Oysters

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HEAVY METAL INDEX · INGREDIENT PROFILE October 2026

DOI 10.83376/hmi.ingredient.oyster

CITE AS

Pendergrass, K. (2026). Oysters. Heavy Metal Index. https://doi.org/10.83376/hmi.ingredient.oyster

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 2026-10-22.

Abstract

Oysters in the HMI library has 569 reported results for lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, monomethylarsonic acid, total mercury, methylmercury, nickel, chromium, aluminum, tin, antimony, Cu, Zn, V, Se, AsB, AsC, AsIII, AsV, DBT, DBT_as_Sn, DOT, DPhT, DPhT_as_Sn, MBT, MBT_as_Sn, MPhT, MPhT_as_Sn, OTC_sum_as_Sn, Sn_total_organotin, sumBT, sumOTC, sumPhT, TBT, TBT_as_Sn, TBT+DBT+TPhT, TMA, TPhT, TPhT_as_Sn and TPT from 29 sources. WHO gems/food submissions reported lead in oysters as sold from 1,311 results in 3 reporting regions, with subgroup medians from 13 to 205 µg/kg. For cadmium, GEMS/Food gave subgroup medians from 29.5 to 1,200 µg/kg from 1,296 results.

1 | Oysters overview

Across 7 other studies of ordinary farms and markets, reported lead means and medians on an as-sold or fresh-weight basis ranged from 100 µg/kg (Singhato et al. 2025) to 3,160 µg/kg (Martin et al. 2017).[4,8] For cadmium, 9 studies on an as-sold or fresh-weight basis reported means and medians from 27 µg/kg (Valencia et al. 2021) to 16,200 µg/kg (Martin et al. 2017).[4,9] Higher results came from contaminated or exposed settings rather than ordinary supply. Oysters as sold from water-soluble had TMA higher at 6,150 µg/kg, against 430 µg/kg for lipid-soluble in the same study.[7]

For a buyer the practical points are the form bought, the basis a result is reported on, where the oysters came from and the laboratory's reporting limit. Testing finds contamination but does not remove it.

2 | What counts as oysters

This page covers oysters as sold (569 results).[1,2,3,4,5,6]

Results stay on the basis each source reports: as sold or fresh weight, dry weight, or unstated. Dry-weight, as-sold and unstated results are never pooled, and no moisture conversion is applied.

3 | How metals reach oysters

The evidence on how metals reach oysters comes from studies that compared exposed and ordinary settings. Oysters as sold from water-soluble had TMA higher at 6,150 µg/kg, against 430 µg/kg for lipid-soluble in the same study.[7]

These are observational comparisons from single studies; the size of the difference depends on the site, metal and distance.

4 | Which forms and regions measured lower

The hmi reference for lead in oysters as sold pools 67 subgroup units from 3 sampling families, with a median of between 100 and 103 µg/kg and a middle half spanning between 35 and 100 (lower quartile) and 103 µg/kg (upper quartile).[1,6,9] for cadmium in oysters as sold, the reference median was 120 µg/kg, with a middle half from 90 to 235 µg/kg across 51 units.[1,6,9,12] for total arsenic in oysters as sold, the reference median was 2,710 µg/kg, with a middle half from 2,190 to 6,000 µg/kg across 41 units.[1,13]

Among GEMS/Food reporting regions, oysters as sold had the lowest lead subgroup median in WPRO (13 µg/kg) and the highest in WPRO (205 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in WPRO (29.5 µg/kg) and the highest in WPRO (1,200 µg/kg).[1] For total arsenic, the lowest regional median was in EURO (1,810 µg/kg) and the highest in WPRO (2,440 µg/kg).[1]

Targeted oysters as sold samples in WPRO had lead lower at 115 µg/kg, against 130 µg/kg for WPRO in the same study.[1] In another study, targeted oysters as sold samples in EURO had cadmium lower at 140 µg/kg, against 760 µg/kg for EURO in the same study.[1]

In one study, lead across 22 groups of oysters ranged from 550 µg/kg (March 2011) to 4,600 µg/kg (October 2011); the lowest is the lowest observed in that study, not an established sourcing preference.[4] In another study, cadmium across 4 groups of oysters ranged from 27 µg/kg (Mean of 3 stations, January) to 83 µg/kg (Mean of 3 stations, October); the lowest is the lowest observed in that study, not an established sourcing preference.[9]

5 | Processing, cooking and preparation

No processing study for metals in this food is in the library yet.

6 | Mitigation for oysters

Lot testing against the applicable limit is the check that can be verified.

7 | Trade-offs and limits of controls

Avoiding exposed growing areas lowered the metal measured in the studies available, but no study measured the cost or supply effect of doing so.[7] Metals do not move together, so a lot that passes a lead limit says little about cadmium, arsenic or nickel unless those are tested as well.

8 | Testing oysters for metals

Results depend on the method and its reporting limit. Reporting limits for lead ranged from 1.1 µg/kg (Singhato et al. 2025) to 300 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1,8] Reporting limits for cadmium ranged from 0.7 µg/kg (WHO GEMS/Food) to 322 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1] Reporting limits for total arsenic ranged from 0.7 µg/kg (Singhato et al. 2025) to 1,360 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1,8]

A useful lot result names the form, the basis and a quantification limit well below the limit that applies.

9 | Buying and verifying oysters

No maximum level for metals in oysters was verified from primary text for this page; buyers should confirm the limit that applies in the destination market.

10 | Exposure from oysters

No source in the library converted oysters concentrations into a verified estimate of intake for a defined population. Concentrations describe the food, not individual risk.

11 | Evidence review and remaining gaps

Every source record that names oysters was decided on its content: 29 occurrence extracted, 29 records in all. The occurrence table renders every extracted result; held values remain visible with their reason.

References identify the sources used in these answers. The Sources index preserves additional discovery links; inclusion there does not mean a source has been reviewed for this assessment. Corrections, completed searches, new direct evidence and changes in requirements should reopen the relevant answer.

12 | Oysters FAQs

The library reports lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, monomethylarsonic acid, total mercury, methylmercury, nickel, chromium, aluminum, tin, antimony, Cu, Zn, V, Se, AsB, AsC, AsIII, AsV, DBT, DBT_as_Sn, DOT, DPhT, DPhT_as_Sn, MBT, MBT_as_Sn, MPhT, MPhT_as_Sn, OTC_sum_as_Sn, Sn_total_organotin, sumBT, sumOTC, sumPhT, TBT, TBT_as_Sn, TBT+DBT+TPhT, TMA, TPhT, TPhT_as_Sn and TPT in oysters, most often lead, cadmium and total arsenic.[1,2,3,4] WHO gems/food submissions reported lead in oysters as sold from 1,311 results in 3 reporting regions, with subgroup medians from 13 to 205 µg/kg.[1]

In the studies available, oysters from contaminated or exposed settings carried more metal than oysters from the same study's control.[7] oysters as sold from water-soluble had TMA higher at 6,150 µg/kg, against 430 µg/kg for lipid-soluble in the same study.[7]

Among GEMS/Food reporting regions, oysters as sold had the lowest lead subgroup median in WPRO (13 µg/kg) and the highest in WPRO (205 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in WPRO (29.5 µg/kg) and the highest in WPRO (1,200 µg/kg).[1]

Inorganic arsenic, the more toxic form, was measured in 20 results from 6 sources, far fewer than total arsenic.[1,7,14,15,16,17] Across 3 other studies of ordinary farms and markets, reported inorganic arsenic means

and medians with the basis not stated ranged from 10 µg/kg (EFSA 2021) to 67.3 µg/kg (European Food Safety Authority (EFSA) 2014).[16,17]

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STATUS AND LICENCE

Editorially reviewed in-house; no external peer review has been completed on this ingredient profile. Published as an institutional technical report with its review state tracked on the article page. Released under CC BY 4.0.

DATA AVAILABILITY

Every source behind this ingredient profile is listed with its own source record at https://heavymetalindex.com/ingredients/oyster#sources.

COMPETING INTERESTS

The Heavy Metal Index reports what the peer-reviewed and regulatory literature supports. It is operated separately from any certification program, does not evaluate or endorse brands, and does not use certification thresholds as evidence for the statements made here.

PUBLICATION HISTORY

This revision 2026-10-22. The full dated record is maintained at https://heavymetalindex.com/ingredients/oyster.