



A few minutes about | Membranes

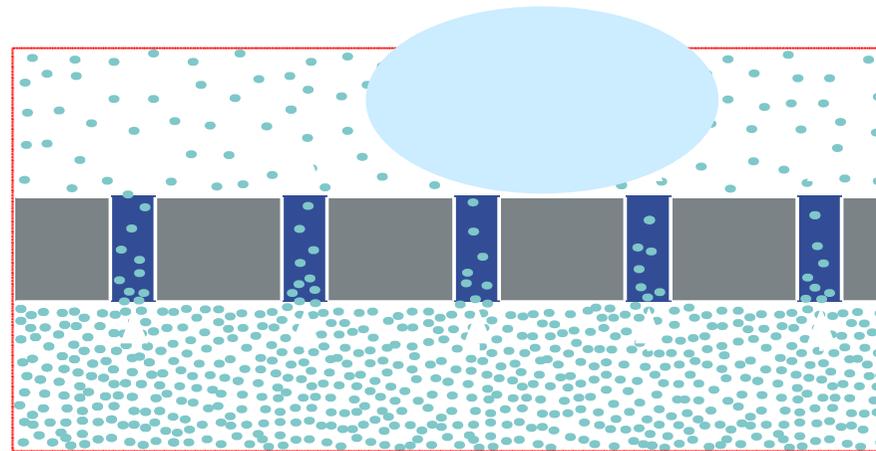
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A "functional" membrane is both water-proof and able to breathe at the same time. In most cases, the "functional" membrane is a fine, porous net. A drop of water cannot force its way through the net and this makes the surface water-proof. Water molecules, on the other hand are much smaller and so can.

The ability to breathe is granted, because moisture strives toward a drier and colder climate. The bigger the difference, the more effective the breathing is.



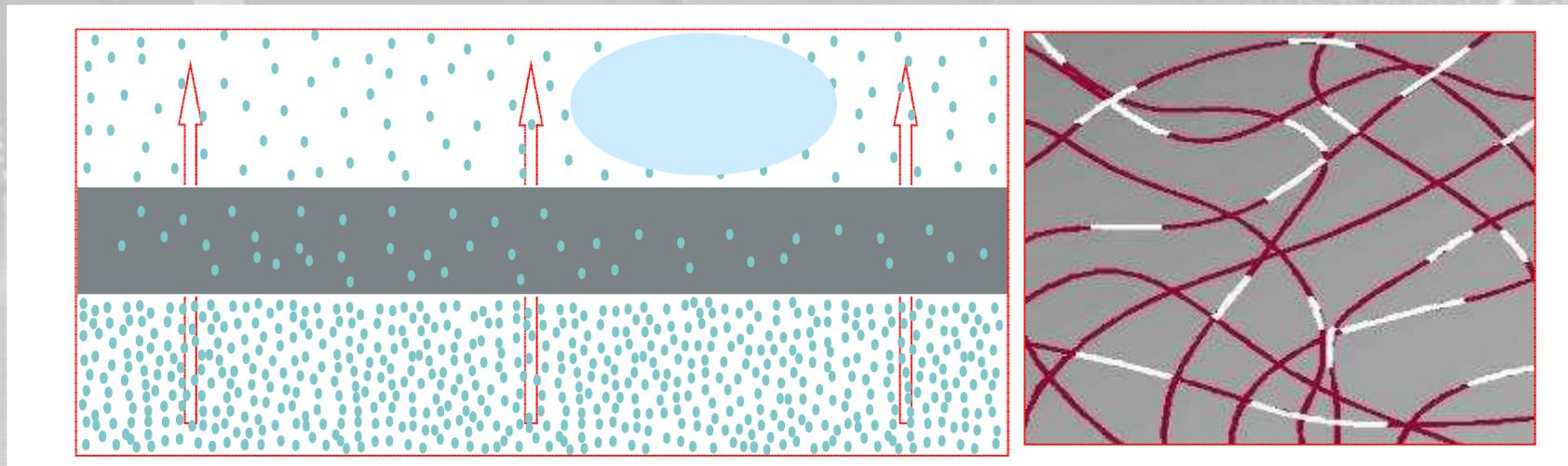
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This is one reason why we use ventilation slits even in garments with membranes – to create a better climate for more efficient breathing and more comfort.

Not all membranes are porous. Some work only at a molecular level, where the holes open between the molecules of the material. When heated, the material expands which is why the material breathes better, the warmer it gets.



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How waterproof a material is, is mostly measured in metres/water pillar. The figure shows the pressure the material can withstand, before water seeps through. The limit for a material to be classified as water-proof is 1.5 metre.

Wind-driven rain has a pressure of 1.5m. Kneeling on a wet surface is compared to a pressure corresponding to 18 metres.

A motorcyclist travelling at 100kph in rain is exposed to a pressure compared to 10 metres.

Our membranes have a value of >10m.

As most membranes are protected by an outer material, the direct pressure on the membrane itself is not very high.

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Breathing ability can be measured in various ways, but the most common is Hohenstein's so-called skin model, with RET as a unit.

A lower figure means better breathing, as the method measures the steam resistance.

For the unit gr/m<sup>2</sup>/24h a higher figure indicates better breathing, because the volume of steam passing per square metre in 24 hours is measured.

To qualify as "breathable" the value shall not exceed 20 RET.  
"very breathable" 7-13 RET  
and "extremely breathable" <6 RET.

The membranes used in our garments have 6 – 10 RET.

Gloves using DRYWAY+ <3 RET.

Membranes supply half of the breathing capacity in a garment. The rest is handled by ventilation slits.

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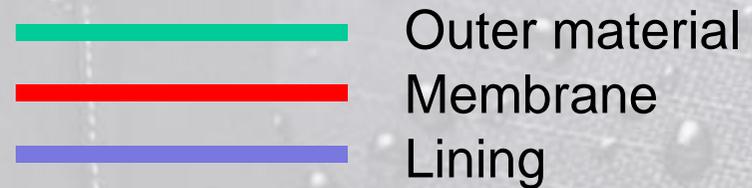
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There is a difference between coated (laminated) membranes and Z-Liners (hanging) membranes.

Coated membranes have less breathing qualities than Z-Liners.

2-layers and 3-layers are technologies, where the membrane is laminated to the liner or the outer material.



Loose membranes



2-layer membrane



3-layer membrane

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To take full advantage of the breathable functions, moisture-transferring materials must be worn closest to the body, like wool, polyester, polypropylen or silk.

Cotton should be avoided, as it tends to get wet quickly. Moisture will transfer heat 23 times quicker than air and therefore it is important not to allow moisture to stay on the skin.

It is important to remember that we sometimes put natural laws (like the breathing function) aside.

When the climate is warmer on the outside, the membranes functionality will be reduced. This effect can be seen by the use of heated grips and seats which can cause a membrane to leak.

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Thank you for taking the time to read about Jofama's  
products and our view on membranes!

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