

Transforming the future – Vale in Wales, U.K.

Vale's Clydach Nickel Refinery (CNR), situated in the charming village of Clydach, Swansea, Wales (population 7,500), is one of the longest-running refineries in the world. Vale's CNR was founded at the turn of the 20th Century by chemist Ludwig Mond who discovered the Mond Nickel Carbonyl Process, which has remained secret since its accidental discovery in 1902 – and which we still use today!

At CNR, we are proud to produce some of the purest nickel products available, and we are exceptionally proud of our triple ISO certification – Quality ISO9001; Environment ISO14001; and Occupational Health and Safety OHSAS18001. We are also an Upper-Tier COMAH site (COMAH, the Control of Major Accident Hazards, is a U.K. regulation for the storage and use of threshold quantities of dangerous substances.)

Vale's Economic Contribution

Vale is grateful to call Clydach, Wales home, where we invest in a safe, responsible, and sustainable nickel refinery that contributes to a strong Welsh economy.

Over the last 5 years, we have made significant investments:



Employment Legacy

We are proud to provide stable, well-paying jobs in the communities where we operate. Our team is made up of dedicated and high-performing people who receive Training and Development opportunities throughout their careers with us. We also have an Apprenticeship Program to train and prepare young people for the workforce. Over the last five years, the annual average jobs created directly or indirectly at Vale's Clydach Nickel Refinery is 24.

In 2022: Almost 200 people were employed in a range of occupations including Process Technicians and Technologists, Lab Technicians and Technologists, Electrical and Mechanical Engineers, Analysts, Managers, HR, Finance, Procurement and Corporate Affairs and Communications.



In 2021, we were recognised with the Silver Standard from Investors in People (IIP), a global organisation for people management. The Silver Standard is proof that our people feel empowered, and our work culture is positive and supportive.

Production Contribution

As one of the of the largest refineries in Europe, we safely produce Class 1 nickel (>99.9% pure) – in the form of refined powder and pellets.

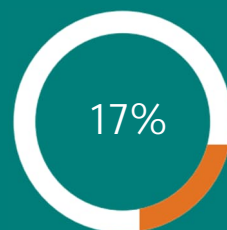
Fact: More than two-thirds of the world's nickel is used to produce stainless steel.

Fact: We sold our premium powder and pellets to more than 280 customers in over 30 countries across Europe, Asia and the USA.

In 2022, we produced...



31,000 tonnes of nickel



We produced 17 percent of all nickel in Europe

Came from a Vale operation

Low-carbon Nickel:

While the total carbon footprint at our Clydach Nickel Refinery is 25.8tCO₂/tNi, the vast majority is 'inherited' from our feed supplier. Our exclusively 'home-made' carbon footprint is only 4.8 4.8tCO₂/tNi.



In the battle against climate change, our Class 1 pellets and powders will play a critical role in the markets that support the production of batteries for the electric vehicles (EVs). The EV battery market is currently valued at approximately £18.1 billion with projections around £128.4 billion by 2028.

Social, Environment & Community Leadership

At all times, Vale strives to be a catalyst for social and economic growth, and respectful of the environment we are privileged to share across the U.K.



£4 million was invested in a closed loop cooling water system at our Clydach Nickel Refinery in 2022, and another £1 million is slated for 2023. The system recirculates treated wastewater from our Effluent Plant to all other areas of the Refinery, thus completely eliminating the need to extract water from Swansea Canal and River Tawe. This, in turn, reduces consumption of more than 4 billion litres of water/year!



Partnering for the future. Clydach Nickel Refinery has been working with the Reduction in Industrial Carbon Emissions (RICE) group from Swansea University to demonstrate the use of algae to convert carbon dioxide emissions into high-value proteins, lipids and pigments. A scale-up is now underway that will take more than 100 tonnes of carbon dioxide per day (our current emission rate) to produce animal feed to replace soy protein.



100% electric truck started delivering feed material to our site in 2022. Driving the 148 km round-trip from Cardiff to Clydach whilst carrying 20-tonnes of material, the electric truck produces zero emissions. A comparable diesel-powered truck driving the same round-trip route will emit 108.88 kg of CO₂.



33% by 2030, and 0% by 2050. Our Clydach Nickel Refinery is currently working on the ASPIRE project to reduce carbon dioxide emissions by producing all the process gases, heat and power required for our operations from a biogenic feed. The project is aiming for carbon neutrality before 2050.

Did you know? Vale's Clydach Refinery has an employee-run Community Donations Committee that identifies local charities in need of financial support. In the past couple of years, we have donated more than £50,000 to local organisations.