

Making a Material Difference

SAATI introduces itself to *Essential Install* readers, revealing its role as one of the world's leading creators of precision-woven synthetic monofilament fabrics for controlling acoustics.



Our Acoustex range of acoustic meshes is used by leading brands in smartphones, earbuds, headphones, smart speakers and loudspeakers. We see ourselves less as a fabric supplier and more as an engineering partner: our Innovation Hub engineers work with customers' R&D teams from the earliest design stages to tune materials to their acoustic and protective targets.

Innovation is central to our strategy. It has enabled us to develop SAATIvent, a platform of sustainable acoustic venting membranes based on thermoplastic elastomers rather than ePTFE, which now sits alongside Acoustex in our non-PFAS offer.

Our materials perform two functions: shaping sound and protecting the transducer. Precisely engineered meshes allow sound to pass with minimal loss or add defined acoustic resistance to damp resonances and tune frequency response, while keeping out dust, water, oil and debris.

For loudspeaker manufacturers and installers, applications include driver and port protection – dust caps, back-volume vents and bass-port covers that block particles without colouring sound. We also produce resistive meshes for acoustic damping and tuning in tweeters, compression drivers and enclosures to smooth peaks and control airflow.

Other applications include water-repellent meshes for landscape, marine and soffit speakers and dust protection for in-ceiling models in commercial spaces. Conference systems, smart speakers and intercoms also require wind and moisture protection without compromising speech intelligibility. We supply acoustically transparent fabrics behind or replacing metal grilles, combining aesthetics with acoustic performance.

In architectural acoustics, the same expertise applies to transparent facings for wall and ceiling panels and integrated speakers, where materials must disappear visually and acoustically.

Achieving The Right Performance

The starting point is acoustic behaviour, particularly acoustic resistance, measured in Rayls. Depending on the design, engineers require either maximum transparency, with minimal insertion loss, or precise, repeatable resistance within the acoustic circuit. We support material selection through product knowledge and our Ares acoustic simulation tools.

Consistency is equally important. Our fabrics are woven from monofilament with controlled geometry, ensuring uniform behaviour across every square centimetre, roll after roll. For manufacturers producing thousands of units, this means tight frequency-response tolerances and fewer end-of-line rejects.

Protection requirements include water entry pressure for IP-rated products, oil and sebum repellence and dust filtration efficiency. Practical considerations include UV and temperature resistance for outdoor installations, dimensional stability and adhesive-laminated, die-cut components ready for automated assembly.

Our role is balancing these sometimes-conflicting requirements. Greater protection generally increases acoustic resistance, so we must identify the construction and treatment that deliver both, ensuring products perform as designed over many years.

Making a Material Difference

Our new awareness campaign, 'Making a Material Difference', reflects changing customer priorities. Alongside questions about Rayl values, customers increasingly ask about chemical composition, compliance documentation and sustainability targets.

A mesh may be a small component, but it can determine whether a finished product meets regulations, retailers' restricted-substance lists or environmental commitments. Selecting suitable materials early avoids subsequent redesigns.

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The campaign encompasses our non-PFAS range, energy and waste reduction and sourcing lower-impact raw materials. It reflects sustainability becoming a design requirement alongside acoustic performance and cost.

PFAS – per- and polyfluoroalkyl substances – are synthetic chemicals characterised by carbon-fluorine bonds, among the strongest in chemistry. These give fluorinated treatments exceptionally low surface energy, making them effective at repelling water, oil and dirt. For acoustic meshes, fluorinated finishes provide strong water and oil repellence without closing mesh openings, delivering protection without acoustic penalties.

However, this chemical stability creates problems. PFAS degrade extremely slowly, earning the description 'forever chemicals'. Some have been linked to health concerns and PFAS have been detected in water, soil and living organisms.

Regulation is tightening. The European Chemicals Agency (ECHA) is evaluating a PFAS Restriction Proposal under REACH, while countries including France have introduced national textile bans. Several US states have adopted restrictions and reporting obligations. Global electronics brands increasingly have internal PFAS phase-out targets ahead of legislation.

Innovation has been our response. We did not approach non-PFAS development as a simple chemical substitution: replacing fluorinated finishes with fluorine-free alternatives typically reduces performance. Instead, our textile and chemistry teams developed complete systems encompassing polymers, thread selection, weave or membrane structure, surface treatments and manufacturing processes. This work has produced two non-PFAS ranges.

Acoustex non-PFAS acoustic meshes are designed as drop-in replacements for conventional meshes, maintaining acoustic targets, colours, roll widths and laminated, die-cut formats, avoiding changes to tuning or assembly.

SAATIvent is a new green-ground platform of acoustic venting membranes. Unlike conventional ePTFE membranes, which contain a fluoropolymer covered by the broad PFAS definition, SAATIvent uses thermoplastic elastomers (TPE) that are non-PFAS, recyclable and have a low carbon footprint.

It delivers the water repellency required by demanding Tier 1 consumer electronics specifications, passes IP68 testing at six metres' immersion for 30 minutes and withstands testing with popular detergents, without compromising acoustic transparency.

The distinction between these ranges matters. Woven Acoustex meshes are not designed for immersion testing because of their construction, not their chemistry. Immersion-level sealing requires a membrane, which is why we developed SAATIvent.

Oil repellency also requires clarity: non-PFAS treatments cannot match the absolute performance of fluorinated alternatives. Nevertheless, our non-PFAS materials pass the most severe consumer electronics tests required by demanding customers. We work with each customer to select constructions appropriate to their products' actual exposure conditions.

Non-PFAS compliance is independently verifiable through qualified laboratories using test methods supporting the EU POPs Regulation. We continually update testing as ECHA restrictions progress.

The Practical Advantages for Manufacturers

The first advantage is market access and peace of mind. Installed audio products often remain in catalogues for years and sell across multiple regions. Adopting non-PFAS materials reduces the risk of future redesign or requalification when regulations change, or when specifiers and distributors require non-PFAS declarations supported by qualified laboratory testing under the EU POPs Regulation.

Manufacturing disruption should be minimal. Matching existing acoustic values and formats allows engineers to substitute meshes without retuning enclosures or modifying assembly lines.

For products currently using ePTFE vents, SAATIvent provides a non-PFAS route to IP68 sealing without sacrificing acoustic transparency. We support transitions with samples, acoustic measurements and qualification testing.

Durability remains essential. New treatments are designed for conditions installed products face, including humidity, UV exposure, temperature cycles and cleaning. With no universal ageing standard, we validate materials against each customer's specified ageing protocols.

Environmental credentials provide another benefit. Consultants and end clients increasingly scrutinise materials within building and AV specifications. Verified non-PFAS components give manufacturers concrete, substantiated information for product documentation and environmental declarations rather than generic sustainability claims.

What Does the Future Hold?

We see three trends converging. First, performance expectations continue rising. Products are smaller, more integrated and increasingly exposed to environmental conditions. Outdoor speakers, architectural speakers concealed in walls and ceilings and voice-controlled devices all require better protection with less acoustic compromise.

Second, compliance will become broader and more data-driven. Beyond PFAS, manufacturers will require greater material transparency, supply-chain traceability and documentation, including information needed for future digital product passports.

Third, circularity. Manufacturers will increasingly assess how components affect recyclability and overall product footprint, from recycled or bio-based polymers to designs that simplify disassembly.

Our role is to become an early partner in that journey, helping manufacturers balance acoustic performance, protection, compliance and sustainability as these requirements evolve.

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