

Acteev[®]
MED



What is Acteev[®] MED?

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Innovative

Winner of Outdoor Retailer 2021 Innovation Award and multiple ISPO Textrends Top Ten Awards. Protected by more than 100 patents globally.

Antimicrobial

Active zinc ions protect the fabric from bacteria and fungi.

Dermatologically tested

Zinc oxide is a natural ingredient known to soothe the skin. Acteev fabric has been dermatologically tested and found to be non-irritating and non-sensitizer.

Permanent

Protected with zinc ion technology embedded directly into the matrix of polyamide to provide permanency, unlike some topical treatments.

High performance

Nylon 6,6 is built to last, breathable, moisture wicking and abrasion resistant.



Ascend Performance Materials

- 70-year history in revolutionizing safety in everyday products
- World's largest fully integrated polyamide 6,6 resin manufacturer
- Currently generate \$3 B in annual revenue
- Pioneering path for new standards in bacteria and microbe-fighting technologies
- Inventor of Acteev zinc-based technology covered by more than 100 patents worldwide.



Leading sustainable solutions

OPERATING WITHOUT COMPROMISE

We have aggressive goals to reduce the environmental footprint of our operations by reducing emissions, waste and water use

- Ahead of goal to **reduce GHG emissions by 80% by 2030**
- Over **\$200M investments** to reduce our operations footprint
- All compounding sites are now **carbon neutral**
- Increasing usage of renewable energy like solar at chemical sites

INNOVATING SOLUTIONS

Creating products and processes that enable sustainable technologies and lower lifetime impacts

- **ReDefyne® certified recycled** engineered materials with low carbon footprints
- **Bioserve ISCC+ Bio-based** materials with reduced carbon footprint
- **Carbon-neutral products** via offsets
- **Designed for sustainability** new product development process

EMPOWERING PEOPLE

Providing safe and inclusive environment where people's careers can grow; Supporting our communities with hands-on assistance; Engaging full value-chain

- **Ecovadis Silver** rating for our processes, ~top 10% of companies
- Over 60% of our suppliers have undergone basic **ESG Supplier Assessments**
- Award-winning safety program **reduced our injury rate by 50%**.
- **Employee lead non-profit**, Ascend Cares

Supported by top researchers

Our Acteev medical advisory board brings together internationally recognized experts in the fields of PPE evaluation, viral pathology, epidemiology and infectious diseases. The board provides scientific review and advice on end applications of Acteev technology.



Raina MacIntyre, Ph.D.

Head of Biosecurity Programs, UNSW Sidney Kirby Institute



Christopher McDevitt, Ph.D.

Principal Investigator in Microbiology and Immunology, University of Melbourne



A.J. te Velthuis, Ph.D.

Assistant Professor at Princeton University, Department of Molecular Biology.



Karoll J. Cortez, M.D., M.H.S., F.A.C.P.

Infectious Disease Physician, Greater Baltimore Medical Center



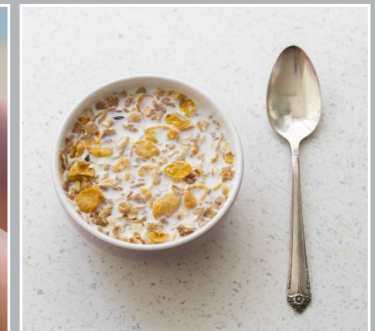
Tom Harmantas, M.D., F.R.C.S.C.

General Surgery, University of Toronto

The power of zinc

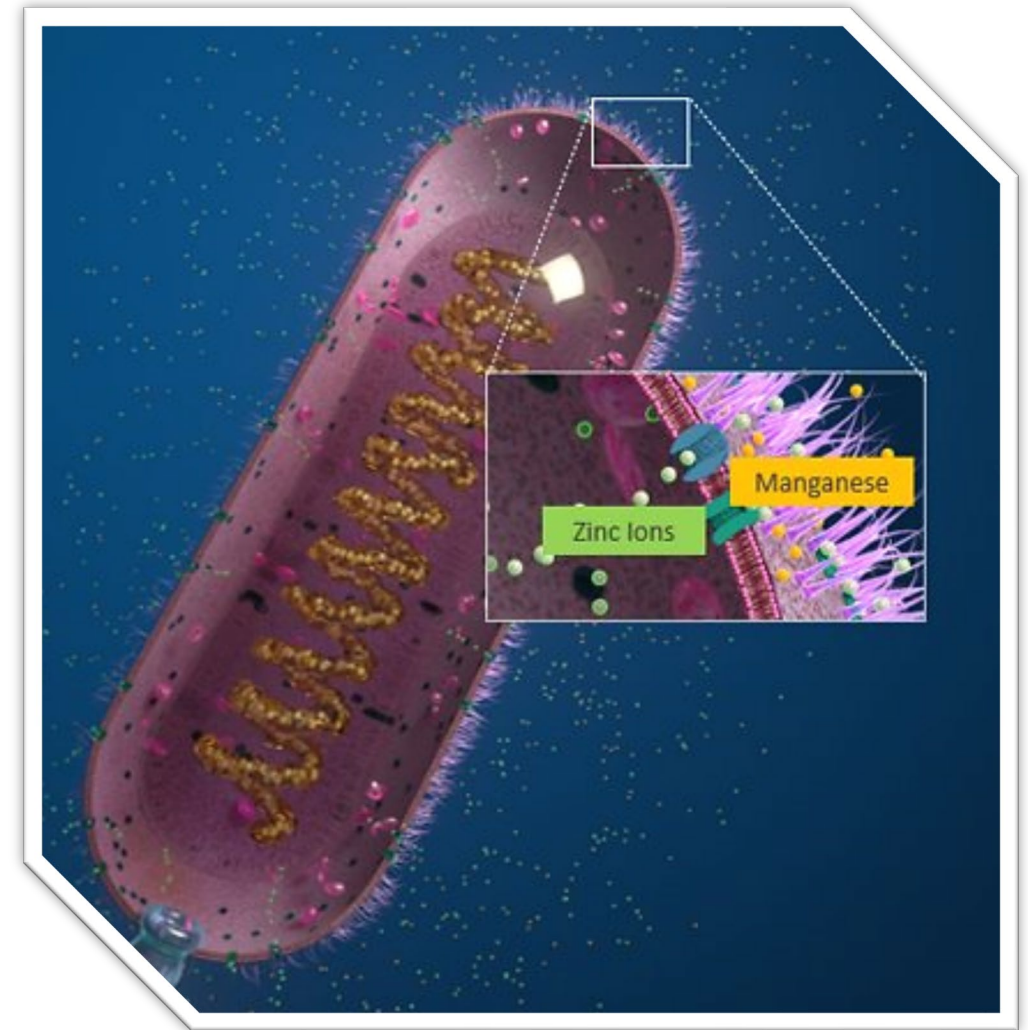
A natural antimicrobial to protect the product we trust to keep us safe.

- Acteev's active ingredient zinc is labeled GRAS, or Generally Regarded as Safe, by the U.S. Food and Drug Administration.
- Zinc has proven therapeutic benefits and is used in everything from baby skin cream to breakfast cereal.
- Zinc oxide is known to nourish and soothe the skin.
- Materials made with Acteev has been dermatologically tested and shown to be non-irritating.



The mechanism of zinc

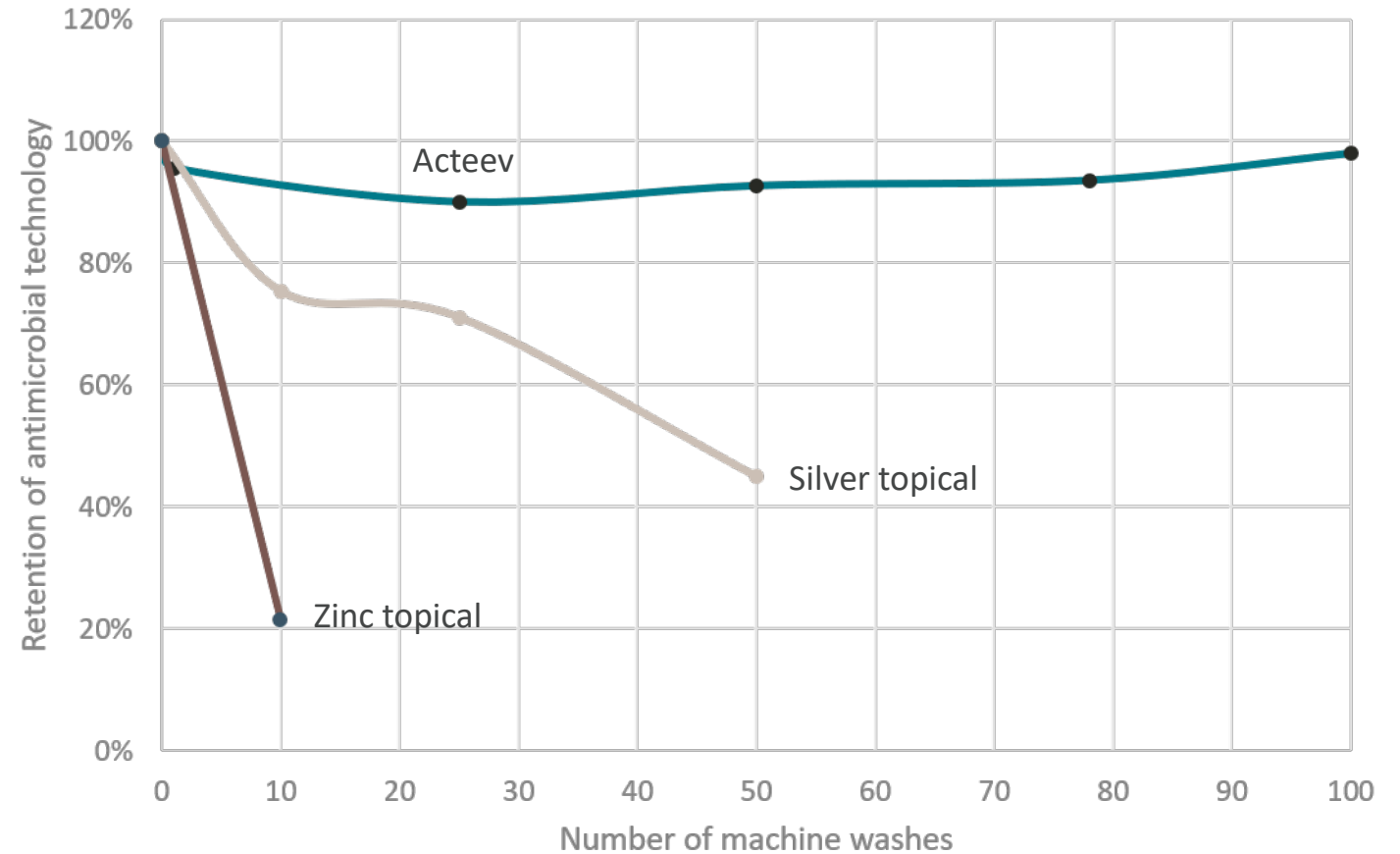
- As living beings, bacteria rely on nutrients to stay alive. However, when they come into contact with active zinc ions, their ability to process these vital nutrients is hindered. This leads the bacteria to ultimately 'starve' due to a lack of sustenance.
- Highly effective by inhibiting the growth of several strains of bacteria, including *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Escherichia coli*, *Candida auris* and *Candida albicans*.
- The protection afforded by zinc is both non-cytotoxic and permanent.
- Zinc's impressive resistance to bacterial adaptation means zinc hasn't shown any signs of bacteria resistance unlike other antimicrobial products.



Permanent protection

Determining efficacy

- Measure active ingredients of commercial samples and Acteev sample.
- Wash samples for a prescribed number of times per AATCC & LP01 protocol.
- Remeasure active ingredients to determine retention.



Demonstrated efficacy

Independent laboratories have tested Acteev for efficacy against common bacterial and fungal strains.*

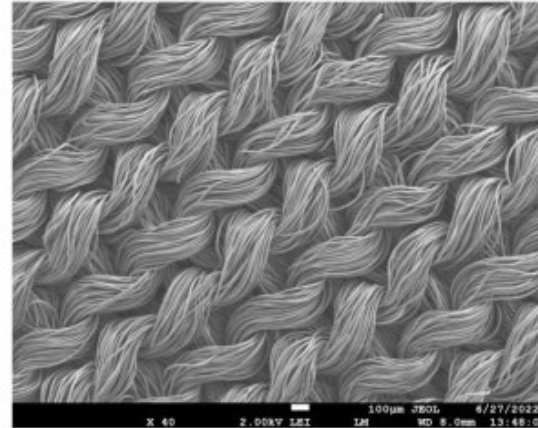
| Microbe | Test Method |
|---|-------------|
| Staphylococcus aureus | ISO 20743 |
| Klebsiella pneumoniae | ISO 20743 |
| Escherichia coli | ASTM E3160 |
| Candida albicans Candida auris | ASTM E3160 |
| Aspergillus brasiliensis Penicillium funiculosum Chaetomium globosum Trichoderma virens Aureobasidium pullulans | ASTM G21 |

*Acteev's antimicrobial technology is embedded to protect the product. The product does not protect users or others against disease-causing bacteria, viruses, germs or other organisms. Bioefficacy data (including antibacterial and antifungal) cannot be used on marketing materials, packaging or digital content in association with Acteev Protect even when referencing Acteev Technology. Regulations in other countries may differ. This presentation is for discussion purposes only. Consumer-facing literature and claims need to follow the appropriate regulatory and legal validation and review process. Testing conducted on various end forms. Please refer to technical data sheet for data on specific products. ¹ Testing conducted on Acteev Protect fabric made with 70 denier/68 filament yarn and filaments.

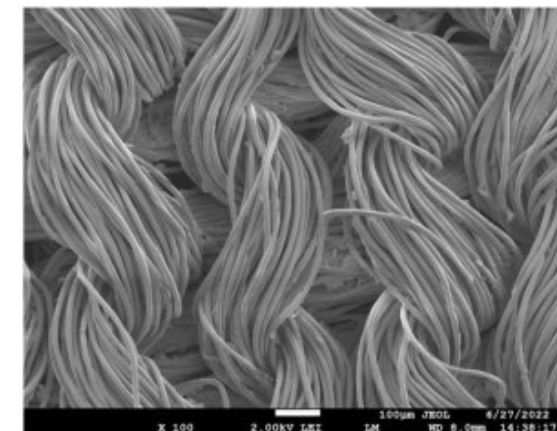
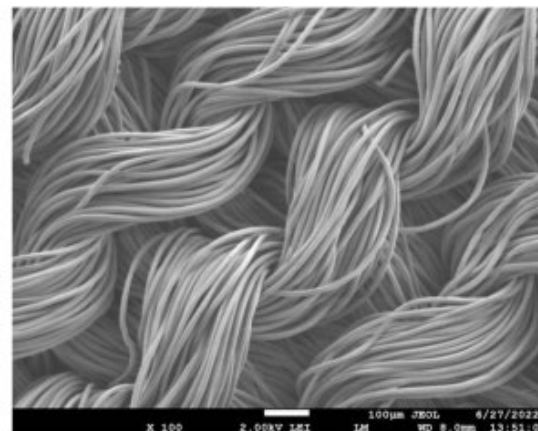
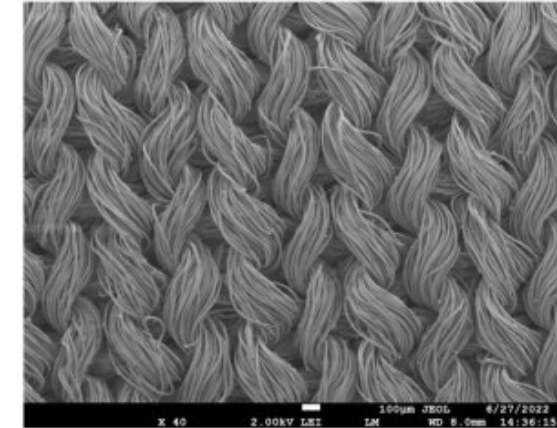
Performs in real-world conditions

After nine months of wear during weekly high-intensity physical exercise, the Acteev nylon 6,6 shirt showed only one broken fiber.

New shirt

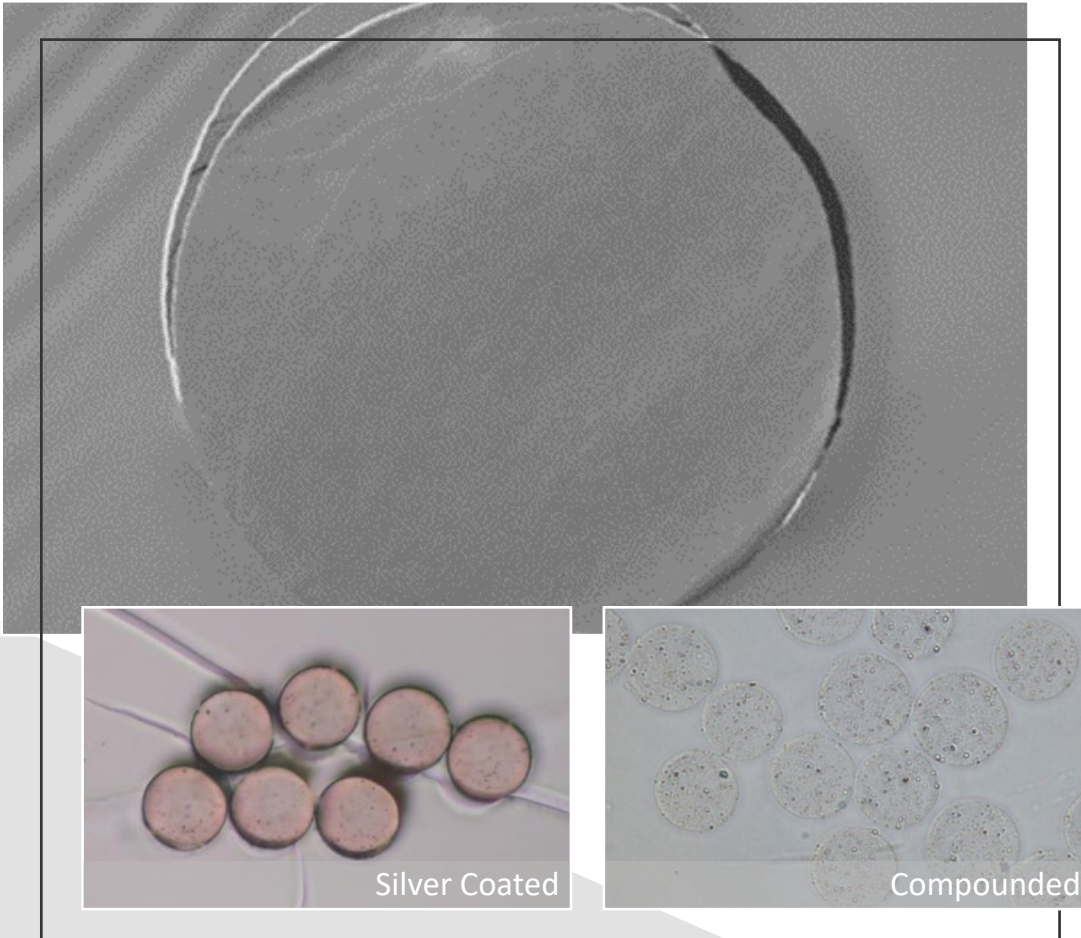


After 9 months of wear



See the difference

Polymerized



Acteev is not a compounded solution or a topical. It is a novel material

- We control the complete process, molecule by molecule, to ensure quality, safety and security of supply.
- The active ingredients are added during the polymerization process, leaving them dispersed at the molecular level, distributed throughout the polymer matrix.
- The result is a high-durability antimicrobial polymer that can be dyed while keeping the most comfortable next to skin.

Dermatologically tested

Test Method:

- Three independent Repeat Insult Patch Test (RIPT) were conducted for the following Acteev materials: spun bound, natural knit, and natural knit/spandex blend.
- This procedure was repeated until a series of nine consecutive 24-hour exposures had been made three times a week for three consecutive weeks.
- Prior to each reapplication, the test sites were evaluated by trained laboratory personnel.

Results:

- 100% of subjects scored 0, which is negative or no reaction according to the international Contact Dermatitis Research Group scoring scale¹.
- Under the conditions of this study, there was no indication of potential to elicit dermal irritation or sensitization (contact allergy) noted.



¹ Rietschel, R.L, et.al. Fisher's Contact Dermatitis 4th ed. Baltimore, Williams & Wilkins, 1995

Moisture management

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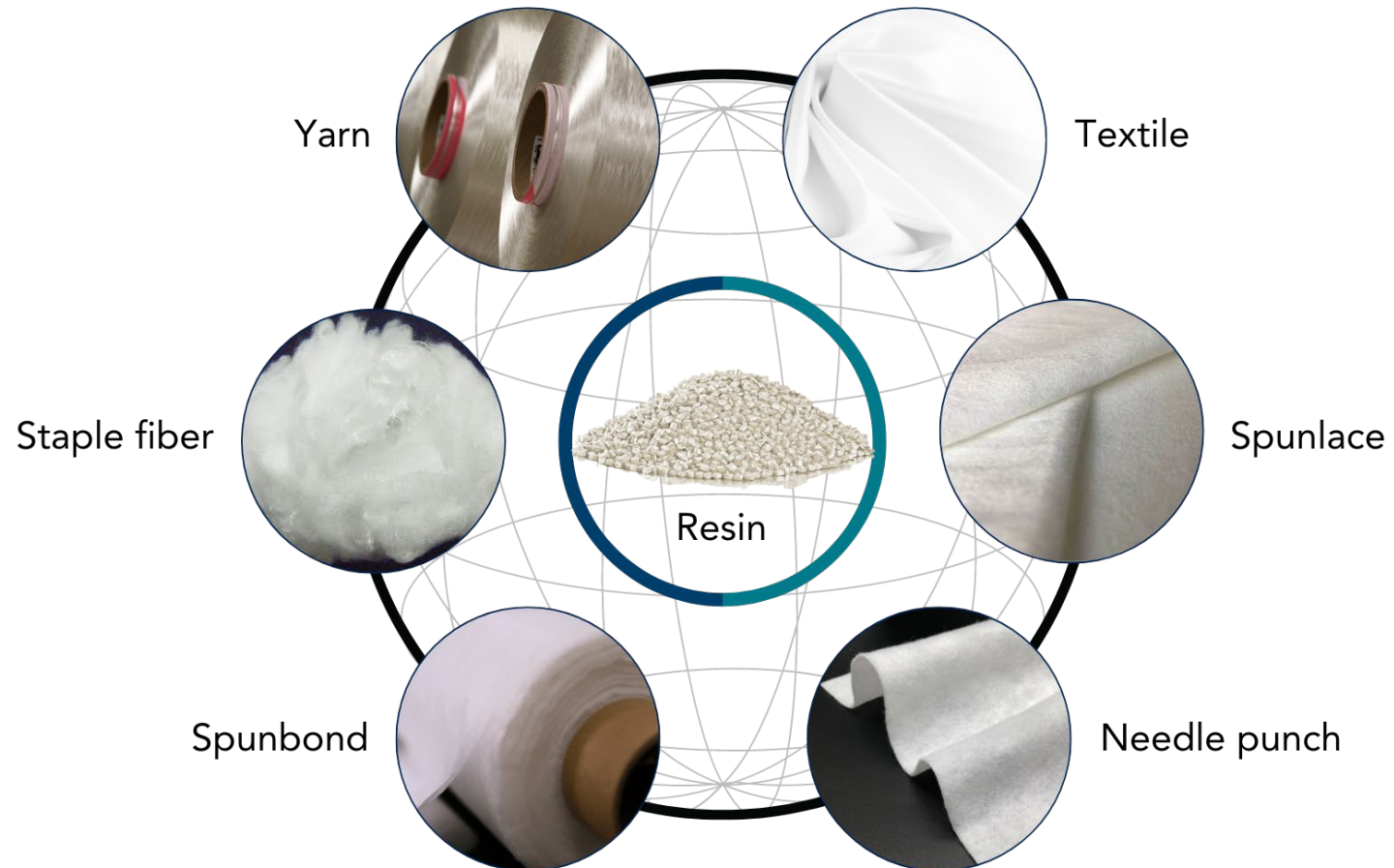
Nylon 6,6 is a high-performance material that is designed to keep you cool and comfortable by moving moisture away from the skin.

In a recent wicking test, our materials demonstrated their ability to quickly and efficiently wick moisture away from the skin, helping to prevent discomfort and skin irritation.



Versatility of our value chain

Through our strategic partnerships in the value chain, we can provide a variety of form factors for your needs.



Optimizing comfort and protection

Whether you need a contact layer that is highly absorbent, able to wick away moisture quickly, or effective at pressure management, we can work with you to develop a solution that meets your needs.

Our goal is to become a preferred materials innovation partner to provide the best possible comfort and protection for your patients.

| | Material | Wicking | Bulk Absorption | Transfer | Pressure Management |
|--|---|---------|-----------------|----------|---------------------|
|  | Textile Fabric 100% Acteev | ○ | | | |
| | Textile Fabric Acteev & Spandex | ○ | | | ○ |
|  | Needle Punch 100% Acteev | | | | ○ |
| | Needle Punch Acteev Blend | ○ | ○ | | ○ |
|  | Spunlace 100% Acteev | | | ○ | |
| | Spunlace Acteev Blend | ○ | | | |
|  | Spunbond 100% Acteev | | | ○ | |

Customers love Acteev

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In a collaboration with Acteev, Coalatree launched the new Suray Sun Shirt, which features a smart zinc-powered fabric to not only prevent smelly odors, bacteria, and fungi, but also, to safeguard skin against harmful UV rays.

Mother's Day Gift Guide: The Best Outdoor Gear for Adventurers



We tested these on teenage athletes, including one boy who wore them for seven days straight without washing them. After a full week of wear, not one sock had an odor!

Cara Netterson, M.D., Founder of OOMLA



Perhaps the best hiking shirt I've ever worn...I have hiked in it, run in it, and even sported it for consecutive Rockies climbs without a single wash...The fabric-nylon from Acteev and embedded with antimicrobial zinc-is still as buttery soft and smell-free as the day it arrived.

Outside

Current applications

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Traditional
Wound Care



Advanced
Wound Care



Sutures



Compression



Sport Braces

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