



Cadmium Content Testing Legislation.

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 recent trend for Far East manufacturers to include this in products instead of lead, legislation has been introduced to help protect the consumer from its harmful effects.

What is the legislation used when testing for Cadmium?

EU legislation and its REACH Directive came in to force on the 10th of December 2011. The regulation restricts the levels of cadmium in jewellery to 0.01% (100 mg/kg) by weight of the metal, this applies to:

- Metal beads
- Metal components in jewellery
- Metal parts of jewellery (including fashion jewellery)
- Hair accessories
- Plastic materials

The regulation also states that cadmium levels in paints and enamels need to be 0.1% (1000 mg/kg) by weight or less.

Testing for Cadmium.

X-ray Fluorescence Testing (XRF) can be used when measuring the cadmium content of items. This is a non-destructive method but, as it only tests the surface of an item, the presence of coatings can interfere with the result. This accuracy of this method also depends on the composition of the alloy, its shape and its size.

To ensure products are accurately tested for cadmium content and are compliant with the REACH Directive we recommend analysis by ICP-OES (Inductively Coupled Plasma Optical Emission Spectrometry). This is a destructive technique but is capable of reporting several elements to high degree of accuracy.

Sheffield Analytical Services aim to give our customers as much information as we can in relation to current legislation and the testing of cadmium and other toxic metals that might be found in jewellery but companies are recommended to take their own legal advice on this very important issue.