



TO Mr. J. A. Clapperton DATE October 4, 1974
FROM A. T. Raetzsch SUBJECT VDCM Exposure
Reply to your Memos of
10/3/74 & 3/8/74

CONFIDENTIAL

We will promptly carry out your suggested communication to employees. It will be done low-key, incidental to providing them with up to date monitoring results on VCM and will be by Dr. Lovejoy in departmental safety meetings. Actually, the fact VDCM was suspect had been communicated to our employees as was suggested in Paragraph 8 of your memo of March 8, 1974.

Other items suggested in that letter were handled as follows:

1. This was done and summarized in the attached memo from Bob Lynch to Duncan, May 9, 1974. Lynch has a very detailed study to back up the memo.
2. Operating manuals were reviewed and several work-practice improvements were used to minimize exposure. However, very little engineering has been done to correct problem areas.
3. Same as 2.
4. Done.
5. All plant employees have been given annual physical examinations since the beginning. This has included liver and kidney function tests for all Area B employees since we began making EDC in 1962. However, the only group whose records have been segregated so far are VCM-associated employees. We have now decided to keep unit-related records on all employees in Area B, as this can easily be done by the computer from the time distribution cards.
6. This has been done as reported in 5, but will go back and segregate VDCM records.
7. We have done occasional area sampling but no personal monitoring due to lack of lab space, facilities and personnel. We have been concentrating on VCM, Hg, Pb and asbestos and cannot do any more until we get a new building, more equipment and more personnel. All we can do is shift some of the effort to VDCM from the other problem areas.

October 4, 1974

For your information I am also enclosing copy of a memo by Wil Graybill dated August 6, 1974, reporting a phone call he made to Ron Hoopes of W. R. Grace. It was Hoopes' strong opinion that while VDCM was toxic to the liver and kidneys similarly to CCl_4 , it was not carcinogenic.

Since Grace is the largest producer of PVDC in North America, this information probably tended to cause some of our people to be a little more relaxed about VDCM than we should have been.

Summarizing:

- (1). We will make another low-key statement to VCM-VDCM-associated employees.
- (2). We have reduced the amount of sampling done in the VDCM unit as this is a large source of potential exposure.
- (3) We will convert to closed-loop sampling as we have done in VCM.
- (4) Elimination of other large sources of potential exposure will require extensive piping changes and other remodeling of the plant (Memo R.P. Lynch to D. L. Duncan, 5/9/74). This will require a comprehensive engineering study, cost estimates, and eventually economic evaluation to see if we want to continue in the business. The only way we can get out of the business without getting out of Tri-Ethane as well is to build the new MC plant.

In the meantime, hopefully, we will get the results of MCA and other test programs, defining the extent of the problem.

- (5) We will reinforce our program of employee protection. One of the problems in this area is that the demand for "Comfo" cartridges far exceeds the supply, and this is the only type of respirator that is really effective. We are already using fresh air masks on certain jobs.
- (6) We need to expedite preparation and approval of an ACT for new lab facilities. This is being handled by Central Engineering.

Any further suggestions from you or others receiving copies of this memo will be appreciated. Incidentally, those who participated in our meeting this morning were: Dr. Lovejoy, Russ Hanna, Dewey Duncan, Bob Lynch and the author.

ATR/yh

Enc.

cc: Dr. Zeb Bell, Messrs. I. C. Klimas, R. E. Widing, H. C. Twiehaus/H. W. Rahn, W. B. Graybill/L. F. Sargert, T. G. Taylor/H. J. Hoenes, Dr. H. B. Lovejoy, R. E. Hanna, D. L. Duncan, Bob Lynch.

SL 069124

INTER-OFFICE CORRESPONDENCE

Date: March 8, 1974

From: J. A. Clapperton

Location: 19 East - General Office

Subject:

To: Messrs. A. T. Raetzsch
I. C. Klimas

Although there is little literature reference to the toxicity effects of vinylidene chloride monomer (VDCM), what is available indicates that VDCM, without reference to carcinogenicity, is a worse toxicant to the liver and kidney than VCM. This is supported by the fact that the American Conference of Governmental Industrial Hygienists (ACGIH) have historically recommended a lower TLV for VDCM than VCM (25 ppm vs. 200 ppm - time weighted average). Furthermore, ACGIH is now recommending that the VDCM TLV be lowered to 10 ppm in the future.

Even though the information is meager, at least until more studies are undertaken and results obtained, it is felt we should immediately adopt the same exposure prevention program for VDCM in our plants as we have for VCM. This would include:

1. Formal, step-by-step analysis of all facets of the operations to pinpoint all areas of exposure, or potential exposure.
- ✓ 2. Subsequent follow-up, with both engineering and work-practice modifications implemented to prevent exposure.
3. Review of operating manuals, with necessary revisions made so that our procedures are positive in their intent to prevent exposure.
4. Issue instructions to employees to avoid breathing VDCM vapors and to require the use of respiratory protection in certain procedures where exposure potential exists.
- ✓ 5. Identification and inclusion of all VDCM-associated employees into a medical program, including monitoring for kidney and liver function.
- ✓ 6. A re-review of the medical records of VDCM-associated employees already in our medical programs to search out the possible existence of any abnormalities.
- ✓ 7. Begin program of area and personal monitoring in the VDCM operations, storage and loading functions.
8. Communication of this information to our employees in much the same manner as was done for VCM.

Messrs. A. T. Raetzsch
I. C. Klimas

-2-

March 8, 1974

I am informed by D. L. Duncan that much of this is already underway at Lake Charles. However, it is felt needed to specify these areas of the program so as to avoid misunderstanding, and also to communicate this information to Natrium for application to their VDCM drum-loading operations.


J. A. Clapperton

JAC:jb

cc: A. G. DeMarco
L. B. Grant, M.D.
W. B. Graybill/L. F. Sargent
W. R. Harris
W. P. Lawrence/R. E. Sourwine
✓ D. L. Duncan
V. A. Sarni/R. E. Widing/G. M. Zapp
T. G. Taylor/H. B. Lovejoy, M.D.
F. J. Trunzo
H. C. Twiehaus/H. W. Rahn

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AUG 9 1974

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OCT 01 1974

PPG INDUSTRIES
Chemical Division
Lake Charles, La.

INTER-OFFICE CORRESPONDENCE

Date: August 6, 1974

From: W. R. Grace

Location: 28 North

Subject: VDC Toxicity

For your info

To: File

On August 5, 1974, I called Ron Hoopes, Manager Daran Products, W. R. Grace Company in Cambridge, Massachusetts, to discuss the information that W. R. Grace might have relating to the toxicity or carcinogenicity of vinylidene chloride. His first reaction was that they, as a company, were betting on the future. VDCM has a bright future with a tremendous growth indicated in the new use area. Everything they know about toxicity and carcinogenicity is in the vane of not being overly concerned about problems in this area. They have done no basic testing of toxicity but have left that to others. They have gleaned evidence from some foreign manufacturers, namely BASF, ICI and Kanegafuchi, who also confirm that there is no basic problem with this monomer. They also have information on VDCM received from the U. S. Navy and from Harvard University (he will send these to us).

The evidence that they have is clear showing that VDCM is toxic similar to carbon tetrachloride to the liver or kidneys. Accordingly, all of their employees, both in manufacturing and research, have been screened with health examinations on a routine basis. No evidence of any problem has ever been found and their employees have probably been exposed as long as anyone else to vinylidene chloride.

When they built a plant in 1959-60 in Acton, Massachusetts, their first PVDC unit, they made sure to monitor the work environment and they still do because they know inhaling VDCM is bad as far as causing liver damage. They have never wanted their employees to be exposed to vinylidene chloride and have carefully monitored their workplace. They especially feel proud of the fact that they are a leader in the removal of free monomer from the polymer resin. In food packaging industries, odor entrapment is a problem. VDCM is a low boiler as opposed to some of the copolymers like acrylates and it is important, however, to have both of these monomers removed from the latex. Most of their competitors have high free monomer contents in polymer which the converters may entrap in their packaging construction resulting in some bad free odor to food, for instance. One recent episode involved trouble with Kellogg's Corn Flakes where the report was that the cereal smelled and tasted like something different. It was all due to high free monomer from somebody's latex which was sent to Crown Zellerbach, a package maker. Grace feels they are leaders in marketing low free monomer latex and this feature has served them well. He knows the VCM people are now trying to achieve this too in their industry.

W. R. Grace is the largest producer and seller of PVDC materials in North America with their Daran and Cryovac Divisions. He knows that the FDA will require, and have required, food containers to have a contact surface free from any free monomer. He feels that the OSHA or FDA people will be looking immediately at some of the major coatings involved in food packaging starting with polyethylene and including polyester, focusing first on the big ones, but

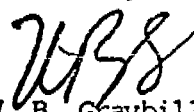
August 6, 1974
VDC Toxicity

he does not feel that PVDC will be immediately scrutinized since it is such a relatively small item of commerce at the present time.

W. R. Grace will share in the MCA testing costs for VDCM toxicity and carcinogenicity now being conducted by Industrial Bio-Test. He was aware that Dow was four to six months into their vinylidene chloride testing program.

He said that it is clear today that there is no evidence whatsoever of the carcinogenicity of VDCM. One of their biggest reasons for saying this is their careful analysis of medical records on their employees rather than testing on animals.

They are following the TLV recommendations of ACGIH of 10 ppm which they were advised of by both Dow and PPG. VDCM is absent from the packaging coating largely because of their process uniqueness and they find no difficulty in meeting the non-detectable extraction limit in the coating for food wrappers. Mr. Hoopes is in charge of the PVDC latex "Daran" in both the marketing and technical end and told me that he would support us in any way he could, in person if required, in order to help us in any way with expanding our vinylidene chloride plant.


W. B. Graybill

/kf

cc: Z. G. Bell
J. E. Burrell
G. J. Lazarchik
H. W. Rahn
L. F. Sargert
V. A. Sami
R. E. Widing
G. M. Zapp

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