



Bonding (During Curing) of Millathane® Compounds to NR and SBR using Safipol TPU7840

INTRODUCTION

Millathane Millable Polyurethanes are known for their excellent strength and abrasion resistance properties, and it is sometimes desirable to use an outer layer of Millathane compound over a compound of a general purpose rubber, like SBR or natural rubber (NR), for cost reasons. The bonding of Millathane millable polyurethane compounds to other types of rubber during curing is, however, often difficult, due to differences in polymer compositions and curing systems.

Safipol TPU7840, a special thermoplastic polyurethane from Safic-Alcan¹, when added to sulfur-cured Millathane E34 or Millathane E40 compounds, greatly improves bonding during curing to NR and SBR compounds. The adhesion is further improved when the TPU7840 is added to the substrate compound.

RESULTS

Bond strength (T-Peel) test results on test compounds bonded together during curing:

Millathane Compound*	Substrate Compound*	Adhesion, lbf/in (N/mm)	Failure Mode
Millathane E34	Natural Rubber	7 (1.3)	Adhesive
Millathane E34 + 15 TPU7840	Natural Rubber	> 36 (>6.3)	Cohesive**
Millathane E40	SBR	8 (1.4)	Adhesive
Millathane E40 + 5 TPU7840	SBR	17 (3.0)	Adhesive
Millathane E40 + 15 TPU7840	SBR	18 (3.2)	Adhesive
Millathane E40 + 25 TPU7840	SBR	23 (4.0)	Adhesive
Millathane E40	SBR + 10 TPU7840	14 (2.5)	Adhesive
Millathane E40 + 5 TPU7840	SBR + 10 TPU7840	> 36 (>6.3)	Cohesive**
Millathane E40 + 15 TPU7840	SBR + 10 TPU7840	> 36 (>6.3)	Cohesive**
Millathane E40 + 25 TPU7840	SBR + 10 TPU7840	> 36 (>6.3)	Cohesive**

*sulfur-cured Millathane compounds (MBTS/MBT/Thanecure® ZM/Sulfur cure system), sulfur-cured NR and SBR compounds (CBS/Sulfur cure system). Formulations are available upon request.

**within substrate compound

APPLICATIONS

Improved bonding of Millathane millable polyurethane compounds to general purpose rubber compounds would be useful for conveyor belting, footwear, rubber-covered rollers, and other applications where a strong, abrasion-resistant layer of Millathane millable polyurethane compound would be beneficial.

MIB-012_Millathane-Adhesion-with-Safipol-TPU7840
 Ref: XP8244/XP8260
 2015-08-06_tj

¹ <http://www.safic-alcan.com>; available in the USA from ChemSpec Ltd <http://chemspectd.com>

The recommendations for the use of our products are based on tests believed to be reliable. However, we do not guarantee the results to be obtained by others under different conditions. Nothing in this literature is intended as a recommendation to use our products so as to infringe on any patent. Millathane® and Thanecure® are registered trademarks of TSE Industries, Inc.