

AirMail

TIMELY TECH TIPS AND HOT NEWS FOR OUR GLOBAL POLYURETHANE CAST ELASTOMER CUSTOMERS

Why Not Switch From MDI Prepolymers to TDI Prepolymers?

PSP OFFERINGS

- Airthane® Prepolymers
- Versathane® Prepolymers
- Versalink® Polyurethane Curatives
- Lonzacure® MCDEA Curative
- Versalink Oligomeric Diamines

If you are a user of MDI prepolymers, you are likely already aware of the ongoing availability challenges for MDI, largely the result of tight supply of benzene. Industry experts believe the MDI and benzene shortages are long-term issues and that it will take at least a few years before more capacity is available. That means the supply of MDI and products that use MDI, like MDI prepolymers, are expected to remain tight.

In the meantime, you have a business to run and need a reliable, cost-effective solution. Fortunately there is a proven alternative to MDI prepolymers—**Airthane®** and **Versathane® TDI prepolymers** from Air Products.

Not only can Air Products Airthane® and Versathane® TDI prepolymers be used in many of the applications where you may currently be using MDI prepolymers, but our polyurethane product line offers processors unique advantages over other products.

First—and most important—currently TDI prepolymers are more readily available because their basic feedstock is toluene. Due to changing fuel regulations and wide use in many other materials, toluene is more readily available than benzene. As a long-standing manufacturer and supplier of TDI prepolymers, Air Products has excellent relationships with our TDI suppliers that are strengthened by our broad chemicals portfolio.

Second, our TDI prepolymers are low-free diisocyanate products ranging from <0.10 percent for Airthane prepolymers to 0.7 percent maximum for Versathane prepolymers. The extremely low level of free TDI monomer in our Airthane prepolymers classifies them as nonhazardous by both OSHA and DOT.

You'll find other important advantages in switching to our TDI prepolymers:

- Superior consistency, drum-to-drum
- Superior thermal stability
- Superior consistency of finished parts after post-cure
- Superior processing latitude

We'd like you to know, too, that safety is at the heart of everything we do at Air Products, including making and marketing TDI prepolymers. Being an industry leader in environmental, health, and safety (EH&S) performance is one of our proudest accomplishments, and for a number of years, achieving and maintaining this goal has been the first of our five corporate objectives. We are committed to continuing to improve our performance to reach the ultimate goals of zero injuries and zero releases of toxic and hazardous materials.

Currently, our product line includes dozens of Airthane and Versathane TDI prepolymers, as well as an IPDI aliphatic prepolymer and high-performance curatives (for both TDI and MDI prepolymers).

We're confident that we can match your requirements. And we back up the entire PSP product line with a highly responsive and experienced team of technical, sales and customer service people.

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Product Info:

Airthane TDI Prepolymer Benefits

- "Perfect" prepolymers
- <0.1% residual TDI
- OSHA and DOT nonhazardous
- Easy processing
- Low viscosity
- Long pot life
- Faster demold
- Superior dynamic performance in the final elastomer
- High load-bearing capability
- Improved high-temperature performance

Versathane TDI Prepolymer Benefits

- Broad range of TDI-polyether and TDI-polyester products
- Used to create high-performance elastomers that exhibit excellent strength, resilience, abrasion resistance.
- Low residual TDI (<0.7%)
- Easy to melt "QM" TDI-polyester prepolymer
- Easier to degas SP grade
- Lower viscosity polyether-based products
- Uniform batch-to-batch consistency

Air Products TDI Prepolymer Products

TDI POLYETHERS

- Airthane PHP-80D
- Airthane PET-75D
- Airthane PHP-75D
- Airthane PET-70D
- Airthane PHP-70D
- Airthane PET-60D
- Airthane PET-95A
- Airthane PET-93A
- Airthane PET-91A
- Airthane PET-90A
- Airthane PET-85A
- Airthane PET-80A
- Airthane PHP-70A

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Why Not Switch From MDI Prepolymers to TDI Prepolymers? [continued from front side]

Call our Product Information Center today at 800-345-3107 to find out how you can replace your MDI prepolymers with our TDI prepolymers. We also have an established, user-friendly sample ordering system you can reach at 800-345-3148 (outside the U.S. or Canada 610-481-6799). Most sample requests are shipped the same business day.

You can also go to our PSP website—www.airproducts.com/psp—for more information or to order samples. ▲

Visit Our Website

In addition to Airmail and our other literature, you'll find plenty of helpful information when you visit our website: www.airproducts.com/psp.

Choose from a number of options: Business Overview, PSP Products Lines, Trouble Shooting Guide, Elastomer Engineering Properties, Elastomer Design, Processing Guidelines, Curatives and Stoichiometry Effects, Use in Food Handling, PSP Literature, Product Information, Sample Ordering, MSDS Library, Order Product via AP Direct and *Airmail* Newsletter. ▲



Comparison of 90 Shore A polyether-based Elastomers

Property	Typical MDI (BDO cure)	PET-91A (MOCA cure)
100% Modulus	500psi	1100 psi
300% Modulus	2000psi	1700 psi
Ultimate Tensile Strength	3500psi	4800 psi
Elongation at break	~400%	490%
Die C tear	650pli	400pli
Compression Set	22%	27%
Rebound	60%	58%
Shore A hardness	90	90-91

Comparison of 90 Shore A polyester-based Elastomers

Property	Typical MDI (BDO cure)	PST-90A (MOCA cure)
100% Modulus	500-1000psi	1100 psi
300% Modulus	2100-2800psi	2000 psi
Ultimate Tensile Strength	6500-7300psi	7900 psi
Elongation at break	500-630%	530%
Die C tear	600-650pli	610pli
Compression Set	27%	20%
Rebound	35%	25%
Shore A hardness	90	90

Versathane Quick-Melt 90 Shore A polyester-based Elastomers

Property	A-9QM (MOCA cure)
100% Modulus	1075 psi
300% Modulus	2030 psi
Ultimate Tensile Strength	6600 psi
Elongation at break	545%
Die C tear	550pli
Compression Set	34%
Rebound	32%
Shore A hardness	90-92

Product Info:

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TDI-PPG

- Airthane PPT-75D
- Airthane PPT-65D
- Airthane PPT-95A
- Airthane PPT-80A

TDI POLYESTERS

- Airthane PST-95A
- Airthane PST-90A
- Airthane PST-85A
- Airthane PST-80A
- Airthane PST-70A

Versathane TDI Prepolymers

TDI POLYETHERS

- Versathane 2070
- Versathane 1090
- Versathane 1160

TDI POLYESTERS

- Versathane A-75QM
- Versathane A-8
- Versathane A-8QM
- Versathane A-85
- Versathane A-85QM
- Versathane A-9
- Versathane A-9SP
- Versathane A-9QM
- Versathane D-5QM
- Versathane D-55
- Versathane D-6
- Versathane D-7



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Airthane® Prepolymers • Versathane® -C-Prepolymers • Versathane Prepolymers • Versalink® Polyurethane Curatives • Lonzacure™ MDEA Curative • Versalink Oligomeric Diamines

Call Customer Service at: 800 345-3107

Need to: • order product? • ask a question? • request samples? • receive more copies? • add co-workers to the mailing list?

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January 2005