Mayonnaise

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Abstract

Mayonnaise in the HMI library has 64 reported results for lead, cadmium, total arsenic, total mercury, nickel, chromium, aluminum, tin, uranium, Cu, Fe, Mn and Zn from 6 sources. WHO gems/food submissions reported lead in mayonnaise as sold from 159 results in 2 reporting regions, with subgroup medians from 7 to 16.9 µg/kg. In the US Total Diet Study, mayonnaise as sold had a median lead result below 4 µg/kg across 3 composites from 2018-2020.

1 | Mayonnaise overview

Torkashvand et al. 2026 reported lead at 670 µg/kg (mean) in mayonnaise as sold from all packaging types, Iranian market.[4] Higher results came from contaminated or exposed settings rather than ordinary supply. Mayonnaise as sold from sachet-packed, 4 brands x 3 production series, Iranian market had chromium higher at 640 µg/kg, against 400 µg/kg for all packaging types, Iranian market in the same study.[4]

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

2 | What counts as mayonnaise

This page covers mayonnaise in 2 forms kept separate in every comparison: mayonnaise as sold (58 results) and mayonnaise oil (6 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 mayonnaise

The evidence on how metals reach mayonnaise comes from studies that compared exposed and ordinary settings. Mayonnaise as sold from sachet-packed, 4 brands x 3 production series, Iranian market had chromium higher at 640 µg/kg, against 400 µg/kg for all packaging types, Iranian market in the same study.[4]

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 mayonnaise as sold pools 37 subgroup units from 3 sampling families, with a median of below 4 µg/kg and a middle half spanning below 4 (lower quartile) and below 7 µg/kg (upper quartile).[1,2,3] for cadmium in mayonnaise as sold, the reference median was below 1 µg/kg, with a middle half from below 1 to below 1 µg/kg across 26 units.[1,2,3] for total arsenic in mayonnaise as sold, the reference median was below 3 µg/kg, with a middle half from below 3 to below 5 µg/kg across 12 units.[1,2]

Among GEMS/Food reporting regions, mayonnaise as sold had the lowest lead subgroup median in EURO (7 µg/kg) and the highest in PAHO (16.9 µg/kg); reporting regions are markets, not growing areas.[1]

5 | Processing, cooking and preparation

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

6 | Mitigation for mayonnaise

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.[4] 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 mayonnaise for metals

Results depend on the method and its reporting limit. Reporting limits for lead ranged from 1 µg/kg (WHO GEMS/Food) to 4,000 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1] Reporting limits for cadmium ranged from 0.5 µg/kg (WHO GEMS/Food) to 1,200 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 3 µg/kg (FDA Total Diet Study) to 50 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 mayonnaise

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

10 | Exposure from mayonnaise

No source in the library converted mayonnaise 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 mayonnaise was decided on its content: 6 occurrence extracted, 6 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 | Mayonnaise FAQs

The library reports lead, cadmium, total arsenic, total mercury, nickel, chromium, aluminum, tin, uranium, Cu, Fe, Mn and Zn in mayonnaise, most often lead, cadmium and total arsenic.[1,2,3,4] WHO gems/food submissions reported lead in mayonnaise as sold from 159 results in 2 reporting regions, with subgroup medians from 7 to 16.9 µg/kg.[1]

In the studies available, mayonnaise from contaminated or exposed settings carried more metal than mayonnaise from the same study's control.[4] mayonnaise as sold from glass-packed, 4 brands x 3 production series, Iranian market had lead higher at 680 µg/kg, against 670 µg/kg for all packaging types, Iranian market in the same study.[4]

Among GEMS/Food reporting regions, mayonnaise as sold had the lowest lead subgroup median in EURO (7 µg/kg) and the highest in PAHO (16.9 µg/kg); reporting regions are markets, not growing areas.[1]

References

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PEER-REVIEWED

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STATUS AND LICENCE

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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/mayonnaise#sources.

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