

Why Páramo® has chosen Nikwax Directional Fabric Technology

What does directionality® mean?

Directionality in fabric means “the ability of the fabric or the fabric system to move liquid water to where you want it”. Liquid water? Isn’t all water liquid? Well, actually, no! Water dissolves in air in relatively small quantities to form moisture vapour. Most people who own an Outdoor jacket these days know about Moisture Vapour Transmission fabrics, or, in other words, breathable membranes. The theory goes that these fabrics can transmit the evaporated sweat from our bodies.

So, water exists in three forms: LIQUID, which we drink and which we feel as condensation inside our garments, VAPOUR, which we cannot see, but which surrounds all of us, and ICE – frozen water, which we find building up on the inside of breathable membranes in extremely cold conditions.

Why would you want to move liquid water within a fabric, instead of moisture vapour? The answer is quite simple; it is much more efficient to move liquid water. Why? Because liquid water occupies so much less space than water vapour – in fact even fully water saturated air at 20 degrees centigrade contains less than 1/70,000 of the amount of water than the same volume of liquid water. Therefore, if you want to move water, moving it as a liquid has to be more efficient than moving it as moisture vapour.

What benefits does directionality® bring?

Directionality is all about comfort. We all know that we sweat, and we sweat to cool down. Evaporation of sweat, or the transition of liquid water to moisture vapour, absorbs a very large amount of energy and keeps us cool.

So, sweating is good, until we sweat too much, and end up wet. Being wet is problematic because it feels uncomfortable, but even more problematic because it stops our clothing from being able to insulate us. Why? The classic problem in the mountains is to first be too hot, and sweat, and soon after be much too cold. The reason is quite simple, liquid water, that is, sweat or condensation, transmits heat 20 times more effectively than still air. So if we replace the air in our clothing with sweat, condensation or rainwater, we lose 95 per cent of our insulation.

Therefore the challenge in the outdoors, in potentially cool conditions, is to maintain plenty of still, dry air around our bodies, and to avoid it being replaced with water.

One answer to the water problem is to try to use body heat to evaporate any excess water in our clothing systems. But that quickly cools us down too much. A far better answer is for the clothing to move the water to where we need it, which in cooler conditions, is always away from us, and therefore to protect our insulation.

DIRECTIONAL fabrics are designed to move liquid water to where we need it to be.

Nikwax has created directional fabric systems which are highly efficient at moving liquid water. Páramo has ingeniously made use of these systems to produce high performance outdoor clothing.

Páramo directional clothing systems are better at keeping you cool when you need to be, and better at keeping you warm in cool conditions. It is that simple. **Fabric breathability on its own is not enough** – directionality is essential to avoid a build up of water in your clothing when you are working hard. Too much moisture in your clothing will lead to sudden and rapid cooling when you stop and rest.

Water-repellent directionality – hydrophobic fabric

All fabrics branded Nikwax are water-repellent. They are designed to push water away from the wearer. These fabrics are used in out layer or mid layer garments.

Water absorbent directionality – hydrophilic fabric

All fabrics branded Parameta are water absorbent. They are designed to move water by a process called capillarity or wicking. Parameta fabrics are rapid drying and move water laterally within the fabric for optimum drying efficiency, or from one face to the other, for optimum cooling. Parameta fabrics are worn next to the skin.