

Food-Contact Consumer Goods and Kitchenware

Category 23 · Manual v1

Method v2.0. Metal safety only.

AUTHOR AND PUBLISHER

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About this manual

The Category 23 program manual. Every numeric ceiling is the value on the live standard. A species with no separate number is capped at its parent total and tested on the program retest schedule. Scope: metal safety only, not efficacy, legality, or approval status. The manual DOI is not deposited in this edition.

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Why this manual exists

The Heavy Metal Tested & Certified program for Food-Contact Consumer Goods and Kitchenware is governed by five co-equal objectives. None may be sacrificed to advance another. The ruling is the program's governing principles.

Limits do not derive from the Heavy Metal Index. Every published number traces to the live standard record [1].

Certification is metal safety only. It does not certify efficacy, legality, or approval status.

1.1 Drive down contamination

The program exists to lower the heavy-metal burden in products that reach people. A mark that does not change what is in the product is not the work.

1.2 Protect consumers

Limits, lot testing, and the mark are instruments of consumer protection for one attribute: the metal content of the tested lot. A certificate that cannot be trusted does not protect anyone.

1.3 Protect brands who enter

A brand that enters in good faith, tests honestly, and stays inside the published rules is not set up to fail.

Certification is offered only when the program has at least 90% confidence the brand can remain in the program.

1.4 Remain legally defensible

Published ceilings are the numbers already on the live standard records [1]. Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent. Nothing is invented.

1.5 Become the de facto standard

The program is written to be the instrument a laboratory, a brand, and a regulator can actually use for metal safety. It is not an approval, an efficacy claim, or a statement that the product is lawful to sell.

Program lifecycle and instruments

This Part is how a Category 23 SKU enters, is assigned a status, and is held to the mark. Except where a defined term states otherwise, every requirement is normative. The thirty live standard pages remain the derivation of each cell.

2.1 The governing rule

Certification is limit-relative and binary at the limit. For every numeric ceiling the applicable limit is the value published on the live standard (Method v2.0). Limits do not derive from a distribution of measured values. A product is Certified only when every numeric ceiling is met at or below 100% of its published limit, confirmed under the measurement-uncertainty decision rule (section 2.5). There is no band above the limit that still earns the mark.

Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent.

Certification is metal safety only. It does not certify efficacy, legality, or approval status.

2.2 Program flow

1. Baseline (three lots). Every SKU is tested across a minimum of three production lots, on every numeric ceiling and every capped species, before any status is assigned. A single passing lot certifies nothing. The entry decision is taken from the worst-performing lot.
2. Expedited baseline (prior-data credit), optional. Qualifying ISO/IEC 17025 results from the preceding 12 months may credit up to two lots, per analyte actually measured. Not available on the Confidential Remediation Track.
3. Entry. A lot above any published HMTc ceiling is not certified and enters Remediation.
4. Status assignment. The product is assigned Certified or Remediation from the baseline, then maintained through surveillance. Suspension and Revocation follow section 2.4.
5. Schedule assignment. The Lot Testing Schedule is written after application, from the brand laboratory's stated panel, limit of quantification, measurement uncertainty, and capability (Part 4).

2.3 The analyte panel

The panel is the panel on the live standards. Every cell that publishes a number is a numeric ceiling. Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent. All claim analytes are equal for certification: at or below 100% of a published ceiling, or, for a capped species, at

or below its parent total. An exceedance on any metal removes the mark and moves the SKU to Remediation. No metal has a transitional band or an allowed overage.

2.4 Certification status framework

Four statuses. Status attaches to the product, not the brand. The mark is permitted only while the product is Certified.

Status	Meaning	Mark	Condition
Certified	Full compliance	Permitted	Every numeric ceiling at or below 100% of its published limit, and every capped species at or below its parent total, confirmed under section 2.5.
Remediation	Not certified, applicant or corrective	Withheld / removed	The product does not meet every published ceiling, or is a new applicant not yet at 100%. This is not a softer certification and not an allowed overage. The SKU is not listed as certified and the mark is not displayed.
Suspension	Certification halted, hard stop	Removed	A data-integrity failure, or failure to execute testing, CAPA, or directives. The mark is removed from units and marketing immediately.
Revocation	Permanent termination	Removed	Willful misconduct, data fraud, concealment of a known exceedance, or persistent unremediated suspension. Re-entry by full re-application only.

The Certification Mark shall not be used on any product, packaging, or marketing unless the product is Certified. A product above any published ceiling, at any margin and on any metal, is not Certified and does not display the mark.

Suspension reinstatement does not require a fresh baseline. It requires a completed CAPA with verification of effectiveness, a run of consecutive compliant lots set by the Program Operator, restored data integrity, and formal Operator approval.

2.5 Measurement uncertainty

Every result is read with the laboratory's expanded measurement uncertainty at coverage factor $k = 2$ (95%). Pass only when the result plus the uncertainty is at or below the limit. Fail when the result minus the uncertainty is above the limit. Anything between is borderline and requires confirmatory action before a status issues. A borderline result alone shall not certify. Testing into compliance is prohibited.

2.6 CAPA

CAPA windows scale with certification status, not with analyte class. A product in Remediation has a 12-month default to return to Certified. A CAPA closes only after verification of effectiveness and Operator approval.

Status	Initiate	Full plan	Containment
Remediation	10 business days	30 calendar days	as needed
Suspension (hard stop)	2 business days	10 business days	Immediate (within 48 hours)

2.7 Remediation

The Confidential Remediation Track is a confidential entry-and-support pathway for products not yet at 100% of every published ceiling. It is not a certified status and displays no mark. Concealment of a known exceedance is grounds for revocation. Confidentiality never delays a recall, never overrides a reporting duty, and never withholds evidence from a regulator who asks.

2.8 The mark

The mark may be used only on Certified product. Claims of heavy-metal free, no toxic metals, or 100% safe are prohibited. The mark certifies metal safety of the tested lot against the published ceilings, under ongoing surveillance. It does not certify efficacy, legality, or approval status.

2.9 Standards ratchet

A published limit tightens only through the Standards Ratchet: a stated trigger, a capped step, and a dated edition. Limits do not loosen because a brand found them inconvenient. The subcategory page, not this manual, is the live derivation of each cell.

Category 23 Standards Register

Thirty live standards. Cert-ready means the page carries a house DOI under prefix 10.83138. All of them are cert-ready. Ceilings are not reprinted here. They are the values on the live standards. A species with no separate number is capped at its parent total.

Bakeware

/standards/bakeware · bakeware
10.83138/hmtc.std.23.bakeware

Ceramic-coated cookware

/standards/cookware-ceramic-coated · cookware-ceramic-coated
10.83138/hmtc.std.23.cookware-ceramic-coated

Metal and alloy cookware (cast iron, stainless steel, aluminum)

/standards/cookware-metal-alloy · cookware-metal-alloy
10.83138/hmtc.std.23.cookware-metal-alloy

Nonstick-coated cookware

/standards/cookware-nonstick-coated · cookware-nonstick-coated
10.83138/hmtc.std.23.cookware-nonstick-coated

Specialty alloy cookware (copper, carbon steel)

/standards/cookware-specialty-alloy · cookware-specialty-alloy
10.83138/hmtc.std.23.cookware-specialty-alloy

Cutting boards (wood, plastic)

/standards/cutting-boards · cutting-boards
10.83138/hmtc.std.23.cutting-boards

Filter media and housings

/standards/filter-media-and-housings · filter-media-and-housings
10.83138/hmtc.std.23.filter-media-and-housings

Cans/lids

/standards/food-packaging-cans-lids · food-packaging-cans-lids
10.83138/hmtc.std.23.food-packaging-cans-lids

Caps/closures

/standards/food-packaging-caps-closures · food-packaging-caps-closures
10.83138/hmtc.std.23.food-packaging-caps-closures

Flexible pouches/films

/standards/food-packaging-flexible-pouches-films · food-packaging-flexible-pouches-films
10.83138/hmtc.std.23.food-packaging-flexible-pouches-films

Foils/wraps

/standards/food-packaging-foils-wraps · food-packaging-foils-wraps
10.83138/hmtc.std.23.food-packaging-foils-wraps

Glass jars

/standards/food-packaging-glass-jars · food-packaging-glass-jars
10.83138/hmtc.std.23.food-packaging-glass-jars

Paperboard cartons

/standards/food-packaging-paperboard-cartons · food-packaging-paperboard-cartons
10.83138/hmtc.std.23.food-packaging-paperboard-cartons

Plastic tubs

/standards/food-packaging-plastic-tubs · food-packaging-plastic-tubs
10.83138/hmtc.std.23.food-packaging-plastic-tubs

Blender jars

/standards/food-prep-blender-jars · food-prep-blender-jars
10.83138/hmtc.std.23.food-prep-blender-jars

Coffee-maker pathways

/standards/food-prep-coffee-maker-pathways · food-prep-coffee-maker-pathways
10.83138/hmtc.std.23.food-prep-coffee-maker-pathways

Kettle interiors

/standards/food-prep-kettle-interiors · food-prep-kettle-interiors
10.83138/hmtc.std.23.food-prep-kettle-interiors

Food processor bowls

/standards/food-prep-processor-bowls · food-prep-processor-bowls
10.83138/hmtc.std.23.food-prep-processor-bowls

Glass food storage containers

/standards/food-storage-glass-containers · food-storage-glass-containers
10.83138/hmtc.std.23.food-storage-glass-containers

Lids/gaskets

/standards/food-storage-lids-gaskets · food-storage-lids-gaskets
10.83138/hmtc.std.23.food-storage-lids-gaskets

Plastic food storage containers

/standards/food-storage-plastic-containers · food-storage-plastic-containers
10.83138/hmtc.std.23.food-storage-plastic-containers

Silicone food storage

/standards/food-storage-silicone · food-storage-silicone
10.83138/hmtc.std.23.food-storage-silicone

Ceramicware

/standards/tableware-ceramicware · tableware-ceramicware
10.83138/hmtc.std.23.tableware-ceramicware

Decorative decals/coatings on tableware

/standards/tableware-decorative-decals-coatings · tableware-decorative-decals-coatings
10.83138/hmtc.std.23.tableware-decorative-decals-coatings

Glassware

/standards/tableware-glassware · tableware-glassware
10.83138/hmtc.std.23.tableware-glassware

Metal bottles/tumblers

/standards/tableware-metal-bottles-tumblers · tableware-metal-bottles-tumblers
10.83138/hmtc.std.23.tableware-metal-bottles-tumblers

Plastic drinkware

/standards/tableware-plastic-drinkware · tableware-plastic-drinkware
10.83138/hmtc.std.23.tableware-plastic-drinkware

Metal utensils

/standards/utensils-metal · utensils-metal
10.83138/hmtc.std.23.utensils-metal

Plastic/silicone tools

/standards/utensils-plastic-silicone-tools · utensils-plastic-silicone-tools
10.83138/hmtc.std.23.utensils-plastic-silicone-tools

Water filters

/standards/water-filters · water-filters

10.83138/hmtc.std.23.water-filters

Lot Testing Schedule

Certification is a standing obligation for as long as the mark appears on a product. The thirty subcategory standards are the live taxonomy.

Every numeric ceiling is tested on the program retest schedule. Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent. Product surveillance is not a reason to drop a metal or a capped species.

4.1 Product risk tiers

All thirty standards are held to the program retest schedule. The Program Operator does not assign a lighter calendar to any of them.

Risk class	Standards
Program retest schedule	Bakeware; Ceramic-coated cookware; Metal and alloy cookware (cast iron, stainless steel, aluminum); Nonstick-coated cookware; Specialty alloy cookware (copper, carbon steel); Cutting boards (wood, plastic); Filter media and housings; Cans/lids; Caps/closures; Flexible pouches/films; Foils/wraps; Glass jars; Paperboard cartons; Plastic tubs; Blender jars; Coffee-maker pathways; Kettle interiors; Food processor bowls; Glass food storage containers; Lids/gaskets; Plastic food storage containers; Silicone food storage; Ceramicware; Decorative decals/coatings on tableware; Glassware; Metal bottles/tumblers; Plastic drinkware; Metal utensils; Plastic/silicone tools; Water filters

The Program Operator may add hold-and-release or third-party sampling on documented rationale. The Operator may not drop an analyte from the scheduled panel.

4.2 The Testing-Frequency Matrix

This is the starting grid. The assigned schedule is written after the lab-informed review in section 4.7. Certified is the only status that carries the mark. Remediation carries no mark. All claim analytes are equal for certification. These rows set the testing regime. They do not override the status decisions or deadlines in Part 2.

Certification status	Testing	Hold and release	Independent sampling
Certified	Program retest schedule	not required	yes, per schedule
Remediation	Every lot	mandatory	Operator-directed third-party sampling

Any exceedance, or any capped species above its parent total, takes the Remediation testing row. There is no transitional overage and no analyte-class exception. A data-integrity failure is Suspension under section 2.4, not a stay on the Remediation row. Concealment of a known exceedance is Revocation under section 2.4.

4.3 Baseline

Every SKU shall undergo baseline testing across three production lots before any certification status is assigned. Status is assigned from the worst-performing lot. Each lot runs every numeric ceiling and every capped species.

Qualifying prior ISO/IEC 17025 data from the preceding 12 months may credit up to two lots, per analyte actually measured. This pathway is not available on the Confidential Remediation Track.

4.4 Surveillance by status

Certified: the program retest schedule, with independent sampling on the assigned schedule. A numeric result at or above 80% of its published ceiling triggers confirmatory testing and Operator notice.

Remediation: the product carries no mark and is not listed as certified. Corrective action is mandatory.

Surveillance is every lot, with mandatory hold-and-release and Operator-directed third-party sampling. Return to Certified requires the product to meet 100% of every published ceiling, and every capped species at or below its parent, across a run of consecutive lots set by the Program Operator, plus completed CAPA with verification of effectiveness.

Suspension: a data-integrity failure, or a failure to execute testing, CAPA, or directives. Stop-ship and mark removal are immediate. CAPA is initiated within 2 business days, with a full plan within 10 business days, and containment Immediate (within 48 hours). Reinstatement does not require a fresh baseline. It requires a completed CAPA with verification of effectiveness, a run of consecutive compliant lots set by the Program Operator, restored data integrity, and formal Operator approval.

Revocation: willful misconduct, data fraud, concealment of a known exceedance, or persistent unremediated suspension. Re-entry is by full re-application only. The testing row does not keep a revoked product in Remediation.

4.5 Species

Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent.

Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent.

Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent.

The species result does not replace the parent total. Both must be met where the live standard publishes a parent and a capped species. Failure to test a required species renders the lot ineligible.

4.6 Sampling and chain of custody

Certification testing is lot-based composite sampling with a complete custody record from collection through laboratory receipt. A custody breach invalidates the result. Testing is ISO/IEC 17025 for the methods and matrices in scope. The limit of quantification for each numeric ceiling must sit at or below the published limit. Where it does not, a non-detect is indeterminate. Results are reported as structured data, with measurement uncertainty, on the row's basis. PDF-only submissions are not accepted.

4.7 Lab-informed schedule

The frequency matrix is not assigned by itself. After application, the Program Operator reads what the brand's laboratory actually states and writes the schedule from that evidence.

Input	What is read
Panel	Does the lab quantify every numeric ceiling and every capped species on this matrix?
LOQ	Is each numeric ceiling's limit of quantification at or below the published limit?
MU	Is expanded uncertainty reported at $k = 2$?
Capability	Can the lab report every capped species on the program retest schedule?
Accreditation	ISO/IEC 17025 for the methods and matrices in scope?
Turnaround	Can hold-and-release be met when the Remediation row applies?

Decision owner: Program Operator.

A brand is not certified against a fantasy grid. If the laboratory cannot support the published panel, the limits of quantification, the uncertainty, or the capped species on the program retest schedule, the SKU stays uncertified until the capability exists.

4.8 90% stay-in-program rule

The program certifies only if there is at least 90% confidence the brand can remain in the program. A one-lot pass that will fail the next lot is not a certification. This rule protects brands who enter as much as it protects consumers.

Input	Read as
Baseline lots	three-lot record, worst lot, not the best lot
Headroom	distance to the published ceiling, not a knife-edge pass
Lab capability	the lab-informed schedule inputs above
Species	every capped species on the program retest schedule, as the live standard defines it
Schedule feasibility	can the brand actually run the program retest schedule?
CAPA capacity	can the brand open and close CAPA on the published windows?

Decision owner: Program Operator. Pass means at least 90% confidence the brand can remain under the assigned schedule. A knife-edge baseline, a laboratory that cannot support the schedule, or a doubt about data integrity is not a certification.

Method and glossary

5.1 How every limit is set

The method is the ceiling already published on the live standard, not an invented ceiling.

Inorganic arsenic is capped at total arsenic and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Methylmercury is capped at total mercury and tested on the program retest schedule. It does not carry a separate number, and it never replaces the parent. Where hexavalent chromium has no separate number, it is capped at total chromium and tested on the program retest schedule. Where the live standard publishes a number, that number is the ceiling, and it does not replace the parent.

Every figure above is the value already published on the standard record. This manual does not add a ceiling. Occurrence data carry no compliance weight [2]. The instrument for each cell is named on the live standard [1].

Certification is metal safety only. It does not certify efficacy, legality, or approval status.

5.2 What this manual does not do

This manual does not reprint the per-analyte ceiling table. The thirty live standard pages are the derivation of each cell, and Part 3 lists them with their house DOIs. A change to a cell is made on the standard, then reflected here at the next edition.

5.3 Glossary

percent of limit: A single analyte's measured value divided by its applicable numeric ceiling, as a percentage. Used only as an operational testing trigger (the 80% confirmatory trigger). It is not a certification ladder.

Certification status: The product-level lifecycle: Certified, Remediation, Suspension, Revocation. Certified means every numeric ceiling is at or below 100% of its published limit, and every capped species is at or below its parent total, under the measurement-uncertainty rule. The mark is permitted only then. Remediation is not certified and carries no mark. Suspension halts certification. Revocation is permanent. No band above the limit keeps the mark. All claim analytes are equal for certification.

priority toxics: Plain-language name for lead, cadmium, inorganic arsenic, and mercury, used only for toxicological clarity. It is not a status ladder and does not change certification.

CAPA: Corrective and preventive action. Windows scale with status.

native basis: The form in which the row is read. The matrix states as sold or as consumed for each subcategory. The live standard page is the full basis statement.

metal safety only: The only attribute the mark speaks to. Not efficacy, not legality, and not approval status.

5.4 References

[1] Heavy Metal Certified subcategory standards for Category 23. Each cell's instrument is named on that page.
<https://heavymetalcertified.com/standards>

[2] Heavy Metal Index, literature baseline. <https://heavymetalindex.com>. Cited one way, outbound only. The Index does not set these ceilings.

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Manual v1	2026-10-15	current	empty	First Category 23 Program Manual. Thirty live standards. Numeric ceilings are the values on those standards. Species with no separate number are capped at the parent total and tested on the program retest schedule. Metal safety only.

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