

# Ingredient class, enzymes,: HMTc Standard

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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 standard for Ingredient class: enzymes (Dietary Supplements (Human)), stated as sold. Every limit is read across from the strictest sovereign infant-and-child-food maximum level for the analyte and applied to all supplements as a voluntary child-protective over-compliance; the laxer adult supplement floor (sovereign supplement MLs, USP <2232>, Prop 65) is disclosed and never selected.

### 1 | How every number on this standard is set

HMTc Method v2.0 — child-protective over-compliance: strictest sovereign infant-and-child-food ML by lookup, applied to all supplements; adult floor (supplement ML / USP <2232> / Prop 65 MADL) disclosed, never selected

### 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 | 10         | human-grade read-across (Australia / New Zealand) |
| Cadmium (Cd) | Tier 1 | 5          | human-grade read-across (European Union)          |

|                             |        |       |                                                   |
|-----------------------------|--------|-------|---------------------------------------------------|
| Total arsenic (tAs)         | Tier 2 | 50    | human-grade read-across (India)                   |
| Inorganic arsenic (iAs)     | Tier 1 | 10    | human-grade read-across (European Union)          |
| Mercury, total (tHg)        | Tier 1 | 4     | human-grade read-across (Israel)                  |
| Methylmercury (MeHg)        | Tier 1 | ≤ tHg | bounded by tHg (reflex speciation)                |
| Nickel (Ni)                 | Tier 2 | 100   | human-grade read-across (European Union)          |
| Tin (Sn)                    | Tier 2 | 5,000 | human-grade read-across (India)                   |
| Aluminium (Al)              | Tier 2 | 500   | human-grade read-across (Australia / New Zealand) |
| Total chromium (Cr)         | Tier 2 | 1,000 | human-grade read-across (China)                   |
| Hexavalent chromium (Cr-VI) | Tier 2 | ≤ 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)           | 10   | Australia / New Zealand — infant formula products                                                                                                                                                                                                                     |
| Cadmium (Cd)        | 5    | European Union — infant formulae, follow-on formulae, food for special medical purposes intended for infants and young children, and young-child formulae placed on the market as liquid and manufactured from cow's milk proteins or cow's milk protein hydrolysates |
| Total arsenic (tAs) | 50   | India — Infant Milk substitute and Infant foods                                                                                                                                                                                                                       |

|                             |       |                                                                                                                                                                                                 |
|-----------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inorganic arsenic (iAs)     | 10    | European Union — infant formulae, follow-on formulae, food for special medical purposes intended for infants and young children, and young-child formulae placed on the market as liquid        |
| Mercury, total (tHg)        | 4     | Israel — Infant and toddler formulas, ready-to-eat                                                                                                                                              |
| Methylmercury (MeHg)        | ≤ tHg | MeHg carries no product-specific sovereign cell; it is a component of and bounded by its parent total tHg (MeHg ≤ tHg), an enforceable ceiling via reflex speciation rather than an empty cell. |
| Nickel (Ni)                 | 100   | European Union — infant/young-child formula, liquid                                                                                                                                             |
| Tin (Sn)                    | 5,000 | India — Infant Milk substitute and Infant foods                                                                                                                                                 |
| Aluminium (Al)              | 500   | Australia / New Zealand — infant formula, follow-on formula, and special medical purpose product for infants other than preterm-infant products                                                 |
| Total chromium (Cr)         | 1,000 | China — human-food analog                                                                                                                                                                       |
| 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

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## References

- [1] Australia / New Zealand — human-food maximum levels  
Binds Pb, Al. Strictest applicable human-food sovereign maximum for the nearest analog.  
MAXIMUM LEVEL
- [2] China — human-food maximum levels  
Binds Cr. Strictest applicable human-food sovereign maximum for the nearest analog.  
MAXIMUM LEVEL

- [3] European Union — human-food maximum levels  
Binds Cd, iAs, Ni. Strictest applicable human-food sovereign maximum for the nearest analog.  
MAXIMUM LEVEL
- [4] Israel — human-food maximum levels  
Binds tHg. Strictest applicable human-food sovereign maximum for the nearest analog.  
MAXIMUM LEVEL
- [5] India — human-food maximum levels  
Binds tAs, Sn. Strictest applicable human-food sovereign maximum for the nearest analog.  
MAXIMUM LEVEL
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#### 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/supplements-enzymes>. 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.

#### 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/supplements-enzymes>.