Hair dye/color rinses (rinse-off after processing): HMTc Standard

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CITE AS

Pendergrass, K. (2026). Hair dye/color rinses (rinse-off after processing): HMTc Standard (Standard No. 10.83138/hmtc.std.14.hair-dye-rinse-off). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.14.hair-dye-rinse-off

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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 hair dye/color rinses (rinse-off after processing) in Cosmetics and Personal Care — Rinse-off, evaluated on finished cosmetic as placed on market — total element content per unit mass of undiluted product as sold (µg/kg). Not a dietary basis, not a migration or leachate basis, and no use-pattern dilution credit.. 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): each numeric cell is the strictest applicable sovereign finished-cosmetic maximum for the product as placed on market, selected by minimum over a named multi-jurisdiction candidate set; unregulated cells are controls with a mandatory method and escalation rule, never invented numbers; 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	HMTC LIMIT	BASIS

Lead (Pb)	1,000	government maximum level (US-WA)
Cadmium (Cd)	100	government maximum level (DE)
Total arsenic (tAs)	500	government maximum level (DE)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	100	government maximum level (DE)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	10,000	government maximum level (South Korea)
Tin (Sn)	3,750,000	read-across (European Union)
Aluminium (Al)	560,000	read-across (European Union)
Total chromium (Cr)	50	read-across (AU)
Hexavalent chromium (Cr-VI)	5	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)	1,000	government maximum level (US-WA)
Cadmium (Cd)	100	government maximum level (DE)
Total arsenic (tAs)	500	government maximum level (DE)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	100	government maximum level (DE)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	10,000	government maximum level (South Korea)
Tin (Sn)	3,750,000	read-across (European Union); toys (accessible toy material); pacifiers/soothers reached via the EN 1400 soother standard (excluded from the TSD itself, Annex I item 16); EN 71-3 test basis

Aluminium (Al)	560,000	read-across (European Union); toys (accessible toy material); pacifiers/soothers reached via the EN 1400 soother standard (excluded from the TSD itself, Annex I item 16); EN 71-3 test basis
Total chromium (Cr)	50	read-across (AU); drinking water
Hexavalent chromium (Cr-VI)	5	read-across (European Union); toys (accessible toy material); pacifiers/soothers reached via the EN 1400 soother standard (excluded from the TSD itself, Annex I item 16); EN 71-3 test basis

4 | Cite this standard

Pendergrass, K. (2026). *Hair dye/color rinses (rinse-off after processing): HMTc standard* (Standard No. 10.83138/hmtc.std.14.hair-dye-rinse-off). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.14.hair-dye-rinse-off

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References

[1] US-WA
Binds Pb.
MAXIMUM LEVEL

[2] DE
Binds Cd, tAs, tHg.
MAXIMUM LEVEL

[3] South Korea
Binds Ni.
MAXIMUM LEVEL

[4] AU
Binds Cr. drinking water.
READ-ACROSS

[5] European Union
Binds Cr-VI, Sn, Al. toys (accessible toy material); pacifiers/soothers reached via the EN 1400 soother standard (excluded from the TSD itself, Annex I item 16); EN 71-3 test basis.
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/hair-dye-rinse-off. 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/hair-dye-rinse-off.

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