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# ROADS & INFRASTRUCTURE AUSTRALIA

## MAXIMISING "MOCK ROCK"

How the use of an innovative technique has created a high-quality finish, for one of Tasmania's largest infrastructure projects

## A CLEANER FUTURE

One organisation is inspiring climate action throughout the transport sector

## EMERGING OPTIMISM

A new report from InEight is highlighting the industry's growing interest in digitalisation

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# THE RENOWNED RELIXER REJUVENATOR

DRIVEN BY DATA AND INTERNATIONAL EXPERIENCE, SRIPATH'S RELIXER REJUVENATOR IS HELPING INCREASE THE USE OF RECYCLED ASPHALT PAVEMENT IN ROADWAYS AROUND THE WORLD.



ReLIXER offers benefits in terms of sustainability and performance for Reclaimed Asphalt Pavement roadways.

**W**ith a presence in Australia, USA, India, England, South Africa, Brazil and China, Sripath Technologies is renowned as a global innovator of bitumen and asphalt mix additives.

Working with experts from academia, road agencies and the industry, Sripath Technologies has been a keen supporter of using high levels of RAP (Reclaimed Asphalt Pavement), a commonly used and sustainable alternative to virgin materials.

Throughout the past 30 years, the use of RAP has increased significantly. Shortages of high-quality bitumen globally, mixed with a growing demand for road construction, have resulted in many contractors opting to use higher levels of RAP, intending to reduce the need for virgin bitumen and fresh aggregate.

The global paving industry is estimated to generate 750 million tonnes of RAP annually.

For high-RAP mixes, greater than 25 per cent, the use of an asphalt recycling agent or rejuvenator has now become common place. As Ravi Rajagopalan, General Manager of Sripath Asia-Pac explains.

"It's only recently that high quality recycling agents have been commercially offered in Australia. Now, many contractors have a serious option to increase the use of RAP in their asphalt mixes for both base course and wear layer. And that has been facilitated with the availability of ReLIXER, a leading rejuvenator technology," Rajagopalan says.

Dr. Filippo Giustozzi, Associate Professor, Royal Melbourne Institute of Technology, says ReLIXER is very effective in restoring the functional properties of aged bitumen in mixes using RAP material.

"It is highly dosage efficient and provides long-term rejuvenation for sustainable

infrastructure projects," he says.

Without the use of a rejuvenator, RAP particles lack an active binder and act as a 'black rock' in the asphalt mix. An effective recycling agent rejuvenates the aged bitumen, restoring its functional properties, aids workability and compactability of the asphalt mix, and delivers the required roadway performance and durability.

Therefore, reducing the need for a virgin binder within the bitumen mix.

## SIGNIFICANT SAVINGS

Sripath's ReLIXER Rejuvenator is a bio-based oil recycling agent that has been used in roadways globally since 2015. In addition to rejuvenating RAP, ReLIXER can also be used to create pothole repair mixes and rejuvenating emulsions for a range of applications, including slurry seal, scrub seal, microsurfacing, chip seal, fog seal, cold-in-



place reclamation, full-depth reclamation, or cold central plant recycling.

Since 2015, ReLIXER has provided cost savings of between five to fifteen per cent for contractors globally, depending on material and operational costs. This is driven primarily by a reduction in required virgin bitumen, as well as the rejuvenator's efficiency at low dosage levels.

As an added benefit, these cost savings are not to the detriment of performance.

"We're not reducing the properties, instead we're delivering equal if not better properties on your roadway, while also helping reduce overall cost," Rajagopalan says.

ReLIXER can also be added into an existing asphalt production plant, whether it be hot or cold mixes, meaning operators will likely not need to purchase brand new machinery.

"You can use it across any plant, it could be a drum mix plant, batch mix plant, or an operator can add it to the bitumen tank, inject it in line with the bitumen feed line, or even spray it on the RAP," Rajagopalan says.

He says ReLIXER also offers substantial benefits in terms of environmental impact.

"You're able to recycle, you're able to reuse, you're able to reclaim old material and put it into new roadways, or new applications on the road," he says. "There's less of a drain on natural resources, which greatly benefits the environment and also satisfies the concept of a circular economy."

"It's getting harder and harder to get quality bitumen and by using existing roadways as mines for the future, we can achieve much better environmental outcomes. This is worldwide, you could look at Asia, North America, South America and Australia. And the trend, we think, is only going to increase."

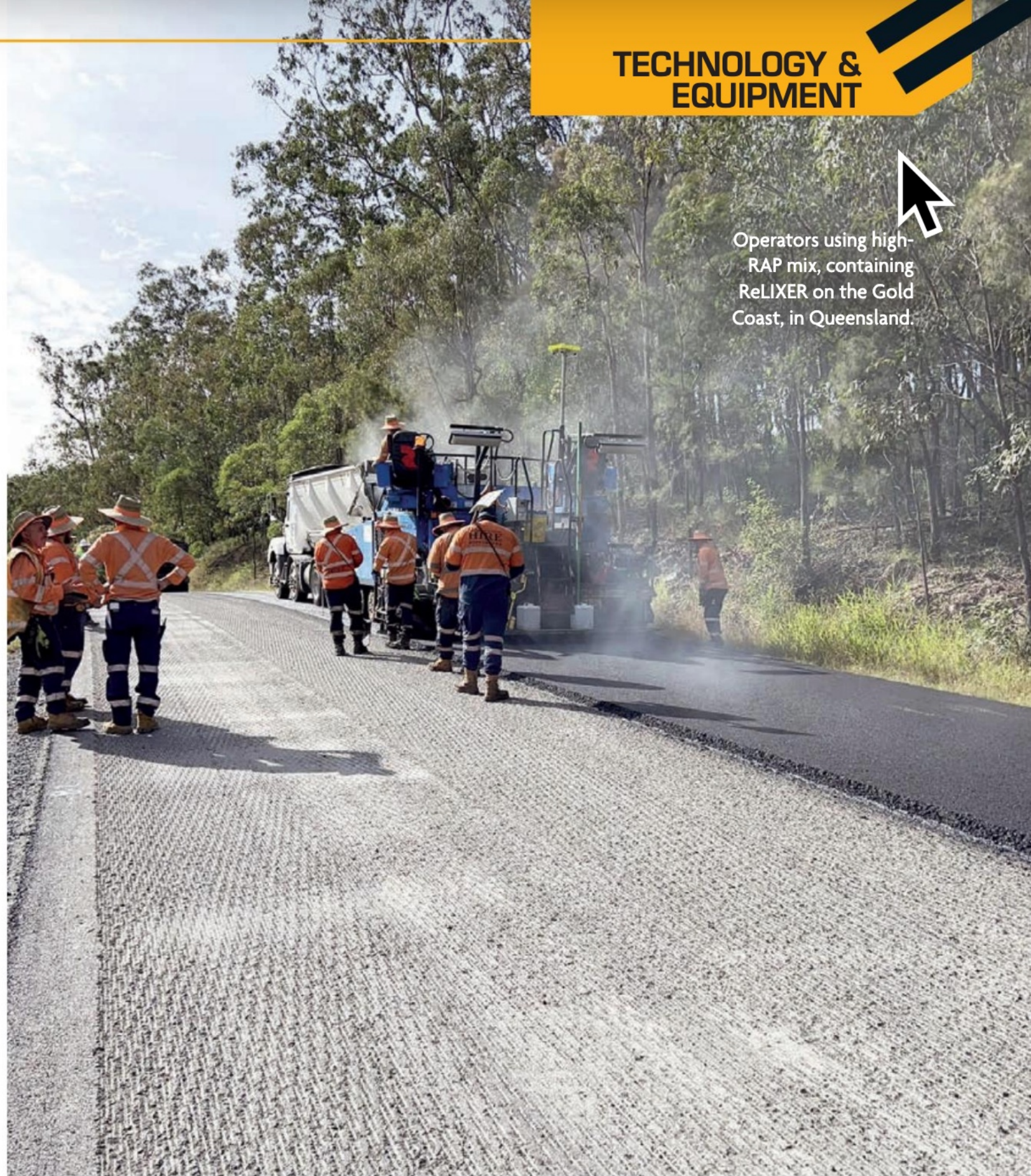
## BACKED BY RESEARCH

ReLIXER has been designed, tested and proven to rapidly penetrate RAP particles to restore the functional balance to the aged bitumen in RAP.

Krishna Srinivasan, President of Sripath Technologies, says the ReLIXER is backed by more than a decade of research and testing.

"This is a product backed by a substantial effort into research and development. At Sripath, we allocate an outsized amount of revenue to research and development. We were looking at rejuvenators when it wasn't fashionable to do so," he says.

"Our customers have told us that ReLIXER demonstrates virtues and benefits with a



Operators using high-RAP mix, containing ReLIXER on the Gold Coast, in Queensland.

"OUR CUSTOMERS HAVE TOLD US THAT RELIXER DEMONSTRATES VIRTUES AND BENEFITS WITH A RANGE OF MATERIALS. OUR JOB IS TO DELIVER A HIGH-QUALITY REJUVENATOR, WITH THE AIM THAT ROAD CONSTRUCTORS AND ROAD AUTHORITIES CAN GO TO SLEEP AT NIGHT, SATISFIED THAT THEY HAVE PUT DOWN A HIGH-QUALITY ROAD."

range of materials. Our job is to deliver a high-quality rejuvenator, with the aim that road constructors and road authorities can go to sleep at night, satisfied that they have put down a high-quality road. They don't want to come back and fix the road tomorrow or the day after. We test our materials extensively around the world with prestigious institutions, with knowledgeable professors and consultants who vet our materials. This allows us to provide a comprehensive service."

## ADOPTING RELIXER TECHNOLOGY

Sripath Asia-Pac established an office in Melbourne in 2021 to market Sripath products in Australia, New Zealand and the Asia-Pacific region.

"Sripath Technologies and Sripath Asia-Pac became members of the AfPA soon after they setup an office in Melbourne. Sripath

has already become an integral part of our paving community in Australia," says Anna D'Angelo, Executive Director Technology & Leadership at Australian Flexible Pavement Association (AfPA).

Recent trials in Queensland have shown the potential for ReLIXER domestically, with the City of Gold Coast and Brisbane City Council both benefitting as part of successful trials that implemented 40 per cent RAP and ReLIXER in roadways.

"As part of the initiative to reduce carbon footprint and create a more sustainable future, AfPA, in coordination with Fulton Hogan, recently organized a national High-RAP Rejuvenation trial which consisted of paving one control mix and three trial mixes, each with a different rejuvenator, on a stretch of Hymix Road in Gaven, City of Gold Coast," says D'Angelo.

Chris Lange, Technical Manager at Fulton



Hogan, was heavily involved in both trials.

“We have been very interested in green technologies, such as incorporating higher RAP content into mixes. We believe that this trial has provided us with a viable path forward”.

Rajagopalan says operators in both trials said they couldn’t distinguish between the high-RAP mixes with ReLIXER and the standard mixes with no rejuvenator.

“Many rejuvenators appear to work great when you first put down the roadway. But, for some products, the performance really starts to deteriorate within a couple of years. That’s not the case with ReLIXER. We have an outstanding product that delivers excellent ageing performance on roadways.”

The high-RAP mixes with ReLIXER that were paved as part of the trials in Queensland will be monitored over time to demonstrate the durability of the product.

“We have overwhelming evidence that with a properly designed mix and the right dosage, ReLIXER can be effective in any



ReLIXER has already been used in a variety of road projects internationally, including this roadway in India.

location globally. That’s one area where we really set ourselves apart”, added Rajagopalan. “ReLIXER is being routinely used to pave high-RAP mixes on roadways in North America and Asia. We have trials pending in Europe, South America and Africa.”

“About a year ago, we made a

commitment to serve the market in Australia and New Zealand by establishing offices in Melbourne. Our product and technology portfolio have been introduced to and evaluated by customers, RMIT and transport agencies. We are proud to now offer ReLIXER and other Sripath products and technologies to the region.” ■