



NUMBER 5169-2 (Supersedes 5169-1)

Pliogrip™ Impact 3540 series

MDI free polyurethane adhesives

Introduction

Pliogrip Impact 3540 is a series of two component room temperature curing polyurethane adhesive systems offering a unique combination of flexibility and strength. The systems distinguish themselves with excellent specific adhesion to thermoset and thermoplastic materials as well as to coated metals.

Amongst the advantages in plastic bonding and repair applications they offer a well-balanced profile of easy application, gap filling and optimized trimming (sanding) properties. Greatly enhanced impact toughness sets it apart from other commercial two-component plastic bonding and repair systems.

Pliogrip Impact 3540 is available in reactivity variants from 30 seconds to 45 minutes' open time.

The unique chemistry of these polyurethane adhesives systems allows non-yellowing white variants.

PLIOGRIP IMPACT	3540 / 0.5	3540 / 1.5	3540 / 3.5	3540 / 5	3540 / 10	3540 / 45
Open Time (Bead Gel)	20-30 sec	70-115 sec	3-4 min	4-6 min	8-12 min	45-60 min
Handling Time (0.7MPa)	3-4 min	8-10 min	15-20 min	20-30 min	40-50 min	4-5 h
Sanding Time	5-6 min	10-12 min	30-40 min	40-60 min	1-1.5 h	8-10 h

Colour versions: generally available in Black (B) or White (W)

All data refer to 23°C ambient temperature. Lower temperatures will prolong the cure; higher temperatures will accelerate the cure.

In contrary to the classic polyurethane adhesive systems Pliogrip Impact 3540 PU adhesive systems do not contain MDI (Methyendiphenyldiisocyanat) and are not H351 classified.

Product Benefits

- Excellent specific adhesion to thermoset composite materials such as SMC, BMC, CFRP, RTM, to thermoplastic materials such as PUR-RIM, ABS-PC, PA, PC and coated metals.
- Enhanced adhesion to PE and PP (non-structural)
- Structural bonding, sealing and repair in one product
- Fast cure response at room temperature
- Heat acceleration optional to achieve short cycle times
- Excellent impact resistance
- Contains no MDI, improved health and safety classification
- Easy processing from cartridge



Nominal Component Properties

	Pliogrip™ 35	Pliogrip™ 40
Chemistry:	Isocyanate	Polyol Curative
Color:	White	black or white
Viscosity mPa s at 100 s-1:	11.000	8.000
Specific Gravity:	1.3	1.3
Ratio by weight:	100	100
Ration by volume:	100	100

Application guide Pliogrip Impact 3540 systems

Open Time	see table page 1
Handling Time	see table page 1
Cure	Ambient or heat accelerated cure (max 120°C)
Optimum Bondline Thickness	0.5mm to 1,5mm
Maximum Bondline Thickness	app 5mm
Paint Bake	max 150°C
Gap Filling	Very Good
Sag Resistance	For vertical applications
Consumption, ¼" Diameter Round Bead	app 40g / m
Consumption, ½" Diameter Round Bead	app 160g / m

Physical properties of the cured adhesive system

Tensile strength, MPa @ 23°C	18	ASTM D-638
Young's Modulus, MPa @ 23°C	160	ASTM D-638
Elongation, %	55	ASTM D-638
Poisson Ratio, @ 23°C	0.44	ASTM E-132
Water Absorption, %	0.5	ASTM D-570
Shore Hardness, D	73	ASTM D-2240
CLTE, 10-6/°C @ -30°C to 30°C	112.6	ISO MAT-2208
CLTE, 10-6/°C @ 30°C to 80°C	203.6	ISO MAT-2208
Glass Transition Temperature, °C Torsion1Hz, 2K/min		
G' Onset	15	ASTM E-1640
G' Peak	18	ASTM E-1640
Tan Delta Peak	30	ASTM E-1640
Impact Resistance CHARPY Impact, Un-notched		
7,5 J Pendulum	Non breakable	ISO 179/1eU
15 J Pendulum	>1 MJ/m³	ISO 179/1eU

Physical properties are typical 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.

Handling and Precautions

Ashland maintains Safety Data Sheets (SDS) on all of its products. Users should consult the latest SDS for Pliogrip 35 and Pliogrip 40 to familiarize themselves with product hazards and the precautions to be taken when handling or using these products.

Packaging

Pliogrip™ Impact 3540 adhesive systems are supplied in cartridges of 50ml or 220ml. Please contact your local sales representative for supply options.

Shelf Life and Storage

Pliogrip Impact 3540 cartridges have a shelf life of 24 months from date of filling, when stored indoors between 15°C to 32 °C. After dispensing the used mixer should be left attached to the cartridge to ensure sealing from humidity.

Notice

All information presented herein is believed to be accurate and reliable, and is solely for the user's consideration, investigation and consideration. 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, fitness for use or non-infringement of intellectual property rights of third parties, are herewith expressly concluded.

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 sole responsibility of the user to determine the suitability of any of the products mention for the user's specific application.

Ashland requests that the user reads, understands and complies with the information contained herein and the current SDS.