



**Bagger Palletiser** - Lehigh's action hub for the 'Road to One Billion' campaign.

# TECH PIONEER



**Atlanta-based Lehigh Technologies, which has achieved the goal of seeing on the road 100 million tyres that are manufactured with its micronised rubber powder (MRP) in them, has now launched 'Road to One Billion Campaign' to achieve yet another landmark. Kedar Murthy, Vice President and General Manager of Tire and Industrial Rubber Business, says the surging interest among tyre makers in using its sustainable rubber materials is due to the realisation that MRP could slash costs by replacing high-cost, non-renewable virgin materials. It provides green solution without compromising on quality and performance**

*Kedar D Murthy, Vice President and General Manager*

## PTA News Bureau

Kedar Murthy and his colleagues at Atlanta-based green materials company Lehigh Technologies are happy to see on the roads over 100 million tyres that are manufactured using their micronised rubber powder.

Encouraged by the positive market response to advanced MRP branded PolyDyne, Lehigh has just launched "Road to One Billion Campaign" that would see more such tyres on the road.

Tyre makers, which include five of the world's top 10 tyre manufacturers, have embraced the Lehigh products because

they realised that they could better manage costs by replacing high-cost, non-renewable virgin materials and provide a green solution that doesn't compromise on quality and performance.

"MRP helps off-set the rubber materials by extending the compound by 3-7%, depending on the application," Murthy told **Polymers & Tyre Asia**.

"Additionally, the market is tight on synthetic and butyl rubber, but we have the largest capacity in the market (45,000 metric tons) to help off-set the need for these materials," he said.

Lehigh Technologies is a World Economic Forum 2010 recipient of The Technology Pioneer Award for its visionary leadership and transformational technology. The company saves millions of tyres from going into landfills or being burned, saves gallons of oil, and uses no water in the manufacturing process.

Its Application & Development team is currently working with tyre companies worldwide to incorporate Butyl powder in Halobutyl or other Butyl compounds, particularly in view of the rising butyl rubber costs due to short supply.



IMG Green Tyre

Explaining how MRP could contribute to the manufacture of green tyres, Murthy said that the company has been working with the Sustainable Design and Manufacturing Programme at Georgia Institute of Technology to understand the environmental profile of Lehigh product and processes.

“From this work, we know that for every 1 kilo of Lehigh’s micronised rubber powder, we save 6.7 litres of oil (enough to fuel a passenger car for 18 kilometres); 25 kilowatts of energy, and release nearly half the CO<sub>2</sub> of synthetic rubber.”

Lehigh’s goal is to help tyre manufacturers make the greenest tyre that is technically possible, he explained.

PolyDyne can be incorporated into tyres around the world, including Europe where its products have been tested by TÜV SÜD for the European market.

### Process modification

On the technological or processing changes that would be required when MRP is used in tyre manufacture, he said certain adjustments need to be made in the manufacturing process.

“For example, tyre companies that use MRP may need to adjust their mill settings and/or include processing aids and tackifiers for maintaining viscosity and tack. Additionally, we have developed specific recommendations for making adjustments in sulphur and accelerators in tyre compounds for incorporating MRP.”

Murthy believes that MRP fits well into the efforts of the tyre industry to further reduce the carbon footprint of a tyre, including reducing the need for non-renewable resources. The result of this mutual mission benefits consumers, tyre manufacturers, and the environment.

He said with the largest capacity in the market, Lehigh has the ability to serve both industries – retread and other tyre manufacturers.

With regard to retread, Lehigh works with the largest retread companies in a closed-loop capacity, taking their post-industrial rubber and developing a clean, re-usable raw material.

“Closed-loop reduces a retread company’s land-fill costs, supports their zero-waste initiatives, and helps them better manage the high cost of non-renewable raw materials,” Murthy said.

Through its Application & Development Center, Lehigh is working closely with tyre and automobile manufacturers to ensure that its MRP meets their performance criteria, which include rolling resistance and fuel efficiency.

“With more than 100 million tyres on the road, we have demonstrated that MRP can be incorporated without sacrificing performance,” Murthy pointed out

“What we know is that when a tyre manufacturer incorporates MRP, they are able to better manage the high and volatile costs of non-renewable raw materials,” he said.

**Tyre makers, which include five of the world’s top 10 tyre manufacturers, have embraced the Lehigh products because they realised that they could better manage costs by replacing high-cost, non-renewable virgin materials and provide a green solution that doesn’t compromise on quality and performance**

“This is significant for tyre manufacturers today, and the benefits would of course magnify as MRP becomes a standard formulating ingredient across their product lines. In addition, the environmental contributions the tyre manufacturer would create would go up by increasing MRP usage would increase.”

### Output expansion

When asked what are Leigh’s plans on output expansion and setting of new production facilities in view of MRP’s



Micronised rubber powder

increasing market acceptability, Murthy said that the response from the Asian market has been encouraging.

“We have had success selling and servicing customers in Asia. At some point in the future we will consider adding a facility in Asia – this has yet to be decided.”

He said Lehigh is looking at several expansion options. “We will consider all expansion options that make the most sense to our customers, company, and investors. A key point is that for MRP to be successful within a region there must be a well-developed infrastructure for end-of-life tyre collection and processing.”

Commenting on the other technological innovations in tyre processing that Lehigh has taken up, Murthy said that there are several projects. “We have developed a technology roadmap in which our focus is on developing technologies that enable increased incorporation of MRP into rubber.”

For example, through its Application & Development Center, Lehigh is working on demonstrating 10% loading levels in tyre tread and, in the long-term, levels of over 20%.

“We are not aware of any significant commercial success at these levels in tyres. We think that a realistic path to commercially successful higher loading levels is an incremental one, enabling the best combination of sustainability improvements and supply chain management,” he commented.

He said global tyre majors such as Yokohama has recognised Lehigh for its contributions over the past three years. “In addition, we are currently selling to five out of the top 10 tyre manufacturers and are working with several others.”

Some tyre companies are promoting the use of recycled materials in their tyres and Lehigh hopes more will do so in the future because it sees consumers becoming more interested in green materials. ▲