Toothbrushes (manual, electric heads): 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 toothbrushes (manual, electric heads) in Oral Care, evaluated on oral-care article as placed on market — total heavy-metal content of each accessible part, per unit mass of that component's material (ug/kg). Not a cosmetic finished-product basis, not a dietary maximum level, and not an EN 71-3 migration/leachate value.. 1 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), Category 20 Oral Care: a formulated oral product takes the strictest applicable sovereign finished-cosmetic contaminant maximum in its as-sold basis, with the Germany BVL 2017 toothpaste tier read across to non-toothpaste oral-mucosal forms where it is stricter; an oral-care article takes the Canadian mouth-contact accessible-part lead ceiling and is otherwise held under component-level control. Species never replace totals, no ingredient purity specification anchors a finished-product cell, no migration value anchors a content cell, and no cell is 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)	90,000	government maximum level (Canada)

Cadmium (Cd)	17,000	read-across (European Union)
Total arsenic (tAs)	47,000	read-across (European Union)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	94,000	read-across (European Union)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	930,000	read-across (European Union)
Tin (Sn)	180,000,000	read-across (European Union)
Aluminium (Al)	28,130,000	read-across (European Union)
Total chromium (Cr)	control	measured every lot; no human-food maximum
Hexavalent chromium (Cr-VI)	53	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)	90,000	government maximum level (Canada)
Cadmium (Cd)	17,000	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 arsenic (tAs)	47,000	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
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	94,000	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
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)

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Nickel (Ni)	930,000	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
Tin (Sn)	180,000,000	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)	28,130,000	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)	control	No sovereign sets a total chromium content limit for a mouth-contact oral-care article. Canada's Consumer Products Containing Lead Regulations (SOR/2018-83), the only instrument scoped to mouth-contact consumer products on a total-content basis, is lead-only — as is the second article-content lead instrument named in this row's own lead cell, REACH Annex XVII entry 63(7) as added by Regulation (EU) 2015/628; the EU toy values (Directive 2009/48 / EN 71-3) are MIGRATION limits and are excluded by this row's basis guard, and finished-cosmetic impurity schedules are written for a formulated product and do not reach an article. The cell is held under mandatory analytical control, not declared not-material: chromium is a defining alloying element of the stainless steel used for staples, wires and tips and is present in chrome plating and in Cr(III) pigments; total chromium is a screen for the Cr(VI) reflex below and is not itself protective.
Hexavalent chromium (Cr-VI)	53	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

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4 | Cite this standard

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References

[1] Canada
Binds Pb.
MAXIMUM LEVEL

[2] European Union
Binds Cd, tAs, tHg, Ni, 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/toothbrushes. 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/toothbrushes.