

Technical Datasheet

Ashland Performance Materials

Pliogrip™
structural adhesives

PLIOGRIP™ 6600 / 6611 Urethane Adhesive System

Description The PLIOGRIP 6600/6611 system is a two-component, structural urethane adhesive system designed for ambient and heated fixture bonding applications. This two-component technology is designed for use on a variety of thermoset composites as well as thermoplastics and metals. PLIOGRIP 6600/6611 adhesive requires the use of an adhesion promoting primer on plastics, and a corrosion resistant primer on metals; other surface preparation techniques may be acceptable. PLIOGRIP 6600/6611 adhesive is an ambient curing system; post-cure heat exposures are not required.

Features and benefits

- Several times stronger than the bonded laminates - excellent part durability
- 100% reactive, contain no solvents
- High elongation coupled with high strength to give excellent energy management in dynamic systems
- Resistant to a wide variety of extreme environments including high and low temperatures, salt fog, high humidity, and common chemicals including gasoline, diesel fuel, brake fluids and oils
- Cures at ambient temperature
- Mixed adhesive stays where it is applied, eliminating waste from sag or run off of mixed materials
- Honeylike viscosity, permitting simple and cost friendly transfer by gravity feed

Nominal component properties

	PLIOGRIP 6600	PLIOGRIP 6611
Chemistry	Isocyanate Prepolymer	Polyol Curative
Color	Tan	Green
Viscosity, cps or mPa s	23,500	14,000
Specific Gravity, g/ml	1.26	1.09
Ratio by Weight	4.03	1.00
Ratio by Volume	3.50	1.00
Odor	none	slight amine

Typical cure characteristics of the mixed adhesive

	Temperature	Time
Open Time (Ashland PGDEV-022)	@ 73°F (23°C)	6 - 8 min
Handling time	@ 73°F (23°C)	30 - 40min

Open Time - also "wet time" or "pot life." The time the adhesive is wet enough to bond to a second substrate being mated in the bed of adhesive. The open time is temperature dependent. All data given were measured at 73°F (23°C). Increasing the ambient temperature by 10°C will result in a reaction twice as fast (open time is cut into half).



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Handling Time - Time when the adhesive is hard enough to hold on its own. The handling strength of freshly bonded parts depends on type and height of outside forces, that impact the bond. Typically, 100psi (0.7 MPa) is needed. In all cases peel forces that effect the bond need to be reduced as far as possible.

Physical properties of the cured adhesive

	Value	Test Method
Tensile strength, psi @ 73°F (MPa @ 23°C)	3,500 (24)	ASTM D-638
Young's Modulus, psi @ 73°F (MPa @ 23°C)	87,300 (602)	ASTM D-638
Elongation, %	55	ASTM D-638
Poisson Ratio, @ 73°F (23°C)	0.502	ASTM E-132
Water Absorption, %	<1.5	ASTM D-570
Shore Hardness, D	60	ASTM D-2240
Shrinkage, %	<1.0	ASTM C-733
CLTE, 10-6/°C @ -30°C to 0°C	115.9	ISO MAT-2208
CLTE, 10-6/°C @ 100°C to 130°C	268.0	ISO MAT-2208
Glass Transition Temperature, °C		
G' Onset	-44.8 & 30.4	ASTM E-1640
G'' Peak	-35.7	ASTM E-1640
Tan Delta Peak	65.1	ASTM E-1640

Physical properties are values based on material tested in our laboratories, but are subject to a standard deviation from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot.

Application Guide

Cure	Ambient or heat accelerated cure (max 120°C)
Optimum Bondline Thickness	0.020 inches to 0.060 inches (0.5mm to 1.5mm)
Gap Filling	Very Good
Sag Resistance	For vertical applications

Handling

PLIOGRIP 6600/6611 Adhesive System contains ingredients which could be harmful if improperly handled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

Ashland Performance Materials maintains Material Safety Data Sheets on all of its products. Material



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Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

Packaging	PLIOGRIP 6600/6611 is available in 55-gallon drums and 5-gallon pails.
Shelf Life and Storage	Pliogrip 6600/6611 bulk components have a shelf life of one year from the date of shipment when stored indoors between 60°F and 90°F (15°C to 32°C).
Notice	<p>All information presented herein is believed to be accurate and reliable, and is solely for the user's consideration, investigation and verification. The information is not to be taken as an express or implied representation or warranty for which Ashland assumes legal responsibility. Any warranties, including warranties of merchantability or non-infringement of intellectual property rights of third parties, are herewith expressly excluded.</p> <p>Since the user's product formulations, specific use applications and conditions of use are beyond the control of Ashland, Ashland makes no warranty or representation regarding the results which may be obtained by the user. It shall be the responsibility of the user to determine the suitability of any of the products mentioned for the user's specific application.</p> <p>Ashland requests that the user reads, understands and complies with the information contained herein and the current Material Safety Data Sheet.</p>

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