PRIVILEGED AND CONFIDENTIAL

RUDY E. PODHORA
INDUSTRIAL HYGIENE DEPARTMENT
POINT COMFORT OPERATIONS

1979 September 07

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C O N F I D E N T I A L

RE: SUMMARY OF RESPIRATORY PROTECTION FOR POTROOMS

PLAINTIFF'S EXHIBIT AL-1495

I. BEFORE DECEMBER 1974

A. No mandatory respiratory protection for pot attendants and other laborers. Used variety of respirators - mainly for dust, few for organic vapor.

B. Cool hats used by electrode personnel.

II. AFTER OSHA INSPECTION

A. Citations/potmen in three sections. (Dec. 23, 1974)

B. Initiated mandatory respirator useage in those 3 sections. Used MSA Gasefoe with filter.

C. Alcoa contested citation.

D. OSHA dropped citation on basis of questionable analysis for benzene solubles.

E. A398 unit installed - May 1975

1. Potroom cut backs in production

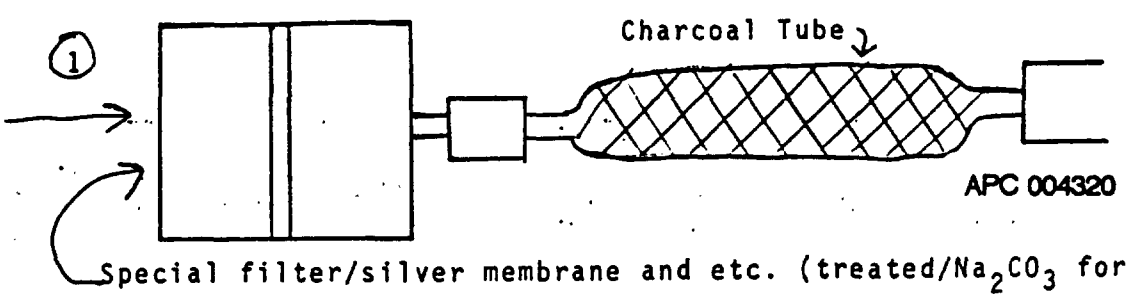
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F. Potroom characterization study 1976

1. Found that we had organic compounds.

2. Tech. Center developed methods for precise analyses.

G. Sampling Set-up



2. Analysis for organics

a. desorb filter and charcoal tubes via benzene extraction

b. (now use cyclo hexane extraction due to benzene hazard)

H. Numerous consultations with Messers. George Farrah and John Plunket and Tom Bonney.

I. Learned that we were dealing mainly with organic compounds of the cyclic or benzene ring type.

1. Analyses separated into < 4 rings or > 4 rings. Benzo-a-pyrene = > 4 rings.

2. Most compounds here are > 4 rings. (heavier ~~lighter~~ fraction)

3. Some compounds are revolatilized off the filter paper. (from George Farrah)

4. Rudy E. Podhora worked with 3M to develop respirator for toxic dusts, and fumes, acids gases and organic vapors.

III. APRIL 30 - MAY 1, 1978 POTROOMS SHUT DOWN

A. February, March and April 1979 worked on development of respirators/potrooms.

B. Decided that since OSHA knows we have organic compounds, fluorides and particulates we should use equipment designed specifically for the exposure.

1. Discussed problem with potroom management.

2. Tried different types of respirators; considered:

a. weight

b. fit

c. acceptance

d. performance

3. F. A. Sharkey recommended using a treated prefilter over the cartridge based on successful results of low urinary fluorides in Brazil. (Tests conducted in Brazil) See test results. Brazilian's wear respirators.
4. R. E. Podhora worked with 3M to get them to make 3"Ø treated filters of same material as the 3M 8706 blue mask for F^-'s. Contact person consulted their (3M) marketing persons and 3M refused to make - (3M on a MSA respirator = NIOSH MSHA approval problems.)
5. Obtained 3M treated filters from Rockdale to make prefilters.
6. Cut up 3M 8706's (2/each) for prefilters
7. Industrial Hygiene Department developed method for treating filters with Na_2CO_3 solution and blue dye (methylene blue) L.F

C. Started respirator cleaning facility in March 1979 (Tri-Wholesale)
Cost = $2.80/respirator
Per Federal Regulations Respirators cleaned every 30 days.
1. Tri-Wholesale now treats the prefilters @ $0.02/each.

D. Respirator fitting program started August 08.

E. Respirator useage and care training program started August 28.

Rudy E. Podhora

RUDY E. PODHORA

BASIS: 1 PERSON FOR 1 YEAR

I. MSA RESPIRATORS - COMFO II

A. Face Pieces - Expect 1 Year Life.

Cost = $ 8.15/YR

B. Cartridges - OV/AG Require 2/person

Life = 4 weeks or 1 pair/month

Cost = 2 x $1.70/each x 12/year $ 40.80

C. Respirator Cleaning (every month)

Cost = $2.80 x 12 times/year = $ 33.60

D. Prefilters

Cost = $0.25/each + $0.02/chemical treating

Useage = 1 pair/3days

Cost = $.27 x 22 days/month x 12 month/year x 2 person x 1/3 days life = $ 47.52

Σ A, B, C & D = $130.07

II. 3M9910 LIFE = 3 DAYS PER 3M CLAIM

A. Cost = $1.50/each x 22 days/month x 1/3 days life x 12/months/year = $132.00/YR

B. Life = 2 days

$1.50/each x 22 days/month x 12months/year x 1/2 days life = $198.00/YR

C. Life = 1 day

$1.50/each x 22 days/month x 12months/year x 1 days life = $396.00/YR

RE: MASK EVALUATION

IN FEBRUARY TESTS WERE MADE TO COMPARE VARIOUS RESPIRATOR-CARTRIDGE-FILTER ARRANGEMENTS IN OUR SEDERBERG POTROOM WORK ENVIRONMENT. THE TEST RESULTS WERE COLLECTED AFTER 5 WORKING DAYS ON GROUPS OF 10 OPERATORS. THE RESULTS WERE AS FOLLOW:

GROUP I - BRAZILIAN VANGUARD RESPIRATOR WITH CHARCOAL CARTRIDGE AND PAPER PRE-FILTER PEOPLE SURVEYED - 10.
FLUORIDE URINE AVERAGE 9.0 P.P.M.
7 WORKERS IN GROUP ABOVE 8.0 P.P.M. HIGHEST VALUE - 22.5.5.

GROUP II - BRAZILIAN VANGUARD RESPIRATOR WITH CHARCOAL CARTRIDGE AND PRE-FILTER CUT FROM 3 M - 8706 MASK (PRE-FILTER WAS NOT CHANGED DURING TEST) PEOPLE SURVEYED - 10.
FLUORIDE URINE AVERAGE 4.2 P.P.M.
1 WORKER IN GROUP ABOVE 8.0 P.P.M. HIGHEST VALUE- 9.8 P.P.M.

GROUP III- M.S.A COMFO II MASK WITH TWO CARTRIDGES AND TWO PRE-FILTERS (STANDARD)
PEOPLE SURVEYED - 9.
FLUORIDE URINE AVERAGE 11.8 P.P.M.
5 WORKERS ABOVE 8.0 P.P.M.
HIGHEST VALUE - 27.6 P.P.M.

GROUP IV - M.S.A. COMFO II MASK WITH TWO CARTRIDGES AND TWO PRE-FILTERS CUT FROM 3 M-8706 MASKS (PRE-FILTER WAS NOT CHANGED DURING TEST). PEOPLE SURVEYED - 8.
FLUORIDE URINE AVERAGE 5.2 P.P.M.
1 WORKER IN GROUP ABOVE 8.0 P.P.M. HIGHEST VALUE-10.3 P.P.M

ALCOMINAS IS PURCHASING 3 M-8706 MASKS TO BE CUT INTO PRE-FILTERS FOR USE IN THE BRAZILIAN VANGUARD MASK. WE ARE ALSO INVESTIGATING THE POSSIBILITY OF BUYING PRE-FILTERS CUT FROM THE SAME MATERIAL USED IN THE 3 M-8706 MASK.

PREVIOUS RESULTS FROM THE 3 M-8706 MASK HAD INDICATED ITS EFFECTIVENESS IN FLUORIDE PROTECTION. NOW ITS USE AS A PRE-FILTER IN THE VANGUARD ALSO ALLOWS USE OF THE CHARCOAL CARTRIDGE.

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