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EU RECOMMENDATION ON 2- AND 3-MCPD, 2- AND 3-MCPD FATTY ACID ESTERS, AND GLYCIDYL FATTY ACID ESTERS IN FOOD

On 10 September 2014, the EU published Commission Recommendation 2014/661 related to the monitoring of the presence of 2- and 3-monochloropropane-1,2-diol (2 and 3-MCPD), 2-and 3-MCPD fatty acid esters and glycidyl fatty acid esters in feed and food products[1]. The presence of free and ester forms of MCPD and glycidyl esters should be reported separately. The analytical results of the individual laboratories of the Member States shall report to the European Food Safety Authority (EFSA) every six months. This recommendation came into force with the date of issue.

Ester of 2- and 3-Monochloropropane-1,2-diol (MCPD) and glycidyl esters are food contaminants which are generated under high temperatures during the deodorisation step of oil refining. In the human digestion tract, fatty acid esters of MCPD and glycidyl esters can release 3-MCPD and glycidol, respectively. These compounds are classified as possible human carcinogens. The EU Scientific Committee established a tolerable daily intake (TDI) of 2 µg/kg body weight per day for 3-MCPD[2]. Maximum levels of 3-MCPD in foodstuffs, particularly in hydrolysed vegetable protein (HVP) and soy sauce, have been set at 20 µg/kg for liquid products containing 40% dry matter, corresponding to a maximum level of 50 µg/kg in dry matter, according to Commission Regulation (EC) No 1881/2006[3]. Nevertheless, there is no maximum level of glycidol in food products.

EFSA's 20 September 2013[4] report includes data on 3-MCPD levels in food, based on analytical results collected in European Member States from 2009 to 2011. Therefore, the EU Commission recommends monitoring the presence of MCPD, MCPD-esters, and glycidyl esters in vegetable oils and fats, derived foods containing vegetable oil and fats. To adopt Recommendation 2014/661, Member States should follow the points below:

1. It is necessary to monitor the presence of MCPD esters and glycidyl esters in foods, particularly in: (a) vegetable oils and fats and derived products such as margarine and similar products, (b) food intended for infants, young children, and food for special medical purposes, (c) fine bakery wares, bread and rolls, (d) canned meat (smoked) and canned fish (smoked), (e) potatoes or cereal based snacks, other fried potato based product, and (f) vegetable oil containing foods

[1] EU published Commission Recommendation
[2] EU Scientific Committee
[3] (EC) No 1881/2006
[4] EFSA

and food prepared/produced with vegetable oils. Due to the lack of a method to analyse the products listed in (b) to (f), Member States have to ensure that the data generated is reliable. Member States can request technical assistance from the Commission's Joints Research Centre, Institute for Reference Material and Measurements (IRMM), Unit Standards for Food Bioscience.

2. To ensure that samples are representative for the sample lot, Member States should follow the sampling procedure of Commission Regulation (EC) No 333/2007.
3. To determine ester bound MCPD in vegetable oils and fats, the American Oil Chemists' Society standard method, based on the Gas Chromatography Mass Spectrometry (GC-MS) technique, is recommended. The Limit of Quantification (LOQ) should not be higher than 100µg/kg for MCPD and glycidol bound to fatty acid esters in edible oils and fats. For other food containing more than 10% fat, the LOQ should preferably not be higher when related to the fat content of food, e.g. the LOQ of fatty acid esters of MCPD and glycidol in food containing 20% fat should be less than 20 µg/kg on a whole weight basis.
4. To avoid the transformation of glycidyl esters into MCPD esters and vice versa during analysis, labs should have a quality control procedure in place to handle this step. Free 2- and 3-MCPD in the analysed matrix should be reported separately from 2-and 3-MCPD fatty acid esters, even though both forms are qualified as 3-MCPD. In addition, glycidyl esters should also be analysed and reported separately. If any laboratories have the capabilities to analyse free glycidols in foods, they should report the results. However, at the time of writing, there is no evidence that free glycidols are found in foods.
5. Member States should provide the analytical results of these compounds on a regular basis, every six months, to EFSA in the EFSA data submission format and following EFSA's guidance on Standard Sample Description (SSD) for Food and Feed and additional EFSA specific reporting requirements.
6. A guidance note will be prepared to ensure uniform application of this recommendation. This will ensure that submissions are comparable and useful for monitoring.

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FOR ENQUIRIES:

Global Competence Support Centre:
gcsc@sgs.com

TL– Amornpun Dajsiripun, Tel: +66 2683 0541
or Amornpun Dajsiripun@sgs.com

Asia – Hong Kong,
Tel: +852 2334 4481,
mktg.hk@sgs.com

Australasia – Perth.
Tel: +61 (0) 3 9790 3418
au.cts@sgs.com

Europe – London – UK.
Tel: +44(0) 203 008 7860
gb.cts.sales@sgs.com

Africa & Middle East – Turkey.
Tel: +90 212 368 40 00
sgs.turkey@sgs.com

Americas – USA.
Tel: +1 973 575 5252
uscts.inquiries@sgs.com

www.sgs.com/cgnr