3RD QUARTER 1982

INDUSTRIAL HYGIENE SUMMARY

Alathon® Division - S. W. Ellis/C. M. Beck

1. General

a. Varsol® is a mixture of 30 to 40 components. After receiving a sample of the specific Varsol® to be used for solvent cleaning of "F" Unit, a procedure was developed for analyzing for exposure to Varsol® using carbon tubes and gas chromotography.

"SAFETY IS MY RESPONSIBILITY"

INDUSTRIAL HYGIENE SUMMARY - (cont'd)

Alathon® Division - (cont'd)- S. W. Ellis/C. M. Beck

2. "J" Unit

a. Hydrocarbon monitoring (seventy-six samples) was conducted during the annual shutdown on twelve pieces of equipment using the TLV meter. All results were below the TLV of 100 ppm for hexane and toluene and the P.O.L. of 100 ppm for octene.

b. Monomer Purifiers - Dust Monitoring

Two mechanics were monitored for dust exposure while emptying the north monomer purifier. The results were 6.08 and 6.63 mg/m^3 TWA/8 hr which is above the TLV of 5 mg/m^3. Respiratory protection was worn and will be required on future jobs.

Two samples taken while filling the north and south monomer purifiers were .63 and .67 mg/m^3, well below the TLV. No respiratory protection is required for this job.

c. Low Pressure Separator Cold Stripping - Hydrocarbon Monitoring

Five mechanics were monitored for hexane, octene and toluene exposure while cold stripping No. 1 and No. 2 Low Pressure Separators. The highest sample result was: hexane 0.14 ppm TWA/8 hr; octene 0.01 ppm TWA/8 hr; and toluene 0.03 ppm TWA/8 hr. All results were well below the maximum TWA/8 hr. exposure limits of 100 ppm. To date, three series of samples have been completed. Three more series are required to complete statistical analyses per Std S-12T guidelines.

Eighteen readings for hydrocarbons were all 0 ppm.

Reaction Area Lighting Improvements COD 3869 - R. C. Otworth

A COD was approved to install more lighting on the first floor of the Reaction Building. Work is done in this area at night quite frequently, and the present lighting is inadequate for a thorough examination of area equipment.

Work will be done in the 4th Quarter of 82.

Restricted Lift Relief Valves - J. Valdez

In April, 1981, we discovered that Dresser Industries had redesigned their Consolidated 1905, 1906, and 1910 type safety relief valves with "D" or "E" orifice size. These relief valves are now supplied with an "F" orifice size and a restricted lift to give the appropriate relieving capacity. Three of the nine restricted lift relief valves found on the Victoria Plant were installed in "J" Unit. A formal incident report (IR 81-34) was issued to cover the investigation.

Two of the installed relief valves are on the comonomer pump bypass line. These valves were shopped in June, 1981 to verify the "F" orifice and the proper required lift for an equivalent "D" orifice. The third valve is on the HBC preheater and was shopped in October, 1981.

Dresser Industries agreed to supply DuPont with conventional full lift relief valves in the "D" or "E" orifice size in November, 1981. Three new valves were purchased per COD 3538. The two relief valves on the comonomer bypass line were replaced in July, 1982. The relief valve on the HBC preheater was replaced during the annual shutdown (August, 1982). The restrict lift relief valves which will be removed will be sold as scrap.

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Malathon® Division (con'td) - S. W. Ellis/C. M. Beck

d. Additive Mix Tanks - Toluene and Hexane Monitoring

During the second quarter toluene leakage around the agitator seals on #1, #2 and #3 Additive Mix Tanks continued to be a problem requiring respiratory protection while working around tanks. In June a COD was completed to provide a vent system to remove the toluene vapors. Seventeen samples on June 22nd and 15 on June 24th indicated that the vent system was operating properly. All TLV meter readings were less than 5 ppm. The requirement for respiratory protection for this job has been eliminated while mixing toluene solutions.

TLV meter readings on September 2nd and 3rd indicated toluene was 30 ppm or less indicating loss of sealing around the mix tank agitator seals. A COD completed on September 28 provided for a better mix tank agitator shaft seal design. TLV meter readings on September 29th and 30th indicated that the toluene level was reduced to 5 to 15 ppm outside the vent system. Monitoring will continue to assure that toluene levels stay well below requirements for respiratory protection.

On June 24th, night shift, in preparation for deactivator EODs, hexane was put into #1 and #2 Additive Mix Tanks and the pressure was raised to 35 psi. TLV meter readings indicated hexane levels from 20 to 300 ppm were present around the top of the mix tanks. While mixing additives, area monitoring using charcoal tubes indicated hexane was 140 ppm. Two operators were monitored and had hexane exposure of 14 and 20.5 ppm. Respiratory protection was worn. This data indicated that respiratory protection could be needed during the EOD.

The Additive System will be monitored for hexane in October when an E.O.D. is performed which requires the tank pressure to be raised to 30 to 35 psi. Respiratory protection will be worn.

3. "F" UNIT

a. Task Monitoring-Vinyl Acetate

Seven different mechanical tasks were monitored for exposure to vinyl acetate. All fifteen samples were less than 4.7 ppm TWA, well below the TLV-STEL of 20 ppm and the 8 hr. TLV-TWA of 10 ppm. The average exposure was 0.62 ppm. Respiratory protection was worn while tasks were being performed and will be continued to collect sufficient data for statistical analysis.

Alathon® Division (cont'd) - S. W. Ellis/C. M. Beck

b. Personal Monitoring - Vinyl Acetate

The Production foreman and five operator jobs were monitored for vinyl acetate exposure while producing 18% vinyl acetate copolymer. All forty samples were less than 6.6 ppm 12 hr. TWA. The DuPont AEL for 12 hour exposure is 10 ppm.

c. Task Monitoring - Waste Vinyl Acetate

Waste vinyl acetate is disposed of at the Nylon Power House. Fifteen personal monitoring samples were taken during the dumpster connecting, unloading and disconnecting operation. All samples except one were below 2.6 ppm TWA/8 hr., well below the TLV-TWA of 10 ppm. One sample result of 94.4 ppm exceeded the TLV-STEL of 20 ppm. Thirteen stationary samples sampled downwind during the same time were below 1.4 ppm TWA/8 hr., well below the TLV-TWA of 10 ppm. One sample result of 44.9 ppm exceeded the TLV-STEL of 20 ppm. Investigation of causes for the one high result is underway.

d. Personal Monitoring - Varsol®

Thirteen operators were monitored for Varsol® exposure during the Varsol® cleaning during the annual shutdown. All thirteen samples were below 11.3 ppm, well below the PEL of 100 ppm TWA/8 hr. recommended by Haskell Laboratory. Respirators are not required for these jobs.

e. Task Monitoring - Varsol®

Ten mechanics were monitored for Varsol® exposure during the Varsol® cleaning during the annual shutdown. All ten samples were below 12.5 ppm, well below the PEL of 100 ppm TWA/8 hr. recommended by Haskell Laboratory. Respirators are not required for these jobs.

f. Stationary Monitoring - Asbestos

Fourteen samples at four locations in the Compressor Building were taken while the transite roof was being cut. The highest result was .017 fibers > 5 MM/cc well below the TLV of 2 fibers > 5 MM/cc. This information was transmitted to Construction who had personnel in the area and performed the job.

4. SHOPS AND SERVICES - C. M. Beck

a. Central Shops

1. Construction of the relief valve testing booth has been completed except the installation of interior acoustical tiling. T. A. Dear (ESD) should be on plant in early October to test the effectiveness of the structure.

2. Foam has been installed on the interior of the balancing grinder enclosure. Octave band analyses done before and after foam installation shows a reduction in the amount of noise over the background level. Employees in the area note a great reduction in higher frequencies.

3. Ventilation measurements taken on the Ruemelin fume exhaust system indicated cone placement at twelve inches from the point of welding did not provide adequate exhaust velocity. Placement should be at eight inches to meet the DuPont standard of 100 fpm (H1U). Measurements taken on the Rollaway portable dust collector also indicated substandard performance. Hood arm replacement has corrected the situation.

4. Ten samples of welding fumes in confined spaces have been taken. The 8 hr. TWA for total welding fumes was exceeded twice in #6 Boiler. Metal analysis of the samples shows no other overexposure based on an 8 hr. TWA, however several metals are present in significant quantities. LOGAN analysis of the data suggests further monitoring is needed.

5. Twenty samples of welding fumes in the shop have been taken. One sample exceeded the 8 hr. TWA for total welding fumes. Metal analysis is awaited.

6. Monitoring of a brazing job for four days showed an 8 hr. TWA exposure to lead more than six times the OSHA = PEL one day and significant zinc exposures the other three days. Use of a flux suspected containing lead has been discontinued and a 9920 3M respirator is now required for brazing flux jobs.

4. SHOPS AND SERVICES (cont'd) - C. M. Beck

7. A heat stress study was made with a Reuter Stokes RSS-211D Heat Stress Monitor to determine the effectiveness of a wall removal. No definite change was measured, although many have remarked on cooler conditions. The major sources of the high temperatures are radiant heat from the roof and lack of crossflow ventilation through the Shops.

B. CARPENTER SHOP

1. A heat stress study was started in the Carpenter Shop, but was not completed due to failure of the heat stress monitor. The monitor is currently being repaired.

2. An octave band analysis was made on all major Carpenter Shop equipment. The planer is over 87 dBA throughout the entire shop and should be isolated. Recommendations were made concerning the shop's hearing protection program and use of hearing protection.

3. A galvanized welding job was monitored in the sheet metal shop. The 8 hr. TWA for copper exceeded the OSHA PEL and zinc was present in a significant amount. These results support the requirement for the 3M 9920 respirator for this particular job.

C. GARAGE

1. The Varsol® cleaning task was monitored in the garage. While Varsol® levels exceeding the TLV are created, the task lasts a maximum of one hour per shift. The 8 hr. TWA is well below the DuPont AEL.

NECESSITY

Catalyst and Cocatalyst △P Control - COD 3972 - R. C. Otworth/ T. R. Armusewicz

The control strategy for the catalyst and cocatalyst discharge pressures was changed from straight pressure control to differential pressure control. The computer monitors pump discharge pressure and #1 Reactor pressure, and compares it to an operator set △P goal. It makes changes in discharge pressure when necessary to keep the actual △P near the goal.

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