

Plexus MA3940LH Technical Data Sheet

Benefits

No Surface Preparation
Fast setting adhesive
100% Reactive
Non-Sagging

Characteristics

Room Temperature Cure
Working Time²
4 - 5 minutes
Fixture Time³
8 - 10 minutes
9°C Flash Point
Operating Temperature
-55°C to 121°C
Gap Filling to 4mm
Mixed Density
.98 g/cc

Chemical Resistance⁴

Excellent resistance to

- Acids and Bases (3-10 pH)
- Salt Solutions

Susceptible to:

- Polar Solvents
- Strong Acids and Bases

Recommended for:

ABS
Acrylics
Fibreglass
Gelcoats⁵
Polycarbonate
PVC
Polyesters (including DCPD modified)
Styrenics
Urethanes (General)
Vinyl Esters

Plexus[®] 3940LH is a new generation of fast setting methacrylate adhesive specifically designed for the structural assembly of advanced automotive components¹. After mixing, Plexus MA3940LH rapidly cures to form a tough, elastomeric bond with superb shear, peel and impact strength over a wide temperature range. Combined at a 10:1 ratio, it has an open time of 3 - 4 minutes, a working time of 4 to 5 minutes and achieves 75% of ultimate strength in 8 to 10 minutes. Plexus 3940LH is the standard for applications requiring an adhesive to bond substrates sensitive to chemical crazing such as acrylic or polycarbonate. In addition, this product provides a unique combination of high strength, excellent fatigue endurance, outstanding impact resistance, and superior toughness at temperatures below -17°C. Plexus 3940LH is blue and is supplied in ready-to-use cartridges, 20 litre pails, or 200 litre drums, and can be dispensed as a non-sagging gel using standard meter-mix equipment.

Physical Properties (Uncured) -Room Temperature

	Adhesive	Activator
Viscosity, cP	120,000 - 160,000	35,000 -55,000
Colour	Off-White	Dark Blue
Density, g/cc	0.92	1.04
Mix Ratio by Volume	10	1
Mix Ratio by Weight	8.62	1

Performance Characteristics (Cured)

Adhesive Tensile Shear Strength to ASTM D1002	ABS to ABS	9.72 Mpa Substrate Failures
	Xenoy to Xenoy	9.00 Mpa Substrate Failures
Adhesive Peel Strength to ASTM D3807	Xenoy to Xenoy	3.00 N/mm ² Cohesive Failures
Durability: 300 hours at 90°C	ABS to ABS	80% strength retained - Substrate Failure
Chemical Resistance: 168 hours immersion in 35% v/v ethanol/water at room temperature:	ABS to ABS	93% strength retained - Substrate Failure

HANDLING AND APPLICATION

Plexus[®] 3940LH adhesive (Part A) is flammable. Contents include Methacrylate Ester. Keep containers closed after use. Avoid skin and eye contact. Wash with soap and water after skin contact. In case of eye contact, flush with water for 15 minutes and get medical attention. Harmful if swallowed. Keep out of reach of children. Keep away from heat, sparks, and open flames.

Note: Because of the rapid curing features of this product, large amounts of heat are generated when large masses of material are mixed at one time. The heat generated by the exotherm resulting from the mixing of large masses of adhesive can result in the release of entrapped air, steam, and volatile gases. To prevent this, use only enough material as needed for use within the working time for the product and confine gap thickness to no more than 4mm. Questions relative to handling and applications should be directed to ITW Plexus at 01536 314800.

DISPENSING ADHESIVE

MA3940LH may be applied manually or with automated equipment. Automated application may be accomplished with a variety of 10 to 1 meter-mix equipment delivering both components to a static mixer. For information concerning meter-mix equipment, contact ITW Plexus Sales Representatives. Pre-measured cartridges are also available, as well as the hand-held guns with which to dispense the adhesive. For more information, contact ITW Plexus at 01536 314800. To assure maximum bond strength, surfaces must be mated within the specified working time. Use sufficient material to ensure the joint is completely filled when parts are mated and clamped. All adhesive application, part positioning, and fixturing should occur *before* the working time of the mix has expired. After indicated working time, parts must remain undisturbed until the fixture time is reached. Automated equipment should be constructed of stainless steel or aluminum. Avoid contact with copper or copper containing alloys in all fittings, pumps, etc.. Seals and gaskets should be made of Teflon, Teflon-coated PVC foam, ethylene/propylene or polyethylene. Avoid the use of Viton, BUNA-N, Neoprene or other elastomers for seals and gaskets. Clean-up is easiest *before* the adhesive has cured. Citrus terpene or N-methyl pyrrolidone (NMP) containing cleaners and degreasers can be used for best results. If the adhesive is already cured, careful scraping, followed by a solvent wipe may be the most effective method of clean-up.

EFFECT OF TEMPERATURE

Application of adhesive at temperatures between 18°C and 26°C will ensure proper cure. Temperatures below 18°C will slow cure speed; above 26°C will increase cure speed. The viscosities of Parts A and B of this adhesive are affected by temperature. To ensure consistent dispensing in meter-mix equipment, adhesive and activator temperatures should be held reasonably constant throughout the year.

STORAGE AND SHELF LIFE

The shelf life for MA3940LH adhesive (Part A) is 1 year from day of shipment from ITW Plexus. The shelf life for activator (Part B), including cartridges that contain activators, is 6 months from day of shipment. Shelf life is based on continuous storage between 12°C and 23°C. Long term exposure above 23°C will reduce the shelf life of these materials. Prolonged exposure of activators, including cartridges which contain activators, above 37°C quickly diminishes the product's reactivity and should be avoided. Shelf life can be extended by refrigeration (7°C - 12°C). These products should never be frozen.

Notes

- ¹ ITW Plexus strongly recommends all substrates be tested with the selected adhesive in the anticipated service conditions to determine suitability.
- ² Open Time: The maximum time after application of the adhesive to ensure surface wetting.
Working Time: The time elapsed between the moment Parts A and B of the adhesive system are combined and thoroughly mixed and the time when the adhesive is no longer useable. Times presented were tested at 23°C.
- ³ Fixture Time: The interval of time after which surface being joined will support a 1 kg dead weight on a 12.7 mm overlap joint 125.4 mm wide without movement. Times presented were tested at 23°C.
- ⁴ Resistance to chemical exposure varies greatly based on several parameters including; temperature, concentration, bondline thickness, and duration of exposure. The chemical resistance guidelines listed assume long term exposures at ambient conditions.
- ⁵ Urethane-modified super-weathering gelcoats may require an alternate adhesive. As with all substrates, these gelcoats should be tested with the selected adhesive to determine suitability.

All information on this data sheet is based on laboratory testing and is not intended for design purposes. ITW Plexus makes no representations or warranties of any kind concerning this data. Due to variance of storage, handling and application of these materials, ITW Plexus cannot accept liability for results obtained.