GENERAL TIRE

INTER-ORGANIZATION MEMO

TO: DISTRIBUTION

ATTENTION:

FROM: E. K. Kolinek

DATE: May 31, 1974

SUBJECT: Removal of Vinyl Chloride Monomer from PVC

Reference: 1. Memo to Distribution from E. K. Kolinek dated 5/17/74, "VCM in PVC"

2. Memo to A. J. Urbanic from R. M. Griffith dated 5/29/74, "Some Chemical Engineering Guidelines for Residual Vinyl Chloride Monomer Removal from PVC Particles"

A meeting was held on May 30, 1974, at the Ashtabula plant. The following people were present: J. R. Mudd, W. J. Van Essen, A. J. Urbanic, H. E. Jewett, T. Allen, J. L. Cooper, G. A. Cabaniss, R. M. Griffith, R. E. Bingham, and H. Graff.

The following is a brief summary of the meeting:

1. A request will be made to increase the Ashtabula processing temperatures to "some higher temperature level". At the present time, the processing temperatures are limited to 140°F. and exposure time is limited to keep from having the resin "pink". I will discuss this subject with W. C. Douglas, H. Schick, J. M. Gyenge, and H. E. Jewett to determine the experimentals to be tested at higher temperature levels to aid in the removal of vinyl chloride. We will attempt to have resin "from higher temperatures" produced by June 13th for Plastics plant evaluation.

2. Post Stabilization Ingredients to Reduce the Possibility of "Pinking"

   a. Alpha Methyl Styrene

      J. L. Cooper has done some work in the Pilot Plant which shows that adding this ingredient does assist in the removal of vinyl chloride from the resin. Further Pilot Plant experiments need to be conducted to set the level of Alpha Methyl Styrene for a plant trial. The recommendation will be made before June 6, and a plant trial will be scheduled before June 13.

   b. It was suggested that certain other materials such as Octyl Tin might keep the resin from "pinking".

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3. A material balance should be run around the entire operation at Ashtabula to determine the level of vinyl chloride remaining in the product at each stage. It was decided that material balance will be run on the following products:

Vygen 120
Vygen 120E
Vygen 313

This information will be completed before June 13.

4. Low Conversion Resin

There is some limited data which shows that Vygen 120E, which is a low conversion, does strip easier than regular Vygen 120. For this reason, it is included in Item 3 above for an in-depth study.

5. Addition of Heptane

It is thought that adding Heptane to the resin will allow the Heptane to penetrate the particle and assist in removal of vinyl chloride from the resin particle. Heptane will be added at each of the following areas in a study of this variable:

a. At the time of initiation of polymerization.
b. At some point near 70-80% conversion.
c. In the slurry tank.

One drum of material is at the plant. Two additional drums of material need to be ordered for all the trials. As many of the above variables will be run as the Heptane allows before June 13.

6. Stripping

a. Pieco

The Pilot Plant has had to rebuild certain portions of the Pieco in order to better transport the resin. Trials should start May 31.

b. Batch Stripping

The Pilot Plant will consider several variables such as time, temperature, steam flow, etc. and make recommendations for various trials in the Ashtabula slurry tanks. It is generally thought that an increase from 15-20 minutes stripping at the present to one hour will significantly reduce the level of vinyl chloride in the resin. The problem is temperature time dependent as related to "pinking" of the resin.

7. Study Additives for Aid of Monomer Removal

   R & D will work on this item on a high-priority basis to determine if they can offer any recommendations for plant trials.

8. Unusual techniques of monomer removal are elimination. This is a long-term project for R & D, and they will consider various ideas such as:

   a. Plasma reactions

   b. Using radiation to complete the reaction.

   c. Using microwave energy to increase the kinetic energy of the vinyl chloride to drive it out of the particle.

9. Solvent Extraction

   R & D will consider this concept but this also is a long-term possibility for a solution.

10. Particle Morphology

    The Dow technology purchased several years ago relates to this concept, and at the time when this technology was purchased, it was decided to do as little work as possible to put the technology in practice. Dow stated in their information provided to us that the technology was not optimized, and we have not spent the time optimizing the technology. It was generally concluded that a research program should be considered for extending the Dow technology (optimization) to determine if there are other materials other than Span 60 to use. Again, this goes back to the data that the 300 Series resin has a significantly lower residual vinyl chloride monomer level. Before any work is done on this area, a review should be made of J. S. Musalem's data from the Ashtabula Pilot Plant which paralleled the Dow technology.

There was verbal data presented by Hank Graff which will be published soon regarding the vinyl chloride level at various points in the process.

The following items are from the agenda of our May 16th meeting, and this relates to their status:

1. Limit Polymerization Temperature from T Max

   Data presented at the meeting showed that this does not appear to be a factor relating to the residual vinyl chloride monomer. This has been dropped from further consideration.

4. Consider Reduction of Conversion

This is still under consideration in the area of running material balances on Vygen 120 and Vygen 120E. The economics of this change can be obtained from the standards. It may also reduce the capacity of the plant. No figures were discussed at the meeting.

5. Prestabilized Resin to Allow Higher Processing Temperatures at Ashtabula

a. This was discussed in a section above regarding the Alpha Methyl Styrene.

b. It was stated that Robintech may be using a proprietary technique similar to this. An attempt will be made to find out what they are doing. This is related to the Octyl Tin item discussed above.

6. Stripping

a. Joint Program with Atlantic Tubing

Atlantic Tubing has not completed their study. It may be necessary for us to send someone to make sure we obtain data of interest to us. This will be done if necessary.

b. Other parts of this section are discussed above.

7. Silo

a. Air Purging of the Ashtabula Silos

Hank Graff reported on some of the data and this will be published based on their laboratory experiments.

b. Silo Studies

It has not been possible to schedule this work. An attempt will be made to obtain this data before the next meeting.

8. Drying

a. D. L. Levinson is obtaining some information from Nichols regarding work in Europe by PVC manufacturers on removal of vinyl chloride.

b. Louisville Dryers

We will schedule trials at Louisville to run the fluidized bed and rotary dryer equipment as soon as we can get scheduled. At the present time, the earliest we can get in is the week of June 24. This is not a short-term answer but may be a long-term consideration if the fluidized bed and/or rotary dryer will remove more vinyl chloride from the resin.

The remainder of the items on the agenda were discussed in various sections above.

E. K. Kolinek

EKK:ljb

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associated with increased volume, improved production techniques and the performance of repetitive tasks (the learning curve concept) are realized.

Recovery of deferred production and other start-up costs is dependent on the number of aircraft ultimately sold and actual selling prices and production costs related to future transactions. Sales significantly under estimates or costs significantly over estimates could result in the realization of substantial losses on the program in future years. Realization of approximately $721,000 of the gross commercial aircraft inventories at December 31, 1974 is dependent on receipt of future firm orders.

Based on studies made by and on behalf of the Company, management believes there exists for this aircraft a market for over 250 units, including deliveries to date, with production and deliveries continuing at a normal rate to at least 1980. At December 31, 1974, 117 aircraft had been delivered under the program, and the backlog included 64 firm unfilled orders and options for 43 units.

During 1974, $251,000 of general and administrative expense and $33,000 of research and development expense were incurred and charged to inventories. Comparable amounts in 1973 were $238,000 and $42,000, respectively.

Title to certain inventories and contracts in progress is vested in the United States Government pursuant to contract provisions related to progress payments. Such amounts were $1,743,000 and $1,347,000 at December 31, 1974 and 1973, respectively.

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DEPARTMENT OF LABOR

Occupational Safety and Health Administration

[29 CFR Part 1910]

[Docket OSH-36]

VINYL CHLORIDE; OCCUPATIONAL EXPOSURE STANDARD

Hearing

On May 10, 1974, notice of proposed rulemaking with regard to a permanent standard for occupational exposure to vinyl chloride was published in the FEDERAL REGISTER (39 FR 16896). The notice provides an opportunity for public participation in the proceeding, by means of written submissions to be mailed to the given address, postmarked no later than June 10, 1974. The notice also permits interested persons to file objections to the proposed standard set out in the notice and request a hearing thereon. The objections must specify the provisions of the proposed standard to which objections are made, state the grounds for the objections, be accompanied by a summary of the evidence to be adduced at the requested hearing, and must be postmarked no later than June 10, 1974.

Informal contacts with Occupational Safety and Health Administration staff have disclosed widespread interest in the proceeding, a probability of requests for a hearing, and an alleged need for more time for the submission of written comments and the formulation of objections in accordance with the requirements of the notice.

Accordingly, it has been decided to waive the requirements for objections and request for a hearing thereon and instead to set for hearing the entire proposed standard, set forth in the May 10 notice. It is hoped that this decision will: (1) Eliminate the possible difficulty of formulating appropriate objections within the short period of time fixed in the notice; (2) permit full participation at the hearing, without limitation as to issues; and (3) expedite the proceeding, in view of the six-month provision in section 6(c) of the Williams-Steiger Occupational Safety and Health Act of 1970, and the expectation that a hearing would be requested and scheduled anyway.

Therefore, pursuant to sections 6(b), 6(c), and 8(c) of the Occupational Safety and Health Act of 1970 (84 Stat. 1593, 1596, 1599; 29 U.S.C. 655, 657), Secretary of Labor's Order No. 12-71 (36 FR 8754) and 29 CFR Part 1911, the notice of the proposed rulemaking on vinyl chloride published on May 10, 1974 at 39 FR 16896, is hereby amended in the following respects: (1) The part of the notice concerning the filing of objections and requests for hearing, in the third full paragraph of the middle column of page 16897 of the May 10 issue of the FEDERAL REGISTER, is withdrawn; and (2) in lieu thereof the following paragraphs are added:

Data, views, and arguments concerning the proposed standard will be received by an administrative law judge, to be appointed by the Chief Administrative Law Judge of the Department of Labor, at an informal hearing to begin at 9:30 a.m. June 25, 1974 in the Departmental Auditorium on Constitution Avenue, between 12th & 14th Streets NW., Washington, D.C.

The hearing shall be conducted in accordance with the rules of procedure in 29 CFR Part 1911. Any interested person desiring to participate at the hearing must file a notice of intention to appear with Ms. Joanne Goodell, Attn: Docket OSH-36, Occupational Safety and Health Administration, 1726 M Street, NW., Room 200, U.S. Department of Labor, Washington, D.C. 20210 no later than June 17, 1974. A notice must state the name and address of the person to appear, the capacity in which he will appear, and the approximate amount of time required for his presentation. In addition, to the extent practicable, the notice should contain a general statement of the position to be taken with respect to any provision of the proposed standard, and of the evidence to be adduced in support of the position.

In all other respects, the May 10, 1974 notice of proposed rulemaking remains unchanged.

Signed this 22d day of May 1974.

JOHN H. STENDER,
Assistant Secretary of Labor.

[FR Doc. 74-12183 Filed 5-23-74,11:15 am]