

## THAI AGRICULTURAL STANDARD

### PEANUT KERNEL : MAXIMUM LEVEL OF AFLATOXIN

#### 1. SCOPE

This standard establishes aflatoxin level and control measures for dried peanut kernel, as raw material for further processing as food in order to regulate the producers, traders and inspection of produced, imported or exported dried peanut kernel.

#### 2. DEFINITIONS

For the purpose of this standard:

2.1 Aflatoxin means mycotoxin that is produced by fungi species, especially *Aspergillus flavus* and *Aspergillus parasiticus*. In general at least four types of aflatoxin are produced and found in peanuts, namely aflatoxin B1 and B2 and aflatoxin G1 and G2.

2.2 Total aflatoxins mean the sum of aflatoxin B1, B2, G1 and G2.

2.3 Dried in-shell means a stripped peanut pod after sun-drying or mechanical drying.

2.4 Peanut kernel means a kernel obtained after the dried pod has been shelled, excluding seed.

2.5 Peanut kernel producer means person who performs commercial transaction of shelling activities including collector, packer, and warehouse operator, for commercial purposes.

#### 3. AFLATOXIN LEVEL AND CONTROL

3.1 Maximum level of total aflatoxins in peanut kernel shall not exceed 20 microgram/kilogram.

3.2 The peanut kernel producer shall have control measures in place as follows:

3.2.1 Mouldy kernel, broken kernel, damaged kernel and foreign matters shall be sorted before distribution and recorded as evidence. Such defective kernel shall be separated in clearly labelled container, and shall not be marketed for human consumption or processed into food products.

3.2.2 To ensure that peanut kernel is in compliance with Section 3.1, the peanut producer as a shelling manufacturer shall be required to test aflatoxin level of each lot of peanut kernel prior to distribution. In case of collector, packer, and warehouse operator, the aflatoxin level in peanut kernel shall be randomly tested during storage and the test result shall be kept for inspection by conformity assessment body or official inspector as requested.

3.2.3 The records of Section 3.2.1 and Section 3.2.2 shall be kept for at least 2 years.

3.3 Peanut kernel exporter shall have the evidence showing that exported peanut kernel is produced by the licensed and certified peanut kernel producer in accordance with this standard accompanying with the test result showing that aflatoxin level does not exceed the maximum level as required by trading-partner countries.

3.4 Peanut kernel importer shall have the evidence showing that imported peanut kernel is produced from peanut kernel producer who has control measure in place as specified in Section 3.2 accompanying with the test result issued by the competent authority or recognised laboratory showing that aflatoxin level does not exceed the maximum level specified in Section 3.1.

#### 4. METHODS OF SAMPLING

The methods specified in the most updated version of an Annex to the CODEX STAN 193 General Standard for Contaminants and Toxins in Foods and Feeds or Appendix A of this standard shall be applied.

#### 5. METHODS OF ANALYSIS FOR AFLATOXIN

5.1 Methods of analysis for total aflatoxins are shown in Table 1:

**Table 1** Methods of analysis for total aflatoxins  
(Section 5.1)

<b>Requirement</b>	<b>Method of analysis<sup>1/</sup></b>	<b>Principle</b>
Total aflatoxins	AOAC 991.31	Immunoaffinity column (Aflatest)
	AOAC 993.17	Thin layer chromatography
	AOAC 975.36	Romer minicolumn
	EN 12955 ISO 16050	HPLC with post column derivatization and immunoaffinity column clean up
	AOAC 979.18	Holaday-Velasco minicolumn

<sup>1/</sup> Referring to the most updated edition

5.2 In case unable to be analysed as of Table 1, an alternative method shall be selected according to its sensitivity for detecting aflatoxin at or below the maximum level of total aflatoxins as specified in Section 3.1 and its performance characteristics shall be deemed appropriate and in compliance with one of the following criteria.

5.2.1 The method issued by the national competent authority or international standard organization or published manuals or other publications as internationally accepted.

5.2.2 The method validated by laboratories through collaborative studies in accordance with internationally accepted guidelines.

5.2.3 In case none of the above mentioned methods is available, the method validated by single laboratory validation in accordance with internationally accepted guideline is acceptable.

5.2.4 Aflatoxin test kit is used for initial screening for the control and test of aflatoxin by peanut kernel producer according to Section 3.2.2. Such test kit shall be validated.

## APPENDIX A

## METHOD OF SAMPLING FOR AFLATOXIN ANALYSIS IN PEANUT KERNEL

## (Section 4)

Sampling of peanut kernel shall be conducted in such a way that these samples are represented the entire lot with the details described as follows:

A.1 The material taken from a single random place in the lot or subplot (incremental sample) shall be about 200 grams.

A.2 Number of incremental samples to be taken depends on the weight of the lot specified in Table A.1 and A.2

**Table A.1** Lot weight, sublots, Number of incremental samples, Laboratory sample weight for the lot weight larger than 15 tonnes.

(Section A.2)

Lot weight (tonne)	Weight or Number of Sublots	Number of incremental samples	Laboratory sample weight (kg)
> 500	100 tonnes	100	20
> 125 - 500	5 sublots	100	20
> 25 - 125	25 tonnes	100	20
> 15 - 25	1 subplot	100	20

*Sources:*

1. *Manual for Testing and Certification Service of Agricultural Commodity for Export, Department of Agriculture (2012)*

2. *Commission Regulation (EC) No.401/2006 of 23 February 2006 laying down the methods of sampling and analysis for the official control of the levels of mycotoxins in foodstuffs*

3. *Commission Regulation (EU) No.178/2010 of March 2010 amending Regulation (EC) No 401/2006 as regards groundnuts (peanuts), other oilseeds, tree nuts, apricot kernels, liquorice and vegetable*

4. *Annex to CODEX STAN 193 General Standard for Contaminants and Toxins in Food and Feed)*

**Table A.2** Lot weight, Number of incremental samples, Laboratory sample weight for the lot weight less than 15 tonnes.

(Section A.2)

Lot weight (tonne)	Number of incremental samples	Aggregate sample Weight (kg)	Number of laboratory samples
≤ 0.1	10	2	1
> 0.1 - 0.2	15	3	1
> 0.2 - 0.5	20	4	1
> 0.5 - 1.0	30	6	1
> 1.0 - 2.0	40	8	1
> 2.0 - 5.0	60	12	2 samples at equal weight
> 5.0 - 10.0	80	16	2 samples at equal weight
> 10.0 - 15.0	100	20	2 samples at equal weight

Sources:

1. *Manual for Testing and Certification Service of Agricultural Commodity for Export, Department of Agriculture (2012)*

2. *Commission Regulation (EC) No.401/2006 of 23 February 2006 laying down the methods of sampling and analysis for the official control of the levels of mycotoxins in foodstuffs*

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A.3 In case of vacuum pack

A.3.1 For lot weight larger than 15 tonnes, at least 50 incremental samples shall be taken resulting in a 20 kg aggregate sample.

A.3.2 For lot weight of equal to or less than 15 tonnes, 50% of the number of incremental samples as shown in Table A.2 shall be taken resulting in an aggregate sample of which the weight corresponds to the weight of the sampled lot.