Winning Technology

How ROHACELL® from Evonik helps to make ice hockey even faster.

Ice hockey has long been regarded as one of the fastest team sports in the world. The unbelievable dynamics and sheer speed on the ice wow fans the world over. The small disks made from hardened rubber can soar into the opponent's goal at a speed of 170 km/h. There are often only a few seconds between a missed shot at the goal on one side and an actual goal on the other side. ROHACELL® from Evonik Industries is one of the products providing the power and stability required by ice hockey sticks.

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Shortly before the end of the decisive game, two lightning-swift goals, shot within 17 seconds of each other, brought a sudden and stunning reversal of fortune: The Chicago Blackhawks turned the tables spectacularly on their opponents, the Boston Bruins, in this year's Stanley Cup Final in the North American National Hockey League—the NHL. The end was so dramatic and the action on the ice so intense that most of the spectators could not stay seated. Since the turn of the millennium, new materials such as carbon fiber and lightweight innovative cores have been used, resulting in a modern ice hockey game that is even quicker than it was when traditional wooden ice hockey sticks were the only option. Today's ice hockey sticks are considerably lighter, with properties that previously seemed impossible. The new generation of ice hockey

Even Bauer's goalkeeper sticks have ROHACELL® in them. Puck control is especially important for goalies—if they lose the puck it often leads to a goal for the opponents.

sticks can flex much more on impact, which saves a considerable amount of energy when the blade comes into contact with the puck. The stick essentially works in a manner that is similar to a catapult and, when compared to earlier designs, more energy can be transferred to the puck in less time.

More control, less weight

As the leading manufacturer of ice hockey equipment and the world's largest producer of ice hockey sticks, Bauer Hockey is at the forefront of these developments – with the best players wor-

king closely with their research and development teams. The company has long been committed to applying game-changing innovations to its hockey sticks, including ROHACELL® from Evonik.

The polymethacrylimide (PMI) foam is used as a structural core in the blade – the lower part of the stick used for hitting and directing the puck. "The high-tech material from Evonik is extremely rigid and good at withstanding extreme temperatures, which is very important when producing our sticks," says Adam Gans, Head of Product Development at Bauer. Attacking, passing, defending: ice hockey sticks are put under a lot of pressure during a game. ROHACELL® is extremely stable, ensuring that the blade does not break and the player has unmatched puck control. The high durability and lack of material fatigue associated with this high-performance foam are additional valuable benefits. However, ice hockey players expect even more. "They want sticks with a blade structure that doesn't change, even after many hits and that feels the same each time they touch the puck," emphasized Gans. In addition, the puck should remain under control after it has been shot and not bounce off the blade. ROHACELL® absorbs the impact energy, allowing players to quickly control the stick and increase the pace of the game.

Extremely tough composite

"We are also impressed with the ability of ROHACELL® to endure extreme temperatures without changing," said Gans. To produce the ice hockey sticks, carbon fiber soaked in epoxy resin is wrapped around the pre-formed rigid foam core. High temperatures are applied during the subsequent hardening of the resin, yet ROHACELL® remains stable and provides counter pressure. This molding technique binds the top layer to create an extremely tough composite. The small, uniform pores in the foam structure ensure that very little resin escapes into the foam cells of the core surface. "This means we can achieve excellent laminate quality and low weight at the same time," explains Gans.

Altogether, this development creates the ideal conditions for making the game of ice hockey even faster in the future. Spectators at the Stanley Cup Final in 2014 can expect to spend even more time on the edge of their seats.