



Lubrizol

PAPER & TEXTILES

PERMAX™ 4399

SKIN COOLING THROUGH TEXTILE COATING TECHNOLOGY

A Truly Cool Textile Coating

Permax™ 4399 is a polyurethane/acrylic hybrid coating that enables durable evaporative cooling for all types of fabrics. This hydrophilic coating is applied in a printed pattern and holds moisture from sweat longer than surrounding unprinted fabric. As ambient air comes into contact with moisture, it cools to a lower temperature than the adjacent skin surface.

Better Than Phase-Change Materials and Quick-Wicking Fabric Alone

Unlike phase-change materials that can “quench” or become overwhelmed with heat absorption and cease cooling, Permax 4399 maintains its ability to cool throughout the duration of wearing. The Permax coating absorbs moisture and swells while the unprinted portion of fabric absorbs moisture from the coating and wicks it away. Permax 4399 allows quick-wicking fabric to retain enough moisture to aid in cooling skin surfaces while maintaining fabric’s ability to wick away excess moisture. This process mimics the body’s own sweat-cooling mechanism. Skin does not immediately evaporate moisture, but retains, through body hair and skin porosity, the retention of enough moisture to allow air to cool it and the adjacent skin.

Enabling Gym to Rest-of-the-Day Wear

Upon completion of the sweat-producing exertion, Permax 4399 releases all of the moisture it holds through the wicking function of the fabric. It does not retain moisture for extended periods of time.

Durable Cooling

An added feature of Permax 4399 is its ability to withstand normal-use abrasion as well as the rigors of repeated washing. Although performance varies based on the substrate fabric used, Permax 4399 has been shown to retain its efficacy and appearance throughout repeated washings.

WHAT WE ADD MAKES THE DIFFERENCE.™

THE TRUSTED CHOICE FOR MULTI-FUNCTION, HIGH-PERFORMANCE COATINGS

- ENVIRONMENTALLY CONSCIOUS, WATER-BASED SOLUTIONS
- CUSTOM TAILORED SOLUTIONS FOR UNIQUE TEXTILE NEEDS
- WORLD-LEADING TECHNOLOGY FOR WOVENS, KNITS AND NONWOVENS
- APPLICATIONS EXPERTISE WITH KNIFE-COATING, PRECISION SPRAY, ROTARY SCREEN, GRAVURE, PAD AND FUNCTIONAL DIGITAL PRINTING

www.lubrizol.com/textilecoatings

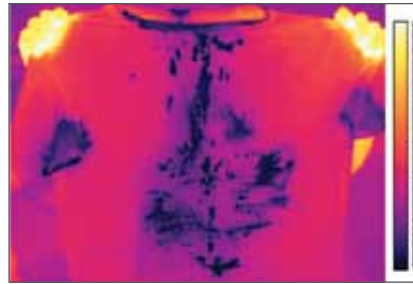
TECHNICAL CAPABILITIES

- WATER-BASED CHEMISTRY
- FORMULATED SOLUTIONS
- OUTSTANDING WASH DURABILITY
- NO CHANGES TO FEEL OF FIBERS

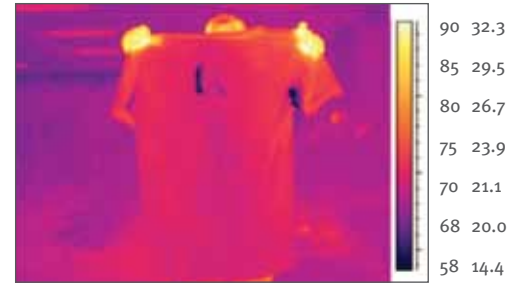
COATING PRODUCT FEATURES

- OUTSTANDING COOLING EFFECTIVENESS
- MOISTURE MANAGEMENT

Printed with Permax™ Coating

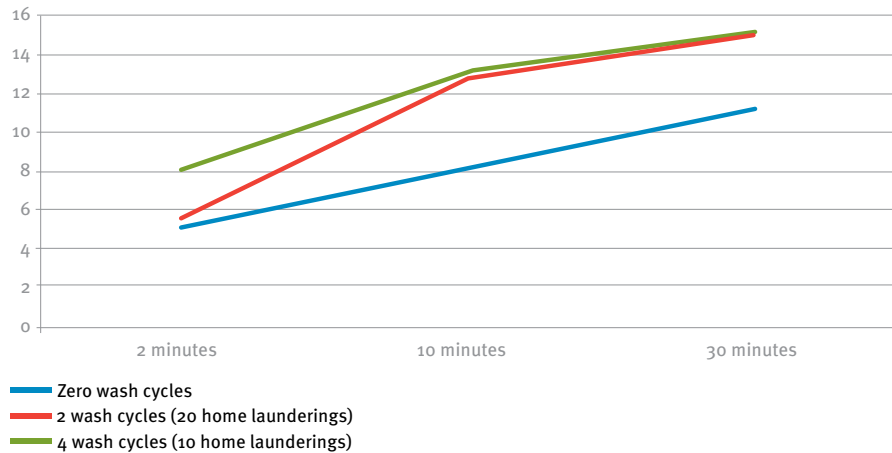


Unprinted Control



Thermal imaging illustrates the function of Permax™ 4399 on a polyester shirt. A 20° F cooler feel is shown in areas where perspiration occurs.

Fabric Wicking Length After Washing



Globally Networked Textile Coating Labs

- CLEVELAND, USA
- CHARLOTTE, USA
- MANCHESTER, UK
- SHANGHAI, CHINA

Visit us at:
www.lubrizol.com/textilecoatings

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