us to revisit your plant during that season and re-evaluate the fire and health exposures at that time.

Your storage of flammable thinners was also investigated. During our visit two 55 gallon drums of Xylene (Xylol) were noted inside the plant. Your Dr. Landeau informed us that up to 10 drums of Xylene might be stored in the manufacturing area. At this time we would like to submit to you the National Board of Fire Underwriter's pamphlet No. 30 for your consideration. We would like you to review in particular the section on closed container storage of flammables inside buildings. This will apply to both your inside storage of Xylene and to the storage of mineral spirits.

We found the outside storage of mineral spirits to be adequate. Your asphalt and coal tar processes were also found to be adequately protected from fire standpoint.

Paint pigments in the line of lead carbonate and leaded zinc oxide might present a lead exposure. Organic fungicides also present a health hazard. Although only small amounts of these are being used (1,500 lbs. of leaded zinc oxide, 15 lbs. of organic fungicide) we feel that the handling of these should also be studied during your busiest season.

Epoxy resins and polyamines catalysts were also noticed. These are handled exclusively by Dr. Landeau who is well familiar with the hazards involved with the handling of these synthetic resins and their catalysts.

III - Noise:

The levels found at employee's ear level in the Chrome Oxide Grinding Department and near the paper crusher fell in a marginal area where exposure to such continuously, day after day for a period of years might impair the hearing of your most susceptible employees. Noise reduction through the use of isolation mounts, dampers, and individual ear protection was discussed with your Messrs. Vaughn and Loughrey.

CONCLUSION:

The occupational disease hazards associated with your manufacturing operations can be reduced or overcome. Attached is a list of recommendations that, in my opinion, will assist your company to reduce the hazards discussed in this report.

B. R. Roy

BRRoy/kes

Research Division

QUIGLEY COMPANY, INC.
OLD BRIDGE AND SATUNVILLE, NEW JERSEY

DECEMBER 11, 1959

RECOMMENDATIONS:

ESSENTIAL:

1. A study should be made to improve the enclosure and the exhaust system on the Insulag bagging operation.
2. Respirators used to filter dusts of a silica or asbestos nature should be limited to those approved by the U.S. Bureau of Mins.

DESIRABLE:

1. A study should be made to improve the enclosure on the mixing vat in the casting department.
2. It is highly advisable that the contents of NIOSH Pamphlet No. 30 be read and complied with in reference to inside storage of flammable liquids.
3. It is advisable that another survey be made of your paint operations during the summer months. It is also advisable that another dust survey in your refractory plant be made after steps have been taken to improve the enclosure and exhaust system of your Insulag bagging operation.

B. R. Roy

brr/mak

Research Division

FILE NAME: Quigley (QUIG)

DATE: 1958 Oct 23

DOC#: QUIG004

DOCUMENT DESCRIPTION: Letter to Bethlehem Steel Company from Quigley

cc: Shepherd
Demaison
Garvin

October 23, 1938
AIR MAIL

Bethlehem Steel Company
119 Walnut Street
Johnstown, Penna.

Attention: Mr. A. E. Williams, Gen. Fore. C.H. Dept.
Subject: INSULAG

Gentlemen:

We have been asked by our representative, Mr. John Shepherd, to comment on a recent complaint by your checker blowers regarding the drying and cracking of their hands, presumably after using INSULAG for sealing plugs in the peepholes of the checkers.

Chemically speaking, INSULAG is no different as far as the alkalinity is concerned than that of Portland Cement which, incidentally, is slightly on the alkaline side. This property, in either of the two products, normally does not effect human skin with the exception of a drying effect if either of the two materials would be allowed to cake and dry on the hands. Slight irritations would occur, if in using either product the handling of rough material would be involved, thus encouraging a normal irritation to the human hands.

We have observed on numerous occasions in other Open Hearth shops throughout the country, that men engaged in the above described work will have a tendency to mix the INSULAG, pour it in a bucket, and when they insert the plug in the checker wall, they use their bare hands to plaster the INSULAG around the outside of the plug. This is what we mean by handling rough surfaces when the hands are wet with INSULAG. Prolonged practice of this nature could cause a slight irritation to the skin, and we would recommend that rubber gloves or a non-porous glove of some description be used for this work.

We have never, in all the years of experience with INSULAG, encountered a skin disease resulting from the use of our product.

We sincerely hope that this information will be sufficient for your purposes and if we can be of any further help, please do not hesitate to contact the writer at this office.

Very truly yours,
QUIGLEY COMPANY, Inc.
Vice Pres. in Chge. of Sales

EWG/fs

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2/18/58

Mr. R. A. Fungar, Cons. Engr.
E. I. DuPont de Nemours
Subject: INSULAG

Non injurious.
Finishes with white smooth surface by troweling.
Perfect fireproofing - takes direct flame to 2000°F.

We will be very happy to furnish you with a bag of INSULAG for test if you so desire or have one of our Technical staff call and cover any specific application.

We want you to know INSULAG better.

Very truly yours,
QUIGLEY COMPANY, Inc.

Vice Pres. in Chgo.
of Sales

SF Murphy Jr/fs
Encls.

COPY

How thick
for 1/2" thick
3/4" thick

09 0125

Other companies using USULAG

Bethlehem Steel Co. -

- Sparrows Point

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