

June 21, 1972

Mr. James R. Gervan
State Supervisor of Art &
Music Education
Department of Public Instruction
Dover, Delaware 19901

Dear Jim:

Please find enclosed the sampling results of a survey of the atmosphere adjacent to a kiln during the firing of ceramic ware. The survey included a series of 4 samples taken over one firing cycle. The samples were analyzed for lead and cadmium. The levels of lead and cadmium are approximately the same as is found normally in a suburban atmosphere. Annual mean concentrations reported for New York City in 1968 by T.J. Knaip, M. Eisenbud, C.D. Strehlow, and P.C. Freudenthal, in a paper presented at the Annual Meeting of the Air Pollution Control Association, June 22-26, 1969, were approximately 3 ug/m^3 for lead and 0.015 ug/m^3 for cadmium.

I have much confidence in these results being accurate since I used my own equipment and the analyses were done at Kettering Laboratory. However, these results are representative only of the conditions at the kiln described at the time when the sampling was conducted, for the kiln operational procedure described, and the kiln contents as described. Other kilns, other procedures, other contents, etc., could affect the airborne concentrations, and these negative findings should not be applied universally to all kilns and all conditions.

This is the only survey that I have conducted since my visit with you in Wilmington. I hope that the information will eventually be developed, so that it can be determined whether the firing represents any hazardous exposure. However, I believe that any attempt to reach this conclusion in the present state of our factual information would be premature.

If I can provide any additional information, please do not hesitate to contact me. I would appreciate receiving the information on the contents of the kilns which I sampled in Delaware. If you have developed any additional information on the subject of atmospheric levels, I would appreciate hearing about it.

Best wishes.

Sincerely,

D. R. Lynam, Assistant Director
Environmental Health

DRL:lg
enc. cc: J. F. Smith, J. F. Cole

LIA-76933

N 1021

SURVEY OF CERAMIC KILN

Facility: Small ceramic shop which sells ceramic supplies, identified as ABW, located in New York area.

Date of Sampling: June 1, 1972

Type of Kiln: Hexagonal Vertical Stacking (3 stacks). Shutt Electrical Kiln, Model 231, Shutt and Sons, Portland, Oregon, Maximum Temperature 2300° F, Cone 8.

Kiln Operation: This kiln was not equipped with a pyrometer. The firing was for Cone 06, with the kiln automatically shutting off when temperature reached 1860°F. The firing procedure was to leave the top open approximately 1½" until a temperature of 1000° F was reached as determined by visual observation. The top was closed and kiln shut off automatically when reaching temperature of 1860° F.

Kiln Contents: (Types of Glazes)

EZE Buttercup Yellow 600	Duncan Bronze 645
EZE Orange 632	Maco Clear 105
EZE Christmas Red 637	Maco White Opaque 638

Sampler Location: Suspended 1½ feet directly above top of kiln for all samples.

Sampler Type: Gelman Hurricane Hi-Volume, Membrane Filter - 1.2 micron pore size.

Survey By: Donald R. Lynam

Analysis of Filters by: Kettering Laboratory, University of Cincinnati, Cincinnati, Ohio.

SAMPLING RESULTS

<u>Sample No.</u>	<u>Concentration</u>		<u>Time</u>	<u>Kiln Operation</u>
	<u>ug Pb/m³</u>	<u>ug Cd/m³</u>		
1	2.59	0.018	10:10 - 11:00 A.M.	Kiln on at 10:10 and top opened approximately 1½" for initial drying.
2	2.88	0.029	11:01 - 12:28	Kiln top closed at 11:00 at approximate temp of 1000°F
3	2.12	0.015	12:29 - 1:30	Kiln reached temp of 1860°F at 1:00 pm & shut off automatically
4	1.92	0.017	1:31 - 2:30	Kiln cooling down.

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