CERAMICS

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General Information

Ceramic is an extremely ancient material, made mainly of fired and dried clay.

Definition of Ceramics, Article 2 of Directive 84/500/EEC:
"Ceramic objects are defined as items manufactured from a mixture of compounds with a generally high percentage of inorganic material or siliceous clay minerals, with the possible addition of small quantities of organic substances. These articles are first shaped, and the resulting form is permanently fixed by firing. They may be glazed, enameled, and/or decorated."

There is no harmonized legislative reference at the European level for ceramic materials (there is a directive), therefore ceramic materials intended for food contact (MOCA) are subject to both community and national regulations.

Categorization

As for Europe, ceramic samples are classified into 3 different categories depending on their containment capacity, as outlined in European Directive 84/500:

- Category I: items that cannot be filled and items that can be filled, whose internal depth, measured from the lowest point to the horizontal plane passing through the upper edge, is less than or equal to 25 mm.
- Category II: items that can be filled, whose internal depth, measured from the lowest point to the horizontal plane passing through the upper edge, is greater than 25 mm, except for items with a containment capacity greater than 3 L.
- Category III: packaging and storage containers with a capacity of more than 3 L.

	Pb	*Cd*
Category 1 : Articles which cannot be filled and articles which can be filled, the internal depth of which, measured from the lowest point to the horizontal plane passing through the upper rim, does not exceed 25 mm	0,8 mg/dm²	0,07 mg/dm²
Category 2 : All other articles which can be filled	4,0 mg/l	0,3 mg/l
Category 3 : Cooking ware ; packaging and storage vessels having a capacity of more than three litres	1,5 mg/l	0,1 mg/l

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Ceramics in the world

Worldwide, the analytical approach to ceramics is very similar to the European one. What differs are the legal limits imposed by each state or geographical area, with some countries imposing more restrictive limits.
The legislations and standards of the major global markets are as follows:

- CHINA: GB 4806.1-2016
- MERCOSUR/L: GMC/RES N° 55/92
- JAPAN: Specifications and Standards for Food and Food Additives, Chapter IV Table AP02
- USA: CFSAN SEC 545.400 Pottery / CFSAN SEC 545.450 Pottery

Some states, including Germany and France, in addition to migration testing, also require what is referred to as the "RIM Test": the RIM TEST refers to the method ASTM C 927-80. This method involves analyzing the rim of the cup that comes into contact with the lips.

Technical Ceramics and Glazed Ceramics

Articles with ceramic coatings or glazes do not fall under the ceramic legislation. There are no specific regulations for this category of products. However, there is a reference technical standard, UNI EN ISO 4531 'Food Contact Material Vitreous and Porcelain Enamel: Migration from enamelled articles made for food contact - Method of test and permissible limits,' which provides guidance on testing as well as legal limits for 12 metals.

OUR SOLUTIONS

Companies exporting globally need to ensure their ceramic products comply with various country requirements. The Food Contact Center offers you the ability to verify your product's compliance in major global markets. Our team of experts will develop an integrated analytical plan that minimizes the number of required analyses while ensuring the product is suitable for all desired destinations.

Our laboratory adopts a hybrid approach: it follows the preparation phase according to the standard, but enhances data quality with the use of ICP-MS for the quantification of cadmium and lead. This cutting-edge technology allows us to exceed the atomic absorption standard, ensuring superior analytical sensitivity.

The Laboratory Management
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