

Johnson Matthey and Envision Virgin Racing to reveal world's first electric two-seater Formula race car at COP26

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- Two-seater formula race car showcases new high performance electric vehicle technology slated for commercial production in Europe from 2024.
- Johnson Matthey and Envision Virgin Racing share a commitment to accelerate the transition to sustainable mobility technologies.
- Johnson Matthey's **eLNO**[®] battery cathode technology delivers up to 20% energy density improvements for greater driving range and faster recharging.
- Envision Virgin Racing's electric drivetrain delivers 250kW of power and enables top speed of 240km/h.

Glasgow, Scotland, 29 October - Johnson Matthey and Envision Virgin Racing will unveil the world's first electric two-seater electric formula race car at the 2021 United Nations Climate Change Conference, COP26, in Glasgow, Scotland.

On display at COP26 from Sunday 31 October, the bespoke two-seater race car was conceived to help accelerate the transition to a net zero future and the advance to clean, sustainable technologies that enable the mass adoption of e-mobility.

The race car results from a partnership between Johnson Matthey, a global leader in sustainable technologies, and Envision Virgin Racing, the carbon neutral Formula E team. It was designed and manufactured by Delta Cosworth at Silverstone, the home of motorsport in the UK.

The Envision Virgin Racing development team focused on optimising all aspects of the racer's design to deliver extraordinary on-track performance. It features a dedicated two-seater carbon-fibre monocoque platform that is designed and engineered to accommodate the driver and an additional passenger in tandem formation. The car will run slick tyres to provide optimal mechanical grip and a low wear rate that minimises tyre waste.

The one-of-a-kind concept racer will demonstrate Johnson Matthey's **eLNO** technology. This family of nickel-rich advanced cathode materials enables around 20% greater battery density over today's typical equivalent battery technology. With **eLNO** cathode technology on board, the cylindrical 602030 cells in the battery pack achieve 200 Wh/kg cell energy density for a total 47kWh capacity, and an electrical output of 585 volts. This is delivered

to Envision Virgin Racing's advanced electric drivetrain to produce 250 kW of power at the wheels. The racer's targeted maximum speed is 240 km/h.

These key benefits will directly transfer from the racetrack into battery electric passenger cars. Batteries incorporating **eLNO** will offer electric vehicle drivers greater range, faster recharging, and the long-term retention of battery capacity.

"As the very first public application of our **eLNO** technology, the two-seater race car will provide a stunning next step in bringing our ground-breaking technology to market," said Christian Günther, Battery Materials Sector Chief Executive, Johnson Matthey. "Not only will the racer generate valuable test data, but we look forward to giving passengers the opportunity to experience the visceral thrill of a high performance electric race car."

"We are excited to unveil the world's first electric two-seater formula race car, the result of a very productive partnership with Johnson Matthey. Delivered in under six months, it is a fantastic achievement by all those involved," said Sylvain Filippi, Managing Director & Chief Technology Officer at Envision Virgin Racing Formula E Team. "The two-seater formula race car has been specifically designed to test and push the battery performance to its extreme. This battery technology is unlike anything else we've seen before, and we wanted to create a prototype car that would really put it through its paces and showcase its huge potential."

eLNO will be supplied to customers in Europe from two new production facilities. The first facility in Poland is under construction and will be completed in 2022, for commercial production in 2024. A second **eLNO** plant is also planned in Finland. These facilities will operate sustainably as part of Johnson Matthey's commitment to overcoming climate change, circular manufacturing, and the responsible sourcing of materials.

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