



## INTERNATIONAL LEGISLATION ON MYCOTOXINS

### BRAZIL

#### Foods for human consumption

Ministry of Health: Resolution nº RDC nº 274, of ANVISA, of October 15, 2002, published in the Diário Oficial da União, of October 16, 2002:

Peanuts (in-shell, shelled, raw, roasted), peanut paste (peanut paste, peanut butter):

Aflatoxins B1+B2+G1+G2 = 20 µg/kg

Corn (whole grain, broken, mashed, ground, flours or other kind of flours):

Aflatoxins B1+B2+G1+G2 = 20 µg/kg

Fluid milk: Aflatoxin M1 = 0.5 µg/L

Milk powder: Aflatoxin M1 = 5.0 µg/L

Ministry of Agriculture. Portaria MAARA No.183 of March 21, 1996, published in Diário Oficial da União of March 25, 1996, Section I, page 4929:

Aflatoxins B1+B2+G1+G2 = 20 µg/kg

OBS. This Portaria adopted the norms of MERCOSUL GMC/RES. No. 56/94

#### Feeds for animal consumption: raw materials and rations

Ministry of Agriculture. Portaria MA/SNAD/SFA No. 07, of November 09, 1988 - published in Diário Oficial da União of November 09, 1988 - Section I, page 21.968, 1988:

For any raw material to be utilized directly or as ingredient for rations aimed to animal consumption:

**Aflatoxins** (maximum) = 50 µg/kg

OBS.: The Ministry of Agriculture does not specify which metabolites but it is inferred (**my deduction**) that is the sum of B1+B2+G1+G2. This limit is valid for any purpose or product wherever is for direct consumption or as an ingredient for rations.

**The Portaria specifies the products.**

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# MERCOSUL

## Legislation common to all four countries

GMC / RES. No.56/94

Fluid milk: AFM1 = 0.5 µg/L

Powdered milk: AFM1 = 5.0 µg/kg

Shelled corn: AFs B1,B2,G1,G2 = 20 µg/kg

Corn flour: AFs B1,B2,G1,G2 = 20 µg/kg

In-shell and shelled peanuts, raw or roasted: AFs B1,B2,G1,G2 = 20 µg/kg

Pastes, creams and peanut butter: AFs B1,B2,G1,G2 = 20 µg/kg

## Additional legislation of each country:

### ARGENTINA

Baby foods: AFB1 = zero

Peanut, corn and by-products: B1 = 5 µg/kg; B1,B2,G1,G2 = 20 µg/kg

Soy flour: B1 = 30 µg/kg

Fluid and powdered milk: M1 = 0.05 µg/kg

Milk products: M1 = 0.5 µg/kg

### URUGUAY

Aflatoxins B1,B2,G1,G2: Foods and spices = 20 µg/kg;

Soy and peanut products, dried fruits = 30 µg/kg

Cocoa kernels = 10 µg/kg;

Baby foods, processed = 3 µg/kg

Corn and barley = 200 µg/kg

Milk and milk products: Aflatoxin M1 = 0,5 µg/kg

Fruit juices: Patulin = 50 µg/kg

Rice, barley, porotos, coffee and corn: Ochratoxin A = 50 µg/kg

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Legislations that follows, were compiled from the FAO publication:  
**WORLDWIDE REGULATIONS FOR MYCOTOXINS 1995 - A  
Compendium**

FAO Food and Nutrition Paper, No. 64, Roma, 1997.

# AMÉRICAS

### BAHAMAS

All foods and all grains: B1,B2,G1,G2 = 20 µg/kg

## **BARBADOS**

All foods: B1,B2,G1,G2 = 20 µg/kg

Fluid milk: M1 = 0.05 µg/kg

Rations: B1,B2,G1,G2 = 50 µg/kg

## **BELIZE**

Corn, peanuts: B1,B2,G1,G2 = 20 µg/kg

## **CANADA**

Nuts and products: B1,B2,G1,G2 = 15 µg/kg

Soft wheat: Deoxynivalenol = 2000 µg/kg

Feeds: B1,B2,G1,G2 = 20 µg/kg

Cattle and poultry feeds: Deoxynivalenol = 5000 µg/kg; HT-2 toxin = 100 µg/kg

Feeds for swine, veal and lactating animals: Deoxynivalenol = 1000 µg/kg; HT-2 toxin = 25 µg/kg

## **CHILE**

Feeds: B1 = 20 µg/kg; B1,B2,G1,G2 = 50 µg/kg

## **COLOMBIA**

Foods: B1,B2,G1,G2 = 20 µg/kg

Cereals (sorghum, millet): B1,B2,G1,G2 = 30 µg/kg

Oilseeds: B1,B2,G1,G2 = 10 µg/kg

Cattle feeds: B1,B2,G1,G2 = 50 µg/kg

Sesame seeds: B1,B2,G1,G2 = 20 µg/kg

Poultry feeds: B1,B2,G1,G2 = 20 µg/kg

## **COSTA RICA (1991)**

Corn for human consumption: B1,B2,G1,G2 = 35 µg/kg

Corn for animal consumption: B1,B2,G1,G2 = 50 µg/kg

## **CUBA (1991)**

Foods, cereals, peanut: B1,B2,G1,G2 = 5 µg/kg

Rations and ingredients for rations: B1,B2,G1,G2 = 5 µg/kg

## **EL SALVADOR (1991)**

Foods: B1,B2,G1,G2 = 20 µg/kg

Feeds in general: B1 = 10 µg/kg

Feed supplements for swine, cattle and dairy cattle; feeds for cattle, goats and sheep: B1 = 20 µg/kg

## **UNITED STATES OF AMERICA**

Foods: B1,B2,G1,G2 = 20 µg/kg  
Ready to eat wheat products: Deoxynivalenol = 1000 µg/kg  
Milk products: M1 = 0.5 µg/kg

## **GUATEMALA (1991)**

Corn, beans, rice sorghum peanuts and peanut butter: B1,B2,G1,G2 = 20 µg/kg  
Concentrates for rations: B1,B2,G1,G2 = 20 µg/kg

## **HONDURAS**

All foods: B2,G1,G2 = 1 µg/kg  
Corn (whole or ground kernels ): B1 = 1 µg/kg  
Baby foods: B1,B2,G1,G2 = 0.01 µg/kg; M1 = 0.02 µg/kg  
Milk and milk products: M1 = 0.05 µg/kg  
Cheese = M1 = 0.25 µg/kg

## **JAMAICA (1991)**

Foods and grains: B1,B2,G1,G2 = 20 µg/kg

## **MÉXICO**

Flours: B1,B2,G1,G2 = 20 µg/kg  
Cereals for cattle and fattening rations for swine: B1,B2,G1,G2 = 200 µg/kg  
Feeds for lactating cows and poultry: B1,B2,G1,G2 = 0 µg/kg

## **PANAMÁ**

No regulations

## **PERU**

All foods: B1,B2,G1,G2 = 10 µg/kg

## **REPÚBLICA DOMINICANA (1991)**

Corn and products, peanuts, soybean, tomato and products: B1,G1 = 0 µg/kg  
Imported corn: B1,B2,G1,G2 = 20 µg/kg

## **SURINAME (1991)**

Corn: B1,B2,G1,G2 = 30 µg/kg  
Peanuts and products, legumes: B1 = 5 µg/kg  
Feeds: B1,B2,G1,G2 = 30 µg/kg

## VENEZUELA

Rice flour: B1,B2,G1,G2 = 5 µg/kg

Feeds: B1,B2,G1,G2 = 20 µg/kg

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## EUROPEAN UNION

### Legislation common to all member countries:

Peanuts, nuts in general and dried fruits for direct intake or as food ingredient:

Aflatoxin B1 = 2 µg/kg; Total (B1+B2+G1+G2) = 4 µg/kg

Peanuts prior to selection or other physical process: B1 = 8 µg/kg; Total AF = 15 µg/kg

Nuts and dried fruits to be subjected to a selection or other physical process: B1 = 5 µg/kg;

Total AF = 10 µg/kg

Cereals and other products processed for direct intake or as food ingredient: B1 = 2 µg/kg;

Total AF= 4 µg/kg

Raw milk or for milk products, and heat treated milk: Aflatoxin M1 = 0.05 ng/L

Spices and alike: Aflatoxina B1 = 5 µg/kg; AF Totais = 10 µg/kg

Raw cereals: Ochratoxin A = 5 µg/kg

Cereal products intended for direct human consumption: Ochratoxin A = 3 µg/kg

Dried vine fruits: Ochratoxin A = 10 µg/kg

Baby foods: patulin = 10 µg/kg

Raw materials for rations: Aflatoxin B1 = 50 µg/kg; peanuts products, copra, palm,

cottonseeds, babassu, corn: 20 µg/kg

Rations: Aflatoxin B1 = 10 µg/kg;

Complete rations for swine and birds, except young animals: B1 = 20 µg/kg;

Complete rations for fattening cattle, sheep, bovines, except young animals: B1 = 50 µg/kg

Complete rations for bullocks and lambs: B1 = 10 µg/kg

Complements of rations: B1 = 5 µg/kg; Complements of rations for pigs and birds: B1 = 30 µg/kg

Complements of rations for cattle, sheep and bovines, except animals in nursing, bullocks,

lambs, kid goats: B1 = 50 µg/kg

Raw materials - peanuts products, copra, palm, cotton, babassu, corn = B1 = 200 µg/kg

### EC recent legislation (January 28, 2003)

## Additional legislation of each country:

### GERMANY

Foods: B1 = 2 µg/kg; B1,B2,G1,G2 = 4 µg/kg

Preparations of enzymes for production of foods: B1,B2,G1,G2 = 0.05 µg/kg

Foods for children and young: B1,B2,G1,G2 = 0.05 µg/kg  
Milk: M1 = 0.05 µg/kg; Foods for children and youngs: M1 = 0.01 µg/kg

## **BELGIUM**

Peanuts: B1 = 5 µg/kg; Milk: M1 = 0.05 µg/kg

## **DENMARK**

Peanuts and Products: Aflatoxin B1 = 2 µg/kg; B1,B2,G1,G2 = 4  
Brazil nuts, dried fig B1 = 2 µg/kg; B1,B2,G1,G2 = 4 µg/kg;  
Kidneys of swine: Ochratoxin A = 25 µg/kg; Cereals and products: Ochratoxin A = 5  
µg/kg

## **SPAIN**

All Foods: B1,B2,G1,G2 = 10µg/kg; B1 = 5 µg/kg

## **FRANCE**

All Foods: Aflatoxin B1 = 10 µg/kg;  
Peanuts, pistachio, almonds, oleaginous, infant foods: B1 = 1 µg/kg  
Wheat bran: B1 = 10 µg/kg  
Vegetable oils, cereals: B1 = 5 µg/kg apple  
Juice (products): Patulin = 50 µg/kg  
Cereals, vegetable oils: Zearalenona = 200 µg/kg  
Cereals: Ochratoxina A = 5 µg/kg  
Milk, powdered milk (calculations made in the reconstituted product): Aflatoxin M1 = 0.05  
µg/kg  
Milk, powdered milk, ( children younger than 3 years (calc. in the reconstituted product):  
M1 = 0.03 µg/kg

## **GREECE**

Peanuts, hazelnuts, nuts, cashew nut, pistachio, almonds, pumpkin seeds, sunflower seeds,  
pinus seeds, apricot seeds, corn, dry fig, dry apricot, prune, dates, grape raisins:  
B1,B2,G1,G2 = 10 µg/kg; B1 = 5 µg/kg raw  
Coffee, apple juice, apple products: Ochratoxin A = 20 µg/kg; Patulin = 50 µg/kg

## **IRELAND**

All foods: B1,B2,G1,G2 = 30 µg/kg; B1 = 5 µg/kg

## **ITALY**

Foods: Aflatoxin B1 = 5 µg/kg; B1+B2+G1+G2 = 10 µg/kg  
Dry figs: Aflatoxin B1 = 5 µg/kg; B1+B2+G1+G2 = 10 µg/kg  
Spices: Aflatoxin B1 = 20 µg/kg; B1+B2+G1+G2 = 40 µg/kg  
Coffee: Ochratoxin A = 8 µg/kg; café roasted and soluble = 4 µg/kg

## **LUXEMBURG**

Peanuts and their products: B1 = 5 µg/kg

## **NORWAY**

All Foods: B1,B2,G1,G2 = 5 µg/kg  
Concentrated apple juice: Patulin = 50 µg/kg

## **PORTUGAL**

All Foods: B1 = 20 µg/kg  
Peanuts: B1 = 25 µg/kg; Infant foods: B1 = 5 µg/kg

## **SWEDEN**

All Foods: B1,B2,G1,G2 = 5 µg/kg  
Berries, fruits, juices: Patulin = 50 µg/kg  
Products of liquid milk: M1 = 0.05 µg/kg  
Ingredients for ration: B1 = 50 µg/kg  
Ingredients for ration for dairy cattle: M1 = 10 µg/kg  
Grains of cereals and forages as ingredient for dairy cattle's ration: B1 = 1 µg/kg  
Mixed Rations (except forages) for dairy cattle: B1 = 3 µg/kg  
Complete rations: B1 = 10 µg/kg  
Complete rations for fattening cattle, sheep, bovid, except dairy cattle and young animals:  
B1 = 50 µg/kg  
Complete rations for pigs and birds, except young animals: B1 = 20 µg/kg  
Complete rations for dairy cattle, including forages: B1 = 1.5 µg/kg  
Complete rations for birds: Ochratoxin A = 200 µg/kg  
Complete rations for pigs: Ochratoxin A = 100 µg/kg

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## **EUROPE: Other countries**

### **BOSNIA AND HERZEGOVINA**

Wheat, corn rice and cereals: B1,G1 = 1 µg/kg  
Beans: B1,G1 = 5 µg/kg

### **BULGARY**

Peanuts and products, cocoa kernels, cocoa butter, cocoa powder: B1,B2,G1,G2 = 5 µg/kg  
Grains and products, cereals and products: B1,B2,G1,G2 = 2.5 µg/kg  
AFM1: Fluid milk products = 0.5 µg/kg; Powdered milk = 0.1 µg/kg;  
Powdered milk for diets and infant foods = 0 µg/kg  
Cheese and similar foods = 0.5 µg/kg

## **FINLAND**

All foods: B1,B2,G1,G2 = 5 µg/kg

All foods: Patulin = 50 µg/kg

## **HUNGARY**

All foods: B1 = 5 µg/kg

Peanuts (kernels): B1 = 30 µg/kg

Preserved foods: All mycotoxins: 0 µg/kg

Peanuts (**sic**): B1,B2,G1,G2 = 5 µg/kg

## **MACEDONIA (1981)**

Wheat, corn and rice: B1,G1 = 1 µg/kg

Beans: B1,G1 = 5 µg/kg

## **POLAND**

All foods: B1 = 0 µg/kg

Rations, ingredients for rations, Complete rations for cattle, sheep and goats: B1 = 50 µg/kg

## **TCHECH REPUBLIC**

All foods: B1 = 5 µg/kg; B2,G1,G2 = 10 µg/kg

Infant foods: B1 = 1 µg/kg; B2,G1,G2 = 2 µg/kg

All foods: Patulin = 50 µg/kg; Ochratoxin A = 20 µg/kg

Infant foods: Patulin = 30 µg/kg; Ochratoxin A = 5 µg/kg

Infant foods: Patulin = 20 µg/kg; Ochratoxin A = 1 µg/kg

Milk: M1 = 0.5 µg/kg

Any other product: M1 = 5 µg/kg

Foods for children and infants: M1 = 1 µg/kg

Infant foods, milk based: M1 = 0.1 µg/kg; B1 = 0.1; B2,G1,G2 = 0.2 µg/kg

## **RUMANIA (1987)**

All foods: B1 = 0 µg/kg; Patulin = 50 µg/kg; Ochratoxin A = 5 µg/kg; Zearalenone = 30 µg/kg

Milk and milk products: M1 = 0 µg/kg

Rations in general: Patulin = 30 µg/kg; Ochratoxin A = 5 µg/kg;

Deoxynivalenol = 5 µg/kg; Stachybotriotoxin = 0 µg/kg; Chetomin = 0 µg/kg

## **RUSSIA**

Cereals, flowers and meals: B1 = 5 µg/kg

Zearalenone = 1000 µg/kg

T2-toxin = 100 µg/kg



Deoxynivalenol = 1000 µg/kg  
Other foods: B1 = 5 µg/kg

### **SERVIA (1981)**

Wheat, corn rice and cereals: B1,G1 = 1 µg/kg  
Beans: B1,G1 = 5 µg/kg

### **SWITZERLAND**

All foods (except corn, cereals and herbs): B1 = 1 µg/kg; B2,G1,G2 = 5 µg/kg  
Corn, cereals: B1 = 2 µg/kg; B2,G1,G2 = 5 µg/kg  
Herbs: B1 = 5 µg/kg; B2,G1,G2 = 5 µg/kg  
Infant foods : B1,B2,G1,G2 = 0.01 µg/kg  
Cereals: Ochratoxin = 2 µg/kg  
Corn and products: Fumonisin B1+B2 = 1000 µg/kg  
Fruit juice: Patulina = 50 µg/kg  
Milk and products: M1 = 0.05 µg/kg  
Milk whey and products: M1 = 0.025 µg/kg  
Cheese: M1 = 0.25 µg/kg  
Butter, infant foods: M1 = 0.02 µg/kg

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## **ALL OTHER COUNTRIES**

### **SOUTH AFRICA**

All foods: B1 = 5 µg/kg; B1,B2,G1,G2 = 10 µg/kg

### **AUSTRALIA**

All foods: B1,B2,G1,G2 = 5 µg/kg; Phomopsin = 5 µg/kg  
Peanut butter, nuts in general = 15 µg/kg

### **CHINA**

Rice, edible oils: B1 = 10 µg/kg  
Wheat, barley, oats, beans, sorghum, other grains and fermented foods: B1 = 20 µg/kg  
Fluid milk and milk products (calculated on fluid milk basis): B1 = 0.5 µg/kg  
Ration for chickens: B1 = 10 µg/kg  
Ration for laying hens and fattening swine: B1 = 20 µg/kg  
Corn, peanut flower and other peanut by-products (for rations): B1 = 50 µg/kg

### **CYPRUS (1992)**

Cereals, legumes, dried fruits, sesame and foods produced exclusively with these products, divers seeds, poppy seeds, seeds utilized in bakery products and confectionery:

B1,B2,G1,G2 = 5 µg/kg

Milk and milk products: all mycotoxins: 0.5 µg/kg

### **IVORY COAST (1997)**

Ingredients for rations: B1,B2,G1,G2 = 100 µg/kg

Rations, complete: B1,B2,G1,G2 = 10 µg/kg

Rations, complete for swine, avians (except young animals and ducks): B1,B2,G1,G2 = 38 µg/kg

Rations, complete for beef cattle, sheep and goats: B1,B2,G1,G2 = 75 µg/kg

Rations, complete for lactating cows: B1,B2,G1,G2 = 50 µg/kg

### **EGYPT**

Peanuts and products, oil seeds and products: B1,B2,G1,G2 = 10 µg/kg

Cereals and products: B1 = 5 µg/kg

Corn: B1,B2,G1,G2 = 20 µg/kg; B1 = 10 µg/kg

Starch and by-products: B1,B2,G1,G2 = 0 µg/kg

Milk and dairy products: G1,G2,M1,M2 = 0 µg/kg

Foods for animals and birds: B1,B2,G1,G2 = 20 µg/kg; B1 = 10 µg/kg

### **PHILIPINES**

Nuts and their products: B1,B2,G1,G2 = 20 µg/kg

Rations for avians: B1,B2,G1,G2 = 20 µg/kg

Rations for finishing beef cattle: B1,B2,G1,G2 = 50 µg/kg

### **HONG KONG**

Foods, in general: B1,B2,G1,G2,M1,M2, Aflatoxin P1, Aflatoxicol = 15 µg/kg

Peanuts and Products: B1,B2,G1,G2,M1,M2, Aflatoxin P1, Aflatoxicol = 20 µg/kg

### **INDIA (1987)**

All foods: B1 = 30 µg/kg

Peanuts flower (for export): B1 = 120 µg/kg

### **INDONESIA**

Copra in rations for cows, swine, ducks and sheep: B1,B2,G1,G2 = 1000 µg/kg

Peanut, sesame and colza flowers: B1,B2,G1,G2 = 200 µg/kg

Cassava in chicken rations: B1,B2,G1,G2 = 200 µg/kg

### **ISRAEL**

Nuts, peanuts, corn meal, figs and products: B1,B2,G1,G2 = 15 µg/kg; B1 = 5 µg/kg

Apple juice: Patulin = 50 µg/kg

Cereals and legumes and their products: Ochratoxin A = 50 µg/kg  
Grains for rations: B1 = 20 µg/kg; Ochratoxin A = 300 µg/kg; T-2 Toxin = 100 µg/kg;  
Diacetoxyscirpenol = 1000 µg/kg

### **JAPAN**

Foods: Aflatoxin B1 = 10 µg/kg  
Rations: Aflatoxin B1 = 1000 µg/kg

### **JORDANIA (1991)**

Almonds, cereals, corn, peanuts, pistachio, pine nuts, rice and rations: B1,B2,G1,G2 = 30 µg/kg; B1 = 15 µg/kg

### **MALAWI (1987)**

Peanuts (for export): B1 = 5 µg/kg

### **MALAYSIA (1987)**

All foods: B1,B2,G1,G2 = 35 µg/kg

### **MAURITIUS (1987)**

All foods: B1,B2,G1,G2,M1,M2 = 10 µg/kg; B1 = 5 µg/kg  
Peanuts: B1,B2,G1,G2 = 15 µg/kg; B1 = 5 µg/kg

### **NIGERIA (1987)**

All foods: B1 = 5 µg/kg  
Infant foods : B1 = 0 µg/kg  
Fluid milk: M1 = 1 µg/kg  
Rations: B1 = 50 µg/kg

### **NEW ZELAND (1987)**

All foods: B1,B2,G1,G2 = 5 µg/kg  
Peanut butter, peanut kernels, nuts: B1,B2,G1,G2 = 15 µg/kg

### **OMAN (1987)**

Rations, complete: B1 = 10 µg/kg  
Completes rations for birds and avian: B1 = 20 µg/kg

### **KENYA (1981)**

Peanuts and products; vegetal oils: B1,B2,G1,G2 = 20 µg/kg

### **SENEGAL (1987)**

Peanuts products for ration: B1 = 50 µg/kg  
Peanuts products as ingredient for ration: 300 µg/kg

### **SINGAPORE (1987)**

All foods: B1,B2,G1,G2 = 0 µg/kg

### **SRI LANKA**

Foods in general: All aflatoxins = 30 µg/kg  
Baby foods (till 3 years old): All aflatoxins = 1 µg/kg

### **ZIMBABWE**

Rice flour: B1 = 5 µg/kg; G1 = 4 µg/kg  
Peanuts, corn, sorghum: B1 = 5 µg/kg; G1 = 4 µg/kg  
Rations for avians: B1,G1 = 10 µg/kg