Simble achieves initial gas detection results using proprietary NanoSensor platform

1 September 2026

Sensor fabrication and initial capability testing are complete, with the NanoSensor responding to selected volatile organic compounds at low concentrations under laboratory conditions.
Formal benchmark testing is now underway.

KEY HIGHLIGHTS

- **Initial Gas Detection Results Achieved:** Laboratory testing of the patented NanoSensor has demonstrated gas detection capability at the molecular level, with the sensor responding to selected volatile organic compounds at low concentrations. These results validate the design principles of the technology and establish the baseline for formal benchmarking.
- **Low Concentration VOC Detection:** Initial laboratory testing indicates that the NanoSensor can respond to selected Volatile Organic Compounds (VOCs) at low concentrations, supporting its potential relevance across applications including hazardous VOC detection, industrial safety, environmental monitoring and workplace exposure monitoring.
- **High-Surface-Area Nanostructured Architecture:** Compared with many conventional compact sensors, the NanoSensor is designed to increase accessible interaction sites through a proprietary high-surface-area nanostructured material within a sub-millimetre-scale platform. This architecture is intended to support low-concentration gas detection at low power, making the technology potentially suitable for compact, portable, wearable and field-deployable sensing applications.
- **Formal Benchmark Testing Now Underway:** Benchmarking has commenced to further characterise the platform's sensitivity, selectivity, response time, stability and performance under application-relevant conditions
- **Defined Pathway Towards Commercial Deployment:** The gas detection workstream advances along the five-stage NanoSensor development pathway from sensor fabrication through to customer trials, with the first two stages now complete.
- **Directly Extends Simble's Digital Platforms:** The NanoSensor is expected to add precision gas detection to Simble's existing commercial monitoring platform, with all data flowing into CarbonView for ESG and Net Zero reporting alongside defence and safety applications.

Simble Solutions Ltd (ASX: SIS) (Simble or the Company) is pleased to announce that its proprietary NanoSensor platform has achieved initial gas detection results under laboratory conditions, demonstrating sensitivity at the molecular level.

These are the first detailed capability results reported from the NanoSensor development program announced on 10 June 2026. Simble holds the exclusive global commercialisation licence to the patented NanoSensor Technology through its wholly owned subsidiary Next Nano Pty Ltd, acquired in December 2025.

Initial testing indicates that the NanoSensor can respond to selected volatile organic compounds at low concentrations, supporting its potential relevance across hazardous VOC detection, industrial safety, environmental monitoring, workplace exposure and air-quality applications. Formal benchmarking is now underway to characterise the platform's performance under application-relevant conditions.

Where the Gas Detection Workstream Sits Today

The gas detection workstream is the most advanced of the NanoSensor application areas. Sensor fabrication and initial capability testing are complete, and the workstream has entered the formal benchmark testing stage of the five-stage development pathway announced on 10 June 2026.

Sensor Fabrication	Capability Testing (Gas Detection)	Benchmark Testing	Functional Prototype	Customer Trials
Complete	Complete	In Progress	Planned	Planned

Figure 1. *Status of the gas detection workstream against the five-stage NanoSensor development pathway.*

Benchmark testing will systematically characterise the NanoSensor's performance parameters, including sensitivity, selectivity, response time and stability, under conditions relevant to industrial safety, environmental monitoring, workplace exposure and air-quality sensing.

Where Conventional Gas Sensors Fall Short

Gas detection is one of the most technically demanding requirements in industrial safety and environmental monitoring. The ability to identify hazardous or toxic gases early, before concentrations reach dangerous levels, depends on the sensitivity and speed of the sensor doing the detection.

Conventional gas sensors work by exposing a sensing material to the surrounding environment and measuring changes at the material's surface. This surface-interaction model creates a ceiling on performance, because the sensor can only detect what reaches its surface. Low-concentration gases may be missed, response can be slow, and a physically large sensing area is often required to achieve adequate sensitivity. Scaling up sensitivity typically means scaling up size and power consumption, which limits the use of conventional sensors in wearable, portable and compact IoT hardware.

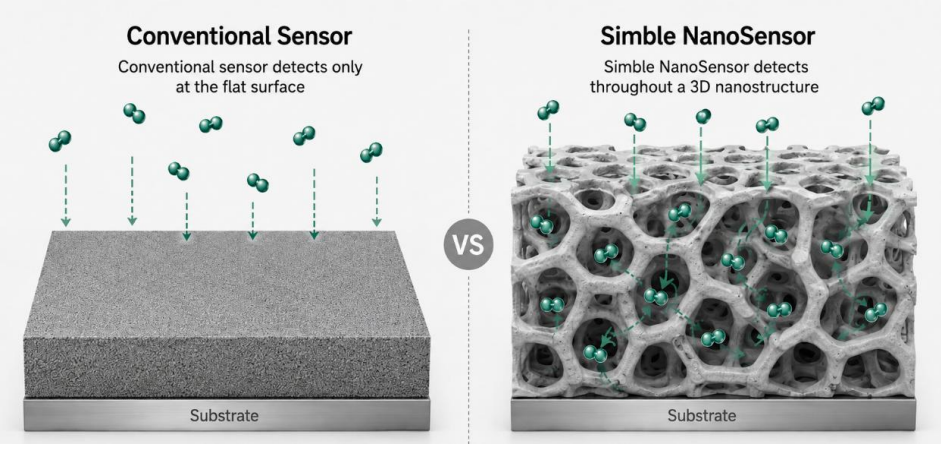

Figure 2. *Conventional sensors detect at a flat surface, while the NanoSensor is designed to provide accessible interaction sites throughout a three-dimensional nanostructure.*

How the NanoSensor Architecture Differs

Simble's NanoSensor is built on a proprietary high-surface-area nanostructured material within a sub-millimetre-scale platform. The architecture is designed to increase the number of accessible interaction sites available to a target gas, with the aim of supporting low-concentration detection at low power rather than relying on a physically larger sensing area.

	Conventional Gas Sensors	Simble NanoSensor (Target Performance)
Sensitivity	Detects only at relatively high concentrations. Low-concentration hazards are missed or fall below the noise floor — exposure may already be occurring before an alert triggers.	Designed to detect at concentrations far lower than conventional sensors, with far more interaction points targeting gases others miss. ***Design goal — not yet confirmed, subject to formal benchmarking.***
Response Speed	Gases must physically diffuse to and interact with the sensor surface before a reading is produced, creating inherent lag that limits real-time alerting.	Architecture designed for faster response kinetics, with more interaction sites intended to register target gases rapidly, supporting real-time monitoring and automated alerting. ***Design goal — to be confirmed through testing.***
Size & Power	Larger sensing surfaces are needed for adequate sensitivity — bulkier devices with higher power draw, incompatible with wearables, drones and compact IoT.	Targeting a sub-millimetre form factor with ultra-low power draw, with sensitivity intended to come from architecture rather than size — aiming to enable hardware categories conventional sensors cannot fit. ***Design goal — pending validation.***
Deployment Flexibility	Fixed installations or large portable units. Hard to embed into wearables, drone payloads or compact IoT nodes without significant performance compromise.	Designed to embed into wristbands, drone payloads, portable field devices and existing IoT hardware — deployment models off-the-shelf sensors can't support. ***Design goal — to be validated in prototype development.***
Manufacturing	Complex, multi-step production requiring high temperatures and significant capital infrastructure.	Designed around a single-step, room-temperature process, intended to be simpler, lower cost and more scalable than conventional nano-fabrication methods. ***Design goal — pending full-scale validation.***

Figure 3. *Design characteristics of the NanoSensor compared with conventional gas sensing approaches.*

The Market Opportunity

Safety, environmental, industrial and health-monitoring applications face a growing need for compact sensing platforms capable of detecting low-concentration gases in real-world environments. Early detection of hazardous VOCs, emissions, ventilation-related gases and workplace exposure markers can support faster alerts, improved compliance and more informed operational decision-making.

The consequences of the current gap can include missed detections, delayed alerts and limited deployment options for compact, power-constrained platforms operating in real-world environments.

Figure 4. *Application areas where compact, low-power gas sensing may create commercial opportunity.*

Across each of these trends, the underlying commercial opportunity is substantial. The CBRNe defence sensing market is forecast to reach approximately **US$31 billion by 2035**[1],the global Industrial IoT market approximately **US$516 billion by 2030**[2], and the wearable medical devices market approximately **US$167 billion by 2035**[3]. What unites these segments is a common ceiling on what conventional sensor hardware can deliver, constrained by the same physical limits of size, sensitivity and power consumption. This is the operational gap the NanoSensor is designed to address. The VOC detection profile being characterised in the current development program maps directly to the threat classes that drive defence and security procurement priorities today.

Application Relevance Across the Detection Profile

Volatile organic compounds are the gaseous signatures that drive workplace safety alerts, environmental compliance reporting and emissions monitoring across Simble's existing customer base in commercial and industrial settings. Each gas in the NanoSensor's initial detection profile carries relevance both to application-level monitoring and to commercial deployment through SimbleSense and CarbonView.

Gas / VOC	Application-Relevant Monitoring Context	Commercial and Platform Relevance
Acetone	Relevant to solvent monitoring, industrial exposure assessment and selected breath-analysis applications.	Potential use in workplace safety, environmental monitoring and future non-invasive diagnostic sensing pathways.
Ethylene	Important in plant physiology, food ripening, spoilage monitoring and controlled-atmosphere storage.	Relevant to agriculture, food supply chains, cold-chain monitoring and environmental sensing applications.

[1] https://www.marketresearchfuture.com/reports/cbrne-defense-market-28998
[2] Industrial Internet Of Things Market | Industry Report, 2030
[3] https://www.marketresearchfuture.com/reports/wearable-medical-device-market-899

Gas / VOC	Application-Relevant Monitoring Context	Commercial and Platform Relevance
Methane	A key gas for emissions monitoring, confined-space safety, agricultural emissions and energy-sector leak detection.	Direct relevance to greenhouse gas monitoring, Net Zero reporting, industrial safety and agricultural sensing.
Hydrogen	Relevant to hydrogen safety, battery and fuel-cell systems, industrial leak detection and emerging clean-energy infrastructure.	Potential application in hydrogen economy safety, energy systems monitoring and compact hazard-detection platforms.
Carbon dioxide	A key indicator for ventilation, air quality, occupancy trends, breath-related monitoring and controlled environments.	Relevant to building management, workplace safety, healthcare-adjacent monitoring and ESG data platforms.
Carbon monoxide	Critical for combustion safety, industrial hazard detection, indoor air quality and environmental exposure monitoring.	Potential use in workplace safety, environmental monitoring, smart buildings and portable safety devices.

Figure 5. *Application relevance of gases in the NanoSensor's initial detection profile.*

The breadth of these applications is what makes the NanoSensor commercially distinctive. The same sensing capability that supports industrial solvent exposure monitoring in a manufacturing facility can support ventilation effectiveness monitoring in a commercial building, or fugitive emissions monitoring for Net Zero reporting. A single development program therefore produces sensing capability that can be applied across Simble's established Commercial and Industrial customer base, served through the existing SimbleSense and CarbonView platforms.

Connecting Gas Sensing with Simble's Digital Platforms

The potential commercial opportunity extends beyond sensor hardware. Subject to successful benchmarking and device development, data generated by NanoSensor gas sensing could be integrated with SimbleSense and CarbonView to support connected monitoring, alerts, visualisation and emissions reporting through Simble's existing digital infrastructure.

This hardware-to-software pathway could enable Simble to combine proprietary sensing technology with its established data management capabilities. Rather than operating as an isolated sensing component, the NanoSensor could form part of a broader ecosystem for collecting, interpreting and reporting application-relevant information.

Simble's engineering teams are continuing platform-readiness activities in parallel, with a focus on positioning SimbleSense and CarbonView to ingest and visualise NanoSensor data ahead of the functional prototype stage.

Simble's Chief Executive Officer, Fadi Geha, said:

"Achieving initial gas detection results is an important step for the NanoSensor development program. Laboratory testing indicates the sensor can respond to selected volatile organic compounds at low concentrations, which supports the design principles behind the platform and gives us a baseline to benchmark against."

"The relevance of this capability is broad. Industrial safety, environmental monitoring, workplace exposure and air quality are all areas where compact, low-power gas sensing could add value, and they align closely with the customers Simble already serves through SimbleSense and CarbonView."

"Formal benchmark testing is now underway to characterise sensitivity, selectivity, response time and stability under application-relevant conditions. We will report those results to the market as the program advances."

This announcement has been authorised for release by the Board of Simble Solutions Ltd.

ENDS

ABOUT SIMBLE

Simble Solutions Limited (ASX: SIS) is a global Energy and Sustainability provider with integrated solutions across energy efficiency, sustainability and renewable energy development, supporting the global transition to Net Zero.

Following the December 2025 acquisition of exclusive rights to the patented **NanoSensor Technology**, Simble is advancing a structured evaluation program to investigate the platform's commercial potential across multiple application areas.

SimbleSense is an integrated hardware and real-time software solution that enables businesses to visualise and control their energy systems and reduce energy costs.

CarbonView is an enterprise-grade Carbon and Sustainability Reporting platform that allows companies to measure and reduce their carbon emissions and meet their reporting obligations.

Simble operates across the Commercial & Industrial and SME segments, distributing directly via B2B sales and through multiple channel partners, with offices in Australia, the United Kingdom and Vietnam.

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