

# CAST IRON WITH METALLIC COATING

## **1. Applicability**

This material sheet deals with cast iron (Fe alloy, C) with a metallic coating and objects made exclusively of cast iron with a metallic coating which, as finished products, are intended to be in direct repetitive contact with food products.

Metallic coatings are the follows: Nickel, Chromium.

The main application examples are the following elements:

- Household articles: pastry trays, etc;
- Equipment for agri-food industry: cooking elements etc.

## **2. Definitions of performance criteria for food contact**

### **2.1 Texts to be used**

#### 2.1.1 Regulatory texts

No specific test.

#### 2.1.2 Other texts

- *Circular letter of 14 March 1931 "Chromium-metallic coating utensils"*
- *Order of 15th November 1945* setting the list of materials able to be used without adverse effect on public health in the manufacture of measuring instruments.
- *Guidelines from the Council of Europe* relating to metals and alloys intended to be in contact with food.

### **2.2 Criteria to be used**

#### 2.2.1 Composition of the cast iron

The cast iron which makes up the support must satisfy the inertia requirements specified in the "Cast Iron" sheet.

#### 2.2.2 Contents of the coating in undesirable elements

Looking for the presence of lead, cadmium and arsenic.

#### 2.2.3 Specific migration

Specific migration of Ni, or Cr when the coating is based on Ni or Cr.

## **3. Acceptability limits**

### **3.1 Maximum content in undesirable elements**

$$\begin{aligned} \text{Pb} &\leq 0.05 \% \\ \text{Cd} &\leq 0.010 \% \\ \text{As} &\leq 0.030 \% \end{aligned}$$

### **3.2 Specific Migration Limits**

Specific migration of Ni: 0.5 mg/kg (pending evaluation by AFSSA)

Specific migration of Cr (metal): 5 mg/kg

## **4. Rules to check the criteria defined in paragraph 3.**

- Test conditions according to directives 82/711 and 85/572 and their amendments (order of 16/05/1994):  
Temperature and contact duration
- Simulator liquids chosen according to the use:

Foodstuff	Simulator Liquid	Period
Aqueous food(pH>4.5)	Distilled water or water of equivalent quality	
Acid food (pH≤4.5)	Citric acid at 0.5% (p/V)	
Alcoholic food	Ethanol at 10% (v/v). This concentration should be adapted according to the alcoholic content of the food if it exceeds 10% (v/v).	
Fatty food (Hot use)	Oil at 175°C	2 hours
Dry food	No migration test	

For all objects which cannot be filled, the surface/volume ratio adopted by convention is 6 dm<sup>2</sup> for 1 kg or 1 l of simulator.