MEMORANDUM FOR RECORD

BY: Lee B. Grant, M.D.

DATE: November 5, 1965

SUBJECT: Medical Staff Visit to Port Allegany, November 1-3, 1965

1. This plant was the first Pittsburgh Corning plant to be established, and it was built in 1937 to produce glass block. The present plant manager's father was one of the founders of the company and eventually rose to be a vice president. An expansion of the plant was made in 1942 at which time the foam glass operation was added. In 1955, fabricating of the foam glass was added; in 1961, the polyurethane line was added. The last to be added was unibestos just a year ago in 1964. Whenthe glass block line is running, it runs on a 24 hour, seven day a week basis; however, the demand for glass block has been such that it shuts down four to six months every year. This time it has been down since March of this year. Foam glass is a 24 hour, seven day a week operation. Fabricating and polyurethane is a one shift, five day operation and unibestos is a two shift, five day operation. During the off season for glass block, they have a glass decorating activity that provides the only work in that area. This operation takes two men and is a 24 hour, seven day a week operation.

2. In the polyurethane operation, a prepolymer containing about 20% polyall resin and 80% TDI which is made up by the Chase Chemical Company, is placed in the foam machine storage tank. The other foam machine storage tank is filled with a premix which is a polyall resin and silicones, a catalyst and a Freon type material which provides the levan and the bread. The prepolymer comes in 55 gallon drums and is pumped via an enclosed system into the storage tank and the polyall resin of the premix is brought in on tank carloads and is run from a large storage tank to the foam machine storage tank where about a five gallon can of all other ingredients are mixed in. The premix and mix are brought together on an incline and in about a minute and a half they expand to their full thickness loaf which is about 2½ to 3 feet high and about five feet wide. This is an enclosed operation which appears to be well ventilated. At the bottom of the incline, the loaf is cut into desired lengths and allowed to stand in storage for a few days until it is completely cured following at which time it is cut by the hot wire method into appropriate thicknesses and shapes. This was started as a pilot plant operation about four years ago and was really because of lack of demand for the product did not proceed beyond a pilot plant operation. Fred DeVries was hired from Simoniz where he had been their plant manager at Benton Harbor, Michigan, about a year ago with the promise that he would be the plant manager of a new polyurethane foam plant, but it appears now with the on site mix capability being developed by PPG and others that this pre-formed foam has little future promise. An industrial hygiene survey by the Industrial Hygiene Foundation in 1963 of this operation showed no significant TDI exposure.

PLAINTIFF'S EXHIBIT WV-11061

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glass tube is formed which is broken up and then carbon added and the carbon and the glass is milled to a very fine powdery form. This powder batch material is placed in a stainless steel enclosed can which is sent through cellulating furnaces and then the raised foam glass brick is removed from the can, the stripping operation, placed in a cooling lehr from which it goes through a finishing operation and is either packed for shipment or placed on a pallet and sent over to the foam glass roof manufacturer where a number of these blocks are placed together and asbestos paper is adhered to then and this material is used easily for flat roof coverings.

6. The fabricating department is another department that uses the semi-finished product of foam glass. It shapes this foam glass into various types of coverings for pipes, large chemical retorch, etc. There is also a G.O. Acoustic manufacturing operation using again the same foam glass. Here, the foam glass is first put in a high compression pressure vessel, the pressure raised very rapidly which causes a rupture of all the shells within the foam glass and the foam glass is shaped to the proper size for its future use and pressed between nailboards which puncture hundreds and hundreds of holes through each side about an inch deep. This material is then painted at a spray painting operation. This paint is baked on the material that is ready for installation as a sound retardant.

7. Although Larry Griffith, the plant manager, was born and raised . . . (no more tape)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
OCCUPATIONAL HEALTH

HYGIENIC INFORMATION GUIDE NO. 77

PERSONAL RESPIRATORY PROTECTIVE EQUIPMENT

This guide is presented as a summary of general information concerning personal respiratory protective equipment.

OTHER PUBLISHED INFORMATION:

Many comprehensive publications are available on the subject of respiratory protective equipment. These include:

1. ANSI Practice for Respiratory Protection Z 88.2 - 1969. American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.

2. Respiratory Protective Equipment, Bulletin 226. U. S. Department of Labor, Bureau of Labor Standards, Washington, D. C.

3. Respiratory Protective Devices Manual. Braun and Brumfield, Inc., Box 1203, Ann Arbor, Michigan.

4. Respiratory Protective Devices Approved by the Bureau of Mines. U. S. Department of the Interior, Washington, D. C.

5. Respiratory Devices for Protection Against Inhalation of Dust, Mists, and Low Vapor Concentrations of Certain Pesticides. Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C.

USE AS A CONTROL MEASURE:

Personal respiratory protective devices should never be substituted for effective engineering control of ambient contaminants. They should be considered as emergency equipment only, to be used while controls are installed. At best, they should be used as a last resort for protection of the individual workman.

There are certain circumstances where it is unfeasible or economically not practical to control a hazard beyond the use of personal respiratory protection. These situations are generally of an intermittent nature, however, and rarely extend throughout an entire workday. Examples include: the adjustment of valves in a contaminated atmosphere, the periodic monitoring of extremely toxic materials, the cleaning of settling sumps, and maintenance operations. The cost of reducing the concentration of contaminants to the point where no mask is acceptable is often unreasonable and the actual exposure time is generally of short duration. It is also required that respiratory protective equipment is an important a

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In general, personal respiratory equipment is designed for a specific [illegible] used only for the purpose for which it is intended. It interposes a barrier between the man and his environment insofar as air contaminants are concerned. Such equipment consists of gas masks,

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mechanical filters, chemical cartridges, supplied air line masks, self contained air supplies, hose masks, and combinations of these. *Filter, gas mask and chemical cartridge type respirators are not for use when there is a deficiency of oxygen in the air.* There are also limits of contamination, above which the efficiency of a respirator is not capable of protecting the wearer. These limits are specified by the manufacturer, for example, "not to be used in atmosphere containing more than 0.1 per cent contaminant by volume". A. s. if a contaminant is capable of being absorbed through the skin, adequate protection of the workman may require the use of protective clothing including complete masks in addition to respiratory protective devices.

TYPES OF EQUIPMENT:

Based on the function of the equipment, these devices may be grouped as air purifying and atmosphere-supplying respirators.

Air purifying respirators include:

MECHANICAL FILTERS – These units (generally) consist of a face-piece and a filter. They are designed to remove dusts and fumes from the air. Most filters may be used only once and must be discarded when particulate builds up. Some, however, may be "blown free" and reused. Detergents, soaps and solvents destroy the properties of the filter; consequently, the manufacturer's instructions concerning cleaning should be followed.

The U. S Bureau of Mines approves filters for protection against pneumoconiosis-producing and nuisance dusts and certain fumes and mists.

CHEMICAL CARTRIDGES – These units are designed to remove gases and vapors from the air within certain limits. A small amount of sorbent is present in the cartridge. The sorbent varies with the type of gas and vapor and must be effective for the specific contaminant.

COMBINATION GAS, VAPOR AND PARTICULATE REMOVING RESPIRATOR – These units contain both filters and sorbents to provide protection against contaminants. Some filters are designed to be attached to a sorbent cartridge as a pre-filter (for example: paint spray operation).

GAS MASKS – These units are equipped with a canister of sorbents fitted to a full face-piece which covers the eyes, nose and mouth. The canisters are color-coded for specific application to a particular contaminant or combination of contaminants. Surplus military gas masks are not designed for industrial use.

MOUTHPIECE RESPIRATORS – These units are single cartridges with a nose clip to prevent breathing through the nose. They are designed primarily to permit escape from a contaminated atmosphere during an emergency situation.

Atmosphere-supplying respirators include:

HOSE MASKS – These units are used for respiratory protection in any atmosphere provided that enough air is supplied to the wearer. They may be equipped with or without blowers. The blower should supply fresh, uncontaminated air, free of oil mist and [illegible] vapors.

AIR-LINE RESPIRATORS – These units are used in any atmosphere not immediately hazardous to life. Compressed air is fed to the mask in two types of supply, continuous flow and demand flow. As with the hose mask, the compressed air supply should [illegible] uncontaminated. Abrasive blasting respirators and supplied air hoods and [illegible] are variations of air line respirators.

SELF CONTAINED BREATHING APPARATUS – Such a unit is similar to an air line respirator except that the air or oxygen supply is from a cylinder carried by the wearer. The supply of air or oxygen is limited, and the apparatus is heavier and bulkier, but greater mobility over greater distance is possible with these units. In general, use of these units requires that the user be well trained in their operation and be in excellent physical condition.

PROGRAM:

The chief complaint concerning the use of respiratory protective devices is that of discomfort. Fit is important for two reasons. First, the device fails if a tight fit is not maintained between the face parts and the wearer's face. Second, poorly fitting respirators become intolerable to the wearer.

The selection of the proper device should be the responsibility of a trained person who knows the extent of the hazard, the limitations of various types of respirators and the conditions under which the devices will be used.

Workmen who use respirators should receive thorough instruction including the operating principles of the devices and their limitations, adjustment and fit, and when and where they are to be used. After instruction, supervision over the use of respirators is mandatory.

All respiratory equipment should be maintained in a clean and sanitary condition. It should be periodically cleaned, sterilized and inspected. Respirators should not be passed from one man to another unless sterilization is assured. A mask fitted to one person may not fit another. Worn parts should be replaced only with parts specifically designed for the particular respirator. Equipment for exclusive use in emergencies should be inspected periodically to assure operable condition at all times.

"UNAPPROVED" RESPIRATORS:

Respirators are classed as "approved" by the U. S. Bureau of Mines and as "acceptable" by the U. S. Department of Agriculture with certain provisions. The U. S. Department of Agriculture notes that mechanical filter and chemical cartridge respirators do *not provide needed protection* from inhalation of pesticide dust, mist, *and vapors* for use by (1) those formulating or mixing pesticides in closed or inadequately ventilated spaces, and (2) those applying pesticides, including aerosols, in greenhouses. Gas masks, hose masks with blower or self contained air supply units must be used in these instances.

Many commercially available respirators are neither "approved" nor "acceptable". This may be because they failed to pass testing procedures or because they were never submitted for testing.

respirators are purchased frequently without regard to their ability to do the job. Price consideration should not be the deciding factor. For obvious reasons, a piece of sponge or gauze should not be purchased for use where there is exposure to toxic dusts; a respirator approved for dust should not be used to protect the workman from a toxic gas or for spray-painting operations. Some respirators will protect a hay fever sufferer from pollen, but will not protect a workman from the effects of industrial dust.

Use of "unapproved" or improper respirators can produce a feeling of false security, causing a workman to expose himself to a situation which he would otherwise avoid.

PRECAUTIONS:

If a respirator is judged to be inefficient for the job, remove it and obtain the proper device for your application. Also, be careful with chemical canisters and cartridges. These have a limited shelf life.

If you have a problem or are uncertain as to the proper type of respiratory protective equipment needed, contact Occupational Health, Pennsylvania Department of Environmental Resources.

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF OCCUPATIONAL HEALTH

HYGIENIC INFORMATION GUIDE NO. 7

ASBESTOS

PROPERTIES:

Asbestos is composed of a number of different minerals which are silicates of variable composition, but basically are of a form of hydrous magnesium silicate. Their chief characteristic is a structure composed of long, parallel, flexible fibrils capable of repeated longitudinal subdivisions. Many varieties are sufficiently flexible to be spun into yarn or woven on modified textile machinery. Mechanical processes can cause this mineral to break up into many minute particles.

THRESHOLD LIMIT VALUE (acceptable atmospheric concentration for 8-hour work period):

5 million particles per cubic foot of air.

MEDICAL ASPECTS:

Long continued inhalation of asbestos dust may result in a form of pneumoconiosis known as asbestosis. The primary effect of such inhalations is a condition of pulmonary fibrosis. A characteristic finding of asbestosis is the presence of asbestos "bodies" in the lungs and sputum. Complete roentgenologic study of the chest and histopathologic findings are necessary to establish the presence of this disease. Recent studies indicate a definite relationship between inhalation of asbestos and cancer of the lung. In addition pleural and peritoneal mesotheliomas have been associated with inhalation of asbestos.

PREVENTION:

a. *Preplacement:* Occupational history is a necessity. A complete physical examination, including a chest x-ray, should be emphasized.

b. *Periodic Examinations:* A physical examination, together with a 14 x 17 inch chest x-ray film, should be given once a year. Cases where pathologic lung changes have occurred should be transferred from employment in dusty operations and medically evaluated periodically.

ENGINEERING CONTROLS:

a. All dust-producing operations should be equipped with local exhaust ventilation. Where possible, isolation or segregation of the operation should be observed, together with the use of wet methods.

b. Housekeeping should be maintained with a view to preventing any accumulation of dispersed dust. Wet mop methods of cleaning are preferred, and should be performed "offshift" or when least exposure to plant personnel would occur.

c. Where other methods of control are not feasible, dust respirators of a type approved by the U.S. Bureau of Mines for protection against pneumoconiosis producing dusts, should be supplied to those employees subjected to the dusty atmosphere.

d. A periodic determination of the dust levels of the plant atmosphere should be made to ascertain the effectiveness of the control measures in use.

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COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
Occupational Health
996 South Main Street
Meadville, Pennsylvania 16335

June 17, 1971

Pittsburgh Corning Corporation
Port Allegany, Pennsylvania 16734

Attention: J. Richard Murray
Manager, Personnel Services

Gentlemen:

On May 20, 1971, Mr. J. L. Woodring, industrial hygienist, discussed with you dust and toluene di-isocyanate (TDI) levels determined from air samples collected previously and reinspected areas where asbestos materials are handled. As reported, no TDI vapor was detected in the air in Building No. 6. The dust levels determined in Building No. 8 are listed in the attached Table.

The threshold limit value for dust containing asbestos is 5 million particles per cubic foot of air, based on exposure for an 8-hour working day. This is currently a provision of Article 432, "Regulations Establishing Threshold Limits in Places of Employment"; however, a reduction of this value has been proposed and is expected to be adopted.

In view of the above and information indicating no significant change in operations since our latest samples were collected in September of 1970, the following recommendations are made:

1. Continue the periodic medical chest x-ray examination program for employees exposed to dust. Examinations of workers exposed to asbestos dust should be made once every two years, if you utilize a 14 x 17 inch chest x-ray and annually if you utilize a 70 mm chest x-ray.

X Report the name and address of the physician in charge of the x-ray program and the results of chest x-ray examinations to this office.

2. Reduce workers' asbestos dust exposures to safe levels. This may be effected by:

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A. Instituting and maintaining a good housekeeping program, especially at the feeding and fluffing machines in the Forming Department.

B. Maintaining the exhaust ventilation ducts and dust collectors in good repair and operating condition.

C. Providing air-tight seals in the ducts in the pressurized part of the ventilation system in the Forming Department.

X D. Improving the ventilation control provided at the sewing operation in the Finishing Department through more effective enclosure and increased ventilating capacity.

Y E. Precleaning cut pieces before packaging or provide exhaust ventilation controls during packaging in the Finishing Department.

3. X Enforce the use of respirators approved by the U. S. Bureau of Mines for protection against toxic dusts until other effective controls are provided. Respirators should be maintained in accordance with the provisions of Section 4, paragraph C of Article 432.

Please notify this office within 60 days of the steps taken to comply with the above recommendations.

Enclosed for your information are copies of our Hygienic Information Guides entitled "Asbestos", "Personal Respiratory Protective Equipment" and "Toluene 2,4 Diisocyanate", and a copy of Article 432, as amended.

H. J. Suroviec
Regional Industrial Hygienist

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
OCCUPATIONAL HEALTH

Dust Concentrations

Pittsburgh Corning Corporation
Port Allegany, Pennsylvania

Location	Concentrations* (millions of particles per cubic foot of air)	Remarks
Forming Department	1.7 2.2	Worker's breathing zone, loading feeding machines, respirator worn
	5.7	Same as above, clean out door on conveyor accidentally left open
Between feeder	2.6	General air
No. 2 Building Machine	1.2 1.2	Worker's breathing zone
	0.7	General air
No. 1 Building Machine	0.8 0.5	
Finishing Department	2.8 2.9	Worker's breathing zone, feeding material to intermediate s
	8.8 4.1	Worker's breathing zone, removing and packing material from intermediate saw
	4.6 1.7	Worker's breathing zone, feedi material to small saw
	5.2 26.3	Worker's breathing zone, removing and packing material from small saw
	8.4 2.9	Worker's exposure feeding and transferring material on large saw
	5.0 3.3	Worker's breathing zone, transferring and packaging material from large saw
By scrap grinder	3.0 2.3	General air, only intermediate saw in operation

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Location	Concentrations* (millions of particles per cubic foot of air)	Remarks
Shipping Department	1.3	Worker's breathing zone, weighing and sealing boxes
	3.7	

*Threshold limit value (TLV), 5 million particles per cubic foot of air, based on exposure for an 8-hour working day

Survey by: John Pierro
W. G. Kaiser

Industrial Hygienists

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF OCCUPATIONAL HEALTH

HYGIENIC INFORMATION GUIDE NO. 56

TOLUENE 2,4 DIISOCYANATE

PROPERTIES:

Toluene 2,4 diisocyanate, known also as tolylene 2,4 diisocyanate and TDI, has the formula $CH_3C_6H_3(NCO)_2$. Its major use is in the production of polyurethane foams (flexible and rigid) and coatings (paints, etc.). TDI is a white liquid with a characteristic odor that is detectable at a concentration 0.4 part per million parts of air. It is soluble in toluene, carbon tetrachloride, acetone, nitrobenzene, kerosene and ethyl acetate. Its specific gravity is 1.22 and has a boiling point of 484°F at 760 mm mercury.

SHORT-TERM LIMIT: (Maximum average concentration for a 5-minute exposure period):

0.02 part per million parts of air. (This is much less than the odor threshold.)

MEDICAL ASPECTS:

Primary exposure to TDI is through inhalation. It also is an irritant to the eyes and skin and, if ingested, will cause irritation to the gastro-intestinal tract. Inhalation of TDI in excess of the short-term limit may cause irritation to the nose, throat and lungs and asthmatic bronchitis (difficult breathing and inflammation of the windpipe). Individuals may become sensitized to TDI and low-level exposures may cause the asthmatic reaction.

PREVENTION:

a. *Preplacement:* Complete physical examination. Individuals with chronic and/or allergic respiratory conditions should be excluded from exposure.

b. *Periodic Examination:* Primarily an evaluation of respiratory system. With sensitivity, any exposure may result in a severe respiratory reaction.

c. *First Aid:* Remove affected person from exposure area, wash all contact areas (skin and eyes) with water. Examine by a physician.

EXPOSURE CONTROL:

Maintain atmospheric concentrations below the short-term limit by proper use of enclosure and ventilation.

a. *Process Control:* Enclose all operations as much as possible and supply local exhaust ventilation of sufficient capacity to remove TDI vapor as it is generated.

b. *Personal Protection:* Where adequate engineering control is impractical or for exposures of short duration, personal respiratory protection should be used. The respirators should be approved by the U. S. Bureau of Mines for protection against organic vapors. Eye protection should be supplied to protect against splashes and possible high vapor concentrations.

[illegible]
H[illegible] P Rev. [illegible]

The objective of the Corporation is to develop a suitable substitute for asbestos fibers as soon as possible, and every effort is being made to accomplish this goal.

Very truly yours,

PITTSBURGH CORNING CORPORATION

J. R. Murray

J. R. MURRAY
Personnel Manager

jrm/w

3. Unibestos is a trade name for an asbestos pipe material. That operation consists of the following: scrap, asbestos which comes from the cutting operation where pipe lengths are cut, DX and DX-11 which are asbestos of different fiber lengths, along with a diatomaceous earth. All are milled together, mixed and laid down on a conveyer where they are sprayed with sodium silicate which is about 80% water and 20% silicate which acts as a binder for the asbestos fibers. Then, the asbestos is rolled to the desired size and a sizing operation which smooths the asbestos piping out is accomplished and then the asbestos pipe is dipped in a watery clay mix which provides a protective film for the pipe giving it a smooth finish. These pipes are then placed in a drying furnace which is in three sections, the first of which is 250 degrees, the next 350 degrees and the last is 450 degrees. It takes several hours for the pipe to go through this drying procedure. Following this, it is taken to the saw and cut into various lengths and split down the middle. It may then either be packed into the boxes for shipment or it can be sent over to have a fiber glass yarn or a roofing felt covering applied.

4. The batch department makes batch for both No. 1 tank which is the glass department and the No. 2 which is the foam glass department/ the basic ingredients of both glass are similar. (Mapleton ?) sand is used, Barberton soda ash and a low-grade borax material called rasorite and one available cullet or scrap as it is called when its foam glass, methylene cyanide which is an alkalizing agent and limestone are otheringredients. The batch house is a three shift operation although the No. 2 tank has a 16-hour storage facility, the No. 1 tank has only a very limited one to three hours' storage facility. The levaning agent is added to the foam glass and this consists of sodium nitrate, sodium sulfateand fluorospar with a total amount of about a five gallon can of the material. The glass brick line is very much like the optical glass line only on a much larger scale in that the glass comes out of a floorhearth and runs down into a bowl where it is pressed into the desired shape. Then, the edges of two of the glasses are heated to melting temperature and joined together to form the glass brick which is then put into an annealing lehr. From the annealing lehr, it can either be sent directly through a prime coat and then a vinyl coat spray painting operation which forms the bond coat or the expansion coat between the ceramic brick, etc., and the glass. The prime coat is a hydrolyzed ethyl silicate with a small amount of hydrochloric acid, and the vinyl coat is vinyl resin and an alcohol base. If the glass block is to go to the decorating department, it isn't given the paint coat but is sent back to there and painted with the appropriate bright colored paint which is a high lead pigment paint which runs between 42 and 56% lead oxide. This is done in a spray paint booth which is adequately ventilated. The painted blocks are then air dried and this paint tends to flake off until it is run through a high temperature firing which uses the paint material into the glass and it is cooled in a lehr.

5. The foam glass is then made in a tank with a capacity of about 85 tons per day; it has been producing 80 tons per day for some period of time. This glass production is very much like in the Sedalia operation. The