



DOW CHEMICAL U.S.A.

REV
B/E

Building B-101

OCCUPATIONAL HEALTH
TEXAS OPERATIONS
FREEPORT, TEXAS 77541



Accredited by
Accreditation Association
for Ambulatory
Health Care, Inc.

OCCUPATIONAL HEALTH SUMMARY REPORT

LOCATION: CHLORINATED ETHANE PRODUCTS

PERIOD COVERED: June 20 - August 30, 1990

MEDICAL:

C. K. Browdy M.D.
C. K. Browdy, M.D.
Occupational Health Associate

9-25-90
Date

INDUSTRIAL HYGIENE:

M. Blue
M. Blue
Industrial Hygienist

9-26-90
Date

APPROVED:

R. J. Cranston D.O.
R. J. Cranston, D.O.
Occupational Health Physician

27 Sept 90
Date

REVIEWED:

H. Janke Jr.
H. Janke Jr.
Superintendent

OCT 1/90
Date

xc: D. Cragar
R. Edeahl, M.D.
J. H. Lippman
Summary File See CEP chart for original /CB

R&S150958



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OCCUPATIONAL HEALTH SUMMARY REPORT

This is a voluntary participation program. The group population is 85. Twenty-eight individuals have current information and were not examined at this time. Fifty-seven individuals were examined between June 20, 1990 and August 30, 1990 for a 100% participation rate. Ten individuals were examined on the Vinyl Chloride Medical Surveillance Requirement (MSR) and four individuals were examined on the Noise MSR.

The Chemical and Physical Agent Inventory (CPAI) for the Chlorinated Ethanes plant shows that the chemicals of greatest concern are 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1-dichloroethane, 1,1,1,2-tetrachloroethane, vinylidene chloride, ethylene dichloride, chlorine, vinyl chloride, 1,1,1-trichloroethane, butylene oxide, ethyl chloride, nitromethane, 1,4-dioxane, asbestos, methylene chloride, methyl chloride, carbon tetrachloride, chloroform, cristobalite (SiO₂), quartz, and noise.

The 1988 Noise Survey is summarized in I. H. Report No. A24-3126CN. The eight-hour time-weighted average exposures for all job classifications except the Painters and the Boilermaker/Welders are less than 85 decibels on the A-scale. The Painters and Boilermaker/Welders are included in the Hearing Conservation Program.

The 1989 Industrial Hygiene monitoring data for chlorinated hydrocarbons is summarized in I. H. Report No. A24-3447-89C. Eight-hour time-weighted average exposures were evaluated for the following chemicals: vinyl chloride, vinylidene chloride, 1,1-dichloroethane, 1,1,1-trichloroethane, ethylene dichloride, 1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, and 1,1,2,2-tetrachloroethane. Potential exposures to vinylidene chloride were within the Permissible Exposure Limit (PEL) of 1 ppm except for the Control B Operator (CEP Unit Services), Control C Operator (Beta Tri/Vinylidene Cl.), Senior Assistant Chemist Class B (CEP Process Development Lab), and the Resource Group. Potential exposures to ethylene dichloride were within the Permissible Exposure Limit of 1 ppm except for the Control C Operator (Beta Tri/Vinylidene Cl.). Potential exposures to the other chemicals monitored were less than 5% of their respective PEL or Industrial Hygiene Guideline. Short-term personal exposures were monitored during specific job activities including vinylidene chloride tank car loading, the opening of the methyl ether hydroquinone (MEHQ) additive pot, vinylidene chloride drumming, and various maintenance activities. Exposures were within acceptable guidelines for all chemicals except vinylidene chloride. There were potential exposures during all monitored job activities that exceeded the PEL for vinylidene chloride. Respiratory protection is worn during these jobs. Engineering controls and/or changes in the job procedures have been planned to lower the potential exposures. The eight-hour time-weighted average exposures to vinyl chloride were well below the Action Level of 0.50 ppm and thus there are no job classifications covered by the OSHA Vinyl Chloride Standard. Dow has a Medical Surveillance Requirement for vinyl chloride and only the Control Operator B job classification in the CHLOROTHENE* Solvents plant will be followed on the Vinyl Chloride MSR.

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There are 22 TSCA 8(d) chemicals present. They are: 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1-dichloroethane, 1,1,1,2-tetrachloroethane, 1,1,1-trichloroethane, ethylene dichloride, 1,3-dioxolane, ethyl chloride, perchloroethylene, chloroform, dimethoxymethane, methylene chloride, hydroquinone, asbestos, methyl chloride, XAS 1467 (t-butyl glycidyl ether), cyclohexane, propylene oxide, phenol, toluene, methyl ethyl ketone, and methyl isobutyl ketone.

There were 44 audiograms done. There were five standard threshold shifts as defined by the OSHA Noise Standard. None of these individuals is in the Hearing Conservation Program.

Sixteen individuals have medical limitation of respirator usage based on initial screening of the medical examination data. Please see the attached list for medical limitation of respirator usage. If these medical restrictions interfere with an employee's job requirements, further evaluation at the Occupational Health Department should be arranged to fully assess the need for medical limitation of respirator usage.

The liver is considered the main target organ for vinyl chloride and the other chlorinated hydrocarbons present. Five individuals of the 51 tested had mild elevations of one of the five liver enzymes we test. None of these individuals is in the job classification followed on the Vinyl Chloride MSR. These results are considered a below average pattern in a group of this size and does not suggest any toxic effect influencing the results of this group.

Individuals with life-style factors amenable to medical or dietary intervention include the following: twelve smokers, 38 individuals who are overweight, seven individuals with hypertension, and 26 individuals with elevated cholesterol levels. Please contact the Up-With-Life Program (X-4334) for assistance in modification of these life-style risk factors.

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Attachment

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ATTACHMENT

September 25, 1990

MEDICAL LIMITATION OF RESPIRATOR USAGE

The following twelve individuals may wear respirators for escape only:

The following four individuals may wear self-contained breathing apparatus (SCBA) only under the conditions specified by the individual respirator field tests :

- (climb 20 feet and block valve in emergency situation)
- (climb 35 feet and block valve in emergency situation)
- (climb 15 feet and block valve in emergency situation)
- (climb 60 feet and block valve in emergency situation)

The following 69 individuals have no medical limitation of respirator usage:

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