

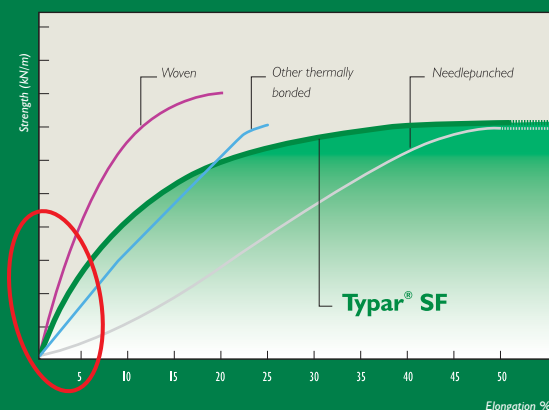
DuPont™ Typar® SF Geotextile



Technical handbook

Ask for more

ENERGY



- ▶ High energy absorption
- ▶ High initial modulus
- ▶ High elongation (> 50 %)
- ▶ Long-term filtration
- ▶ Outstanding uniformity



The miracles of science™



Further product information is available upon request. This information corresponds to our current knowledge on the subject. It is offered solely to provide possible suggestions for your own testing. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge and experience becomes available. Since we cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right. Please check independently whether manufacturing and selling of your product may infringe patent rights.

DuPont™ Typar® SF Geotextile

TECHNICAL HANDBOOK

Due to technical reasons,
the paging of the pdf and
print versions might be
different.

- 1 ----- TYPAR® INTRODUCTION
- 2 ----- FUNCTIONS AND REQUIREMENTS
- 3 ----- AGGREGATES BASES
- 4 ----- DRAINAGE SYSTEMS
- 5 ----- EROSION CONTROL
- 6 ----- APPLICATION SUGGESTIONS
- 7 ----- ANNEX

TYPAR® INTRODUCTION

1. 1. Introduction	4
1. 2. DuPont Quality	4
1. 3. What is Typar® SF?	4
1. 4. DuPont Typar® fibre production	5
1. 5. Typical Characteristics	5

1

2

3

4

5

6

7

1. TYPAR® SF INTRODUCTION

1. 1. Introduction

The purpose of this guide is to provide basic information on geotextiles, their functions and their required properties for different applications. This technical handbook provides guidance on the design, selection and utilisation of Typar® SF geotextiles in civil engineering applications such as the construction of aggregate bases, drainage and erosion control systems. A description of test methods for determining the properties of geotextiles and technical data is given. Details on the DuPont Typar® Geosynthetics product range can be found in our Typar® SF and Typar® HR brochure and on our website www.typargeo.com. For additional advice and technical assistance, please contact the DuPont Geosynthetics Technical Centre.

1. 2. DuPont Quality

For two centuries now, DuPont inventions have been leading industry forward with innovative and pioneering high performance materials such as Nylon, Kevlar®, Tyvek®, Lycra® and Teflon®. Engineering excellence and quality standards which are second to none: these are just two of the reasons why DuPont Typar® Geosynthetics provide reliable long-term performance for civil engineering and construction projects.

Invented 30 years ago and manufactured at the DuPont Luxembourg site, the high quality and performance of Typar® SF has proven the test of time. With more than 1 billion m² sold world-wide, Typar® SF geotextiles have been used in roads, railway tracks and construction surfaces equivalent to a six lane motorway of 23 meter width once around the world.

Typar® is manufactured to ISO 9001 standards. The stringent quality requirements of DuPont ensure that only high quality products are released into the market. The integrated production and laboratory system guarantee that the manufacturing process conditions and laboratory results for every roll are traceable.

The environmental management system of DuPont is in accordance with the requirements of the environmental standards of the EMAS (Eco-Management and Audit Scheme) Regulation as well as the ISO 14001. Furthermore Typar® SF geotextiles CE marked and submitted to several different certification systems such as the French ASQUAL and the German external audit system "Fremdüberwachung DIN 18200".



1. 3. What is Typar® SF?

Typar® SF is a thin, thermally bonded, water permeable nonwoven geotextile made of 100% continuous polypropylene filaments. It is designed to have a combination of a high initial modulus (stiffness), high elongation (typically >50%) and outstanding uniformity, to give superior performance, to make it resistant to damage and to have excellent filtration properties. Typar® SF is an isotropic material, which means that its physical properties are the same in all directions. This mirrors the stresses and strains of a typical separation application.

Furthermore, the fact that Typar® SF is made of 100% polypropylene, makes it resistant to rotting, moisture and chemical attack, particularly alkalis ³.

¹ DQS – Deutsche Gesellschaft zur Zertifizierung von Managementsystemen mbH

² BVQI – Bureau Veritas Quality International

³ details on chemical resistance can be found in the annex section 7.6

1. 4. DuPont Typar® fibre production

In the fibre extrusion process, thousands of extremely fine, continuous filaments are produced, which pass through a DuPont patented “pre-stretch” stage. These fine but tough filaments are then laid down (Fig. 1) producing an isotropic fibre web sheet which is then thermally and mechanically bonded.



Figure 1: Filament laydown



Figure 2: Typar® microscopic view

By varying the process conditions, a range of high strength Typar® nonwoven structures with different denier and physical properties can be produced. This DuPont patented production technique is one of the main reasons for the unique properties of Typar® SF compared to other geotextiles.

1. 5. Typical Characteristics

The following figure 3 shows the typical stress-strain behaviour of several geotextiles of similar weight. Typar® SF has a high tensile strength, a high elongation, and also a high initial modulus which is the ideal combination of properties for geosynthetic applications (for comparison see also table 1).

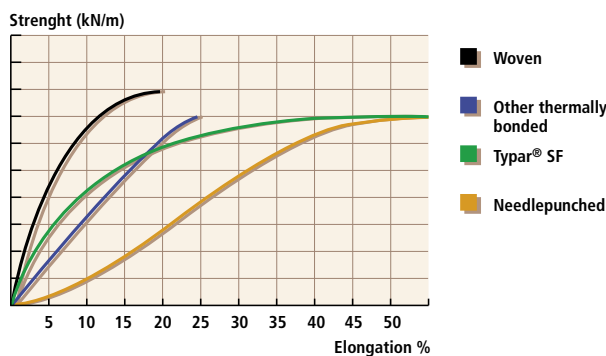


Figure 3:
 Typical stress-strain curves of Typar® SF and other geotextiles

Typar® SF is manufactured to a very high level of uniformity using a continuous on-line, β-ray and ultrasonic monitoring process. Any product that fails to meet the required standards is rejected and recycled. In the process stabilisers are added to the polypropylene which increase the durability of Typar® SF. It can endure up to several weeks in direct sunlight, but prolonged exposure, particularly in tropical sunlight, can cause strength losses⁴. Generally a geotextile should be covered immediately after laying to avoid UV degradation, wind uplifting or mechanical damage.

	Typar® SF	Woven	Needle-punched staple fibre	Needle-punched continuous	Other thermally bonded
Energy	high	low	medium	medium	very low
Tensile Strength	high	very high	medium	high	high
Initial Modulus	high	high	very low	low	high
Elongation	high	low	high	high	low

Table 1: Stress-strain curves properties of several geotextiles types

⁴ Details on UV resistance can be found in the annex section 7.6

