Replacement/refill materials for any dispensing system (oil refills, gel refills, spray refills): 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 replacement/refill materials for any dispensing system (oil refills, gel refills, spray refills) in Home Air and Inhalation-Adjacent Products, evaluated on as sold, micrograms of element per kilogram of the emitting material (the fragrance concentrate, wax, gel, botanical mass or refill charge that is aerosolised, evaporated or combusted), with component-level screening of the article's non-emitting parts; a content screen on the article and its refill, never an emission rate, a per-actuation dose or an indoor-air concentration. 4 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 initial setting: the strictest applicable sovereign maximum for this exact product form in its native basis; disclosed read-across where the exact cell is unregulated; control where neither a sovereign number nor a supportable near-neighbour analogue 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)	500	read-across (US-CO)
Cadmium (Cd)	200	read-across (US-CO)
Total arsenic (tAs)	200	read-across (US-CO)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	100	read-across (US-CO)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	18,800	read-across (European Union)
Tin (Sn)	3,750,000	read-across (European Union)
Aluminium (Al)	560,000	read-across (European Union)
Total chromium (Cr)	600	screening ceiling (US-MD)
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)	500	read-across (US-CO); inhaled product or audited product administered by metered-dose nasal spray
Cadmium (Cd)	200	read-across (US-CO); inhaled product or audited product administered by metered-dose nasal spray
Total arsenic (tAs)	200	read-across (US-CO); inhaled product or audited product administered by metered-dose nasal spray
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	100	read-across (US-CO); inhaled product or audited product administered by metered-dose nasal spray
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)

Nickel (Ni)	18,800	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)	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)	600	screening ceiling (US-MD); usable cannabis and cannabis products except edible products; inhalation route
Hexavalent chromium (Cr-VI)	≤ Cr	bounded by Cr (reflex speciation)

4 | Cite this standard

Pendergrass, K. (2026). *Replacement/refill materials for any dispensing system (oil refills, gel refills, spray refills): HMTc standard* (Standard No. 10.83138/hmtc.std.22.air-product-refill-materials). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.22.air-product-refill-materials

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References

[1] US-CO
Binds Pb, Cd, tAs, tHg. inhaled product or audited product administered by metered-dose nasal spray.
READ-ACROSS

[2] European Union
Binds Ni, 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

[3] US-MD
Binds Cr. usable cannabis and cannabis products except edible products; inhalation route.
MAXIMUM LEVEL

STATUS AND LICENCE

COMPETING INTERESTS

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.

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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/air-product-refill-materials. 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/air-product-refill-materials.