

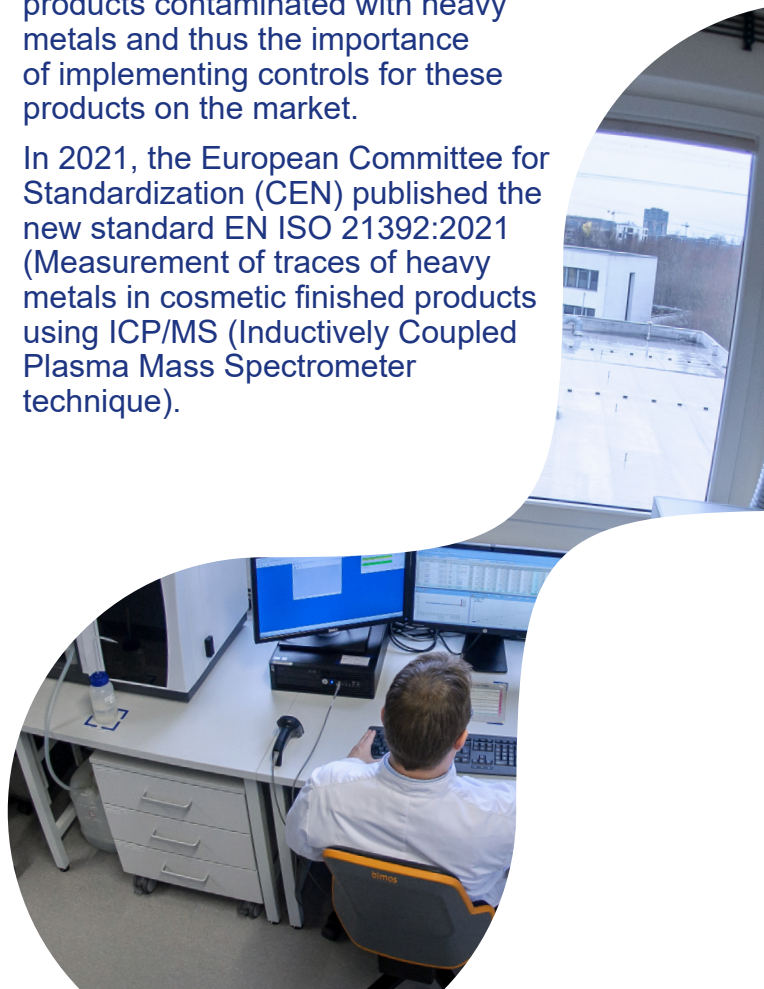
Heavy Metals Testing

Heavy metals are naturally occurring metallic elements with properties that are hazardous to human health, and their presence in the manufacturing process cannot be completely prevented, even with exemplary industry practices in place. Powder and cream products, decorative cosmetics and toothpaste are particularly likely to be contaminated with heavy metals due to their high levels of inorganic / mineral components.

According to Article 17 of Regulation (EC) No. 1223/2009, even the unintentional presence of heavy metals in cosmetic products is only permissible if this is technically unavoidable in good manufacturing practice and, moreover, does not pose a hazard to human health.

Furthermore, the RAPEX rapid alert system drew attention to cosmetic products contaminated with heavy metals and thus the importance of implementing controls for these products on the market.

In 2021, the European Committee for Standardization (CEN) published the new standard EN ISO 21392:2021 (Measurement of traces of heavy metals in cosmetic finished products using ICP/MS (Inductively Coupled Plasma Mass Spectrometer technique)).



Our test offering

1. Inductively Coupled Plasma Mass Spectrometer (ICP/MS)

- Quantification of heavy metals in cosmetic raw materials and cosmetic finished products in line with ISO 21392:2021, especially for Cr, Co, Ni, As, Cd, Sb and Pb.
- Analysis of heavy metals (target and screening) in detergents, hygiene products, packaging and food packaging material. Typical elements of interest are Pb, Cd, Hg, Sb, Ni, Cr, As, Al.
- Element determination in food simulants after migration like water, 3 % and 4 % acetic acid in water, 10 %, 20 % and 50 % ethanol in water on Li, Al, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Cd, Sb, Ba, La, Eu, Gd, Tb, Hg, Pb.
- Application of cold and hot water extracts according to EN 645 and 647 with subsequent element verification.
- All ICPMS measurements offer optional elements after request, e.g. Al, Be, B, Ca, Dy, Er, Gd, Au, In, Cu, Li, Mg, Mo, Nd, Pd, Pt, Hg, Sm, Se, Sr, Tb, Th, Ti, W, Y, Sn, Ba, Bi, Cs, Ce, Fe, Eu, Ge, Ho, K, La, Lu, Mn, Na, Nb, Pr, Rb, Sc, Si, Te, Tl, Tm, V, Yb, Zn, Zr.

2. Flame Atomic Absorption Spectrometry (FAAS)

- Alumina components (e.g. aluminium chlorohydrate) as active ingredients in antiperspirants after extraction.
- Quantification of titan dioxide in sunscreen products after melting digestion.
- Silver determination in cosmetic and packaging samples after digestion and directly in water-based food simulants with ethanol content < 50%.

3. Ion Chromatography-Liquid Chromatography (IC-LC)

- Selective chromium VI determination in water, food simulant 3 % acetic acid and cosmetics via UV detection after post column derivatization.

4. Atomic Fluorescence Spectrometry and Atomic Absorption Spectrometry (AFS/AAS)

- Selective and Sensitive mercury detection (0.01 mg/kg) with cold vapor technology in cosmetic samples and food simulants. High calibration range and effective suppression of interferences with option of even lower limits of detection if necessary.

5. Thermal decomposition – atomic absorption spectrometry (Direct mercury analyser)

- Selective method for the quantification of mercury traces in finished cosmetic products without sample preparation Low detection limit and accurate results over a wide dynamic range, on a variety of different matrices. ISO 21392 and ISO 23674 method under development



We provide solutions to meet the regulatory requirements at each step of the product's life cycle. Our team of experts are highly skilled at generating comprehensive, cost-effective and practical customised test plans and offers.

