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THE UNITED STATES POTTERS ASSOCIATION
CERAMIC DINNERWARE SURVEILLANCE PROGRAM

I. TEST PROCEDURE

The United States Food and Drug Administration Method LTB-834 shall be the procedure for determining the release of heavy metals from ceramic surfaces.

EXCEPTION: Instead of six units individually analyzed, as indicated in LTB-834, the leachate from 3 units shall be blended for the determination of heavy metal release.

II. TOLERANCE STANDARDS

- A. The maximum allowable lead release from ceramic surfaces for use in food and beverage service shall be less than 7 parts per million parts of the leaching solution when determined by FDA LTB-834.
- B. A safety zone for lead release shall be established between 6 and 7 parts per million parts of the leaching solution. A finding of lead release in this range shall be cause to alert the producer to reformulate or to alter the firing procedure, or both, in order to reduce the lead release to a value below 6 parts per million parts of leaching solution.
- C. The maximum allowable cadmium release from ceramic surfaces for use in food and beverage service shall be less than 0.5 parts per million parts of the leaching solution when determined by FDA LTB-834.

III. SURVEILLANCE PROCEDURES

A. Sampling and Testing

1. a - Members of The United States Potters Association Ceramic Dinnerware Surveillance Program (USPA) shall twice each year, submit three representative current production samples of each different type of ceramic surface designed for use in food and beverage service. Responsibility for periodically submitting such test specimens shall rest upon each member of the U.S.P.A. Ceramic Dinnerware Surveillance Program. Testing shall be done by the Pittsburgh Testing Laboratory, 350 Poplar St., Pittsburgh, Pa. 15220; The Twining Laboratories, Inc., Box 1172, Fresno, Calif., 93716, or other laboratories approved by the U.S.P.A. Samples shall be submitted before February 1 and August 1, with reporting of the results by February 15 and August 15.
- b - All new ceramic surfaces for use in food and beverage service made by members of the U.S.P.A. Ceramic Dinnerware Surveillance Program shall be tested and found to meet U.S.P.A. standards for heavy metal release before they may be placed in production.
- c - A copy of the submittal letter or order relating to each sample submitted for test shall be sent to the Chairman of the U.S.P.A. Research Committee.

d - A copy of the results of each test conducted in the Ceramic Dinnerware Surveillance Program shall be sent to the Chairman of the U.S.P.A. Research Committee by the testing laboratory.

e - Tests on participants can ware shall be borne by the individual members of the U.S.P.A. Ceramic Dinnerware Surveillance Program.

f - Members of the U.S.P.A. Ceramic Dinnerware Surveillance Program shall be responsible for sampling suspected ceramic ware made by non-participating suppliers, both foreign and domestic.

The U.S.P.A. shall bear the cost of both samples and testing of suspect ceramic ware submitted only by members of the U.S.P.A. The cost of sampling and testing of suspect glassware members of the U.S.P.A. Ceramic Dinnerware Surveillance Program shall be borne by the individual members of the U.S.P.A. Ceramic Dinnerware Surveillance Program or any Association, apart from the U.S.P.A. Individual members of the U.S.P.A. Ceramic Dinnerware Surveillance Program shall first inform the Chairman of the Research Committee of suspect ware and with his permission then submit samples of the suspect ware for test of heavy metal release.

2. The U.S.P.A. shall endeavor to enlist all suppliers of ceramic dinnerware to the American market as members of the U.S.P.A. Ceramic Dinnerware Surveillance Program. All shall participate on an equal basis whether the ware supplied is of domestic or foreign production.

D. Approval

1. When a ceramic surface for use in food and beverage service is to contain a lead release of 5 parts per million parts of the solution or less and cadmium release less than 0.5 parts per million parts of the leaching solution, the U.S.P.A. shall require a suitable mark signifying that the ware has been approved by the U.S.P.A. This mark may be a backstamp applied to the ware or may be a mark to be imprinted on the ware or in advertising material.

2. The U.S.P.A. mark of acceptance shall be available to manufacturers of heavy metal release or specifically to each individual type of ceramic surface.

E. Packaging

2. Whenever a test report discloses a lead release between 6 and 7 parts per million parts of the leaching solution from a ceramic surface designed for food or beverage service and produced by a member of the U.S.P.A. Ceramic Industries Program, the maker shall be requested to take prompt remedial action.

2. Whenever a test report discloses a lead release of 7 or more parts per million parts of the leaching solution from a ceramic surface designed for food or beverage service and produced by a member of

the USPA Ceramic Dinnerware Surveillance Program, the producer and the Food and Drug Administration, Office of Compliance Programs, shall be advised promptly of the fact so that appropriate action may be taken.

3. Whenever a test report on suspect ware which may be used in food or beverage service and produced by a supplier not a member of the U.S.P.A. Ceramic Dinnerware Surveillance Program discloses lead release of 7 or more parts per million parts of the leaching solution, the Chairman of the U.S.P.A. Research Committee shall promptly notify the F.D.A. Office of Compliance Programs and the producer.
4. Whenever a test report discloses a cadmium release of 0.5 or more parts per million parts of the leaching solution from a ceramic surface designed for food or beverage service and produced by a member of the U.S.P.A. Ceramic Dinnerware Surveillance Program, the producer and the Food and Drug Administration, Office of Compliance Programs shall be advised promptly of the fact so that appropriate action may be taken.
5. Whenever a test report on suspect ware which may be used in food or beverage service and produced by a supplier not a member of the U.S.P.A. Ceramic Dinnerware Surveillance Program discloses cadmium release of 0.5 or more parts per million parts of the leaching solution, the Chairman of the U.S.P.A. Research Committee shall promptly notify the F.D.A. Office of Compliance Programs and the producer.
6. When it is evident that any ceramic surface tested contains hazardous metals other than lead and/or cadmium, the quantity released under the test conditions of F.D.A. LTB 834 shall also be determined and reported.
7. Should a member of the U.S.P.A. Ceramic Dinnerware Surveillance Program, but not a U.S.P.A. member, fail to submit the annual license fee, such members license to use the U.S.P.A. mark of acceptance shall be terminated.
8. Whenever a member of the U.S.P.A. Ceramic Dinnerware Surveillance Program has been notified under C-1, C-2 or C-4 to correct an excessive lead or cadmium release from a ceramic surface, failure by such member to promptly effect a reduction to prescribed limits, shall be sufficient cause to terminate such members privilege to use the U.S.P.A. mark of acceptance for that ware.

IV. Reporting to F.D.A.

1. The Chairman of the U.S.P.A. Research Committee shall issue a report to the F.D.A. twice each year. These reports shall give an account of its activities, showing tests performed, the results and actions taken by the U.S.P.A. or proposed to the F.D.A. The reports shall be issued by March 15 and September 15 of each year.

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2. In addition to the regular semi-annual reports, the Chairman of the U.S.P.A. Research Committee shall report promptly to the F.D.A. Office of Compliance Programs any test results showing 7 or more parts of lead release per million parts of the leaching solution and/or 0.5 or more parts of cadmium release per million parts of the leaching solution. Any significant quantities of other heavy metals shall also be reported. This report shall include a statement of any action which the U.S.P.A. may propose to the F.D.A. in the event the U.S.P.A. is powerless to take effective action.

V. Review Provisions

1. Specifications set forth in this program may be amended by only the U.S.P.A. when warranted. Members of the U.S.P.A. Ceramic Dinnerware Surveillance Program shall be promptly advised of such changes.

Respectfully submitted,

RESEARCH COMMITTEE, U.S.P.A.

B. W. Marwin
Chairman

May 20, 1971

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FDA - JIB 824

DETERMINATION OF LEAD IN POTTERY

Apparatus and Reagents

- (a) Atomic absorption spectrophotometer - Perkin-Elmer Model 303 or equivalent, with an HCL lamp; operating conditions: wavelength 218 mμ; slit 4; 1 mm hollow cathode lamp; air acetylene burner (0.5 x 1.5 mm slit) with supply of air at 40 psi (flow meter 7.0) and acetylene at 30 psi (flow meter 9.0) for an aspiration rate of 5.0 ml/minute.
- (b) Standard solution - Dissolve any soluble lead salt in 1% acetic acid to a lead concentration of 7 μg/ml. Dilute this standard stock solution with 1% acetic acid to obtain working standards with lead concentrations of 10, 20, 30 and 40 μg of lead per ml.

Preparation of Sample (Leaching) Solution

(Individually analyze 3 units of each sample).

Before analysis, wash all vessels with household detergent, followed by a thorough rinse with distilled water. Determine and record the normal capacity of one unit by pouring a measured volume of distilled water into the vessel to the level to which it would normally be filled by the user. Discard the water and dry the unit; then fill each unit with 1% acetic acid to the volume determined in the preceding step. Cover with a watch glass or other suitable cover, and let stand at room temperature (25 ± 1°C) for 24 hours.

Determination

Obtain sample (leaching) solution and determine absorbance by atomic absorption spectrophotometry. Diluting if required with 1% acetic acid. Determine the absorbance of the standard solutions in a similar solution. Prepare a standard curve of absorbance versus concentration. Plot the sample absorbance on the standard curve. Calculate results in μg of lead/ml of leaching solution.

A sample is considered violative if the average of the three units analyzed contains 10 μg lead/ml of leaching solution or more.

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DETERMINATION OF CADMIUM IN POTTERY

Apparatus and Reagents

- (a) Atomic absorption spectrometer - Perkin-Elmer Model 303 or equivalent, with the following operating conditions: wavelength 228.8 m μ ; slit 4; cadmium hollow cathode lamp; air acetylene burner (0.5 x 12.5 mm slit) with supply of air at 60 psi (flow meter 9.0) and acetylene at 10 psi (flow meter 2.0) for an aspiration rate of 0.3 ml/minute.
- (b) Standard solution - Dissolve any soluble cadmium salt in 4% acetic acid to a cadmium concentration of 0.3 mg/ml. Dilute this standard stock solution with 4% acetic acid to obtain working standards with final concentrations of 1, 2, 3 and 4 μ g of cadmium per ml.

Preparation of Sample (Leaching) Solution

(Individually analyze 3 units of each sample).

Prior to analysis, wash all vessels with household detergent, followed by a thorough rinse with distilled water. Determine and record the nominal capacity of one vessel by pouring a measured volume of distilled water into the vessel to the level to which it would normally be filled by the user. Discard the water and dry the unit; then fill each unit with 4% acetic acid to the volume determined in the preceding step. Cover with a watch glass or other suitable cover, and let stand at room temperature (25 $\pm$ 2°C) for 24 hours.

Determination

Stir sample (leaching) solution and determine absorbance by atomic absorption spectrometry, diluting if required with 4% acetic acid. Determine the absorbance of the standard solutions in a similar fashion. Prepare a standard curve of absorbance versus concentration. Determine the amount from the standard curve. Calculate results as μ g of cadmium/g of leaching solution.

A sample is considered satisfactory if the average of the three units is within 0.1 μ g cadmium/g of leaching solution or more.