

Cannabis vape cartridge fill (vape oil): HMTc Standard

Karen Pendergrass ·  · Heavy Metal Tested & Certified, Institute of Contaminant Standards

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PUBLICATION HISTORY

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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.

Abstract

The Heavy Metal Tested & Certified heavy-metal-safety standard for cannabis vape cartridge fill, the consumable vape oil, sometimes called 'juice', evaluated on the finished inhalable consumable as sold. Each limit is the strictest sovereign cannabis heavy-metal action level applicable to the inhalation route (the same pool as flower); total chromium is a screening ceiling with hexavalent chromium as the binding control, and inorganic arsenic, methylmercury and Cr(VI) are enforced by reflex speciation. This standard covers the cartridge fill only; the vape hardware and its aerosol emissions are a separate reserved determination.

1 | How every number on this standard is set

HMTc Method v2.0 (government-limit default, route-preserving; strictest applicable sovereign cannabis maximum; occurrence never selects a value)

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	500	sovereign maximum level
Cadmium (Cd)	Tier 1	200	sovereign maximum level

Total arsenic (tAs)	Tier 2	200	sovereign maximum level
Inorganic arsenic (iAs)	Tier 1	$\leq$ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	Tier 1	100	sovereign maximum level
Methylmercury (MeHg)	Tier 1	$\leq$ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	Tier 2	800	human-grade read-across (European Union)
Tin (Sn)	Tier 2	250,000	human-grade read-across (Singapore)
Aluminium (Al)	Tier 2	100,000	human-grade read-across (China)
Total chromium (Cr)	Tier 2	600	sovereign maximum level
Hexavalent chromium (Cr-VI)	Tier 2	$\leq$ 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	government maximum level
Cadmium (Cd)	200	government maximum level
Total arsenic (tAs)	200	government maximum level
Inorganic arsenic (iAs)	$\leq$ tAs	iAs carries no product-specific sovereign cell; it is a component of and bounded by its parent total tAs (iAs $\leq$ tAs), an enforceable ceiling via reflex speciation rather than an empty cell.
Mercury, total (tHg)	100	government maximum level
Methylmercury (MeHg)	$\leq$ tHg	MeHg carries no product-specific sovereign cell; it is a component of and bounded by its parent total tHg (MeHg $\leq$ tHg), an enforceable ceiling via reflex speciation rather than an empty cell.

Nickel (Ni)	800	European Union — human-food analog
Tin (Sn)	250,000	Singapore — human-food analog
Aluminium (Al)	100,000	China — human-food analog
Total chromium (Cr)	600	government maximum level
Hexavalent chromium (Cr-VI)	≤ Cr	Cr-VI carries no product-specific sovereign cell; it is a component of and bounded by its parent total Cr (Cr-VI ≤ Cr), an enforceable ceiling via reflex speciation rather than an empty cell.

4 | Cite this standard

Pendergrass, K. (2026). *Cannabis vape cartridge fill (vape oil): HMTc standard* (Standard No. 10.83138/hmtc.std.25.cannabis-vape-cartridge-fill). Institute of Contaminant Standards.
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References

- [1] China — human-food maximum levels
 Binds Al. Strictest applicable human-food sovereign maximum for the nearest analog.
 MAXIMUM LEVEL
- [2] European Union — human-food maximum levels
 Binds Ni. Strictest applicable human-food sovereign maximum for the nearest analog.
 MAXIMUM LEVEL
- [3] Singapore — human-food maximum levels
 Binds Sn. 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.

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/cannabis-vape-cartridge-fill>.

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.

PUBLICATION HISTORY

This revision 2026-08. The full dated record is maintained at
<https://heavymetalcertified.com/standards/cannabis-vape-cartridge-fill>.

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.