



JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON CONTAMINANTS IN FOODS

9<sup>th</sup> Session

New Delhi, India, 16 – 20 March 2015

PROPOSED DRAFT MAXIMUM LEVELS FOR CADMIUM  
IN CHOCOLATE AND COCOA-DERIVED PRODUCTS

*Comments at Step 3 submitted by Argentina,  
El Salvador, Ghana, Republic of Korea, Thailand, USA and AU*

## ARGENTINA

Argentina found the following errors in the text, which are listed in bold.

**Paragraph 7** - There is a mistake in the units, it says mg/g, it should say mg/kg.

Thus, this paragraph should be amended as follows: “Studies from several countries, as detailed herein, are varied. For example, Canada, for a chocolate with more than 50% of cocoa solids with a range of LOD of 0.02 to 0.86mg/kg, with an average of 0.17mg/kg; for cocoa powder to a LOD of 0.02 to 1.25mg/kg with an average of 0.34mg/kg; in the case of the Ecuadorian chocolate over 50% of cocoa solids, the range goes from 0.03 to 1.56 with an average LOD of 0.378mg/kg and a chocolate containing dry material less than 50% has a LOD range of 0.02 to 0.12mg/kg with an average of 0.062mg/kg; in the case of MERCOSUR for a chocolate and cocoa products with less than 40% of cocoa has a ~~recommended~~ **maximum** limit of 0.2mg/g-**mg/kg**. As you can see, these investigations show dispersed concentrations of cadmium.

There were also several errors in the maximum levels included in paragraph 57.

Where it says - Paragraph 57 - MERCOSUR (comprising Argentina, Brazil, Paraguay, Uruguay and Venezuela block) defined the limits of cocoa paste (0.5mg/kg); chocolate and cocoa products with <40% cocoa (0.2mg/kg); and chocolate and cocoa products with >40% cocoa (0.4mg/kg) (MERCOSUR/GMC/RES.N° 12-20011).

**It should read: Paragraph 57** - MERCOSUR (comprising Argentina, Brazil, Paraguay, Uruguay and Venezuela block) defined the limits of cocoa paste (**0.3 mg/kg**); chocolate and cocoa products with <40% cocoa (0.2 mg/kg); and chocolate and cocoa products with >40% cocoa (**0.3 mg/kg**) (MERCOSUR/GMC/RES. N° 12-20011).

## EL SALVADOR

El Salvador welcomes the work presented by the eWG, chaired by Ecuador and co-chaired by Brazil and Ghana.

- We request that the issue be further discussed and that the maximum levels (MLs) be maintained at Step 3.
- We consider that it is important that cocoa-producing countries and its derived products take into account the reduction of the level of Cadmium in the soil.
- Studies should be finished to determine the content for cadmium in the ingredients that chocolate and cocoa derived products are elaborated with, such as sugar, milk, etc., as proposed by the eWG.
- The MLs should not be so high, especially in products such as cocoa powder sold to the final consumer or as an ingredient in sweetened cocoa powder sold to the final consumer (beverageing chocolate) which are generally consumed by children and adolescents.
- El Salvador considers that the MLs for cadmium proposed in the Commission Regulation (EU) No 488/2014, should be taken into account as a reference.

1. Milk Chocolate with <30% total dry cocoa solids; 0.10mg/kg.
2. Chocolate with <50% total dry cocoa solids; milk chocolate with ≥30% of total dry cocoa solids; 0.30mg/kg.
3. Chocolate with ≥50% of total dry cocoa solids; 0.80mg/kg
4. Cocoa powder sold to the final consumer or as an ingredient in sweetened cocoa powder sold to the final consumer (beverageing chocolate); 0.60mg/kg.

Those proposed by eWG are very high.

- The establishment of MLs for cadmium should pursue the protection of consumers health and to maintain fair trade practices.

## **GHANA**

*Proposed draft maximum levels for cadmium in chocolate and cocoa derived products*

### COMMENT

Ghana supports the proposed MLs for cocoa and cocoa products as follows:

- 0.2mg/kg (for Milk chocolates with <30% total dry cocoa solids),
- 0.6mg/kg (for Chocolates with ≤50% total dry cocoa solids or Milk chocolates with ≥30% total dry solids),
- 1.5mg/kg (For cocoa powder sold to the final consumers or as an ingredient in sweetened cocoa powder sold to the final consumers) and
- 2mg/kg (for chocolates with ≥50% total dry cocoa solids)

### RATIONALE

About 72% of the world supply of cocoa beans comes from West Africa, especially Cote d'Ivoire, Ghana and Nigeria. The highest consumption per capita for cocoa and its derivatives ranges from 0.1 – 7.5g/day through the GEMS/Food 17 groups of diet. Most African Countries are in the lowest part of the consumption range.

The JECFA exposure assessment reported the lowest mean estimate of 0.005 µg/kg bw per month for countries in Cluster 13 (most of them are African countries) and the highest mean estimate of 0.39 µg/kg bw per month for countries in Cluster 7 (most of them are developed countries). The JECFA PTMI for cadmium is 25 µg/kg bw per month.

## **REPUBLIC OF KOREA**

The classification of chocolate and cocoa products proposed by the electronic working group may bring confusion during inspection for the implementation of Codex maximum level and also for consumers. Therefore, The Republic of Korea suggests reclassifying the chocolate and cocoa products so they are in line with the classification of chocolate products in Codex Standard for Chocolate and Chocolate Products (CODEX STAN 87-1981). We also would like to request for an explanation on how an agreement was reached on the proposed cadmium MLs for these products.

## **THAILAND**

Thailand supports the establishment of MLs for cadmium in chocolate and cocoa-derived products to protect the health of consumers and ensure fair practices in the food trade.

However, we are of the view that MLs proposed by electronic-working group seem to be difficult to consider at this stage since in consideration of MLs, the information concerning occurrence data, cadmium intake, violation rate and relative reduction of risk for each ML proposal should be available.

## **USA**

- The U.S. notes that:
  - The 77th JECFA (2013) estimated the mean population dietary exposure to cadmium from products containing cocoa and its derivatives for the 17 GEMS/Food Cluster Diets to be 0.02–1.6% of the provisional tolerable monthly intake (PTMI) of 25 mg/kg bw per month.
  - The 77th JECFA also estimated the potential dietary exposures to cadmium for high consumers of products containing cocoa and its derivatives in addition to cadmium derived from other foods to be 30–69% of the PTMI for adults and 96% of the PTMI for children 0.5–12 years of age. The Committee noted that this total cadmium dietary exposure for high consumers of cocoa and cocoa products was likely to be overestimated and did not consider it to be of concern.

- ANNEX I of the GSCTFF states “MLs should be set only for those contaminants that present both a significant risk to public health and a known or expected problem in international trade.”
  - ANNEX I of the GSCTFF also states MLs should be set only for food that is significant for the total exposure of the consumer, and criteria contained in the “Policy of the Codex Committee on Contaminants in Foods for Exposure Assessment of Contaminants and Toxins in Foods or Food Groups” in Section IV of the Procedural Manual should be consulted.
  - The “Policy of the Codex Committee on Contaminants in Foods for Exposure Assessment of Contaminants and Toxins in Foods or Food Groups” in Section IV of the Procedural Manual stipulates the criteria for selecting foods or food groups that contribute significantly to total dietary exposure of a contaminant are (a) 10% or more of the tolerable intake in one of the GEMS/Food Consumption Cluster Diets, (b) 5% or more of the tolerable intake in two or more of the GEMS/Food Consumption Cluster Diets, or (c) food that may have a significant impact on exposure for specific group of consumers, although exposure may not exceed 5% of the tolerable intake in any of the GEMS/Food Consumption Cluster Diets.
- Nonetheless, as the document points out, lack of a Codex ML for cocoa and cocoa products could adversely affect export of these products from some countries. In this regard, the document could have benefited from a discussion of incidence of rejection of lots of product based on MLs various countries have adopted.
  - If CCCF should decide to establish MLs, and in view of the natural presence of different levels of cadmium in different soil types, a discussion on the proposed MLs should be based on global data on what is reasonably achievable and the proposed MLs should be discussed in this context.

#### AFRICAN UNION

RECOMMENDED AFRICAN POSITION	RATIONALE
<p>AU supports the recommended MLs of:</p> <ul style="list-style-type: none"> <li>• 0.2mg/kg - for Milk chocolates with &lt;30% total dry cocoa solids</li> <li>• 0.6mg/kg - for Chocolates with &lt; 50% total dry cocoa solids or Milk chocolates with ≥30% total dry solids,</li> <li>• 2mg/kg - for chocolates with ≥50% total dry cocoa solids</li> <li>• 1.5mg/kg - For cocoa powder sold to the final consumers or as an ingredient in sweetened cocoa powder sold to the final consumers</li> </ul>	<p>Contamination of cadmium in food has become a concern in many countries. The metal can accumulate in kidneys leading to irreversible renal tubular dysfunction.</p> <p>Cadmium is abundant in nature and can be released to the environment in different ways including natural activities such as volcanic activities and through anthropogenic activities such as mining and smelting of ores containing zinc, burning of fossil fuels and emissions from discarded batteries.</p> <p>Cadmium levels in cocoa beans can vary considerably among regions. The region of lowest concentration is West Africa. For instance, the highest Cadmium levels in cocoa shells of Ghana was reported to be 0.75mg/kg.</p> <p>About 72% of the world supply of cocoa beans comes from West Africa, especially Cote d'Ivoire, Ghana and Nigeria.</p> <p>The highest per capita cocoa and its derivatives consumption ranges from 0.1 – 7.5g/day through the GEMS/Food 17 groups of diet. Most African Countries are in the lowest part of the consumption range.</p> <p>The JECFA exposure assessment reported the lowest mean estimate of 0.005 µg/kg bw per month for countries in Cluster 13 (most of them are African countries) and the highest mean estimate of 0.39 µg/kg bw per month for countries in Cluster 7 (most of them are developed countries). The JECFA PTMI for cadmium is 25 µg/kg bw per month.</p>