

GE Helps HOLMENKOL Ski Waxes Give Olympic Racers a Winning Edge

Aiding in the Search to Shave the Seconds

HOLMENKOL, founded near Stuttgart, Germany in 1922, is the world's oldest ski wax producing company. Today it produces an extensive line of waxes for skiing and snowboarding as well as care products for all types of outdoor sports. HOLMENKOL is among the top three ski wax manufacturers in the world and is the preferred supplier to among others the U.S., French, Canadian, Swiss, Austrian, Russian, German, and Italian national ski teams.



GE Bayer Silicones and HOLMENKOL

The Challenge: Increasing the Water Repellency of Ski Wax for Greater Speed

In the rarified world of performance ski racing – particularly the Olympic Winter Games – speeds are measured in fractions of a second, and the ski wax formulas that can help shave off those milliseconds are a closely guarded secret. For a winning ski wax, the key to acceleration is the level of water repellency. In other words, the wax must excel at preventing adhesion of snow, ice, and moisture that can slow down the ski's movement. Many different additives are used to enhance the water repellency – and durability – of a ski wax formulation. Naturally, each manufacturer is constantly looking for a new additive that can provide an increased competitive advantage to ski racers.

Among the most popular water-repellency additives are fluorinated chemical components. Unfortunately, these additives are not very soluble in the wax matrix (typically paraffin waxes). This limits their use and, in turn, the level of water-repellency they can deliver.

As a supplier to all of the national race teams that will compete in the 2006 Olympic Winter Games in Torino, Italy, HOLMENKOL sought a new approach that could help these athletes perform at their highest levels. Said Dr. Markus Schuetz, Head of R&D for

HOLMENKOL, "We wished to take our ski-wax technology beyond the limitations of existing additives, and provide a competitive edge for the teams competing at the Olympic Winter Games and for our business. We needed an innovative ingredient to improve water repellency that could be easily incorporated into the wax matrix."

HOLMENKOL's Chosen Solution: GE Silicone Fluid to Inspire Gold-Medal Performance

HOLMENKOL requests samples of raw materials from suppliers on an ongoing basis. Learning about the company's quest for a new additive, Bernhard Schick, a GE Bayer Silicones Sales Engineer, supplied silicone samples for testing at HOLMENKOL's labs, and brainstormed with Schuetz and his team about which silicone products could provide the results they sought. After sampling GE's silicone fluids, Schuetz was intrigued by its excellent wax compatibility and increased water repellency.

Schick recalled, "GE's wide array of silicones enabled the combined HOLMENKOL/GE team to identify a material candidate with the precise characteristics required. Right away, it was clear to HOLMENKOL that GE silicone fluids had the potential to make HOLMENKOL's ski wax significantly faster. Our material not only increased water repellency and

durability, but also proved to be compatible with fluorinated additives and the wax matrix itself."

The Value-added Services: GE Bayer Silicones Laboratories

Dr. Christopher Roos, Marketing Manager and Juergen Krott, GE technical service specialist on the Specialty Fluids Team worked with Schuetz to research the compatibility of the GE material with HOLMENKOL's proprietary wax matrix. For a period of two years, multiple tests were performed to confirm increased water-repellency. Each time new lab tests were done, the new ski wax was tested on the slopes by HOLMENKOL's "World-Racing-Team"; a team of Olympic ski champions and service technicians from national ski teams.

The Benefits: Accelerating Race Times by up to One Percent

GE's technical expertise and unique silicone fluid technology enabled HOLMENKOL to achieve measurable increases in speed and durability for its ski waxes. Most notably, the use of HOLMENKOL ski waxes containing GE silicone fluids may help racers to increase speed by 0.6 percent to 1.0 percent. In practical terms, for a typical two-minute downhill race, this means cutting about a second off the total time – which could be the difference between finishing fourth, winning, and even establishing a new world record.



GE Bayer Silicones / HOLMENKOL Case Study

According to Schuetz, this improved water repellency is highly significant – so important that the company has applied for a patent for the new wax formulations. “We’re delighted with this formulation featuring GE silicones, and we’re using it in many of our products, including our World Cup blends as well as some new universal products for recreational skiers and snowboarders. Why should only racers have all the fun?” he said.

Durability is another important benefit that GE silicone fluids provide to HOLMENKOL’s products. Although this depends upon such factors as snow characteristics and the amount of pressure on the skis, on average, the HOLMENKOL waxes containing GE silicone fluids are up to 30 percent more durable. This means each application of the wax lasts longer, resulting in less maintenance and extended peak performance.

Future Plans

Based on the excellent support that HOLMENKOL has received from GE, HOLMENKOL plans to expand the range of products in which GE’s silicones will be used. These include not only other ski waxes, but also nautical performance waxes that are applied to the hulls and sails of sailboats.

Details at
www.holmenkol.com

About GE Advanced Materials, Silicones

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