

Hydrogen consumption: yes, but how much?

Hydrogen can be used in different sectors, as energy or as a raw material:

- **Mobility** to power the electric motor of vehicles thanks to a fuel cell that transforms hydrogen into water and electricity,
- **The steel industry** to make steel,
- **The chemical industry** to manufacture ammonia, which is used as a fertiliser and as a base for the manufacture of polymers (plastics, synthetic fibres), but also methanol.

But it can also be used directly as a fuel, as a total or partial replacement for natural gas.

Annual hydrogen consumption by use

Passenger transport



Car : 0,2 t H₂/year
with 1kgH₂/100km and 20 000km/year



Taxi : 0,6 t H₂/year
with 1kgH₂/100km and 60 000km/year



Bus : 3 t H₂/year
with 8kgH₂/100km and 37 000km/year



TER : 35 t H₂/year
with 0,27 kgH₂/km and 130 000km/year



Regional aircraft : 250 t H₂/year
4 flights/day of 700 km with 60 passengers

Goods transport



Forklift truck : 0,5 t H₂/year
with 0,15kgH₂/h and 3 500 h/year



Van 3,5 T : 0,9 t H₂/year
with 3kgH₂/100km and 30 000km/year



Truck 19 T : 5 t H₂/year
with 7kgH₂/100km and 74 000km/year



Truck 44 T : 9 t H₂/year
with 9kgH₂/100km and 100 000km/year



River barge : 25 t H₂/year
Classe IV

Industry: some key figures

Steel : 60 kg H₂/tsteel
The DRI process uses H₂ as a reducing gas for steel production

Ammonia : 180 kg H₂/tNH₃
Ammonia (NH₃) is formed by the reaction between nitrogen (N₂) and hydrogen (H₂)

Methanol : 200 kg H₂/tMeOH
It takes 200 kg of H₂ and 1400 kg of CO₂ to produce 1 ton of methanol (MeOH)

A hydrogen electrolysis production unit (100 MW) produces **14,000 tons of hydrogen per year**, enough to fuel **2,800 trucks** or **400 regional trains**, or to contribute **to the production of 230,000 tons of steel**. Today, France produces 900,000 tons of grey hydrogen per year for industrial use. Its objective is to green 40% of this production by 2028 thanks to renewable hydrogen.



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.