

March 22, 1982

To: B. R. Leach
EMIC

Subject: VC from PVC

The Dutch abstract which you sent me (Firon et al., Food and Cosmetic Toxicology, Vol. 19, pp 317 to 333 (1981) indicates that lifetime levels of vinyl chloride as low as 5.0 mg/kg body weight fed as a contaminant on PVC to Wistar rats produced cancer. The lowest level 1.7 mg/kg body weight produced a higher death rate and hepatocellular tumors. We are, of course, well aware that vinyl chloride is carcinogenic when exposure is via the respiratory route. In most cases, the route of administration is not important so the results are not surprising.

To assess the meaning in the workplace, I have assumed that a 70 kg worker breathes 400 cc 18 times per minute and works an 8 hr. day. Thus he breathes 3.5 M³/day of air. Assuming that he is working in a heavy dust area with a PVC dust exposure of 10 mg/M³, he would breathe 35 mg PVC/day. If this contained 0.1% VC (1,000 ppm) he would breathe .035 mg VC or a dose of $0.035 \div 70 = .0005$ mg/kg.

In a similar way, we can show that 1 ppm. VC in air would correspond to a dose of 0.13 mg/kg./day. We know that some men breathed hundreds of ppm/day. This confirms other evidence that man can tolerate much more VC than the rat (Dr. Rall estimated 500 times more).

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cc: J. D. Forbes, M.D.
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INTERCOMPANY CORRESPONDENCE

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