

How to transport hydrogen?

To transport renewable hydrogen from the place of production to the place of consumption, several packaging and transport methods are possible via :

- cylinder in gaseous form
- semi-trailer in gaseous form (trailer tube)
- tanker in liquid form
- underground pipeline

The choice is mainly based on the quantity to be transported and the end use of the hydrogen.

Hydrogen transport by cylinder frame

A 50 liters cylinder (known as a 'B50' or 'L50') contains 0.75 kg of compressed H₂ at 200 bar. They are usually packaged in frames containing 8 to 28 cylinders. This method of supply is preferred when consumption is less than 10 tons of H₂ per year.



Transport of gaseous hydrogen by trailer tube

This is the refueling method chosen for the distribution stations. On arrival, the full trailer is connected to the station and immediately refueled. The truck then returns to the production site with a new, empty trailer, ready to be refilled. The quantity transported depends on the pressure of the hydrogen and the type of tank:

- Capacity at 200 bar (steel tank): up to 0.5 t
- Capacity at 300 bar (composite tank): up to 0.8 t
- Capacity at 500 bar (composite tank): up to 1.1 t

Liquid hydrogen transport by tanker

To be transported in liquid form, hydrogen must be cooled to -253°C and kept at this temperature in a cryogenic tank. A tank of this type can hold up to 4 tons of liquid hydrogen.



Hydrogen transport by pipeline

Hydrogen gas is transported through a steel pipe at a pressure generally between 25 and 60 bar.

The maximum flow rate depends on the diameter of the pipe:

- Diameter 150 mm → 12,000 Nm³/h or 1 t/h
- Diameter 250 mm → 40 000 Nm³/h or 3.4 t/h
- Diameter 300 mm → 80 000 Nm³/h or 6.8 t/h
- Diameter 400 mm → 120 000 Nm³/h or 10 t/h

A hydrogen production unit (100MW) by electrolysis produces **14,000 t/year of hydrogen**. To transport it, transport by pipeline or trailer tube is the most appropriate.



H2V invest, develops and builds large scale renewable hydrogen production plants by electrolysis of water from renewable electricity. H2V is a subsidiary of the French company Samfi Invest, which covers the entire renewable hydrogen value chain: wind farms with Samwind, photovoltaic facilities with Samsolar, production of renewable hydrogen with H2V, distribution stations with Distry and large fleet of trucks with Malherbe Transports, some of which will run on renewable hydrogen in 2023.