

INERATEC's MATERA e-Diesel® completes laboratory fuel assessment with Rolls-Royce Power Systems

- Rolls-Royce Power Systems has completed a laboratory assessment of selected fuel quality and material compatibility parameters under its strategic partnership with INERATEC
- MATERA e-Diesel met selected fuel specification parameters assessed in the laboratory, including fuel quality, lubricity and short-term storage stability
- The results mark an important step in evaluating renewable synthetic fuels as a potential option for operators seeking to reduce the use of fossil diesel in backup power applications.

Karlsruhe, Friedrichshafen, 2nd of July, 2026 – Rolls-Royce Power Systems has completed a laboratory fuel assessment of INERATEC's synthetic MATERA e-Diesel®. The assessment indicates that the tested fuel met selected requirements of EN 15940 and relevant parameters of the mtu Fluids and Lubricants Specification A001061/46.

The laboratory assessment focused on chemical and physical fuel properties, selected material compatibility parameters, lubricity, cetane-related fuel parameters and short-term storage stability. Engine performance, emissions behaviour and application-specific operating requirements were not part of this test scope. Any use in specific engine applications remains subject to the applicable fuel releases, engine series, operating conditions and customer-specific validation requirements. For operators of critical infrastructure, this opens a practical route to CO₂-neutral emergency power using their current generator fleets.

Evaluating renewable synthetic fuels for resilient backup power

Data centers, hospitals, and transport hubs all rely on diesel backup generators to ensure operational continuity. At the same time, growing pressure to meet ESG targets, disruptions in fossil fuel supply chains, and rising electricity demand are making continued dependence on fossil diesel increasingly difficult to justify.

Replacing installed diesel generators would require significant capital expenditure and introduce technology risk into systems where reliability is paramount. Battery storage can play a role in shorter outage scenarios, but questions remain around cost, scalability, and resilience during prolonged power failures.

MATERA e-Diesel® offers a different path: Renewable synthetic diesel can be one pathway to reduce reliance on fossil diesel in selected applications, provided that fuel quality, engine approval and storage are met.

"Fuel transition, not system replacement, is what we are offering. The test results confirm what we set out to demonstrate: The laboratory assessment is an important step in showing how renewable synthetic fuels can be evaluated against established fuel quality requirements," says Dr. Ing. Tim Boeltken, CEO at INERATEC. *"For critical infrastructure operators, this is a promising pathway to explore lower-fossil backup power solutions while maintaining a strong focus on reliability. Operators of critical infrastructure do not need to choose between reliability and decarbonization."*

“The successful laboratory fuel assessment of INERATEC’s MATERA e-Diesel® is an encouraging step in our joint work to evaluate renewable synthetic fuels for safety-critical power generation applications,” says Tobias Ostermaier, President Business Unit Stationary at Rolls-Royce Power Systems. “For data centers and other critical infrastructure, reliability remains the first priority. That is why we are taking a careful, evidence-based approach: the results provide a valuable technical basis, while any use in specific engine applications remains subject to the applicable fuel releases, operating conditions and further validation.”

Test results: laboratory fuel quality assessment completed

Laboratory testing conducted by Rolls-Royce Power Systems covered chemical, physical, and engine-specific parameters. Key findings include:

- **Standards alignment:** MATERA e-Diesel® met selected assessed requirements of EN 15940 and relevant parameters of the mtu Fluids and Lubricants Specification A001061/46.
- **Material compatibility:** In the tested elastomer compatibility parameters, no significant differences were observed compared with the reference fuels assessed.
- **Storage stability:** The fuel remained stable over a minimum period of three months with respect to neutralization number, oxidation stability, and lubricity under laboratory storage conditions.
- **Sulphur content:** Sulphur levels were below 5 mg/kg and therefore below the EN 15940 threshold. Exhaust emissions were not assessed as part of this laboratory testing. Energy-related fuel parameter: The net calorific value was measured at approximately 44.0 MJ/kg. Engine power output, fuel consumption and performance characteristics were not assessed in this laboratory testing.

Long-term stability analyses are ongoing. Further technical evaluation will be required before any engine-specific application statement can be made.

INERATEC is committed to defossilizing and decarbonizing the world. The company produces e-Fuels and e-chemicals: carbon-neutral fossil fuel substitutes for use in aviation, shipping and chemical industries. Its modular, scalable plants use renewable hydrogen and CO₂ to produce synthetic kerosene, gasoline, diesel, waxes, methanol or natural gas. INERATEC has just opened Europe’s largest e-Fuels plant to date, in Frankfurt, which will produce up to 2,500 tonnes of ultra-low-carbon aviation fuel per year. The company is based in Karlsruhe, Germany and backed by a diverse group of international investors. www.ineratec.com

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