

PUMA BOND 89

Introduction

PUMA Bond 89 is a one coat, heat activated, solvent-based adhesive for bonding the following elastomers to themselves or each other. For bonding rubber to metal, PUMA Bond 89 may be used as a one coat system. PUMA Bond 89 is suitable for use in conventional molding techniques and post vulcanization bonding.

- Natural Rubber (NR)
- Styrene Butadiene Rubber (SBR)
- Polychloroprene Rubber (CR)
- Polyisoprene Rubber (IR)
- Nitrile Rubber (NBR)
- Hydrogenated Nitrile Rubber (HNBR Sulfur and Peroxide Cured)
- Polybutadiene Rubber (BR)
- Ethylene Propylene Copolymer (EPM)
- Ethylene Propylene Diene Terpolymer (EPDM Sulfur and Peroxide Cured)
- Butyl Rubber (IIR)
- Halogenated Butyl Rubber (CIIR and BIIR)
- Epichlorohydrin Rubber (ECO)
- Chlorosulphonated Polyethylene (CSM or ACSM)
- Ethylene Vinyl Acetate (EVM)
- Acrylic Rubber (ACM)
- Chlorinated Polyethylene (CPE)
- Millable Polyurethane (Sulfur or Peroxide Cured)
- Cast Polyurethane (Prepolymer or Quasi Systems)
- TPE

On its own, PUMA Bond 89 is used as a splicing cement to bond cured to uncured, uncured to uncured, and cured to cured rubbers to each other and themselves. PUMA Bond 89 confers good resistance to dynamic fatigue, hot water, salt spray, and chemical environments. PUMA Bond 89 can be cured at room temperature with the addition of a cobalt catalyst at a use level of 4.36g. per gallon of PUMA Bond 89. PUMA Bond 89 adhesive should be premixed and fully dispersed before adding the catalyst material. Mix a quantity that can be used in one shift. Any catalyzed and unused adhesive should be discarded after 8 hours from the catalyst is introduced. The catalyst causes a gradual thickening and gelling of the adhesive.

Substrate Preparation

For optimum bonding the substrate surface must be contaminant free. With ferrous metals grit blasting or blasting with aluminum oxide to a gray-white finish should yield excellent bonding surfaces. Proprietary phosphate treatments are also recommended. For details of other methods of substrate preparation, please consult the separate PUMA Bond Information Sheets (numbers A1–A7) or the individual data sheet for the primer you choose.

How to Apply

PUMA Bond 89 may be applied by brushing, dipping, or spraying. Apply PUMA Bond 89 to a dry film thickness of 15–30 μm (0.015–0.03 mm) when used as a one coat system. If you use PUMA Bond 89 as a top coat, apply it to a dry film thickness of 10–25 μm (0.01–0.025). Before use, PUMA Bond 89 must be thoroughly stirred, preferably with a propeller type agitator. Brushing is normally undertaken without further dilution, but dilution with Toluene or Xylene is recommended if necessary.



How to Apply (cont.)

For dipping or spraying, dilute with Toluene to a viscosity of 23–26 seconds using Zahn No. 2 cup at 77° F (25° C) or 16–20 seconds using a Din No. 4, Ford No. 4, or Frikmar cup at 77° F (25° C). If webbing occurs on spraying, replace the Toluene or Xylene. After application, allow to dry for 20–30 minutes at room temperature. Tires should be sprayed with adhesive to give a dry film thickness of 15 microns (0.033-0.043 grams per square inch).

Where to Use

For automotive components, general purpose moldings, and rubber rollers where good environmental resistance is required. PUMA Bond 89 will give extremely good rubber tearing bonds when molded by conventional or post vulcanization bonding techniques. For general purpose bonding, PUMA Bond 89 can be used as a one coat system. PUMA Bond 89 has potential as a one coat adhesive for rubber roller manufacturers. Further, it has potential as a one coat adhesive for tank lining with vulcanizable or vulcanized elastomers, especially where low temperature cures are used. However, the bond line temperature must reach a minimum of 140° F (60° C) to ensure good bonding.

PUMA Bond 89 has particular applications for low temperature post vulcanization bonding, provided that the surface coated with PUMA Bond 89 can be heated to 140° F (60° C) or above. For example, in the molding of castable polyurethane onto cured rubbers as typified by on-site bonding where application of heat is limited. Particular application areas include the repair of conveyor belts and recovering of partially ground rubber rollers with either a vulcanizable rubber or castable polyurethane.

The adhesion of PUMA Bond 89 to fibers, yarns and textiles made from rayon, aramid, nylon, and polyesters is excellent. The flexibility of cured PUMA Bond 89 makes it ideal for specialty applications like fiber/fabric reinforced rubber products.

Typical Physical Properties

The following table explains the typical physical properties of PUMA Bond 89.

Property	PUMA Bond 89
Appearance	Black
Non-volatile Solids Weight	27.5%
Viscosity (No. 3 Zahn Cup at 78.8° F (26° C))	37 seconds
Specific Gravity	0.99
Flash Point (Abel Pensky)	59° F (15° C)
Bonding Temperature Range	140–356° F (60–180° C)
Cured Bond Temperature Resistance Range	-40–+356° F (-40–+180° C)
Environmental Resistance	Weather, water, sunlight, ozone, chemicals, detergents, Skydrol 500A, brake fluids, and high temperature
Diluents	Toluene or Xylene solvents

Shelf Life

1 year at 78.8° F (26° C)

Please note the information contained in this bulletin is a reference only and not meant as a specification. Please contact the technical service department at PUMA Polymers to obtain material specifications.

The conditions for your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by PUMA Polymers. All information is given without warranty or guarantee. It is expressly understood and agreed that customer assumes and hereby expressly releases PUMA Polymers from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind PUMA Polymers. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.