



MANUFACTURING CHEMISTS ASSOCIATION CHEMICAL RESEARCH

1825 CONNECTICUT AVENUE, N.W. WASHINGTON, D.C. 20009 (202) 483-6126 AUG 12 1974

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August 8, 1974

PLAINTIFF'S EXHIBIT

DOW-494

FK
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OCK
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LM

To: Technical Task Group on Vinyl Chloride Research

Subject: Odor Threshold for Vinyl Chloride

Gentlemen:

Mr. T. N. Wheeler has kindly provided us with the attached report from their plant laboratory on its determination of the odor threshold for vinyl chloride monomer. He suggests that prior estimates of employee exposure based upon odor intensity judgments be reevaluated in the light of these new data.

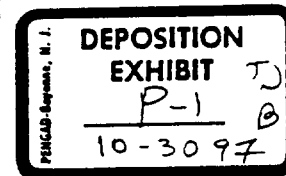
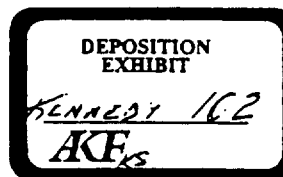
Sincerely,

Kenneth D. Johnson, Ph.D.
Secretary
Technical Task Group on
Vinyl Chloride Research

KDJ/mb

Enclosure

cc: Dr. D. P. Duffield
Mr. A. W. Barnes
Dr. Tiziano Garlanda



004-1974-00001302



VVC 000006069



UNION CARBIDE CORPORATION

PLANT LABORATORY

CHEMICALS AND PLASTICS

JUL 05 1974
R. N. WHEELER, JR.

SOUTH CHARLESTON PLANT
P.O. BOX 8004
SOUTH CHARLESTON, W.VA. 25303

VINYL CHLORIDE MONOMER THRESHOLD

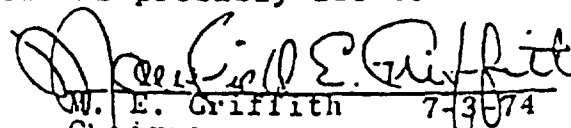
ODOR CONCENTRATION IN AIR

SUMMARY As the result of some discrepancies existing in the literature 1,2, for the Threshold Odor Level of vinyl chloride monomer in air, a study was initiated by the South Charleston Plant Odor Panel to determine the lowest detectable odor level of VCM in air. These data are tabulated in Table I.

DISCUSSION A series of six samples of vinyl chloride monomer and a blank were presented to the odor panel for determination of the Threshold Odor Level. The samples were prepared in increasing concentration over odorless distilled water in 250-ml Erlenmeyer flasks with stainless steel caps and submitted to a panel of seven people with instructions to record the first detectable odor. Each panelist tested the samples individually, so that there was no collusion among panelists.

A sample of the VCM vapor was then taken and analyzed by an AID Gas Chromatograph Model 511, hydrogen flame detector equipped with an 8 ft. column packed with Poropak Q 50-80 mesh. These data were corrected for the water vapor pressure and calculated to normal gas volume conditions, 0°C and 760 mm mercury. The tests and analytical data were duplicated.

CONCLUSION Individuals vary greatly as to the minimum concentration which is barely detectable. Our most sensitive odor panelists barely detected an odor of VCM at 1200 ppm. Normal odor detection level of VCM is at 2000 ppm. The normal detection level of VCM for the average untrained person is probably higher than 2000 ppm. An explanation as to why discrepancies have existed in the Threshold Odor Level is the fact that VCM is now a much purer commercial product than it was years ago and the odor detected was probably due to some impurity rather than VCM.

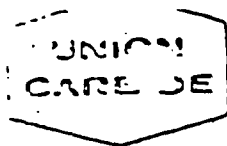

W. E. Griffith 7-3-74
Chairman
South Charleston Plant
Odor Panel

004-1974-00001305



Vinyl Chloride
Digital Process Instruments, Lexington, Mass.
(617) 222-7434

VVC 000006072



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P.O. BOX 8004
SOUTH CHARLESTON, W.VA. 25303

VINYL CHLORIDE MONOMER THRESHOLD

ODOR CONCENTRATION IN AIR

The Odor Panelists have been screened for proficiency by the Arthur D. Little, Inc., Co. and have an average of 10 years experience in odor detections and evaluations. These screening test results are on file in the South Charleston Plant Laboratory.

Mr. Griffith, the chairman and moderator of the testing program is a graduate chemist and a member of the American Society for Testing and Materials E-18 Committee. This committee was founded in 1960 to promote knowledge, stimulate research, state principles and develop recommended practices in all areas of sensory evaluation of materials and products. Fields of interest currently represented include air pollution, clothing and textiles, metals and appliances, beverages and liquors, manufactured food products, flavors and fragrances, agricultural commodities, naval stores, tobacco, chemicals, paints and varnishes, paper and plastics, telephone, railroads, petroleum and allied products, laboratory equipment, packaging materials and pharmaceuticals. He is currently co-chairman of a Task Group to develop a recommended practice for odor of chemicals. Mr. Griffith represents the Kanawha Valley Union Carbide Locations on this committee.

M. A. Aitken
Director of Laboratories

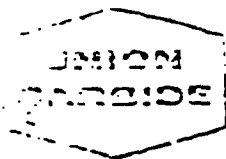
MAA/jjh

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Vinyl Chloride
Digital Process Instruments, Language Support
(304) 323-1050

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R. N. WHEELER, JR.

SOUTH CHARLESTON PLANT
P.O. BOX 8004
SOUTH CHARLESTON, W.VA. 26035

TABLE I

THRESHOLD ODOR LEVEL OF VINYL CHLORIDE MONOMER IN AIR

<u>Vinyl Chloride Monomer in Air ppm</u>	<u>Number of Panelists that Detected VCM Odor</u>
Blank	0
133	0
350	0
680	0
1200	2
1960	7
3800	7

004-1974-00001306



Vinyl Chloride
Digital Process Instrumentation, Calibration Report
(S&H) 122-1974

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