

Steel with organic coating used for packaging

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 beverage for human and animals consumption.

The product mentioned in sheets "Steel excluding packaging" and "Steel and Stainless Steel with organic coating (excluding packaging)" are not concerned.

The principle examples of coating are as follows: lacquers, varnish, polymer films (PP, PE, etc.)

The principle application examples are the following elements:

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Drink cans;
Food cans;
packaging for dry foodstuffs,
aerosol cans.
Stoppers;
Etc.

The material chosen must be in accordance with the term of use .

2. Restrictions of use

For cans and tins sold to non-professional users or final consumers, the restrictions of use relating to packaged products must be indicated by the retailer.

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.

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 relating to 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 Texts to be used provisionally while waiting for regulations about organic coatings for metals.

- Order of 2nd January, 2003 relating to materials and objects in plastic put in or intended to be in contact with foodstuffs.
- Notification from CSHPF of 13 February 1996.
- Resolution of Council of Europe AP (96)5 of 02/10/96.
- Information notice No 2003-27 from the DGCCRF relating to additives to plastic materials intended to be in contact with foods.

- Other texts relating to surface coating collecting in brochure 1227.

3.1.3 Other texts

NF A 36-703 Steel for packaging – Flat steel products intended for contact with foodstuffs, food products and beverage for human and animal consumption– Non-alloyed chromium coated steel.

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 for 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 indicated in lists 1-1 & 1-2 have been evaluated by a scientific authority and their use does not appear to cause problems taking into account 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 the industries to produce evidence relating to the safety of use for these substances .

When the material or metal is varnished, manufacturers shall check that overall migration is conforms to the limits defined by 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 implies that professionals 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 material which makes up the support must satisfy:

- In all cases, the requirements specified in the sheet "non-coated steel for packaging (Black Plate)";
- For Tinfoil, the requirements specified in the sheet "Steel with metallic coating used for packaging (Tinfoil)";
- For chromed steel, the requirements specified in standard NF A 36-703. 3.2.3.

Finished product

Overall and specific migrations: cf 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 appendix to 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 coating manufacturer supplies to the the manufacturer of the ready-to-use packaging:

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

5.1.2 An analysis report carried out on the approved coating 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 finally amended by directive 97/48 and directive 85/572/CEE.

Methods to be used for specific migration of BADGE, BFDGE and/or NODGE and their derivatives (cf. work in process 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

When the product is finished, the 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 food (pH>4.5)	Distilled water or water of equivalent quality
Acid food (pH≤4.5)	Ethanol at 10% (v/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	Oil or substitute simulator
Dry food	no migration test

Methods to be used for overall migration: see. standards of series NF EN 1186 and XP CEN/TS 14235 of April 2003 (polymer coatings on metallic supports).