



Nickel Testing – How Does the New Legislation Affect Me?

New Legislation Came into Force 1st March 2013 – Is Your Company Fully Compliant?

What is Nickel?

Nickel is a universally found material and, as it is cheaper than other more inert metals, it is used widely in the costume jewellery industry.

Why Do We Need to Test for Nickel?

Nickel is the most common cause of allergic contact dermatitis, with 10% of UK adults being affected. As Nickel is universally used in products, it is hard for sufferers to avoid. This can be serious for patients who develop hand dermatitis through nickel, as it can easily permeate through the skin of their hands resulting in long term disabilities.

Dermatologists believe that sensitisation is most likely to occur with prolonged contact to nickel or nickel products being worn in body or ear piercings and estimations indicate that up to 15% of woman and 5% of men in Europe are nickel sensitised. This has resulted in the initiation of the development of the European Nickel Directive, enforced by UK Nickel Regulations.

What was the Previous Legislation?

Previous legislation stated that any manufacturer, importer, wholesaler or retailer would be breaking the law if:

- They sold jewellery products or clothing fasteners that failed to have a non-nickel coating, unless the rate of nickel release of the parts of product that came in direct contact with the skin did not exceed $0.5\mu\text{g}/\text{cm}^2/\text{week}$ for at least two years normal use of the item.
- They sold a piercing assembly, intended to be inserted in to a pierced part of the body, with a nickel release rate higher than $0.2\mu\text{g}/\text{cm}^2/\text{week}$.

In order to support the legislation and ensure products complied, they had to be tested to the correct British Standards, BS EN 1811:1998 and BS EN 12472.

To help improve quality and standards the European CEN Steering Group revised BS EN 1811.

What is the New Legislation?

The new legislation has been in effect since March 2013 and has been incorporated in to REACH. BS EN 1811:2011 is relevant to all articles which are intended to come into direct and extended contact with skin including ear/body piercing posts.

A number of changes have been made to the previous test method to improve consistency and allow repeatability of results. For example, the test solution is now more stable and a procedure for measuring the surface area has been clearly defined. This change is very welcome but does have serious implications for the watch and jewellery supply chain.

The largest and most significant change is to the calculation formula. Due to the lack of consistency of the previous method, the release result was multiplied by 0.1, effectively reducing it to one tenth of its value. The adjustment factor of 0.1 has now replaced with an 'uncertainty of measurement' which is normally taken as 45%. So in practise this moves the compliance levels for an article in contact with the skin from $5\mu\text{g}/\text{cm}^2/\text{week}$ to less than or equal to 0.28 and for piercing assemblies from $2\mu\text{g}/\text{cm}^2/\text{week}$ to less than or equal to 0.11.

What are the cost implications?

From an analytical view point, the new method may have potentially increased the cost for any test houses that did not have an ICP (Inductively Coupled Plasma – Optical Emission Spectrophotometry) as, to accurately test solutions containing a very low concentration of nickel, this piece of equipment is required. Sheffield Analytical Services have three ICP instruments in place and our Technical Team are highly experienced in the techniques required to run this equipment.

Also, the 18 carat white gold nickel alloy reference sample, used for every nickel alloy test, must now only be used once. The standard also requires a minimum of three test samples to be tested where possible, increasing testing cost and stock wastage. There is also now a 'No Decision' category meaning an item has neither passed nor failed.

How did Sheffield Analytical Services manage this transition?

We have been testing to BS EN 1811:2011 since March 2013, when the legislation came into effect. Additionally, we provide testing to BS EN 12472, and also EN 16128:2011 for spectacle frames and sunglasses. We also offer a short nickel test to customers, which can be used as part of a Due Diligence programme.

Sheffield Analytical Services strives to give our customers as much information and guidance as possible in relation to current legislation and the testing of nickel and other toxic metals that can be found in costume jewellery but advises that companies should always take their own legal advice on this very important issue.

Should you have any further questions relating to nickel testing and the associated legislation, please do not hesitate to contact us. We would be happy to discuss this with you.

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