



Nickel Plating Chips™ (CDN)

Nickel Plating Chips™ are a high purity form of nickel specifically designed for electroplating with titanium anode baskets. Chips™ are produced by a unique carbonyl gas refining process at the Copper Cliff Nickel Refinery in Sudbury, Canada.

The controlled and consistent purity of Chips™ and the advantages associated with their distinctive shape make this product attractive for general purpose plating with titanium anode baskets:

- Carbonyl refining produces the purest form of nickel available.
- Unique shape prevents the formation of bridges and voids in the basket.
- Settles uniformly in basket, ensuring uniform current density and high quality deposits.
- Flows easily into regular baskets with standard mesh sizes
- Safe to handle (no sharp edges).
- Dissolves at 100% anode efficiency in common nickel plating solutions (containing chlorides).
- Proven and trusted by the world's leading electroplaters.
- Assured to the Copper Mark Joint Due Diligence Standard, in accordance with OECD Due Diligence Guidance for Responsible Supply Chains.
- Carbon intensity is 7.1 t CO₂e/t Ni, including scopes 1, 2, and 3 (upstream) emissions as of the most recent assessment year (2022)¹. Carbon intensity is reassessed on a regular basis.
- Chips™ are produced in compliance with the ISO 9001:2015 quality standard.

For further information about our products, please visit our website (www.vale.com) or contact a regional sales representative.



10 kg bags, 5 bags per box,
20 boxes per pallet



2 tonne bag

Disclaimer: The product descriptions and specifications contained in this document are made in accordance with our analyses and the methods used to produce Vale's nickel products. While these descriptions and specifications are reflective of normal production lots, rather than each individual piece, such descriptions and specifications shall in no event be deemed or interpreted as any representation, warranty or commitment by Vale in connection with Vale's nickel products quality. Vale's nickel products quality shall be determined only in accordance with the corresponding contract terms for each transaction agreed between Vale and Vale's customer and the quality related certificate issued under such contract.

¹Independent third-party limited assurance to the general principles of ISO 14064-3 has been provided by Intertek Certification GmbH.

Updated: July 2023 © Vale Canada Limited

Product Description

Form

- Disc-shaped pieces of nickel
- Diameter: approximately 17 - 25 mm
- Thickness: approximately 4 - 5 mm

Packing Density

- Approximately 5.0 g/cm³ of basket capacity

Packaging

- 10 kg bags — 5 bags per box, 20 boxes per pallet (1,000 kgs net weight)
- 2 tonne bulk bags

Typical analysis (wt %)

Ni*	>99.98
Co	<0.00002
Cu	<0.00004
C	<0.007
Fe	<0.0006
S	<0.0001
Pb	<0.000002
Zn	<0.00002

* Nickel determined by difference.