

GOVERNMENT OF INDIA
MINISTRY OF PETROLEUM AND NATURAL GAS
RAJYA SABHA
UNSTARRED QUESTION No.922
ANSWERED ON 27/07/2026

**UPGRADING THE STORAGE INFRASTRUCTURE AT RETAIL OUTLETS TO STORE
ETHANOL-BLENDED PETROL**

922. SHRI ASHOK SINGH:

Will the Minister of PETROLEUM AND NATURAL GAS be pleased to state:

- (a) whether any order, advisory or standard operating procedure has been issued by Government for upgrading the storage infrastructure at retail outlets to store ethanol-blended petrol and if so, the details thereof;
- (b) whether Government has conducted or commissioned any study on the effect of ethanol-blended petrol on storage tanks and dispensing infrastructure at fuel stations, including any chemical or physical changes to their surfaces and if so, the findings thereof; and
- (c) the details of the studies carried out to scientifically validate ethanol blending programme with respect to its impact on storage infrastructure and on vehicles not compliant with such blending?

ANSWER

THE MINISTER OF STATE IN THE MINISTRY OF PETROLEUM & NATURAL GAS

(SHRI SURESH GOPI)

(a) to (c): Government, under the National Policy on Biofuels, has been implementing the Ethanol Blended Petrol (EBP) Programme through Oil Marketing Companies (OMCs) in accordance with the blending targets, fuel specifications and other guidelines notified by the Government from time to time. Public Sector OMCs have also adopted detailed technical specifications, operating procedures and engineering standards for the safe storage, handling and dispensing of ethanol-blended petrol in accordance with applicable Government notifications, Bureau of Indian Standards (BIS) fuel specifications and Petroleum & Explosives Safety Organisation (PESO) safety requirements.

The Ethanol Blended Petrol (EBP) Programme has been implemented through a phased, scientifically validated and consultative process involving NITI Aayog, automobile manufacturers, Oil Marketing Companies (OMCs), Automotive Research Association of India (ARAI), Society of Indian Automobile Manufacturers (SIAM), Indian Institute of Petroleum (IIP) and other technical institutions.

Ethanol is not a new fuel. It has been used globally for over a century, with countries such as Brazil operating higher ethanol blends for decades. In India, the Ethanol Blended Petrol (EBP) Programme commenced with a pilot in 2001, E5 was introduced in 2006, and although blending remained around 1.53% in 2013-14, it has since been increased progressively in a calibrated manner after creating the necessary production capacity, infrastructure and regulatory framework.

As seen from the table, the progression has been gradual:

Ethanol Supply Year	Average Blending(%)
2013-14	~1.53
2020-21	~8.1
2021-22	~10
2022-23	~12
2023-24	~14.6
2024-25	~19.2
2025-26 (Nov-June)	20

The Government has also considered the large-scale real-world operating experience. India witnesses approximately 8 crore vehicles visiting retail outlets every day (around 80% petrol vehicles),

Public Sector Oil Marketing Companies (OMCs) have robust systems for storage and dispensing of E20 fuel at Retail Outlets (ROs), comprising underground storage tanks, pipelines, pumps and dispensing units. These systems are designed, maintained and periodically inspected to prevent water ingress and contamination, thereby safeguarding the quality of fuel delivered to consumers.

With the progressive increase in ethanol blending levels, OMCs have undertaken appropriate modifications and technical assessments to ensure that the existing retail infrastructure is suitable for the safe storage and handling of ethanol-blended petrol. Underground storage tanks, pipelines and dispensing infrastructure have been assessed for material compatibility and operational suitability. These assessments and field experience have not indicated any adverse chemical or physical deterioration attributable to ethanol-blended petrol when operated in accordance with prescribed specifications and maintenance protocols. OMCs' long-standing experience in handling ethanol at depots and installations has further supported the safe deployment of E20 across the retail network. Specific components such as gaskets, seals and other hydraulic parts are upgraded or replaced, wherever required, to maintain system reliability.

Pumps and dispensing units installed at Retail Outlets and maintained by Original Equipment Manufacturers (OEMs) have also been assessed to be suitable for dispensing ethanol-blended petrol. Upgrades in hydraulic components are undertaken wherever necessary. In line with the phased increase in blending levels, OMCs have revised procurement specifications to ensure compatibility of dispensing systems and associated equipment.

As an additional safeguard, underground storage tanks are equipped with Automatic Tank Gauging (ATG) systems that continuously monitor stock and water levels. In the event water ingress exceeds the prescribed threshold, the system automatically interlocks dispensing from the affected tank until corrective action is taken.

India has achieved 20% ethanol blending five years ahead of the original target after more than two decades of phased policy development, stakeholder consultations, scientific evaluation and capacity creation. The rollout was preceded by progressive enhancement of ethanol production capacity, retail infrastructure readiness, fuel quality standards and vehicle compatibility assessments, ensuring that the transition remained gradual, safe and scientifically validated.

Extensive laboratory studies and field trials conducted by ARAI, SIAM, IOCL, IIP and automobile manufacturers covering engine durability, drivability, cold startability, corrosion resistance, material compatibility, fuel system reliability, emissions performance and fuel efficiency have confirmed that E20 is safe for use under prescribed standards.

Automobile manufacturers, component suppliers, SIAM, ARAI, testing agencies and Oil Marketing Companies were associated with every stage of the scientific evaluation and phased rollout of E20. E20 was introduced only after successful validation of fuel systems, engine durability, drivability, material compatibility and emissions performance. These studies did not reveal any significant adverse impact on performance, durability or material compatibility in legacy vehicles under the prescribed operating conditions.

E15+ blended petrol has been in widespread use for over three-and-a-half years and E19-E20 fuel for over two-and-a-half years. More than 20 crore two-wheelers and over 3 crore petrol cars have been operating on these blends without any verified evidence of widespread engine failure or vehicle breakdown attributable to ethanol blending. Manufacturer service data shared with OMCs have not indicated any abnormal corrosion, wear or reduction in vehicle life attributable to E20 fuel. Manufacturers continue to honour warranty obligations for vehicles using E20 fuel, providing further confidence in its safety and reliability.

A leading OEM serviced 2.84 crore vehicles during FY 2025-26, including approximately 1.5 crore vehicles that were not originally certified as E20-compatible, and did not report any evidence of E20-induced corrosion, abnormal wear or reduction in component life. A leading two-wheeler manufacturer has reported similar field experience. Another leading OEM has stated that data from approximately 1.4 crore E20-operated vehicles, monitored over an extended period, did not indicate any ethanol-induced corrosion. ARAI has also reaffirmed that vehicles undergo rigorous validation in accordance with internationally accepted standards before being introduced to consumers.

The Ethanol Blended Petrol (EBP) Programme is the outcome of more than two decades of scientific evaluation, regulatory oversight, stakeholder consultations and phased implementation. Storage infrastructure, dispensing systems and vehicle compatibility have been upgraded in tandem with increasing blending levels, ensuring that consumer safety, product quality and operational reliability remain paramount throughout the nationwide rollout.
