



# Nanotech Application on Down

Nano spray and Nano  
dipping for Down and  
Feathers

- It is well known that down's main "down" fall is its poor performance once it gets wet.

Source: <http://EzineArticles.com/6019514>

- Down can lose up to 90% of its isolative qualities when soaked through

Source: <http://www.rei.com/expertadvice/articles/insulated+outerwear.html>

- When down becomes wet, it will actually loose up to 80% of its insulating ability. Down turns into a cold, soggy mess and takes a long time to dry out again.

Source: <http://www.my-favorite-camping-store.com/down-sleeping-bag.html>

- When down becomes wet, the surface tension of the water causes the down to collapse and it no longer can hold as much air. The air is what insulates

Source: [http://wiki.answers.com/Q/Why\\_a\\_down-failed\\_jacket\\_loses\\_its\\_insulating\\_ability\\_when\\_it\\_gets\\_wet](http://wiki.answers.com/Q/Why_a_down-failed_jacket_loses_its_insulating_ability_when_it_gets_wet)



## Untreated down

- Loss of heat retention properties after moisture
- It combines after washing
- It requires a long time to dry after washing
- Moistness causes an unpleasant mildew odour
- It favours the development of allergy-causing mites

## Down protected with Nano

- Molecules of nanomer permanently protect down from moisture
- It does not get thicker after washing
- It dries quickly
- It maintains volume and heat
- It has antibacterial and antifungal properties

- **Untreated down**

- After washing in 15 minutes reduces moisture only by 7.2%,
- After washing, within 30 minutes reduces moisture only by 12.6%,
- It contains at least 210,000,000 microorganisms / g

- **Down protected with Nano**

- After washing in 15 minutes reduces the moisture by 28%,
- After washing, within 30 minutes reduces the moisture content by as much as 41.9%,
- It contains only 350,000 microorganisms / g
- The tests did not detect PFOA and PFOS compounds



# Safety of Nano material



- Core Nanomer Particle - C6 fluoropolymers
- PFOS, PFOA – FREE
- Biodegradable
- Readily absorbed into soil
- Negligible Eco-toxicity

- Our technology is based on comprehensive research and development works and has been developed over four years of continuous improvement.
- After multiple attempts and elimination of emerging errors, we introduced the finished product for use in 2011.



- It increases and increases the filling strength from 7% to 17% depending on the type of down.
- It shows activity against microorganisms such as:
- MRSA - Staphylococcus aureus resistant to methicillin
- E. Coli - bacillus
- Staphylococcus - Staphylococcus aureus
- Good durability (strength) for repeated washing
- It maintains the filling strength after washing
- A simple application by spraying on the down.



## After 15 minutes stirring and shaking

- The Nano-protected down floats on the surface of the water
- Down without Nano soaked water
- Comparison of effects





# Cooperation with NanoLandPoland / JP Consulting

**We offer comprehensive services tailored to your needs:**

- ✓ **The best available "intelligent" fluids**
- ✓ **Certified employees and advisers**
- ✓ **Consultation and education**

## **Contact:**

Tel: +48 600 802 858

E-mail: [j.polanski@jpconsulting.pl](mailto:j.polanski@jpconsulting.pl)    [www.jpconsulting.pl](http://www.jpconsulting.pl)    [www.jptrade.pl](http://www.jptrade.pl)

Skype: jarek\_polanski

