Nickel metal
LIFE CYCLE DATA

Member companies of the Nickel Institute updated their life cycle data for nickel metal in 2018 and 2019. These producers are committed to provide stakeholders with the most recent life cycle data showing important parameters such as global warming potential, primary energy demand, or water demand for the production of different nickel products.

LIFE CYCLE DATA comprise all production stages of nickel and nickel products. The basis is the LIFE CYCLE INVENTORY (LCI), where inputs and outputs of each of the production stages are gathered. The inventory is used to conduct the LIFE CYCLE IMPACT ASSESSMENT (LCIA).

The LCIA calculates various environmental impacts, such as Global Warming Potential (GWP). These impacts are the basis for conducting life cycle assessments (LCA), which compare products or services from an environmental perspective. Nickel life cycle data flows into LCAs for many nickel-containing products, such as stainless steel pipes or batteries for electric vehicles.

The data collected by the nickel industry are compliant with the requirements of ISO 14040 standard series and have undergone an independent critical review.

WHAT IS COVERED BY THE LIFE CYCLE ANALYSIS?

- **550,000t NICKEL**
- **9 COUNTRIES**
- **ALL PROCESSES**
- **73% SULPHIDIC ORES**

52% of global nickel metal production in 2017 = 550,000t nickel assessed
Nickel Institute member companies’ production sites from 9 countries globally
All major pyrometallurgical processes are covered
73% nickel metal from sulphidic ores and 27% from lateritic ores
GLOBAL WARMING POTENTIAL
13 kg CO₂ / kg Ni

PRIMARY ENERGY DEMAND
236 Mj / kg Ni

BLUE WATER CONSUMPTION
106 kg / kg Ni

SCOPE 1-3 EMISSIONS
13 kg CO₂ / kg Ni

ENERGY SOURCES
Renewable versus non-renewable

13 kg CO₂ / kg nickel with primary extraction as process stage with highest carbon footprint

Primary extraction accounts for 56% of the Primary Energy Demand of nickel metal

44 kg water / kg nickel are returned to the system through waste water treatment

Onsite electricity production in scope 1 emissions accounts for 35% of all Greenhouse Gas emissions

12% from of energy used from renewable sources

Material has been prepared for the general information of the reader and should not be used or relied upon for specific applications without first securing competent advice. While the material is believed to be technically correct, Nickel Institute, its members, staff and consultants do not represent or warrant its suitability for any general or specific use and assume no liability or responsibility of any kind in connection with the information herein. Copyright © Nickel Institute 2020 All rights reserved.