

## Description

PRIMER 760 is a single-coat adhesive for bonding castable and RIM urethane elastomers to metal. PRIMER 760 adhesive is characterised by bond strengths greater than tear strength of the urethane substrate, with excellent retention of properties after exposure to harsh environments. PRIMER 760 will bond a wide variety of both prepolymers of varying hardness to all types of metal. PRIMER 760 bonds RIM urethane elastomers directly to aluminium or steel without the need for primers or for pre-baking.

## Features and Benefits

- Versatile - Bonds a wide variety of both polyether and polyester compounds, including RIM, eliminating the need to stock several adhesives in your plant.
- Tolerant to Process - Accommodates a wide range of processing conditions, including pre-baking.
- Durable- Bonded assemblies are particularly resistant to exposure to harsh environments, thus giving longer service life products.
- One Coat - Only a single dip or brush coat is required, thus minimising application costs.
- Non-Settling - Product does not require agitation saving application time and eliminating possible application errors.
- Fast Drying - Allows rapid turnaround times in the plant and minimises the need to keep large inventories of coated parts.

## Typical Physical Properties

Composition	A mixture of polymers, curatives and dyes dissolved in an organic solvent system
Colour	Blue
Viscosity Brookfield LVT No. 2 Spindle @ 30 rpm @ 25°C	100 - 300 cps
Non-volatile Content Weight Volume **	( % ) 21 - 24 ± 16,5
Specific Gravity	0,90 g/cm <sup>3</sup>
Flash point (Seta) **	5°C
Coverage **	Approximately 9 m <sup>2</sup> / litre at 25 µm dry film thickness
Diluents	Oxitol Acetate or Oxitol Acetate / MEK
Solvents	Oxitol Acetate, MEK, Xylene
Shelf life stored @ 25°C	One year from date of delivery in unopened container

\*Typical - not for specification purposes  
\*\*Not Routinely tested - Theoretical value

---

## BONDING WITH PRIMER 760

### Metal Surface Preparation

Proper penetration of the surfaces to be bonded is one of the most important factors influencing adhesion in any bonding process. For optimum performance the substrate must be prepared in such a way as to provide a receptive surface for the adhesive. The importance of meticulous preparation cannot be over-emphasised. Metal surface preparation may be broadly divided into two classes; mechanical methods and chemical methods.

#### Mechanical Method

Mechanical methods include such operations as blasting with sand, grit and metal oxides; abrading with a wire brush, steel wool or backed abrasives; and machining or scoring with cutting tools. Chemical solvent cleaning is sometimes necessary with methods that are classified as mechanical.

Blasting with grid (steel or aluminium oxide) combined with solvent cleaning is a widely used and generally excellent method of preparing steel surfaces. It is especially useful for metals covered with rust, scale, oxide layers and similar corrosion compounds, or those badly soiled or contaminated with materials such as processing oils or corrosion protection greases. A typical sequence of steps is vapour degrease, grit, vapour degrease

Initial degreasing with Trichloroethylene (TCE) or Perchloroethylene (PERC) is intended to remove contaminants such as greases and oils. Such action may not be effective in removing soaps, and certainly not scale or corrosion. The primary purpose of this first cleaning is to remove materials, which would contaminate the media in the subsequent blasting operation.

Blasting consists of impinging abrasive particles against the surface of the metal with a stream of air. Grit is preferred over shot because grit produces a rough open surface, while shot sometimes tend topeen the surface occluding contaminants. The most commonly used grid size is 30 - 40 mesh.

The second degreasing step is a safety factor designed to remove abrasive dust or any contaminants, which may have been present in the blasting medium.

Grinding or abrading with wire brushes, steel wool, or abrasive cloth produces satisfactory bonding surfaces. Freshly milled or machine surfaces are also excellent for bonding, providing cutting oils are properly removed. The same practices of degreasing should be followed as was discussed under gritblasting.

#### Chemical Method

Chemical methods utilise inorganic reagents in two types of chemical reaction:

- Conversion of the metal surface from an essentially free metallic or metal oxide state into metallic compounds.
- Elimination of soils and surface contaminants by chemical action such as decomposition.

A wide variety of chemical treatments are available to meet the needs of nearly every bonding application. Some of the types available include phosphatisation, alkaline treatment, acid rinse, chromate and phosphate conversion coatings, chemical etching and plating.

### Selecting a Method

The choice of mechanical or chemical methods is dictated by several considerations:

**Economics:** Chemical methods are generally less expensive than mechanical methods.

**Versatility:** The same mechanical method may be applicable to many metal surfaces whereas chemical treatments tend to be substrate specific.

**Adaptability:** Existing facilities may favour either mechanical or chemical processing.

**Performance requirements:** Products vary widely in the degree of adhesion required, processing and surface preparation methods must be adapted accordingly.

**Environmental resistance:** Chemical conversion often imparts enhanced resistance to harsh environments.

**Regulatory considerations:** In some areas, waste disposal considerations may preclude the use of chemical treatment.

## Protection Of The Prepared Surface

The freshly prepared surface must be protected against contamination and corrosion. Care must be exercised to avoid handling freshly prepared metal parts. The best way to accomplish this is by applying the adhesive as soon after surface preparation as is practical. PRIMER 760 provides a tough barrier to protect from contamination by dirt, oils or moisture to preserve the ability for bonding with applied RIM or castable urethane.

For more detailed discussion of substrate preparation, please contact Lord bulletin number DS10-7101.

## APPLICATION OF PRIMER 760

PRIMER 760 may be easily applied by brush, dip or spray-using application equipment. No agitation of the adhesive is required prior to application. Optimum applied dry film thickness is 18 - 25 microns ( $\mu\text{m}$ ).

### Brushing

PRIMER 760 can be applied by brush as received or preferably slightly thinned with Oxitol Acetate and/or MEK prior to use. Use of a 4 : 1 ratio of adhesive to solvent is usually satisfactory.

### Dipping

PRIMER 760 can be used as received for dip applications. As supplied, dipping will result in a dry film thickness of 18 - 25 microns on a vertical surface.

### Spraying

PRIMER 760 should be diluted with an Oxitol Acetate / MEK (1 : 1) mixture until a viscosity of 20 - 22 seconds with a Zahn No. 2 cup is attained. This will correspond to a dilution ratio of 1 part PRIMER 760 to 1 part Oxitol Acetate / MEK thinner by volume.

### Drying

Parts coated with PRIMER 760 should be air dried for 30 - 60 minutes. Forced drying can be accomplished at temperatures up to 120°C.

NOTE: To prevent bubbling of the film, Primer 760 should not be applied to substrates hotter than 80°C.

## Prebaking Of The Coated Part

After PRIMER 760 has been applied, large metal parts, which act as heat sinks, are preheated prior to casting. The adhesive is pre-cured on the part and the overall environmental resistance of the bonded part is actually enhanced by this pre-cure. PRIMER 760 shows a wide tolerance for pre-bake, accepting pre-bake periods as long as 16 hours at 120°C without adverse effect on adhesion.

## Typical Performance Data

When properly applied, PRIMER 760 provides strong, environmentally resistant, durable bonded assemblies. Typical results are shown in the table, which follow. The following conditions were used:

### Testing

Primary adhesion - ASTM D429 Method B modified to a 45° peel angle. Peel strength is reported as pounds per linear inch (Lb/in) and present failure in the urethane substrate noted as % R (% of rubber retained).

Boiling Water - Stressed parts were immersed in boiling tap water for 2 hours, allowed to recover overnight and evaluated by ASTM D429 Method B.

TABLE 1  
Performance of Primer 760

	SUBSTRATE	NO PREBAKING		PREBAKING 16 HOURS @ 120°C	
		L/b/in	%R	L/in	%R
Primary Adhesion	GBS	307	100	287	100
2 Hrs boiling H2O	GBS	186	10	201	22
* 2 Hrs boiling H2O	GBS	215	100	210	56

\* Use of Primer under PRIMER 760

## Safety & Handling

PRIMER 760 is FLAMMABLE. Do not use near open flames, sparks or sources of heat. Do not smoke during application. Avoid contact with skin and eyes. Wear protective gloves and goggles. Wash thoroughly after use and before eating and smoking. Avoid breathing of vapours and mists. Use in a well-ventilated atmosphere. Wear a breathing mask.

Harmful or fatal if swallowed. If swallowed, do not induce vomiting, but seek medical advice immediately.

Do not return unused product to the original container. Keep container closed when not in use.

Refer to Material Safety Data Sheet (MSDS) on PRIMER 760 for full safety information on handling and disposal.

The information contained in this bulletin is to the best of our knowledge true and accurate but any recommendations or suggestions, which may be made, are without guarantee since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

## Guarantee

*This Primer system is provided as is without any guarantees or warranty. In association with the product, AMT Composites PTY LTD makes no warranties of any kind, either express or implied, including but not limited to warranties of merchantability, fitness for a particular purpose, of title, or of non infringement of third party rights. Use of the product by a user is at the user's risk.*

*NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A SPECIFIC PURPOSE, THE PRODUCTS TO WHICH THE INFORMATION MENTIONS MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS, OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION MENTIONS. IN NO CASE SHALL THE INFORMATION BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE."*

## Disclaimer

*Any information, data, advice or recommendation's for processing materials or products supplied by AMT Composites is given in good faith. It remains at all time the responsibility of the customer to ensure that the products and materials recommended are suitable for the production method used, and purpose intended.*

## Copyright

*All rights reserved, including intellectual property rights. Changes to technical data reserved. Delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.*

©2018 AMT Composites