

Disinfectants and sanitizers (EPA-registered antimicrobial sprays, wipes, concentrates): HMTc Standard

Karen Pendergrass · ORCID 0000-0002-2348-7259 · 1.0 (2026-08-13)

Karen Pendergrass. "Disinfectants and sanitizers (EPA-registered antimicrobial sprays, wipes, concentrates): HMTc Standard". <https://heavymetalcertified.com/standards/disinfectants-sanitizers>. Retrieved 2026-09-27.

How every number on this page is set

WHAT THIS STANDARD COVERS

EPA-registered antimicrobial products under FIFRA (sprays, wipes, concentrates) - a distinct testing bucket. Metal-based actives (silver, copper) are declared actives, not contaminants, and are outside the HMTc contaminant panel. Organotin is screened per REACH [entry 2017](#) given the historical organotin-biocide pathway. No FIFRA/FDA instrument sets a heavy-metal contaminant maximum for the product.

Disinfectants and sanitizers (EPA-registered antimicrobial sprays, wipes, concentrates) are EPA-registered antimicrobial products under FIFRA: a distinct testing bucket. The Confidential Statement of Formula and the antimicrobial active ingredient govern registration; a metal-based active (for example silver or copper) is a declared active, not a contaminant, and is outside the ten-analyte HMTc contaminant panel. No FIFRA or FDA sanitizing-solution instrument sets a heavy-metal contaminant maximum for the product, and household cleaning products are otherwise largely unregulated for heavy-metal content (the disclosure and eco-label regimes set no maximums). The toxic panel is therefore read across from the nearest coherent statutory consumer-chemical regime, China's mandatory cosmetic trace-metal limits ([Safety and Technical Standards for Cosmetics, 2015](#)): conservative, because a cosmetic is prolonged leave-on skin contact and an antimicrobial spray or wipe is incidental. Every number is in the product's native basis: total heavy-metal content as placed on the market.

Where no sovereign limit exists but the metal is a real or plausible contaminant, the standard publishes an analytical method and an escalation rule rather than an invented threshold (see Screened by method below); organotin is screened here because antimicrobial products are the one cleaning sub-scope with a plausible organotin-biocide pathway. [Inorganic arsenic](#) and [methylmercury](#) are bounded by their total-element parents and recorded as not material.

Master Limit Table

Limits in mg/kg of product as placed on the market. Every claim analyte is equal at the gate. A product is certified only when every analyte is at or below 100% of its published government floor or disclosed read-across; above the limit, on any metal, it is not certified and carries no mark. Analytes with no government limit for this product are listed below the table (screened by method, or not material), so all ten certification analytes are accounted for.

ANALYTE	HMTC LIMIT	BASIS	STRICTEST GOVERNMENT	RATIONALE
Lead (Pb)	10	total lead content, product as placed on the market (mg/kg)	China (read-across)	read-across
Arsenic, total (tAs)	2	total arsenic content, product as placed on the market (mg/kg)	China (read-across)	read-across
Cadmium (Cd)	5	total cadmium content, product as placed on the market (mg/kg)	China (read-across)	read-across
Mercury, total (tHg)	1	total mercury content, product as placed on the market (mg/kg)	China (read-across)	read-across

Screened by method: no government limit

No sovereign sets a heavy-metal maximum for these analytes in a household cleaning product, yet each is a real or plausible contaminant of the class. Rather than invent a number, the standard publishes the analytical method and the escalation rule for each: certification measures the analyte and escalates an out-of-band lot to ALARA review, not to a pass/fail against a fabricated threshold. This is an honest control, not a silent gap.

ANALYTE	ANALYTICAL METHOD	ESCALATION RULE
Nickel (Ni)	Total nickel by ICP-MS on the product as placed on market (acid digestion).	Nickel is a confirmed dermal sensitizer and is measured in household cleaning products (ecetoc1992). No jurisdiction sets a numeric total-nickel maximum for antimicrobial products, so certification screens total nickel and escalates a lot above the running category control band to ALARA review.
Aluminium (Al)	Total aluminium by ICP-MS on the product as placed on market.	Aluminium is a claim analyte and may be a functional ingredient. No jurisdiction sets an antimicrobial-product aluminium maximum. Screen total aluminium; a lot outside the functional-ingredient expectation triggers ingredient review.
Chromium, total (Cr)	Total chromium by ICP-MS on the product as placed on market.	Total chromium is measured in cleaning products (ecetoc1992). No jurisdiction sets an antimicrobial-product chromium maximum. Screen total chromium and reflex Cr(VI) speciation where total chromium is elevated or the formulation is oxidizing/acidic.
Chromium VI (Cr-VI)	Hexavalent chromium by IC-ICP-MS with alkaline extraction (US EPA 3060A / 7199).	Cr(VI) is measured in some consumer cleaning products (ecetoc1992) and oxidizing antimicrobial chemistries (hypochlorite, peroxides) can stabilize it. No jurisdiction sets an antimicrobial-product Cr(VI) maximum. Reflex Cr(VI) speciation on oxidizing formulations and where total chromium is elevated; escalate a positive Cr(VI) result to ALARA review.

ANALYTE	ANALYTICAL METHOD	ESCALATION RULE
Tin (Sn)	Organotin speciation (DBT/DOT/TBT as Sn) by GC-ICP-MS or GC-MS, plus total inorganic tin by ICP-MS.	Some antimicrobial products historically used organotin biocides; REACH Annex XVII entry 20 restricts organotin in consumer articles. Screen organotin on antimicrobial products and escalate any organotin detection; inorganic tin has no formulation source and is verified periodically.

Not material for this product

These analytes carry no ceiling because a species-specific limit is bounded by its published total-element parent, or no source and no pathway exist in the product. Each determination is rebuttable and evidence-tested (recorded in the index register), screened during certification, and recorded here rather than left as a silent gap.

ANALYTE	WHY IT CARRIES NO CEILING FOR THIS PRODUCT
Inorganic arsenic (iAs)	No jurisdiction sets an inorganic-arsenic limit for antimicrobial cleaning products; the consumer-chemical trace-metal instruments regulate TOTAL arsenic (see the tAs cell), which bounds the inorganic fraction (iAs <= tAs). No routed occurrence source measured or speciated inorganic arsenic in these products.
Methylmercury (MeHg)	Methylmercury has no formation or migration pathway in an antimicrobial formulation; it is a marine-bioaccumulation speciation. The consumer-chemical mercury instruments regulate total mercury (see the tHg cell), which bounds any organomercury fraction. No routed occurrence source measured or speciated methylmercury in these products.

Derivation: every government value, side by side

Each row lists the government value(s) weighed for this analyte in the total-content basis, converted to mg/kg; the HMTc limit is the strictest of them (or the disclosed read-across where no direct sovereign limit exists).

ANALYTE	GOVERNMENT VALUE(S) CONSIDERED (MG/KG)	HMTc	BINDS
Lead (Pb)	China 10 (read-across)	10	China (read-across)
Arsenic, total (tAs)	China 2 (read-across)	2	China (read-across)
Cadmium (Cd)	China 5 (read-across)	5	China (read-across)
Mercury, total (tHg)	China 1 (read-across)	1	China (read-across)

Cite this standard

REUSE THIS PAGE
Pendergrass, K. “Disinfectants and sanitizers (EPA-registered antimicrobial sprays, wipes, concentrates).” In Heavy Metal Tested & Certified (HMTc) Household Cleaning and Dishwashing standard, version 1.0 (2026-08-13). Institute of Contaminant Standards (ICS), 2026.

The evidence each limit is applied to lives on the independent [Heavy Metal Index](#)¹⁷; HMTc cites it one way and never the reverse. HMTc standards are living, versioned documents; this page reflects 1.0 (2026-08-13).

Source regulations

Every government regulation weighed to set this standard, in the total-content basis of the product as placed on the market. Household cleaning products are largely unregulated for heavy-metal content; where no sovereign limit exists, the analyte is screened by method or recorded as not material rather than assigned an invented number.

#	Regulation	Basis	Role in this standard
1	China Safety and Technical Standards for Cosmetics (2015, NMPA) ¹⁸	finished consumer-chemical product as placed on market	Read-across anchor for the toxic panel (nearest coherent statutory consumer-chemical regime)