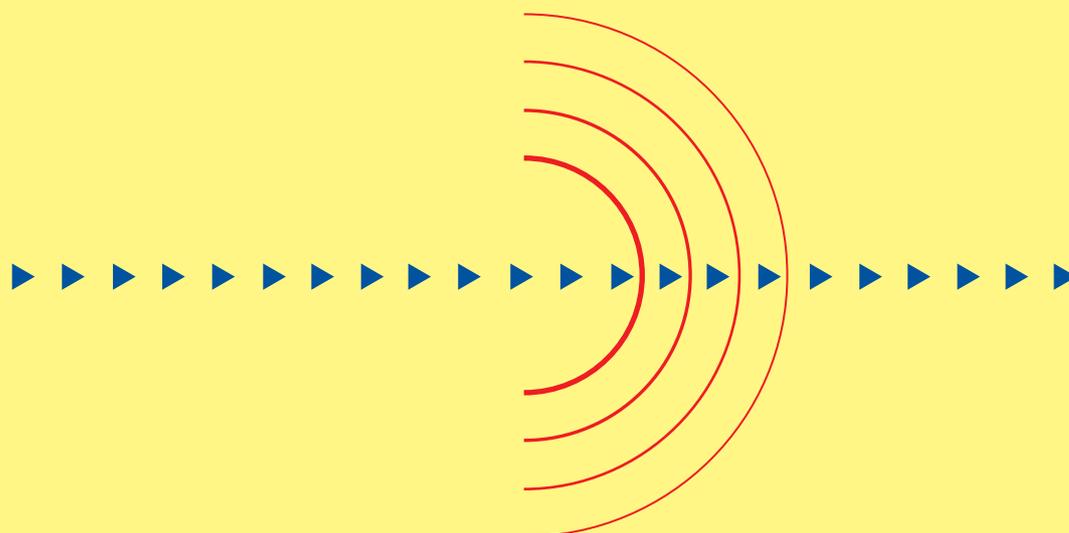


SaatiAcoustex

PRECISION FABRICS
FOR ACOUSTICAL APPLICATIONS



Perfecting the art of precision screening fabrics



A huge variety of colours are available in Saatifil Acoustex™ range

SaatiTech is a member of the worldwide Saati Group of companies, with a long history of manufacturing and distributing precision woven fabrics. Over the past six decades, SaatiTech has perfected the technology of manufacturing fabrics to a high degree of precision. These include a broad range of fabrics for acoustic, medical, diagnostic, filtration, automotive, chemical, electronic, appliance, sifting and milling applications and wherever there is a demand for filtration media, with an extensive selection of fabric types and mesh openings. Every phase of production is carefully monitored, employing frequent in-house testing and rigorous inspection to ensure consistent quality. Our products are manufactured in accordance with ISO 9001 regulations assuring the best possible quality.

Unsurpassed customer support

With business offices and warehouses throughout the world, SaatiTech provides strong local support, expert response to customer inquiries and quick delivery to all locations.

SaatiTech sales representatives and engineers are committed to the SaatiTech' tradition of continuous innovation. They understand their customers' applications and offer the most appropriate product in a form that best meets their customers' needs.



Acoustic screens and shielding

Among the most demanding fabric applications are mobile phones, pocket PCs, two-way radios, headsets, car and home HI-FIs, home videos, professional microphones and loudspeakers.

The predictable sound transmission and damping, regular mesh construction, high mechanical strength and workability make Saatifil Acoustex™ fabrics the ideal solution for demanding acoustic applications.

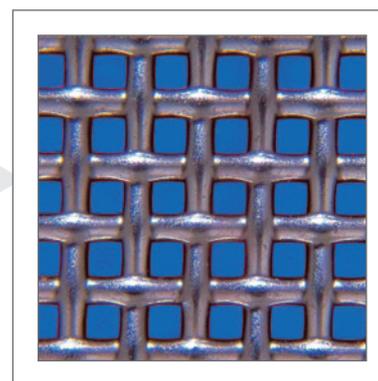
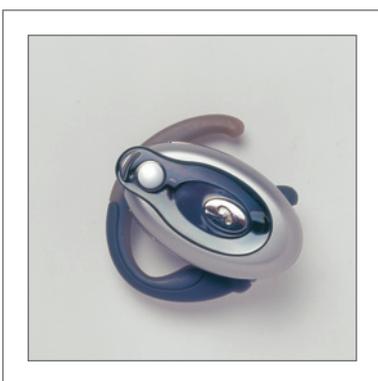
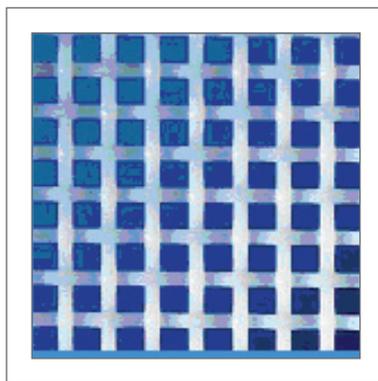
Fabric selection

Saatifil Acoustex™ fabrics can be supplied with Hyphobe™ water repellent treatment and with special Metalester™ metallic coating and are available in many different colours.

Customized to meet specific customer needs

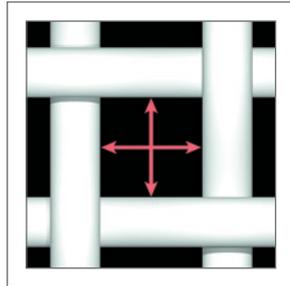
Saatifil Acoustex™ fabrics are produced in a variety of fiber sizes for a given opening size and can be supplied as slit ribbon or cut to any shape or size.

Saatifil Acoustex™ fabrics are the ideal choice for home and professional appliances



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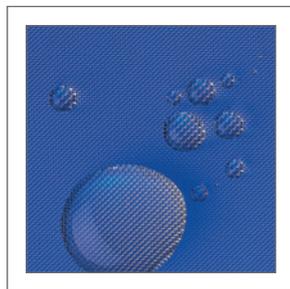
Precise pore size



Saatifil Acoustex™

Saatifil Acoustex™ fabrics are designed for acoustical applications requiring uniform performance. These fabrics are woven to close tolerances thereby creating consistent acoustical impedance*. Uniformity is maintained throughout the roll and from lot to lot. The polyester monofilament fiber used to produce the Saatifil Acoustex™ fabrics is stable in humid conditions.

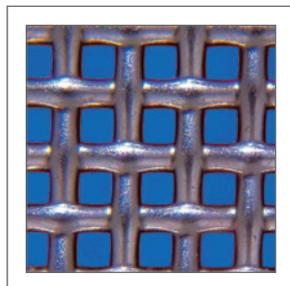
Water repellence



Saatifil Hyphobe Acoustex™

Saatifil Acoustex™ fabrics are available with Hyphobe™ special finishing, which enables the fabric to repel water. The effectiveness in repelling moisture is determined by measuring the contact angle of a drop of liquid on the fabric surface or the water intrusion pressure. An effective hydrophobic treatment will increase both these values (see graphics and tables on next page).

Metal coating



Saatifil MET Acoustex™

Another interesting option is the exclusive metal-coated polyester fabric. Main features of this high-tech product are high electrical conductivity (typical surface resistivity $\sim 0,1 \text{ Ohms}/\square$) and good electromagnetic shielding (E-field shielding at 1 GHz $>60 \text{ dB}$).

Variety of colours and shapes

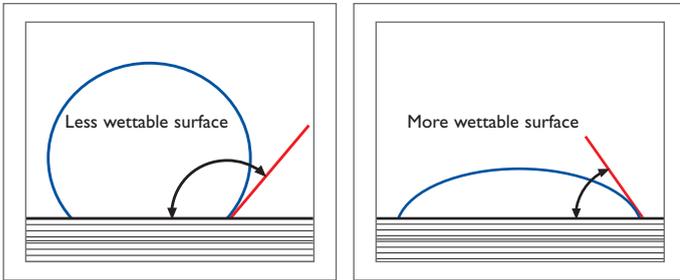


Colour Dyeing

SaatiTech is able to offer the Acoustex™ range in any Pantone or customised colour. Upon the customer request, SaatiTech can supply specific samples and special batch orders for the homologation satisfying all customer' aesthetic needs. The choice of the colour does not influence the performance of the fabric, and the colour is also suitable for the Hyphobe™ treatment.

*Typical dispersion of woven Saatifil Acoustex™ screens $<6\%$
Typical dispersion of nonwoven materials 10-30%

Graph. 1 - 2 Contact Angle Measurements (examples)

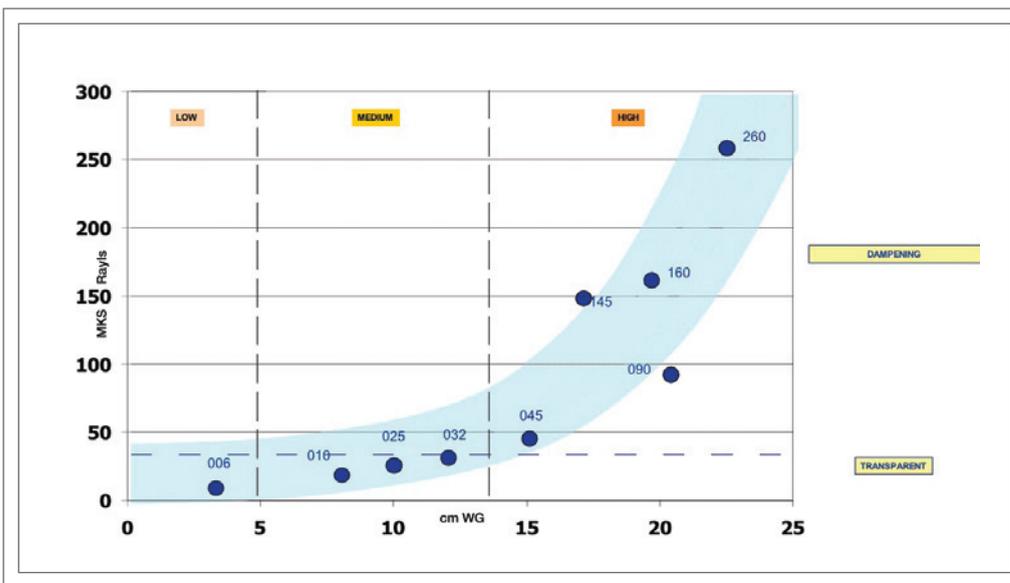


A measure of the material wettability can be defined by the contact angle between an identified liquid droplet and the mesh surface.

Tab. 1 The Water Repellent Treatment (examples)

	Polyester	
	Standard	Hyphobe
Acoustex™ B006	68°	149°
Acoustex™ B010	67°	145°
Acoustex™ B045	54°	134°
Acoustex™ B090	49°	147°
Acoustex™ B145	50°	142°

Graph. 3 Water Intrusion Measurements



A more intuitive measure can be defined as the maximum amount of water column that a certain mesh can resist without droplet intrusion.

Tab. 2 Water Permeability

Acoustex range	Water permeability [cmWG]*	
006	2,5	Low water intrusion pressure
010	8,0	
025	10,0	
032	12,0	Medium water intrusion pressure
045	15,0	
090	20,0	High water intrusion pressure
145	16,0	
160	19,0	
260	21,0	

TEST CONDITIONS

- Test area: 28cm²
- Pressure rate: 3 mbar/min
- Test output: pressure value at first droplet intrusion

* multiply by 1,02 to obtain the value in mbar

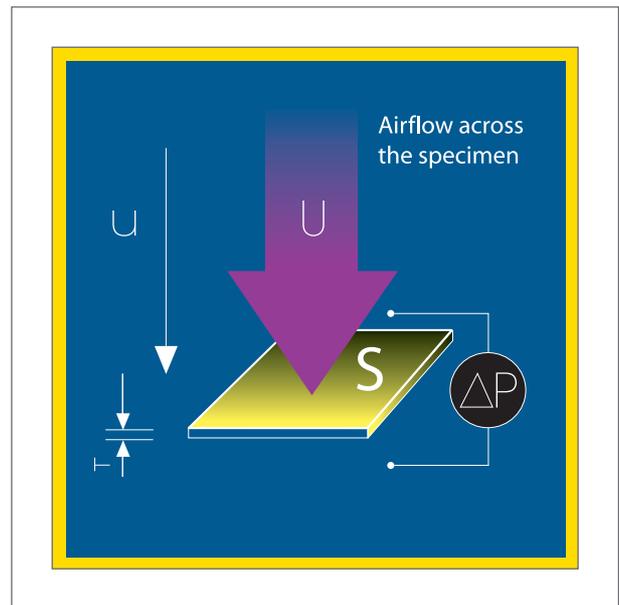
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Definition and determination of Acoustic Impedance

The diagram shows airflow passing through a screen fabric. The symbols denote:

- S [m²]** = the test **area**
- T [m]** = the **thickness** of the fabric in meters
- ΔP [Pa]** = the **pressure difference** across the fabric
- U [m³/s]** = **flow rate or volume velocity**: the rate at which a volume of air flows through the fabric in a specific unit of time
- U [m/s]** = **linear velocity of the airflow**: the flow rate or volume velocity

Pressure conversion factors:			
1 bar =	100000 Pa	1 cm WG =	98,06 Pa
1 psi =	6894 Pa	1 WG =	249,1 Pa



In order to describe the airflow properties of the material, the following parameters are defined:

R
[Pa s/m³] or
[MKS acoustic ohms]

AIRFLOW RESISTANCE

This is the result of the **pressure drop** across the specimen divided by the **flow rate**.

$$R = \Delta P / U$$

The **Acoustic Ohm** unit can be defined as [Pa s/m³] in the **MKS standard** or as [microbar s/cm³ = (dyn/cm²) s/cm³] in the **CGS system**.

A factor in airflow resistance is the size of the surface area. An increase in surface area will have a corresponding increase in airflow and a decrease in airflow resistance. Airflow resistance is a useful measurement only when the size of the surface area is known and therefore not appropriate to compare materials.

r
[Pa s/m] or
[MKS rayls]

SPECIFIC AIRFLOW RESISTANCE (“ACOUSTIC IMPEDANCE”)

This is the result of the **pressure difference** across the specimen divided by the linear velocity of the airflow.

$$r = \Delta P / u$$

It also corresponds to the value of the above **airflow resistance** multiplied by the **area** of the specimen. In fact: $r = \Delta P / u = \Delta P / (U/S) = \Delta P * S / U = R * S$
The MKS unit [Pa s/m] is also called **MKS rayl**, while in the CGS system it corresponds to the **CGS Acoustic Ohms referred to 1 cm²**.

Specific airflow resistance is a useful measurement to compare materials as it is not dependant on the size of the surface area but is a measurement of the material itself. Variations in the thickness and pore size will vary the MKS rayl value. The consistency of the MKS rayl values of Saatifil Acoustex™ materials is a result of its precise pore size and the uniformity of the fiber.

r_o
[Pa s/m²] or
[MKS rayls/m]

AIRFLOW RESISTIVITY

This can be obtained from the **specific airflow resistance** divided by the **thickness** of the specimen.

$$r_o = r / T$$

The unit [Pa s/m²] corresponds to MKS rayl/m.

Materials such as foam are available in various thicknesses. Airflow resistivity is a useful measurement for choosing which thickness to use. Each Saatifil Acoustex™ product has its own specific thickness. Therefore, this quantity cannot be defined.

Saatifil Acoustex™ & Saatifil Hyphobe Acoustex™

	Specific Airflow Resistance		Pore size [µm]	Thickness [µm]	Weight [g/m ²]	Tensile Strength warp/weft [N/5 cm]
	[MKS rayls] ⁽¹⁾	[CGS Acoustic Ohms ⁽²⁾ over 1 cm ²]				
Saatifil Acoustex 006	6	0,6	105	65	25	235
Saatifil Acoustex 010	10	1,0	120	105	50	500
Saatifil Acoustex 025	25	2,5	55	50	25	245
Saatifil Acoustex 032	32	3,2	38	48	25	235
Saatifil Acoustex 045	45	4,5	50	110	70	655
Saatifil Acoustex 090	90	9,0	40	125	85	790
Saatifil Acoustex 145	145	14,5	25	70	55	475
Saatifil Acoustex 160	160	16,0	20	60	45	385
Saatifil Acoustex 260	260	26,0	20	60	50	300

NOTES	PRODUCT CODE DESCRIPTION					
	(1) = [Pa s/m] (2) = [microbar s/cm ³]	Saatifil	Hyphobe	Acoustex	B	010
	special water repellent treatment (if requested)		color code (if standard colour)	acoustic impedance in MKS Rayls		special colour name
	any colour can be specially ordered indicative data only					

Saatifil MET Acoustex™

	Specific Airflow Resistance		Pore size [µm]	Thickness [µm]	Weight [g/m ²]	Tensile Strength warp/weft [N/5 cm]
	[MKS rayls] ⁽¹⁾	[CGS Acoustic Ohms ⁽²⁾ over 1 cm ²]				
Saatifil MET Acoustex AI 003	3	0,3	285	255	110	700
Saatifil MET Acoustex AI 006	6	0,6	105	63	25	235
Saatifil MET Acoustex AI 010	10	1,0	120	105	51	500
Saatifil MET Acoustex Ni 004	4	0,4	400	465	280	1550
Saatifil MET Acoustex Ni 005	5	0,5	220	230	125	550
Saatifil MET Acoustex Ni 010	10	1,0	110	114	75	397
Saatifil MET Acoustex Ni 030	30	3,0	45	60	55	220
Saatifil MET Acoustex Ni 050	50	5,0	55	90	85	340
Saatifil MET Acoustex Ni 200	200	20	23	73	86	400

NOTES	PRODUCT CODE DESCRIPTION					
	(1) = [Pa s/m] (2) = [microbar s/cm ³]	Saatifil	MET	Acoustex	Ni	010
	special metallic coating		metal=nickel / aluminium	acoustic impedance in MKS Rayls		
	indicative data only					

How To Choose The Right Acoustex Product

