

Multimegawatt high-temperature electrolyser to generate green hydrogen for production of high-quality biofuels

Mechanical completion reached & commissioning started

June 2023

Mechanical completion phase has been reached for the full MultiPLHY demonstration unit at the Neste Rotterdam refinery and the commissioning phase has been started.

Within the scope of the MultiPLHY project, HTE (high-temperature electrolyzer) by Sunfire and HPU (hydrogen processing unit) by Paul Wurth have been installed and the commissioning is ongoing. Neste is responsible for the refinery integration and operations of the demonstration unit. The produced hydrogen will be fed into the refinery processes and utilized in the production of renewable products.

Overview of the execution phase

Mechanical completion of the full demonstration unit was reached on May 30, 2023.

Key activities included:

- Preparation of the plot (Q1,2022)
- Receiving HTE and HPU units at site (Q2, 2022)
- Installation works of Neste, Sunfire and Paul Wurth scope completed May 30, 2023
- Connection of the 25 kV power line to HTE and all other utilities to HTE and HPU
- Strong focus on safety throughout the execution phase
- Zero incidents during the construction phase

Safety is in the core of the project

The overall safety of the electrolyzer installation has been assessed according to the Neste’s systematic framework for process safety.

The siting of the unit in the refinery area has been assessed to select a location where consequences of potential accidents are minimized.

The hazards and risks of the electrolyzer and hydrogen processing unit have been evaluated in collaboration with the project partners to ensure that sufficient process safeguards are in place for safe operation and the risks are low enough for the refinery environment.

The safe integration of the unit to the refinery processes is tested and verified during commissioning activities. Likewise, the correct implementation and functionality of the safety systems in the electrolyzer and hydrogen processing unit are tested and verified by project partner’s commissioning tests before starting the hydrogen production and supply for refinery use.

Safe and reliable operation of the unit will be accomplished by trained site operators with the technical support from the project partners when necessary.



Pictures: High-temperature electrolyzer by Sunfire and compressor by Paul Wurth.