

CELANESE CHEMICAL COMPANY
BAY CITY PLANT

PLAINTIFF'S
EXHIBIT
CEL-139

TO: MR. R. C. REITZ

FROM: H. P. HEATHMAN

HPH-50-73

JANUARY 26, 1973

SUBJECT: SURVEY OF AIR CONTAMINANTS IN SELECTED AREAS OF ADIPIC ACID AND
NYLON SALT UNITS

A survey of areas of possible non-compliance with OSHA regulations on air contaminants was made in the Adipic Acid (ADA) and Nylon Salt (NS) Units¹. The sampling was done in a manner to measure maximum concentrations of contaminants that might be experienced.

Methanol

The methanol content of the air was measured around the feed to the NS dryers, the NS centrifuges, and the NS bagging area. Sampling was done on November 13, 1972, with a north wind of approximately 15 mph and on January 15, 1973, with a south wind of approximately 8 mph.

The areas around the NS dryers and bagging area were in compliance on both occasions for a man to work for eight hours in the area. The OSHA regulation for methanol is 0.02 percent (200 ppm) for an eight-hour average exposure. The area around the NS centrifuges was found to contain 800 ppm methanol on November 13, 1972. On January 15, 1973, the same area was found to contain 3,000 ppm methanol. During this survey on January 15th, two Arthur Brothers employees were found emptying nylon salt from bags into a centrifuge discharge chute. The methanol content of the atmosphere where these men were working was measured to be 30,000 ppm. This operation was stopped when brought to the attention of unit supervision.

The amount of methanol in the atmosphere around the NS centrifuges will have to be reduced. This can be done by giving close attention to the seals on the equipment and by covering and sealing the exposed equipment when a centrifuge chute is removed for cleaning. Nylon salt that is to be rerun should never be fed into an open centrifuge discharge chute.

Ammonium Metavanadate Dust

On January 19, 1973, a dust sample was taken during the addition of ammonium metavanadate (AMV) to the ADA Unit catalyst mix tank. The sampler was positioned at approximately 5.5 feet above the floor and 2 feet from the catalyst addition point to simulate where a man would stand. The sampler was run for seven (7) minutes while four hundred (400) pounds of AMV was added. The AMV (calculated as V₂O₅) measured was 1.2 mg/m³. The OSHA regulations specify that the ceiling limit (concentration never to be exceeded) is 0.5 mg/m³.

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The ceiling limit is exceeded whenever AMV is added to the catalyst mix tank. However, it only takes 8-10 minutes to add the AMV and this is done at most once a day. I believe that the best solution to this problem is to require the operator to wear a dust mask for the 8-10 minutes required for this task.

Nitrogen Dioxide

The nitrogen dioxide content of the area around the two table filters was measured on November 13, 1972, and January 15, 1973. The nitrogen dioxide content of the air downwind of the filters and on the floor was measured to be 1 ppm on November 13th and < 1 ppm on January 15th. The fumes coming out of the covers on the table filters was measured at 50 ppm on November 13th and 5 ppm on January 15th.

The OSHA regulations on nitrogen dioxide specify a limit of 5 ppm for an eight-hour average exposure. The above data indicates we are in compliance with OSHA regulations but at times we have localized high concentrations. The ADA Unit was surveyed by two OSHA inspectors on January 23, 1973, and their survey found we were in compliance (< 2 ppm on each sample). Although we are in compliance on nitrogen dioxide, this is an area where careful watch should be kept for sources. These sources could be given the attention needed to eliminate them.

H. P. Heathman
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mff

cc: Messrs. J. A. Bousquet, Jr.

B. A. Melaas

K. A. Dunn

B. H. Shield

E. E. Abels

L. E. Hackfeld

W. H. Meyer

C. J. Duey

F. T. Talbert

Central Files (2) - CCCTC

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References

¹Duey, C. J., Meyer, W. H., Lehman, D. R.; "OSHA Committee on Air Contaminants and Ventilation", CJD-119-72, WHM-520-72, DRL-85-72; September 27, 1972.

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