

Foam Tapes

Bonding

Sealing

Vibration Damping

A GUIDE TO NORTON® FOAM TAPES

Norton foam tapes are the practical, cost-efficient solution for a myriad of bonding, sealing, acoustical, and vibration damping applications. Our foam tapes are used by automotive, construction, transportation, marine, appliance, electronic, and other industries.

These high-performance foam tapes are easy to handle, require virtually no clean-up, and can be consistently and evenly hand-applied or adapted to automated applications. They are not adversely affected by weather, are not hazardous in handling, and do not pose any special disposal or environmental problems. Plus, there is no waste as with other sealants and adhesives.



Most of our industrial tapes are available in roll form in a range of thicknesses and widths.

With their closed-cell foam structure, these competitively priced tapes resist air, water, vapor, and noise. Norton tapes remain resilient and deliver long-term serviceability in a variety of applications:

- **Bonding.** Foam tapes, with high-performance, pressure-sensitive adhesive on both sides, provide an attachment system that is a desirable alternative to mechanical fasteners and liquid adhesives.
- **Sealing or gasketing.** Adhesive-coated foam tapes are compressible sealants that work under pressure. Use them in place of rubber foams or pumpable sealants to prevent the intrusion of liquids, air, sound, and gases.
- **Vibration damping.** Norton foam tapes have excellent vibration damping characteristics and provide protection against shock for sensitive components.

This guide will introduce you to the range and application possibilities of Norton foam tapes. Our comprehensive foam tape product line assures you of the right fit for your application.

BONDING TAPES

Bonding tapes, also known as attachment tapes, simplify the installation of many items and are often used as replacements for liquid adhesives and mechanical fasteners. Norton foam bonding tapes provide advantages over both of these methods of attachment.

Comparative Advantages of Foam Bonding Tapes vs. Liquid Adhesives

Liquid adhesives can be messy, hard to apply, and generate waste.

Bonding tapes, by contrast:

- do not require mixing prior to use;
- do not generate waste—you use exactly what you need;
- are fast to apply with no set-up or clean-up time required;
- have a far superior shelf life;
- create no VOCs and there is no waste (cartridges) to dispose of.



Comparative Advantages of Foam Bonding Tapes vs. Mechanical Fasteners

Mechanical fasteners are often used to attach or bond two items. However, foam tapes offer significant advantages. They:

- are faster and easier to apply;
- reduce labor time and costs;
- are nonconductive and provide better thermal and acoustical insulation;
- provide a seal in addition to attachment;
- do not require special tools, equipment, or skills for application;
- do not require holes that create sources of potential leaks, mar the surface of an object, and create paths for corrosion to develop;
- have a neat, clean appearance;
- help to isolate vibration and eliminate localized stress.



Normount® can be used to attach permanent security plates.

The Anatomy of a Bonding Tape

Norton bonding tapes have three components that work together to form a high-performance attachment system.

■ Foam core

The foam core plays a critical role in the attachment system. It distributes stress evenly throughout the length of the joint and transfers stress away from the adhesive bond line. A range of thicknesses allows for superior bonding of dissimilar materials and mismatched surfaces. The foam core also helps prevent catalytic corrosion by ensuring a separation of surfaces.

Because some foam cores have a closed-cell structure, they can function as sealants. The cellular nature of the core provides insulating and acoustical isolation properties as well.

■ Adhesive

The high-performing adhesives developed for our tapes are specially formulated to provide a permanent attachment. Because they are pressure-sensitive adhesives, they have desirable "quick-stick" properties: you simply apply pressure and the tape is attached, which simplifies and speeds production. No cure time is required after wet out.

Specially formulated adhesives can be specified for a variety of substrates including low-surface energy plastics such as polyethylene, polypropylene, and nylon.

■ Liner

A variety of liner types is available and can be specified to meet your application needs.

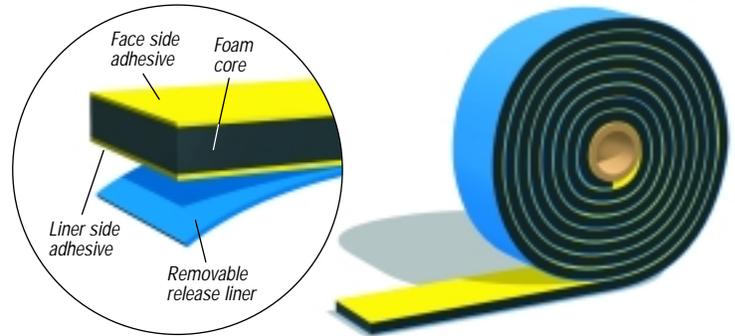
The release liners are specifically engineered to provide easy release from our adhesive formulations. Additionally, the liner helps to maintain the integrity of the roll and keeps the material clean during storage and use.

Selecting the Right Bonding Tape for the Application

Common questions to guide your selection process are:

- What substrate materials are to be bonded? The best bond forms between high-surface energy materials. Low-surface energy materials may require a specific adhesive or an adhesion promoter like Norton's Tite-R-Bond.™
- What temperatures will your application be subjected to?
- What environmental factors need to be considered? Will the application be used outdoors, exposed to weathering, ultraviolet light, acid rain, solvents, migrating plasticizers, or processing oils?
- To determine tape area one must consider the required weight to be supported. As a general rule expect to use one square inch of tape for every 0.5 lb. of loading. This specific amount of tape required must be confirmed with testing and will vary with substrates and environmental conditions.

Saint-Gobain Application Engineers are available to assist with product recommendations based on your application needs.



The components of our bonding tapes create a reliable attachment system.

Foam Bonding Tapes: Types and Properties

Norton bonding tapes are available in a range of formulations to meet the requirements of the application. Each formulation has slightly different characteristics. Use this chart to help determine which tape is best for you.

Our Normount® and Norcryl™ products increase in strength

during the first 24 hours of contact for better holding power under a wide temperature range. Also refer to the Product Selection Chart on the inside back cover or individual data pages for additional information on each foam mounting tape product.

PRODUCTS	PROPERTIES						
	Quick Stick	Peel	Shear	Tensile	Weatherability	Exterior	Colors
Normount V1300	Good	Good	Very Good	Good	Fair	No	White
Normount V2000	Very Good	Good	Excellent	Excellent	Good	Yes	Black
Normount V2800	Excellent	Very Good	Excellent	Excellent	Excellent	Yes	Black
Normount V4600	Excellent	Very Good	Excellent	Excellent	Excellent	Yes	Gray
Normount V8800	Very Good	Very Good	Excellent	Good	Excellent	Yes	Black
Normount V9000	Good	Very Good	Very Good	Good	Good	Yes	Off white
Normount OP7000	Very Good	Good	Excellent	Very Good	Very Good	No	Black
Printmount® PR Series	Very Good	Good	Excellent	Very Good	Very Good	No	Black
Norcryl A1000	Good	Very Good	Excellent	Excellent	Excellent	Yes	Clear
Norcryl A2000	Good	Very Good	Excellent	Excellent	Excellent	Yes	Translucent

SEALING/GASKETING TAPES

Tite-R-Bond™ Adhesive Promoters

Increase performance of the attachment system.

When attaching substrates that tend to resist bonding, such as low-surface energy plastics like polyolefins, Tite-R-Bond adhesion promoters from Saint-Gobain can improve overall bond strength. Tite-R-Bond promoters are specially formulated to work in conjunction with our Normount tapes.

When applied as a thin film to the substrate, Tite-R-Bond promoters provide immediate quick stick, reducing set-up time for the adhesive and increasing overall adhesive bonding performance.



Tite-R-Bond adhesive promoters provide immediate quick stick and reduce set-up time for the adhesive.

Application Guide for Bonding Tapes

While foam tapes are quick and easy to use, proper application is important to create a long-lasting bond. The following tips provide an overview of things to consider.

- Ensure proper application temperature. Temperature is critical when attaching tapes with pressure-sensitive adhesive. Ideally, substrate and tape should be at 60°F (16°C) or higher during the application process. After initial application, the bond strength increases and reaches its maximum bond after 72 hours at 70°F (21°C). Higher application temperatures achieve maximum bond strength more quickly.
- Prepare the surface. Surfaces should be clean, dry, and uniform for best adhesion. A solvent wipe of 50/50 isopropyl alcohol and water removes most contaminants. Adhesion to porous, fibrous, and low-surface energy surfaces will be improved by the use of Tite-R-Bond.
- Apply adequate pressure. Pressure-sensitive adhesives rely on intimate contact to form a strong bond with the surface. Firm application pressure of at least 15 psi typically provides the necessary mechanical interlock for a strong bond.

Selected Applications for Bonding Tapes

Emblems and ornamentation	Kick panels
Signs and nameplates	Glass laminations
Window muntins	Furniture trim
Panel stiffeners	Rocker panels
Trailer roof bows	Component mounts
Weatherstripping	Wire/cable mounts
Body side molding	Security pads
Skylights	Retail packaging
Sound baffles	Truck/trailer side panels
HVAC gasketing	

Sealing tapes function as gaskets, forming a “seal” to prevent air, vapor, moisture, water, dirt and sound infiltration. Norton foam sealing tapes can be used in most applications that call for a high-performance gasket. They eliminate the sticky problems associated with other types of sealants, such as rubber foams or caulking materials.

Advantages of Foam Sealing Tapes

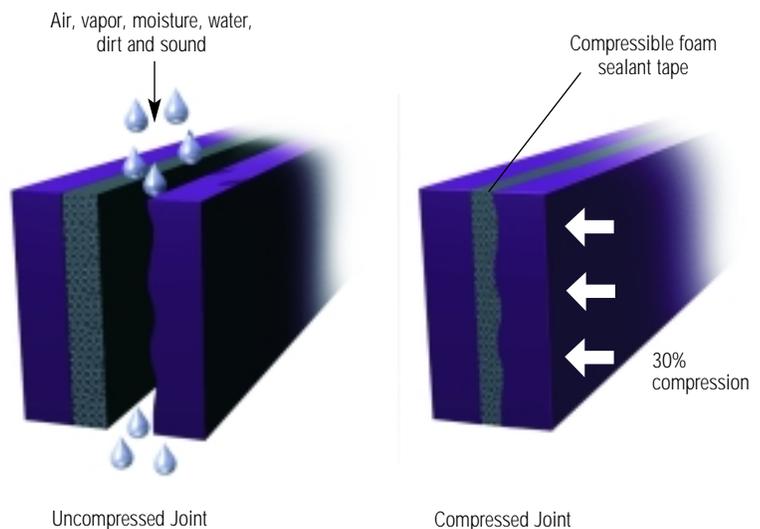
A proper gasket must interface between two dissimilar surfaces. Unlike traditional sealing methods such as caulks, mastics, or precompressed materials, our foam sealing tapes are:

- easier to handle and won't run or sag;
- presized to fit the joint;
- designed to create a superior seal with required compression for air, vapor, moisture, water, dirt and sound;
- able to dampen vibration;
- clean to use, eliminating the need for harsh solvents to clean up excess sealant;
- economical – surface preparation is minimal, installation is faster, waste is reduced;
- competitively priced;
- noted for a long shelf life;
- known for their excellent weathering characteristics.

How Foam Sealing Tapes Work

Norton sealing tapes are compressible, elastomeric foam tapes that work under pressure. Their closed-cell structure resists air, vapor, moisture, water, dirt, and sound penetration. Because they are dimensionally stable, they will not run, ooze, or flow.

They are made up of three elements: a compressible foam core; specially formulated adhesive; and removable liner.



Eliminate gaps where air, vapor, moisture, water, dirt and sound often penetrate with Norton soft, conformable sealing/gasketing tapes. At just 30% compression, Norton foam tapes ensure a positive seal, even against irregular surfaces.



Norseal V710 has unique "Swirl-free" properties which resist tearing and distortion when penetrated by mechanical fasteners.

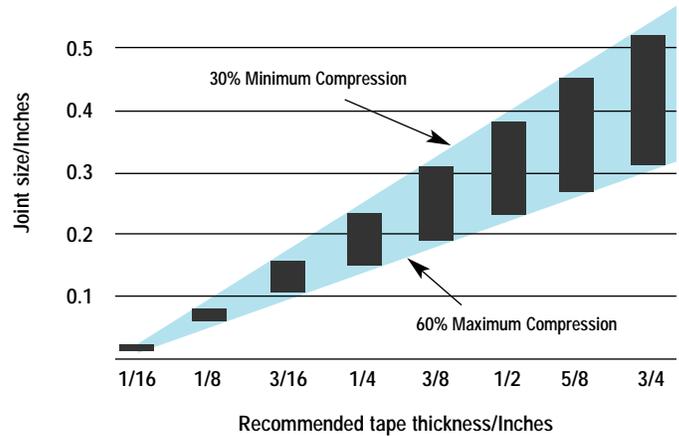
When compressed, the cell walls retain a memory of their original shape and exert an outward pressure to seal a joint. This deflection force prevents moisture from flanking between the foam and substrate. The soft conformable nature of Norton foams ensures a positive seal, even against irregular surfaces. They remain resilient and deliver long-term performance in the most demanding applications.

Selecting the Right Sealing Tape for the Application

Saint-Gobain has a wide range of tapes in different thicknesses, widths, compositions, compressibility values, and colors. Each one is engineered to solve the demands of a broad range of sealing applications. They are available with no adhesive, or adhesive on one or both sides.

- Select a soft foam product to seal thin-gauge materials, irregular surfaces, and to provide an acoustical barrier.
- Select a medium foam for most common air and water seals.
- Select a firm foam for higher compression and good abrasion resistance.
- To specify the right tape: select the type of tape from the Product Selection Chart on the inside back cover; determine the joint size, considering tolerances; then select the tape thickness. While a target compression of 30% is ideal for most sealing applications, a range of 30% to 60% compression is adequate for many uses. A tape thickness 1.4 to 2.5 times the joint gap assures a positive seal. For sound, light, and dust seals, 15% compression may be acceptable.

Sealing/Gasketing Tape Thickness Guide



With a variety of thicknesses, Saint-Gobain has the right tape to seal your gap.

Sealing/Gasketing Products

	Norseal®	Norex®	Norprene®	Dynafoam®	Korel®
Roll form	■				■
Die-cut applications	■				■
Custom extruded profiles		■	■		
Semi-automated application		■	■		
Fully automated application		■	■	■	
Good weatherability	■	■	■	■	■
Open-close applications			■		■
Shock absorbing	■				■
Flame-retardant formulation	■				■
NSF formulations (National Sanitation Foundation)		■			

Selected Applications for Foam Sealing/Gasketing Tapes

- | | |
|----------------------------|-----------------------------|
| Appliance seals | Store display cases |
| Electronic equipment | Precast concrete walls |
| Wall panels | Pneumatic system seals |
| Die-cut gaskets | Air conditioning |
| Weatherstripping | Outdoor lighting fixtures |
| Truck, cab, and body seals | Railroad cars |
| Seals for flashing | HVAC |
| Window glazing tape | Machinery enclosures |
| Marine glazing | Buses and off-road vehicles |

SEALING AND GASKETING PRODUCT

For special applications and demanding sealing challenges, Saint-Gobain has developed a range of sealing products:

- **Norseal®** closed-cell PVC foam, available in different densities in soft, medium, and firm foams;
- **Korel®** microcellular urethane foam provides low compression and absorbs vibration;
- **Norex®** PVC foam extrusions with or without pressure-sensitive adhesive;
- **Norprene®**, an extruded thermoplastic elastomer foam sealant with or without pressure-sensitive adhesive;
- **Dynafoam®**, a robotically applied foam-in-place gasketing material.



Norseal®

Norseal is a closed-cell, compressible PVC foam with a pressure-sensitive adhesive. Norseal foam tapes protect against water, dirt, and air infiltration even under the most demanding applications. Norseal resists weathering, UV oxidation, mildew, and fungus. Due to its cellular elastomeric nature, Norseal adjusts to thermal movement of structural elements without leaking.

Norseal is available in a range of thicknesses from 1/32" to 3/4" and in widths from 1/4" to 56". It is easily die-cut and fabricated to special applications. Norseal comes in black, gray, and white.

Typical Norseal Applications

- Appliance seals
- Electronic equipment
- Die-cut gaskets
- Window and door weatherstripping
- Truck, cab, and body seals
- Foundation to sill gaskets
- Concrete forms
- Export container seals
- Roof sealing for parapets
- Light and dust seals
- Suspended ceilings
- Refrigeration
- Wall systems
- Environmentally controlled rooms
- Toolbox lid seals
- Anti-squeak seals
- Air conditioner
- Corrugated wall seals
- Machinery enclosures

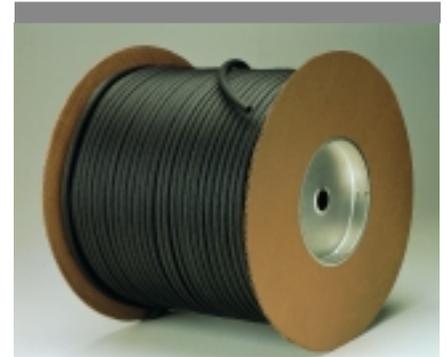
Korel® Microcellular Foam

Sensitive components require protection against vibration and shock. Our Korel line of microcellular foam products controls unwanted energy by damping shock and isolating vibration. Korel's special foam formulation protects sensitive parts by absorbing vibration and dissipating impact. In addition, it is ideal for open and closed sealing and severe compression gasketing applications.

Korel provides low compression set for long-term seal integrity; quick recovery; superior mechanical strength; vibration absorption; shock isolation that dissipates impact energy; abrasion and corrosion resistance; and it is easily die-cut to facilitate fabrication.

Typical Korel Applications

- Delicate circuit boards
- Office equipment foot pads
- Cabinet and furniture bumpers
- Sensitive medical equipment
- Athletic/sporting equipment
- Motor mounts
- Key pad returns
- Electronic component separator
- Disk drive covers
- Control boxes
- Truck tool boxes
- Cleanroom components



Norex® PVC Foam Extrusions

These advanced extrusions are designed to provide a faster and more economical solution to special sealing applications including appliance seals, automotive seals, and sealants for metal buildings and prefab construction applications. Norex custom PVC profiles are available in a range of densities with or without a wide variety of adhesives. They are supplied in long length spools to enhance productivity.

Norprene® Extruded Thermoplastic Foam Sealant

Norprene features enhanced temperature and chemical resistance for demanding sealing applications. These extrusions are resistant to weather, oxidation, remain flexible at low temperatures, and are excellent sealants against light, dust, and water.

Selected Norprene Applications

- Open and closed louver gaskets
- Marine hatch gasketing
- Vent window weatherstripping
- Refrigeration panels
- Access panel seals
- Curtain walls
- Truck cap window seals

PRODUCT SELECTION CHART



Lo-Skid™ LS7000/LS7100 Series

Lo-Skid urethane foam products are widely recommended for bumpers and footpads for appliances and electronic products because they provide a high coefficient of surface friction combined with a smooth non-marring surface. Lo-Skid is flexible and can easily be die-cut to the required size and shape. Available with a pressure sensitive adhesive for easy attachment.

Typical Lo-Skid Applications

Foot pads and bumpers for:
Business Machines
Housewares
Industrial Equipment
Electronics

Dynafoam® Foam-In-Place Gasketing

Dynafoam robotically applied foam-in-place gasketing material out-performs hand-applied, die-cut gaskets and other foam-in-place materials. This single-component, closed-cell material is suitable for a variety of high-volume applications. Because it is thixotropic in nature, it will not slump; it can be extruded on three axes and maintain a 1:1 height to width ratio.

Selected Dynafoam Applications

Automotive tail light seals
Fixed window assemblies
Washing machine splash tub seals
Audio speakers
Fuse and connector boxes
Rain gutter gaskets
Sunroofs
HVAC filter housing

SUMMARY OF NORTON® TAPES AND RELATED FOAM PRODUCTS

MOUNTING TAPES (Adhesive on two sides, standard)

Product	Description
Normount V1300	Excellent for interior use attachment. White polyurethane.
Normount V2000	Durable, all-weather mounting tape. Black polyurethane.
Normount V2800	High-strength, all-weather mounting tape for severe applications. Black polyurethane.
Normount V4600	High-strength, all-weather mounting tape for severe applications. Gray polyurethane.
Normount V8800	High-strength firm substrate for broad range of exterior applications. Black polyurethane.
Normount V9000	Suitable for moderate mounting, interior and exterior applications. Natural off-white polyurethane.
Normount OP7000	Speciality configuration for optical lens grinding process.
Printmount PR Series	Speciality configuration used in flexographic printing attachment applications.
Norcryl A1000	All-weather solid acrylic clear tape.
Norcryl A2000	All-weather solid acrylic translucent tape.

SEALING TAPES (ADHESIVE ON ONE SIDE, EXCEPT AS NOTED)

Soft Foams

Norseal V730	Soft foam to seal thin-gauge materials, irregular surfaces, and to provide acoustical barrier. Gray PVC.
Norseal V770	Soft foam to seal thin-gauge materials, irregular surfaces, and to provide acoustical barrier. Meets FMVSS 302 flammability standard. Black PVC.
Norseal V820	Extra soft foam. Not for primary seal in severe exposures. Meets FMVSS 302 flammability standard. Black PVC.

Medium Foams for Most Common Air and Water Seals

Norseal V740	Multipurpose foam. Optional mylar liner reduces sticking to adjacent surfaces. Black or gray PVC.
Norseal V740FR	Flame retardant foam. For fire-rated and flame retardant construction; self-extinguishing. UL 94 recognized. Off-white PVC.
Norseal V780	Improved performance medium foam. Excellent weathering properties with flame retardants to meet FMVSS 302 flammability standards. Black PVC.
Norseal V790	Log home foam. Designed specifically for the log home builder. Not for UV exposure. Black polyurethane.
Korel K20	Energy absorbing with low deflection force. Black polyurethane.

Firm Foams with Higher Internal Strength and Abrasion Resistance

Norseal V710	For use with fasteners. "Swirl-free" foam that will not move or twist when penetrated. Gray PVC.
Norseal V760	Extra firm foam. Gray PVC.
Norseal V980/V990	Ideal seal in joints with a high degree of movement. Adhesive on two sides. Black, gray, or white PVC. Paper or poly liner.
Korel K30	Energy-absorbing firm foam. Black or gray polyurethane.
Korel K40	Energy-absorbing extra firm foam. Black or gray polyurethane.
Lo-Skid	High density foam with high coefficient of surface friction for foot pads. Black polyurethane.

EXTRUDED FOAM SEALING/GASKETING PRODUCTS

Norex, PVC	Custom-designed PVC profiles. With or without adhesive.
Norprene	Custom thermoplastic foam extrusions with enhanced temperature and chemical resistance.

FOAM-IN-PLACE SEALING/GASKETING PRODUCT

Dynafoam	One-component, robotically applied foam-in-place gasketing material for high-volume applications.
----------	---

Performance Taking Shape

Every day, Saint-Gobain products provide customers with the highest levels of performance — performance which is the result of creative ideas and innovative technologies.

A recognized leader in advanced polymer technology, Saint-Gobain Performance Plastics is part of an international family of companies comprising Compagnie de Saint-

Gobain, a global force in engineered materials. With a worldwide network of manufacturing and sales facilities, Saint-Gobain Performance Plastics brings years of experience to developing innovative polymer solutions for its customers.

By conforming to the world's most demanding quality standards — including QS9000 and ISO9001/9002 — Saint-Gobain offers its customers something which they have come to expect: Products and service of the highest and most consistent quality available.

Saint-Gobain Performance Plastics is a world leader in the development and manufacture of specialty foams for bonding, sealing, and vibration damping.



Saint-Gobain Performance Plastics Specialty Elastomers Group

NORTH AMERICA

One Sealants Park
Granville, NY 12832
1-800-724-0883
518-642-2200
Fax: 518-642-2793

57 Morehall Road
Malvern, PA 19355
800-523-0336
610-647-3500
Fax: 610-296-2575

38200 West 10 Mile Road
Suite 150
Farmington Hills MI 48335
248-355-2672
Fax: 248-355-2677

EUROPE

Avenue du Parc 18
B-4650 Chaineux, Belgium
(32) 87-32-20-11
Fax (32) 87-32-20-51

13 Earlstrees Road
Corby, Northamptonshire NN17 4AZ
Great Britain
(44) 1536-26-07-89
Fax: (44) 1536-203427

Schiefbahn Am Nordkanal 37
D-47877, Willich, Germany
(49) 2154-600
Fax: (49) 2154-60310

Via Per Cesano Boscone 4
I-20094 Corsico Milano, Italy
(39) 2-44-851
Fax: (39) 2-44-09061

Poligono Industrial Aquibera
08755 - Castelbisbal
Barcelona, Spain
(34) 93-682-8140
Fax: (34) 93-682-8143

ASIA

Room 1533, Central Plaza
381 Huai Hai Zhong Road
Shanghai 200020
(86) 21-5382-5612
Fax: (86) 21-5382-5182

10801-5 Haramura Suwa-Gun
Nagano, 391-0106
(81) 266-79-6420
Fax: (81) 266-70-1002

6th Fl. Dongshin Bldg.,
141-28 Samsung-Dong
Kangnam-Ku, Seoul, 135-090, Korea
(82) 2-508-8200
Fax: (82) 2-554-1550

No. 18, Ground FL, Jalan PJS 11/7
Subang Tech. Ind. Park, Bandar Sunway
46150 Petaling Jaya, Selangor DE
Malaysia
(60) 3-736-4082
Fax: (60) 3-736-4099

Suite 1203, 12th floor,
147 Chienkwo North Road, Section 2
Taipei, Taiwan R.O.C.
(886) 2-2503-4201
Fax: (886) 2-2503-4202

Nothing in this brochure constitutes a warranty of any kind. Sales of Saint-Gobain Performance Plastics products are governed by the standard Saint-Gobain limited warranty and accompanying terms and conditions of sale. A copy of the limited warranty and accompanying terms and conditions will be provided upon request. Saint-Gobain assumes no obligations or liability for any advice furnished by it, or for results obtained with respect to our products. All such advice is given and accepted at the buyer's risk.

Norseal®, Normount®, Korel®, Norex®, Dynafoam®, and Norprene® are registered trademarks. Tite-R-Bond™, Lo-Skid™ and Norcryl™ are trademarks.


SAINT-GOBAIN

PERFORMANCE PLASTICS

Saint-Gobain
Performance Plastics

One Sealants Park
Granville, NY 12832
1-800-724-0883
518-642-2200
Fax: 518-642-2793

www.plastics.saint-gobain.com