Corn flakes cereal

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CORRESPONDENCE

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Abstract

Corn flakes cereal in the HMI library has 39 reported results for lead, cadmium, total arsenic, inorganic arsenic, total mercury, nickel, chromium, aluminum, tin, uranium, Cu, Fe, Mn, Zn, Ag, CrIII and CrVI from 7 sources. WHO GEMS/Food submissions reported lead in corn flakes cereal as sold from 131 results in 2 reporting regions, with subgroup medians below 100 µg/kg, mostly non-detects. In the US Total Diet Study, corn flakes cereal as sold had a median lead result below 4 µg/kg across 3 composites from 2018-2020.

1 | Corn flakes cereal overview

Spungen et al. 2024 reported lead at 2.8 µg/kg (mean) in corn flakes cereal as sold from all samples.[3] Across 2 other studies of ordinary farms and markets, reported inorganic arsenic means and medians with the basis not stated ranged from 12.9 µg/kg (European Food Safety Authority (EFSA) 2014) to 30 µg/kg (EFSA 2021).[5,6]

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

2 | What counts as corn flakes cereal

This page covers corn flakes cereal as sold (39 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 corn flakes cereal

No study in the library compared corn flakes cereal 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 corn flakes cereal as sold pools 36 subgroup units from 2 sampling families, with a median of below 4.45 µg/kg and a middle half spanning below 4 (lower quartile) and below 10 µg/kg (upper quartile).[1,2] for cadmium in corn flakes cereal as sold, the reference median was 1.3 µg/kg, with a middle half from between 1.1 and 1.3 to between 1.4 and 3.5 µg/kg across 35 units.[1,2] For total arsenic in corn flakes cereal as sold, the reference median was below 3.1 µg/kg, with a middle half from below 3 to below 14.3 µg/kg across 10 units.[1,2]

Among GEMS/Food reporting regions, corn flakes cereal as sold had the lowest cadmium subgroup median in PAHO (2 µg/kg) and the highest in PAHO (3 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 corn flakes cereal

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 corn flakes cereal 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 3,000 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 0.5 µg/kg (WHO GEMS/Food) to 50 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 200 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 corn flakes cereal

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

10 | Exposure from corn flakes cereal

No source in the library converted corn flakes cereal 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 corn flakes cereal was decided on its content: 7 occurrence extracted, 7 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 | Corn flakes cereal FAQs

The library reports lead, cadmium, total arsenic, inorganic arsenic, total mercury, nickel, chromium, aluminum, tin, uranium, Cu, Fe, Mn, Zn, Ag, CrIII and CrVI in corn flakes cereal, most often lead, cadmium and total arsenic.[1,2,3,4] WHO GEMS/Food submissions reported lead in corn flakes cereal as sold from 131 results in 2 reporting regions, with subgroup medians below 100 µg/kg, mostly non-detects.[1]

Among GEMS/Food reporting regions, corn flakes cereal as sold had the lowest cadmium subgroup median in PAHO (2 µg/kg) and the highest in PAHO (3 µg/kg); reporting regions are markets, not growing areas.[1]

Inorganic arsenic, the more toxic form, was measured in 3 results from 2 sources, far fewer than total arsenic.[5,6] Across 2 other studies of ordinary farms and markets, reported inorganic arsenic means and medians with the basis not stated ranged from 12.9 µg/kg (European Food Safety Authority (EFSA) 2014) to 30 µg/kg (EFSA 2021).[5,6]

References

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GOVERNMENT

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/corn-flakes#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.

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