

REV
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LOUISIANA DIVISION INDUSTRIAL HYGIENE REPORT
AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY

<u>DEPARTMENT</u>	<u>FILE NUMBER</u>	<u>DATE</u>
CHLORINE I	LAD-CL ₂ -8801	8-25-89
<u>TITLE</u>		
CHLORINE I INDUSTRIAL HYGIENE REPORT - 1988		
<u>AUTHOR'S SIGNATURE</u>		
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<i>William E. Luford 9/12/89</i>		

SUMMARY/RECOMMENDATIONS

1. Summary:

The employees that had a likelihood for exposure in their jobs to chlorine were monitored using approved sampling and analytical methods. A noise survey for the entire plant was also conducted.

2. Conclusions and Recommendations:

Results from the chlorine monitoring showed no significant changes in the exposure levels to employees. The monitoring of chlorine will continue for 1989.

Results from the previous 3 years (1985/86/87) for asbestos and caustic mist indicated no potential problems. These samples were not collected for 1988.

The noise survey showed no areas with noise levels above 94dB.

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INDUSTRIAL HYGIENE ACCOMPLISHMENTS - 1988

1. I-H Training
Completed training for Operations and Contract personnel.
2. Personnel Monitoring
Monitoring for chlorine was conducted on all classifications in the plant.
3. Noise Survey
Overall noise levels were down due to installation and repair of insulation in the plant.
4. Asbestos Removal
Removed several large sections of asbestos insulation from the plant. This will continue through 1989.
5. PCB Contaminated Oil and Equipment
Removed four obsolete PCB contaminated pieces of equipment. Approximately 20,000 gallons of PCB contaminated oil was treated and re-classified as non-contaminated.

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SAMPLING AND ANALYTICAL METHODS

1. Chlorine: Monitoring is done utilizing a "Wolcott" chlorine sensor probe interfaced with a microprocessor for obtaining results. Both time weighted average and excursion data can be obtained using this equipment.
2. Noise: Area surveys are conducted using a Model 2205 Bruel & Kjaer Sound Level meter.

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CHLORINE EXPOSURE EVALUATION

Explanation of Guidelines and Sampling Method

The OSHA exposure limit for chlorine is a 1 ppm ceiling limit. A ceiling limit is an exposure limit that should not be exceeded for any period of time. Operators are required to carry mouthbit respirators at all time. These are designed for escape purposes only. If required to work in a chlorine atmosphere, half-face or full-face respiratory protection must be utilized.

Exposure

Chlorine gas is irritating to the eyes, nose, throat, and lungs. At high concentrations there can be a burning sensation to the skin.

Personnel Monitoring

Forty-eight full shift samples were collected in 1988. All time-weighted average exposures were below 0.1 ppm. Several samples contained peak or excursion levels that exceeded 1 ppm. The attached Data Summary Table contains the highest 30 second chlorine concentration from each full shift personnel sample taken as part of the Dow-Tulane Chlorine Epidemiology Study. For the most part, the data has not changed substantially from 1987 to 1988. The respirator usage switch activity which is recorded by the data logger shows that respiratory protection was worn during many of the excursions.

Sampling Strategy Plan

Sampling strategy will continue as in the past three years, collecting data from all job classifications. Because the Dow-Tulane Chlorine Epidemiology Study is coming to a close, the number of samples collected will be reduced during 1989.

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1988 INDUSTRIAL HYGIENE SURVEY SUMMARY

It is the responsibility of employers to annually determine employee exposure to potential health hazards in the work area and report the results to all involved personnel. The employee is also to be informed of the toxic and hazardous properties of these chemicals and physical agents, the limits they may be exposed to without danger, the symptoms of overexposure, and what they should do to prevent overexposure.

ENVIRONMENTAL HAZARDS MONITORED IN CHLORINE I BLOCK

CHLORINE

1 PPM Ceiling

NOISE

85 db(A)

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