Sunflower seeds (a known cadmium accumulator): 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.

KEYWORDS

heavy metals, food safety, dietary exposure

PUBLICATION HISTORY

This revision 2026-08.

Abstract

The Heavy Metal Tested & Certified standard for Sunflower seeds (a known cadmium accumulator) (Nuts, Seeds, and Their Butters), stated as sold. Each analyte carries the strictest applicable government maximum level in the product's native basis, with a disclosed read-across or a mandatory control where no government regulates the exact product.

1 | How every number on this standard is set

HMTc Method v2.0 (government-limit default; regulatory-alignment / read-across / not-material / control)

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)	1,000	government maximum level (Israel)
Cadmium (Cd)	500	government maximum level (EU 2023/915)
Total arsenic (tAs)	1,000	government maximum level (Israel)

Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	400	government maximum level (Israel)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	8,000	government maximum level (EU 2024/1987)
Tin (Sn)	250,000	read-across (Singapore)
Aluminium (Al)	100,000	read-across (China)
Total chromium (Cr)	1,000	read-across (GB 2762)
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)	1,000	government maximum level (Israel)
Cadmium (Cd)	500	government maximum level (EU 2023/915)
Total arsenic (tAs)	1,000	government maximum level (Israel)
Inorganic arsenic (iAs)	≤ tAs	bounded by tAs (reflex speciation)
Mercury, total (tHg)	400	government maximum level (Israel)
Methylmercury (MeHg)	≤ tHg	bounded by tHg (reflex speciation)
Nickel (Ni)	8,000	government maximum level (EU 2024/1987)
Tin (Sn)	250,000	read-across (Singapore); any food
Aluminium (Al)	100,000	read-across (China); baked foods (bread, pastries, cakes, biscuits, cookies, crackers); deep-fried flour products; batter, breading, and frying powder
Total chromium (Cr)	1,000	read-across (GB 2762); grains and grain products including cereals and milled grain products
Hexavalent chromium (Cr-VI)	≤ Cr	bounded by Cr (reflex speciation)

4 | Cite this standard

Pendergrass, K. (2026). *Sunflower seeds (a known cadmium accumulator): HMTc standard* (Standard No. 10.83138/hmtc.std.28.sunflower-seeds). Institute of Contaminant Standards. https://doi.org/10.83138/hmtc.std.28.sunflower-seeds

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References

[1] Israel
Binds Pb, tAs, tHg.
MAXIMUM LEVEL

[2] EU 2023/915
Binds Cd.
MAXIMUM LEVEL

[3] EU 2024/1987
Binds Ni.
MAXIMUM LEVEL

[4] GB 2762
Binds Cr. grains and grain products including cereals and milled grain products.
READ-ACROSS

[5] Singapore
Binds Sn. any food.
READ-ACROSS

[6] China
Binds Al. baked foods (bread, pastries, cakes, biscuits, cookies, crackers); deep-fried flour products; batter, breading, and frying powder.
READ-ACROSS

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.

COMPETING INTERESTS

This standard 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.

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/sunflower-seeds. 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/sunflower-seeds.