



REVIEWED

Building B-101

The Dow Chemical Company
2301 N. Brazosport Blvd.
Freeport, Texas 77541-3257

OCCUPATIONAL HEALTH SUMMARY REPORT

LOCATION: CHLORINATED ETHANE PRODUCTS

PERIOD COVERED: July 18 - November 7, 1994

MEDICAL:

C. K. Browdy, MD

12-20-94

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

Date

INDUSTRIAL HYGIENE:

J. Jurgiel

12-27-94

J. Jurgiel
Industrial Hygienist

Date

REVIEWED:

D. G. Allen

1-25-95

D. G. Allen
Superintendent

Date

cc: L. J. Burmeier
S. C. Carrington
Summary File

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OCCUPATIONAL HEALTH SUMMARY REPORT

This is a voluntary participation program. The group population is thirty-seven. Twenty-five individuals had current information and were not examined at this time. Twelve individuals were examined between July 18, 1994, and November 7, 1994, for a 100% participation rate.

The Chemical and Physical Agent Inventories (CPAI) for Chlorinated Ethanes products (CEP), Beta Tri/Vinylidene, CEP Process Development Lab, CEP Technical Center, CEP Unit Services, and CHLOROETHENE* Solvents show that the chemical and physical agents of greatest concern are vinylidene chloride, 1,1,2-trichloroethane, chlorine, ethylene dichloride, 1,1-dichloroethane, AEROTHENE* TT Inhibitor, DOWCLEN* LS Solvent, and AEROTHENE* TT. The Control B Operators and the PRG Control B Operators will be followed by liver profiles because of potential exposure to vinylidene chloride above the Threshold Limit Value for two years. The remaining job classifications will be followed on the periodic core examination. Two individuals are followed on the OSHA Benzene Exit Medical Surveillance Requirement (MSR).

The 1990 Industrial Hygiene monitoring data is summarized in I. H. Report No. A24-3447-90C. Eight-hour time-weighted average exposures for 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 were well below the recommended exposure guidelines. Short-term personal exposures were monitored during specific job activities including vinylidene chloride drumming and tank car loading procedures, line openings, and methyl ether hydroquinone (MEHQ) addition. Exposures were within acceptable guidelines for all chemicals except vinylidene chloride. The acceptable guideline for vinylidene chloride was exceeded during vinylidene chloride drumming and tank car loading, filter changing, and during MEHQ addition. Full face air purifying respirators with organic vapor/acid gas cartridges (OVAG) were used during the opening of the MEHQ additive pot and half face air purifying respirators with OVAG cartridges were used during vinylidene chloride drumming. After the monitoring data was received, the use of full face airline respirators was implemented for vinylidene chloride drumming.

The 1991-1992 Industrial Hygiene monitoring data for short-term personnel exposures is summarized in I. H. Report No. A24-3578C-91. Chemicals evaluated included vinyl chloride, vinylidene chloride, 1,1-dichloroethane, 1,1,1-trichloroethane, ethylene dichloride, 1,1,2-trichloroethane,

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1,1,1,2-tetrachloroethane, and 1,1,2,2-tetrachloroethane. Exposures to butylene oxide were also evaluated during tank car unloading activities. All exposures were within acceptable guidelines with a few exceptions. A few samples exceeded the acceptable guidelines for vinylidene chloride and/or ethylene dichloride during process sampling in the Beta-Tri/Vinylidene Chloride area and during drumming activities. Respiratory protection was used during these activities. Closed loop sampling systems have been installed in the Chlorinated Solvents and Beta-Tri/Vinylidene Chloride plants and a ventilated enclosure has been constructed around the drumming lance area.

The 1991 Noise Survey is summarized in I. H. Report No. A24-3758-91N. Personal eight-hour time-weighted average exposures were less than 85 decibels on the A-scale for all monitored job classifications. These job classifications are not in the Texas Operations Hearing Conservation Program.

There were nine audiograms done as part of the periodic core examination. There were no standard threshold shifts as defined by the OSHA Noise Standard.

Nine individuals have 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 individual'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 vinylidene chloride and the other chlorinated hydrocarbons present. There were no liver enzyme elevations in this small group.

Attachment

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December 20, 1994

MEDICAL LIMITATION OF RESPIRATOR USAGE

The following eight individuals may wear respirators for escape only:

may wear a positive-pressure supplied-air (airline) respirator or a negative-pressure respirator. He may not use a self-contained breathing apparatus (SCBA) for other than escape.

The following twenty-eight individuals have no medical limitation of respirator usage:

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