Bleaching/whitening additives: HMTc Standard

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CITE AS

Pendergrass, K. (2026). Bleaching/whitening additives: HMTc Standard (Standard No. 10.83138/hmtc.std.19.bleaching-whitening-additives). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.19.bleaching-whitening-additives

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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 bleaching/whitening additives in Laundry and Fabric-Contact Home Products, evaluated on total heavy-metal content of the finished product as placed on the market (as-sold consumer-chemical product-content basis, mg/kg of product). 5 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; no sovereign sets a contaminant maximum for a laundry or fabric-care product, so each toxic-panel cell is a disclosed read-across from the nearest applicable sovereign consumer-chemical maximum level in the product's native as-sold content basis, and each remaining unregulated cell is a control with a published method and escalation rule; never occurrence-derived)

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
Lead (Pb)	Tier 1	2,000	human-grade read-across (DE)

Cadmium (Cd)	Tier 1	100	human-grade read-across (DE)
Total arsenic (tAs)	Tier 2	500	human-grade read-across (DE)
Inorganic arsenic (iAs)	Tier 1	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	Tier 1	100	human-grade read-across (DE)
Methylmercury (MeHg)	Tier 1	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	Tier 2	10,000	human-grade read-across (South Korea)
Tin (Sn)	Tier 2	3,750,000	human-grade read-across (European Union)
Aluminium (Al)	Tier 2	560,000	human-grade read-across (European Union)
Total chromium (Cr)	Tier 2	50	human-grade read-across (AU)
Hexavalent chromium (Cr-VI)	Tier 2	5	human-grade read-across (European Union)

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)	2,000	DE — human-food analog
Cadmium (Cd)	100	DE — human-food analog
Total arsenic (tAs)	500	DE — human-food analog
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)	100	DE — human-food analog

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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)	10,000	South Korea — human-food analog
Tin (Sn)	3,750,000	European Union — human-food analog
Aluminium (Al)	560,000	European Union — human-food analog
Total chromium (Cr)	50	AU — human-food analog
Hexavalent chromium (Cr-VI)	5	European Union — human-food analog

4 | Cite this standard

Pendergrass, K. (2026). *Bleaching/whitening additives: HMTc standard* (Standard No. 10.83138/hmtc.std.19.bleaching-whitening-additives). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.19.bleaching-whitening-additives

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References

[1] AU — human-food maximum levels
Binds Cr. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL

[2] DE — human-food maximum levels
Binds Pb, Cd, tAs, tHg. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL

[3] European Union — human-food maximum levels
Binds Sn, Al, Cr-VI. Strictest applicable human-food sovereign maximum for the nearest analog.
MAXIMUM LEVEL

[4] South Korea — human-food maximum levels
Binds Ni. 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.

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.

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/bleaching-whitening-additives. 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/bleaching-whitening-additives.

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