

SCHEDULE 2

Regulation 3(2)

TESTING OF CERAMIC ARTICLES

PART I

BASIC RULES FOR DETERMINING THE
MIGRATION OF LEAD AND CADMIUM

Test liquid (“simulant”)

1. 4% (v/v) acetic acid, in a freshly prepared aqueous solution.

Test conditions

- 2.—(1) Carry out the test at a temperature of $22^{\circ} + 2^{\circ}$ C for a duration of $24 + 0.5$ hours.
(2) When the migration of lead is to be determined, cover the sample by an appropriate means of protection and expose it to the usual lighting conditions in a laboratory.
(3) When the migration of cadmium or of lead and cadmium is to be determined, cover the sample so as to ensure that the surface to be tested is kept in total darkness.

Filling

- 3.—(1) Samples which can be filled—
 - (a) fill the article with a 4% (v/v) acetic acid solution to a level no more than 1mm from the overflow point; the distance is measured from the upper rim of the sample.
 - (b) samples with a flat or slightly sloping rim should be filled so that the distance between the surface of the liquid and the overflow point is no more than 6mm measured along the sloping rim.
- (2) Samples which cannot be filled—

The surface of the sample which is not intended to come into contact with foodstuffs is first covered with a suitable protective layer able to resist the action of the 4% (v/v) acetic acid solution. The sample is then immersed in a receptacle containing a known volume of acetic acid solution in such a way that the surface intended to come into contact with the foodstuffs is completely covered by the test liquid.

Determination of the surface area

4. The surface area of the articles in category 1 is equal to the surface area of the meniscus formed by the free liquid surface obtained by complying with the filling requirements set out in paragraph 3 above.

PART II

METHODS OF ANALYSIS FOR DETERMINATION OF THE MIGRATION OF LEAD AND CADMIUM

Object and field of application

1. The method allows the specific migration of lead and/or cadmium to be determined.

Principle

2. The determination of the specific migration of lead and/or cadmium is carried out by an instrumental method of analysis that fulfils the performance criteria of paragraph 4.

Reagents

- 3.—(1) All reagents must be of analytical quality, unless otherwise specified.
 - (2) Where reference is made to water, it shall always mean distilled water or water of equivalent quality.
 - (3) 4% (v/v) acetic acid, in aqueous solution: add 40 ml of glacial acetic acid to water and make up to 1000 ml.
 - (4) Stock solutions: prepare stock solutions containing 1000 mg/litre of lead and at least 500 mg/litre of cadmium respectively in a 4% acetic acid solution, as referred to in sub-paragraph (3).

Performance criteria of the instrumental method of analysis

- 4.—(1) The detection limit for lead and cadmium must be equal to or lower than—
 - (a) 0.1 mg/litre for lead; and
 - (b) 0.01 mg/litre for cadmium,where the detection limit is defined as the concentration of the element in the 4% acetic acid solution, as referred to in paragraph 3(3), which gives a signal equal to twice the background noise of the instrument.
 - (2) The limit of quantification for lead and cadmium must be equal to or lower than:
 - (a) 0.2 mg/litre for lead; and
 - (b) 0.02 mg/litre for cadmium.
 - (3) Recovery: the recovery of lead and cadmium added to the 4% acetic acid solution, as referred to in paragraph 3(3), must lie within 80-120% of the added amount.
 - (4) Specificity: the instrumental method of analysis used must be free from matrix and spectral interferences.

Method

- 5.—(1) Preparation of the sample—
 - (a) the sample must be clean and free from grease or other matter likely to affect the test;
 - (b) wash the sample in a solution containing a household liquid detergent at a temperature of approximately 40 °C. Rinse the sample first in tap-water and then in distilled water or water of equivalent quality. Drain and dry so as to avoid any stain. The surface to be tested is not to be handled after it has been cleaned.
- (2) Determination of lead and/or cadmium—

- (a) the sample thus prepared is tested under the conditions laid down in Schedule 1;
- (b) before taking the test solution for determining lead and/or cadmium, homogenise the content of the sample by an appropriate method, which avoids any loss of solution or abrasion of the surface being tested;
- (c) carry out a blank test on the reagent used for each series of determinations;
- (d) carry out determinations for lead and/or cadmium under appropriate conditions.