



## HEAVY METALS – NICKEL RELEASE

**Other Names** Not Available

**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, metal 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 steel commonly contains nickel at moderate levels, and other alloys may also contain nickel.

Nickel can also be present as one of the galvanized metallic layers when a precious metal finishing (such as gold, silver or palladium) is required, especially in metallic adornments for luxury leather and apparel goods. Defects in the final precious metal layers can be a source for potential 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 of exposure to nickel is an allergic reaction and sensitization effect caused by direct and prolonged skin contact with nickel.<sup>1</sup>

### Sourcing Compliant Materials from Your Suppliers

- Contact your suppliers and explain that you require their manufactured materials to be compliant with the current AFIRM RSL limits.<sup>2</sup>
- Require suppliers to submit a confirmation of material compliance or a test report from a third-party laboratory.
- When materials are received, consider performing risk-based testing to ensure the current AFIRM RSL limits are met.
- Share this information sheet with your material suppliers so they have full visibility and understand your sourcing requirements. Encourage them to share this sheet with their chemical suppliers to source compliant chemical formulations.

### Sourcing Compliant Formulations from Your Chemical Suppliers

- For all formulations, request SDS documentation that meets current GHS requirements and ensure that nickel is not listed as an ingredient.



## Chemical Information Sheet

Version 2.0 | March 2021

- Contact your suppliers and explain that you require formulations with no intentionally added nickel and that comply with current ZDHC MRSL limits whenever applicable.<sup>3</sup>
- Discuss with your chemical supplier whether any safer alternatives are available that are suitable substitutes for your production needs.
- Prior to procuring any formulation, the chemical properties must be reviewed to ensure that proper protective equipment, chemical storage facilities, facility engineering controls, and associated treatment/disposal facilities are appropriate for the chemical(s).
- Residual traces of nickel in colorants should comply with the current Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) limit.<sup>4</sup>
- Pay particular attention to the following:
  - Low quality pigments
  - Nickel may be released from metal-complex dyes, if not properly bound to dyed materials
- Perform risk-based checks of your chemical suppliers' formulations by submitting samples to a third-party laboratory for testing to ensure nickel limits are not exceeded.

### 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 metal alloys.

### 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

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<sup>1</sup> Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profile for Nickel <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=245&tid=44>

<sup>2</sup> Apparel and Footwear International RSL Management Group Restricted Substances List (AFIRM RSL) <http://afirm-group.com/afirm-rsl/>

<sup>3</sup> ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) [https://www.roadmaptozero.com/mrsl\\_online/](https://www.roadmaptozero.com/mrsl_online/)

<sup>4</sup> Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD) <http://www.etad.com>