



Hi-Sil™ 532EP

Semi Reinforcing Silica for Rubber

Hi-Sil™ 532EP is a synthetic, white, amorphous silicon dioxide powder used in black and non-black rubber compounds as a semi-reinforcing filler and /or extender.

Hi-Sil™ 532EP Typical Properties

Specific Surface Area, BET-1	Surface Area, BET-5	pH	Na ₂ SO ₄	Apparent Tamped Density	Physical Form
60 m ² /g	55 m ² /g	8	2% Max	210 g/L	Powder

Registration Number

CAS No. 112926-00-8	synthetic precipitated amorphous silica
CAS No. 7631-86-9	TSCA Chemical Substance Inventory (SiO ₂)
231-545-4	European EINECS

Mechanical Rubber Goods

The benefits of using Hi-Sil™ 532EP in colored hose cover, wire insulation, sporting goods, and cable jacketing applications are fast extrusion and calendaring, firmness of uncured stocks, smooth surfaces, flexibility, and resilience.

- **Fast, smooth extrusions, excellent flow**
Because of it's lower surface area, Hi-Sil™ 532EP does not exhibit an increase in stiffness and processing viscosity normally encountered with higher surface area silica products.
- **Faster curing**
Rubber compounds using Hi-Sil™ 532EP exhibit cure rates much faster than those compounds using higher surface area silica products. Lower surface area silica is typically less reactive. This lower activity is less reactive to amines and zinc oxide that can reduce accelerator and activator effectiveness.
- **Improved dynamic properties**
Hi-Sil™ 532EP has a unique structure that gives rubber products a high dynamic modulus with low stiffness, high resilience, low compression set, and low heat build up.

Rubber Processing Recommendations

For powder product forms, it is recommended that the silica be added as early as possible in the mixing schedule ideally with the polymer addition and before the process oil. This allows time for silica incorporation into the polymer.

For high powder loading split additions are recommended, first addition with the polymer/s, and the second with the process oil.

Split oil additions are recommended to keep viscosity high. Viscosity aids in silica dispersion.

Note: Silica incorporation time and degree of dispersion in rubber will vary based on internal mixer type and rotor design.

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 60 S. Seiberling Street • Akron, Ohio 44305

HI-SIL™ 532EP

Packaging

Hi-Sil™ 532EP is packaged in 44 pound multi-wall kraft paper bags. The bags are palletized and stretch wrapped in clear plastic film. Shipments can be made in truckloads or railcars. Bulk shipments are also available in flexible intermediate bulk containers (FIBC).

Storage

To ensure product integrity PPG recommends that our silica products be stored under dry, clean conditions and protected against exposure to other substances. Since silica may pick up moisture we also recommend that products that are stored more than one year, from date of manufacture, be re-tested for moisture content. There is no shelf life limit when stretch-wrapped palletized units or bags are kept under the above stated conditions.

Safety and Health Effects



PPG Industries Inc. is committed to safe handling of chemicals at every step of the process, from manufacturing and distribution through education of the end user. Our participation in the American Chemistry Council's *Responsible Care*® Program is evidence of our commitment to the health, safety and welfare of our employees and the industry. PPG Industries Inc. recommends thoroughly reading and understanding the product labels, Material Safety Data Sheets, and other safety information about the product prior to use or handling. Product health and safety information should be made available to your employees and customers.

Samples and Service

PPG's Technical Service Specialists are available for consulting on the use, handling and storage of Hi-Sil™ 532EP.

Gallon containers and bag-size samples are available upon request from Technical Service.



PPG Industries, Inc.
Silica Products
440 College Park Dr.
Monroeville, PA 15146

Customer Service: 1-800-243-6745
Technical Service: 1-800-764-7369



Hi-Sil™ 532EP

Statements and methods presented in this publication are based upon the best available information and practices known to PPG Industries at present, but are not representations or warranties of performance, result or comprehensiveness, nor do they imply any recommendations to infringe any patent or an offer of license under any patent.

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Hi-Sil™

Silicone Elastomer Reinforcing Silica Products

Hi-Sil™ silicone elastomer-grade silicas are white, synthetic, amorphous silicon dioxide powders.

Grades and Typical Properties and Characteristics

Hi-Sil™	Nitrogen Specific Surface Area, BET-1	Nitrogen Surface Area, BET-5	Na ₂ SO ₄ , wt. %	pH	Median Particle (agglomerate) size, microns
532EP (semi-reinforcing)	60	55	≤2	8	15
900	150	135	≤2	7	15
135	170	150	≤2	7	16
132	200	180	≤2	7	15
915	215	195	<0.5	7	11

Registration Number

CAS No. 112926-00-8	Synthetic Precipitated Amorphous Silica
CAS No. 7631-86-9	TSCA Chemical Substance Inventory (SiO ₂)
231-545-4	European EINECS

Silicone Rubber Usage

Hi-Sil™ silica products are added to silicone elastomers to reinforce or extend the compound. Both precipitated or fumed silica can be used to reinforce silicone compounds; however, Hi-Sil™ silicas have the following advantages over fumed silica:

- Acceptable reinforcement at lower cost
- Significantly reduced crepe hardening
- Excellent compression-set resistance
- Excellent resistance to heat aging without the use of special heat aging additives.

Additionally, Hi-Sil™ silicone-grade silica products can also be used in conjunction with fumed silica to extend the compound or increase hardness and reduce tackiness.

Hi-Sil™ 532EP provides reinforcement (tear resistance) with increased hardness and dynamic properties (rebound) compared to crystalline silica (ground quartz).

Hi-Sil™ 900 reinforcing silica provides good tensile strength, tear resistance, compression-set, and good dynamic properties such as rebound.

Hi-Sil™ 135 combines relatively rapid incorporation and low Williams Plasticity with slightly higher tensile strength compared to Hi-Sil™ 900.

Hi-Sil™ Silicone-Grade Silica Products

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Hi-Sil™ 132 has a higher surface area, builds viscosity more rapidly and leads to higher durometer than either Hi-Sil™ 900 or Hi-Sil™ 135 at equal loading.

Hi-Sil™ 915 yields high initial compound viscosity, but with less effect on durometer than Hi-Sil™ 132. It also displays initial viscosity build without generating excessive crepe hardening normally associated with fumed silica.

Packaging

Hi-Sil™ silicone-grade products are packaged in multi-wall kraft paper bags as follows:

<u>Product</u>	<u>Net weight</u>	<u>Bag Construction</u>
532EP	44 pounds	kraft paper bags
900	30 pounds	kraft paper bags
135	44 pounds	kraft paper bags
132	44 pounds	kraft paper bags
915	25 pounds	kraft paper bags

Storage

To ensure product integrity PPG recommends that our silica products be stored under dry, clean conditions and protected against exposure to other substances.

Since silica may pick up moisture we also recommend that products that are stored more than one year, from date of manufacture, be re-tested for moisture content.

There is no shelf life limit when stretch-wrapped palletized units or bags are kept under the above stated conditions.

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Samples and Service

PPG's Technical Service staff has specialists available for consulting on the use, handling and storage of Hi-Sil™ Silicone Elastomer-Grade Silica products.

Product samples are available upon request.



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