

**“The concrete industry is truly modernising. The carbon benefits and transparency from plant to pour are now a reality with the acceptance of VERIFI digital consistency measurements for the concrete we supply for the construction of HS2.”**

Ryan Griffith, HS2 technical & quality manager at Tarmac

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## Sustainable Construction

### Digital Concrete Testing

Working with Tarmac and partners, a successful trial of a ground-breaking digital measuring system for concrete has led to a roll-out across multiple HS2 sites - reducing carbon and driving efficiencies on the construction project.

VERIFI® is a pioneering technology that enables real-time monitoring, measurement, and management of fresh concrete properties during transportation. By utilising on-truck sensors linked to proprietary patented algorithms, VERIFI is the first digital solution to replace manual consistence (e.g. slump) and temperature testing of fresh concrete. This means the concrete truck-mixer tracks itself to the point of delivery, tests itself prior to discharge, and auto generates pour records for quality assurance purposes.

A full-scale site trial involving over 20,000m<sup>3</sup> of concrete demonstrated accuracy and confidence in the technology, and HS2 Ltd has now approved the roll-out across further sites.

One of the key benefits of the system is the elimination of concrete waste which would have been produced from manual sampling and testing. When the solution is rolled out across BBV's section of the route, this could result in cutting 1,500 tonnes of carbon.

As well as offering a more sustainable solution, analysing the entire volume in the truck instead of spot samples results in improved quality control and more accurate readings. Safety is also improved due to less plant-person interface and manual handling on site. In addition, it enhances productivity and efficiency by delivering clear digital readouts. This eliminates delays associated with sampling and testing processes, which allows for better scheduling and reduces potential bottlenecks in the construction timeline.



HS2's materials and durability lead, Jon Knights, said: "This is a fantastic example of how HS2, working collaboratively with supply chain partners, can provide the ideal testbed for cutting-edge technologies. As the UK's largest infrastructure project, it's a great step forward for HS2 Ltd to formally supplement this digital surveillance technology with manual consistence and temperature testing of fresh concrete to reduce waste and increase safety and productivity.

Frederic Guimbal, EVP at Saint Gobain Construction Chemicals, said: "This innovative solution demonstrates the power of collaboration and paves the way for the integration of digital methods in future concrete standards across the construction industry." VERIFI optimises planning and coordination through GPS tracking of vehicles equipped with the technology. This real-time tracking capability improves the management of concrete delivery, enhancing logistical processes on-site.

Importantly, after careful calibration, VERIFI ensures reliable outcomes and compliance by providing accurate measurements for acceptance or rejection of concrete loads, maintaining the same standards as traditional testing methods. This guarantees the structural integrity and compliance of the construction materials used in the HS2 project.