BLOOH SOLUTION LTD.

EXPOSÉ

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Rutheniumbasierte Energiesysteme

www.blooh-solution.com

Ruthenium: A Catalyst for Tomorrow's Energy Systems

Ruthenium, a rare member of the platinum group, is increasingly recognized as a key material in modern energy technologies. Initially studied alongside lithium in energy storage research, ruthenium exhibits electrochemical properties that go far beyond classical battery concepts.

At BLOOH Solution, we identified the innovation potential of ruthenium at an early stage. Our materials scientists and electrochemists developed high-performance applications – ranging from ultracapacitors and catalytic reactors to temperature-resistant coatings.

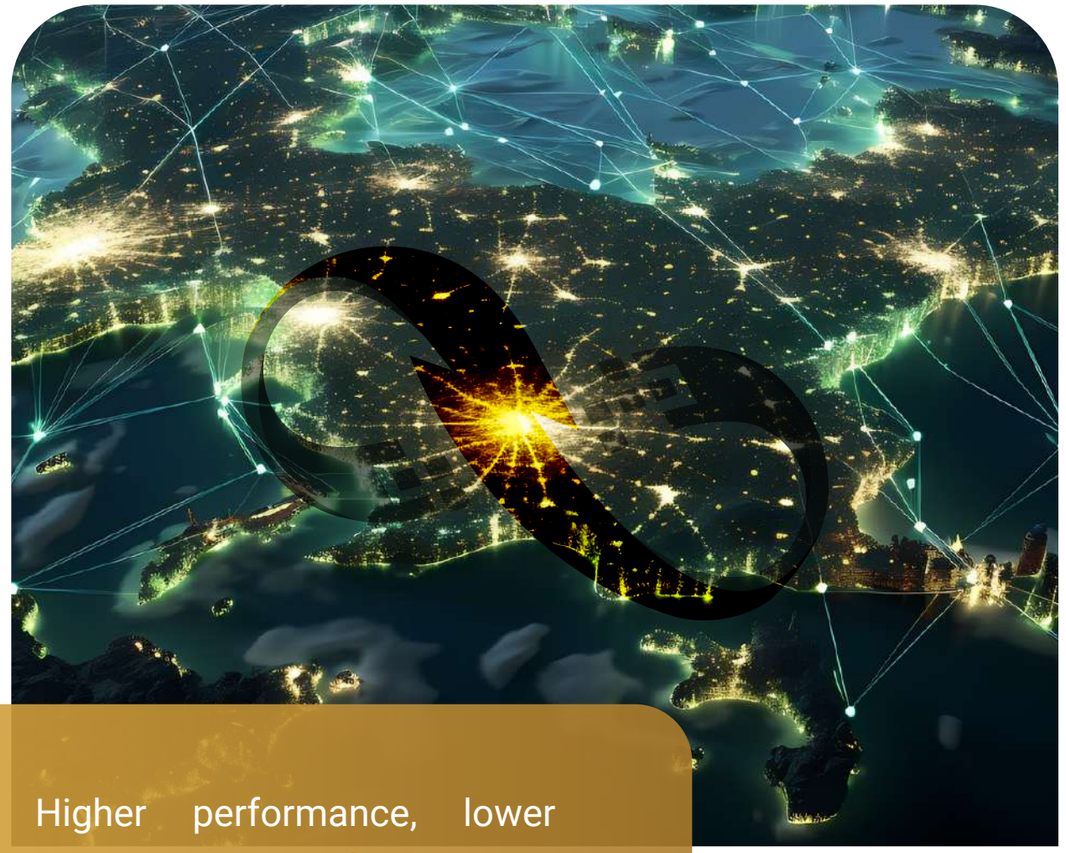
These solutions ideally complement our portfolio and contribute to the next generation of energy-efficient technologies.

About Us

BLOOH Solution Ltd. is a global innovation company dedicated to redefining future-proof energy systems through advanced materials. Building on our expertise in lithium, hydrogen, platinum, and scandium, we are accelerating industrial transformation toward sustainability and efficiency through targeted materials research.

With ruthenium, we are expanding our capabilities with a strategically valuable element – enabling breakthroughs in ultra-fast energy storage, green ammonia synthesis, and thermal safety architectures.

Our approach combines application-driven development, extensive simulation, and collaborations with leading research institutions.



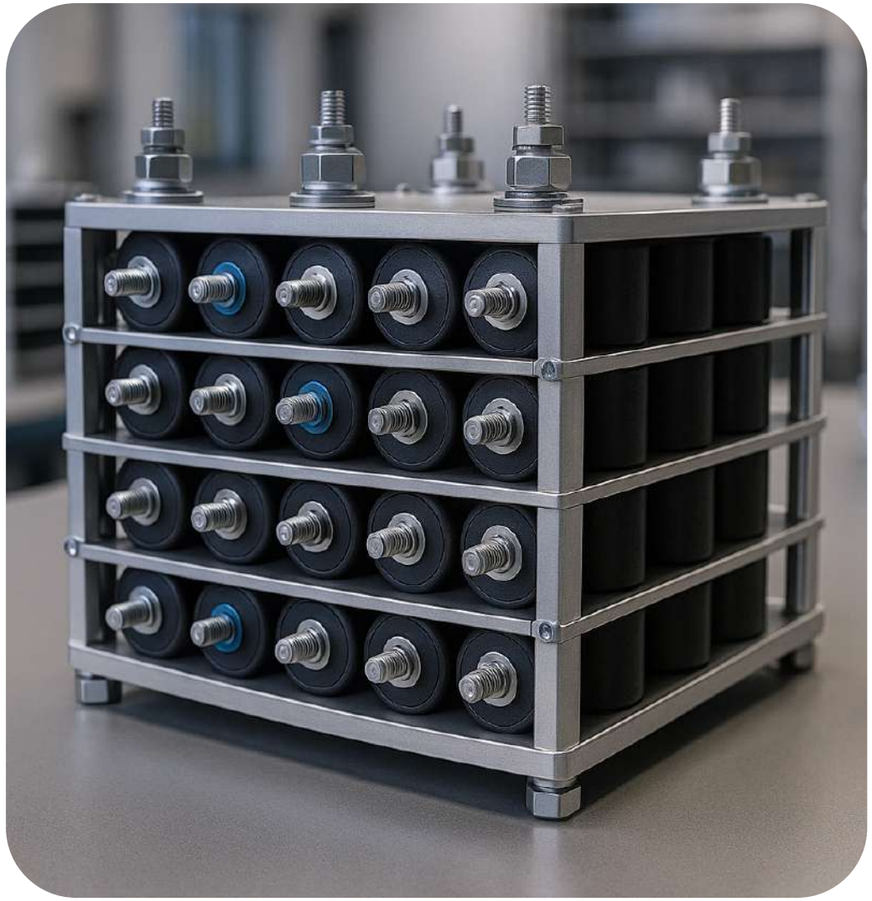
Higher performance, lower consumption – ruthenium as a catalyst for the future.

Our Products

Ultracapacitors for High-Speed Storage

These ultracapacitors are based on a ruthenium oxide structure with exceptional pseudocapacitance, enabling extremely fast charge and discharge cycles. They deliver above-average energy and power density, making them ideal for applications requiring high cycle stability and rapid response times.

- **Applications**
  - Mobility solutions with regenerative braking
  - Renewable energy systems with peak loads
  - Grid buffering and industrial fast-charging infrastructure
- **Advantages**
  - Longer cycle life than conventional batteries
  - Faster charge and discharge times
  - Stable performance under continuous thermal and power loads



Our Products

Ruthenium Catalysts for Ammonia Synthesis

Our ruthenium-based catalysts significantly lower the energy barriers of ammonia synthesis, enabling high yields at low pressure and moderate temperatures. They are particularly efficient when combined with green hydrogen and are ideal for modular systems.

- **Applications**
  - Decentralized ammonia plants
  - CO_2-neutral fertilizer production
  - Industrial facilities for chemical energy carriers
- **Advantages**
  - Reduced energy consumption per ammonia molecule
  - Compact reactor designs due to higher catalytic activity
  - Longer lifespan thanks to thermal stability

Our Products

Thermal Protective Coatings for Batteries and Aerospace

These protective layers offer maximum thermal insulation for safety-critical applications. Their excellent adhesion and chemical inertness ensure reliable performance under extreme temperature fluctuations—especially in electric mobility and aerospace engineering.

- **Applications**
  - Battery modules for high-performance vehicles
  - Carrier structures in aerospace
  - Thermal insulation for industrial high-temperature processes
- **Advantages**
  - Prevents thermal runaway
  - High material resistance to corrosion and oxidation
  - Extended lifespan and enhanced safety of critical systems

Ruthenium is a rare yet fully recyclable material. BLOOH Solution follows a closed-loop material cycle: our technologies enable the recovery and reuse of Ruthenium at the end of a product's life cycle.

In addition, the high efficiency and durability of our systems help reduce energy consumption, raw material usage, and CO_2 emissions.

We work closely with certified raw material suppliers and environmental institutions to ensure that our use of Ruthenium is both environmentally and socially responsible.

With ruthenium, BLOOH Solution strengthens its leading position in the field of sustainable high-performance materials. Whether as a reaction accelerator, energy storage medium, or thermal protection – the element unfolds its full potential in our systems.

For the industries, energy, and mobility of the future.