Barium Leaching in Ceramics

toxic metals can leach from some kinds of ceramic glazes; (Toby Jug)

Many potters have asked us about the hazards and relevant standards for barium-containing foodware. Barium is known to affect the heart, and animal studies have shown elevated blood pressure from prolonged exposure.

The Food and Drug Administration (FDA), which set ceramic leaching standards for lead and cadmium, does not currently have a requirement for barium. At present, the only standard for barium connected to leaching is the Maximum Contaminant Level (MCL) set by the Environmental Protection Agency (EPA) for drinking water. For barium, the MCL for drinking water is 2 mg/liter. This standard is based on a 10-week human study showing no effect on blood pressure at the level of 10 mg/liter in drinking water, with an additional safety factor. The 2 mg/liter was set to protect the population most at risk from heart effects - adult men - but would also provide a substantial safety factor for acute barium poisoning in children.

Since there is no present ceramic leaching standard for barium, the use of the MCL of 2 mg/liter would adequately protect people from barium leaching out of ceramic ware used for drinking. Potters who wish to test their ceramic ware for barium leaching can send samples to one of the two labs listed below. Both laboratories use the standard 24-hour acid leaching test mandated by the FDA for lead and cadmium.

1. Attn: Bob Brown, President - Elemental Research Lab, 309-267 West Esplanade, North Vancouver, British Columbia, Canada V7M 1A5, (604) 986-0445 (will test many metals)
2. Dr. John Turner - Kirby Health Center Lab, 71 North Franklin Street, Wilkes-Barre, PA 18701, (717) 822-4278 The CSA would be interested in receiving copies of test results, along with information on the specific glaze formulation tested (including colorants) and firing temperature. This information could help determine if certain barium formulations leach more than others, and if certain metal colorants affect the amount of barium leaching

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