Łukasiewicz
Institute
of Aviation

The world's first
full-scale (5 kN) demonstrator
using the hypergolic fuel ignition
mechanism with 98% HTP

5 kN HYPERGOLIC BIPROPELLANT ROCKET ENGINE

The combination of highly concentrated hydrogen peroxide 98%+ with non-toxic, non-cryogenic, high-performance fuel, forms the basis for developing safer, affordable and highly applicable hypergolic rocket propulsion systems.

KEY FEATURES

- Ecological, safe, affordable and highly applicable hypergolic rocket propulsion technology.
- Storable propellant composition for long duration missions and rocket technology applications.
- Suitable as a sustainer engine and for upper stages of launch vehicles.
- Hypergolic operation – Reignitable and reusable.

TECHNICAL INFORMATION

Parameter	Value
Oxidizer	98% HTP
Fuel	Green High Performance Fuel
Ignition	Hypergolic
Cooling	Regenerative
Dimensions	ø 350 x 700 mm
Mass	~15 kg
Thrust	5 000 N

The engine was developed through chemical research on new fuel formulas, propellant injection and cooling optimization, advanced manufacturing (incl. additive manufacturing), and extensive testing.

The project is cofounded by the National Centre for Research and Development (NCBiR). Consortium: Łukasiewicz – Institute of Aviation, ZPS Gamrat and the Faculty of Power and Aeronautical Engineering of Warsaw University of Technology.

The Łukasiewicz Research Network – Institute of Aviation
offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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