

Proposed Amendments to the Food Adulteration (Metallic Contamination) Regulations

Results of the Public Consultation

2 February 2018

Outline

- **Proposed amendments**
 - Objectives of amending the Regulations
 - Proposed directions / principles to amend the Regulations
 - Overview of proposed maximum levels (MLs)
- **Public consultation exercise**
- **Highlights of results of the public consultation**
 - Reported to the LegCo FSEH panel on 9 January 2018
- **Way forward**



Proposed amendments to the Regulations



Objectives of amending the Regulations

- Objectives of amending the Regulations:-
 - better protecting public health;
 - facilitating effective regulation; and
 - promoting harmonisation between local and international standards

We conducted a comprehensive review on the Regulations and came up with various proposed amendments to the Regulations

- We conducted a public consultation exercise on the proposed amendments from 6 June to 5 September 2017.
- Details of our proposed amendments are set out the public consultation document.



Proposed directions / principles to amend the Regulations

- to replace the existing food categories of “all food in solid / liquid form” with specific MLs targeting individual food / food groups, with a view to aligning with the Codex principle and modern international regulatory trends of specifying metallic contamination standards for individual food / food groups of significant dietary exposure;
- to adopt Codex MLs unless otherwise justified;
- to establish MLs for food / food groups which are of significance to the population in Hong Kong and which there is no relevant Codex MLs;
- to update the food descriptions and nomenclatures in the Regulations, with reference to the available Codex’s food descriptions and nomenclatures or those of other jurisdictions as appropriate; and
- to incorporate interpretation of MLs into the Regulations, given that there is currently no interpretation in the Regulations on how the maximum permitted concentrations (MPCs) can be applied to food in a dried, dehydrated or concentrated form; as well as multi-ingredient products.



Overview of the proposed MLs (1)

- Under the proposed amendments, the total number of metallic contaminants covered will increase from 7 to 14.
 - On top of the 7 metals currently regulated under the Regulations (i.e. arsenic, antimony, cadmium, chromium, lead, mercury and tin), there will be 7 additional ones, i.e. (i) barium, (ii) boron, (iii) copper, (iv) manganese, (v) nickel, (vi) selenium and (vii) uranium.
- The total number of MLs under the Regulations will increase from 19 to 145.
 - 85 MLs adopted from Codex; 60 MLs are non-Codex but are of significance to the population in Hong Kong.



Overview of the proposed MLs (2)

- Of the 145 proposed MLs, 90 of them are more stringent than the existing MPCs.
 - 6 of them are less stringent than the existing MPCs, including:-
 - ◆ 4 to be brought in line with the corresponding Codex MLs (i.e. cadmium in leafy vegetables, cadmium in wheat, mercury (methylmercury) in fish and tin in canned food);
 - ◆ 1 being more stringent than the corresponding Codex ML (cadmium in “rice, polished”) but less stringent as compared with the existing MPC; and
 - ◆ 1 (cadmium in “rice, husked”) to be brought in line with the aforementioned ML for cadmium in “rice, polished”.



Public consultation exercise



Public consultation exercise

- We attended the LegCo Panel on Food Safety and Environmental Hygiene on 13 June and 3 July 2017 respectively.
- Also, we attended meeting of the Wholesale and Retail Task Force under the Business Facilitation Advisory Committee, as well as held various public forums and trade consultation forum.
- During the public consultation exercise, we received 21 submissions.
 - 9 submissions came from the food trade, trade associations and private testing laboratory, 4 from overseas authorities, 2 from political parties, 1 from a District Council Member, 1 from a professional body, 1 from the Consumer Council (CC), and 3 from the general public.
 - The submissions are uploaded onto the Food and Health Bureau's website.



Highlights of results of the public consultation



An overview

- The respondents welcomed and supported our proposed directions and principles for amending the Regulations.
- Also, respondents generally supported or did not have differing views on most of the 145 proposed MLs of specific metallic contaminants in specific food/food groups.
- While there were views that the standards should be as stringent as possible, there were also views that it was necessary to strike a balance between food safety and food supply.
- There were views on a few proposed MLs, including:-
 - Cadmium in polished rice
 - Mercury in fish
 - Other metallic contaminants in aquatic animals



To replace the existing food categories of “all food in solid / liquid form” with specific MLs targeting individual food / food groups (1)

- The CC opined that our proposed approach might not be able to protect public health effectively
 - suggested that there should be a food group called “other foods” of which the MLs will follow the existing maximum permitted concentrations for “all food in solid / liquid form”.
 - quoted buckwheat, quinoa and mantle of scallops, etc. as examples of “other foods”.



To replace the existing food categories of “all food in solid / liquid form” with specific MLs targeting individual food / food groups (2)

- We wish to point out that the proposed principle is in line with Codex principle and modern international regulatory trends.
 - According to the Codex principles for establishing MLs in food, MLs shall only be set for food in which the contaminant may be found in amounts that are significant for the total exposure of the consumer, i.e. the general local population.
 - In other words, it is not necessary to set MLs for each and every type of foods that contain a contaminant.
 - The proposed approach will be conducive to a more focused, tailor-made and proportionate regulation over metallic contamination in food, calibrated in accordance with the known risks associated with the food item concerned.



To replace the existing food categories of “all food in solid / liquid form” with specific MLs targeting individual food / food groups (3)

- **Our proposal:**
 - increase the total no. of MLs under the Regulations from the existing 19 to 145;
 - Section 54 of the Public Health and Municipal Services Ordinance (Cap. 132) (which stipulates that all food for sale must be fit for human consumption); and
 - Regulation 3 of the Regulations (which prohibits the import, consignment, delivery, manufacture or sale, for human consumption, of any food containing any metal in such amount as to be dangerous or prejudicial to health) will still apply.
- **For food / food groups without specific MLs under the Regulations, CFS will continue to make use of risk assessment as the safety net, striking a balance between safeguarding public health and avoiding undue regulation.**



To adopt Codex MLs unless otherwise justified

- A fishermen association considered that we should further review the proposed MLs, taking into account the data from Asia instead of solely relying on the Codex standards.
- We consider that there are merits in adopting MLs and guideline levels (GLs) for metallic contaminants in various food / food groups recommended by Codex and incorporate them into the Regulations unless there are strong scientific justifications to adopt a different standard.
 - Keeping the Regulations abreast of the Codex standards will safeguard food safety, bring our regulatory practices in alignment with international standards, and prevent possible trade barriers and disputes.



To establish MLs for food / food groups which are of significance to the population in Hong Kong and which there is no relevant Codex MLs

- A local food trader expressed reservation about establishing MLs for food / food groups in addition to Codex MLs and raised the concern that such principle might constitute trade barrier.
- We wish to point out that it is a common practice that economies world-wide, such as Australia, Canada, EU, Japan, Korea, the Mainland, New Zealand, Singapore, establish MLs for food / food groups which are of significance to the local population and which there is no relevant Codex MLs. We notified the World Trade Organisation of our proposed amendments in tandem with the public consultation exercise.
- To identify specific food / food groups which are of significance to the local population, we have taken into account factors.
- In proposing the MLs for these specific food / food groups, we have taken into consideration the Codex ALARA principle.



Cadmium in polished rice (1)

- A total of 6 written submissions related to cadmium in polished rice have been received
 - Two political parties, a District Council Member and the CC considered that we should keep the existing MPC of 0.1 mg/kg in polished rice intact
 - as they were concerned that relaxing it to 0.2 mg/kg would expose the general population to a higher health risk
 - The rice trade associations supported our proposed ML of 0.2 mg/kg for cadmium in polished rice



Cadmium in polished rice (2)

- Under the proposed amendments, cadmium is only one of the 6 metallic contaminants with proposed MLs applicable to polished rice. The other 5 metallic contaminants are 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 MPCs (ppm)	Proposed ML (mg/kg)	Remarks
More stringent than existing standard			
1. Arsenic in polished rice	1.4 (As ₂ O ₃)	0.2 (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 polished rice	0.1	0.2	More stringent than Codex ML (0.4 mg/kg)
Same as existing standard			
5. Antimony in cereals	1	1	
6. Chromium in cereals	1	1	

Cadmium in polished rice (3)

- The existing MPC 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 standards on metallic contamination under the Regulations at that time, the Government had made reference to the Codex standards and other jurisdictions (e.g. Australia, Japan, Singapore, the UK and the 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 (in 2016) and other jurisdictions are as follows:

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



Cadmium in polished rice (4)

- Our proposed ML for cadmium in polished rice is more stringent than the relevant Codex standard which was adopted in 2006.
- 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.
 - The Australian and New Zealand standards established before 1999.
- Economies of which polished rice is their staple food:
 - Japan and Vietnam have adopted the Codex standard of 0.4 mg/kg;
 - The Mainland, Korea and Singapore adopted the standard of 0.2 mg/kg; and
 - Thailand does not have relevant ML.
- Our current proposed ML for cadmium in polished rice compares favourably with those economies.



Cadmium in polished rice (5)

- 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, and results of risk assessments conducted in the past, etc.
- According to the report of the “First Hong Kong Total Diet Study: Metallic Contaminants”,
 - rice contributed to only 6% of the total exposure of cadmium for average consumers of the population;
 - the health of the general population is unlikely to be affected by the intake of cadmium through rice.
- 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.
- As such, we do not have strong scientific justification to keep the existing MPC for cadmium in polished rice.



Mercury in fish (1)

- The existing MPCs for mercury in “all food in solid form” (including fish) under the Regulations is 0.5 mg/kg of total mercury.
- Our proposed ML for mercury in fish is 0.5 mg/kg as expressed as methylmercury.
- Codex has established GLs of 0.5 mg/kg of methylmercury in fish (other than predatory fish) and 1 mg/kg of methylmercury in predatory fish respectively.



Mercury in fish (2)

- We have received a total of 5 written submissions that are related to the proposed ML for mercury in fish, and the views were diversified:
 - 2 political parties suggested that ML for fish should be proposed for total mercury in addition to methylmercury.
 - A seafood trade association considered that the proposed ML for methylmercury in fish was too stringent as compared with the standards of other economies and suggested a less stringent ML.
 - A few overseas authorities (Australia and New Zealand) pointed out that Codex is reviewing its standards for methylmercury in fish and may move towards setting species-specific MLs. Separately, they suggested us to adopt the new Codex recommendations when available, adopt the current Codex GL for methylmercury of 1.0 mg/kg for predatory fish in the meantime, or address the health risk concern arising from methylmercury by issuing dietary advice.



Mercury in fish (3)

- Methylmercury generally contributes more than 90% of the total mercury content in most fish.
- Methylmercury is the most concerned form of mercury in fish in terms of its occurrence and health effects.
- During the review of standards for mercury in fish, Codex in 2017 agreed to continue establishing MLs based on methylmercury.
 - Our proposed ML in terms of methylmercury, instead of total mercury, is therefore in line with Codex and international practices.



Mercury in fish (4)

- Taking into account that about 11% of women of childbearing age had dietary exposure to methylmercury exceeded the relevant health based guidance value (HBGV) in the local setting and the potential health risks to foetus upon methylmercury exposure during pregnancy
 - a proposed ML of 0.5 mg/kg for methylmercury in fish is considered appropriate.
- Even though the above proposed ML when applied to predatory fish is more stringent than the Codex GL of 1 mg/kg for methylmercury in predatory fish, we expect that the proposed ML will have minimal impact on the supply of fish to Hong Kong, and at the same time will not compromise local food safety.
- CFS will continue to provide dietary advice to the susceptible groups (e.g. women of child-bearing age, pregnant women and children) and the general public in terms of mercury and the benefits of fish consumption via various channels.



Mercury in fish (5)

- We note that Codex is reviewing its standards for methylmercury in fish.
- CFS will keep in view of the Codex development and review the feasibility of adopting the future new standards from enforcement point of view.



Other proposed MLs on metallic contaminants in aquatic animals (including fish) (1)

- A fishermen organisation and an oyster cultivation association were concerned about the proposed MLs for arsenic and lead in aquatic animals which were much more stringent than the existing MPCs.
- A local private testing laboratory suggested a more stringent ML for cadmium in seafood; and a seafood trade association considered that the proposed ML for cadmium in bivalve molluscs might lead to a high non-compliance rate.
- An overseas authority (Australia) suggested us to follow Codex's practice in excluding oysters and scallops from the ML for cadmium in marine bivalve molluscs.
- The aforementioned overseas authority also suggested us to consider adopting more lenient MLs for inorganic arsenic in bivalve molluscs (specifically *Amusium* scallops), and cadmium in swordfish, *Penaceus* and *Thenus* species, lest the supply of the products concerned would be restricted, and opined that they might represent a minor component of the Hong Kong diet.



Other proposed MLs on metallic contaminants in aquatic animals (including fish) (2)

- In light of the views received during the public consultation exercise over the proposed standards for aquatic animals, we have compared the proposed MLs for various types of aquatic animals with the results of the CFS' routine food surveillance programme in the past and the additional baseline studies conducted in the past few months, with a view to assessing the possible impact of the supply of relevant food or food groups. The findings are:
 - 96% of the samples of bivalve molluscs (including clams, cockles, mussels, oysters and scallops) complied with the proposed ML of 0.5 mg/kg for arsenic (inorganic arsenic). However, *Amusium* scallop samples have a lower compliance rate. We will alert the trade of this finding so that they will be aware of and assess the risk of importing *Amusium* scallops in future. Also, we will issue advice to the general public on the potential risk of high metallic contamination in *Amusium* scallops;
 - over 97% of the samples of fishes collected under CFS' routine food surveillance programme were found complying with the proposed ML of 0.1 mg/kg for arsenic (inorganic arsenic);



Other proposed MLs on metallic contaminants in aquatic animals (including fish) (3)

- according to the results of CFS' routine food surveillance programme and additional baseline studies, the levels of cadmium in bivalve molluscs (including scallops and oysters) could generally comply with the proposed ML of 2 mg/kg, with compliance rate at 98% or more;
- over 99% of samples of aquatic animals collected under the CFS' routine food surveillance programme complied with the proposed MLs for lead;
- while most of the crustaceans complied with the proposed ML of 2 mg/kg for cadmium, some species like bay lobsters (i.e. *Thenus* species), brown crabs, zebra mantis shrimps had a far lower compliance rate. We will alert the trade of these findings so that they will be aware of and assess the risk of importing those types of crustaceans in future. Also, we will issue advice to the general public on the potential risk of high metallic contamination in those types of crustaceans; and
- most of the fish species complied with the proposed standard of 0.1 mg/kg for cadmium. However, swordfish samples have a lower compliance rate. We will alert the trade of this finding so that they will be aware of and assess the risk of importing swordfish in future. Also, we will issue advice to the general public on the potential risk of high metallic contamination in swordfish.



Other proposed MLs on metallic contaminants in aquatic animals (including fish) (4)

- Crustaceans with higher cadmium content



Brown crabs



Zebra mantis shrimps



Bay lobsters

Other proposed MLs on metallic contaminants in aquatic animals (including fish) (5)

- Swordfish with higher cadmium content



Swordfish fillet

- *Amusium* scallops with higher inorganic arsenic content



Amusium scallops

Other proposed MLs on metallic contaminants in aquatic animals (including fish) (6)

- In general, according to the results of the routine food surveillance programme in the past and additional baseline studies of CFS, less than 5% of the test results for levels of metallic contamination for the food groups were found exceeding the proposed MLs. This proportion is in line with the Codex approach in setting food safety standards.
- The Agriculture, Fisheries and Conservation Department has also conducted tests (including levels of metallic contamination) on local farmed fish, indicating general compliance with the proposed MLs.
- Overall speaking, the proposed MLs are not likely to affect the food supply of aquatic animals in Hong Kong.



MLs for lead in beverages

- A respondent from the food trade suggested aligning the proposed MLs for lead in beverages with the Mainland standard, i.e. changing from our proposed 0.2 mg/L to 0.3 mg/L
 - Existing MPC for lead in all food in liquid form is 1 mg/L.
- Our proposed MLs of 0.2 mg/L for lead in beverages follows the Codex standard. According to the results of the routine food surveillance programme of CFS, the levels of metallic contamination in carbonated beverages, tea beverages and coffee beverages available in local market can generally comply with the proposed MLs of 0.2 mg/L.
 - Hence the Codex's ALARA principle is being followed.
 - We suggest maintaining our proposed ML as it is.



ML for tin in canned beverage

- A respondent from the food trade suggested that the proposed ML of 150 mg/kg for tin in canned beverages be applicable to tin-plate containers only.
- Canned food is generally referred to food products which are processed in an appropriate manner, before or after being hermetically sealed in a container.
- Tin contamination is mainly limited to foods or beverages packed in a tin-plate containers. Foods packed in cans other than tin-plate containers are unlikely to have problems in complying with the proposed MLs for tin.
- That said, given that the MLs for tin are not restricted only to foods/beverages packaged in tin-plate containers according to Codex standard, we suggest maintaining our proposed ML as it is.



Way forward

- **We have carefully considered the views received during the public consultation exercise.**
 - e.g. to address the concern about the possible impact of the proposed MLs for metallic contaminants in aquatic animals, CFS has compared the proposed MLs for various types of aquatic animals with the results of the routine food surveillance programme in the past and the additional baseline studies conducted in the past few months, with a view to assessing the possible impact of the supply of relevant food or food groups.
 - CFS assessment is that the proposed MLs are not likely to affect the supply of aquatic animals in Hong Kong in general.
 - Also, we have noted that Codex is reviewing its standards on mercury in fish and we will keep in view of the Codex development.
- **We plan to put forward the Amendment Regulations for tabling in the Legislative Council in 2018.**



~ End ~

