

Steel and stainless steel with organic coating (unpackaged)

1. Scope

This section deals with steel ¹⁾ with organic coating and objects made entirely of steel with organic coating which as finished products are intended to be in direct contact with foodstuffs, food products and beverages for human and animals consumption.

It does not involve materials and objects which are not intended, under normal term of use or other generally expected conditions, to be in contact with foodstuffs.

The main applications examples are the followings elements:

- Household articles: frying pans, the interior of cake and spaghetti tins;
- Equipment for agri-food industry: barrels, tanks.

The objects mentioned in the sheet "Steel for packaging" are not concerned. Steels with organic coating used for the following applications are not concerned by the provisions mentioned in this sheet:

Outside covers of electrical household appliances;
False ceilings, extractor hoods;

Walls and inner surfaces of premises;

Inner of cold rooms, refrigerated or isothermic lorries.

The main examples of coating are as follows: lacquers, varnish, polymer films (PTFE, resins, silicons, etc.)

2. Restrictions of use

To avoid incorrect conditions of use, the temperature limit for use must be specified on the labelling of objects.

3. Definitions of performance criteria for food contact

3.1 Texts to be used

3.1.1 Regulatory texts

- Order of 15th November 1945 setting the list of materials likely to be used without adverse effect on public health in the manufacturing of measuring instruments.
- Order of 13th January 1976 relating to materials and objects in stainless steel in contact with foodstuffs.

¹⁾ Definition according to NF EN 10020 "Definition and classification of grades of steel"

- Coatings:
 - *Order of 2nd April 2003* relating to the use of some epoxy derivatives in materials and objects put in or intended to be in contact with foodstuffs (BADGE, BFDGE, NOGE);
 - *Order of 30th January 1984* relating to materials and objects containing vinyl chloride monomer intended to be in contact with foodstuffs and food and drink products;
 - *Order of 30th January 1984* relating to official analysis methods about the determination of the content of vinyl chloride monomer in materials and objects intended to be in contact with foodstuffs, food and drink products and the determination of vinyl chloride transferred by the materials and objects to the foodstuffs, food and drink products put in contact with them;

3.1.2 Other texts

- Order of 2nd January, 2003 relating to materials and objects in plastic put in or intended to be in contact with foodstuffs.
- Texts concerning coatings and lacquers brought together in brochure 1227 of the Official Journal of the French Government.
- Resolution AP 96-5 of the Council of Europe relating to surface coating.
- Directives 2002/16/EC of 20 February 2002 on the use of certain epoxy derivatives in materials and objects intended to be in food contact.
- Information notice No 2003-27 from the DGCCRF relating to additives to plastic materials intended to be in contact with foods.

3.2 Criteria to be used

3.2.1 Coating only

The coating supplier must ensure that the monomers and additives used are included in the positive list of constituents of plastic materials (order of 02/01/2003, Information notice No.2003-37 and brochure 1227 from the Official Journal of the French Government) or in the list in resolution AP (96) 5 of the Council of Europe relating to lacquers.

Among the substances mentioned in resolution AP(96) 5, the substances in lists 1-1 & 1-2 have been evaluated by a scientific authority and their use does not appear to cause any problems taking into account to this evaluation. For a period of 5 years from the date of adoption of this sheet, the substances in lists 2-1 and 2-2 can be used if they have been authorised by a member state or by the FDA. This period should allow industries to produce evidence relating to the safety of use for these substances .

When the material or metal is varnished, manufacturers should ensure that overall migration complies with the limits laid down in the order of 2 January 2003 (Directive 2002/72/CE) according to the measurement regulations mentioned below.

When a substance is subject to restrictions of use (particularly specific migration limit), the decree of 8 July 1992 assumes that professionals must check compliance with this limit. This verification can be done in several ways: by analysis (specific migration test), by calculation based on the residual quantity of the substance in the material or from the overall migration.

3.2.2 Support

The steel making up the support must satisfy the inertia requirements specified in the sheets "Steel (excluding packaging)".

3.2.3. Finished product

Overall and specific migrations: see 3.2.1.

4. Acceptability limits

- Overall migration limit for organic coverings laid down in the *order dated 2 January 2003* (Art. 2), i.e. 10 mg/dm² or 60 mg/kg of food depending on the geometry of the material or the object. A material or an object whose migration level exceeds the overall migration limit by an amount not exceeding the analytical tolerance defined below will be considered as conform to the order (art.8 and chapter VI of the annex of the order):
 - 20 mg/kg or 3 mg/dm³ in migration tests using rectified olive oil or its substitutes;
 - 12 mg/kg or 2 mg/dm³ in migration tests using other simulators laid down in directives 82/711/CEE and 85/572/CEE.
- Specific migration limit of the finished product: Cf. 3.2.1 In the case of epoxy derivatives, the limits are specified in the order of 2 April 2003.

5. Rules to check the criteria defined in paragraph 3.

5.1 Coating only

The manufacturer of the material or the ready-to-use object asks his coating supplier for:

5.1.1 A certificate which proved that the composition, overall migration and, if necessary, specific migrations, comply with the tests mentioned above;

5.1.2 An analysis report indicating the results of inertia tests (overall migration and if necessary specific migrations) carried out on the coating put on an inert support (stainless steel or glass) with simulators chosen according to the use, according to directive 82-711 lastly amended by directive 97-48 mentioned above.

Methods to be used for specific migration of BADGE, BFDGE and/or NODGE and their specific migrations (see. current work of CEN/TC 194 SC1 concerning the determination of the BADGE, BFDGE and their derivatives as well as the NOGE and its derivatives).

5.2 Finished product

a) When the product is finished, inertia is checked on the coating of the ready-to-use product (overall and specific migrations).

- Test conditions according to directives 82/711/CEE (lastly amended by directive 97/48/CEE) and 85/572/CEE:
 - Temperature and contact duration
 - Simulator liquids chosen according to the use:

Foodstuff	Simulator Liquid
Aqueous foods (pH>4.5)	Distilled water or water of equivalent quality
Acid foods (pH≤4.5)	Ethanol at 10% (v/v).
Alcoholic foods	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 foods	Oil or substitute simulator
Dry foods	No migration test

b) Looking for the absence of chromates on the interface of non-stick coatings, in the absence of evidence they are not used in the manufacturing process.

Limit of undisclosed Cr VI with a detection threshold of 5 µg/dm² (see BOCCRF n°8 of 24 May 1996, notification from CSHPF meeting of 13 February 1996, p. 433 Brochure n°1227 15 July 2002 edition).