

TUESDAY

IDENTIAL

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DVC

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15

MAY 1973

Marionville

St. Louis

12, 1974

DATE April 23, 1974

REFERENCE 100B1-5.2.0

from SPI (Society of Plastics Industries)
C (Polyvinyl Chloride) and its precursor VCM

animal experiments appears very extensive,
sufficient for a valid statistical evaluation.
The safety for the PVC use as food containers,
and occupational preventive measures in the

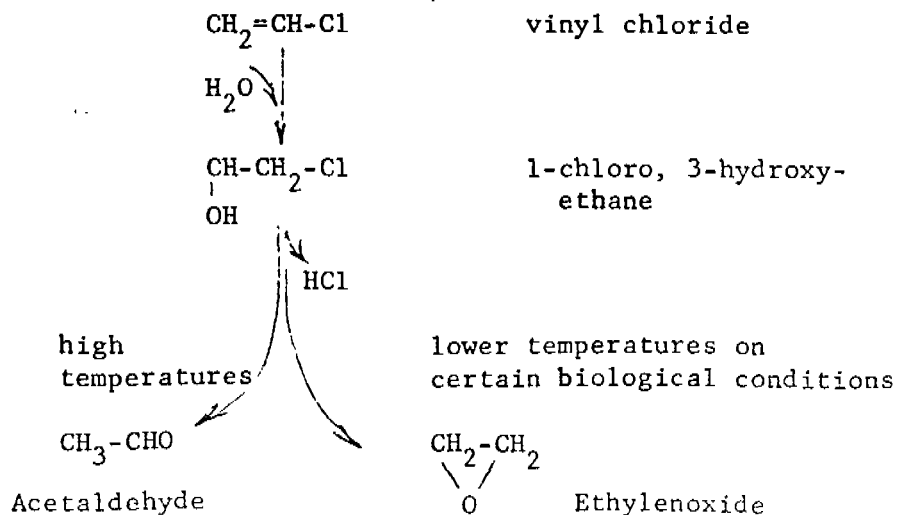
literature references concerning the
and VCM through the mammalian system. It
conditions of inhaled or directly absorbed VCM
thus also rapidly excreted. Higher con-
centrations cause oxygen deficiencies or in general
Under such conditions different chemical
reactions or formation of potential carcinogenic or
toxic substances. The mammalian system, in attempts to
eliminate them in the liver and skeleton, i.e.
Especially when hepatic pathways are
likely to interfere with DNA synthesis, and thus

VC metab?
need to say?

how about?
over all?
what is the
rate of decomp
(see 5/15/73 a trace of
135 TUES., MAY 15, 1973 230
water is left in the
oncogenic basis.

Similarly, during industrial processes synthetic and degradative inter-
mediates may be formed which could directly act as dermal, respiratory or hepatic
carcinogens. However, as above, at low concentrations the mammalian system may
readily metabolize, hydroxylate and excrete such products without detrimental
effects.

The following reaction may be postulated to occur under certain indus-
trial or biological conditions:



CUSAROSS 02186

CONFIDENTIAL

John C. Goff
JVC

FROM E. E. Sandmeyer AT Harmarville DATE April 23, 1974
TO Mr. R. E. Rutherford AT Pittsburgh REFERENCE 100B1-5.2.0
SUBJECT CONFIDENTIAL MEMO FROM SPI OF MARCH 12, 1974

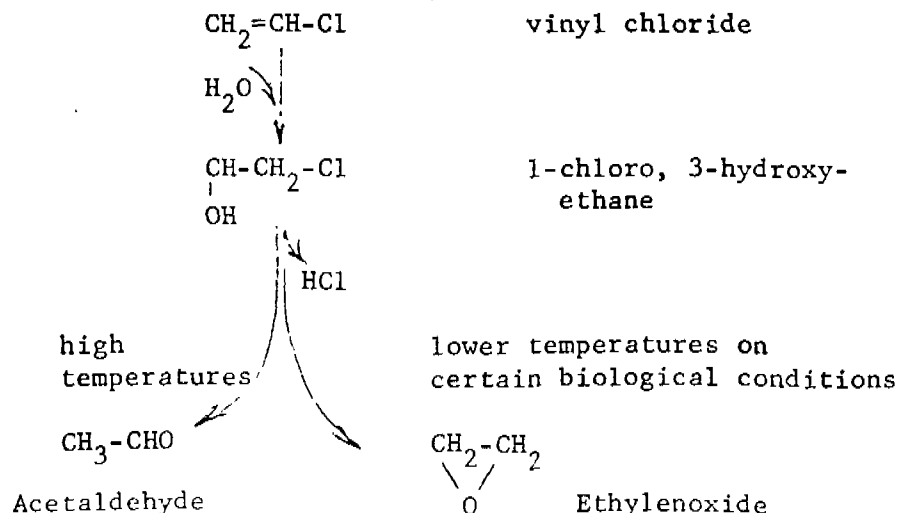
I have reviewed the memorandum from SPI (Society of Plastics Industries) counsel Mr. J. Heckman concerning PVC (Polyvinyl Chloride) and its precursor VCM (Vinyl Chloride Monomer).

The protocol for proposed animal experiments appears very extensive, and the number of animals appear sufficient for a valid statistical evaluation. This may suffice to evaluate consumer safety for the PVC use as food containers, but it would not cover aspects to study occupational preventive measures in the production of such containers.

So far I have not found any literature references concerning the metabolic and catabolic fate of PVC and VCM through the mammalian system. It is highly probable that low concentrations of inhaled or directly absorbed VCM are readily oxidized, conjugated and thus also rapidly excreted. Higher concentrations on the other hand, may cause oxygen deficiencies or in general decrease the rate of detoxification. Under such conditions different chemical reactions may occur and lead to the formation of potential carcinogenic or carcinogen potentiating intermediates. The mammalian system, in attempts to detoxify such products, may accumulate them in the liver and skeleton, i.e. at sites distant to the port of entry. Especially when hepatic pathways are involved, the accumulated compounds may interfere with DNA synthesis, and thus form the oncogenic basis.

Similarly, during industrial processes synthetic and degradative intermediates may be formed which could directly act as dermal, respiratory or hepatic carcinogens. However, as above, at low concentrations the mammalian system may readily metabolize, hydroxylate and excrete such products without detrimental effects.

The following reaction may be postulated to occur under certain industrial or biological conditions:



CUSAROSS 02187

Acetaldehyde

(dermal and respiratory
irritant and sensitizer)

Ethylenoxide

(highly irritant to eyes,
can cause pulmonary edema,
potent nutagen; possible
carcinogen)

In order to investigate these reactions, acetaldehyde in the light of the "Meat cutter's syndrome" and the ethylenoxide and chloro-hydroxy-ethane in view of the incidence of angiosarcoma, the experimental protocol might include the study of all of these compounds.

However, as preventative measures, good industrial hygiene and adequate local ventilation should prevent any health hazard.

E. E. Sandmeyer
E. E. Sandmeyer

EES/sma

cc: Dr. F. D. Gassaway - Pittsburgh
Dr. R. L. Gibson - Pittsburgh

