Butter and ghee: HMTc Standard

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Who this standard is for

Four audiences read this page differently. Each has a route through it.

Brand regulatory affairs and QA

Read the Master Limit Table and the derivation. Every numeric claim traces to a source page on the independent literature index.

Retailer quality and compliance

Read the Master Limit Table. The mark on a product means the brand tested at or below every value in it, in the product's native basis.

Regulators: FDA, EFSA, state AGs

Read the HMTc-limit column and the rationale tag. Each limit is set to the strictest applicable government maximum by lookup, in the native basis; for the Tier-1 toxics (Pb, Cd, iAs, MeHg) and for cells no government regulates, the program's pooled occurrence distribution sets or tightens the value, never above the government maximum.

Adversarial readers: plaintiff's experts, competing bodies

Read the rationale column and the firm/in-development split. Every published value carries its pooled figure, its native basis, and the reason for any gap with the pool.

Master Limit Table

All values in ppb, as sold. A firm limit renders only for an analyte that has cleared all five shipping gates; every other analyte shows its honest evidence state and no number. The pooled column shows the program's occurrence figure for the analyte; the HMTc limit is the stricter of the applicable government maximum and, for Tier-1 toxics and cells no government regulates, that pooled figure, so the derivation stays re-derivable and the rationale tag names which bound. A brand meeting every firm value on a like-for-like basis qualifies for the mark for this subcategory.

ANALYTE	TIER	HMTC LIMIT	POOLED	RATIONALE	STATUS
Pb	Tier 1	—	–	READY FOR REVIEW (regulatory cap applies); distinct_sources=2; sens_band=stable; classif…	in development
tAs	Tier 2	—	–	—	not in scope
iAs	Tier 1	—	–	—	not in scope
Cd	Tier 1	—	–	READY FOR REVIEW; distinct_sources=2; sens_band=stable; classify=resolved/firm	in development
tHg	Tier 2	—	–	—	not in scope
MeHg	Tier 1	—	–	—	not in scope
Ni	Tier 2	—	–	—	not in scope
Cr-VI	Tier 2	—	–	—	not in scope
Sn	Tier 2	—	–	—	not in scope
Al	Tier 2	—	–	—	not in scope

Published values round to the HMTc primary increment ladder: 1 · 2 · 3 · 5 · 10 · 15 · 20 · 25 · 50 · 100 · 200 · 500 · 1000 · 1300 · 1500 · 2000 · 5000 · 10000, so a brand has an unambiguous bin to test against.

> No analyte in this subcategory has cleared all five shipping gates yet, so no firm limit is in force. This page reports the current evidence state honestly; it is not yet a published standard. See Program structure for how a subcategory reaches publication.

Analyte scope

This disclosure travels with the mark so a certified product is never silently uncontrolled on an analyte. The panel is Pb, tAs, iAs, Cd, tHg, MeHg, Ni, Cr-VI, Sn, Al.

Published (firm limit in force)	none yet
In scope, in development (no firm limit yet)	Pb, Cd
Out of scope for this subcategory	tAs, iAs, tHg, MeHg, Ni, Cr-VI, Sn, Al

Occurrence and derivation rationale

For each analyte on the panel: what the peer-reviewed and survey literature measured in this category, cited one way to the Heavy Metal Index, and the Method v2.0 reasoning behind the certification limit, including, where no government sets a number, why the program sets one anyway.

Occurrence figures are literature findings; the derivation is the certifier's.

> LEAD
>
> 2 studies in the corpus measured lead in Butter and ghee (317 samples reported across those studies): Hasan 2021, Starska 2011.
>
> 2 studies · 317 samples in the corpus
>
> No firm HMTc limit is published for lead in Butter and ghee yet; the cell is in development pending the shipping gates. The strictest applicable government maximum level is 100 ppb (literature-baseline), which the certification limit will adopt. Why lead is limited →

> TOTAL ARSENIC
>
> 1 study in the corpus measured total arsenic in Butter and ghee (256 samples reported across those studies): Hasan 2021.
>
> 1 study · 256 samples in the corpus
>
> No firm HMTc limit is published for total arsenic in Butter and ghee yet; the cell is in development pending the shipping gates. Why total arsenic is limited →

> CADMIUM
>
> 2 studies in the corpus measured cadmium in Butter and ghee (317 samples reported across those studies): Hasan 2021, Starska 2011.
>
> 2 studies · 317 samples in the corpus
>
> No firm HMTc limit is published for cadmium in Butter and ghee yet; the cell is in development pending the shipping gates. Why cadmium is limited →

> TOTAL MERCURY
>
> 1 study in the corpus measured total mercury in Butter and ghee (3 samples reported across those studies): Pankiewicz 2012.
>
> 1 study · 3 samples in the corpus
>
> No firm HMTc limit is published for total mercury in Butter and ghee yet; the cell is in development pending the shipping gates. Why total mercury is limited →

Cite this standard

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The evidence each limit is applied to lives on the independent Heavy Metal Index; HMTc cites it one way and never the reverse. HMTc standards are living, versioned documents; this page reflects 2.2 (2026-06-09) and superseded versions remain at stable URLs so prior citations resolve. The threshold-setting methodology is described in Program structure.