ComfortScience

Polyurethane Components
Product Catalog

North America

Comfort Science Solutions

Working with you on today's and tomorrow's challenges

Support and sustainability – two things that today's flexible foam manufacturers are looking for, both in their products and in their supplier relationships. Dow offers the timely support you need to help you achieve your sustainability goals. We understand your challenges, because we've been serving your industry for more than 50 years. And we never stop innovating to help customers like you differentiate your products.

Whether you're looking for high-resilience foam for support and durability, viscoelastic foam for comfort and touch, high-load-bearing foam for greater firmness, improved sustainability attributes, or high-performance foams for reduced odor and emissions, our technical service representatives are always available to answer a question or help resolve a challenge.

We can help you balance the critical factors of performance, economics and environmental impact to produce differentiated foam that will meet or exceed your customers' expectations. Your success becomes our success.

Service, Science and Sustainability
Dow has an unparalleled expertise in polyurethane chemistry, coupled with an in-depth knowledge of foam manufacturing and end-use markets. Our global network of technical service professionals, development scientists, and marketing and sales representatives can help you analyze market intelligence, develop innovative products and troubleshoot issues at your site.

We utilize only responsible, science-based manufacturing practices that safeguard our workplaces and our communities. And we have accelerated our commitment to sustainable chemistry through new technologies and products.

Choose the Product That's Right for You
Dow offers a number of flexible foam products for a wide variety of applications, including mattresses and pillows, furniture cushions, office chairs, carpet padding, sound masking, car seats and more.

This guide offers an easy-to-use tool for comparing product features and benefits. Use it to help you select the option that is best for your application. Or talk to your Dow representative about your needs, and together, we can develop a solution that will ensure optimal product performance at the right price.

Conventional Foam

Product	Product Type	Description	Benefits	Hydroxyl Number (mg KOH/g)	Viscosity at 25°C	Isocyanate Equivalent
VORANOL™ 3136	Polyol	• A glycerine-initiated, nominal 3100 molecular weight heteropolymer triol. • A BHT-free product that is used in the commercial manufacture of a wide range of flexible polyurethane slabstock foams.	• A general purpose polyol used worldwide in the commercial manufacture of a wide range of flexible polyurethane slabstock foams. BHT-free. • Typically used for foam applications in furniture, bedding, quilting and many other forms of general padding.	54	460 cSt	–
VORANOL™ 3943A	Polyol, CPP	• A unique, grafted polyether polyol containing copolymerized styrene and acrylonitrile, filtered to 100 microns and manufactured without the use of BHT.	• Used in the manufacture of flexible slabstock polyurethane foams and processes well on most types of foam machinery. • Designed for use in the full density range of high-load-bearing flexible foams used in carpet underlay and packaging.	31	6,000 cSt	–
VORANOL™ 4053	Polyol, Flexible Specialty	• High functionality EO-rich cell opener for high-resilience foams.	• Excellent cell opening at low levels (0.5 - 5.0 php) with no sacrifice in foam hardness.	31	160 cSt	–
VORANOL ™ CP 1421	Polyol, Flexible Specialty	• Designed for the production of soft and hypersoft flexible slabstock foams. • EO-rich cell opener for high-resilience foams.	• Enables substantial softening in conventional foams at low levels. • High efficiency enabling low usage levels (0.5 - 5.0 php).	33	1,400 mPa.s	–
VORALUX™ HL 431	Polyol, CPP	• Styrene acrylonitrile-based polyol with 43% solids content for the production of enhanced load-bearing slabstock foams.	• Increased solids levels for extra hard flexible foam. • Proprietary finishing for low odor and reduced-volatiles foam. • Excellent foam color retention during processing. • BHT-free.	31	4,750 mPa.s	–
VORANATE™ T-80	Isocyanate	• Toluene diisocyanate ideal for flexible slabstock and flexible molded foam applications. Choose from two types: low acidity (Type I) and high acidity (Type II).	• Both TDI Type I and Type II products are well suited for use in high-resilience molding, TDI molding, formulating (systems), and flexible slabstock applications. • TDI (Type I) may be used in automotive seating, furniture cushioning, mattress cushioning and specialty foam applications.	–	50.0 mPa.s	87.1

Typical properties. Not to be construed as specifications.

High-Load-Bearing Foam

Product	Product Type	Description	Benefits	Hydroxyl Number (mg KOH/g)	Viscosity at 25°C	Isocyanate Equivalent
SPECFLEX™ NC 701	Polyol, CPP	• A unique grafted polyether polyol containing copolymerized styrene and acrylonitrile.	• Designed for use in the manufacture of high-resilience flexible molded foam, high-comfort flexible foam and semi-flexible molded foam. • Can be used to produce high-load-bearing foams over a wide density range.	21	5,500 mPa.s	–
VORALUX™ HL 431	Polyol, CPP	• Styrene acrylonitrile-based polyol with 43% solids content for the production of enhanced load-bearing slabstock foams.	• Increased solids levels for extra-hard flexible foam. • Proprietary finishing for low-odor and reduced volatiles foam. • Excellent foam color retention during processing.	31	4,750 mPa.s	–
VORANOL™ 3943A	Polyol, CPP	• Styrene acrylonitrile-based polyol with 43% solids content for the production of enhanced load-bearing slabstock foams.	• Increased solids levels for extra-hard flexible foam. • Excellent foam color retention during processing.	31	5,250 mPa.s	–

Typical properties. Not to be construed as specifications.

High-Resilience Foam

Product	Product Type	Description	Benefits	Hydroxyl Number (mg KOH/g)	Viscosity at 25°C	Isocyanate Equivalent
SPECFLEX™ NC 701	Polyol, CPP	• A unique grafted polyether polyol containing copolymerized styrene and acrylonitrile.	• Designed for use in the manufacture of high-resilience flexible molded foam, high comfort flexible foam and semi-flexible molded foam. • Can be used to produce high-load-bearing foams over a wide density range.	21	5,500 mPa.s	–
VORALUX™ HF 4001	Polyol, High Functionality	• High-performance polyether polyol especially designed for the production of high-resilience (HR) and combustion modified high-resilience (CMHR) flexible slabstock foams.	• For very high-resilience foam with outstanding feel and properties. • Excellent processing performance. • Covers broad density and hardness range in combination with VORALUX™ WH 4043 Polyol.	31	605 cSt	–
VORALUX™ HN 395	Polyol	• A triol polyether polyol specifically developed for high-resilience flexible slabstock foam.	• Excellent slab processing characteristics enabling a wide variety of densities and hardnesses using standard HR technologies. • Excellent foam physical properties including resilience, comfort factor, tensile, tear and elongation.	28	1,130 cSt	–
VORALUX™ WH 4043	Polyol, CPP	• Styrene acrylonitrile-based copolymer polyol with 43% solids content especially designed for the production of high-resilience (HR) and combustion modified high-resilience (CMHR) flexible slabstock foams.	• Excellent tensile properties. • Excellent foam color retention during processing. • Increased solids levels for extra-hard flexible foam. • Non-BHT package.	22	5,250 mPa.s	–
VORANATE™ T-80	Isocyanate	• Ideal for flexible slabstock and flexible molded foam applications. Choose from two types: low acidity (Type I) and high acidity (Type II).	• Both TDI Type I and Type II products are well suited for use in high-resilience molding, TDI molding, formulating (systems), and flexible slabstock applications. • TDI (Type I) may be used in automotive seating, furniture cushioning, mattress cushioning and specialty foam applications.	–	50 mPa.s	87.1
VORANOL™ 4053	Polyol, Flexible Specialty	• High functionality EO-rich cell opener for high-resilience foams.	• Excellent cell opening at low levels (0.5 - 5.0 php) with no sacrifice in foam hardness.	31	160 cSt	–
VORANOL™ CP 6001	Polyol, Triol	• A triol polyether polyol, capped, 6000 molecular weight, specially developed for the production of flexible high-resilience molded polyurethane foam with TDI, TDI/PMDI or MDI.	• Can be processed utilizing standard state-of-the-art molding equipment. • Can be used in the production of semi-rigid integral skin foams as well as in the production of cold-cure molded foams and high resilience molded foam.	28	1,130 cSt	–

Typical properties. Not to be construed as specifications.

Cell Opener

VORANOL™ 4053	Polyol, Flexible Specialty	• High functionality EO-rich cell opener for high-resilience foams.	• Excellent cell opening at low levels (0.5 - 5.0 php) with no sacrifice in foam hardness.	31	160 cSt	–
VORANOL™ CP 1421	Polyol, Flexible Specialty	• Polyether polyol designed for the production of soft and hypersoft flexible slabstock foams. • EO-rich cell opener for high-resilience foams.	• Enables substantial softening in conventional foams at low levels. • High efficiency enabling low usage levels (0.5 - 5.0 php).	33	1,400 mPa.s	–

Typical properties. Not to be construed as specifications.

Molded Foam

Product	Product Type	Description	Benefits	Hydroxyl Number (mg KOH/g)	Viscosity at 25°C	Isocyanate Equivalent
ISONATE™ 143L	Isocyanate, Modified MDI	• A polycarbodiimide-modified diphenylmethane diisocyanate. Liquid at room temperature. • Has a low viscosity and good storage stability down to 75°F (24°C).	• A unique combination of high modified MDI content, available carbodiimide, and liquid state allows ease of handling, ease of processing and maintenance of high physical properties under strenuous wear and environmental conditions.	–	40 cPs	144.5
PAPI™ 901	Isocyanate, Polymeric MDI	• A polymethylene polyphenylisocyanate that contains MDI. • Has a high functionality and a high viscosity, resulting in highly rigid foams.	• Designed for uses where high viscosity is required for processing polyisocyanurate foams.	–	60 cPs	133
PAPI™ 94	Isocyanate, Polymeric MDI	• A polymethylene polyphenylisocyanate that contains MDI. • Its low viscosity, low functionality, increased diphenylmethane diisocyanate content and increased percentage of ortho/para isomers make it highly versatile.	• Offers delayed gel times, which result in better flow into molds for semi-flexible and integral skin foams.	–	50 cPs	131.5
SPECFLEX™ NC 630	Polyol	• A high-functionality, capped, high molecular weight polyol specifically designed for high-resilience flexible molded foam applications.	• Excellent stability and processing latitude with a wide variety of low or high pressure molding machines. • Can be used alone or with SPECFLEX™ NC 701 Polyol to achieve a wide range of hardnesses with excellent resiliency and physical properties.	31	1,250	–
SPECFLEX™ NC 701	Polyol, CPP	• A unique grafted polyether polyol containing copolymerized styrene and acrylonitrile.	• Designed for use in the manufacture of high-resilience flexible molded foam, high-comfort flexible foam and semi-flexible molded foam. • Can be used to produce high-load-bearing foams over a wide density range.	21	5,500 mPa.s	–
VORANOL™ 4053	Polyol, Flexible Specialty	• A high-functionality EO-rich cell opener for high-resilience foams.	• Excellent cell opening at low levels (0.5 - 5.0 php) with no sacrifice in foam hardness.	31	160 cSt	–
VORANOL™ 4701	Polyol, Triol	• A high-reactivity capped triol with high molecular weight and high primary hydroxyl content.	• Well suited for high-resilience, flexible molded foams. • May be made utilizing all TDI, TDI/MDI, or MDI isocyanate compositions. • Can be used for a broad range of semi-flexible molded foam applications.	34	435 cSt	–
VORANOL™ CP 6001	Polyol, Triol	• A capped, 6000 molecular weight triol polyether polyol specially developed for the production of flexible high-resilience molded polyurethane foam with TDI, TDI/PMDI or MDI.	• Can be processed utilizing standard state-of-the-art molding equipment. • Can be used in the production of semi-rigid integral skin foams as well as in the production of cold-cure molded foams and high-resilience molded foam.	28	1,130 cSt	–
VORANATE™ T-80	Isocyanate	• Ideal for flexible slabstock and flexible molded foam applications. Choose from two types: low acidity (Type I) and high acidity (Type II).	• Both Type I and Type II products are well suited for use in high-resilience molding, TDI molding, formulating (systems) and flexible slabstock applications. • TDI (Type I) may be used in automotive seating, furniture cushioning, mattress cushioning and specialty foam applications.	32	50.0 mPa.s	87.1

Typical properties. Not to be construed as specifications.

Rebonded Foam

Product	Product Type	Description	Benefits	Hydroxyl Number (mg KOH/g)	Viscosity at 25°C	Isocyanate Equivalent
PAPI™ 94	Polymeric MDI	• A polyethylene polyphenylisocyanate that contains MDI. Functionality and viscosity for versatility for rebonded binder prepolymers.	• Allows formulating to optimize prepolymer viscosity build and pot life. Works well with non-reactive diluents such as process oil.	–	50 cPs	131
PAPI™ 900	Polymeric MDI	• A polyethylene polyphenylisocyanate that contains MDI. Low functionality and viscosity enabling optimal and economical prepolymer preparation.	• Allows formulating to optimize prepolymer viscosity build and pot life for a variety of polyols and processing requirements. Works well with non-reactive diluents such as process oil.	–	45 cPs	131

Typical properties. Not to be construed as specifications.

Viscoelastic Foam

VORANATE™ T-80	Isocyanate	• Ideal for flexible slabstock and flexible molded foam applications. Choose from two types: low acidity (Type I) and high acidity (Type II).	• Both TDI Type I and Type II products are well suited for use in high-resilience molding, TDI molding, formulating (systems) and flexible slabstock applications. • TDI (Type I) may be used in automotive seating, furniture cushioning, mattress cushioning and specialty foam applications.	–	50 mPa.s	87.1
VORANOL™ 2070	Polyol, Triol	• 700 molecular weight polyether polyol developed for the production of viscoelastic foams, also known as "low-resiliency foam" or "memory foam."	• For soft and open viscoelastic foam with high durability. • Low odor.	238	238 cSt	–
VORANOL™ 3150	Polyol	• A triol with a nominal molecular weight of 1000, specifically designed for viscoelastic slabstock foam applications.	• Can be used as the sole polyol in formulations for a wide variety of densities and varying viscoelastic properties. • Processes well on most types of slabstock foam equipment and contains a standard slabstock foam antioxidant package.	167	244 cPs	–
VORANOL™ 4053	Polyol, Flexible Specialty	• High functionality EO-rich cell opener for high-resilience foams.	• Excellent cell opening at low levels (0.5- 5.0 php) with no sacrifice in foam hardness.	31	160 cSt	–
VORANOL™ CP 1421	Polyol, Flexible Specialty	• Polyether polyol designed for the production of soft and hypersoft flexible slabstock foams. • EO-rich cell opener for high-resilience foams.	• Enables substantial softening in conventional foams at low levels. • High efficiency enabling low usage levels (0.5 - 5.0 php).	33	1,400 mPa.s	–
VORANOL™ WK 3140	Polyol	• A 1000 MW EO/PO triol specifically designed for viscoelastic slabstock foam applications.	• Much improved air flow and compression set values over traditional viscoelastic polyols. Can be formulated for a wide variety of densities, hardnesses, resiliencies and recovery rates.	168	235 cSt	–

Typical properties. Not to be construed as specifications.

Safety Considerations

Most VORANOL™, VORALUX™ and SPECFLEX™ Polyols generally present no significant hazard in use when simple precautions are followed. However, some VORANOL, VORALUX and SPECFLEX Polyols may require additional care in handling. Before working with VORANOL, VORALUX and SPECFLEX Polyols, it is necessary to understand the hazards involved in handling all of the components and to establish and follow safe work procedures. Products based on diisocyanates like MDI and TDI (e.g., VORAMER™ or ISONATE™ MDI and VORANATE™ or PAPI™ Polymeric MDI) should always be used in a well ventilated area with appropriate local exhaust in such a way that the occupational exposure limits (OEL) for these materials are not exceeded.

Products based on MDI and TDI require care in handling due to the potential health effects associated with diisocyanates. All persons who work with these materials must know and follow proper safe handling procedures. Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) are provided to help customers satisfy their own handling, safety, and disposal needs and those that may be required by locally applicable health and safety regulations. MSDS are updated regularly; therefore, please request and review the most current MSDS before handling or using any product. MSDS, SDS, product literature, and safe handling and storage information for all of these products are available from the nearest Dow sales office and online at www.dow.com.

Customer Notice

Dow encourages its customers to review their applications of Dow products from the standpoint of human health and environmental quality. For further information about safety considerations for your product/application, please contact your Dow sales representative.

Innovating For You

For more information and product samples, contact us at your convenience:

dowpolyurethanes.com

Dow CIG North America
Toll Free +800-441-4369
Toll 1-989-832-1426

The Dow Chemical Company
2030 Dow Center
Midland, MI 48674

Form No. 109-01834-0516