



Cadmium

What is Cadmium?

Cadmium is a heavy metal which is used in the jewellery industry. It is harmful when ingested or inhaled and is a known carcinogen.

Why do we need to test for Cadmium?

Cadmium is added to alloys in small quantities to improve the functional attributes of metals or as a lead substitute. It can be present in jewellery as part of the solder, coatings or the plating process, and can also be present in the pigment of non-metal parts. As it is harmful to human health in increased levels and, along with the trend for manufacturers to include this in products instead of lead, legislation was introduced to help protect the consumer from its harmful effects.

What is the legislation used when testing for Cadmium?

EU (REACH) legislation came in to force in 2011 and was adopted by the UK REACH legislation following Brexit. The regulation restricts the levels of cadmium in jewellery to 0.01% (100 mg/kg) by weight of the metal, this includes:

- metal beads and other metal components for jewellery making;
- metal parts of jewellery and imitation jewellery articles and hair accessories, including:
 - bracelets, necklaces and rings,
 - piercing jewellery,
 - wristwatches and wrist-wear,
 - brooches and cufflinks.

Cadmium also shall not be used in certain paints equal to or greater than 0.01 % by weight. For paints with a zinc content exceeding 10 % by weight of the paint, the concentration of cadmium (expressed as Cd metal) shall not be equal to or greater than 0.1 % by weight. Painted articles shall not be placed on the market if the concentration of cadmium (expressed as Cd metal) is equal to or greater than 0.1 % by weight of the paint on the painted article.

Full information can be found here <https://www.hse.gov.uk/reach/restrictions.htm>

Testing for Cadmium.

To ensure products are accurately tested for cadmium content and are compliant, we recommend analysis by ICP-OES (Inductively Coupled Plasma Optical Emission Spectrometry). This is a destructive technique and is capable of reporting several elements to a high degree of accuracy. Sheffield Assay Office (Analytical Services) is UKAS accredited for testing cadmium in metal jewellery and related products, including painted products.