

Athletic Polymer Systems, Inc.

New Developments in Advanced Urethanes for Running Track Surfaces are Bringing Record Times to Collegiate Track Programs

*From Division One Hayward Field to Division Three Susquehanna University,
state-of-the-art track surfaces deliver top performances: Such as 18 records set in the
first Middle Atlantic Conference track meet on Advanced Polymer Systems'
Tartan surface*

While advances in nutrition, training, shoes, equipment, and coaching methodology have all contributed to setting track records in the past few decades, one component is a relatively new influence on setting record times – advanced urethane developments for track surfaces. Although synthetic surfaces were first used on running tracks over 40 years ago, few really significant improvements have been made since then. In fact, technological development had pretty much atrophied. That is until recently. Collegiate coaches and athletic directors are now fast becoming aware of new technological advances in track surfaces and the performance payoffs possible with faster running times.

At the highest levels, performance is everything in track & field, where fractions of seconds make the difference between winning and being an also-ran. But success on the track oval at any level - world-class, collegiate, or high school - isn't just measured in fractions of seconds; it's also measured in the consistency and quality of training, which is why choosing the right track surface can be such a critical decision.

When the University of Oregon resurfaced its legendary Hayward Field in 2000, coaches and administrators knew they needed a surface that would live up to the performance standards of events such as the USA Championships, the NCAA Championships, and the Prefontaine Classic.

"We needed both a high performance venue and a surface we could train on," said Tom Heinonen, the three-time NCAA Coach of the Year, eight-time PAC-10 Coach of the Year, now serving his 26th year as



University of Oregon's Hayward Field, home to the legendary Prefontaine Classic, was resurfaced in 2000 using the latest technological advances in Tartan polyurethane as developed by Advanced Polymer Systems.

Head Women's Track Coach for the University of Oregon. "The harder a track, the faster you can run on it until spikes won't go in anymore, but the harder it is, the more people get hurt on it. You've got to be able to train on it too, unless you want a great empty stadium only reserved for events and meets."

Because Hayward Field has been open to the public 24-hours a day, year-round since 1987 and is subject to outdoor weather, the resurfacing material also had to be durable enough to handle the expected wear-and-tear without compromising its performance characteristics.

"The longer the race, the more punishing the track

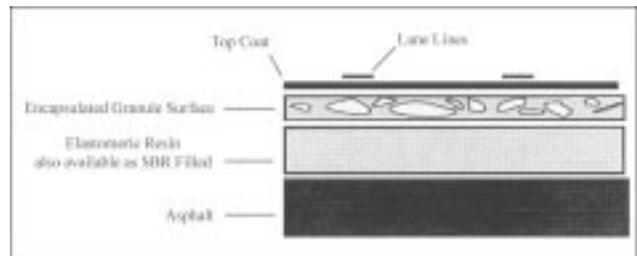
surface on the athlete,” adds Steve McBride, the University of Oregon Associate Athletic Director for Internal Operations, who’s been a project manager for Hayward Field. “In a sprint, it might be fine to have a hard surface that returns all the energy back to the athletes quickly so they can move to the next step, but in distance races, you need a surface that is more forgiving. The trick was to find a material and design that worked for everybody, even in-field runways where acceleration and stopping are important. From the athletes’ point of view, we needed top performance without unnecessary injury. From the maintenance point of view, we needed the surface to last as long as possible at an acceptable price point.”

“We were one of the first schools to put in a synthetic track under Bill Bowerman’s leadership in the late 60s,” continues McBride. “As the technology has increased and the budget allowed, we’ve always tried to get the best surface available.” For high profile track performance combined with an ability to train on a durable surface, the University of Oregon turned to Athletic Polymer Systems (APS), Inc., currently the industry’s leading innovator of athletic surfaces.

APS has pumped significant technological and development life into improved high-tech running track surfaces, since acquiring the Tartan brand athletic surface along with research and patents from the Dickey Company in the 1980s. The Dickey Company was the pioneer of modern synthetic tracks, originally created over 40 years ago to minimize injury to thoroughbreds at racetracks. It fast became the industry icon for running track surfaces at US schools and universities. Early on, Dickey licensed its surface technology to a number of companies, which in turn marketed the technology under various brand names.

Most, if not all, of the significant innovations in running track surface materials were attributed to the Dickey Company in the 1960’s and early 1970’s. Little innovation in track surface technology has occurred since then, until APS with like-minded R&D focus made significant strides in new, advanced urethane composites for track surfaces. Like Dickey before it, APS is currently the only company making significant improvements in track surface technology.

“The average track coach will put in one, maybe



two track surfaces in a career,” says Dr. Thomas Garrett, who not only is President of APS, but also holds a PhD in chemistry and directs the company’s R&D programs. “While the technical and design details can be complex and require a consultant, the basics are simple. For a top performance surface that’s also good to train on, you need energy return on the time scale of a footfall. The surface should match the athlete’s natural harmonic rhythm to maximize energy return, but for training provide as much give as possible to cushion impact.”

“If the track surface’s ‘relaxation’ time - or time it takes to reorient itself on impact - is too fast, it’ll seem jarring to the athlete,” continues Garrett. “If it’s too slow, it’ll feel energy-absorbing, like running in sand. A good track will strike the right balance between dynamic response for performance and cushioning for training.”

While rubber sheet goods may offer performance and are used at some high profile tracks, they often prove too “hard” to train on in between times. The end result can be an increase in athletic injuries, or underused facilities basically reserved for meets and events. Urethane, which is used in full-pour resurfacing, however, rebounds on the right time scale - that of a footfall, to offer both competitive performance and cushioning appropriate for training. Full-pour urethane used for resurfacing is a self-leveling material that will fill in any existing surface cracks, dips, or grooves, with the added benefit of better performance with each subsequent resurfacing, since each layer adds to the layers beneath - unlike sheet goods, structural sprays, or other materials which must be torn out before refurbishing the track surface.

“Still, urethane, while the premium material for poured-in-place track resurfacing, suffered one drawback that limited its full potential as a performance material,” says Garrett. “To reduce cost and increase

temperature stability, standard urethane is composed of both solids and liquids: but when run on at a track, the solids create heat instead of returning energy in the form of rebound.”

Building on the proprietary urethane research of some of the most famous poured-in-place athletic surfaces, Garrett with a PhD in chemistry, lead a development team at APS to develop and patent an improved Tartan with dynamic response optimized for sports in the time scale of a single footfall. APS’s Tartan, the only patented polyurethane athletic surface in use today, redirects the energy otherwise released as heat back into rebound, for enhanced performance that translates into better times, even record times.

A number of records have been set on the new APS track material at Hayward Field, installed in the Fall of 2000. According to USA Track & Field - the national governing body for track & field, long-distance running, and race walking - a few outdoor records set at Hayward Field in 2001 include: the Collegiate and American records for Women’s 3000 meter Steeple Chase at 9:49.73 set by Elizabeth Jackson of BYU; a new Women’s 3000 meter Steeple Chase record at 9:49.41 later set by Lisa Nye of Nike; and the American Junior 100 meter record at 10.08 (tie) set by Justin Gatlin of Tennessee. Additionally, at the Prefontaine Classic last year, Alan Webb broke Jim Ryun’s high school mile record with a 3:53 effort, and four 100-meter dash times under 10-seconds flat occurred.

Susquehanna University, a Division III competitor in Selinsgrove, PA, recently installed a six-lane 200-meter indoor track using APS materials. “Eighteen MAC records were set on the surface the first time we held a Middle Atlantic Conference meet at the facility,” said Jim Taylor, Head Men’s Track Coach at Susquehanna, who has ten MAC conference outdoor titles in his 24 years with the university. “The facility enhanced all the athletes’ times, whether they won or finished fifth,” continues Taylor. “There was such a great improvement in times it had to be the facility and the surface they were running on.”

“Some of the sprinters like harder surfaces, and some of the distance runners like softer surfaces, but



Division III Susquehanna University’s award-winning new 200-meter indoor track recently surfaced with Advanced Polymer Systems’ latest Tartan technology, set 18 Middle Atlantic Conference records in its first meet.

we couldn’t have one lane soft and the other hard,” continues Taylor. “We had to put down one surface that was beneficial to everybody. Now, there’s nothing comparable to our 200-meter indoor track in the conference.”

“Hayward Field’s current surface let’s us run fast without beating up our athletes,” adds Heinonen. “That’s what every coach wants - a fast surface for meets that’s good for training, too. It’s a great track.”

Unlike rubber surfaces, which shrink and harden, APS’s patented Tartan polyurethane remains unaffected by hot or cold temperatures and won’t retain water. Its mercury-free formula increases tensile and tear strength while increasing rebound resilience for athletes.

As Athletic Polymer Systems’ Garrett says, “Years ago we set out to develop the world’s fastest track surfaces. Although some coaches feel we’ve

already achieved this objective, we continue to research new and better composites that will produce even faster running times.”

For more information about APS or Tartan, write to Athletic Polymer systems, Inc. at P.O. Box 788, Corona, CA 92878; call 909-273-7984; or email TMGarrett@Tartan-APS.com.

For information about contributing to further Hayward Field improvements, including a planned entrance way and mezzanine to commemorate Hayward Field’s 80-plus year track legacy, call the University of Oregon Track & Field Office at 541-346-2260, or write to Associate Athletic Director Herb Yamanaka at the Casanova Athletic Center, 2727 Leo Harris Parkway, Eugene, Oregon 97401.