

TO	E. W. Harrington	Cleveland	DATE THIS LETTER
FROM	G. D. Schaaf	Cleveland	2-6-75
SUBJECT			

COMPANY

Competitive Information

CONFIDENTIAL

The following information was obtained by discussions with Phil Weaver and W. C. Holbrook of B. F. Goodrich and numerous phone calls to PVC manufacturers by Herm Waltemate and myself.

GENERAL:

Most PVC companies are not taking the OSHA Standard and the April 1st implementation date as serious as B.F.G. Many believe further legal action will delay its implementation. One company expressed the thought that area inspectors will enforce the standard differently.

Ambient vinyl chloride monomer levels varied from 2-3 to 20 in process areas. Many companies have gas chromatographs to measure the AVCM levels.

The RVCM levels in the product was generally in the range of 10 to 200+ ppm. Not many companies are currently in the 10 ppm range and most think of this as a goal. No one even mentioned a goal of 0-1 ppm RVCM for finished products.

No one has gone out of the business except for the Olin plant, and this was because of a VCM shortage. The Atlantic Tubing and Rubber Company will delay the construction and start-up of their rebuilt plant until economic conditions improve.

Air Products - General Office

The goal for residual monomer in products is presently below 100 ppm. They have been able to get in the 50 ppm range, but not reproducibly. They feel that resin can be safely processed if it contains 50 ppm, provided the processor has adequate ventilation. They are presently averaging about 5 ppm in the work areas. Air Products is presenting a paper at the AIChE Meeting in Houston, which will give mathematical equations on stripping residual monomer from PVC resins. In my conversation with them they indicated that there would be nothing new in this paper that Goodrich wasn't presently aware of. They consider Doctor Beren's paper very basic in the area of monomer removal from PVC resin.

Atlantic Tubing and Rubber

Their plant start up in late 1974 did not materialize. They have delayed construction on their new plant so that they would expect it to start up in early fall. They are completing construction slowly as capital becomes

available. They are interested in licensing any techniques that Goodrich has for removal of vinyl chloride by stripping. They have licensed our HRC units for their 2200 gallon polys and the units have been shipped. They have a lot of resin in inventory for their fabrication plants, and will not make any definite decisions concerning start-up until the present economic system has been resolved. They are currently looking for someone to purchase the VCI they have contracted for from Dow.

Conoco - Aberdeen, Mississippi

They have a goal of 10 ppm for pipe resin. Currently, they are below 100 ppm in resins that they are shipping. They still have problems removing VCI in the recovery system. At the very best, the exhaust air from their dryer is between 10 and 50 ppm. Most of the time it ranges between 100-500 ppm. This can result in a significant concentration in the plant environment. They will use full face masks in the production area and they have found some VCI in their breathing air supply. The EPA data from their tests at the Aberdeen plant gave values as follows:

In Plant	.3 ppm, highest value
At Boundary	Up to .25 ppm
In the town at a distance of approximately 1/4 to 1/2 mile	.01 to .16

They do not plan to take personnel monitoring samples for each employee on a once per month basis. They will have a plan to show their reduction in monomer concentration in the process area. They have a Honeywell chromatograph installed to monitor the levels in their process area.

Diamond - Deer Park

Their new plant started up a couple of weeks ago. They have indicated that they have several minor gas releases involved in the start-up of the new plant and it would be difficult meeting the standard during start-up operations. Generally, their AVCM levels are 80% less than 5 ppm, 90% less than 15 ppm. The residual monomer in EP/GP resins is approximately 50 ppm with a goal of 10 ppm. In 1976 they hope to get their work levels down to the 1 ppm range.

Firestone

They plan to continue to operate for now both their plants, and indicated they may take the court decision to the Supreme Court.

General Tire - Ashtabula, Ohio

Their control room is a non-regulated area and the operator spends about 5-8 hours in this environment. If required, they plan to rotate the charging operators with the bulk storage and finishing operators to reduce exposure levels.

Generally, the exposure on the floor is slightly below 5 ppm and they do not plan to use cannister masks. The residual vinyl chloride monomer in the product is as follows:

<u>IV Range</u>	<u>RVCM</u>
.50 - .60	80 - 100
.65 - .85	20
.87 - .95	15
1.0 - 1.1	Less than 10

They are using a two-stage stripping system to get the residual monomer content down. They feel that 10 ppm is satisfactory for their fabricating plants.

Goodyear - Plaquemine, La.

They are obtaining AVCM values of 7-8 ppm with a gas chromatograph and 10 point recorder. The personnel monitoring results are 30% less than 1 ppm, 30% less than 5 ppm, and the remainder in the 6-20 ppm range. They can get the residual monomer of the resin down to about 100 ppm by breaking the vacuum on the autoclaves with steam. Typical analysis of resin on cars to be shipped from their plant ranged from 22-301 RVCM for pipe resin.

Hooker - Burlington

The personnel monitoring results range between 3-5 ppm. They are not using any continuous monitoring system. RVCM results are as follows:

Pipe Resin	300-400 ppm
Calendering Resin	400-500 ppm
Bottle Resin	500-600 ppm

Olin

The Assonet, Massachusetts plant is now shut down.

Stauffer

They plan to meet the standard. Their current AVCM is in the range of 10-20 ppm, while the RVCM in the product is in the range of 300-1000 ppm.

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Tenneco

They are starting up their 35,000 gallon Shin-Etsu reactor now at Pasadena, Texas. In their Flemington plant they plan to shut down for one month for conversion from homopolymers to copolymers. The personnel monitoring results are in the range of 1, 2, and 5 ppm. They have a fixed monitoring Bendix gas chromatograph 6 point system.

Union Carbide - Texas City, Texas

In this outdoor plant the AVCM is about 2-3 ppm. They expect to be able to get lower levels. The operator spends about 90% of his time in the control room. Therefore, the personnel monitoring data is very low. The personnel monitoring data has typically been in the range of 0.1 ppm. When doing personnel monitoring with carbon tubes, they shut off the pump when wearing respiratory equipment. They expect some further legal action will be taken and the standard may not go into effect on April 1st. They have a gas chromatograph of their own design, and it is connected to a 20 point sampling system providing a reading each two minutes. They have this connected to a data logger system and plan to analyze this data for comparison with personnel monitoring samples. The Charleston plant has several such analytical units currently in operation. RVCM values of their product is running around 100 ppm.

GDS/clg


G. D. Schaaf

cc: A. Vittone
J. L. Nelson
P. J. Weaver
W. C. Holbrook
H. Waltemate
R. L. Toole
J. A. Klupar

NGC 16270