

B. F. Goodrich Chemical Company

Inter-Organization Correspondence

To W. E. McCormick

Date April 18, 1968

Location Akron

From Rex A. Spurlock
Calvert City

Subject

I have been asked a question in regard to the toxicity of fumes from ABS Polypropylene and Polyvinylchloride. We do quite a bit of fabricating here at the plant of plastic pipe and plate. This is done by welding with hot air, and some fumes are emitted. The only thing I could tell our maintenance people was that it was toxic and their fume hoods should be used. I really do not know the truth of my statement in regard to the degree of toxicity of these materials.

I would appreciate any information that you may be able to send me in regard to these compounds. I would like to relay this information to our maintenance department.


Rex A. Spurlock

RAS/mh

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COMPANY CONFIDENTIAL

Rex Spurlock

Calvert City

4/18/68

Akron

Dept. 0020 - Bldg. 5-B

4/24/68

The volatile decomposition products from ABS polypropylene and polyvinyl chloride vary somewhat, depending upon the type of heating and the temperatures. You are certainly correct, however, in advising that the heating should be performed using process ventilation. Usually, the most obvious decomposition product from PVC at elevated temperatures is hydrogen chloride and although this is harmful, it is also quite irritating, and the irritant level is sufficiently low so that harmful quantities of the vapor will not be tolerated. It is possible, under certain conditions of heating, to produce some phosgene as well as carbon monoxide.

W.E. McCormick

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B. F. Goodrich Chemical Company

Inter-Organization Correspondence

To W. E. McCormick

Date September 10, 1968

Location Akron

From R. W. Edwards

Subject Physical Examinations and Tests on Calvert City Personnel

We do not quite understand your letter of August 29, 1968, in regard to physical examinations and tests on Calvert City personnel. We believe we are up to date and are performing all examinations as indicated by Dr. Rex Wilson's letters of June 15, 1968, November 27, 1967, and February 6, 1968. In answer to your direct question, we perform the following:

CBC - This test is being performed every two months on personnel in the Acrylic Acid Department and are up to date. Tests on employees working in the wet laboratory are performed every three or four months and are up to date. The latest results were sent to Dr. Wilson on July 23, 1968.

Liver Function - All employees in the Vinyl Chloride Department have been sampled in the past three months with the exception of two new employees.

Kidney Function (BUN) - Employees who are in contact with Catalyst 21 have had their annual examination and blood sampled in the past three months and are up to date. Physical examinations are being handled by Dr. Colburn. The only problem that we have is on several occasions uranium samples have been sent and mercury results have come back.

Mercury Analysis - Dr. Colburn is performing physical examinations on all personnel in the Chlorine Plant. All employees, including maintenance, have had a physical, including chest x-ray and vital capacity, this year. All of these are up to date.

Should you have further questions, please advise.

R. W. Edwards
R. W. Edwards

RWE/mh

cc: C. L. Woods, Jr.
J. L. Nelson
G. Pow

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9/23/64

Enclosed is the report of Mr. Wilson's recent visit to your Plant. You will note that he has made several recommendations, particularly affecting employees handling lead compounds. You will also note from the data of the report that quite high atmospheric concentrations of lead were found at several job assignments.

One of the purposes of Mr. Wilson's visit was to assess the vinylidene chloride hazard incident to poly cleaners. It is our opinion that the atmospheric concentrations existing during poly cleaning are significant, and that we should continue the liver function studies on these personnel on a regular basis. We do not believe liver function studies need to be continued on personnel in the ethylene dichloride unit on a regular basis. However, these examinations should be done on a pre-assignment basis to the personnel using ethylene dichloride. Abnormalities in liver function should prohibit assignment to the use of this compound.

W.E. McCormick

CC: H.P. McMath
A. Vittone
W.W. Baughman

WEM/jc

Enclosure

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REPORT OF VISIT TO LOUISVILLE PLANT

September 1-5, 1964

During the period September 1-5, 1964, an industrial hygiene survey was made at the Louisville Plant of The B.F. Goodrich Chemical Company. Following are our recommendations and the results of this survey.

I. Recommendations

- A. Improve exhaust ventilation at the skip hoist on the 4" Farrell line.
- B. Improve the work habits of personnel weighing pigments at the booth in Building 8.
- C. Emphasize the necessity of good personal hygiene among personnel handling toxic materials such as lead and antimony compounds.
- D. Prevent spillage of vinylidene chloride in drum handling operations.

II. Results

In order to evaluate potential health hazards, air samples were taken at several operations. The results follow:

A. Lead

<u>Sample No.</u>	<u>Mg. Lead Per cu. ft. of air</u>	<u>Remarks</u>
1	0.85	Workman's exposure weighing Pigment 8-1 in Building 8.
2	0.84	Same as #1.
3	0.07	Workman's exposure weighing Pigment 8-10 in Building 8.
4	0.60	Same as #3.
5	0.02	Workman's exposure at Henschel Mixer-extruder operation, processing 8737 Black 289 containing Pigment 8-1.
6	0.02	Same as #5.
7	1.34	Workman's exposure at 4" Farrell, processing 8737 White 132 containing Pigment 8-1.
8	1.12	Same as #7.
9	Over 0.80*	Same as #7 and 8, processing 82467 Slate 260 containing Pigment 8-27.

*Sample taken with MSA Universal Sampler. Result cannot be expressed more exactly.

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B. Antimony

<u>Sample No.</u>	<u>Mg. Antimony/ cu. ft. of air</u>	<u>Remarks</u>
1	0.42	Workman's exposure weighing Code 708167 (Antimony Oxide) in Building 8.
2	0.38	Same as #1.
3	0.01	Workman's exposure at Henschel Mixer-extruder operation processing 8737 Black 289 containing 708167.
4	0.02	Same as #3.
5	0.04	Antimony in fume from mill on extruder line.
6	0.37	Workman's exposure at 4" Farrell, processing 8737 White 132 containing 708167.
7	0.1	Same as #6.

C. Vinyl Chloride During Cleaning of Polymerizer (101EF-F12 Resin)

<u>Sample No.</u>	<u>ppm Vinyl Chloride</u>	<u>Remarks</u>
1	150	Cleaner's exposure while scraping lower third of wall, Poly #23, Charge #2234, Building B.
2	120	Cleaner's exposure chiseling hardened material from agitator. Same location as #1.
3	120	Cleaner's exposure scraping bottom of poly. Same location as #1.
4	Less than 30	Cleaner's exposure while scraping lower third of wall, Poly #13, Charge #7647, Building 1.
5	None	Same as #4.
6	None	Same as #5, scraping on bottom.
7	120	Cleaner's exposure while scraping lower third of wall, Poly #17, Charge #2243, Building 18.
8	120	Same as #7, scraping half way up wall.
9	150	Same as #7, scraping bottom.

D. Vinylidene Chloride During Polymerizer Cleaning After Charges of Type 222 Resin, Building 13.

<u>Sample No.</u>	<u>ppm. Vinylidene Chloride*</u>	<u>Remarks</u>
1	25	Cleaner's exposure two minutes after cleaning started, scraping lower half of wall, Poly #13, Charge #3411.

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D. (Continued)

Sample No.	ppm. Vinylidene Chloride*	Remarks
2	25	Same as #1, two minutes later.
3	10	Similar to #1 & 2, Poly #14, Charge #5418.
4	15	Same as #3.
5	10	Similar to #1 & 2, Poly #18, Charge #5423.
6	10	Same as #5.

*These concentrations may also include some cis 1,2-dichloroethylene, but calculated as vinylidene chloride. It could not be separated by the analytical technique used.

III. Comments

- A. Exposure to lead at the weigh booth in Building 8 usually exceeded the presently acceptable maximum level of 0.2 mg. per cubic meter of air by a wide margin. This condition appears to be caused primarily by poor work habits which reduce the effectiveness of the ventilation system. Lead compounds are habitually spilled onto the scale platform; in the process of opening paper bags to be filled, it was noted that one workman created a cloud of lead dust which enveloped him and the area to his rear. This increased the exposure of all personnel in the vicinity.

The weighman's exposure to lead at the skip hoist of the 4" Farrell unit was far above the presently acceptable maximum level. Airborne dust is generated when the hoist dumps into the mixer. Not all of it is captured by the exhaust fan. Some dust is no doubt scattered over a large area of the mill room.

The weighman's exposure to lead at the Henschel Mixer-extruder operation was well below the presently acceptable maximum level.

- B. Exposure to antimony at all locations checked was below the presently acceptable maximum level of 0.5 mg. per cubic meter of air. Exposure at the skip hoist mentioned above will be reduced substantially when the necessary steps have been taken to control airborne lead.
- C. Good personal hygiene is important in prevention of absorption of toxic materials such as lead and antimony. Thorough washing of the hands prior to eating and smoking is particularly important.
- D. Exposure to vinyl chloride vapors during polymerizer cleaning was well below the presently acceptable maximum level of 500 parts per million parts of air in the three polymerizers in which samples were taken.
- E. Vinylidene chloride may produce organic injury to the liver and kidneys upon repeated exposure. At the present time there is no established

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Louisville, Ky.

Mr. L.G. Crum

Akron
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I H.

Enclosed is the report of Mr. Wilson's recent visit to your Plant. You will note that he has made several recommendations, particularly affecting employees handling lead compounds. You will also note from the data of the report that quite high atmospheric concentrations of lead were found at several job assignments.

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W.E. McCormick

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