

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAJYA SABHA
UNSTARRED QUESTION NO. 2371
ANSWERED ON 07.08.2026

DEVELOPMENT AND SAFETY OF HYDROGEN POWERED TRAINS

2371 SHRI MUKUL WASNIK:

Will the Minister of RAILWAYS be pleased to state:

- (a) the current status on the first hydrogen-powered passenger train in the country;
- (b) the specific environmental, operational, and economic advantages of hydrogen fuel cell trains compared to traditional diesel and electric locomotives;
- (c) the comprehensive safety protocols, technical standards, and precautionary measures taken by the Government to mitigate risks associated with hydrogen storage, leakage, and high-pressure refueling infrastructure; and
- (d) the details of the domestic manufacturing capacity being developed for green hydrogen fuel and the financial allocation made for this project?

ANSWER

MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND
ELECTRONICS & INFORMATION TECHNOLOGY

(SHRI ASHWINI VAISHNAW)

(a) to (d) The Hydrogen powered train was inaugurated on 17.07.2026. Till 03.08.2026, this train has covered 2492 km of commercial run in 89 km long Jind-Sonipat section. The hydrogen train has been developed by Indian Railways on pilot basis to demonstrate the use of hydrogen powered train technology in Railways.

Prominent features and advantages of this technology include:

- Indigenously designed and developed in India demonstrating IR's commitment to Atmanirbhar Bharat.
- Presently, it is the world's longest (10 coaches) and most powerful (2400 kW) Hydrogen Trainset on Broad Gauge platform.
- The Trainset comprises of two Driving Power Cars (DPCs) of 1200 kW each, totalling 2400 kW along with eight passenger cars.
- It represents a major step in development of next generation fuel technology in Railways, inherently optimizing noise reduction and curtailing reliance on imported fossil fuels.

The Hydrogen Trainset operation ensures zero CO₂ emissions with water vapour being the only emission. The Trainset works on fuel cell technology that does not have any moving part and conventional engine

for traction power generation therefore the operation is much quieter thereby reducing noise pollution. This project establishes Indian Railways in hydrogen technology.

As the Hydrogen Trainset and its infrastructure have been developed on a pilot basis, direct comparison of the hydrogen-fuelled trains with established traction systems at this stage would not present a fair picture.

A dedicated Hydrogen Plant has been setup at Jind for providing hydrogen in this Trainset. The hydrogen storage facility has been set up in accordance with the guidelines of the Petroleum and Explosives Safety Organization (PESO), ensuring adherence to prescribed safety standards and protocols.

Safety documents along with specific instructions for the operating staff has been developed to manage high-pressure hydrogen hazards which provides a framework for identifying and mitigating risks associated with hydrogen systems. The staff has been provided with relevant training for safe operation and maintenance.
