



PETROBRAS
diesel R

Reaffirming its commitment to the energy transition and following the global trend, Petrobras released a new fuel: the Diesel R.

- Obtained from coprocessing traditional diesel, oil byproducts, and renewable raw materials such as soybean oil.
- Lower carbon intensity, issuing less greenhouse gases (GHG).
- It runs on all the Diesel cycle engines and exhaust gas treatment systems without requiring changes.
- Because of its characteristics, it can be used in the same logistics chain or storage as fossil diesel.
- High stability and contaminant-free.
- It helps attain the corporate targets of reducing greenhouse gas emissions.
- Field-tested with reliability and good performance.
- ISCC-certified manufacturing process.



Learn more about Diesel R

Diesel R is a diesel S10 with a percentage of HVO. This renewable portion is chemically similar to mineral diesel oil but obtained from the hydrotreatment of renewable raw materials (vegetable oils).

This product is made from coprocessing renewable raw materials and mineral diesel. The resulting product, Diesel R S10, has a percentage of HVO (hydrotreated vegetable oil) according to the fraction of renewable raw material used in the processing unit's load and has the same physical and chemical features as the Petrobras Diesel, not requiring any change in vehicles or storage structures to be used.

Despite its renewable content, the product also requires an ester biodiesel mixture according to the percentage defined by the applicable regulation.

The product features the following distinctions:

- **Production:** Diesel R production consists of processing mineral diesel and vegetable oils in a hydro treatment unit (where the raw material reacts with hydrogen in the presence of an adequate catalyst), making the vegetable oil molecules turn into renewable diesel. The final mixture containing mineral and renewable diesel is sent to tanks to be certified and sold as diesel C S-10, according to the ANP Resolution. The renewable portion of diesel R is an HVO, totally suitable for use in vehicles compatible with PROCONVE's phase P8.
- **Drop-in:** Diesel R generates no storage or use adaptation costs for distributors and end consumers since its renewable portion is chemically identical to mineral diesel oil. This product's significant advantage is that it permits increasing the renewable content in its fuel matrix without changing the current structure and gives vehicles good performance.
- **Cost:** from a production standpoint, Diesel R and other competing biofuels have costs connected with the cost of their renewable raw materials.
- **Specification:** Diesel R is fully compliant with the ANP Resolution that governs the specifications for diesel oils for vehicles or equipment fitted with Diesel cycle engines.

· **Use:** this product is intended for consumers interested in cutting greenhouse gas emissions, increasing the renewable content of their fuels, and helping meet the voluntary sustainability targets.

· **Certification:** in February 2023, Petrobras was voluntarily awarded the International certification ISCC Plus and ISCC RED for the Diesel R made by coprocessing in a hydro treatment unit at the Presidente Getúlio Vargas Refinery – Repar (Araucária, Paraná). The ISCC (International Sustainability Carbon & Certification) is one of the most traditional certifications available in the market; it is applicable to evaluate the sustainability of raw materials and products.

· **Field test:** four Autovição Redentor buses ran on Diesel R5 (5% renewable content) for six months in Curitiba (Paraná). The test results bore out the drop-in feature of the renewable diesel, i.e., this product can be used in systems designed for diesel oil without requiring any modification to the engines and logistical infrastructure. Diesel R5 ran reliably and with good performance. No problems, such as clogged filters, deposits in the injection, or engine power losses, were observed. As to consumption, the new fuel has shown no differences compared to the mineral diesel oil. We could also assess product production, logistics, sales, and distribution aspects.

· **Strengths:** this new fuel reduces greenhouse gas emissions by 60% in the renewable portion. It also satisfies the most demanding engines and exhaust gas treatment systems without requiring modifications to the logistics chain or storage. This product is highly stable and contaminant-free, ensuring greater durability of engine components and automotive emissions and a lower risk of engine malfunction.

Petrobras is using all of its expertise to develop sustainable, quality products moving toward energy transition.

Don't hesitate to contact us for further information about the product.

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