



NICKEL

Other Names NA

CAS Number **Substance**

7440-02-0 Nickel

May Be Found In

- Pigments and Dyes
- Metal Alloys and Coatings

Nickel is a widely used metal globally, found in silverware, coins, jewelry, metals plating, metal alloys and dyes.

Uses in the Supply Chain

Nickel may be found in pigments, dyes, metal alloys and metal coatings. It can be found in metal-complex dyes, but should not be released if properly bound. Nickel may also be in pigments, but has largely been phased out. Stainless steels commonly contain nickel at moderate levels, and other alloys may also contain nickel.

Nickel can be also present as one of the galvanized metallic layers when a precious metal finishing (such as Au, Ag or Pd) is required, especially in those metallic adornment for luxury leather and apparel goods. Defects in the final precious metal layers can cause a potential for Nickel release.

Why Nickel is Restricted

- Nickel may bio-accumulate in some plants; it is not likely to bioaccumulate in animals.
- Some nickel compounds can be carcinogenic to humans when directly ingested or inhaled in very high doses.
- Lung and nasal sinus cancers have been identified in workers exposed to dust containing nickel.
- The most common effect is an allergic reaction and sensitization effect caused by direct and prolonged skin contact to nickel

Sourcing Compliant Materials from Your Suppliers

- Ensure suppliers can provide materials which comply with the limit of $<0.5\mu\text{g}/\text{cm}^2/\text{week}$ for metal trim parts and 1 ppm of extractable nickel for textiles and leather.¹
- Have your suppliers verify their materials meet the above nickel limits with a certification or, if necessary, by providing a test report from a third-party laboratory.
- Perform risk-based checks of your suppliers' materials by submitting samples to a third-party laboratory for testing to ensure the nickel limits are not exceeded.

Sourcing Compliant Formulations from Your Chemical Suppliers

- Contact your chemical suppliers and explain that you require formulations with no intentionally-added nickel.
- Residual traces of nickel in colorants should comply with the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) limit of 200 ppm.²
- Pay particular attention to the following:
 - Low quality pigments



Chemical Information Document

- Nickel may be released from metal-complex dyes, if not properly bound to dyed materials
 - Check the Safety Data Sheet (SDS) of all chemical formulations to ensure that nickel is not listed as an ingredient.
 - Perform risk-based checks of your chemical suppliers' formulations by submitting samples to a third-party laboratory for testing to ensure the nickel limits are not exceeded.
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Safer Alternatives

- There are many alternatives to pigments and trims containing nickel.
- You may need to conduct periodic compliance testing to ensure you obtain these nickel-free alternatives.
- The Nickel layer in galvanized adornments can be replaced by other alloys metals

Additional Information

Visit ECHA's Candidate List of substances of very high concern to view dossiers for many restricted substances <https://echa.europa.eu/candidate-list-table>.

Screen printing: Screens should be nickel-free to avoid contamination of printed fabric/material.

References

¹ Agency for Toxic Substances and Disease Registry (ATSDR) (<https://www.atsdr.cdc.gov/ToxProfiles/>)

² Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) (<http://www.etad.com>)

³ Apparel and Footwear International RSL Management Group (Ed.). (2018, January 31). Restricted Substances List (RSL). Retrieved <http://afirm-group.com/afirm-rsl/>