



PPG HI-SIL[®] EZ90G Reinforcing HD Silica

TIRE

PPG HI-SIL[®] EZ90G silica is a reinforcing highly-dispersible synthetic amorphous precipitated silica engineered to provide performance improvements relative to conventional highly-dispersible silicas in winter tire tread and various non-tread compounds.

Hi-Sil EZ90G silica utilizes specific morphology to enable optimization of hysteretic properties to enhance both fuel efficiency and traction properties of tread compounds. Studies support that higher loadings of *Hi-Sil* EZ90G provide an improved winter tire performance. The impact on hysteretic properties also reduces energy loss associated with non-tread tire components such as the sidewall. Additionally, the impact not only further improves fuel efficiency, but reduces heat build-up which leads to a reduction in non-desirable blow outs.

Benefits relative to conventional highly-dispersible silicas

- Better traction for improved safety and handling, especially in wet, snowy, or icy conditions
- Better rolling resistance for improved fuel efficiency
- Better energy management reducing heat build-up for improved resistance to blow-outs
- Better processing

Typical Properties – <i>Hi-Sil</i> EZ90G	
N ₂ BET-5 Surface Area, m ² /g	90
CTAB Surface Area, m ² /g	90
pH, 5% slurry in water	6.5
Residual Salt Type	Na ₂ SO ₄
Physical Form	Micro-granule
Moisture Content, weight %	5.5
Apparent Tamped Density, g/L	~315
Manufacturing Location	Delfzijl, The Netherlands



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A comparative example of *Hi-Sil* EZ90G and a conventional HD silica in one winter tire model formulation is provided below.

Product Safety and Regulatory Information

For the latest product safety and regulatory information, please reference the Product Safety Sheets at www.ppgsilica.com.

Samples

Samples are available per request from customer service.

Packaging

Standard packaging includes small bags and Flexible Intermediate Bulk Containers (FIBCs). Bags are unitized for shipping on pallets which are stretch wrapped with clear plastic film. FIBCs are single or double stacked on wood pallets. Please consult with Silica Customer Service or your Silica Sales Representative regarding additional packaging options including custom package sizes and bulk shipments.

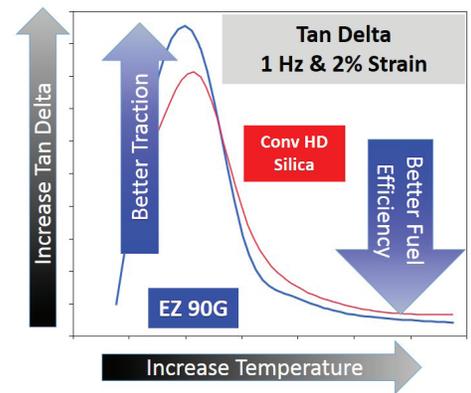
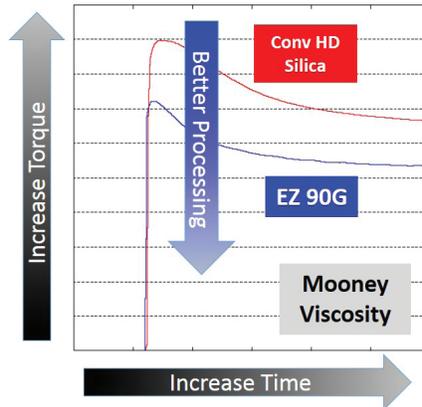
Storage

To ensure product integrity, PPG recommends that our silica products be stored under dry, clean conditions, protected against exposure to direct sunlight and other substances, and used within twelve months of the date of manufacture.

Safety and Health Effects

PPG Industries recommends that, before use, anyone using or handling this product thoroughly read and understand the information and precautions on the label, as well as in other product safety publications such as the Material Safety Data Sheet. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. The products mentioned herein can be hazardous if not used properly. Like all potentially hazardous materials, this product must be kept out of the reach of children.

Lab Predictors of Fuel Efficiency and Traction			
	Conventional HD Silica	<i>Hi-Sil</i> EZ90G silica	
ARES - Temperature Sweep, 1 Hz, 2 % strain			
Storage Modulus (G')			
@ -15 °C, MPa	3.1	2.5	Lower = Better winter dry traction
@ -15° / @ 30°C	2.2	1.8	Ratio < 5.5 = Acceptable Ice / Wet Traction Balance
Complex Compliance (J*) @ -15°C	0.31	0.39	Higher = Better ice traction
Loss Modulus (G'')			
@ 60 °C, MPa	0.14	0.12	Lower = Better fuel efficiency and lower heat build-up which provides better blow-out resistance
@ 0 °C, MPa	0.49	0.34	
@ -30 °C, MPa	3.46	1.99	
Tan (δ) @ 60°C	0.133	0.099	



USA
PPG Silica Products
 440 College Park Drive
 Monroeville, PA 15146 USA

Customer Service: 1-800-243-6745
 Technical Service: 1-800-764-7369
 E-mail: silicacustserv@ppg.com

EUROPE
PPG Delfzijl Plant
 P.O. Box 181
 9930 AD Delfzijl, The Netherlands

Customer Service: +31-596-676710
 Technical Service: +31-596-676710
 E-mail: csdelfzijl@ppg.com

