

Not Intentionally Added Substances (NIAS)

From time-to-time substances that are not intentionally added to food (NIAS) pop up in the news, as recently at a food safety conference in London, UK. Therefore it may be useful to explain the subject in relation to food safety.

NIAS are a wide class of substances, not intentionally added to food contact materials (or food) formulations, and are impurities or artifacts of their manufacture, processing, etc. NIAS can be found in the migration extracts in the screening tests for risk assessment of food contact materials, or in food due to migration, or in the very food contact materials.

They began to be detected approximately in 2004-2005 (e.g., ITX (isopropylthioxantone, a photoinitiator used in UV cured printing inks) found in 2005 in Italy in a packaged dairy product). NIAS are substances that are not included in the formulation of a food contact material (or food). NIAS can be known NIAS or unknown NIAS. Each type of food contact material has its typical NIAS, thus manufacturers, and sanitary authorities can deal with them according to experience and scientific knowledge acquired in the last two decades. As in other new areas, research continues, and the panorama is challenging rather than precarious.

Substances that are included in the formulation of a food contact material are called IAS (intentionally added substances). For instance, in the case of food contact plastics, monomers, polymers and additives are IAS. In the case of poly(ethyleneterephthalate) (PET), acetaldehyde is a known NIAS that forms by heating the raw material to manufacture PET bottles or trays, for instance. Around the world, even in Argentina, the virgin PET and post-consumer recycled PET manufacturers, and the PET converters sell their products with a certification of the acetaldehyde content, to prevent sensory changes in the beverages.

NIAS are regulated; for instance, in the European Union, Regulation (EU) 10/2011 and amendments require that NIAS, when detected in the migration tests, must be risk assessed following international recognized protocols, to ensure food safety. Data on NIAS and their estimated migration into food must be presented to the sanitary authorities (e.g., EFSA, US-FDA) by the manufacturers of food contact materials or food contact substances. NIAS are also evaluated along the food packaging chain value by different stakeholders, who declare their findings in the Declarations of Compliance (DoC) that they issue, which are mandatory in the European Union.

NIAS that do not migrate from food contact materials can be found in food. They can be impurities of the substances (raw materials, additives, etc.) used in the food formulation; or artifacts of the food processing; for instance, acrylamide in fried food; or others (e.g., radiolytes that can appear in irradiated food at certain doses).

Although NIAS may come from food packaging materials, may also originate from other sources.

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