



Mr. J. H. Skahill
Battery Products Division
1205 Broadway
Red Oak, Iowa

January 23, 1976

Medical Department

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Industrial Hygiene Survey;
Red Oak - December 10-11, 1975

BUSINESS CONFIDENTIAL

Dear Mr. Skahill:

A routine periodic industrial hygiene survey was conducted at the Red Oak plant on December 10-11, 1975. All plant areas were inspected, and air samples were collected for airborne dusts, fumes and vapors. These air samples were analyzed for total dust, arsenic, manganese, lead, vinyl chloride monomer, perchlorethylene and methyl isobutyl ketone (MIBK).

This second set of air samples collected here for arsenic analysis yielded results which were quite comparable to those of the first set. The results of air samples collected for approximately 6½ hours each on a Mix Screener and a Cramic Molding Machine Operator showed a time-weighted average exposure of less than 0.001 mg/M³ to arsenic. Thus, each of the 4 shift-length air samples collected in this mixing and forming area during 1975 gave results of less than 0.001 mg/M³ as the time-weighted average concentration for exposure to airborne arsenic. This is less than 0.2% of the existing OSHA standard for arsenic, and less than 50% oven of the proposed new threshold limit value.

The time-weighted average concentrations for the exposure of the Mix Screener and the Cramic Molding Machine Operator to airborne manganese dusts were 0.30 and 0.29 mg/M³, respectively. Thus, the average exposure measured here during 1975 for each of 3 job classifications (also Mix Operator) was less than 10% of the threshold limit value for manganese in workroom air.

A personal air sample was collected for approximately 6 hours on one of the operators on the finishing line. This gave a time-weighted average concentration for lead of less than 0.004 mg/M³. This calculates to be less than 2% of the existing threshold limit value for lead in workroom air. This was the only such sample collected here for lead analysis during 1975.

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Mr. J. H. Skahill

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The exposure to total dust and fume continues to be acceptably low at operations in the Red Oak plant. During this visit the time-weighted average exposures to total dust and fume for the Ceramic Molding Machine Operator, Mix Screener, and Finishing Line Operator were 2.09, 1.71, and 0.06 mg/M³, respectively.

The air sample collected for approximately 7-hours (12/10/75) on the Extrusion Machine Operator contained less than 0.05 parts per million (by volume) of vinyl chloride monomer. Thus, none of the air samples collected on this operator has ever contained as much as the OSHA action level of 0.5 parts per million (by volume) of vinyl-chloride monomer as a time-weighted average concentration.

During the afternoon of 12/10/75, spot air samples were collected for perchlorethylene in the aisle beside both the Blakeslee and the Phillips Degreasers. No concentration as high as 10 parts per million (by volume) was found. This indicated that the local exhaust ventilation systems of both degreasers were functioning properly.

A personal air sample, collected on the Roll-Coat Operator during the day shift on 12/11/75, gave a time-weighted average concentration of 90 parts per million (by volume) for methyl isobutyl ketone in workroom air. Spot air samples, collected both forenoon and afternoon on this same day, had indicated 100 ppm (the OSHA TLV) as the concentration at the time of each sample. Additional shift length air samples are needed here to better evaluate the concentrations of both MIBK and toluene to which this operator is exposed.

I greatly appreciate the courtesies extended to me during my visit. If I can be of further assistance, please let me know.

Very truly yours,

E. G. Brown
Industrial Hygienist

EGB/eg
Enclosures

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Total Dust and Fume
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>Concentration</u> <u>mg/M³*</u>	<u>Remarks</u>
Mix Screener	1.93	Personal Sample, 12/10/75, A.M. 3 hrs., 36 min.
Mix Screener	1.44	Personal Sample, 12/10/75, P.M. 2 hrs., 56 min.
No. 5 Cramic Molding Machine Operator	2.88	Personal Sample, 12/10/75, A.M. 2 hrs., 45 min.
No. 5 Cramic Molding Machine Operator	1.49	Personal Sample, 12/10/75, P.M. 3 hrs., 38 min.
Operator on Finishing Line	0.06	Personal Sample, 12/11/75, A.M. & P.M. 6 hrs., 5 min.

* The threshold limit value for carbon black is 3.5
milligrams per cubic meter of workroom air (OSHA-1975).
No more than 5-10% of the above total dust and fume should
be acetylene black.

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Vinyl Chloride Monomer
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>VCM</u> <u>ppm*</u>	<u>Remarks</u>
On person of extrusion machine operator	0.05	12/10/75, A.M. & P.M. 6 hrs., 56 min.

* The current OSHA standard for vinyl chloride monomer in workroom air is 1 part per million (by volume) as an 8-hour, time-weighted average concentration.

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Manganese
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>Manganese mg/M³</u>	<u>Remarks</u>
Mix Screener	0.32	Personal Sample, 12/10/75, A.M. 3 hrs., 36 min.
Mix Screener	0.28	Personal Sample, 12/10/75, P.M. 2 hrs., 56 min.
No. 5 Cramic Molding Machine Operator	0.35	Personal Sample, 12/10/75, A.M. 2 hrs., 45 min.
No. 5 Cramic Molding Machine Operator	0.25	Personal Sampl , 12/10/75, P.M. 3 hrs., 38 min.

* The threshold limit value for manganese in workroom air is 5 milligrams per cubic meter (OSHA-1975). This is a ceiling value, not to be exceeded.



Arsenic
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>Arsenic mg/M³*</u>	<u>Remarks</u>
Mix Screener	< 0.001	Personal Sample, 12/10/75, A.M. 3 hrs., 36 min.
Mix Screener	< 0.001	Personal Sample, 12/10/75, P.M. 2 hrs., 56 min.
No. 5 Cramic Molding Machine Operator	< 0.001	Personal Sampl , 12/10/75, A.M. 2 hrs., 45 min.
No. 5 Cramic Molding Machine Operator	< 0.001	Personal Sample, 12/10/75, P.M. 3 hrs., 38 min.

* The threshold limit value for arsenic in workroom air is 0.5 milligrams per cubic meter (OSHA-1975); however, NIOSH has recommended that this TLV be lowered to 0.002 mg/M³. This is due to the discovery of increased lung cancer deaths among arsenic workers at Dow Chemical Co. and Allied Chemical Corp.



Lead
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>Lead mg/M³*</u>	<u>Remarks</u>
Operator on Finishing Line	0.004	Personal Sample, 12/11/75, A.M. & P.M. 6 hrs., 5 min.

* The threshold limit value for lead in workroom air
is 0.2 milligrams per cubic meter.



Perchloroethylene
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>Perchloroethylene ppm*</u>	<u>Remarks</u>
Breathing level in aisle beside small Phillips Degreaser	< 10	P.M. 12/10/75
Breathing level in aisle beside large Blakeslee Degreaser	< 10	P.M. 12/10/75

* The threshold limit value for perchloroethylene in
workroom air is 100 parts per million (by volume) (OSHA-1975).



Methyl Isobutyl Ketone
UNION CARBIDE CORPORATION
Battery Products Division
Red Oak, Iowa

December 10-11, 1975

<u>Location</u>	<u>MIBK ppm*</u>	<u>Remarks</u>
<u>Paint Room</u>		
On person of roll-coat operator	90	Personal Sample, 12/11/75, A.M. & P.M.
Near center of room	100	Spot Sample, 12/11/75, A.M.
In corner by roll-coating operation	100	Spot Sample, 12/11/75, A.M.
Near center of room	100	Spot Sample, 12/11/75, P.M.
In corner by roll-coating operation	100	Spot Sample, 12/11/75, P.M.

* The threshold limit value for MIBK in workroom air
is 100 parts per million (by volume) (OSHA-1975).

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