

July 22, 1971

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Subject; "Case for Forced Circulation in Glazing Kilns"

In accordance with recent conversations it is understood that you will proceed to press appropriately on the following position as concerns glazing of ceramics.

It is clear that the "leachability" of lead from glazes is closely related to proper time and temperature in the ovens.

Industrial as well as hobby or art craft glazing of ceramicware is commonly performed at temperatures ranging from 1800°F to 2100°F in electrically heated kilns. Their sizes range from 1 cubic foot to 500 cubic feet or more of interior volume. Larger ones include provisions for the glazing of several shelves of products per load.

Forced circulation of air within these ovens is uncommon. It is unlikely that temperature gradients throughout the working space of the oven are frequently in excess of plus or minus 10%.

Glazing temperatures are commonly measured by the partial collapse of specially formulated and prepared cones which start to collapse when the prescribed temperature is reached and maintained for the proper time.

With thermal gradients undoubtedly existing in any kiln that does not incorporate forced interior circulation, dangerous variations may frequently exist.

It is recommended that appropriate steps be taken to require that manufacturers of glazing kilns (not now so doing) incorporate forced circulation into their design and manufacture.

While it is recognized that the hobbyist or art crafter is concerned with economy, and that the incorporation of forced circulation in the kiln will add to the cost of his equipment, the proper glazing of ceramicware is a matter of vital importance to consumer safety. Forced circulation would incorporate a substantial degree of

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insurance and hence a highly desirable step.

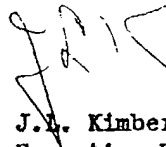
Forced circulation for uniformity of temperature in annealing or heating muffles is standard practice in the metal producing industry.

Outstanding examples are to be seen in the stress relief heat treatment common to the manufacture of brass articles to insure against "season cracking" and in the annealing and heat treating of aluminum products where plus or minus 2°F is consistently and economically achieved.

As this campaign progresses, please keep me closely up to date on developments.

JLK/gt

cc: D.M. Borcina  
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