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EUROPEAN FOOD SAFETY AGENCY (EFSA) HIGHLIGHTS RISKS FROM POTENTIAL CARCINOGEN IN VEGETABLE FATS

3-Monochloropropane-1,2-diol (3-MCPD) is a food processing contaminant classified as a possible carcinogen for which the tolerable daily intake (TDI) has been set at 2 µg/kg body weight (bw). The main target of 3-MCPD toxicity is the kidney, with chronic oral exposure leading to nephropathy and tubular hyperplasia and adenomas. The international Agency for Research on Cancer classified 3-MCPD as a possible human carcinogen¹.

3-MCPD was first discovered in hydrolyzed vegetable protein (HVP), a seasoning ingredient, in soy sauce and similar foods. The compound is formed by heat as a reaction product of triacylglycerols, phospholipids or glycerol and hydrochloric acid in fat-based or fat-containing foods. Depending on the type of food it may occur as a free substance, in the form of an ester and with fatty acids in both forms.

The EFSA report¹ assessed data on the occurrence of 3-MCPD in foods from 14 EU members from 2009-2011 and found that margarines and similar products contributed to 13-83% of the total exposure to the contaminant, bread and rolls (in which margarines are used) contributed to 6-26%, vegetable oils and fats contributed to 5-74%, fine bakery wares 4-29% and preserved meals 3-18%. Overall edible refined fats and oils, like margarines and vegetable oils, were the biggest contributors.

The Commission Regulation (EC) No 1881/2006 of 19 December 2006 which set maximum levels for certain contaminants in foodstuffs set the level of 3-MCPD at 20 µg/kg for HVP and soy sauce whereby the maximum level is given for the liquid product containing 40 % dry matter, corresponding to a maximum level of 50 µg/kg in the dry matter. The level needs to be adjusted proportionally according to the dry matter content of the products².

As EFSA noticed that there was some uncertainty about exposure and occurrence and that the dataset does not include composite foods such as fried, baked or other thermally treated fat-containing products, EFSA urged food companies to provide their own data on 3-MCPD to strengthen the current dataset.



¹ [EFSA Journal - Analysis of occurrence of 3-monochloropropane-1,2-diol \(3-MCPD\) in food in Europe in the years 2009-2011 and preliminary exposure assessment](#)

² [COMMISSION REGULATION \(EC\) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs-\(Text with EEA relevance\)](#)

The SGS Food Lab Network can offer the analyses of 3-MCPD and its esters under accreditation.

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