Flavored waters: HMTc Standard

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CORRESPONDENCE

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KEYWORDS

heavy metals, food safety, dietary exposure

PUBLICATION HISTORY

This revision 2026-08.

Abstract

The Heavy Metal Tested & Certified heavy-metal-safety standard for flavored waters in Beverages, evaluated on ready-to-drink liquid, as consumed (wet weight, single strength); a concentrate or a powder-to-liquid product is assessed as reconstituted to single strength per the manufacturer's own directions, which is the basis EU 2023/915 and Codex CXS 193 write into their juice cells and Hong Kong Cap 132V Note 11 writes into its beverage entries. 7 of 11 panel analytes publish a numeric limit taken from the strictest applicable government maximum; the remainder are held under mandatory control or a substantiated not-material determination.

1 | How every number on this standard is set

HMTc Method v2.0 (government-limit-only): the strictest applicable sovereign maximum level for this exact beverage form and analyte in the row's declared native basis, with disclosed read-across where the exact cell is unregulated, a substantiated not-material determination where a species is bounded or is a method artifact, and a control where no defensible sovereign number and no supportable near-neighbour exist. Never occurrence-derived. Ready-to-drink and dry-commodity bases are never mixed and no brewing, dilution or reconstitution factor is invented.

2 | Master limit table

All values in ppb (µg/kg), as consumed basis. A brand meeting every value qualifies for the mark.

ANALYTE	HMTC LIMIT	BASIS

Lead (Pb)	5	read-across (US FDA)
Cadmium (Cd)	3	read-across (Hong Kong)
Total arsenic (tAs)	10	read-across (US FDA)
Inorganic arsenic (iAs)	control	measured every lot; no human-food maximum
Mercury, total (tHg)	2	read-across (US FDA)
Methylmercury (MeHg)	n/m	not material in this matrix
Nickel (Ni)	70	read-across (Hong Kong)
Tin (Sn)	100,000	government maximum level (EU 2023/915)
Aluminium (Al)	200	read-across (US FDA)
Total chromium (Cr)	50	screening ceiling (Hong Kong)
Hexavalent chromium (Cr-VI)	control	measured every lot; no human-food maximum

3 | Derivation — where each number comes from

Every cell traces to one named sovereign maximum level (the strictest for the nearest analog), or to an explicit control, not-material, or species-bounded determination. No occurrence statistic selects a certification value.

ANALYTE	HMTC	SOVEREIGN ANALOG / DETERMINATION
Lead (Pb)	5	read-across (US FDA); bottled water
Cadmium (Cd)	3	read-across (Hong Kong); Bottled or packaged drinking waters, other than natural mineral waters
Total arsenic (tAs)	10	read-across (US FDA); bottled water

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Inorganic arsenic (iAs)	control	No credible sovereign writes an inorganic-arsenic maximum level for a packaged water or a flavoured water; the packaged-water instruments cap arsenic as an unspeciated total, and this row adopts that total at 10 ug/kg. Publishing a separate inorganic-arsenic ceiling would either duplicate the total (adding nothing) or exceed it (an impossibility, since iAs <= tAs by identity), so the honest disposition is a control bounded by the total-arsenic ceiling rather than an invented species number. This is a control and not a not-material determination because inorganic arsenic is the health-relevant species in an aqueous matrix and is genuinely present in groundwater-sourced water: the analyte is real, only the separate ceiling is unavailable.
Mercury, total (tHg)	2	read-across (US FDA); bottled water
Methylmercury (MeHg)	n/m	Methylmercury has no formation pathway in a packaged flavoured water: there is no marine bioaccumulation step in the supply chain and no anaerobic, sulfate-reducing methylation environment in the product or its process. Methylmercury is a component of total mercury (MeHg <= tHg) and is governed by and bounded by the total-mercury cell; no separate methylmercury ceiling is published.
Nickel (Ni)	70	read-across (Hong Kong); Bottled or packaged drinking waters, other than natural mineral waters
Tin (Sn)	100,000	government maximum level (EU 2023/915)
Aluminium (Al)	200	read-across (US FDA); bottled water
Total chromium (Cr)	50	screening ceiling (Hong Kong); Bottled or packaged drinking waters, other than natural mineral waters

Hexavalent chromium (Cr-VI)	control	No credible sovereign sets a hexavalent-chromium limit for any food or beverage, and the in-matrix reduction argument that supports a not-material determination in an acidic beverage is not available here: a flavoured water is near-neutral (typically pH 5.5 to 7.5) and carries almost none of the organic acid, sugar or ascorbate load that reduces Cr(VI) to Cr(III) in a juice or soft drink, and hexavalent chromium is known to persist in oxygenated aqueous matrices, which is precisely why water law regulates chromium at all. Because Cr(VI) cannot be assumed to be reduced to Cr(III) in this matrix, the fail-safe disposition is a control rather than a not-material determination, and no ceiling is invented.

4 | Cite this standard

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References

[1] US FDA
Binds Pb, tAs, tHg, Al. bottled water.
READ-ACROSS

[2] Hong Kong
Binds Cd, Ni, Cr. Bottled or packaged drinking waters, other than natural mineral waters.
MAXIMUM LEVEL

[3] EU 2023/915
Binds Sn.
MAXIMUM LEVEL

STATUS AND LICENCE

A normative certification standard, editorially reviewed and version-controlled in-house; every value traces to a named sovereign maximum level, disclosed in the derivation. © 2026 Institute of Contaminant Standards / Heavy Metal Certified. All rights reserved.

COMPETING INTERESTS

This standard is published by the Heavy Metal Tested & Certified (HMTc) program, operated by the Institute of Contaminant Standards. Its statements about government regulations, toxicology, and occurrence are sourced to the cited primary and expert-body records and to the independently maintained Heavy Metal Index; the program's own certification thresholds are not used as evidence for any factual claim made here.

PUBLICATION HISTORY

This revision 2026-08. The full dated record is maintained at https://heavymetalcertified.com/standards/flavored-waters.

DATA AVAILABILITY

The works this standard draws on are listed in full in the references above and on the standard page at https://heavymetalcertified.com/standards/flavored-waters. Primary legal instruments and expert-body assessments are named with their public identifiers; the underlying occurrence and toxicology corpus is maintained on the Heavy Metal Index.

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