



THAI AGRICULTURAL STANDARD

TAS 9003-2004

**PESTICIDE RESIDUES:
EXTRANEOUS MAXIMUM RESIDUE LIMITS**

**National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives**

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**National Bureau of Agricultural Commodity and Food Standards
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Thailand is one of the leading suppliers for agricultural commodities and food. In order to control the extraneous pesticide residues in food and animal feed commodities to be complied with national and international requirements, the Ministry of Agriculture and Cooperatives considered it deemed necessary to elaborate a Thai Agricultural Standard on “Pesticide Residues: Extraneous maximum residue limits”.

The establishment of this standard is based on the information of the following documents:

FAO/WHO. 1998. Pesticide Residues in Food–Maximum Residue Limits. Codex Alimentarius Volume 2B, 2nd Edition (Revised 1998). Joint FAO/WHO Food Standard Programme, FAO, Rome. 566p.

FAO/WHO. 2004. Draft and Proposed Draft Maximum Residue Limits in Foods and Feeds at Step 7 and 4 (CX/PR 04/5). Joint FAO/WHO Food Standard Programme, FAO, Rome. March 2004, 254p.

WHO. 1997. Guidelines for Predicting Dietary Intake of Pesticide Residue (revised). Prepared by the Global Environment Monitoring System–Food Contamination Monitoring and Assessment Programme (GEMS/Food) in collaboration with Codex Committee on Pesticide Residues, WHO/FSF/FOS/97.7, WHO, Geneva. 39p.

Remark:

The standard title has been revised from “Thai Agricultural Commodity and Food Standard (TACFS)” to “Thai Agricultural Standard (TAS)” in accordance with the enforcement of the Agricultural Standards Act B.E. 2551 (2008).



**NOTIFICATION OF THE NATIONAL COMMITTEE ON
AGRICULTURAL COMMODITY AND FOOD STANDARDS
SUBJECT: THAI AGRICULTURAL COMMODITY AND FOOD STANDARD:
PESTICIDE RESIDUES: EXTRANEOUS MAXIMUM RESIDUE LIMITS
B.E. 2547 (2004)**

The resolution of the 2/2547 session of the National Committee on Agricultural Commodity and Food Standards dated 27 August B.E. 2547 (2004) endorsed the Thai Agricultural Commodity and Food Standard entitled Pesticide Residues: Extraneous maximum residue limits for the benefit of quality improvement, facilitating trade and protecting consumers.

By virtue of the Cabinet Resolution on Appointment and Authorization of the National Committee on Agricultural Commodity and Food Standards dated 19 November B.E. 2545 (2002), the Notification on Thai Agricultural Commodity and Food Standard entitled Pesticide Residues: Extraneous Maximum Residue Limits is hereby issued as a voluntary standard, the details of which are attached herewith.

Notified on 17 September B.E. 2547 (2004)

Mr. Somsak Thepsutin

Minister of Agriculture and Cooperatives

Chairperson of the National Committee on Agricultural Commodity and Food Standards

THAI AGRICULTURAL STANDARD
PESTICIDE RESIDUES:
EXTRANEOUS MAXIMUM RESIDUE LIMITS

1. SCOPE

1.1 This Thai Agricultural Standard cover the established Extraneous Maximum Residue Limits (EMRL) of pesticides in agricultural commodities used as food and animal feed. The use of EMRL is aiming for the reference on the production, trade of agricultural commodities, and the control and inspection of commodities on sale, import and export.

1.2 This standard does not cover the Maximum Residue Limit (MRL) as established in the Thai Agricultural Standard entitled “Pesticide Residues: Maximum Residue Limit” (TAS 9002).

2 DEFINITIONS

For the purpose of this standard:

2.1 **Commodity** means produces or products obtained from the production of agriculture, livestock, fishery, and forestry, to be used as food, animal feed, or processed as food or animal feed.

2.2 **Pesticide** means any substance intended for preventing, destroying, attracting, repelling, or controlling any pest including unwanted species of plants or animals during the production, storage, transport, distribution and processing of food, agricultural commodities, or animal feeds or which may be administered to animals for the control of ectoparasites. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant, fruit thinning agent, or sprouting inhibitor and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport. The term normally excludes fertilizers, plant and animal nutrients, food additives, and animal drugs.

2.3 **Pesticide residue** means any specified substance in food, agricultural commodities, or animal feed resulting from the use of a pesticide. The term includes any derivatives of a pesticide, such as conversion products, metabolites, reaction product, and impurities considered to be of toxicological significance.

2.4 **Maximum Residue Limit (MRL)** is the maximum concentration of a pesticide residue on commodity, recommended by National Committee on Agricultural Commodity and Food Standards or other national authorities. The concentration is expressed in milligrams of pesticide residue per kilogram of commodity.

2.5 **Extraneous Maximum Residue Limit (EMRL)** is the maximum concentration of a pesticide residue arising from environmental sources including the pesticides that their uses have been nationally banned but, because of their persistent properties, the residues still exist in agricultural commodities.

2.6 **Definition of residues** means pesticide residue and other chemical substances identified to analyse for compliance with MRLs established in this standard.

2.7 **Limit of quantitation (LOQ)**^{1/} means the lowest concentration of the pesticide residue that can be identified and quantitatively measured in a specified commodity with an acceptable degree of certainty by method of analysis mentioned in section 5.

3 REQUIREMENTS

3.1 The residues of legally registered pesticides found in food or feed commodities shall not exceed the Maximum Residue Limits (MRLs) as established in the Thai agricultural standard entitled “Pesticide Residues: Maximum Residue Limit” (TAS 9002).

3.2 In case of the pesticides that have been banned for a long period, but the residues still exist in agricultural commodities arising from environmental contamination, these residues found in commodities shall not exceed the Extraneous Maximum Residue Limits (EMRLs) as established in Table 1, attached herewith.

^{1/} The Limit of Determination (LOD) could be used as the same meaning with this definition.

4 Methods of Sampling and Portion of Commodity for Analysis

4.1 Method of sampling shall comply with the Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLs (latest edition), established by Codex Alimentarius Commission, Joint FAO/WHO Food Standard Programme; Codex.

4.2 Portion of commodity for residue analysis shall refer to requirements in the document Portion of Commodities to which Codex MRLs Apply and which is Analyzed (latest edition), established by Codex Alimentarius Commission, Joint FAO/WHO Food Standard Programme; Codex.

5 Methods of analysis

5.1 Methods of pesticide residue analysis shall comply with the Recommended Methods of Analysis for Pesticide Residues (latest edition) established by Codex Alimentarius Commission, Joint FAO/WHO Food Standard Programme; Codex.

5.2 Where the methods referred in section 5.1 are not available nor cover pesticide residue, nor commodity to be analysed, an alternative method shall be selected according to its sensitivity for detecting residue at or below the MRL and its performance characteristics shall be appropriate and in compliance with the following criteria:

5.2.1 The method is issued by the national competent authority or international standards organizations or published in manuals or any other publications as internationally accepted, or

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

5.2.3 Where none of the methods mentioned in section 5.2.1 and 5.2.2 is available, the method that has been appropriately validated by single laboratory validation in accordance with internationally accepted guideline is acceptable.

Table 1

Attachment to Thai Agricultural Standard

Pesticide Residues: Extraneous Maximum Residue Limits (TAS 9003-2004)

commodity	Extraneous Maximum Residue Limits (EMRL) (mg/kg)				
	Aldrin ^{1/} and Dieldrin	Chlordane ^{2/}	DDT ^{3/}	Endrin ^{4/}	Heptachlor ^{5/}
Cereal grains	0.02	0.02	0.1	0.01*	0.02
Fruits	0.05	0.02*	0.01*	0.01*	0.01*
Vegetables, Herbs and Spices	-	0.02*	-	-	0.05
Vegetables, Herbs and Spices; except Cucurbits and Root and tuber vegetables	0.05	-	-	-	-
Vegetables, Herbs and Spices; except Cucurbits	-	-	-	0.01*	-
Vegetables, Herbs and Spices; except Carrot	-	-	0.01	-	-
Root and tuber vegetables	0.1	-	-	-	-
Carrot	-	-	0.2	-	-
Plants for sugar	0.05	0.02*	0.01*	0.01*	0.01*
Plants for beverages	0.2	0.02*	0.01*	0.01*	0.05
Nuts and Seeds	0.05	0.02	0.01*	0.01*	0.02
Pulses and Oil seeds	0.05	0.02	0.01*	0.01*	0.02
Vegetable fats and oils	0.2	0.02	0.05	0.05	0.02
Animal fats and oils	0.2	0.05	1	0.05	0.2
Mamalian meat and edible offal (fat) ^{6/}	0.2	0.05	5	0.05	0.2
Poultry meat and edible offal (fat) ^{6/}	0.2	0.05	0.3	0.1	0.2
Meat of aquatic animals, molluscs, and invertebrate animals (fat) ^{6/}	0.2	0.05	1	0.05	0.2
Meat of amphibians and reptiles (fat) ^{6/}	0.2	0.05	1	0.05	0.2
Eggs	0.1	0.02	0.1	0.005	0.05
Milk ^{7/}	0.006F	0.002F	0.02F	0.0008F	0.006F

Explanatory notes

- ^{1/} definition of residue: sum of HHDN and HEOD (fat soluble)
- ^{2/} definition of residue:
- Plant commodities: sum of cis- and trans- chlordane (fat soluble)
 - Animal commodities: sum of cis- and trans- chlordane, and oxychlordane (fat soluble)
- ^{3/} definition of residue: sum of p, p'-DDT, o, p'-DDT, p,p'-DDE, and p,p'TDE(DDD) (fat soluble)
- ^{4/} definition of residue: sum of endrin and delta-keto-endrin (fat soluble)
- ^{5/} definition of residue: sum of heptachlor and heptachlor epoxide (fat soluble)
- ^{6/} (fat) indicated after the MRLs of meat for fat-soluble pesticide residues means the MRL applied to the fat of meat.
- ^{7/} "F" indicated after the MRLs of milk and milk products for fat-soluble pesticide residues means the MRLs for fat-soluble pesticide residues in milk and milk products expressed on a whole product based. In addition, criteria for using the MRL with "F" are as follows:
- (1) For a "milk product" with a fat content less than 2 %, the MRL applied should be as half of those specified for milk.
 - (2) For a "milk product" with a fat content of 2 % or more, the MRL applied should be 25 times of the established MRL for milk, expressed on a fat basis.
- The mark "*" following the MRLs means these MRLs established at Limit of Quantitation (LOQ).