Sparkling/carbonated water (unflavored): 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 sparkling/carbonated water (unflavored) in Water and Water-Based Products, evaluated on as consumed, per litre of finished carbonated water (µg/L; numerically equal to µg/kg at unit density). 9 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 default; strictest applicable sovereign maximum for the exact packaged-water form in its native per-litre as-consumed basis, disclosed read-across where the exact cell is unregulated, control where no defensible sovereign number exists; never occurrence-derived)

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	government maximum level (European Union)
Cadmium (Cd)	2	read-across (AU)

Total arsenic (tAs)	10	government maximum level (European Union)
Inorganic arsenic (iAs)	6	government maximum level (Israel)
Mercury, total (tHg)	1	government maximum level (European Union)
Methylmercury (MeHg)	n/m	not material in this matrix
Nickel (Ni)	20	government maximum level (European Union)
Tin (Sn)	control	measured every lot; no human-food maximum
Aluminium (Al)	200	government maximum level (European Union)
Total chromium (Cr)	25	government maximum level (European Union)
Hexavalent chromium (Cr-VI)	10	read-across (CA SWRCB)

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	government maximum level (European Union)
Cadmium (Cd)	2	read-across (AU); drinking water
Total arsenic (tAs)	10	government maximum level (European Union)
Inorganic arsenic (iAs)	6	government maximum level (Israel)
Mercury, total (tHg)	1	government maximum level (European Union)

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Methylmercury (MeHg)	n/m	Mercury in sealed packaged drinking water is present essentially as inorganic Hg(II). Methylation is a microbial process requiring anaerobic sulfate- or iron-reducing activity in sediment or biota; it does not occur in a treated, filtered, disinfected and sealed packaged-water matrix, and there is no aquatic food chain in the product to bioaccumulate methylmercury. Methylmercury is in any event a component of total mercury, so it is bounded by identity at the published total-mercury ceiling of 1 µg/L. No separate methylmercury ceiling is published.
Nickel (Ni)	20	government maximum level (European Union)

Tin (Sn)	control	No sovereign sets a tin maximum for drinking water, bottled water or natural mineral water. The drinking-water instrument family carries no tin parameter at all (EU Directive 2020/2184 Annex I Parts B and C; US EPA National Primary Drinking Water Regulations; US FDA 21 CFR 165.110 standards of quality; Health Canada; NHMRC; WHO), and none of the national food-schedule packaged-water lines (Hong Kong Cap 132V, Israel FCS 2016, India FSSAI 2016, Vietnam QCVN 8-2:2011, GSO 193/2021, Colombia Res 4506/2013, Chile Decreto 977/1996, Fiji FSR 2009) carries a tin entry for water. A read-across is not supportable: the nearest sovereign tin maxima are the canned-food and canned-beverage maximum levels, which exist to bound dissolution of tin from a tinplate container wall into an acidic canned matrix, and the canned-beverage value (100 mg/kg inorganic tin) sits roughly four orders of magnitude above anything a packaged water can plausibly contain, so importing it would publish a ceiling that functions as no limit at all. The dominant packaging for this category (PET, HDPE, glass, aluminium) contains no tin. Unflavoured carbonated water is the one form in this category with a genuine canned presentation, so the canned-beverage instrument is recorded as a companion hard stop rather than ignored; the cans in ordinary use are aluminium or tin-free steel, which are not tin sources. Tin therefore remains a mandatory control cell; no number is invented.
Aluminium (Al)	200	government maximum level (European Union)
Total chromium (Cr)	25	government maximum level (European Union)
Hexavalent chromium (Cr-VI)	10	read-across (CA SWRCB); public water systems in California

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4 | Cite this standard

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References

[1] European Union
Binds Pb, tAs, tHg, Ni, Cr, Al.
MAXIMUM LEVEL

[2] AU
Binds Cd. drinking water.
READ-ACROSS

[3] CA SWRCB
Binds Cr-VI. public water systems in California.
READ-ACROSS

[4] Israel
Binds iAs.
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.

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/sparkling-carbonated-water. 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.

PUBLICATION HISTORY

This revision 2026-08. The full dated record is maintained at https://heavymetalcertified.com/standards/sparkling-carbonated-water.