



中華人民共和國香港特別行政區政府總部食物及衛生局  
Food and Health Bureau, Government Secretariat  
The Government of the Hong Kong Special Administrative Region  
The People's Republic of China

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18 October 2017

Clerk to Panel on Food Safety and Environmental Hygiene  
Legislative Council Secretariat  
Legislative Council Complex  
1 Legislative Council Road  
Central, Hong Kong  
(Attn: Miss Josephine SO)  
(Fax: 2509 9055)

Dear Miss So,

**LegCo Panel on Food Safety and Environmental Hygiene  
Proposed Amendments to the  
Food Adulteration (Metallic Contamination) Regulations (Cap. 132V)**

During the discussion of the proposed amendments to the Food Adulteration (Metallic Contamination) Regulations (Cap. 132V) (the Regulations) at the meeting of the LegCo Panel on Food Safety and Environmental Hygiene (FSEH) on 13 June 2017, Members requested the Government to provide the scientific evidence and relevant factors when establishing the existing maximum permitted concentration for cadmium in polished rice in 1980s, as well as the forms of mercury in fish and their associated health risks. In addition, the FSEH Panel requested the Government to provide relevant standards for lead in tea leaves and dried chrysanthemum adopted by other jurisdictions at its Special Meeting on 3 July 2017. Supplementary information is provided below in response to the above questions from Members.

**Scientific evidence and relevant factors considered when establishing the existing maximum permitted concentration for cadmium in “polished rice”**

The existing maximum permitted concentration of 0.1 mg/kg for cadmium in the food group “cereals and vegetables” (including polished rice) as laid down in the Regulations was established by the Government in 1983. When establishing / reviewing relevant standards on metallic contamination under the Regulations at that

time, the Government had made reference to the standards of the Codex Alimentarius Commission (Codex) and other jurisdictions (e.g. Australia, Japan, Singapore, the United Kingdom and the United States of America (USA)) as well as the available data on the metallic concentrations in various foodstuffs.

The current standards for cadmium in polished rice adopted by Codex and other jurisdictions are as follows:

Maximum level (ML) for cadmium in polished rice (mg/kg)	International organisation / country / economy
0.4	Codex, Japan, Taiwan
0.2	European Union (EU), the Mainland, Singapore, Korea
0.1	Australia, New Zealand
No relevant standard	USA, Canada

Our currently proposed ML for cadmium in polished rice is more stringent than the relevant Codex standard. According to the information we have gathered, among the countries / economies that have established MLs for cadmium in polished rice, only Australia and New Zealand (apart from Hong Kong) have maintained ML of 0.1 mg/kg for cadmium in polished rice with the standard of Australia and New Zealand established before 1999.

For polished rice, there are relevant standards for five other metallic contaminants, namely antimony, arsenic, chromium, lead and mercury. Our current proposals are to tighten the standards for arsenic, lead and mercury, relax the standard for cadmium while maintaining the prevailing standards for antimony and chromium as follows:

	Existing maximum permitted concentration (ppm)	Proposed ML (mg/kg)	Remarks
More stringent than existing standard			
1. Arsenic in polished rice	1.4 (As <sub>2</sub> O <sub>3</sub> )	0.35 (inorganic arsenic)	Same as Codex ML
2. Lead in cereal grains	6	0.2	Same as Codex ML
3. Mercury in rice, husked rice, polished rice, maize, maize flour, wheat, wheat flour	0.5 (total mercury)	0.02 (total mercury)	

Less stringent than existing standard			
4. Cadmium	in	0.1	0.2
polished rice			More stringent than Codex ML (0.4 mg/kg)
Same as existing standard			
5. Antimony	in	1	1
cereals			
6. Chromium	in	1	1
cereals			

In formulating the proposed MLs above, we have taken into account various relevant factors, including the latest Codex standards, relevant standards of other jurisdictions, the local food consumption pattern and dietary practice, results of risk assessments conducted in the past, etc. According to the report of the First Hong Kong Total Dietary Study: Metallic Contaminants, dietary exposures to cadmium of average and high consumers of the population accounted for 33% and 75% of the relevant health-based guidance value respectively, and therefore the health of the general population was unlikely to be affected by cadmium. Rice in fact contributed to only 6% of the total exposure to cadmium for average consumers of the population. Results of our risk assessment also indicated that a proposed ML at 0.2 mg/kg for cadmium in polished rice, based on the local rice consumption, is adequate in protecting public health in Hong Kong. Our proposed ML is in line with relevant standards adopted by other jurisdictions such as the EU, the Mainland, Korea and Singapore.

### **Forms of mercury in fish and their associated health risks**

Mercury exists in three forms, namely elemental, inorganic and organic in the environment. In food, mercury can exist in inorganic form and the more toxic organic form, of which methylmercury is the most hazardous and common form.

In streams, lakes and oceans, elemental and inorganic mercury can be transformed by bacteria into methylmercury which is readily taken up by living organisms and is passed along the microscopic plants and animals to larger organisms via the food chain. It can accumulate in fish and bind tightly to the protein in fish tissues. As methylmercury tends to bioaccumulate in the food chain, large predatory fish such as shark, swordfish, marlin, alfonso and tuna (especially bigeye and bluefin species) would have a greater tendency to accumulate higher amount of the chemical than non-predatory fish species at lower levels in the food chain. Methylmercury can generally contribute to more than 90% of the total mercury content in most fish.

Regarding the health effects, elemental mercury (from dental fillings for example) does not generally pose a health risk. Inorganic mercury can cause kidney failure and gastrointestinal damage. Methylmercury, on the other hand, is more harmful to human health than the elemental and inorganic forms of mercury. For foetuses, infants and children, the primary health effect of methylmercury is impaired neurological development. Methylmercury exposure in the womb, which can result from a

pregnant woman's consumption of fish and shellfish that contain methylmercury, can adversely affect a baby's growing brain and nervous system. Studies found that foetal exposure to methylmercury in the womb would affect the cognitive thinking, memory, attention, language, and fine motor and visual spatial skills of children. Methylmercury is therefore the form of mercury of the highest concern in fish in terms of occurrence and health effects.

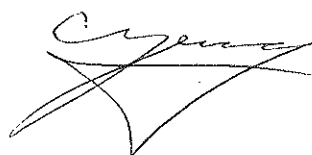
**Standards for lead in tea leaves and dried chrysanthemum adopted by other jurisdictions**

Regarding lead in tea leaves, the ML adopted by the Mainland<sup>1</sup> and Singapore<sup>2</sup> is 5.0 mg/kg and 2 mg/kg respectively. No ML for lead in tea leaves has been established in other jurisdictions such as Australia, Canada, EU, Japan, Korea, New Zealand and the USA. We have proposed to tighten the ML for lead in tea leaves from the existing 6 mg/kg to 5 mg/kg.

For lead in dried chrysanthemum, the Mainland<sup>1</sup> has adopted a ML of 5.0 mg/kg. Other jurisdictions including Australia, Canada, EU, Japan, Korea, New Zealand, Singapore and the USA, have not established specific ML for lead in dried chrysanthemum. We have proposed to tighten the ML for lead in dried chrysanthemum from the existing 6 mg/kg to 5 mg/kg.

We have completed the public consultation on the proposed amendments on the standards on MLs for metallic contamination in food in early September 2017. We will take into account the views received during the public consultation period before finalising the legislative proposals and tabling the Amendment Regulations to the Legislative Council for consideration.

Yours sincerely,



(Carey YEUNG)  
for Secretary for Food and Health

cc.:

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<sup>1</sup> National Food Safety Standard – Maximum Levels of Contaminants in Food (GB 2762-2017).

<sup>2</sup> Food Regulations (version in force from 15/6/2017).