

Lower Carbon Emissions, Improve Fuel Efficiency, & Reduce Energy Consumption with SureMix®.

With the implications of climate change growing more evident every day, tire producers can help drive a safer and more sustainable society through cutting-edge technology. They are committed to reducing greenhouse gas (GHG) emissions through sustainable sourcing and by reducing energy consumption during the manufacture of tires. They are also designing tires with lower rolling resistance, which contributes to improved vehicle fuel economy and a further reduction in GHG during the lifetime of the tire.

PSG remains committed to developing customer-centric solutions to meet these critical challenges. For example, PSG has introduced SureMix®, a class-leading line of functional performance-enhancing process aids that improves mixing and processing efficiency while improving tire rolling resistance and wet traction. Using SureMix® tire manufacturers are reducing their carbon footprint and environmental impact while producing sustainable and superior tires.

SureMix® Chemistry — A Sustainable & Holistic Approach

Starting with sustainable materials that have high bio-renewable carbon content, responsible sourcing, and a drive for innovation, PSG developed SureMix®, a patented product line of functional process aids. Benefits derived from SureMix® support tire producers' sustainability and performance goals, **positively impacting their customers, consumers, and the environment.**



Tires produced with SureMix®...

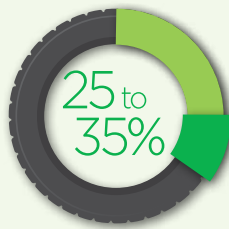
- Consume less energy during manufacturing
- Generate less waste and volatile organic chemicals
- Increase vehicle fuel economy
- Enable production of safer and longer-lasting tires

Reduction in Energy Consumption



Reducing mixing passes & viscosity could eliminate 235-590MT of CO₂ per mixing & production line^{1,2}

Reduction of VOC (Ethanol)





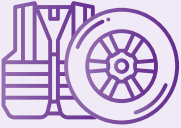
Improved silanization efficiency would eliminate up to 250kg of ethanol per 100MT of compound

Improvement in Fuel Economy



A 2% increase could save up to 2B-gallons of fuel / 17M MT of CO₂ per year in the United States^{2,3}

Sustainability Benefits of SureMix®

	SureMix® Advantage	SureMix® Impact
Sustainable Sourcing 	<ul style="list-style-type: none"> ▶ Renewable Content ▶ Bio-Based Carbon Content ▶ Organic Solvents ▶ Reaction Byproducts 	<ul style="list-style-type: none"> ▶ 84% or 91% ▶ 100% ▶ 0 ▶ Water
Responsible Operations 	<ul style="list-style-type: none"> ▶ Improve Mixing Efficiency & Throughput ▶ Improved Downstream Processing (<i>Extrusion & Viscosity Stability</i>) ▶ High-Performance Silanization 	<ul style="list-style-type: none"> ▶ 20-50% Reduction in Energy Consumption ▶ 5-15% Reduction in Energy Consumption ▶ 25-35% Reduction in VOCs (Ethanol)
Advanced Mobility & Safety 	<ul style="list-style-type: none"> ▶ Higher Fuel Economy / Lower Rolling Resistance <ul style="list-style-type: none"> ▶ Passenger / Light Truck Vehicles ▶ Electric Vehicles ▶ Medium/Heavy Trucks 	<ul style="list-style-type: none"> ▶ Fuel Economy Benefits of Reduced Hysteresis⁴ <ul style="list-style-type: none"> ▶ 0.5-2.0% ▶ 3.5-6.0% ▶ 2.5-5.0%

Formulating Sustainable Performance with SureMix®.

With SureMix® functional process aids, you can overcome processing challenges and achieve your efficiency and GHG goals **without cost penalties**. Leveraging its unique chemistry, SureMix® will help you simultaneously improve compound mixing, processing, and tire performance while **reducing your overall cost by \$0.50-\$1.00 per tire**.

The PSG Advantage

PSG is an innovative manufacturer of proprietary and custom polymer additives, dispersions, and release agents for the rubber, plastic, and engineered wood industries. PSG offers a variety of customer-centric solutions that meet exacting specifications, provide superior performance characteristics, enhance processing efficiency, optimize supply chains, and lower overall costs. Trusted by the world's leading companies in over 40 countries, our unparalleled products and application expertise are not matched by any other supplier.

If you need solutions that keep you ahead of your competition with increased productivity, better quality parts, and reduces your overall manufacturing cost, **PSG can help**. Contact us today to get more information, samples, and pricing.



Contact Us

For additional information about SureMix® or Polymer Solutions Group, visit us online at www.polymersolutionsgroup.com.

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Sources: (1) HF Mixing Group "The Energetically Ideal Mixer Line." (2) U.S. Energy Information Administration. "How much carbon dioxide is produced per kilowatt-hour of U.S. electricity generation? Frequently Asked Questions." (3) U.S. Environmental Protection Agency. "Greenhouse Gas Emissions from a Typical Passenger Vehicle." (4) Brooke, L. (2012). Automotive Engineering International. "Special Report Meeting CAFE 2025."