PPG AGILON® Performance Silica

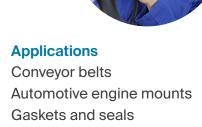
NDUSTRIAL RUBBER

Designed to improve the performance and processing of a wide array of elastomer formulations, PPG AGILON® performance silica offers easier dispersion, reduced viscosity and improved mechanical and dynamic properties when compared to carbon black, silica, and traditional in-situ silica-silane applications. As part of the value-added, pre-treated technology platform, *Agilon* silica eliminates both the need for silane coupling agents and a silanization step during mixing, thus eliminating more than 99 percent of the volatile organic compound (VOC) emissions and increasing manufacturing efficiency.

Benefits

- Lower viscosity at same or higher loadings (improved extrusion throughput)
- Enables high-temperature mixing without increasing viscosity or premature vulcanization
- Improved dispersion and lower filler-filler interaction
- Lower hysteresis and heat build-up
- Lower compression set
- Better abrasion resistance, tear strength, and crack growth resistance
- Eliminates silane handling
- Eliminates silanization (prolonged, high-temperature mixing) requirement
- Eliminates more than 99 percent of the VOC emissions

Typical Properties						
	Agilon 400 silica	Agilon 454 silica				
CTAB Surface Area, m ² /g	140	200				
рН	6.5	6.5				
SH, Wt. %	0.5	0.5				
Carbon, Wt. %	4.0	4.0				
Moisture, as packaged, wt. %	5.5	5.5				
Residual Salt	Na ₂ SO ₄	Na ₂ SO ₄				
Physical Form	Powder or granule	Powder or granule				





Rubber hoses



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, we recommend that our *Agilon* 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 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 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.

Product Safety and Regulatory Information

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



© 2020 PPG Industries, Inc. All Rights Reserved. The PPG logo and *Agilon* are registered trademarks of PPG Industries Ohio, Inc.

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



Conveyor Belt (EPDM – 65 Durometer, sulfur-cure)*					
Filler	Conventional Silica	Agilon 400G-D	Normalized, %**	Comments	
Surface Area, m2/g	135	140			
Loading, phr	55	65			
ML(1+4)	84	58	144	Improved processing	
TC90, min	26	27	101		
% Dispersion	84	90	107	Better dispersion	
Modulus @ 100%, MPa	1.4	1.9	131	Higher modulus, better reinforce- ment	
Modulus @ 300%, MPa	2.6	6.1	234		
300/100 Modulus Ratio	1.8	3.3	178		
Hardness @ 23 °C	64	66	103		
Rebound @ 100 °C, %	55	64	116	Lower hysteresis and HBU	
Tan (δ) @ 60 °C	0.17	0.15	133		
Heat Build Up, °C	6	41	112		
Compression Set, %	88	82	107	Lower compression set	
Demattia Flex Crack Growth, 100k cycles, mm	20	18	11	Improved fatigue performance	
DIN Abrasion Index	100	107	107	Better abrasion resistance	
Die C Tear, N/mm	38	43	112	Better tear strength	

^{*}FORMULA: Keltan 4450S – 100, Silica – see above, Paraffinic Oil – 20, TMQ – 2, Zinc Oxide – 15, Stearic Acid – 2, , Sulfur – 0.4, MBTS – 1.5, MDB – 2, ZBDC – 1

Silane is typically used in sulfur-cured silica-filled compounds to improve

processing, increase abrasion resistance, reduce heat build-up, and lower

compression set. When silica is used without silane in industrial rubber compounds, it normally results in unfulfilled potential in dynamic and mechanical properties. When silane is used, high energy input is needed to allow the chemical reaction between silane and silica to take place. This requires capital equipment and increases mixing times with the consequent reduction in productivity. Not only is a VOC-contributing alcohol by-product produced during this reaction, but undesired premature vulcanization can happen at elevated temperatures, which increases viscosity and creates processing challenges. *Agilon* silica eliminates the need for silane and its associated issues by connecting the silica core to the rubber matrix only after adding curatives.

^{**}Higher is better