



FOOD SAFETY 101

Regulation of chemical contaminants in food

Introduction

Food contaminants are substances present in food at levels which serve no technological purpose and whose presence may lead to adverse health effects. There is currently no official definition of a contaminant in the Australia New Zealand Food Standards Code (The Code). However, the Codex General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995)¹ provides the following definition:

'Any substance not intentionally added to food which is present in such food as a result of production (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or hold of such food or because of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matters.'

There are considerable efforts employed by both the Australian and New Zealand Governments and the food industry to control contamination in food and keep the food supply safe for consumers.

Assessing public health and safety for contaminants

Risk assessments are done on a case-by-case basis, using the best available scientific evidence to decide whether an identified food-related hazard poses any public health and safety issues. Risk managers in liaison with risk assessors use the outcomes of risk assessments to formulate responses to food health and safety concerns (FSANZ, 2014).

Robust risk assessments and management options are utilized to reduce risk from a contaminant to *as low as reasonably achievable* (ALARA).

¹ <http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/>

² Maximum limit differs from maximum residue limits (MRLs) which are prescribed for agricultural and veterinary chemicals (AG/VET). An MRL is the maximum amount identified for the

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Depending on the outcomes of the risk assessment, to control chemical contamination in food, both regulatory (e.g., prohibition or maximum limits (MLs²)) and/or non-regulatory (e.g., guidelines or industry Codes of Practice (COPs)) can be considered. The most appropriate control measure for a particular contaminant depends on several factors such as the nature and severity of the potential health risk, the frequency and extent of the contamination, potential level of exposure and the size of the potentially exposed population.

Contaminants are regulated in Schedule 19 of Standard 1.4.1 Contaminants and Natural Toxicants³ of The Code.

This standard was reviewed in the late 1990s according to the following key principles (Abbott *et al.*, 2003; ANZFA, 1998; Szabo *et al.*, 2009):

- Levels in food should be kept ALARA.
- MLs are set for a contaminant in foods that present a significant risk to public health and safety and are a significant contribution to the total dietary exposure to that contaminant.
- Where the setting of a ML for the primary commodity is judged to be ineffective, a ML may be set for nominated processed foods (e.g., ML for cadmium in chocolate and cocoa).
- MLs should be consistent with Codex levels, where possible, however, harmonisation with Codex is secondary to measures to protect the public health and safety of Australians and New Zealanders.
- Consideration must also be given to Australia and New Zealand's international trade obligations under the World Trade Organizations Sanitary and Phytosanitary and Technical Barrier to Trade agreements.

permitted residue of an AG/VET chemical in a food with levels managed by MRLs prescribed in Standard 1.4.2 and Schedule 12 of The Code

³ <https://www.foodstandards.gov.au/code/Pages/default.aspx>

MLs for contaminants in the Code are prescribed only for major dietary contributors to human exposure for a specific contaminant. Therefore, theoretically if a contaminant is not listed in Standard 1.4.1 it is legally allowed to sell that food subject to the safe and suitable provisions of the State/Territory and New Zealand Food Acts.

The Code allows their presence, provided the food for sale is both safe and suitable under the general provisions of the Food Acts. However, levels should be kept ALARA in accordance with the requirements of Standard 1.4.1 Contaminants and Natural Toxicants of The Code.

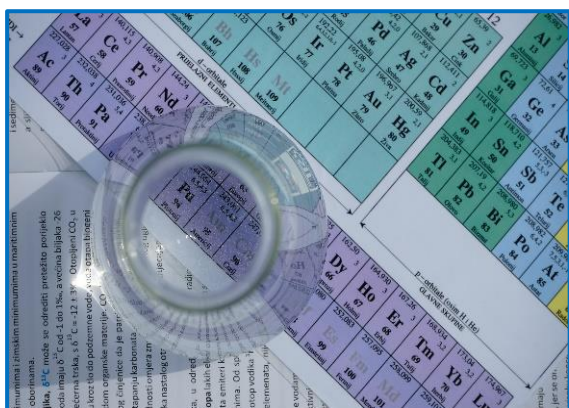


Photo by Vedrana Filipović on Unsplash

Regulation at the international level

Worldwide, there are various policies and regulations in place for contaminants in food set by individual countries based on their respective risk assessment outcomes and importantly their risk appetites.

The Codex Committee on Contaminants in Food (CCCF)⁴ on which Australia and New Zealand are represented, regularly reviews risk assessments on contaminants and proposes risk management options for consideration and inclusion in the General Standard for Contaminants and Toxins in Food and Feeds.

These may consist of regulatory (standards, MLs) and/or non-regulatory options such as guideline levels or COPs to reduce contamination in food.

⁴ <https://www.agriculture.gov.au/ag-farm-food/food/codex/committees/contaminants>

For more information

Refer to the accompanying paper that expands on this general overview of contaminants and provides three case studies demonstrating different risk management approaches used to control specific contaminants in Australia and New Zealand.

Relevant websites

[Codex Alimentarius Commission](#)

[World Health Organization](#) – Assessing chemical risks in foods

[Food Standards Australia New Zealand](#)

References

Abbott *et al.* (2003). Review of the regulations for contaminants and natural toxicants. *Food Control*, **14**, 383-389

ANZFA (1998). The regulation of contaminants and other restricted substances in food: Policy paper. Australia New Zealand Food Authority, Canberra, August 1998

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FSANZ (2014). Risk Analysis in Food Regulation <http://www.foodstandards.gov.au/publications/riskanalysisfoodregulation/Pages/default.aspx>.

Szabo *et al.* (2009). Responding to incidents of low-level chemical contamination in food. In: *Ensuring Global Food Safety: Exploring Global Harmonization*. Boisrobert, Stjepanovic, Oh, and Lelieveld (Editors)

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