Clasps/fasteners (snaps, zippers, buttons) used in infant products: HMTc Standard

Karen Pendergrass · 0000-0002-2348-7259 · 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.

KEYWORDS

heavy metals, food safety, dietary exposure

PUBLICATION HISTORY

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Abstract

The Heavy Metal Tested & Certified heavy-metal-safety standard for clasps/fasteners (snaps, zippers, buttons) used in infant products in Infant and Child Durable Goods and Textiles (Ages 0-5), evaluated on total element content of the fastener component and its plating or coating (mg/kg of component; dried non-volatile film for platings and lacquers) — a content basis, not an extraction, nickel-release or migration basis. 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-only): the strictest applicable maximum set by a credible sovereign government for this exact product form in the row's declared native basis; a disclosed read-across from the nearest applicable sovereign cell where the exact cell is unregulated; a substantiated not-material determination where the analyte is a species bounded by a published parent; and a control with a named reference method where neither a sovereign value nor a supportable read-across exists. 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)	90,000	government maximum level (US FDA)
Cadmium (Cd)	75,000	read-across (AU)
Total arsenic (tAs)	25,000	read-across (AU)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	10,000	read-across (Canada)
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)	60,000	screening ceiling (AU)
Hexavalent chromium (Cr-VI)	3,000	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 (US FDA)
Cadmium (Cd)	75,000	read-across (AU)
Total arsenic (tAs)	25,000	read-across (AU); toys coated with a material
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	10,000	read-across (Canada); surface coating material
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
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)	60,000	screening ceiling (AU); toys coated with a material
Hexavalent chromium (Cr-VI)	3,000	read-across (European Union); leather articles and articles containing leather parts coming into contact with the skin

4 | Cite this standard

Pendergrass, K. (2026). *Clasps/fasteners (snaps, zippers, buttons) used in infant products: HMTc standard* (Standard No. 10.83138/hmtc.std.10.clasps-fasteners-infant-products). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.10.clasps-fasteners-infant-products

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References

[1] US FDA
Binds Pb.
MAXIMUM LEVEL

[2] AU
Binds Cd, tAs, Cr.
MAXIMUM LEVEL

[3] Canada
Binds tHg. surface coating material.
READ-ACROSS

[4] European Union
Binds 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

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

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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/clasps-fasteners-infant-products. 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.

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/clasps-fasteners-infant-products.