
Driving Federal Tires
Into Pole Position
CHIMEI
a step up

KEY CLIENT / INDUSTRY / APPLICATION INFO

Federal Tires — Taiwan-based tire manufacturer established in 1954

OPPORTUNITY

Enter top-tier markets by raising end-product performance

CHALLENGES

- Legacy equipment with a long life cycle cannot process newer, higher grades of NdBR, therefore limiting product performance
- High costs and inefficiencies of replacing existing equipment create high barrier to entering top-tier markets

SOLUTION

CHIMEI developed a new grade of NdBR that delivers cutting-edge end products even via legacy equipment

RESULTS

- Federal Tires achieved 5% improvement in tire wear-resistance, without investing in new machinery
- Customer entered and competes in top-tier markets such as the US and Europe

CHIMEI's Synthetic Rubber Delivers A Performance Boost For Customer's Existing Machines

Founded in 1954, Federal Tires is a Taiwan-based tire manufacturer that supplies global markets. The company first sought our help in 2009, as it faces a common problem in its industry: its large industrial equipment has a decades-long life cycle, yet end customers' performance expectations change at a much faster rate. To keep up with rapid industry advancements, the company faces an ever-present pressure to invest huge sums in replacing machinery that still has decades of productivity left to offer. Drawing on our long-running relationship, we at CHIMEI constantly strive to help the company avoid over-investment and still compete at the highest level.

Performance vs. Processability

In one recent collaboration effort, we undertook a lengthy R&D process to develop new grades of NdBR that would offer leading performance, yet still be easily processable. For many tire manufacturers with legacy equipment, choosing synthetic rubbers comes down to a stark choice: performance or processability. Older machines generally struggle to process higher-performance polybutadiene rubber made with neodymium (Nd) catalysts or a high Mooney content.

By reducing the compound Mooney in our NdBR, while maintaining the same overall Mooney levels, we created two higher-grade materials that would open up new possibilities for our long-term customer.

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These new grades allow Federal Tires' existing equipment to process higher-performance NdBR and high-Mooney rubbers.

"CHIMEI's NdBR offers good abrasion resistance and is easy to process. It's also much easier to mix with other materials," said Federal Tires' spokesperson. "The wear-resistance of our tires has increased 5%."

Entering New Markets

Thanks to the upgrade in product performance and the ability to better allocate its cash, Federal Tires has entered more top-tier markets. For example, the US market has high wear-resistance standards due to the country's vast and varied terrains. Now, Federal Tires is competing head-on with global tire brands in the US' 4X4 segment. And in Europe, where environmental and safety considerations prevail, the company's tires can offer better rolling resistance, improved fuel economy, and lower noise output.

Through our ongoing cooperation, we continue to stand beside Federal Tires as they race into the future.

> ***"CHIMEI provides us with customized services for our changing needs. When we make a request, CHIMEI will go back to do the R&D, and then adjust their materials to better suit our needs."***
>
> Federal Tires' Spokesperson

NdBR

What Is "Mooney"?

Mooney is a measure of viscosity in rubbers. For synthetic rubbers, higher Mooney generally means higher performance. While NdBR is just one ingredient used to make tires, along with natural rubber and other additives, it plays a key role in the overall performance of the end product. NdBR creates tires that exhibit good abrasion and fatigue resistance, and lower heat build up. However, NdBR is more difficult for older machines to process.