



Material Specifications:

High temperature and impact strength for applications in the glass manufacturing industry

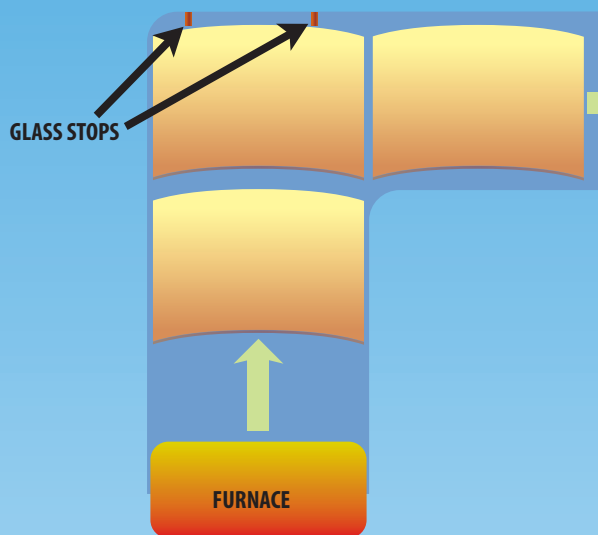
Benefits of Material:

- Withstands extreme temperatures
- Excellent impact resistance
- Reduced thermal conductivity
- Does not cause damage to hot glass
- Long-lasting solution

Customer Problem:

The high temperature of glass coming out of furnaces was causing stops on the production line to wear quickly. Stops were also causing damage to the hot glass.

Stops are put in place to provide a protective bumper and to redirect the glass as it moves along the conveyor, but the stops needed to be replaced several times per day meaning the furnace had to be shut down. (The customer noted, on average, stops are replaced after approximately 1,000 - 2,000 uses.) The stops also had a tendency to mar the glass and at times breakage occurred causing further shut down of the furnace, production line, and loss of product.



The Solution:

The customer tested glass stops made from DuPont™ Vespel® SCP 5050. The positive impact on the manufacturing process was immediate. The need to replace stops went down 75%. This resulted in a reduction of furnace downtime, an increase in overall production efficiency and energy savings. Additionally the customer noted there was a reduction in loss of product due to damage as the glass came into contact with the DuPont™ Vespel® stops.

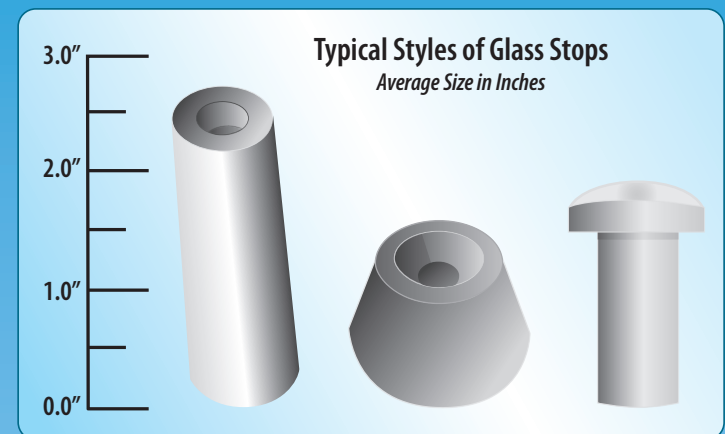
The customer was so pleased with the results of the DuPont™ Vespel® SCP 5050 that they implemented use of the new stops at their other facilities.

Glass Stops



Glass Stops made from
DuPont™ Vespel® SP-1

Part size
Approximately
1.75 in x 2.75 in



SP-1 and SCP 5050 for the Glass Industry

Depending on your particular needs, DuPont's SP-1 and SCP-5050 are good options for the glass industry.

SP-1 is made from non-melting polyimide resins. DuPont's proprietary isostatic molding process creates a product with a unique set of properties that includes high temperature resistance, impact resistance, and low electrical conductivity. The lower heat transfer coefficient of SP-1 helps to minimize or eliminate checks or other damage to glass. SP-1 is also relatively easy to machine making it a good choice for small or detailed parts. In addition SP-1 is unfilled and has superior toughness and heat resistance making it ideal for the glass industry. Over time SP-1 will darken as it's exposed to high temperatures, but this does not necessarily indicate a loss of properties.

SCP-5050 is graphite filled which creates a stiffer material with lower coefficient of friction and thermal expansion than SP-1.

Tests show after aging for 100 hours at 600°F (315°C), DuPont™ Vespel® SCP-5050 components exhibit 70%-100% higher impact resistance than carbon graphite parts. Depending on the application SCP-5050 may provide a longer part life. Testing also revealed parts from SCP-5050 have a 2-11 times longer part life than carbon graphite parts and 50-100 times lower heat transfer.

Our team can help you determine the best value for your application. Give us a call today! 877.246.7700.

Typical Properties of DuPont™ Vespel® Isostatic Shape Grades

				Vespel® SP					Vespel® SCP		
				SP-1	SP-1	SP-22	SP-211	SP-3	SCP-5000	SCP-50094	SCP-5050
Mechanical Property	Temperature	ASTM	Units	Unfilled	15% graphite filled	40% graphite filled	15% graphite & 10% Teflon® Filled	Vacuum Bearing Grade	Unfilled	Graphite filled Bearing Grade	Graphite filled Bearing Grade
Tensile Strength	23°C (73°F) to 260°C (500°F)	D-1708 / D638	ksi	12.5 6.0	9.5 5.5	7.5 3.4	6.5 3.5	8.2	23.4 8.9	18.0 8.0	10.3 6.0
Elongation at Break	23°C (73°F) to 260°C (500°F)	D-1708 or E8†	%	7.5 6.0	4.5 3.0	3.0 2.0	3.5 3.0	4.0	7.0 >20	4.3 13.0	1.6 3.0
Flexural Modulus	23°C (73°F) to 260°C (500°F)	D-790	ksi	450 250	550 370	700 400	450 200	475 270	840 440	923 514	1,093 700
Compressive Stress at 1% strain	23 °C (73 °F)	D-695	ksi	3.6	4.2	4.6	3.0	5.0	33.3	31.9	22.0
at 10% strain	23 °C (73 °F)			19.3	19.3	16.3	14.8	18.5			
at 0.1% strain	23 °C (73 °F)			6.6	6.6	6.0	5.4				
Deformation Under Load	23 °C (73 °F)	D-695	%	0.14	0.10	0.08	0.13	0.12			
Friction Coefficient** PV = 25,000 psi-ft/min PV = 100,000 psi-ft/min Static coefficient of friction in air PV limit (unlubricated)	-	-	-	.29	0.24	0.20	0.12	0.25	0.26	0.25	0.21
					0.12	0.09	0.08	0.17	0.15	0.06	0.09
				.35	0.30	0.27	0.20				
			ksi ft/min		350	350	100			500	
Other Properties											
Coefficient of Thermal Expansion	23°C (73°F) to 260°C (500°F)	D-696	10 ⁻⁶ /in/ in/°F	30	27	21	30	30	26	24	
Hardness			Rock E	45-60	25-45	5-25	1-20	40-55	95	91	
Water Absorption	24 hours at 23°C (73°F), 100 % RH	D570	%	.24	0.19	0.14	0.21	0.21	0.08	0.06	0.06

About ThyssenKrupp Materials NA AIN Plastics Division

AIN Plastics is proud to be an Authorized DuPont™ Vespel® Distributor. We provide only authentic DuPont™ Vespel® for the highest quality and consistency every time you order. Our experienced staff is happy to provide assistance with your material selection to ensure you find the best balance of quality, performance, and price.

AIN Plastics is a Division of ThyssenKrupp Materials NA, Inc. which has offered customers throughout North America quality products, competitive pricing, and an unsurpassed level of service by supplying industrial plastic shapes from the world's leading manufacturers for over 40 years.

By combining AIN Plastics expertise in the plastics industry with the nationwide logistics network of the ThyssenKrupp Materials NA group, we can provide a broad array of plastics inventory that can ship from multiple warehouses across the country.

Our expert sales force provides unparalleled sales and applications assistance for our products. We can also set up a value added stocking program to keep just the right amount of inventory on your shelves.

AIN Plastics is an Authorized DuPont™ Vespel® Parts and Shapes



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AIN Plastics Division

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