Mozzarella

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CORRESPONDENCE

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Abstract

Mozzarella in the HMI library has 66 reported results for lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, uranium, Co, Cu, Fe, Mn, Zn, V, Se, Ba, Hg, Sr and Ti from 5 sources. WHO gems/food submissions reported lead in mozzarella as sold from 3 results in 1 reporting region, with a subgroup median of 9.4 µg/kg. In the US Total Diet Study, mozzarella as sold had a median lead result below 4 µg/kg across 27 composites from 2017-2020.

1 | Mozzarella overview

Marcus et al. 2026 reported lead at 8 µg/kg (mean) in mozzarella as sold from Buffalo mozzarella (farm-origin, Certeze area).[4] Crupi et al. 2022 reported cadmium at 23 µg/kg (mean ± 3 SD) in mozzarella as sold from retail, markets in Sicily.[5]

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

2 | What counts as mozzarella

This page covers mozzarella as sold (66 results).[1,2,3,4,5]

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 mozzarella

No study in the library compared mozzarella from contaminated and ordinary settings, so the routes by which metals reach it are not measured here.

4 | Which forms and regions measured lower

The hmi reference for lead in mozzarella as sold pools 30 subgroup units from 3 sampling families, with a median of between 3.5 and 4 µg/kg and a middle half spanning below 3.5 (lower quartile) and between 5.25 and 6.25 µg/kg (upper quartile).[1,2,3] for cadmium in mozzarella as sold, the reference median was below 2.6 µg/kg, with a middle half from below 1 to between 2.6 and 3.33 µg/kg across 33 units.[1,2,3] for total arsenic in mozzarella as sold, the reference median was below 3 µg/kg, with a middle half from below 3 to below 22.6 µg/kg across 33 units.[1,2]

5 | Processing, cooking and preparation

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

6 | Mitigation for mozzarella

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

7 | Trade-offs and limits of controls

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 mozzarella for metals

Results depend on the method and its reporting limit. Reporting limits for lead ranged from 4 µg/kg (FDA Total Diet Study) to 5 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1,2] Reporting limits for cadmium ranged from 1 µg/kg (FDA Total Diet Study) to 5 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1,2] Reporting limits for total arsenic ranged from 3 µg/kg (FDA Total Diet Study) to 40 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1,2]

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

9 | Buying and verifying mozzarella

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

10 | Exposure from mozzarella

No source in the library converted mozzarella 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 mozzarella was decided on its content: 5 occurrence extracted, 5 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 | Mozzarella FAQs

The library reports lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, uranium, Co, Cu, Fe, Mn, Zn, V, Se, Ba, Hg, Sr and Ti in mozzarella, most often lead, cadmium and total arsenic.[1,2,3,4] WHO gems/food submissions reported lead in mozzarella as sold from 3 results in 1 reporting region, with a subgroup median of 9.4 µg/kg.[1]

Inorganic arsenic, the more toxic form, was measured in 2 results from 1 source, far fewer than total arsenic.[1] WHO GEMS/Food submissions reported inorganic arsenic in mozzarella as sold from 3 results in 1 reporting region, with subgroup medians below 40 µg/kg, mostly non-detects.[1]

References

[1] GEMS/Food Contaminants database heavy-metal exports
World Health Organization · GEMS/Food Contamination Monitoring and Assessment Programme · 2026 · extranet.who.int
DATASET

[2] FY2018-FY2020 TDS Elements Analytical Results
U.S. Food and Drug Administration · FDA Total Diet Study · 2022 · www.fda.gov
DATASET

[3] Determination of the Concentration of Heavy Metals in Artisanal Cheeses Produced in the Mexican States of Tabasco and Chiapas
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PEER-REVIEWED

[4] From Farm to Retail: Decoding the Elemental Landscape of Milk and Dairy Products Across Organic and Conventional Production Systems Using ICP-MS
Marcus OI, Tabaran A, Crisan Reget OL, Dan SD, Panait LC, Lacatus CM, et al. · Toxics 2026, 14, 124 · 2026 · doi.org/10.3390/toxics14020124
PEER-REVIEWED

[5] Mineral Composition in Delactosed Dairy Products: Quality and Safety Status
Crupi R, Lo Turco V, Gugliandolo E, Nava V, Potortì AG, Cuzzocrea S, et al. · Foods 2022, 11, 139 · 2022 · doi.org/10.3390/foods11020139
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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.

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.

DATA AVAILABILITY

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

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