

NORGARD 



SAINT-GOBAIN® TAPE SOLUTIONS

NEXT GENERATION FILM SOLUTIONS

FOR WIRE AND CABLE INSULATION

ENGINEERED FOR **HIGH
PERFORMANCE INSULATION**


SAINT-GOBAIN



NORGARD® NEXT GENERATION FILM SOLUTIONS

FOR WIRE AND CABLE INSULATION

AN INDUSTRY LEADER for more than 45 years, **Saint-Gobain® Tape Solutions** is an experienced partner in providing high performance insulation films. Backed by a proud heritage of product innovation, technological expertise and market leadership, **Saint-Gobain** is dedicated to working with our customers to solve today's demanding application issues and the challenges that lie ahead.

Through the support of our four global research and development centers and our advanced polymer technology, **Saint-Gobain** creates innovative products that enhance performance in the most demanding environments.

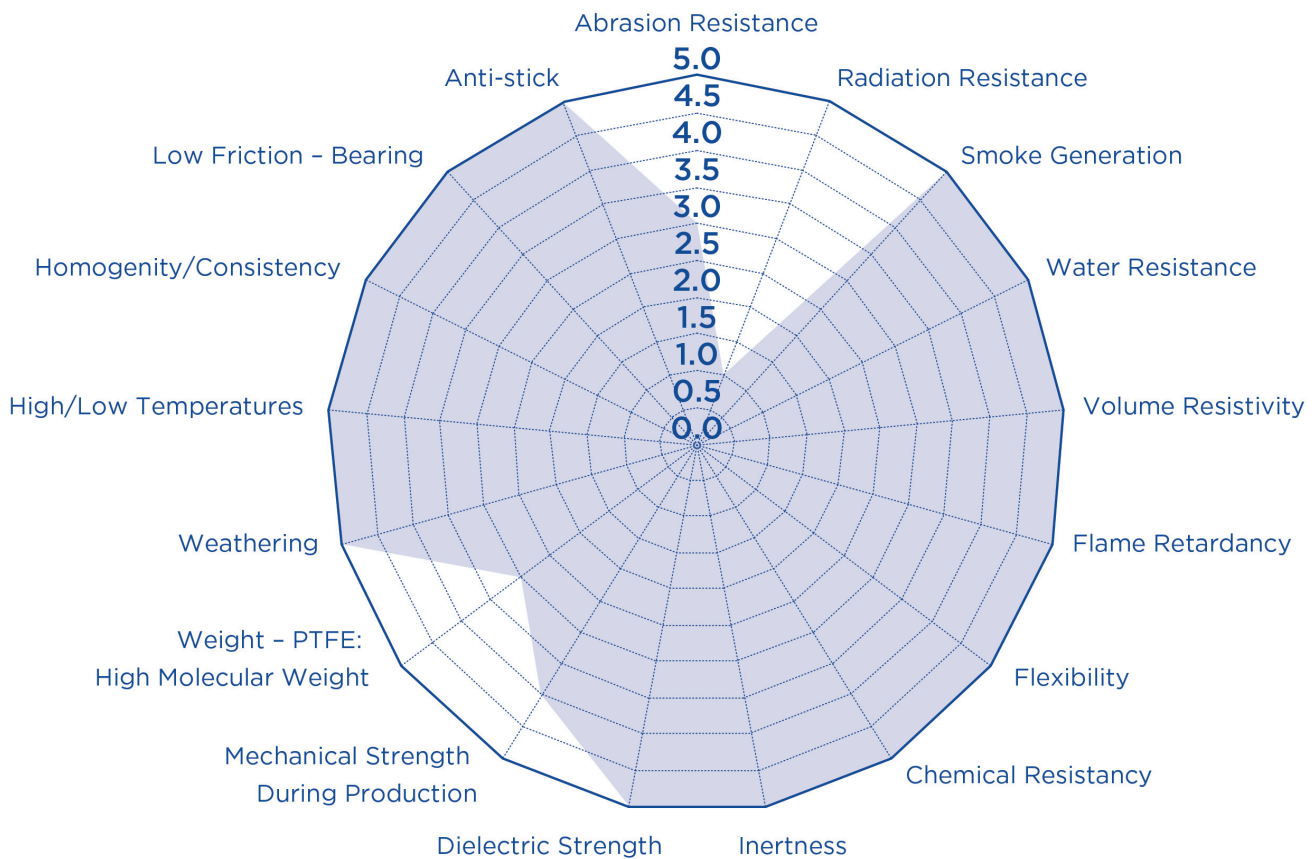
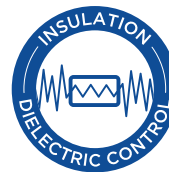
Our **Norgard** family of fluoropolymer products improves cable performance in the harshest conditions and is especially well suited for use in the aviation industry.

APPLICATIONS FOR EXTREME CONDITIONS

- Aviation
- Oil & Gas
- Robotics
- Military
- Instrumentation
- Space
- Offshore
- Telecom
- Medical

ENGINEERED FOR HIGH PERFORMANCE INSULATION

Norgard unmatched consistency provides an ideal solution for the signal cable market, where high frequencies are becoming more important. The low dielectric constant (the lowest with **Norgard** Expanded PTFE Film) combined with consistent long lengths significantly reduces the effect of attenuation, improving signal quality where other materials fail. **Norgard** optimizes signal integrity over long lengths of cable while reducing cable size and weight.

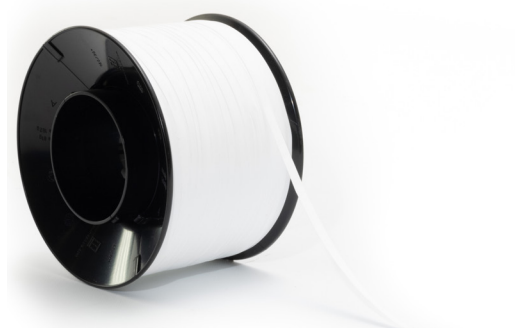


NORGARD ENGINEERED FILMS



NORGARD EXTRUDED PTFE FILM

- Designed for primary insulation of hook-up wires, jackets and cables
- Highest tensile properties in the industry
- Increased wrapping speed during cable production
- Maintains insulation profile integrity and increases productivity, reducing manufacturing costs



NORGARD LOW DENSITY PTFE FILM

- Unsintered and sintered PTFE films
- Highest achievable tensile strength at the lowest dimensional variation
- Low dielectric constants and lowest attenuation on longest signal cable lengths
- Designed for highest frequencies with lowest signal losses
- Longest achievable tape length
- High-end cable impedance control



NORGARD SKIVED PTFE FILM

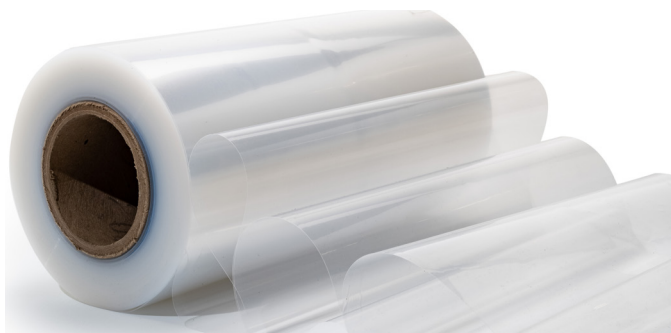
- Full density sintered PTFE films
- Widely used as chemical barrier and binding films in specialty cables for electrical heating devices
- Good abrasion resistance and bearing properties
- Ideal for applications requiring flexibility and robust performance
- Available in different compounded or anti-static versions

FOR WIRE AND CABLE INSULATION



NORGARD COMPOSITE POLYIMIDE FILM

- Excellent dielectric properties
- Withstands high voltage
- Durable
- Good cut-through and abrasion resistance
- Can be used in a wide range of temperatures
- High radiation resistance and low outgassing



NORGARD FLUOROPOLYMER FILMS & COATED FABRICS

- PFA, FEP, ETFE, PVDF, MFA and silicone coated fabrics
- Excellent electrical insulation properties
- Heat sealable
- Good resistance against aggressive media
- Widely used as jacket materials

MULTIPLE PACKAGE SOLUTIONS TO FACILITATE YOUR PROCESS

Please contact our technical service department and we will tailor the best package for you.

- Flat pad
- Universal (Traverse)
- StableEdge™
- Ultra-long length (splice free)
- Ultra-narrow widths





SOLUTIONS FOR THE AEROSPACE INDUSTRY

SAINT-GOBAIN maintains a strong commitment to the aerospace market. Our unsintered and low density PTFE films are engineered to meet and exceed the stringent demands of this industry for safety and weight. **Norgard** Films are designed to create the ideal cable with maximum performance at the smallest size and lowest weight.

Available in thicknesses $\geq 50\mu\text{m}$, **Norgard Unsintered PTFE Film** offers unmatched thickness consistency, with lowest thickness tolerances at the longest achievable PTFE tape length, without splice or preform joints.

These dimensional consistencies and high mechanical properties allow users to wrap insulation at the required minimum on the conductor, resulting in weight reduction.

This minimum requested overlap, combined with the most homogeneous densities and highest mechanical tensile properties, allows cable makers

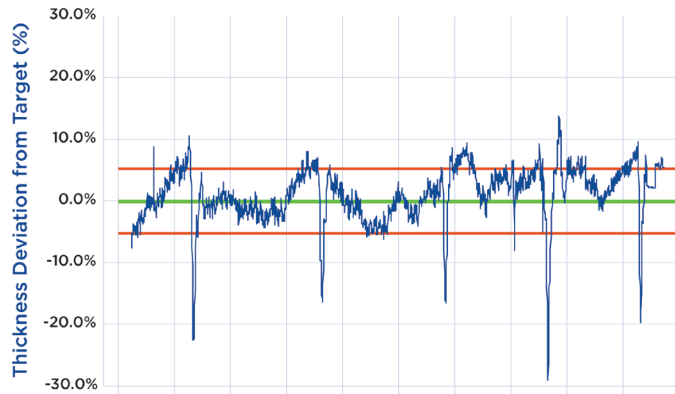
to run their taping heads faster, while making safe products that maintain profile integrity. Our laser-markable tape solutions comply with OEM requests for 60% before and 40% after aging.

Norgard Film is available in a wide range of clear bright colors that comply with the EU's Restriction of Hazardous Substances (RoHS) for electronic equipment, meeting the strict demands of aircraft OEMs worldwide.

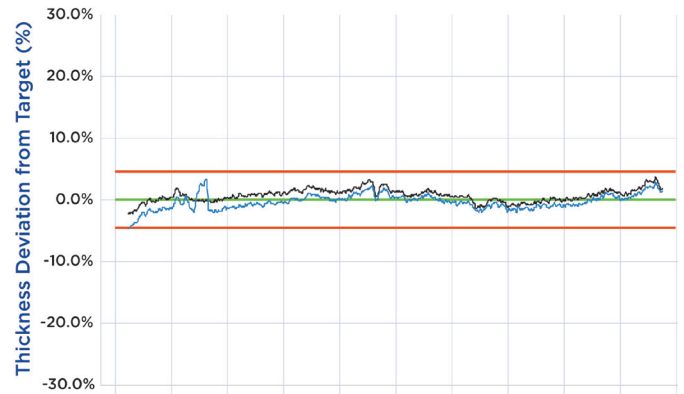
The Saint-Gobain technical services department will help you to adapt our products to your equipment to achieve maximum profitability.

THICKNESS PROFILES OF UNSINTERED PTFE FILM:

Norgard Unsintered PTFE Film maintains an unparalleled consistent thickness, with no peaks or deviation from tolerance limits.



Typical Thickness Profile
of an Industrial Sample



Norgard Thickness Profile

NORGARD FILM ADVANTAGES

- Weight/space savings
- World champion in dimensional, electrical and mechanical consistency
- Longest splice/defect-free lengths
- Highest mechanical strength for higher wrapping speeds and profitability
- Laser markable, high contrast ratios
- Reach and RoHS Compliant



SAINT-GOBAIN TAPE SOLUTIONS is a global leader in high-performance, technology-driven materials. With expertise concentrated on film and fabrics, we provide proven products, customized solutions and complete systems to customers across a diverse range of sectors. We help create innovative materials that provide protection, easy release, insulation and friction control. And we seek to collaborate in making even more possible.

www.tapesolutions.saint-gobain.com

IMPORTANT: It is the user's responsibility to ensure the suitability and safety of Saint-Gobain products for all intended uses and that the materials to be used comply with all applicable regulatory requirements. Saint-Gobain assumes no responsibility for any product failures that occur due to misuse of the materials it provides arising out of the design, fabrication or application of the products into which the materials are incorporated.

WARRANTY: This document should not be considered a warranty or a guarantee. The descriptions of the Product provided hereinabove may vary based on specifications requested and testing protocols. Typically, Saint-Gobain warrants that product(s) will meet mutually agreed specifications at delivery and Saint-Gobain honors any breach of warranty claims for six (6) months from delivery of the products. If a product is determined to be nonconforming with its warranty, Saint-Gobain's sole obligation is, at its option, to either replace the nonconforming products or reimburse the purchase price for the same.

The only obligation under any applicable product warranty will be to replace any portion proving defective, or at our option, to refund the purchase price thereof. **SAINT-GOBAIN DISCLAIMS ALL OTHER EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE.**



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TAPE SOLUTIONS**

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