

Spring 2022 | PFC-Free - Granite Crest

patagonia[®]

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PFC-Free - Granite Crest



M's Granite Crest Jacket  | **85415**

The 3-layer Granite Crest Jacket is ideal for all day movement on the trail in wet conditions, Fully featured for weeks in the rainforest or early mornings traversing cloud enveloped ridges. It's designed to be both high performance and responsibly made—with a PFC-free water-repellent coating, NetPlus® 100% postconsumer recycled nylon ripstop made from recycled fishing nets to help reduce ocean plastic pollution, and it's Fair Trade Certified™ sewn. It also meets our H₂No® Performance Standard for waterproof/breathable protection.



W's Granite Crest Jacket  | **85420**

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M's Granite Crest Pants  | **85430**

The 3-layer Granite Crest Pants are ideal for all-day movement on the trail in wet conditions. They're designed to be both high performance and responsibly made with NetPlus® 100% postconsumer recycled nylon ripstop made from recycled fishing nets to help reduce ocean plastic pollution; with a PFC-free DWR finish (durable water repellent coating that does not contain perfluorinated chemicals). And, they meet our H₂No® Performance Standard for waterproof/breathable protection and are Fair Trade Certified™ sewn.



W's Granite Crest Pants  | **85435**

The 3-layer Granite Crest Pants are ideal for all-day movement on the trail in wet conditions. They're designed to be both high performance and responsibly made with NetPlus® 100% postconsumer recycled nylon ripstop made from recycled fishing nets to help reduce ocean plastic pollution; with a PFC-free DWR finish (durable water repellent coating that does not contain perfluorinated chemicals). And, they meet our H₂No® Performance Standard for waterproof/breathable protection and are Fair Trade Certified™ sewn.

S22 Granite Crest Jacket and Pants: High Performance Rainwear with no PFCs



The Granite Crest Jacket and Pants are a fully PFC-free waterproof/ breathable rainwear kit. Built for long, wet days on the trail, these shells offer ultimate trail performance with full storm protection without the use of PFCs (per- or polyfluorocarbons) in the DWR (durable water repellent) finish or membrane.

- *PFCs are harmful chemicals present in the chemical DWR finishes and in some membranes used in most technical waterproof jackets.*
- *Using PFCs in DWRs and waterproof/breathable membranes is popular because they are very effective at repelling water. PFC-free versions are trickier to work with and must be custom-built and tested to ensure optimum performance.*
- *The Granite Crest Jacket and Pants are Patagonia's first PFC-free rainwear products and their performance is second to none, far surpassing our leading competitors' products in waterproof performance and breathability. This is a new paradigm in PFC-free rainwear.*

The problem with PFCs

The outdoor industry has long used durable water repellent (DWR) finishes to help keep clothing dry, and Patagonia is no exception. These chemical finishes have historically been made using PFCs, which contain the element fluorine. Water pollution from the chemical manufacturing of PFC-based DWR finishes has been shown to be harmful to human health. Prior to F21, all our fully waterproof shells still used PFC-based DWR finishes. This is because there's not much point in a waterproof jacket that can't keep you dry, and this feature is particularly critical when you are in the mountains and a soaked baselayer can mean the difference between comfort and hypothermia.

The challenge with going PFC-free in waterproof shells

Getting away from PFC-based chemistries is tricky because they work so well. In addition, fluorinated chemistries are used not only in surface DWR treatments, but also are commonly found in the membrane layer of waterproof shells for added water resistance. Although effective PFC-free DWRs do exist, unfortunately, they are not "one size fits all" like fluorinated ones—they need to be specifically engineered to work with each fabric they are paired with and extensive development and testing are required to find the right configuration.

The PFC-Free Granite Crest Story

Our approach to PFC-free shells

We've spent more than five years extensively vetting and testing every single membrane and DWR pairing our materials engineers and supplier partners could build. What we've found is that the best performance comes from specific material pairings: ensuring that the membrane, face fabric and DWR treatment all work in tandem to complement one another for the best performance. This knowledge has helped us specifically engineer each material package explicitly for its end use, ensuring that every new, fully PFC-free material perform as well as the best fabrics in the industry.

How the Granite Crest shells are different

For the Granite Crest Jacket and Pants, our team used a lightweight, 3-oz 30-denier NetPlus® 100% postconsumer recycled nylon ripstop made from recycled fishing nets to help reduce ocean plastic pollution. We bonded the face with a thin, monolithic polyurethane waterproof/breathable membrane. This material package is paired with a 15-denier slick knit circular backer made from recycled nylon that manages moisture and glides smoothly over layers. The result: the Granite Crest is a lightweight, packable shell that meets our H₂No® Standard with an impressive 20,000mm waterproofness.

Beyond providing a PFC-free product that meets our strict standards for waterproof shells, we also addressed the fact that staying dry and comfortable while moving are often at odds. To solve this issue, our design teams worked on fit, pattern and hood constructions that balance rain protection and mobility.

The years of research, trials, design and testing spent on our technical shells ensure that the Granite Crest meets the demanding standards of our customers, as well as our own uncompromising performance and quality standards.

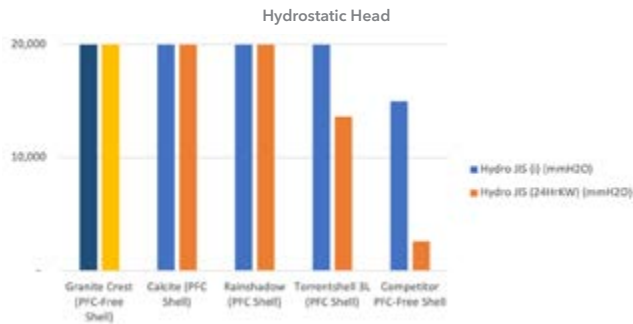
Waterproofness in the PFC-free Granite Crest Jacket and Pants

In our lab, waterproofness is tested by forcing water through the face of a fabric using a high-pressure hydrostatic head tester. This test not only measures the membrane's ability to remain a waterproof barrier under high water pressure, but also tests the material's overall construction strength, ensuring that face fabrics won't delaminate or fall apart under pressure. In order to pass our H₂No® Standard, all waterproof products must reach 20,000mm of pressure



Photo: Jeff Johnson

when initially tested (Hydro JIS [i]), and then reach 10,000mm of pressure after passing through our Killer Wash and our wet flex and abrasion test that simulates years of use in drenching conditions (Hydro JIS [24HrKW]). This 20,000/10,000 standard assures Patagonia's products stay waterproof for the lifetime of the item.

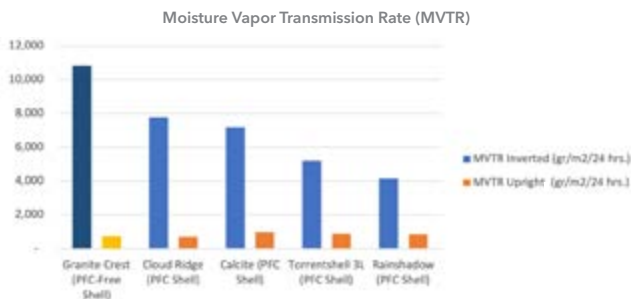


Tested in our lab, the Granite Crest Jacket and Pants performs just as impressively as our highest-performing technical shell materials and exceeds our H₂No[®] Standard by reaching 20,000mm of pressure both before and after the Killer Wash.

We've tested leading competitors' PFC-free shells, and the difference in performance is striking. Not only do they fail to reach our initial 20,000mm standard, but they also barely retain any waterproofness after the Killer Wash. The Granite Crest represents a new paradigm of rainwear, delivering complete waterproof protection without the use of fluorine.

Breathability in the PFC-free Granite Crest Jacket and Pants

To keep its wearer comfortable for hours while moving, a waterproof shell needs to be breathable—allowing sweat, heat and vapor to escape. We test a material's breathability by measuring the Moisture Vapor Transmission Rate (MVTR). The MVTR measures how much water vapor can move through a material during a 24-hour period and is tested both when the material is dry ("upright") and wet ("inverted").



The Granite Crest material has impressively high moisture-vapor transfer rates and allows more water vapor to move through the fabric than any of our other Rainwear products, especially when wet. This breathability was not only documented in the lab, but also validated in the field where the Granite Crest kept our testers dry and comfortable, even during extreme effort.

Maintaining performance: rinse and repeat

The number-one factor that reduces performance of any waterproof/breathable fabric is contamination—when the material gets dirty. It's important to keep your H₂No[®] garment clean for

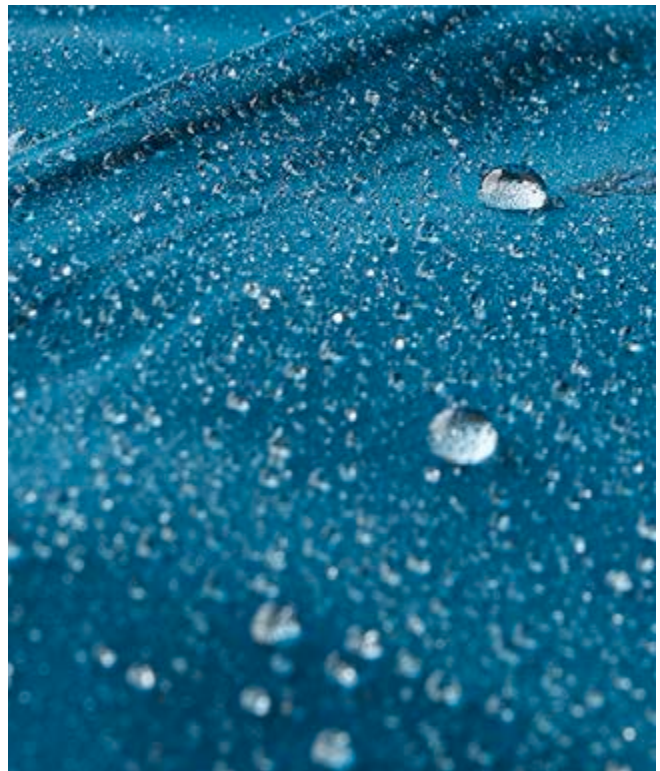
optimal performance. Like a bike, the picks on your ice tools, or the sticky rubber on your climbing shoes, waterproof/breathable shells perform best when they are clean and well maintained. To keep the performance of your waterproof/breathable shell, including the Granite Crest, at the highest level possible, our materials experts recommend machine washing warm water (104° F/40° C) with a mild detergent. Make sure to rinse the garment well to remove all the detergent. Don't use a fabric softener.

Tumble dry on a warm setting. The dryer's warmth helps renew the jacket's durable water repellent (DWR) finish, which keeps the outer fabric from becoming saturated when you're in wet conditions.

If water no longer beads up on your garment, it's time to put on another coat of the DWR finish. We recommend replenishing the DWR finish once per season, more often if you frequently wear and wash the garment. Our favorites are Storm products, though there are many good products on the market. Whichever you choose, be sure to use a spray-on for two-layer garments (with a hanging mesh liner) or a wash-in for three-layer garments (with an interior fabric protecting the barrier).

To remove grease from an H₂No[®] jacket, dampen the stain and rub in dishwashing liquid. Then wash the jacket in warm water with plenty of mild powder laundry detergent. If the stain persists, sponge it with a safe cleaning fluid (Renuzit[®] or Carbona[®]) or mineral spirits; you can find them at your local grocery store.

To get gum or sap out of a garment, first freeze the sap with ice, then use a dull butter knife to scrape off as much as you can. Next, soak the garment in a water-white-vinegar solution, and machine wash it in warm water with detergent.





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