Commission Regulation (EU) No 118/2010 of 9 February 2010 amending Regulation (EC) No 900/2008 laying down the methods of analysis and other technical provisions necessary for the application of the arrangements for imports of certain goods resulting from the processing of agricultural products

COMMISSION REGULATION (EU) No 118/2010

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff[(1)], and in particular Article 9 thereof,

Whereas:

(1) Commission Regulation (EC) No 900/2008[(2)] lays down the formulas, procedures and methods to be used for the determination of starch/glucose for applying Annexes II and III of Commission Regulation (EC) No 1460/96 of 25 July 1996 establishing the detailed rules for implementing the preferential trade arrangements applicable to certain goods resulting from the processing of agricultural products, as provided for in Article 7 of Council Regulation (EC) No 3448/93[(3)].

(2) Regulation (EC) No 900/2008 has been examined by a group of experts, with a view to assessing whether that Regulation takes account of the scientific and technological evolution of the methods laid down in that Regulation. Studies and tests carried out in the framework of that examination indicate that the determination of the starch/glucose content by solubilisation by means of sodium hydroxide (prior to enzymatic degradation to glucose) and the measurement of the total glucose content using the enzymatic method with spectrophotometry as prescribed for most goods now, do not meet any longer the current technical requirements and are therefore to be updated.

(3) It is therefore appropriate to provide that the degradation of starch/glucose is to be carried out in an enzymatic way by amylase and amyloglucosidase and that the total glucose content is to be determined using high performance liquid chromatography (HPLC) and to specify how the enzymatic method is to be carried out.

(4) Regulation (EC) No 900/2008 should therefore be amended accordingly.

(5) The measures provided for in this Regulation are in accordance with the opinion of the Customs Code Committee,

HAS ADOPTED THIS REGULATION:

Changes to legislation: *There are currently no known outstanding effects for the Commission Regulation (EU) No 118/2010. (See end of Document for details)*

Article 1

Annex I to Regulation (EC) No 900/2008 is replaced by the text set out in the Annex to this Regulation.

Article 2

This Regulation shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 9 February 2010.

For the Commission

The President

José Manuel BARROSO

***Changes to legislation:** There are currently no known outstanding effects for the Commission Regulation (EU) No 118/2010. (See end of Document for details)*

ANNEX

ANNEX I

Enzymatic determination of starch and its degradation products including glucose in food products using high performance liquid chromatography (HPLC)

1. Scope

This method describes the determination of the content of starch and its degradation products including glucose in food products for human consumption hereafter referred to as "starch". The starch content is determined from the quantitative analysis of glucose by high-performance liquid chromatography (HPLC) after enzymatic conversion of starch and its degradation products into glucose.

2. Definition of the total glucose content and of the total glucose content expressed as starch

The total glucose content means the value Z as calculated in point 7.2.1 of this Annex. It represents the content of starch and all its degradation products, glucose included.

The starch/glucose content as defined in Annex III to Regulation (EC) No 1460/96 shall be calculated on the basis of the total glucose content Z and as set out in Article 2 point 1 of this Regulation.

The starch (or dextrin) content as referred to in column 3 of Annex IV to Commission Regulation (EC) No 1043/2005[(4)] shall be calculated on the basis of the total glucose content Z as set out in Article 2 point 2.1 of Commission Regulation (EC) No 904/2008[(5)].

The Starch content referred to in point 1 of this Annex means the value E, as calculated in point 7.2.2 of this Annex. It is expressed in % (m/m). It is equivalent to the total glucose content Z, expressed as starch. This value E does not interfere in the above mentioned calculations.

3. Principle

The samples are homogenised and suspended in water. The starch and its degradation products, present in the samples, are enzymatically converted into glucose in two steps:

1. Starch and its degradation products are partially converted into soluble glucose chains using thermostable alpha-amylase at 90 °C. For effective conversion it is necessary that the samples should be completely solved or should be present in the form of a suspension containing very small solid parts

2. The soluble glucose chains are converted into glucose using amyloglucosidase at 60 °C.

Products containing a high content of proteins or fat are clarified and filtrated.

The determination of sugars is performed by HPLC analysis.

Because a partial inversion of sucrose may occur during the enzymatic treatment, the determination of free sugars is also performed by HPLC analysis to calculate the corrected glucose content.

4. Reagents and other materials

Use reagents of recognised analytical grade and demineralised water.

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4.1. Glucose, min 99 %.

4.2. Fructose, min 99 %.

4.3. Sucrose, min 99 %.

4.4. Maltose-monohydrate, min 99 %.

4.5. Lactose-monohydrate, min 99 %.

4.6. Solution of thermostable alpha-amylase (1,4-alpha-D-Glucan-glucanohydrolase), with activity about 31 000 U/ml (1U will liberate 1,0 mg of maltose from starch in 3 minutes at pH 6,9 and 20 °C). This enzyme can contain a low amount of impurities (e.g. glucose or sucrose) and other interfering enzymes. Storage at ca. 4 °C. Alternatively, other sources of alpha-amylase may be used yielding a final solution with comparable enzyme activity.

4.7. Amyloglucosidase (1,4-alpha-D-Glucan glucohydrolase) from Aspergillus niger, powder with activity about 120 U/mg or about 70 U/mg (1U will liberate 1 micromol glucose from starch per minute at pH 4,8 and 60 °C). This enzyme can contain a low amount of impurities (e.g. glucose or sucrose) and other interfering enzymes (e.g., Invertase). Storage at ca. 4 °C. Alternatively, other sources of amyloglucosidase may be used yielding a final solution with comparable enzyme activity.

4.8. Zinc acetate dihydrate, p.a..

4.9. Potassium hexacyanoferrate (II) ($K_4[Fe(CN)]_6.3H_2O$), extra pure.

4.10. Sodium acetate anhydrous, p.a..

4.11. Glacial acetic acid, 96 % (v/v) (minimum).

4.12. Sodium acetate buffer (0,2 mol/l). Weigh 16,4 gram sodium acetate (point 4.10) into a beaker glass. Dissolve in water and rinse into a volumetric flask of 1 000 ml. Dilute to the mark with water and adjust the pH to 4,7 with acetic acid (by use of a pH-meter (point 5.7). This solution may be used for max 6 months with storage at 4 °C.

4.13. Amyloglucosidase solution. Prepare a solution of amyloglucosidase powder (point 4.7) by using sodium acetate buffer (point 4.12). The enzyme activity must be sufficient and in accordance with the starch content in the amount of sample (for example, activity about 600 U/ml is obtained from 0,5 g amyloglucosidase powder 120 U/mg (point 4.7) in a final volume of 100 ml for 1 g starch in the amount of sample). Prepare immediately before use.

4.14. Reference solutions. Prepare solutions of glucose, fructose, sucrose, maltose and lactose in water, as conventionally used in the HPLC analysis of sugars.

4.15. Reagent for clarification (Carrez I). Dissolve 219,5 gram zinc acetate (point 4.8) in water in a beaker glass. Rinse into a volumetric flask of 1 000 ml and add 30 ml acetic acid (point 4.11). Mix thoroughly and dilute to the mark with water. This solution may be used for max 6 months while stored at ambient temperature. Other clarification reagents, equivalent to Carrez solution, may be used.

4.16. Reagent for clarification (Carrez II). Dissolve 106,0 gram potassium hexacyanoferrate (II) (point 4.9) in water in a beaker glass. Rinse into a volumetric flask of 1 000 ml. Mix thoroughly and dilute to the mark with water. This solution may be used for max. 6 months while stored at ambient temperature. Other clarification reagents, equivalent to Carrez solution, may be used.