

Caps/closures: HMTc Standard

Karen Pendergrass ·  · Heavy Metal Tested & Certified, Institute of Contaminant Standards

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CORRESPONDENCE

Corrections are logged publicly on the article page, each with its date, the affected value, and the source that resolved it.

Abstract

The Heavy Metal Tested & Certified heavy-metal-safety standard for caps/closures in Food-Contact Consumer Goods and Kitchenware, evaluated on specific element migration INTO FOOD OR A FOOD SIMULANT from the polymeric food-contact surface, µg/kg of food, determined by the Reg (EU) 10/2011 Annex III to V simulant, temperature and contact-time conventions. This is a MIGRATION basis and not a total-content basis: no cell on this row limits how much of an element the material CONTAINS, and no cell on this row is expressed per kg of material.. 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 for this exact product form expressed as specific element migration into food or a food simulant; a disclosed read-across from the nearest applicable sovereign value in the same basis where the food-contact material family is expressly excluded from or not reached by that instrument; a substantiated not-material determination; or a control. No cell is occurrence-derived, and no cell borrows a value across a basis.

2 | Master limit table

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

ANALYTE	TIER	HMTc LIMIT	BASIS
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Lead (Pb)	Tier 1	10	government maximum level
Cadmium (Cd)	Tier 1	2	government maximum level
Total arsenic (tAs)	Tier 2	10	government maximum level
Inorganic arsenic (iAs)	Tier 1	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	Tier 1	10	government maximum level
Methylmercury (MeHg)	Tier 1	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	Tier 2	20	government maximum level
Tin (Sn)	Tier 2	1,000,000	human-grade read-across (European Union)
Aluminium (Al)	Tier 2	1,000	government maximum level
Total chromium (Cr)	Tier 2	10	government maximum level
Hexavalent chromium (Cr-VI)	Tier 2	≤ Cr	bounded by Cr (reflex speciation)

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)	10	government maximum level
Cadmium (Cd)	2	government maximum level
Total arsenic (tAs)	10	government maximum level
Inorganic arsenic (iAs)	≤ tAs	iAs carries no product-specific sovereign cell; it is a component of and bounded by its parent total tAs (iAs ≤ tAs), an enforceable ceiling via reflex speciation rather than an empty cell.
Mercury, total (tHg)	10	government maximum level

Methylmercury (MeHg)	≤ tHg	MeHg carries no product-specific sovereign cell; it is a component of and bounded by its parent total tHg (MeHg ≤ tHg), an enforceable ceiling via reflex speciation rather than an empty cell.
Nickel (Ni)	20	government maximum level
Tin (Sn)	1,000,000	European Union — human-food analog
Aluminium (Al)	1,000	government maximum level
Total chromium (Cr)	10	government maximum level
Hexavalent chromium (Cr-VI)	≤ Cr	Cr-VI carries no product-specific sovereign cell; it is a component of and bounded by its parent total Cr (Cr-VI ≤ Cr), an enforceable ceiling via reflex speciation rather than an empty cell.

4 | Cite this standard

Pendergrass, K. (2026). *Caps/closures: HMTc standard* (Standard No. 10.83138/hmtc.std.23.food-packaging-caps-closures). Institute of Contaminant Standards. <https://doi.org/10.83138/hmtc.std.23.food-packaging-caps-closures>

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References

- [1] European Union — human-food maximum levels
 Binds Sn. Strictest applicable human-food sovereign maximum for the nearest analog.
 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.

DATA AVAILABILITY

The works this reference draws on are listed in full in the references above and on the briefing page at <https://heavymetalcertified.com/standards/food-packaging-caps-closures>. Primary legal instruments and expert-body assessments are

COMPETING INTERESTS

This briefing 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/food-packaging-caps-closures>.

named with their public identifiers; the underlying occurrence and toxicology corpus is maintained on the Heavy Metal Index.