



AGENCE FRANÇAISE
DE SÉCURITÉ SANITAIRE
DES ALIMENTS

Maisons-Alfort, 23 May 2008

OPINION

Request for an opinion on the application to include tin coatings for fittings in Annex 1 of the Order of 29 May 1997 amended on the conditions for using materials and objects coming into contact with water intended for human consumption

THE DIRECTOR GENERAL

Reminder of the request

On 17 December 2007, the Directorate General for Health (DGS) requested the French Food Safety Agency (Afssa) for an opinion on the inclusion of tin coatings for fittings in Annex 1 of the Order of 29 May 1997 amended on materials and objects used in fixed installations for the production, treatment and supply of water intended for human consumption.

Context

Whereas article 6 and Annex V of the Order of 19 May 1997 amended, stipulating the conditions for adding a new substance to Annexes I, II and III of this Order;

Whereas the practical guide of the Directorate General for Health (DGS) of March 1999 on compiling dossiers on the health conformity of materials put in contact with drinking water;

Whereas Afssa's opinion (request no. 2005-SA-0047) of 4 July 2006 on drawing up guidelines for assessing metals and alloys with a view to including them in Annex 1 of the Order of 29 May 1997 amended;

Whereas the guidelines of the Council of Europe of 9 March 2001 on metals and alloys (particularly tin) intended to come into contact with food;

Whereas the stay of proceedings, pronounced by Afssa (request no. 2006-SA-0334) on 20 July 2007 on the request to include tin coatings in Annex 1 of the Order of 29 May 1997 amended on the conditions for authorising the use of materials and objects coming into contact with water intended for human consumption;

Whereas the petitioner provided the additional information requested in the opinion of 20 July 2007 and the application only concerns the tinning of brass fittings by electrochemical process;

Whereas the application only concerns fittings for a specific piping system manufactured by a given company in a given factory;

Whereas, unlike organic materials, no individual authorisation has yet been granted for a specific product and a specific manufacturer, for metal coatings and alloys.

Expert assessment method

The "Water" Scientific Panel was consulted about this request on 1 April and 6 May 2008.

Argument

Whereas the application concerns tin coatings applied by impressed current electrochemical process in baths with pure tin anodes;

Whereas tin coatings of copper alloy fittings limit the diffusion of copper and lead in the water carried;

Whereas the non-toxicity of metal tin (monographs and assessment of the Joint Expert Committee on Food Additives);

Whereas the test results supplied and existing scientific data show that the risks of metal migrating in water are low for tin coatings according to good practice;

Whereas some countries have authorised tin coatings, subject to an inspection and monitoring of tinning baths and of the technical quality of finished products;

Whereas the dossier stipulates the monitoring carried out in the factory to control the technical quality of the coatings and tinning baths of fittings.

Conclusions

The French Food Safety Agency (Afssa) issues a favourable opinion regarding the application to include tin coatings for brass fittings in Annex I of the Order of 29 May 1997 amended, provided that:

- the composition of the brass conforms to the criteria stipulated in Annex I of the order of 29 May 1997 amended;
- the tin layer is applied by impressed current electroplating;
- the tin layer is made up of at least 99.90% tin;
- the thickness of the tin layer is between 6 and 10 µm;
- the coating quality is checked on a regular basis according to an official quality assurance plan;
- a laboratory accredited by the French Ministry of Health checks that no organic substances diffuse into the water, particularly brighteners used in the tinning baths. This will be done using a sample taken immediately before the tinning bath is regenerated.

The test must be carried out using the method described for assessing the total organic carbon (TOC) in standard XP P 41-250-1, but with a surface/volume (S/V) ratio of 240 cm²/L.

The tests results will be deemed satisfactory if the increase in TOC concentration is less than or equal to 1 mg C/L.

Key words

Drinking water, materials in contact with water, metals, alloys and metal coatings, tin coatings.