

Commission Implementing Regulation (EU) 2019/2093 of 29 November 2019 amending Regulation (EC) No 333/2007 as regards the analysis of 3-monochloropropane-1,2-diol (3-MCPD) fatty acid esters, glycidyl fatty acid esters, perchlorate and acrylamide (Text with EEA relevance)

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/2093. (See end of Document for details)

## ANNEX U.K.

The Annex to Regulation (EC) No 333/2007 is amended as follows:

- (1) in point C.3.1, Definitions, the definitions of ‘LOD’ and ‘LOQ’ are replaced by the following:
- “LOD” = Limit of detection, smallest measured content, from which it is possible to deduce the presence of the analyte with reasonable statistical certainty.
- “LOQ” = Limit of quantification, lowest content of the analyte which can be measured with reasonable statistical certainty.;
- (2) in point C.3.3.1, Performance criteria, point (b) is replaced by the following:
- (b) Performance criteria for methods of analysis for 3-monochloropropane-1,2-diol (3-MCPD), 3-MCPD fatty acid esters and glycidyl fatty acid esters:
- Performance criteria for methods of analysis for 3-MCPD in foods specified in point 4.1 of the Annex to Regulation (EC) No 1881/2006

*TABLE 6A*

| Parameter                           | Criterion   |
|-------------------------------------|---|
| Applicability                       | Foods specified in point 4.1 of the Annex to Regulation (EC) No 1881/2006 |
| Specificity                         | Free from matrix or spectral interferences                                |
| Field blanks                        | Less than LOD   |
| Repeatability (RSD <sub>r</sub> )   | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation   |
| Reproducibility (RSD <sub>R</sub> ) | as derived from (modified) Horwitz equation                               |
| Recovery                            | 75-110 %  |
| Limit of Detection (LOD)            | ≤ 5 µg/kg (on dry matter basis)   |
| Limit of Quantification (LOQ)       | ≤ 10 µg/kg (on dry matter basis)  |

- Performance criteria for methods of analysis for 3-MCPD in foods specified in point 4.3 of the Annex to Regulation (EC) No 1881/2006

*TABLE 6B*

| Parameter | Criterion |
|-----------|-----------|
|-----------|-----------|

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|                                     |   |
|-------------------------------------|---|
| Applicability                       | Foods specified in point 4.3 of the Annex to Regulation (EC) No 1881/2006 |
| Specificity                         | Free from matrix or spectral interferences                                |
| Field blanks                        | Less than LOD   |
| Repeatability (RSD <sub>r</sub> )   | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation   |
| Reproducibility (RSD <sub>R</sub> ) | as derived from (modified) Horwitz equation                               |
| Recovery                            | 75-110 %  |
| Limit of Detection (LOD)            | ≤ 7 µg/kg   |
| Limit of Quantification (LOQ)       | ≤ 14 µg/kg  |

— Performance criteria for methods of analysis for 3-MCPD fatty acid esters, expressed as 3-MCPD, in foods specified in point 4.3 of the Annex to Regulation (EC) No 1881/2006

TABLE 6C

| Parameter   | Criterion   |
|---|---|
| Applicability   | Foods specified in point 4.3 of the Annex to Regulation (EC) No 1881/2006 |
| Specificity   | Free from matrix or spectral interferences                                |
| Repeatability (RSD <sub>r</sub> )   | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation   |
| Reproducibility (RSD <sub>R</sub> )   | as derived from (modified) Horwitz equation                               |
| Recovery  | 70-125 %  |
| Limit of Detection (LOD)  | Three tenths of LOQ   |
| Limit of Quantification (LOQ) for foods specified in 4.3.1 and 4.3.2                              | ≤ 100 µg/kg in oils and fats  |
| Limit of Quantification (LOQ) for foods specified in 4.3.3 and in 4.3.4 with a fat content < 40 % | ≤ two fifths of the ML  |
| Limit of Quantification (LOQ) for foods specified in 4.3.4 with a fat content ≥ 40 %              | ≤ 15 µg/kg fat  |

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- Performance criteria for methods of analysis for glycidyl fatty acid esters, expressed as glycidol, in foods specified in point 4.2 of the Annex to Regulation (EC) No 1881/2006

TABLE 6D

| Parameter  | Criterion   |
|--|---|
| Applicability  | Foods specified in point 4.2 of the Annex to Regulation (EC) No 1881/2006 |
| Specificity  | Free from matrix or spectral interferences                                |
| Repeatability (RSD <sub>r</sub> )  | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation   |
| Reproducibility (RSD <sub>R</sub> )  | as derived from (modified) Horwitz equation                               |
| Recovery   | 70-125 %  |
| Limit of Detection (LOD)   | Three tenths of LOQ   |
| Limit of Quantification (LOQ) for foods specified in 4.2.1 and 4.2.2   | ≤ 100 µg/kg in oils and fats  |
| Limit of Quantification (LOQ) for foods specified in 4.2.3 with a fat content < 65 % and in 4.2.4 with a fat content < 8 % | ≤ two fifths of the ML  |
| Limit of Quantification (LOQ) for foods specified in 4.2.3 with a fat content ≥ 65 % and in 4.2.4 with a fat content ≥ 8 % | ≤ 31 µg/kg fat  |

- (3) in point C.3.3.1, Performance criteria, point (d), ‘Notes to the performance criteria’ is replaced by the following:

- (d) Performance criteria for methods of analysis for acrylamide:

TABLE 8

| Parameter     | Criterion                                  |
|---------------|--|
| Applicability | All foods                                  |
| Specificity   | Free from matrix or spectral interferences |
| Field blanks  | Less than Limit of Detection (LOD)         |

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|                                     |  |
|-------------------------------------|--|
| Repeatability (RSD <sub>r</sub> )   | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation  |
| Reproducibility (RSD <sub>R</sub> ) | as derived from (modified) Horwitz equation  |
| Recovery                            | 75-110 %   |
| Limit of Detection (LOD)            | Three tenths of LOQ  |
| Limit of Quantification (LOQ)       | For foods with benchmark levels < 125 µg/kg: ≤ two fifths of the benchmark level, however not required to be lower than 20 µg/kg<br>For foods with benchmark level ≥ 125 µg/kg: ≤ 50 µg/kg |

(4) in point C.3.3.1, Performance criteria, the following points (e) and (f) are added:

(e) Performance criteria for methods of analysis for perchlorate:

TABLE 9

| Parameter                           | Criterion   |
|-------------------------------------|---|
| Applicability                       | All foods   |
| Specificity                         | Free from matrix or spectral interferences                              |
| Repeatability (RSD <sub>r</sub> )   | 0,66 times RSD <sub>R</sub> as derived from (modified) Horwitz equation |
| Reproducibility (RSD <sub>R</sub> ) | as derived from (modified) Horwitz equation                             |
| Recovery                            | 70-110 %  |
| Limit of Detection (LOD)            | Three tenths of LOQ   |
| Limit of Quantification (LOQ)       | ≤ two fifths of the ML  |

(f) Notes to the performance criteria:

The Horwitz equation<sup>(1)</sup> (for concentrations  $1,2 \times 10^{-7} \leq C \leq 0,138$ ) and the modified Horwitz equation<sup>(2)</sup> (for concentrations  $C < 1,2 \times 10^{-7}$ ) are generalised precision equations which are independent of analyte and matrix but solely dependent on concentration for most routine methods of analysis.

Modified Horwitz equation for concentrations  $C < 1,2 \times 10^{-7}$ :

$$RSD_R = 22 \%$$

where:

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- $RSD_R$  is the relative standard deviation calculated from results generated under reproducibility conditions

$$\left[ \left( \frac{S_R}{X} \right) \times 100 \right]$$

- C is the concentration ratio (i.e. 1 = 100g/100g, 0,001 = 1 000 mg/kg). The modified Horwitz equation applies to concentrations  $C < 1,2 \times 10^{-7}$ .

Horwitz equation for concentrations  $1,2 \times 10^{-7} \leq C \leq 0,138$ :

$$RSD_R = 2C^{(-0,15)}$$

where:

- $RSD_R$  is the relative standard deviation calculated from results generated under reproducibility conditions

$$\left[ \left( \frac{S_R}{X} \right) \times 100 \right]$$

- C is the concentration ratio (i.e. 1 = 100g/100g, 0,001 = 1 000 mg/kg). The Horwitz equation applies to concentrations  $1,2 \times 10^{-7} \leq C \leq 0,138$ .

- (5) in point C.3.3.2., ‘Fitness-for-purpose’ approach, the words ‘Table 8’ are replaced by the words ‘Table 10’.

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2019/2093. (See end of Document for details)

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- (1) W. Horwitz, L.R. Kamps, K.W. Boyer, J.Assoc.Off.Analy.Chem.,63, 1980, 1344-1354.
- (2) M. Thompson, Analyst, 125, 2000, 385-386.'

**Changes to legislation:**

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