THE MINISTRY OF HEALTH ------ SOCIALIST REPUBLIC OF VIET NAM Independence - Freedom - Happiness

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No. 02/2011/TT-BYT

Hanoi, January 13, 2011

### CIRCULAR

## PROMULGATING THE NATIONAL TECHNICAL REGULATION ON THE SAFETY LIMITS OF CHEMICAL CONTAMINATION IN FOOD

#### THE MINISTER OF HEALTH

Pursuant to the Law on Technical regulations and standards on June 29, 2006 and the Government's Decree No. 127/2007/ND-CP on August 01, 2007 on detailing the implementation of a number of articles of the Law on Technical regulations and standards;

Pursuant to the Ordinance on food safety and hygiene on August 07, 2003 and the Government's Decree No. 163/2004/ND-CP on September 07, 2004 on detailing the implementation of a number of articles of the Ordinance on food safety and hygiene;

Pursuant to the Government's Decree No. 188/2007/ND-CP on December 27, 2007 on defining the functions, tasks, powers and organizational structure of the Ministry of Health;

At the proposal of the Director of Food safety and hygiene Department, the Director of the Science and Education Department, the Director of the Legal Affair Department

#### **PRESCRIBES:**

**Article 1.** Promulgating together with this Circular the National technical regulation on the safety limits of chemical contamination in food, including:

1. QCVN 8-1:2011/BYT the National technical regulation on the safety limits of mycotoxin contamination in food;

2. QCVN 8-2:2011/BYT the National technical regulation on the safety limits of heavy metal contamination in food;

Article 2. This Circular takes effect on August 01, 2011.

**Article 3.** The Director of the Food Safety and Hygiene Department, Heads of units belonging to the Ministry of Health, Heads of units affiliated to the Ministry of Health, the Directors of the Services of Health of central-affiliated cities and provinces and relevant organizations and individuals are responsible to implementation this Circular.

FOR THE MINISTER DEPUTY MINISTER
Trinh Quan Huan

### QCVN 8-1:2011/BYT

### NATIONAL TECHNICAL REGULATION

### ON THE SAFETY LIMITS OF MYCOTOXIN CONTAMINATION IN FOOD

### Foreword

QCVN 8-1:2011/BYT compiled by the National Technical Regulation Drafting Board about food safety and hygiene, submitted by the Food safety and hygiene Department and promulgated together with the Circular No. 02 /2011/TT-BYT on January 13, 2010 of The Minister of Health.

### NATIONAL TECHNICAL REGULATION

### ON THE SAFETY LIMITS OF MYCOTOXIN CONTAMINATION IN FOOD

### I. GENERAL PROVISIONS

### 1. Scope of regulation

This Regulation specifies the safety limits of mycotoxin contamination in food and other relevant management requirements.

### 2. Subjects of application

This Regulation is applicable to:

a) Organizations and individuals importing, producing and trading food at risk of mycotoxin contamination

b) Relevant organizations and individuals.

### 3. Interpretation of terms and abbreviation

In this Regulation, the terms and abbreviation are construed as follows:

a) Total aflatoxin: is the total content of aflatoxin B, B2, G1, G2.

b) AOAC: Association of Official Analytical Chemists

c) Unspecified: have not been specified.

d) Safety limit: is the maximum limit acceptable (ML). The mycotoxin contamination in food must not exceed this limit.

dd) Food at risk of mycotoxin contamination: is food, group of food specified in Clause 2 of this Regulation.

e) Total Fumonisin: the total content of Fumonisin B1 and B2

f) Nuts: such as chestnuts, cashews, pistachio...

g) Dried fruits: are fruits that have been dried, such as raisins, dried dates, fruit jam...

h) Newborn babies: are babies under 01 year old

i) Small children: are children from 1-3 years old

### **II. TECHNICAL PROVISIONS**

No.	Food products	ML		
		(µg/kg)		
		Aflatoxin B1	Total Aflatoxin	Aflatoxin M1
1.1	Peanuts and other kinds of oil seeds used as raw materials or need to be processed before using as food or as food ingredients.	8	15	Unspecified
1.2	Almonds, pistachio, dried apricots used as raw materials or need to be processed before using as food or as food ingredients.	12	15	Unspecified
1.3	Chestnuts, brazil nuts used as raw materials or need to be processed before using as food or as food ingredients.	8	15	Unspecified
1.4	Tree nuts used as raw materials, excluding the products specified in 1.2; 1.3; or need to be processed before using as food or as food ingredients	5	10	Unspecified
1.5	Peanuts and other oil seeds for eating and their derived products Except for: crude vegetable oil for refinery and refined vegetable oil	2	4	Unspecified
1.6	Almonds, pistachio, dried apricots used as food or as food ingredients.	8	10	Unspecified
1.7	Chestnuts and brazil nuts used as food or as food ingredients.	5	10	Unspecified
1.8	Tree nuts used as food, excluding the products specified in 1.6, 1.7 or products used as food ingredients	2	4	Unspecified
1.9	Material dried fruits that need to be processed before using as food or as food ingredients.	5	10	Unspecified
1.10	Dried fruits and derived products used as food or as food ingredients	2	4	Unspecified
1.11	Cereal and derived products including processed products (except for the products specified in 1.12; 1.15; 1.17)	2	4	Unspecified
1.12	Corn and rice that need to be processed before using as food or as food ingredients.	5	10	Unspecified
1.13	Material milk, thermo-processed milk, milk for producing dairy	Unspecified	Unspecified	0.5
1.14	Spices: - Chili: all kinds of chilies, chili sauce, chili powder, paprika, hot chilies.	5	10	Unspecified

### 1. The safety limits of Aflatoxin contamination in food:

	- Pepper, including both black and white pepper			
	- Nutmeg			
	- Ginger and turmeric			
1.15	Food derived from cereal for newborn babies and small children	0.1	Unspecified	Unspecified
1.16	Milk powder for children and milk for newborr babies	Unspecified	Unspecified	0.025
1.17	Diet food especially for newborn babies	0.1	Unspecified	0.025
		0 1		

2. The safety limits of Ochratoxin A contamination in food:

No	Food products	
190.	rood products	(µg/kg)
2.1	Unprocessed cereal	5
2.2	Products derived from unprocessed cereal including processed cereal	
	products and cereal for food, except for the products specified in 2.9 and	3
	2.10	
2.3	Raisin	10
2.4	Roasted coffee	5
2.5	Soluble coffee (instant coffee)	10
2.6	Wine, fruit wine, including sparkling wine, except for sweet wine	2
	(dessert wine) and wine with alcohol concentration $\geq 15^{\circ}$	<i>L</i>
2.7	Aromatic alcohol: including potable alcohol and cocktail	2
2.8	Grape juice: condensed grape juice, grape wine	2
2.9	Food derived from cereal for newborn babies and small children	0.5
2.10	Diet food especially for newborn babies	0.5
2.11	Spices:	
	- Chili: all kinds of chilies, chili sauce, chili powder, paprika, hot	
	chilies.	
	- Pepper, including both black and white pepper	30
	- Nutmeg	
	- Ginger and turmeric	
	- Mixture that contain one or some of these kinds.	
2.12	Liquorices used for herbal tea	20
2.13	Liquorices extract used for beverages or blending	80

### 3. The safety limits of Patulin contamination in food:

No.	Food products	ML
		(µg/kg)
3.1	Fruit juice, fresh fruit juice, ground fruits	50
3.2	Alcoholic drinks, apple wines, fermented drinks from apples or containing apple juice	50

3.3	Products derived from apples (apple flesh) including apple jam, ground apples used for food, except for the products specified in 3.4 and 3.5	25
3.4	Apple juice and products derived from apples (apple flesh) including apple jam, ground apples for newborn babies and small children.	10
3.5	Baby food, except for cereal food for newborn babies and small children	10

### 4. The safety limits of Deoxynivalenol contamination in food:

No.	Food products	ML
		(µg/kg)
4.1	Unprocessed oat and wheat	1750
4.2	Unprocessed cereal, except for oat, wheat and corn	1250
4.3	Material corn seeds, except for unprocessed corn seeds for wet grinding.	1750
4.4	Edible cereal, cereal powder, germs used for food, excluding the products specified in 4.7; 4.8; 4.9	750
4.5	Noodles (dried)	750
4.6	Bread, cakes, cookies, snacks and breakfasts from cereal	500
4.7	Food derived from cereal and food for newborn babies and small children	200
4.8	Ground corn with seed size $> 500 \ \mu m$	750
4.9	Ground corn with seed size $\leq 500 \ \mu m$	1250

5. The safety limits of Fumonisin contamination in this Regulation:

No.	Food products	Total Fumonisin ML (µg/kg)
5.1	Material corn seeds, excluding corn for wet grinding	4000
5.2	Edible corn, corn used as food ingredients, excluding the products in 5.3; 5.4	1000
5.3	Snacks and breakfasts from corn	800
5.4	Food derived from corn and food for newborn babies and small children	200
5.5	Ground corn with seed size $> 500 \ \mu m$	1400
5.6	Ground corn with seed size $\leq 500 \ \mu m$	2000

### 6. The safety limits of Zearalenone contamination in this Regulation:

No.	Food products	ML
		(µg/kg)
6.1	Unprocessed cereal, except for corn	100
6.2	Unprocessed corn, except for corn for wet grinding	350
6.3	Edible cereal, cereal powder, germs (excluding the products in 6.6; 6.7; 6.8; 6.9; 6.10)	75
6.4	Refined corn oil	400
6.5	Bread, cakes, cookies, snacks and breakfasts from cereal	50

6.6	Food from corn, snacks and breakfasts from corn	100
6.7	Food from cereal (except for food from corn) and food for newborn	20
	bables and small children	
6.8	Food from corn for newborn babies and small children	20
6.9	Ground corn with seed size $> 500 \ \mu m$	200
6.10	Ground corn with seed size $\leq 500 \ \mu m$	300

### **III.** Sampling and test methods

### 1. Sampling

Sampling as guided in the Circular No. 16/2009/TT-THE MINISTRY OF SCIENCE AND TECHNOLOGY on June 02, 2009 of the Ministry of Science and Technology on guiding the State inspection of circulating goods quality and other relevant law provisions.

### 2. Test methods

The technical requirements in this Regulation shall be tested using the following methods. These methods are not compulsory. Other methods with equivalent accuracy may be used.

2.1. Determination of Aflatoxins contamination:

• Using the methods in AOAC 975.36, AOAC 2005.08, AOAC 994.08, AOAC 990.32, AOAC 2000.16, AOAC 2000.08

2.2. Determination of Ochratoxin A contamination:

• Using the methods in AOAC 991.44, AOAC 2000.09, AOAC 2001.01

2.3. Determination of Patulin contamination:

• Using the methods in: AOAC 2000.02

2.4. Determination of Deoxinivalenol contamination:

• Using the methods in: AOAC 986.17

2.5. Determination of Fumonisin contamination:

• Using the methods in: AOAC 995.15, AOAC 2001 : 04

2.6. Determination of Zearalenone contamination:

• Using the methods in: AOAC 994.01, AOAC 985.18

### **IV. PROVISIONS ON MANAGEMENT**

The food at risk of mycotoxin contamination must undergo safety inspections in order to ensure that the mycotoxin contamination does not exceed the safety limits specified in this Regulation.

The quality, safety and hygiene inspections of mycotoxin contamination in food must comply with law provisions

### V. RESPONSIBILITIES OF ORGANIZATIONS AND INDIVIDUALS

Organizations and individuals must not import, produce and trade the food in which the mycotoxin content exceeds the safety limits specified in this Regulation.

### VI. ORGANIZING THE IMPLEMENTATION

**1.** The Food Safety and Hygiene Department shall take lead and cooperate with relevant functional agencies in guiding the deployment and implementation of this Regulation.

**2.** Depending on the management demand, the Food Safety and Hygiene Department send proposals to the Ministry of Health for amending and supplementing this Regulation.

**3.** In case the standards and law provisions cited in this Regulation is changed, supplemented or superseded, the new documents shall apply.

### QCVN 8-2:2011/BYT NATIONAL TECHNICAL REGULATION

#### ON THE SAFETY LIMITS OF HEAVY METAL CONTAMINATION IN FOOD

#### Foreword

QCVN 8-2:2011/BYT compiled by the National Technical Regulation Drafting Board about food safety and hygiene, submitted by the Food Safety and Hygiene Department and promulgated together with the Circular No. 02 /2011/TT-BYT on January 13, 2011 of The Minister of Health.

### NATIONAL TECHNICAL REGULATION

### ON THE SAFETY LIMITS OF HEAVY METAL CONTAMINATION IN FOOD

### I. GENERAL PROVISIONS

### **1. Scope of regulation**

This Regulation specifies the safety limits of heavy metal contamination in food and the relevant management requirements.

### 2. Subjects of application

This Regulation is applicable to:

2.1. The organizations, individuals importing, producing, trading food at risk of heavy metal contamination.

2.2. Relevant organizations and individuals.

### 3. Interpretation of terms

The terms in this Regulation are construed as follows:

3.1. The safety limit is the maximum limit of content of a heavy metal allowed in food.

3.2. Food at risk of heavy metal contamination: Are food or groups of food specified in Section II (Technical provisions) of this Regulation.

3.3. The *Provisional Tolerable Weekly Intake (PTWI)*: is the load of heavy metal contamination allowed to take in weekly that does not harm the human health (unit: mg/kg body weight)

PTWI (Arsenic):	0.015 mg/kg body weight (by inorganic arsenic)
PTWI (Cadmium):	0.007 mg/kg body weight

<b>II. TECHNICAL PROVISI</b>	ONS
PTWI (Tin):	14 mg/kg body weight
PTWI (Mercury Methyl):	0.0016 mg/kg body weight
PTWI (Mercury):	0.005 mg/kg body weight
PTWI (Lead):	0.025 mg/kg body weight

# Safety limits of Arsenic (As), Cadmium (Cd), Lead (Pb), Mercury (Hg), Mercury (methyl) (MeHg) and Tin (Sn) contamination in food

		Safety limit (mg/kg)						
No.	Product	Arsenic (As)	Cadmium (Cd)	Lead (Pb)	Mercury (Hg)	Mercury (methyl) (MeHg)	Tin (Sn)	
1	Milk and dairy	0.5	1.0	0.02	0.05	-	-	
2	Meat and products from meat	1.0	-	-	0,05	-	-	
3	Meat of cattle, pig, ship, poultry	-	0.05	0.1	-	I	-	
4	Horse meat	-	0.2	-	-	-	-	
5	Liver of cattle, pigs, ship, poultry	-	0.5	-	-	-	-	
6	Kidney of cattle, pigs, ship, poultry	-	1.0	-	-	-	-	
7	By-products from cattle, pigs, ship, poultry	-	-	0.5	-	-	-	
8	Cooked and canned meat (minced meat, pig buttock, pig shoulder) salted beef, treated and canned meat							
	Tinned products	-	-	-	-	-	200	
	Non-tinned canned products	-	-	-	-	-	50	
9	Animal oil and fat	0.1	-	0.1	-	-	-	
10	Vegetable oil and butter	0.1	-	0,1	-	-	_	
11	Cruciferous vegetables	-	0.05	0.3 (1)	-	-	-	
12	Onion	-	0.05	0.1	-	-	-	
13	Fruit vegetables	-	0.05 (2)	0.1 (3)	-	-	-	

14	Leaf vegetables	-	0.2	0.3 (4)	-	-	-
15	Legumes	-	0.1	0.2	-	-	-
16	Bulb and root and tuber vegetables	-	0.1 (5)	0.1 (6)	-	-	-
17	Stalk vegetable	-	0.1	-	-	-	-
18	Mushrooms	-	0.2	0.3	-	-	-
19	Cereal	1.0	0.1 (7)	0.2	-	-	-
20	White rice	-	0.4	-	-	-	_
21	Wheat	-	0.2	-	-	-	-
22	Tropical fruits with edible peel	-	-	0.1	-	-	-
23	Tropical fruits with inedible peel	-	-	0.1	-	-	-
24	Berries and other small fruits	-	-	0.2	-	-	-
25	Citrus	-	-	0.1	-	-	-
26	Apples	-	-	0.1	-	-	-
27	Stone fruits	-	-	0.1	-	-	-
28	Jam (fruit jam) and jelly	-	-	1.0	-	-	-
29	Dried vegetables and fruits	1.0	-	2.0	-	-	-
30	Canned vegetables and fruits	-	-	1.0	-	-	250
31	Vegetable and fruit juice(mg/l)	-	-	0.05 (8)	-	-	-
32	Tea and products from tea	1.0	1.0	2.0	0.05	-	-
33	Coffee	1.0	1.0	2.0	0.05	-	-
34	Cacao and products from cacao (including chocolate)	1.0	0.5	2.0	0.05	-	-
35	Spices(except for curry)	5.0	1.0	2.0	0.05	-	-
36	Curry powder	1.0	1.0	2.0	0.05	-	_
37	Sauce (mg/l)	1.0	1.0	2.0	0.05	-	-
38	Common salt	0.5	0.5	2.0	0.1	-	-
39	Sugar	1.0	1.0	2.0	0.05	-	-
40	Honey	1.0	1.0	2.0	0.05	-	-
41	Vinegar(mg/l)	0.2	1.0	0.5	0.05	-	_

42	Anchovy, tuna, two striped bream, eel, mullet, Japanese mackerel, Luvar fish, sardines, herring		0.1	-	_	_	-
43	Frogfish, catfish, tuna, eel, cardinal fish, cod, flounder (horse-tongue), marlin, sail flounder, red mullet, giant mudskipper, small cod, dogfish, skate, red-fin fish, sailfish, hairtail, scabbard fish, sea bream, shark, snake mackerel, sturgeon, swordfish	-	-	-	1.0	-	-
44	Swordfish fillets	-	0.3	-	-	-	-
45	Fish fillets	-	-	0.3	-	-	-
46	Fish (excluding carnivorous fish)	-	-	-	-	0.5	-
47	Carnivorous fish (such as swordfish, tuna, pike, etc.)	-	-	-	-	1.0	-
48	Crustaceans (except for brown crab meat, head and chest of lobsters and big crustaceans)	-	0.5	0.5	0.5	-	-
49	Bivalve mollusc	-	2.0	1.5	-	-	-
50	Cephalopod mollusc (without internal organs)	-	2.0	1.0	-	-	-
51	Aquacultural products	-	0.05	-	0.5	-	-
52	Natural mineral water (mg/l)	0.01	0.003	0.01	0.001	-	-
53	Bottled water (mg/l)	0.01	0.003	0.01	0.006	-	-
54	Wine (mg/l)	-	-	0.2	-	-	-
55	Canned beverages (mg/l)	-	-	-	-	-	150
56	Formulated food for newborn babies and small children (instant use)	-	-	0.02	-	-	-
57	Dietary supplements			3.0	0.1	-	-

	Dietary supplements from dried seaweed or products from seaweed	-	3.0				
	Dietary supplements not from dried seaweed or products from seaweed	-	1.0				
58	Canned food (except for beverages)	-	-	-	-	-	250

Notes:

(-) Unspecified

(1) Excluding broccoli

(2) Excluding tomatoes and mushrooms

(3) Excluding mushrooms

(4) Including green vegetables, excluding spinach

(5) Excluding unpeeled potatoes and celery

(6) Including peeled potatoes

(7) Excluding wheat, rice, mash and germs

(8) Including nectar, instant use

### **III. SAMPLING METHODS AND TEST METHODS**

### 1. Sampling

Sampling as guided in the Circular No. 16/2009/TT-THE MINISTRY OF SCIENCE AND TECHNOLOGY on June 02, 2009 of the Ministry of Science and Technology on guiding the State inspection of circulating goods quality and other relevant law provisions.

### 2. Test methods

The technical requirements in this Regulation shall be tested using the following methods (other methods with equivalent accuracy may be used):

### 2.1. Arsenic content determination

• TCVN 7770: 2007 (ISO 17239 : 2004): Fruits, vegetables and derived products --Determination of arsenic content -- Method using hydride generation atomic absorption spectrometry

• TCVN 6626:2000 (ISO 11969:1996) Water quality -- Determination of arsenic -- Atomic absorption spectrometric method (hydride technique)

- AOAC 973.78 Arsenic (total) Residues in Animal Tissues Spectrophotometric Method
- AOAC 986.15: Arsenic, cadmium, lead, selenium and zinc in human and pet foods

### 2.2. Lead content determination

• AOAC Official Method 972.25: Lead in Foods - Atomic Absorption Spetrophotometry Method

• TCVN 7766: 2007 (ISO 6633 : 1984): Fruits, vegetables and derived products -- Determination of lead content -- Flameless atomic absorption spectrometric method

• TCVN 8126:2009: Food. Determination of lead, cadmium, zinc, copper and iron content. Atomic absorption spectrometric method after microwave disintegration

### 2.3. Cadmium content determination method

• AOAC Official Method 973.34: Cadmium in Foods (Atomic Absorption Spetrophotometry Method)

• TCVN 7768-1: 2007 (ISO 6561-1: 2005): Fruits, vegetables and derived products – Cadmium content determination. Part 1: Method using graphite furnace atomic absorption spectrometry

• TCVN 7768-2: 2007 (ISO 6561-2: 2005): Fruits, vegetables and derived products – Cadmium content determination. Part 2: Method using flame atomic absorption spectrometry

### 2.4. Lead content determination method

• TCVN 7769: 2007 (ISO 17240 : 2004): Fruit and vegetable products -- Determination of tin content -- Method using flame atomic absorption spectrometry

• TCVN 7788: 2007: Canned food – Determination of tin content using atomic absorption spectrometric method

### 2.5. Mercury content determination method

• AOAC Official Method 971.21: Mercury in Food (Flameless Atomic Absorption Spetrophotometry Method)

• TCVN 7877: 2008 (ISO 5666: 1999): Water quality - Determination of mercury

### 2.6. Mercury (methyl) content determination method

- AOAC 983.20: Mercury (methyl) in fish and shellfish: Gas chromatographic method
- AOAC 988.11: Mercury (methyl) in fish and shellfish: Rapid gas chromatographic method

• AOAC 990.04: Mercury (methyl) in seafood: Liquid chromatographic - atomic absorption spectrophotometric method

### **IV. PROVISIONS ON MANAGEMENT**

The food products specified in Section II must undergo quality and safety inspections in order to ensure that the heavy metal contamination does not exceed the safety limits specified in this Regulation.

The quality, safety and hygiene inspections of heavy metal contamination in food must comply with law provisions

### V. RESPONSIBILITIES OF ORGANIZATIONS AND INDIVIDUALS

Organizations and individuals must not import, produce and trade the food in which the heavy metal content exceeds the safety limits specified in this Regulation.

### VI. ORGANIZING THE IMPLEMENTATION

1. The Food Safety and Hygiene Department shall take lead and cooperate with relevant functional agencies in guiding the deployment and implementation of this Regulation.

2. Depending on the management demand, the Food Safety and Hygiene Department send proposals to the Ministry of Health for amending and supplementing this Regulation.

3. In case the standards and law provisions cited in this Regulation is changed, supplemented or superseded, the new documents shall apply.