

## **July 2006**

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### **Governor Rounds announces cooperative agreement with leading nanotechnology company**

Zyvex establishes Nanomaterials Prototyping Facility  
in Rapid City, South Dakota

Richardson Texas and Rapid City, South Dakota (July 20, 2006)

Governor Mike Rounds today announced a cooperative agreement with Zyvex Corporation of Richardson, Texas, to establish a Nanomaterials Prototyping, Testing and Characterization Facility at the South Dakota School of Mines and Technology's Polymer Processing Center (SDSM&T-PPC).

Under this agreement, Zyvex will immediately open its first satellite facility in Rapid City, South Dakota. Zyvex-South Dakota will initially manufacture pilot-scale quantities of Zyvex's NanoSolve® material. Zyvex also will become a major user of the SDSM&T-PPC, utilizing the Center's facilities to produce and characterize new nanomaterial-based products. Production activity has already begun in the facility for Zyvex's sporting goods customers, with a production rate up to 800 pounds of NanoSolve Enhanced Epoxy per month. This material is used to make carbon fiber composite structures even stronger and stiffer, and is finding significant acceptance in the high performance sporting goods market.

"Goal 3 of the 2010 Initiative is to have South Dakota become a recognized leader in areas of research and technology," said Governor Rounds. "Working in conjunction with Mr. Jim Von Ehr and Zyvex Corporation, we are providing our young people with an opportunity to stay in South Dakota. This new 2010 Center for Accelerated Applications at the Nanoscale on the campus of South Dakota School of Mines & Technology, creates a win-win situation for our students and for our partners at Zyvex."

"Zyvex's nanomaterials business has grown significantly this year," said Zyvex founder and Chairman James Von Ehr. "We have been looking for a production facility to allow

us to scale up to tons of NanoSolve concentrate per month. We have also been renting access to processing and characterization equipment at other universities to supplement our own development lab. The Polymer Processing Center is a superb facility and we are thrilled to establish a branch there to commercialize new nanocomposite materials.”

Zyvex expects to add at least 8-10 people to the SD facility over the next 18 months (with more to follow) and is currently interviewing for the startup staff. South Dakota-based Zyvex employees will work closely with the company’s established nanomaterials experts in Texas to create and verify nanomaterials-based composites and processing techniques to market-driven specifications. Facility staff will also ensure that the methods and processes used to create products using these new materials are transferable to a given customer’s plant(s). This will include supply chain management and quality assurance and control.

Zyvex-South Dakota will be able to execute all of the crucial processing steps necessary to manufacture research, pilot, and production batches of nanomaterials-based components — from the processing of raw nanomaterials to the production of Zyvex’s Kentera™ dispersing agents to the final mixing and let-down procedures. Its characterization abilities will help customers select proper formulations, verify product performance, and develop process controls.

Zyvex’s patented and trade-secret-protected Kentera processing technology solves three key problems for CNTs; getting a good dispersion, exfoliating bundles of tubes, and adhering the CNTs to a host polymer matrix without damaging them. This proprietary technology allows CNTs to retain their intrinsic electrical and thermal properties and also gives them the solubility and host polymer compatibility necessary for commercial processing.

This agreement captures the momentum of the Zyvex/Arkema partnership announced in June 2006 to capitalize on each company’s strengths in developing CNT-enhanced materials. Through a new licensing arrangement, Arkema uses Zyvex’s patented Kentera dispersion technology, in conjunction with its own MultiWall Carbon Nanotubes (MWNTs). Arkema is the exclusive distributor in Europe of Zyvex’s NanoSolve product line.

Perhaps no single nanomaterial has the potential of Carbon Nanotubes (CNTs), since they are the strongest material known (with a mechanical strength at least 20 times stronger than high-strength steel), the best-known electrical conductor, and the best-

known heat conductor. Polymer composites formulated with CNTs offer exceptional potential.

In 2003, the U.S. market for the polymer composite segment of nanomaterials was estimated at roughly \$15M. By 2008, this segment is forecast to grow to \$211M. A March 2006 study by the Freedonia Group estimates the U.S. demand alone will be over \$2B by 2015. Initially, thermoset polymers will be the material of choice (e.g., epoxies) because of their high value applications in sporting goods, aerospace, and military goods. Eventually, commodity thermoplastic materials (e.g., polyethylene and polycarbonates) are expected to dominate in terms of pounds shipped.

#### About the Participants

Zyvex Corporation, based in Richardson, Texas, is the first molecular nanotechnology company. Zyvex's vision is to be the leading worldwide supplier of tools, products and services that enable adaptable, affordable and molecularly precise manufacturing. Zyvex commercializes nanotechnology to address real-world applications with high growth potential. Zyvex carries its scientific breakthroughs into key commercial applications in the areas of materials, tools and structures.

The 2010 Initiative, unveiled by Gov. Rounds in October of 2003, outlines a series of specific goals, objectives and action plans for economic growth and visitor spending in the state by the year 2010. When our vision is fully realized, the 2010 Initiative will yield an unprecedented era of opportunity and economic development for our state. It's an exciting and important undertaking, one that will have lasting impact for all of us here in South Dakota. [www.2010initiative.com](http://www.2010initiative.com)

The South Dakota School of Mines and Technology serves the people of South Dakota as their technological university. Its mission is to provide a well-rounded education that prepares students for leadership roles in engineering and science; to advance the state of knowledge and application of this knowledge through research and scholarship; and to benefit the state, region, and nation through collaborative efforts in education and economic development. It is dedicated to being a leader in 21st Century education that reflects a belief in the role of engineers and scientists as crucial to the advancement of society. [www.sdsmt.edu](http://www.sdsmt.edu)