

FASTBLOCK® 300 Series



LOW DENSITY, FIRE AND THERMAL BARRIER COATING AND FABRICATION COMPOUNDS

Description

FASTBLOCK® 300 SERIES compounds are low density fire and thermal barriers. These two part systems adhere well to most substrates and can be formulated to cure rapidly at room temperature, making them useful as adhesives and coatings. They can be processed into complex, flexible covers and composite shapes using a variety of tooling and processing techniques. Cured bulk materials can be easily cut to any desired size and shape using common methods without the need for edge finishing or sealing.

Benefits

FASTBLOCK® 300 SERIES compounds offer the following advantages:

- ▶ Save weight – up to 50% lighter than other firewall sealants
- ▶ Reduce costs by allowing the use of less expensive materials, reducing fasteners and part count, reducing installation time, and improving reparability
- ▶ Increase occupant safety by meeting the most stringent fire, smoke, and toxicity requirements
- ▶ Improve system performance through reduced noise, heat transfer, and vibration

Uses

FASTBLOCK® 300 SERIES compounds are recommended for use where superior fire barrier or thermal insulation properties are required, especially when some flexibility is desirable. The materials are effective between -54°C and +204°C (-65°F to +400°F) and can withstand short-term exposure to higher temperatures including a +1100°C/116kW/in² (2000°F/10 BTU/ft²-s) flame as required by ISO 2685 and FAA AC 20-135.

FASTBLOCK® 300 SERIES compounds can be substituted for traditional firewall sealants to save weight and add thermal protection in potting and construction gap filling applications. They can be used by themselves or combined with fiberglass, stainless steel, polyimide film, and many other materials to make removable fire and heat shields from existing structure. They can be ordered in pre-molded panels, covers, blankets, and sheet for use as stand-alone firewalls and for protecting graphite/epoxy, aluminum, and other sensitive structure. FASTBLOCK® 300 SERIES compounds can be used to bond and repair blankets and covers made from traditional materials.

Sample Properties – FASTBLOCK® 301*	Method																	
DENSITY	0.67 g/cm ³ (41.82 lb/ft ³) oven cure, 0.75g/cm ³ (46.82 lb/ft ³) press cure 0.72 g/cm ³ (44.9 lb/ft ³) room temperature cure	ASTM D792																
THERMAL CONDUCTIVITY	.10 W/m-K (.06 BTU/ft-hr-°F) at 26°C (78°F) and .12 W/m-K (.07 BTU/ft-hr-°F) at 205°C (401°F)	D433/C518																
NONVOLATILES	99.5%																	
TACK-FREE TIME	45 minutes for Type I and 16 hours for Type II																	
PEEL STRENGTH	<table border="1"> <thead> <tr> <th>Panel</th> <th>Original</th> <th>Heat Aging: 72 hrs. at 401°F (205°C)</th> </tr> </thead> <tbody> <tr> <td>Aluminum</td> <td>10.77ppi (18.85 N/cm)</td> <td>16.63 ppi (29.10 N/cm)</td> </tr> <tr> <td>CRS</td> <td>10.26 ppi (17.96 N/cm)</td> <td>17.79 ppi (31.13 N/cm)</td> </tr> <tr> <td>Titanium</td> <td>12.28 ppi (21.49 N/cm)</td> <td>27.40 ppi (47.95 N/cm)</td> </tr> <tr> <td>Graphite</td> <td>13.1 ppi (22.77 N/cm)</td> <td>16 ppi (28 N/cm)</td> </tr> </tbody> </table>	Panel	Original	Heat Aging: 72 hrs. at 401°F (205°C)	Aluminum	10.77ppi (18.85 N/cm)	16.63 ppi (29.10 N/cm)	CRS	10.26 ppi (17.96 N/cm)	17.79 ppi (31.13 N/cm)	Titanium	12.28 ppi (21.49 N/cm)	27.40 ppi (47.95 N/cm)	Graphite	13.1 ppi (22.77 N/cm)	16 ppi (28 N/cm)	ASTM C794/D903	
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HEAT STABILITY	<ul style="list-style-type: none"> ▶ 5036 kPa (730 psi) original tensile strength ▶ 5764 kPa (863 psi) tensile strength after 168 hours at 204°C (400°F) ▶ 2808 kPa (407 psi) tensile strength after 168 hours at 260°C (500°F) ▶ 176 kPa (26 psi) tensile strength after 168 hours at 312°C (600°F) 	ASTM D518																

Sample Properties – FASTBLOCK® 301*

		Method
FLUID RESISTANCE	<p>Tensile strength values for samples immersed 168 hours at 49°C (120°F) and for same after 168 hours dry out at 204°C (400°F)</p> <ul style="list-style-type: none"> ▶ Control: 5036 kPa (730 psi) ▶ JP-4 (MIL-T-5624): 726 kPa (105 psi) after immersion and 2447 kPa (355 psi) after dry out ▶ Hydraulic Fluid (MIL-H-83282): 2942 kPa (427 psi) after immersion – no dry out data available ▶ Propylene Glycol Deicing Fluid (MIL-A-8243): 2616 kPa (379 psi) after immersion and 3821 kPa (554 psi) after dry out ▶ Aircraft Cleaner (MIL-C-87936): 1383 kPa (201 psi) after immersion – no dry out data available 	ASTM D471/D412
COMPRESSION SET	<ul style="list-style-type: none"> ▶ 80% after 22 hours at 150°C (302°F) ▶ 98% after 70 hours at 150°C (302°F) 	ASTM D395 Method B
REPAIRABILITY	Satisfactory	
FIRE RESISTANCE	<p>No flame penetration or backside ignition of a slab when impinged upon by an 1100°C, 116 kW/m² (2000°F, 10 BTU/ft²-s) kerosene flame for 15 minutes. The following backside temperatures were recorded at test completion:</p> <ul style="list-style-type: none"> ▶ 239°C (462°F) for 10.2 x 10.2 x .64 cm (4 x 4 x .25 inch) slab of 301 compound only ▶ 161°C (321°F) for 10.2 x 10.2 x .64 cm (4 x 4 x .25 inch) slab of 301 with 2 plies .018 cm (.007 inch) fiberglass cloth ▶ 310°C (590°F) for 10.2 x 10.2 x .13 cm (4 x 4 x .05 inch) slab of 301 with 2 plies .018 cm (.007) inch fiberglass cloth ▶ 415°C (779°F) for 21.6 x 21.6 x .076 cm (8.5 x 8.5 x .03 inch) slab with 1 ply .018 cm (.007 inch) fiberglass cloth and 1 layer .010 cm (.004 inch) stainless steel foil 	FAA AC 20-135

* FASTBLOCK® 301 is one of several compounds in the 300 series. Please refer to the material specification TA 18018, Rev. B (SP 167) and test report summary of each compound of interest. Properties shown above are excerpts from Test Report Summary - TR 167, July 2006.