Caps/closures: HMTc Standard

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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.

KEYWORDS

heavy metals, food safety, dietary exposure

PUBLICATION HISTORY

This revision 2026-08.

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	HMTC LIMIT	BASIS

Lead (Pb)	10	government maximum level (EU 10/2011)
Cadmium (Cd)	2	government maximum level (EU 10/2011)
Total arsenic (tAs)	10	government maximum level (EU 10/2011)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	10	government maximum level (EU 10/2011)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	20	government maximum level (EU 10/2011)
Tin (Sn)	1,000,000	read-across (European Union)
Aluminium (Al)	1,000	government maximum level (EU 10/2011)
Total chromium (Cr)	10	government maximum level (EU 10/2011)
Hexavalent chromium (Cr-VI)	≤ 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 (EU 10/2011)
Cadmium (Cd)	2	government maximum level (EU 10/2011)
Total arsenic (tAs)	10	government maximum level (EU 10/2011)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	10	government maximum level (EU 10/2011)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	20	government maximum level (EU 10/2011)

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Tin (Sn)	1,000,000	read-across (European Union); textile articles intended to come into contact with the skin, childcare articles, and other consumer articles in skin contact (diapers, gloves)
Aluminium (Al)	1,000	government maximum level (EU 10/2011)
Total chromium (Cr)	10	government maximum level (EU 10/2011)
Hexavalent chromium (Cr-VI)	≤ Cr	bounded by Cr (reflex speciation)

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] EU 10/2011
Binds Pb, Cd, tAs, tHg, Ni, Cr, Al.
MAXIMUM LEVEL

[2] European Union
Binds Sn. textile articles intended to come into contact with the skin, childcare articles, and other consumer articles in skin contact (diapers, gloves).
READ-ACROSS

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/food-packaging-caps-closures. 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/food-packaging-caps-closures.