



Research & Development Department

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CHEMICALS
RESEARCH

JUL 2 1973

June 27, 1973

Mr. D. M. Jonas
Vinatex Limited
New Lane
Havant, PO9 2NQ
Hampshire, England

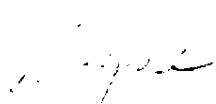
Dear Don:

Re: Toxicity of VCM

Conoco is indeed connected with the MCA program investigating VCM effects on animals. The MCA sponsoring group, so involved, and the National Institute for Occupational Health (U.S.) will meet soon with the European group mentioned by ICI to share data developed so far by the European work.

The MCA work in the U.S. has just begun so no details are available. When they emerge, their release will be on a restricted and formal basis so I think it will be some time before it's possible to learn anything.

Best regards,


Wayne R. Sorenson
Director, Plastics

bjs

BCC w/Attachments: FK

FK
WCM
OCY
APL
VCM
ICI

VVC 000006737



JUN 26 1973

VINATEX LIMITED

REGISTERED OFFICE:

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TELEX: 88101

REGISTERED IN LONDON No. 906188

PLEASE REPLY TO: Havant

OUR REF DMJ/TG

YOUR REF



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20th June 1973

Dr. W. R. Sorenson,
Research & Development Dept.,
Continental Oil Co.,
P.O. Box 1267,
Ponca City,
Oklahoma 74601.

Dear Wayne,

Toxicity of Vinyl Chloride Monomer

Bill Adams recently had a letter from ICI with the attached document dated 29th May 1973, summarising ICI's views on VCM toxicity and explaining that a group of four European companies including ICI is investigating various aspects of this topic.

We are told that CONOCO is one of several companies sponsoring a similar programme with MCA. I should be grateful if you could let me have details of what MCA has done so far and how it intends proceeding in the future. Also your own personal interpretation of the data accumulated so far.

Best regards,

Yours sincerely,

D. M. Jonas

VVC 000006738

29 May 73

TOXICITY OF VCM

ICI wishes to bring to the attention of its two principal vinyl chloride monomer customers information concerning the animal carcinogenic effect associated with VCM, and the actions being taken within ICI to reduce exposure of VCM and PVC plant operatives to VCM vapours.

It has been known for some time that exposure of workers to VCM vapours can produce a condition known as acro osteolysis (Ref 1). This effect and other work reporting evidence of clinical findings in workers exposed to VCM (Ref 2) has led to the adoption in the USA and in Britain of a "Threshold Limit Value" (TLV) of 200 ppm v/v.

In 1970, Dr P L Viola reported that whilst attempting to produce acro osteolysis in rats similar to that occurring in humans he had observed tumors in animals exposed to 30,000 ppm of VCM vapour 4 hours/day for 12 months (Ref 3). Although the concentrations used were greatly in excess of the levels to which workers in the industry are normally exposed, and we have no evidence of medical problems cancer in our own workers, a group of companies (including ICI) concerned with VCM and/or PVC manufacture decided to extend research in this field. At the moment work is in hand by a group of four European companies (including ICI) to investigate the incidence of cancer in rats exposed to VCM vapour at various concentrations. A somewhat similar programme to investigate the effects on hamsters, mice and rats is in hand by a group of US companies under the auspices of the Manufacturing Chemists Association, and this group is also aware of the progress to date on the European studies.

Parent companies of EXL (Union Carbide) and Vinatex (Conoco) are sponsors of the MCA programme, and it is ICI's recommendation that EXL and Vinatex should ask their respective principals to review the implications of the European and US research programmes, the results of which will both be published in due course.

In the meantime ICI is monitoring the conditions within its own VCM and PVC plants and taking steps to ensure that exposure of workers to VCM vapours is kept at the lowest practical limit. ICI suggests to its VCM customers that they should do likewise and is willing to assist them, if requested, by providing details of analytical equipment and procedures etc.

References:

- 1 Archives of Environmental Health 22, 61, 1971
- 2 American Ind. Hygiene Assoc. Journal 33, 20, 1972
- 3 Cancer Research 31, 516, 1971

D M Elliott
D P Duffield

VVC 000006739

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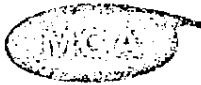
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POSITION STATEMENT

CONOCO CHEMICALS

We are aware of a meeting recently between NIOSH (National Institute for Occupational Safety and Health) and MCA regarding vinyl chloride. Animal tests are in progress to determine effects of long term exposure to vinyl chloride vapor. There is also an epidemiological study in progress to determine any health effect upon people who have worked with vinyl chloride. Both studies are followed diligently by Conoco Chemicals. It is premature to reach any conclusions since the data are very preliminary at this time.

[Note - Except for the meeting referred to above, the other information
has been made known to the public. See attachments.]



MANUFACTURING CHEMISTS ASSOCIATION

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FOR RELEASE

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For Immediate Release

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WASHINGTON, D. C. -- A group of chemical companies that handle vinyl chloride monomer is sponsoring a survey program to document the health experience of present and former employees who have worked with that material. The Manufacturing Chemists Association (MCA) is administering the study, which is being conducted by Tabershaw-Cooper Associates, Inc. of Berkeley, Calif.

This study complements a concurrent MCA project at Industrial Bio-Test Laboratories, Inc., in which the effects on laboratory animals of long-term exposures to vinyl chloride vapors are being evaluated. Both programs are designed to provide additional scientific information on which to base safeguards to protect employee health.

Expected to be completed by early 1974, the epidemiology project represents another phase of industry's efforts to secure the kinds of data needed by the National Institute for Occupational Safety and Health with respect to various industrial chemicals, including vinyl chloride. The major use of vinyl chloride, produced in substantial tonnage, is for the manufacture of plastics.

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Science

A power boost for CERN's proton synchrotron to 400 b.e.v. has been approved by the group's council. CERN (European Organization for Nuclear Research) first approved the project in 1971 for a level of at least 300 b.e.v. with option for a pause at 200 b.e.v. to be followed by introduction of superconducting magnets into the main ring. The recent decision means that the ring will be filled with iron-core magnets, and a direct move to 400 b.e.v. will be made without pause.

Pest control emerges as a top topic in U.S.-U.S.S.R., U.S.-China scientific exchange programs. Next month, Moscow and Kiev will host a joint conference on integrated pest management. Selected U.S. scientists, under a travel grant from USDA, will attend the conference and visit Soviet laboratories. Some may stay and work there. In turn, Soviet scientists will visit U.S. laboratories. Meanwhile, six Chinese specialists in insect hormone research are now touring U.S. government research centers, companies, and universities for six weeks. (For more on U.S.-China exchanges see page 11.)

Effect of vinyl chloride on the health of those who have worked with the material is the subject of a survey being administered by the Manufacturing Chemists Association and carried out by Tabershaw-Cooper Associates. Sponsor of the study is a group of chemical companies that handle vinyl chloride. Another study at Industrial Bio-Test Laboratories is determining effects on laboratory animals of long-term exposure to vinyl chloride vapors. The studies will supply data for the National Institute for Occupational Safety and Health.

Technology

Electricity from a "solar sea power plant" might cost less than that from offshore nuclear plants, gasified coal, and other sources, according to scientists at Carnegie-Mellon University. A multidisciplinary group, led by Dr. Clarence Zener, has received a \$190,000, 18-month grant from NSF to make a computer-based cost analysis of a potential system to generate power by exploiting temperature differences between surface and deep-lying waters in tropical seas. The proposed closed Rankine cycle system would use a working fluid vaporizing at ocean surface temperatures.

Coal-to-gas test runs have been lengthened considerably, according to the Institute of Gas Technology, Chicago. IGT has increased continuous operation of its Hygas pilot plant from a day or two at a time to more than 100 hours. The plant converts more than 3 tons per hour of Montana lignite into 900 to 1000 B.t.u.-per-cu.-ft., sulfur-free gas at pipeline pressure of 1000 p.s.i.

High-temperature nuclear reactor development has received a boost. Two more utilities—Northern States Power and Pacific Gas and Electric—have joined Gulf General Atomic's high-temperature gas-cooled reactor (HTGR) development program. In another move, a utilities industry group, High Temperature Development Associates, Inc., representing some 50% of power generating capacity in the U.S., has established a research fellowship at the University of California, San Diego, for work related to the advanced concept.

Japan's first nuclear ship sits idle in port more than eight months after completion, as fishermen who fear radioactive contamination of fishing grounds continue to oppose her trial runs. Officials of Japan Nuclear Ship Development Agency, owner of the 2400-

deadweight ton cargo ship *Mutsu*, scheduled trials from June 30 in the Japan Sea after canceling original plans to use her home port of Mutsu Bay. But the new plan was also canceled after fishing associations in three prefectures opposed the sailing.

A large solid waste disposal system for Tokyo is being studied by Dashaveyor Co., a subsidiary of Bendix Corp., under a feasibility study contract from the Japan Transportation Planning Association. One concept being considered involves a 35-mile system running about 100 feet beneath the city. Some 13,000 tons per day of waste would be brought to some 23 underground collection stations, where it would be compressed automatically into bales and loaded onto Dashaveyor vehicles for automatic travel to a remote disposal facility.

Passenger cars pollute water. In a more than year-long study, Biospherics, Inc., Rockville, Md., vacuumed sections of Washington area roads, analyzing the debris. It finds that traffic on all area highways, from Washington, D.C., to the Capital Beltway, drops 55 tons of pollutants per day, mostly from private cars. Included are asbestos (from brake linings), rubber (from tires), zinc (from oil and tires), lead (from gasoline), and other heavy metals and nitrogen and phosphorus compounds. Rain washes much of this pollution into the surface waters of the area, the company says.

Sorb-oil is being produced in western Europe. The non-sinking biodegradable material, developed by Seattle-based Innova Corp., absorbs up to 29 times its own weight of oil and is thus marketed for oil spill control and cleanup. Sorb-oil is being made by Isomo in Heule, near Kortrijk, Belgium. Daily output, initially set at 30 metric tons, is expected to rise to 200 metric tons in the next five years. Mitsubishi is licensed to make the product in Japan for Far Eastern markets.

A second new radial tire production method has been developed by Firestone. A year after disclosing a way to make radial tires on conventional equipment, the company says it now can make such tires using just a single, highly automated work station instead of the former two. Part of the new process involves using an expandable steel drum instead of the former central rubber bladder in building the tire.

Licensing of university-developed technology will be the subject of miniforums to be held at a number of universities by Dr. Dvorkovitz & Associates, an Ormond Beach, Fla., technology licensing firm. The miniforums—bringing together industry and university representatives—will be a prelude to the Second Annual International University/Industry Forum in Chicago next February. A just-ended miniforum at the University of Toledo has set the pace for the meetings at schools interested in but unable to attend the first international forum (C&EN, May 14, page 26).

An acid-soluble zirconium oxide is now available from Tafa/Ionarc, Bow, N.H., in pilot-plant quantities. The microcrystalline product is unique in that it dissolves readily in sulfuric acid, Ionarc says. The acid solution yields a disulfato zirconic acid that is water soluble and hence convenient for making zirconium compounds, including soaps for nontoxic paint and ink driers.

A fire-resistant plastic sheet has been developed by Sumitomo Chemical, Osaka, Japan. The company says the material, called Klimate, has a polyolefin resin as a principal ingredient and inorganic constituents imparting heat resistance. The sheet doesn't generate heat or toxic gases when burned, the company says. Expected uses include packaging and medical applications.