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The Harshaw Chemical Company
1945 East 97th Street
Cleveland 6, Ohio

Attention: Mr. Paul H. Mining
Technical Sales - Germicide

Gentlemen:

Reference is made to your letter of January 12, 1960, regarding the uranium-containing ceramic materials submitted to our New York Operations Office for radiation measurements.

Results of the measurements made on uranium-glazed tile and uranium-containing glass block have been evaluated. In the case of the uranium glazed tile, surface readings as high as about 9,000/dpm/100 cm² alpha and about 8 mrep/hr beta have been obtained. At one inch from an extended surface of this material the alpha count is dropped essentially to background and the beta to 5/mrep per hour. Other measurements were also made and in general, the following conclusions could be drawn.

1. Direct contact with a floor paved with this material for 30 hours a week would yield an estimated weekly dose of 50 mrem to the lens of the eye, 240 mrem to the hands, forearms, feet and ankles and 15 mrem to the gonads.
2. Residence in a small room such as a bathroom having walls covered with these tiles would produce a dose to the lens of the eye of 30 mrem in six hours.
3. A tile setter working with these tiles on a continuous basis (assuming 30 hours per week of contact time) would receive about 240 mrem per week.

From the above, it appears that the potential radiation exposure to members of the public resulting from the use of such tiles are unacceptable from a health and safety standpoint.

In the case of uranium-colored glass brick, no significant alpha activity was noted and beta readings were from a fifth to a tenth of that from tile. Accordingly, the total radiation which a person might receive in a

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receive in a room in which glass block were used would be considered borderline except perhaps for relatively high doses for sensitive areas such as the lens of the eye.

From the above it appears that the use of uranium-glazed ceramic tile is not feasible from a health safety point of view. It further seems clear that it will be necessary to develop additional information on the use of uranium in glass in order to establish standards for uranium-containing glass blocks to which the general population would be exposed. In addition, there would, of course, remain the broader problem of general population exposure from an aggregation of commercial products. Accordingly, we do not at this time intend to license manufacture of uranium-containing glass block or uranium-glazed tile for distribution to the general public.

Sincerely yours,

Director
Division of Licensing and Regulation

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