

ALLIED
FEATHER
+ DOWN



ExpeDRY™

Ultra Dry Down featuring FUZE® technology

A new disruptive chemical-free innovation
for all down products used in extreme and wet climates.



EXPEDRY



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Currently, insulations are treated in almost the same way as textile shells when it comes to water resistance. But these components have almost nothing in common when it comes to what they are exposed to. The current trend is to treat the surface textiles with a hydrophobic chemical that allows the water to bead and roll off - which makes a lot of sense for a shell. The thinking with insulation was always that the chemistry exists and could be bathed on the insulation to provide resistance to water for when it was needed.

But is down even ever really in contact with water?

ALLIED is always thinking differently by looking closely at down's unique properties and needs. It is true that when down does get wet, it will lose loft and warmth, but if the shell is doing most of the heavy lifting keeping direct contact with water to a minimum through its hydrophobicity, what is potentially affecting the down?

It's not the direct contact to water that creates a loss of down's loft in a real world situation, but extreme humidity created by moisture, either from external environment (approaching 100% humidity during extremely wet weather) or from the internal climate where humidity can reach equally high percentages from sweat.

Hydrophobic treatments may keep that insulation from breaking down when fully submerged, but if you and your down jacket find yourself in a "shake test" situation, you have much bigger problems. Current WR treatment also does nothing to remove the humidity so you still end up with a potentially cold insulating chamber.

The solution? Attack the moisture in a more sustainable way with ExpeDRY™.



EXPEDRY



ExpeDRY™ is a new chemical free alternative to WR treated hydrophobic down.

ExpeDRY™ works through a permanent and chemical-free bonding of non-toxic gold particles to the down cluster which aid in the evaporation of water molecules, causing the down to dry faster and stay dry in high humidity.

Evaporation is caused through the vibration of the water molecule, which usually happens through the application of heat. The gold particles in the ExpeDRY treatment attached to the down cluster generate a similar “excitement” in the water molecules - without added heat - causing them to vibrate and ultimately speeding up the process of evaporation.

This helps to create a drier insulative chamber in almost every real world applications. It also helps with moisture from within such as sweat in high energy activities which could ultimately lead to a more regulated warmth.



General Claims

- ° high performing water resistant alternative for real world situations
- ° chemical free
- ° permanent
- ° non-toxic and safe for environment
- ° keeps insulation chamber dry under extreme humidity
- ° helps to reduce the build up of mold and fungus
- ° decreases carbon footprint while increasing performance

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ExpeDRY™

ExpeDRY is an active insulation to help keep the insulation chambers drier and ultimately maximize warmth and thermoregulation.

ExpeDRY, through its ability to increase the rate of evaporation, also helps increase the drying time in home laundry by 40-50%. This makes care of your down products that much easier so they can last longer and perform better.

ExpeDRY offers a new level of chemical free performance while reducing the carbon footprint at the same time.

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ExpeDRY treated down has been shown to outperform traditional hydrophobic treated down in real world simulations over extended use.

ExpeDRY has also been shown to dry 40-50% faster in consumer washing and helps reduce the energy used in production by close to 30%.

Performance Claims

- ° dries up to 50% faster than untreated down
- ° dries up to 40% faster than hydrophobic treated down
- ° returns to full loft 40% faster than traditional hydrophobic treated down
- ° outperforms hydrophobic treated down in real world simulations
- ° approximately 30-50% lower environmental impact than hydrophobic treated down*

* Based on internal reports comparing ExpeDRY application against both spray and bath application of hydrophobic chemistry. Official LCA pending.

For more information on FUZE, go to fuzebiotech.com



EXPEDRY

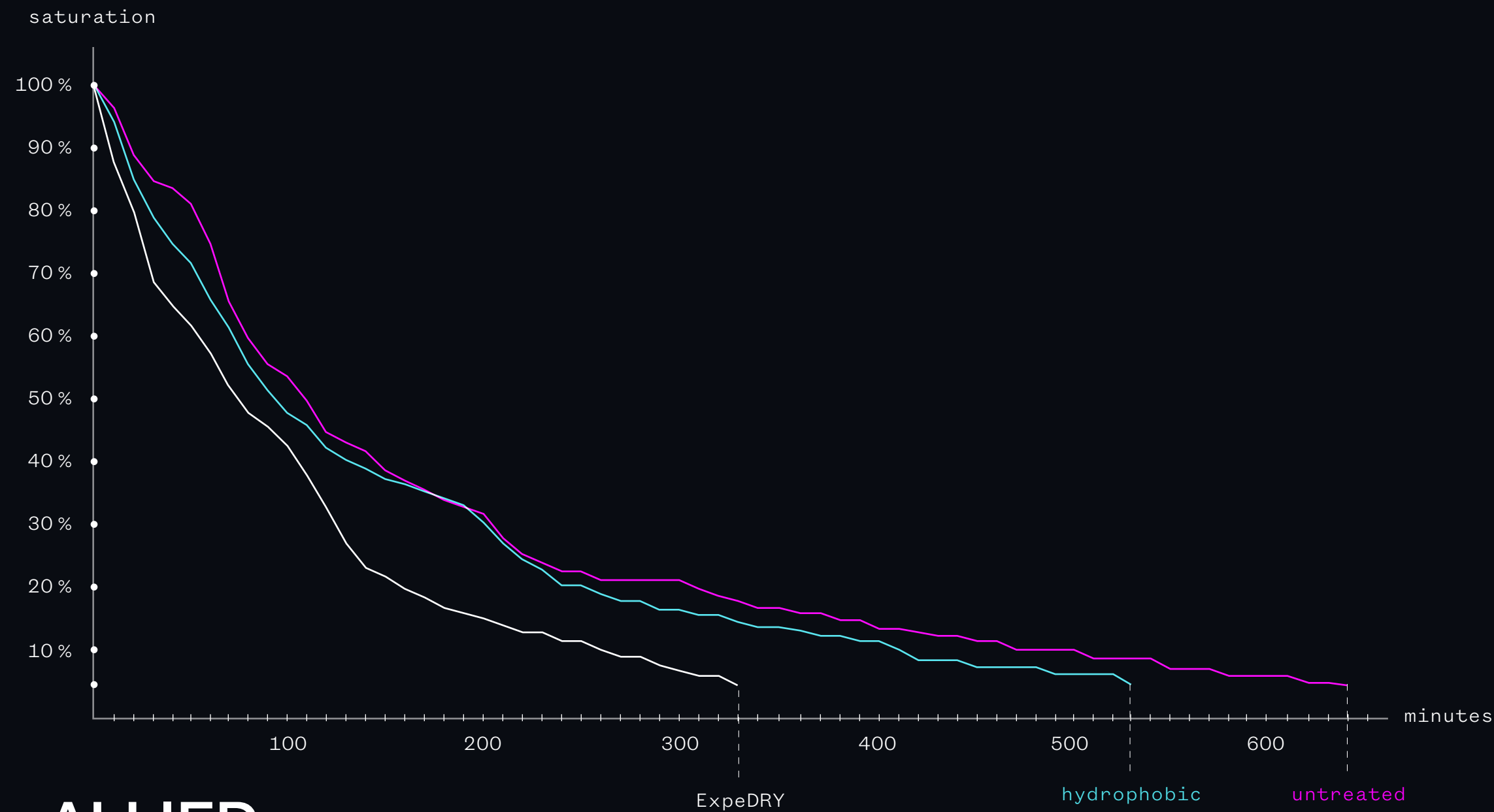


ExpeDRY™

Performance Testing Results

DRY TIME COMPARISON

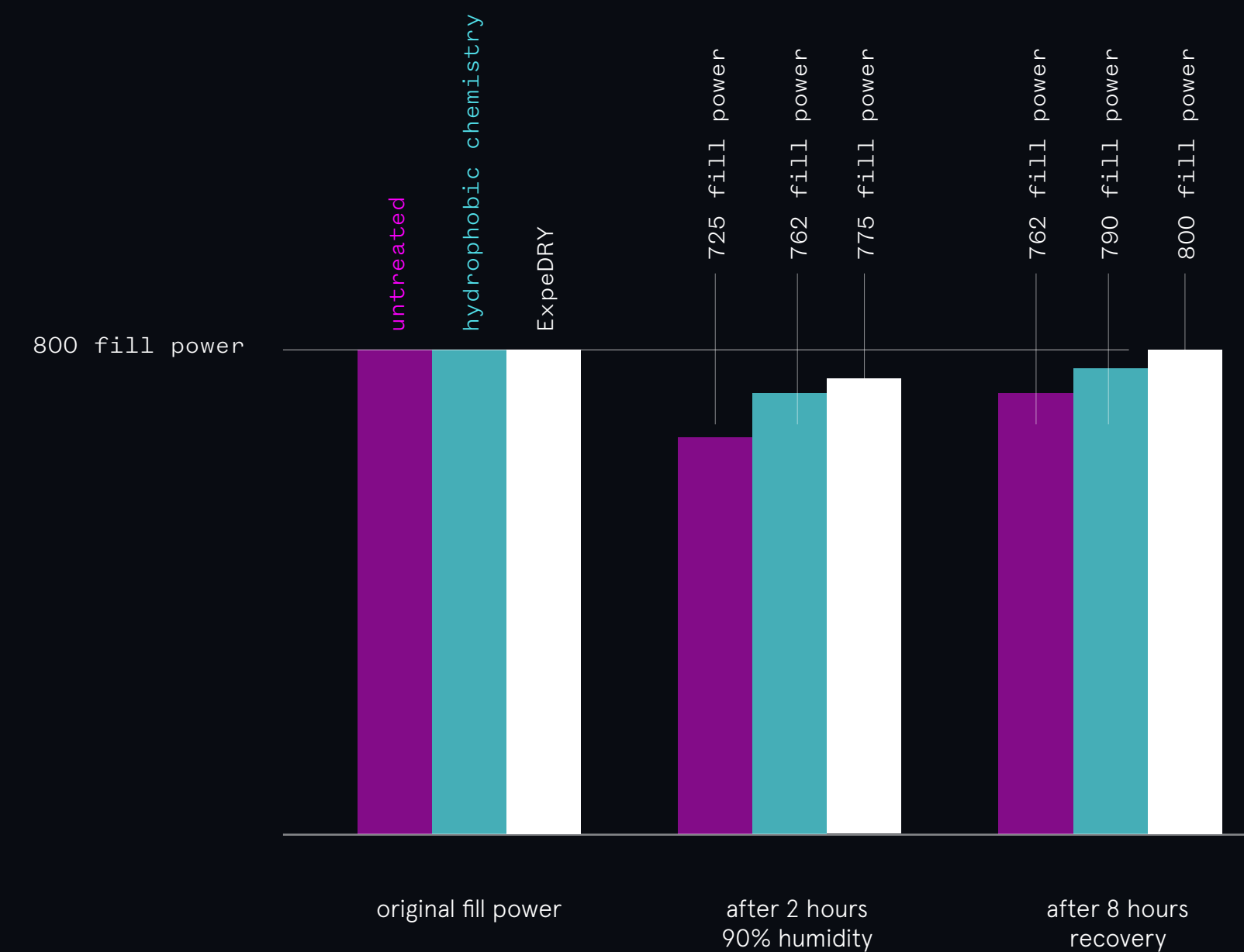
To understand the efficacy of the drying power of ExpeDRY, we subjected the same sample size of ExpeDRY, traditional hydrophobic chemically treated down and untreated to complete collapse. We then air dried the material in a relatively low humidity room at around 72 degrees F. Material was housed in loose mesh bags in order to remove material influence. Sample was considered dry when it fell below +5% of the original weight.



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MOISTURE MANAGEMENT TESTING

In real world situations, insulation is almost never in direct contact with water. In order to determine efficacy in extreme environments where one might consider the use of hydrophobic treated down, we have simulated a real world scenario that subjects insulation to a period of humidity that mimics that caused by extreme external weather followed by a period of air drying. The down has been placed in a container that allows 90% humidity to enter through the middle. The containers have pierced exterior to allow a certain amount of humidity to escape in a manner representative by a traditional downproof fabric. The canisters are marked with fill power volumes. Upon completion of the humidity cycle, the return to loft is visually measured over time.





ExpeDRY™

Environmental Impact Comparison – ExpeDRY vs Hydrophobic Chemistry

The two largest factors impacting the environmental impact of down is its water consumption and the energy needed to dry the down following production.

ExpeDRY helps conserve water and takes significantly less time to dry. Traditional hydrophobic chemistry is either processed in a bath or spray application. Processing in a bath means the water can not be recycled. And in either application method, the down needs to be dried and further cured at a high temperature.

ALLIED is engaged in an LCA to better quantify the environmental impact, but have approximated through energy use when comparing hydrophobic applications and ExpeDRY.

◦ Hydrophobic applications use at least 3.8x more water than ExpeDRY

◦ ExpeDRY cuts production drying time by 50%

◦ ExpeDRY dries with 26% lower temperatures

