

Polyurethane Specialty Products Group

VERSALINK™ Oligomeric Diamines

The Versalink oligomeric diamine products are amine-capped polyols. They can be liquid-processed at room temperature with monomeric and polymeric MDI or MDI prepolymers as well as other diisocyanates and diisocyanate prepolymers. (When reacted with isocyanate, a polyurea resin is formed, rather than a polyurethane resin.) Pot life values can be controlled and are typically in the range of 1-45 minutes, depending upon the specific Versalink oligomeric diamine and isocyanate used.

Applications

Versalink oligomeric diamines can be used in room-temperature vulcanizates (RTV) or oven-cured vulcanizates for molded products such as castable elastomers and tooling resins. The Versalink products are especially useful when high performance is required or when field repair is necessary and curing ovens are unavailable. They also are useful in encapsulation for temperature-sensitive electronic components.

Versalink oligomeric diamines can also be used in two-component solventless adhesives and in two-component high solids coatings. In addition, the Versalink products can be used as epoxy toughening agents and as additives for polyurethane shoe soles to enhance abrasion and cut resistance.

TABLE 1A - VERSALINK OLIGOMERIC DIAMINE
PRODUCT LINE

PRODUCT	TOTAL EQ. WT	STATE AT ROOM TEMP.
Versalink P-250	260	Solid (Liquid in Blend)
Versalink P-650	410	Liquid
Versalink P-1000	600	Liquid

NOTE: The number in the product name designates the molecular weight of the backbone from which the Versalink oligomeric diamine is derived.

Benefits

Key attributes of Versalink oligomeric diamine systems compared with standard polyurethane two-component systems are as follows:

- Properties
 - Higher temperature performance
 - Better heat aging
 - Better abrasion resistance
 - Better tear resistance
 - Low linear shrinkage
 - Excellent low-temperature properties
 - Hardness from Shore 40A to 80D
 - Absence of catalysts which degrade properties
- Processing
 - Nonhazardous diamine
 - Long pot life and short handling time
 - Liquid processability at room temperature
 - Less sensitive to moisture than butanediol/polyol systems
 - Stoichiometry may vary without major changes to properties
 - Solventless system

Safety and Handling Information

For all safety and handling information, please refer to the Versalink oligomeric diamine Material Safety Data Sheets, available upon request from Air Products.

TABLE 1B - MDI PRODUCT LINE		
PRODUCT	DESCRIPTION	NOMINAL % NCO
MDI143	Liquid Modified 4,4' MDI	29
MDI225	Liquid Modified 4,4' MDI	31

TABLE 1C - SUMMARY OF AVAILABLE TOXICOLOGY DATA ON VERSALINK OLIGOMERIC DIAMINES AND VERSALINK CURATIVES		
ASSAY	VERSALINK OLIGOMERIC DIAMINES	VERSALINK CURATIVES
Acute Oral LD50 (rat)	>5 g/kg	>5 g/kg
Eye Irritation (rabbit)	Mild-Moderate Reversible	Mild-Moderate Reversible
Skin Irritation (rabbit)	Mild-Moderate Reversible	Negative
Ames Assay ± Metabolic Activation	Negative	Negative
Metabolism Data	No Data	Major metabolic products in both rat and human blood; 1,3-propanediol, PABA, PABA mono-ester.

To Order or Obtain More Information

If you would like to place an order or receive additional information, please write or call Air Products at the following location.

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