TATA
TATA CHEMICALS

TREADSIL®

Highly Dispersible Silica

SUPERIOR PERFORMANCE
EFFICIENCY & SAFETY
FOR YOUR TYRES

Introducing TREADSIL®

Tata Chemicals' highly dispersible silica (HDS) is designed to revolutionize tyre performance. TREADSIL® enhances wet traction, reduces rolling resistance for better fuel efficiency, and maintains wear resistance outperforming traditional carbon black compounds and even conventional silica.

Available in powdered and granulated forms, TREADSIL® now includes Microspheres, making handling easier, reducing process losses, and improving incorporation into tyre compounds.

Engineered for energy-efficient, high-performance tyres, TREADSIL® reflects Tata Chemicals' commitment to innovation and superior technology. Without TREADSIL®, your tyres are incomplete.

Maximize performance, efficiency, and safety with TREADSIL® because your tyres deserve the best.

Easy Raw Material Handling

Free-flowing powder or granules ensure easy dispers-ibility, simplifying processing and minimizing material losses

Enhanced Fuel Efficiency

Reduced rolling resistance allows vehicles to travel further on the same fuel, enhancing efficiency.

Superior Road Grip

Improves rubber flexibility, ensuring better traction in dry and wet conditions for safer handling.

Extended Tyre Life

Higher silica dispersability reduces abrasion loss, extending tyre life and reducing replacement frequency.

Improved Ride Handling

Higher dynamic stiffness of rubber compound leads to Superior Ride Handling during sudden acceleration/-deceleration of the vehicle.

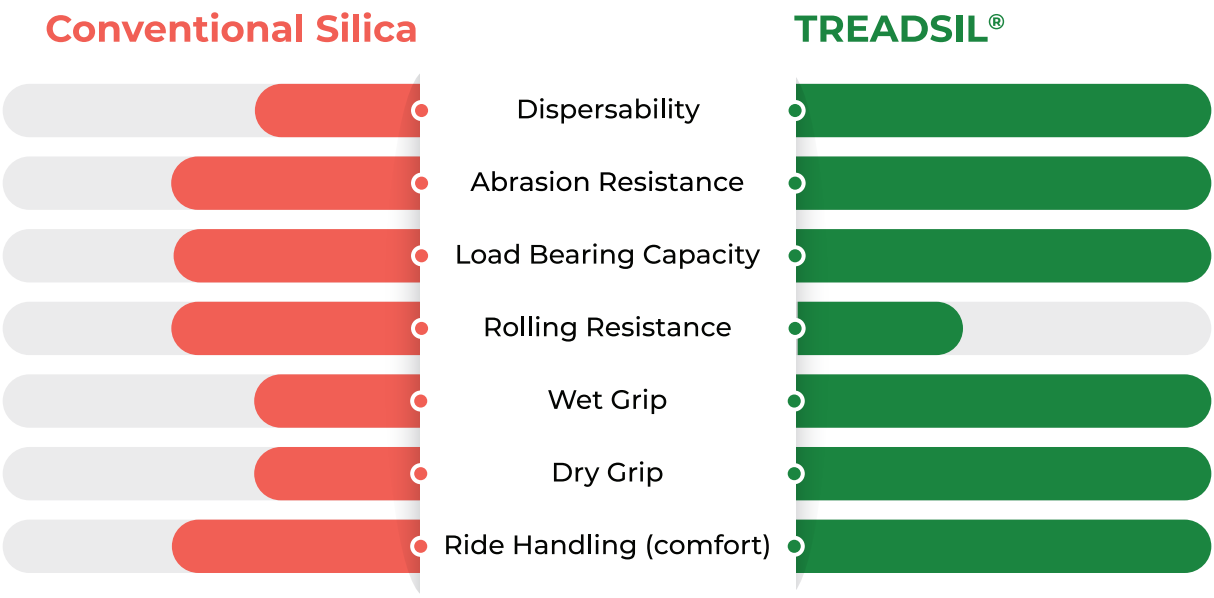


Fig 1. Comparison of conventional Silica and TREADSIL® on important parameters*

*Representation based on internal assessment

Application Development Capabilities

Tailored Solutions

At Tata Chemicals, we offer a patented technology that customizes the structure, morphology, particle size, surface area, and porosity of TREADSIL®. This customization provides a significant performance boost, enabling our highly dispersible silica to meet the specific needs of tyre manufacturers and deliver exceptional results.

Innovative Partnerships

We collaborate with industry leaders and esteemed institutions like IISc and IITs to drive innovation. These partnerships allow us to continuously refine TREADSIL®, ensuring it offers advanced solutions that address the evolving demands of the tyre industry.

Advanced Testing & Validation

Each grade of TREADSIL® undergoes comprehensive testing and validation to maintain top-tier quality.
Our state-of-the-art machinery evaluates the dispersion of silica in rubber compounds, supporting customers with valuable insights and ensuring reliable, consistent performance.

Comprehensive Technical Support

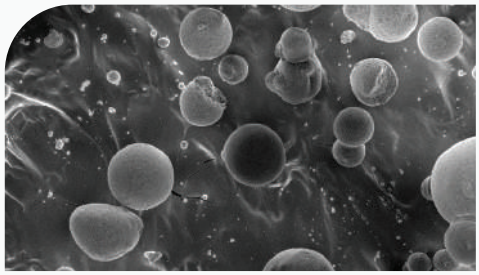
Our experienced application development team provides dedicated technical support for both tyre and non-tyre customers. We conduct rubber compounding studies in NABL-affiliated labs, and seamless collaboration between our plant and R&D teams guarantees superior product quality and consistency.

Choosing the right TREADSIL® for your tyres

	TREADSIL® 115	TREADSIL® 175	TREADSIL® 200
Form Factor	Microsphere	Powder, Granules, Microsphere	Powder, Granules, Microsphere
BET surface area (m2/gm)	115	175	210
CTAB surface area (m2/gm)	105	165	200
Loss on drying (%)	4-7		
Loss on ignition (%)	<12		
Electrical conductivity (µS/cm)	<1200		
SiO_2 content (%)	>97		
Residual salt (%)	Na_2SO_4<1%		
Dispersability	Superior	Superior	High
Processability	Superior	Superior	High
Rolling Resistance	Low	Low	Very Low
Wet Grip	High	Superior	Superior
Handling	High	Superior	Superior
Wear & Tear Resistance	Moderate	High	Superior
Recommendation	• For side wall formulation • For two wheeler tyres	• For passenger car tyre applications	• For high-performance tyres • For fuel-efficient tyre treads

Microspheres- Revolutionizing Silica

Minimize fly loss and address health safety concerns during the rubber compounding mixing process with TREADSIL® Microspheres. These free-flowing, micron-sized spherical forms improve handling and offer better processing properties due to their easily breakable form factor, ensuring seamless incorporation and enhanced performance in tyre manufacturing.



Driving Sustainability: Innovating for a Greener Tomorrow

At Tata Chemicals, sustainability is a core value that drives our innovations. We are committed to developing environmentally friendly solutions that enhance tyre performance while reducing environmental impact.

Rice Husk Ash Silica: A Sustainable Solution for Green Tyres
We've pioneered the use of rice husk ash-based highly dispersible silica (HDS) for sustainable tyre manufacturing. Our products, TYSIL® 175GR-RHA and TREADSIL® 175GR-RHA, deliver low rolling resistance, improved grip, and noise reduction. These solutions meet the stringent requirements of tyre manufacturers while contributing to their sustainability goals.

Sustainable RHA Silica Made from Rice Husk Ash

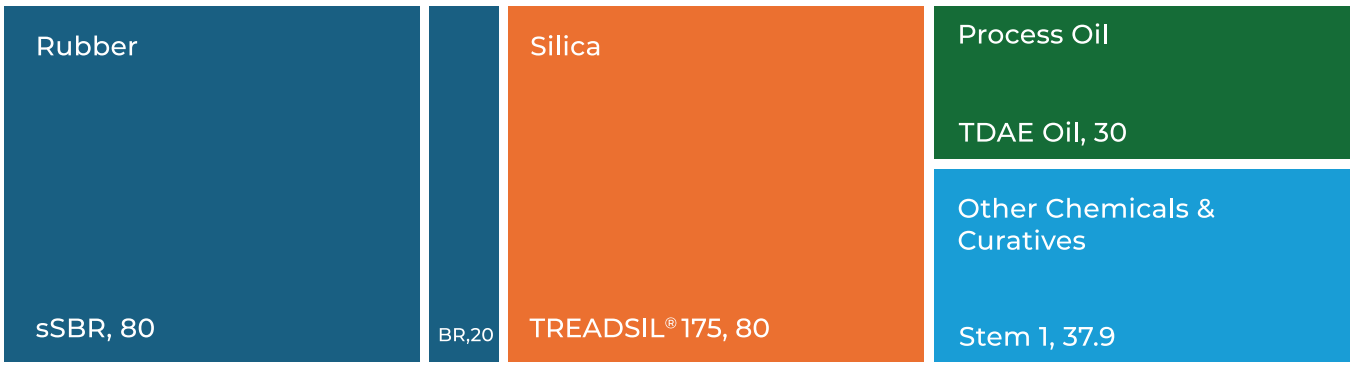
SBTi: Committed to Science-Based Targets
Tata Chemicals is aligned with the Science-Based Targets Initiative (SBTi) to reduce greenhouse gas emissions and promote a more sustainable future. Our efforts ensure that our product innovations and manufacturing processes contribute to global sustainability targets, driving progress across the tyre industry.

Sustainable Coupling Agents: Reducing VOCs for a Cleaner Environment
We've developed a VOC-free coupling agent made from Cardanol oil, a bio-based raw material. This novel coupling agent not only enhances abrasion resistance, grip, and rolling resistance, but also eliminates harmful emissions during the coupling process. It's an eco-friendly solution that helps manufacturers reduce their carbon footprint.

Rubber Compounding Study

In a range of evaluations involving TREADSIL®, we have consistently noted results indicating improved tyre tread performance. One such study, highlighting both the compound composition and key performance metrics, is presented below.

Compound Composition
The below is the formulation used in this study, where the main components include:



Key Results:

Payne Effect (ΔG'=G'0.5 - G'280)	414.5 kPa	Improved Processability
Dispersion	97%	Superior Dispersion
Abrasion Resistance Index (ARI)	95.0%	Extended Tyre Life
Tanδ@ 0°C	0.354	Superior Wet Grip
Tanδ@ 25°C	0.236	Superior Dry Grip
Storage Modulus E'@25°C	11.52 MPa	Improved Ride Handling
Tanδ@ 60°C	0.165	Enhanced Fuel Efficiency

Manufacturing Facility & Certification

Silica Manufacturing Plant in Cuddalore, TN.

ISO 9001 2015

ISO 14001 2015

ISO 45001 2018

REACH COMPLIANT

Customized **BET & CTAB** surface area for optimal tread performance

Available in

Powder

Granules

Microsphere

Also available:

TYSIL®
Conventional Silica

Silane Coupling Agents

Bio-based Coupling Agents

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