

polymer products

Rulon® Marks 50th Anniversary

Saddles were wooden bearings used in the 1800s to weigh the top rolls on textile spinning frames. Ironically, it was a successful attempt to improve the performance of this simple mechanical component that laid the groundwork for Saint-Gobain Performance Plastics' extensive line of Rulon® products.

Ezra Dixon worked in Rhode Island after the Civil War, installing spinning frames in a textile mill there. He came to realize that a more modern saddle design could greatly improve productivity, and eventually developed a metal bearing that became the worldwide standard for this modest but nonetheless important part.

The timeline on page 2 tells the full story of the evolution of the Dixon Lubricating Saddle Company. But the story of Rulon® really began 50 years ago, in 1957, when the company trademarked the name of a new material that Robert Rulon Miller – who married into the Dixon family – had been experimenting with for a number of years.

This material utilized DuPont Teflon® (tetrafluoroethylene) as part of a new plastic saddle design for smoother operation and longer wear life. The trademark name? Rulon®, of course!

In the five-plus decades since Rulon® came on the scene, first Dixon Industries Corp., then Furon, and now Saint-Gobain Performance Plastics have greatly expanded the Rulon® product line. Over the years, we have developed many different grades of composite materials based on the Rulon® formula, each with distinct properties designed to accommodate a broad range of applications and industries.

In addition, we continue to develop other new products based on our Meldin® and Furon® formulations, as well as new grades of engineered materials. Relying on the resources of our world-class Northboro, Massachusetts, R&D facility, we are pushing the envelope to create products for ever-more challenging applications, products that withstand even higher temperatures and last even longer than competing alternatives.

You'll learn more about the current Rulon® product offering by reading the rest of this newsletter. As you do, pause a moment to reflect on its humble beginnings in the early days of the Industrial Revolution, and the legacy of the Dixon family, Robert Rulon Miller and the many individuals who have contributed – and continue to contribute – to the evolution of this high-tech material. ■



This photograph of Dixon Lubricating Saddle Company employees was taken in the early 1950s at their headquarters on High Street in Bristol, Rhode Island.



Rulon®
1957-2007



50 YEARS OF
EXCELLENCE

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Rulon® Contest

**Tell Us Your Rulon®
Application Story...
and Win an iPod®**

See page 4



Timeline

1876

Dixon Lubricating Saddle Company founded in Providence. The company moved to Bristol, Rhode Island, four years later.

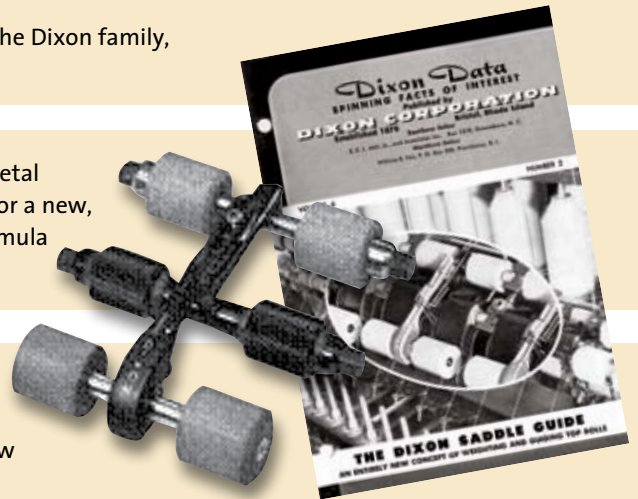
DIXON CORPORATION
Bristol, Rhode Island, U.S.A.
Phone Clifford 3-7500

1946

Robert Rulon Miller, who married into the Dixon family, takes over as manager.

Late 1940s

Miller experiments with Teflon® as a metal replacement, and arrives at a formula for a new, longer-wearing saddle bearing. The formula is referred to as "Rulon."



1950s

Company diversifies, finding many new industrial applications for Rulon. Facility moves from High Street to a new location on Burnside Street in Bristol.

1957

Rulon® trademark is officially registered.



1960s

Company moves into new plant on Metacom Avenue, sells its textile machinery division, and focuses on the high-performance plastics business. Company becomes Dixon Industries Corporation with the acquisition of Penntube Plastics and Danco as divisions. Joint ventures established in Japan, and licensees signed up in the U.K., Italy, Holland and Australia.

1973

Company becomes a wholly owned subsidiary of Bundy Corporation of Detroit.

1989

Dixon purchased by Furon®.

FURON®

1999

Furon® purchased by Saint-Gobain in December.

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PERFORMANCE PLASTICS

2005

Rulon® goes to China.



Did You Know?

The original metal saddle designed by Ezra Dixon is in the Smithsonian Institution.

2007

Saint-Gobain Performance Plastics looks ahead to many more years of product innovation and strong customer relationships. ■

Rulon® Mechanical Components

Bearings

Rulon® composites are ideal for non-lubricated, high-load capacity, allow the replacement of bronze, powdered metal and steel in some applications, and provide longer wear and extended operating life. Sleeve, flanged and thrust bearings are available in the standard materials: LR (continuous non-lubricating service), J (all-polymeric reinforced PTFE compound designed to work with soft mating surfaces), and 641 (FDA compliance for food and drug contact and USP Class VI certification).

Rings

Solid and split piston rings, featuring a full complement of joint configurations, can be manufactured to your custom specifications, or Saint-Gobain engineers can work with you to design the optimal ring for your needs.

Tapes

Most Rulon® materials can be skived (shaved) into sheets, which can be etched for bonding to other materials or used as is in a wide assortment of applications where friction reduction is desired. FDA-compliant materials can be used as non-stick coating surfaces for food preparation.

Basic Shapes

Molded and extruded rods and tubes and molded sheets are available in most of the materials.



Rulon® wear component (ABOVE) and bearing (TOP RIGHT) applications include mixers, pumps, compressors, and ovens/toasters.

Rulon® formed part (RIGHT) applications include TPS shaft seals, emissions controls, dust seals, automotive, medical pumps and refrigeration valves.

Formed Parts

A wide assortment of cup seals is available, either hot-formed to hold a specific shape or cold-formed to retain the natural memory of the materials. These products deliver consistent hysteresis in dust-sealing and precision electronic applications.



Wear Components

Wear components can take a variety of shapes and sizes in addition to those described above, including wear bands, pump bodies and pistons for chemically and thermally demanding environments. These products are generally manufactured to customer specifications. ■

Northboro R&D Center



Saint-Gobain's Northboro R&D Center (NRDC), a state-of-the-art 14,500 square foot facility located in Massachusetts, is dedicated to material research. The NRDC consists of research groups that are aligned with Saint-Gobain businesses and technical service support groups.

Established in 1985 on a 34 acre site, the NRDC recently completed a \$2 million expansion of its high-performance materials center. It is the first of three significant Saint-Gobain R&D milestones, with the next planned opening to be at their Saint-Gobain CREE facility in Cavillon, France.

Saint-Gobain employs over 3,500 researchers worldwide in 10 major research locations and invests approximately \$350 million a year in R&D projects to support its businesses and technical support functions. Saint-Gobain receives approximately 250 patents a year for its development materials and processes. ■

Tell Us Your Rulon® Application Story... and Win an iPod®

Rulon® is a very versatile material that is used in an astonishing variety of applications. We'd like to hear about your experience with Rulon® – and will give an Apple 30GB iPod® Video Black (or the equivalent value in dollars or euros) to four people who share the most interesting stories.

Submit a short description of your application, with a photograph or drawing as illustration and a list of the advantages Rulon® provided. Submissions will be judged

for originality, completeness and usability (we'd like to feature the best ones in future Rulon® marketing efforts). ■



Apple 30GB iPod® Video Black

Details

- > Decisions of the judges are final.
- > All submissions must be received by October 15, 2007.
- > Winners will be notified by November 15, 2007.
- > All submissions become the property of Saint-Gobain Performance Plastics, with the understanding that they may be reproduced.
- > Submit your story to jeffrey.p.doninger@saint-gobain.com

CASE STUDY: New Ford Mustang



2006 Ford Mustang GT



Rulon J® guide sleeve

One of the American auto industry's recent success stories is the redesigned Ford Mustang. With a retro look that echoes, yet updates, the original, the new Mustang has been hailed by the automotive press and embraced by car buyers.

Under the hood is an improved air intake manifold. And tucked inside the manifold you will find a split wall bearing of Rulon® J that prevents metal-to-metal contact and allows smooth operation and precise positioning of key components. The Rulon® J part, depending on engine conditions, will see high repetitive cycles over the life of the manifold.

Rulon® J parts help extend the life of the air intake system, and Rulon® J's reputation as a dependable product that delivers performance without lubrication made it a clear choice for this application.

The production volume for this air intake system will exceed 140,000 units per year. ■


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USA

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