



Interoffice Communication

To Jerald Uptain
From Owen Tubb
Date May 5, 1976
Subject 4 April Summary of Personnel Dosimetry

RECEIVED

MAY 12 1976

MEDICAL DIV.

Listed below are the personnel dosimetry results for the month of April. A total of 103 samples were taken using the gas bag method for an eight (8) hours TWA.

The results are as follows:

.0-1.0 ppm vcm	97	94.18%
1.0-5.0 ppm vcm	5	4.85%
5.0-25.0 ppm vcm	1	0.97%
25 + ppm vcm	0	0.0 %
Total	103	100 %

One employee was exposed to more than 5.0 ppm but less than 25.0 ppm. "Bud" Stone, Large Reactor operator, was exposed to 6.34 ppm vcm while changing out VCM filters. He was wearing respiratory protection.

A total of five (5) employees were exposed more than 1.0 ppm vcm but less than 5.0 ppm vcm. They are as follows:

Cecil Ray, transportation warehouse worker was exposed to 2.90 ppm while transferring "fresh" resin from staging area to the East warehouse. He was not wearing respiratory protection.

Charles Hawkins, Large Reactor operator, was exposed to 2.34 ppm while changing vcm filters. He was not wearing respiratory protection.

Joe Trimble, transportation warehouse worker, was exposed to 1.67 ppm while transferring "fresh" resin from staging area to the East warehouse. He was not wearing respiratory protection.

"Bud" Stone, Large Reactor operator, was exposed to 1.31 ppm while manually rinsing out a reactor. He was not wearing respiratory protection.

Bob Morgan, vinyl dryer utility, was exposed to 2.0 ppm while working in the V-11 dryer building. He was not wearing respiratory protection

Owen Tubb
Owen Tubb, Industrial Hygienist

OT/jl

cc: RAD, GGD, Department Heads, DAK, Houston, ODS, Ponca City

VAB.0001050350

Owen Tubb - Aberdeen

Oran D. Steffey - Ponca City, Oklahoma

March 24, 1976

ILLUMINATION AND ITS MEASUREMENT

We are enclosing for your use material which has been copied from two sources on the subject of "Illumination." It is hoped that this will serve to aid your efforts in evaluation of lighting conditions for your plant.

Please give attention especially to page XIII-7 from the U.S. Steel Corporation reprint which treats "Field Measurement." Determinations for average footcandles on a horizontal plane from general lighting and for measuring the light intensity at a specific seeing task are described.

Again I would be very reluctant to allude to the fact that your measurements were incorrectly done, especially if you describe your purpose as you did to me by phone conversation.

Oran D. Steffey
Industrial Hygienist

rla
Enc.

1973 U.S. Steel Corporation
Chapter XIII - Illumination and Its Measurement

Industrial Environment - Its Evaluation and Control - NIOSH
Chapter 27 - Illumination, John E. Kaufman



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APR 5 1976

MEDICAL DIV.

Interoffice Communication

To Jerald Uptain
From Owen Tubb
Date April 1, 1976
Subject MARCH SUMMARY OF PERSONNEL DOSIMETRY

Listed below are the personnel dosimetry results for the month of March. A total of 112 samples were taken using the gas bag method for an eight (8) hour TWA.

The results are as follows:

.0 - 1.0 ppm VCM	108	96.4%
1.0 - 5.0 ppm VCM	3	2.7%
5.0 - 25.0 ppm VCM	0	0.0%
25+ ppm VCM	1	0.9%
TOTAL	112	100.0%

One employee was exposed to more than 25.0 ppm VCM. Charles Hawkins, Large Reactor Operator, was exposed to 43.6 ppm VCM while draining blow down tank and VCM receivers. He was wearing respiratory protection.

A total of three employees were exposed to more than 1.0 ppm but less than 5.0 ppm VCM. Their names, exposures, and work experiences are listed as follows:

- 1) Sammy Stokes, Large Reactor Operator, 1.5 ppm VCM. This employee was exposed while draining VCM receivers. He was wearing respiratory protection.
- 2) "Bud" Stone, Large Reactor Operator, 1.5 ppm VCM. This employee was exposed while draining VCM receivers. He was wearing respiratory protection.
- 3) John Bailey, "A" Warehouse Worker, 4.6 ppm VCM. This employee was exposed while storing "fresh" resin in the East warehouse, and also while working around the shrink wrap unit. He was not wearing respiratory protection.

VAB.0001050352

Jerald Uptain

April 1, 1976

Page 2

MARCH SUMMARY OF PERSONNEL DOSIMETRY

Several fifteen (15) minute monitoring tests were conducted during this month also. These tests were conducted using the gas bag method for a fifteen (15) minute TWA while employees were performing tasks that could potentially expose the workers in excess of the permissible limits for VCM. The monitoring results, by task, are as follows:

1) Large Reactor Area:

Draining VCM receivers	-	1.9	0.1	0.2	ppm
Draining blowdown tank	-	0.2	21.7		ppm
Recovering Reactors	-	0.1	0.1		ppm
Opening Reactor manheads	-	0.1	0.5		ppm
Dumping Reactors	-	0.4	3.0		ppm
Cleaning out Sweco	-	0.2			ppm

2) Yard

Hooking up VCM cars	-	1.9	.1	6.6	ppm
Un-hooking VCM cars	-	11.5	5.5	0.4	ppm

3) Compound Line III

Charging blenders	-	0.5	0.2	0.2	0.1 ppm
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4) Dry Blend

Making up master batch	-	0.7	0.1	0.5	0.4 ppm
Hooking up transfer lines	-	0.3			ppm
Sampling blenders	-	0.5	0.1	0.3	ppm

Owen Tubb

Owen Tubb
Industrial Hygienist

smp

c: RAD, GGD, All Department Heads
ODS - Ponca City
DAK - Houston



Dr. Steffey

ODS

Interoffice Communication

To Gerald Uptain
From Owen Tubb
Date March 3, 1976
Subject FEBRUARY SUMMARY OF PERSONNEL DOSIMETRY

RECEIVED

MAR 08 1976

MEDICAL DIV.

Listed below are the personnel dosimetry results for the month of February. A total of 204 samples were taken using the gas bag method for an eight (8) hour TWA. Area sampling on non-regulated areas are also included in the results.

The results are as follows:

.0 - 1.0 ppm VCM	196	96.0%
1.0 - 5.0 ppm VCM	5	2.5%
5.0 -25.0 ppm VCM	3	1.5%
25+ ppm VCM	0	0%
Total	204	100.0%

A total of three employees were exposed to more than 5.0 ppm but less than 25.0 ppm. Their names, exposures and work experiences are as follows:

- 1) Jesse Moore, Large Reactor Supervisor, 23.5 ppm. This employee was involved with supervising the cleaning of a VCM receiver and also drained the blowdown tank several times. He was wearing respiratory protection.
- 2) Charles Hawkins, Large Reactor Operator, 7.7 ppm. This employee changed the filters in the VCM filtering unit. He was wearing respiratory protection.
- 3) Larry Frye, Large Reactor Operator, 5.6 ppm. This employee was involved with training receivers and blow down tank. He was wearing respiratory protection.

Five employees were exposed to more than 1.0 ppm but less than 5.0 ppm. Their names, exposures and work areas are as follows:

— 1.	Don Johnson	Large Reactor Supervisor	1.2 ppm
— 2.	"Bud" Stone	Large Reactor Operator	4.0 ppm
— 3.	Walter West	Dryer Utility (bagger)	1.3 ppm

Gerald Uptain

March 3, 1976

FEBRUARY SUMMARY OF PERSONNEL DOSIMETRY

Page 2

— 4.	Mike Gilmore	Dryer Utility (bagger)	1.8 ppm
— 5.	Dennis Lindsey	Lead Warehouseman (Transportation)	1.2 ppm

Owen Tubb

Owen Tubb
Industrial Hygienist

smp

c: RAD, GGD
Department Heads
ODS - Ponca City
DAK - Houston



Interoffice Communication

To : Jerald Uptain

RECEIVED

From : Owen Tubb

FEB 12 1976

Date : February 9, 1976

MEDICAL DIV.

Subject : JANUARY SUMMARY OF PERSONNEL DOSIMETRY

Listed below are the personnel dosimetry results for the month of January. A total of 242 samples were taken using the gas bag method for an eight (8) hour TWA. Area sampling of non-regulated areas are also included in the results.

The results are as follows:

.0 - 1.0 ppm VCM	-	228	94.2%
1.0 - 5.0 ppm VCM	-	10	4.1%
5.0 - 25.0 ppm VCM	-	4	1.7%
25+ ppm VCM	-	0	0.0%
TOTAL	-	242	100.0%

Four employees were exposed to more than 5.0 ppm but less than 25.0 ppm. Their names, exposures, and work areas are as follows:

1. Bobby Harrison, Large Reactor supervisor, exposed to 7.2 ppm VCM. He was not using respiratory protection.
2. Charles Hawkins, Large Reactor operator, exposed to 24.9 ppm VCM. This employee was involved with draining a VCM receiver and was wearing a continuous flow mask.
3. Larry Frye, Large Reactor operator, exposed to 8.2 ppm VCM. This employee was involved with draining a VCM receiver and was wearing a continuous flow mask.
4. Don Johnson, Large Reactor supervisor, exposed to 6.1 ppm VCM. He was not using respiratory protection.

A total of ten (10) employees were exposed to more than 1.0 ppm but less than 5.0 ppm. Their names, exposures, and work areas are as follows:

1. Jesse Moore	1.2 ppm	Large Reactor Area
2. Bobby Hawkins	3.3 ppm	Large Reactor Area
3. Doug Spann	1.1 ppm	Large Reactor Area
4. Rodger Collins	1.9 ppm	Large Reactor Area
5. Sammie Stokes	1.3 ppm	Large Reactor Area
6. D. W. Clark	1.5 ppm	Vinyl Bagging Area
7. Cleveland Brown	1.4 ppm	Vinyl Bagging Area
8. Milton Threadgill	1.7 ppm	Yard Area
9. Leo Ezell	2.4 ppm	Prairie Warehouse

JANUARY SUMMARY OF PERSONNEL DOSIMETRY
February 9, 1976
Page 2

10. John McWhirter

1.3 ppm

Large Reactor Area

Owen Tubb
Owen Tubb
Industrial Hygienist

tp

c: RAD
GGD
Department Heads
DAK, Houston
ODS, Ponca City



Dr. Steffey
4

Interoffice Communication

To : Gary Draper
From : Canty Jernigan
Date : January 29, 1976
Subject : PARA TOLUENE SULFONIC ACID

RECEIVED

FEB 6 1976

MEDICAL DIV.

Introduction:

Dr. Oran Steffey, Industrial Hygienist in Ponca City Medical Department, has identified a potential para toluene sulfonic acid (TSA) employee exposure problem in the plant plasticizer operation. TSA, an acidic initiator used in production of plasticizer, is presently heated in a 55 gallon drum with a low pressure steam strap and transferred to the plasticizer reactor with an open bucket. Dr. Steffey has urged repeatedly that this method be discontinued and that a method be engineered to eliminate employee exposure to TSA. ("Medical Visitation to the Aberdeen Plant", September 4, 1975 by Dr. Robert L. Lemke.)

This report deals with two alternatives which will satisfy Dr. Steffey's recommendations. The alternatives are as follows:

1. Engineer and install a mechanical charge system.
2. Continue to improve work practice and safety procedures. Purchase new commercial chemical measuring buckets with lids and a new drum cradle. Relocate the TSA drum to a new location and install an adequate drain to the sewer.

The 1976 Capital Commitment Budget has Capital funds allotted for this item under "Plasticizer Safety Improvements".

By copy of this report a meeting on this subject is requested. A proposed date for this meeting is Tuesday, February 10, 1976.

Recommendations:

It is recommended that alternative two be adopted. The considerations of cost of construction, infrequency of charge (the average number of charges made per day is 4), small amount of material charged (maximum of 6 gallons), the uncertainty of continued plasticizer operation and the implementation time make this alternative the most attractive. Alternate two will require that an employee understand the hazards involved with handling TSA and that he follow the correct handling procedures for TSA.

Alternate two will not require the expenditures of Capital funds for installation.

Dr. Steffey and Jerald Uptain, Safety Supervisor Aberdeen Plant, are in agreement with alternative two as the optimum method of dealing with this safety problem.

VAB.0001050358

Discussion:

TSA is an acidic initiator used in the plasticizer operation. It is shipped to the plant in 55 gallon drums and remains in crystalline solid form at temperatures below 80°F. The recommended handling temperature of TSA is 150°F. Since TSA is classified as a strong acid, contact of TSA with skin results in destruction of tissue.

Dr. Steffey, in a recent telephone discussion, expressed concern with employee exposure due to spillage of the acid on the floor. He was particularly concerned with potential spillage of TSA from the open bucket onto an employee during charging and the OSHA related problems this would incur.

The following two alternatives deal with solutions to the problems stipulated by Dr. Steffey. Since a steam strap heater is the only effective method of heating TSA to a flowable temperature in the 55 gallon drums, the use of a strap heater would be required in either of the alternatives.¹

Alternative 1

This alternative requires the engineering and construction of a mechanical charge system. A typical mechanical charge system would consist of a storage vessel (in this case, the 55 gallon drum of TSA would be the storage vessel), a charge pump, a charge meter, and piping.

To resist the corrosive and solvating qualities of TSA, 304 S.S. material and special plastic or rubber material would have to be used in all construction. In maintaining the bulk handling temperature of TSA all transfer equipment and piping would have to be steam or electrically traced and insulated.

A reactor operator would charge the TSA into a reactor by lining up the piping to the reactor being charged and by manually controlling the charge pump. The amount of TSA being charged would be registered on the charge meter. After charge the piping would have to be purged to the reactor with inert gas to prevent freeze up or material degradation in the charge line.

Alternative 2

Alternative two would not change the manual method of charging TSA with a bucket, but would require that improvements be made in existing work practices. These improvements include:

1. Educating employees as to the dangers involved with handling TSA and the proper clean-up procedures in the event of spills.

¹Electrical strap heaters have been proven ineffective in plant tests.

Alternative 2 - Continued

2. Requiring employees to wear chemical resistant suits in addition to the face shield and rubber gloves already being worn during the handling of TSA.
3. Purchasing commercial chemical measuring buckets with lids and a new drum cradle. (The buckets have been ordered.)
4. Relocating the TSA drum to a more open and accessible area.
5. Installing a chemical sewer with catch basin and drain to sewer beneath the drain spout on the TSA drum.


Canty Jernigan
Process Engineer

Approved:


E. L. Kieschnick
Senior Process Engineer

ct

c: RAD, RWS, KWC, DEM, DML, RGG, JVu, COT
Dr. Oran Steffey - Ponca City