

"I think the way tires are made now is archaic. My goal is to replace rubber. I don't want to brag, but this is a much better technology."

— RICHARD STEINKE / Amerityre Corp. CEO



KEITH SHIMADA/Photos special to the Beacon Journal via AP

Engineer Ted Love watches a urethane tire come out of a mold Thursday at Amerityre Corp. in Boulder City, Nev.

TIRE CHANGE

Polyurethane product superior, maker says

By John Russell
Beacon Journal business writer

YOU CAN pour a beer. You can pour a concrete driveway. You can even pour a cheese-and-broccoli quiche. Now, if Richard Steinke has his way, it won't be long before you hear about pouring a tire.

That's right, a liquid tire.

Steinke, a Nevada businessman, says he has discovered a better way to make tires by pouring liquid polymers into a mold and letting it harden into a perfectly round shape, with properties equal to or exceeding rubber.

Finding a substitute for rubber as the primary component of an automobile tire is a challenge that has confounded chemical researchers for more than 50 years. Many tire companies have tried and given up.

Steinke said researchers at his company, Amerityre Corp. in Boulder City, Nev., have developed and tested a tire made out of a special polyurethane mixture and are almost ready to take it to market.

The polyurethane tire, Steinke said, is safer, longer-lasting and cheaper to make than a rubber tire. It is also recyclable and more environmentally friendly, he said.

"I think the way tires are made now is archaic," Steinke said. "My goal is to replace rubber. I don't want to brag, but this is a much better technology."

He is inviting tire companies to buy the rights to his technology. He is also warning that if they don't, they will get left behind. Some tire companies say they are keeping an eye on Steinke's progress.

"It's kind of the Holy Grail of tires," said Guy

Please see Tires, D5



Amerityre employee Steve Harold pulls up a tire made out of a special polyurethane mixture Thursday at the Amerityre plant.



Richard A. Steinke

Amerityre Corp.

- Headquarters: Boulder City, Nev.
 - Employees: 26
 - Founded: 1995
 - CEO: Richard A. Steinke
 - Products: Tires for bicycles and lawn and garden equipment. A polyurethane passenger tire is in development.
 - Sales: \$1.42 million*
 - Loss: \$4.7 million*
 - Largest shareholders: Apex Capital LLC, Richard Steinke, Henry Moyle.
- Source: Bloomberg and SEC filings
* For fiscal year ending June 30, 2004. The company has lost money every year since its founding.

Tires

Maker says tires last longer and cost less

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Edington, managing director of Kumho Tire Co.'s technical center in Akron.

"We've been looking at it. Most tire companies have. But no one's been successful yet."

Raw materials, including rubber, represent about 50 percent of tire-making costs. Swings in the price of rubber and other materials give tire makers less control over costs. Urethane, by comparison, is more stable in price and supply.

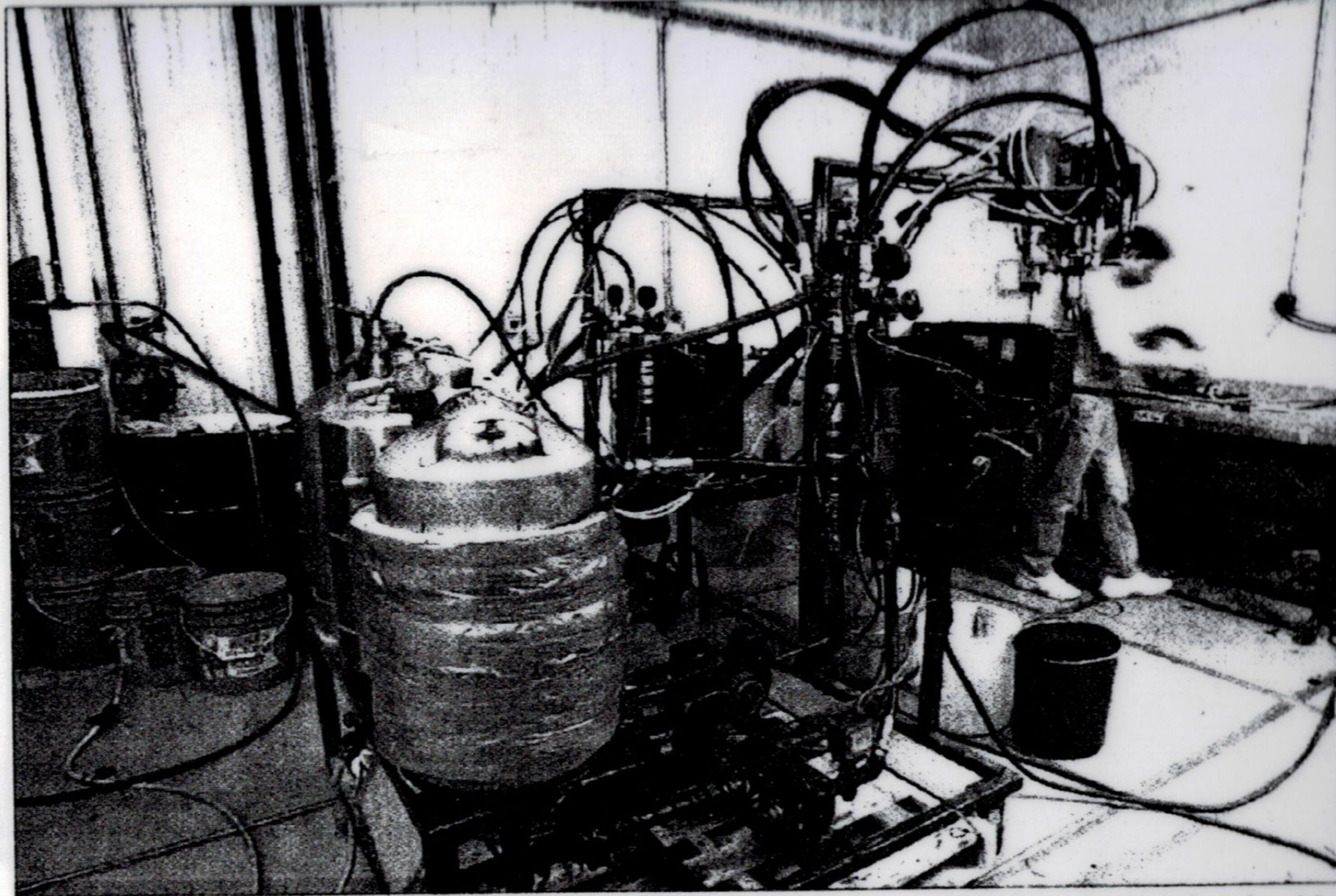
Steinke said he has been studying the possibilities of making a urethane tire for about 15 years, and has recently hit some milestones. In April, the tires passed independent laboratory tests for Department of Transportation requirements for strength, speed, endurance and other specifications for pneumatic tires.

Two months ago, Amerityre announced that Lee Iacocca and Joseph Grano Jr. would help the company with strategic planning as members of an advisory group. Iacocca is the retired chairman and chief executive of Chrysler Corp. Grano is former chairman and chief executive of UBS PaineWebber, a major investment bank.

And some other tire veterans say they think Amerityre is on the right track.

"I believe, absolutely, that urethane will replace rubber in all tires within the next 10 years," said Rick Vannan, who retired in 2002 from Goodyear Tire & Rubber Co. as director of advance product and process technology, and is now a consultant to Amerityre.

"I'm convinced, having done extensive lab testing and vehicle testing, that Amerityre has gotten over every hurdle," he added.



KEITH SHIMADA/Special to the Beacon Journal via AP

Amerityre Research and Development Director Manuel Chacon works in the lab Thursday in Boulder City, Nev. The company's founder has been studying the potential of urethane tires for about 15 years.

"There are no show-stoppers now."

Several advantages

What Amerityre seeks to do is to replace the traditional, messy tire-making process, which involves mixing rubber with oils, carbon black, sulphur, pigments and other additives to create a hot, gummy compound that is rolled, blended, slit and glued to the other materials.

Instead of huge, multimillion-dollar factories, tires could be made in small, automated modules that could be set up near automobile plants. A passenger tire could be made in less than a minute, rather than nearly a half-hour. A giant earthmover tire could be produced in minutes, rather than hours.

The urethane tires would last 20 percent to 30 percent longer than rubber tires. They would

run cooler, meaning they would be less prone to fail. They would not ooze oils or chemicals into the environment, the way rubber does. They would never throw a tread, because the tread and the sidewall would be one continuous material, not several different rubber compounds that are molded together.

Perhaps best of all, he said, he could make the tires 15 percent to 20 percent cheaper than rubber tires, because they require less energy to build, can be manufactured with highly automated systems, and result in less waste.

Amerityre's manufacturing process appears fairly simple. Robotic machines place fabric plies, belts and beads into a mold. Then a machine pours the liquid polyurethane into the mold. Less than a minute later, a new tire comes out.

Vannan delivered a technical

talk two months ago to a convention of tire engineers in Akron to explain the technology. He ended his presentation on a challenging note. He said polyurethane tire technology could replace the combined tire capacity of Goodyear, Bridgestone and Michelin by 2010.

Such a conversion would carry a big price tag: \$1.8 billion to build all the modules and install all the equipment. But investors will get on board once they see the outcome, he said.

He urged the major tire companies to license the technology. Then they could modify their plants, stay in business and reap the rewards. Otherwise, Amerityre would find outside companies to begin competing with the big tire companies, and begin cherry-picking the most lucrative and desirable tire lines one at a time.

"We don't know how this game will turn out," Vannan said in a recent interview. "We can work with tire companies. We can work without them."

Steinke is issuing similar challenges. He said he has no desire to get into the tire-production business, but one way or another he wants to find partners to get his product on the road.

Tire companies quiet

So far, many large tire companies are saying little publicly about Amerityre's technology.

"Our company worked on urethane tires in the '70s and '80s, and we decided it wasn't a viable business opportunity for us," said Dan MacDonald, a spokesman for Bridgestone/Firestone in Nashville, Tenn.

Goodyear, Michelin and Continental General are keeping their opinions to themselves. None of them would talk about the urethane technology, although Goodyear did say it is keeping an eye on Steinke's progress.

Just three years ago, however, Goodyear was intrigued enough by the idea to enter into a technical venture with Amerityre. "Amerityre has developed a technology that we think has potential," former Chairman Sam Gibara told the Akron Beacon Journal in 2001. "We don't know for sure. But if it does, we want to be the first ones to make tires out of urethane."

The Rubber Manufacturers Association, a national trade group that represents more than 100 tire and rubber companies, does not sound alarmed by Amerityre's revolutionary vision.

"The idea of urethane tires has been kicked around for a lot of years. But it just hasn't risen as a concern or issue for our members," said Dan Zielinski, an association spokesman in Washington, D.C.

Some engineers say urethane has possibilities, if it can overcome a host of technical challenges. Urethane is used now in low-performance tires, such as lawn mowers, golf carts, bicycles, hand trucks and scooters.

Amerityre, founded in 1995 as the American Tire Corp., has a wide line of such tires on the market.

But it's a tougher challenge to make a tire that would meet the high demands of highway driving, such as traction for a wide range of surfaces, cool operating temperatures and other technical hurdles. Traditionally, urethane has not been commercialized in auto tires because of poor wet traction, meltdown during braking and high raw material costs.

"If they can overcome those issues, they have a chance," said Edington of Kumho Tire Co.

But Amerityre said it has indeed overcome those issues. Vannan said he is so confident in the urethane chemistry that he will share his test data with anyone who wants to analyze it.

On the issue of temperature, he said, Amerityre's polyurethane tires remain cooler than rubber tires after several hours of driving, 113 degrees Fahrenheit versus 150 degrees and higher for rubber tires. Heat is the enemy of tires. Overheating can cause tires to fail.

The company adds that its tires have 45 percent less rolling resistance than rubber tires, which would result in higher fuel efficiency. Steinke said he is in talks with several automakers about making a tire as original equipment for future car models. He declined to identify the auto companies.

So far, Amerityre has raised about \$20 million, including its initial public offering several years ago. The company has about 700 shareholders, and plans to seek additional capital in coming months.

"Over the next two months, I will put together the whole strategy for how we are going to proceed," Steinke said. "I know we have a good product. Now we need to take the ball down the field."

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