



Understanding ASTM Crack Sealant Specifications



ASTM International is the a leader in establishing testing and quality standards, especially in the construction industry. Some ASTM standards related to crack sealant are procedural / testing related. A brief description of these is in Table 1. Other ASTM standards are quality or result orientated, as is the case with ASTM D 6690. The quality ASTM standards relate to roads, highways, and bridges. The standards are not applicable for driveways and parking lots. In 2000, ASTM discontinued the D 3405 and D 1190 specifications. They were replaced with D 6690. Although the 3405 & 1190 are formally discontinued, they are still being referred to. The current standard, D 6690, has 4 types associated with it outlined in Table 2.

Table 1: Understanding Crack Sealing Tests

Penetration (ASTM D 5329)	The higher the penetration test results the "softer" the crack sealant. For driveway and parking lot applications, it is best to have a low penetration test in order to withstand the elements of foot traffic, power steering, and shopping carts.
Resiliency (ASTM D 5329)	Resiliency is akin to the speed the crack sealant recovers after a foreign object is dislodged from it. The higher the number the more the material has recovered.
Flow (ASTM D 5329)	The flow test measures how likely the crack sealant is to move within the crack at 140 F. The higher the measurement, the more movement.
Softening Point (ASTM D 36)	A high softening point (anything over 200 F) is desirable when working on parking lots and driveways. Materials with a high softening point may take longer to melt.
Bond & Tensile Adhesion (ASTM D 5329)	The bond tests measures the cohesion and adhesion of the crack filler at low temperatures. The tensile adhesion tests these properties at room temperature.
Low Temperature Flexibility (ASTM D 3111 modified)	In cool/cold climates it is important to use a product with at least a 0 F low temperature flexibility. Choosing a material without low temperature flexibility in a cold climate may result in the crack sealant cracking in the winter months.
Viscosity (ASTM D 4402 / 2669)	The viscosity is a measurement of thickness at liquid stage. The higher the number, the thicker the material. Additions of recycled crumb rubber tend to increase viscosity. On a jobsite, it is difficult to use a higher viscosity product on thinner cracks.

Table 2: ASTM D 6690

	Type 1	Types 2 & 3	Type 4
Former Spec	1190	3405	3405 modified
Recommended Climate	Moderate	Moderate to Cold	Cold
Penetration	90 dmm Max	90 dmm Max	90 - 150 dmm
Resiliency	no spec	60 % Min	60 % Min
Flow	5.0 mm Max	3.0 mm Max	3.0 mm Max
Softening Point	176 F Min	176 F Min	176 F Min
Bond	0 F, 50% extension	-20 F, 50% extension & 0 F, 100 % extension	-20 F, 200% extension
P&T Products' Material	Dura-Shell 1190S, Dura-Fill DUO, 1190, 1190 R, 1190 NR, 620	Dura-Fill 3405, 3405 R, 3405 NR	Dura-Fill 3405 LM, 3725

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