

POLYESTER

in Technical Textiles and Nonwovens: World Market Forecasts to 2010

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1. OVERVIEW

1.1 A GROWING AND CHANGING MARKET FOR POLYESTER

THIS SECTION PROVIDES AN OVERVIEW OF THE MAIN FINDINGS OF THE REPORT.

1.2 POLYESTER TECHNICAL TEXTILES DEFINED

This report considers all technical textiles that use polyester in the form of polymer chip (for extruded nonwovens), staple fibre, spun staple yarn, multifilament yarn, monofilament yarn or tape/slit film yarn. In this report technical textiles are defined as comprising all those textile-based products which are used principally for their performance or functional characteristics rather than for their aesthetics, or are used for non-consumer (i.e. industrial) applications. Hence the definition does not depend on the yarn or fibre used, but on the end-use of the product itself. A more detailed definition of technical textiles is provided in Appendix 1.

1.3 AIMS OF THE REPORT

The main aims of this report are as follows:

- i) to provide a comprehensive and detailed analysis of the current world market for polyester in nonwovens and other technical textiles by individual end-use product.
- ii) to provide estimates of current end-use consumption levels for 109 separate end-use products where polyester is used by region and by physical make-up - polymer/fibre form (yarn type), fabric type.
- iii) to provide forecasts of consumption by product by region to 2010 at the same level of detail, based on a well defined and internally consistent set of assumptions, in order to provide a clear picture of future demand for polyester polymer/fibre in technical applications.

This information on the most important features of the polyester technical textiles market currently and up to 2010 is expected to be useful to the following types of organisation:

- Producers of fibre intermediates, polymers, fibres, yarns and fabrics already operating in the sector or wishing to enter it
- Suppliers of chemicals to the fibre and textile industries: spin finishes, process chemicals, adhesives, coating, effect chemicals, etc

- Manufacturers of machinery for fibre extrusion and processing, textile production, coating and laminating, etc
- Converters and other downstream processors of technical textiles and nonwovens
- Fibre trade associations
- Ultimate commercial end-users of technical products.

1.4 THE SOURCE OF THE FORECASTS

The product detail and market forecasts in this report are based on DRA's proprietary system for describing and forecasting world end-use markets for textile products. Details of this Textile Products End-Use Consumption Forecasting System are given in Appendix 2.

The databases and the model included in this consumption forecasting system have been set up to handle a high level of product and market detail. In practice the physical make-up of some 150 individual end-use products (including 109 products which use polyester) included in the technical textiles partition of this consumption forecasting system is analysed across 210 individual country markets into:

- 19 individual polymer/fibre types (e.g. cotton, viscose, polyester, etc)
- 8 forms of polymer/fibre or yarn type used (e.g. unspun staple fibre, filament yarns, tape yarns)
- 19 different final textile product types (e.g. narrow woven fabrics, warp knits, dry-laid nonwovens)
- 4 coating types (plus uncoated).

Complete lists of the 150 technical textile products and the other variables contained within the DRA consumption forecasting system are given in Exhibits A2.1 and A2.2 in Appendix 2.

1.5 PRODUCTS USING POLYESTER INCLUDED IN THIS REPORT

Each of the 109 individual end-use technical textile products in which polyester is used has been assigned to one of the relevant 12 application areas as defined by Messe Frankfurt, the organisers of the Techtextil Shows and described in Exhibit A1.1, Appendix 1. A list of the products which use polyester, together with their application area and brief product description, is provided in Exhibit 1.2, overleaf.

Exhibit 1.2**List of Polyester End-Use Products Covered in this Report, with relevant Application Area**

Application Area and Product	Product Description and Function
Agrotech: Woven crop cover, protection	General agricultural, horticultural wovens for protection: wind-breaks, ground matting, tobacco cloth, etc (including tarpaulins)
Agrotech: Nonwoven crop cover, protection	Fabrics for crop cover, protection, mulching, etc
Agrotech: Fishing ropes	Ropes for fishing - towing nets, fish farms, etc (only)
Agrotech: Fishing line	Lines for fishing (long line, rod and line)
Agrotech: Fishing nets	Nets for all fishing purposes, including seine nets, fish farms etc
Buildtech: Tarpaulins	Heavy woven fabrics for protection and storage applications
Buildtech: Textile structures	Heavy woven fabrics for marquees, tenting, roofs, etc - including architectural membranes
Buildtech: Awnings, canopies	Woven fabrics for commercial and industrial awnings and canopies
Buildtech: Roofing felts	Support for nonwovens (e.g. felt) and for PVC coating for use on roofs
Buildtech: Woven roofing	Fabrics for use as substrates in single ply roofing
Buildtech: Roof scrims	Fabrics, impregnated with bitumen or similar, for use as roofing felts (flat roofs and underlay). Also sewer linings.
Buildtech: Hoardings	Fabrics for billboards, hoardings, mostly for advertising.
Buildtech: Scaffold nets	Scaffolding nets to protect against falling debris; façade netting without printed advertising
Clothtech: Interlinings, woven	Woven and knitted fabrics used to provide support and structure to garments
Clothtech: Interlinings, nonwoven	Nonwoven fabrics used to provide support and structure to garments
Clothtech: Waddings	Wadding/fibrefill used to provide insulation in garments
Clothtech: Shoe laces	Shoe and boot laces
Clothtech: Shoe components	Linings, components etc for most shoes and trainers (excluding artificial suede, leather substrates and PVC substrates)
Clothtech: Sewing threads	Threads used in all garment applications
Clothtech: Fasteners	Zip teeth and Velcro (hook and loop) fastenings
Clothtech: Labels	Printed and woven labels for all applications
Geotech: Ground stabilisation	Geotextile fabrics for stabilisation, separation, drainage
Geotech: Soil reinforcement	Geotextile fabrics for reinforcement of soil
Geotech: Pit linings	Geotextile fabrics for lining waste ponds, pits, landfill, etc
Geotech: Erosion control	Geotextile fabrics for erosion control
Homotech: Nonwoven wipes	Cleaning wipes in nonwoven form, including floor mops, etc
Homotech: Vacuum filters	Filter media for domestic and industrial vacuum cleaners
Homotech: HVAC filters	Heating, ventilation and air conditioning filters for domestic and industrial use
Homotech: Pillow tickings	Tickings for filled products (pillow, duvet, cushion)
Homotech: Mattress tickings	Outer fabrics for wrapping mattresses
Homotech: Mattress spring wrap	Fabrics used to wrap springs in sprung beds
Homotech: Spring insulators	Flat fabrics (decking) used to cover springs in beds or upholstery
Homotech: Platform cloth	Fabrics used as a base for cushions on upholstered furniture
Homotech: Dust cloths	Fabrics attached to base of furniture

Continued...

Exhibit 1.2
(continued)

**List of Polyester
End-Use Products
Covered in this
Report, with
relevant
Application Area**

Application Area and Product	Product Description and Function
Homotech: Furniture components	Skirt linings and other fabrics for use in upholstered furniture, bedding etc, not elsewhere specified
Homotech: Fibrefill	Pillow, cushion, duvet filling; wadding used in upholstered furniture and mattresses
Homotech: Furniture webbings	Strapping used to support seating in upholstered furniture, etc
Homotech: Curtain tapes	Header tapes for drapes and nets
Homotech: Woven carpet backings	Woven fabrics used as a primary or secondary backing for tufted carpets (excluding ground yarns for woven carpets)
Homotech: Nonwoven carpet backings	Nonwovens used as a primary and secondary backing for carpets, underlay and backing to carpet tiles
Homotech: Sewing threads	Threads used in all furnishing, household textile applications
Indutech: Conveyor belting	Woven fabrics for conveying and speciality applications
Indutech: Hoses	Braids, woven and knitted fabrics used to reinforce rubber and polymer hoses for industrial applications
Indutech: Drive belting	Machine drive and power transmission belting including flat and coated products as well as V-type designs
Indutech: Brushes	Bristles for brushes of all types
Indutech: Abrasives	Fabrics for a variety of polishing and abrasion applications
Indutech: Nonwoven wipes	Cleaning wipes in nonwoven form
Indutech: Woven filters	All woven filters for use in industrial applications
Indutech: Nonwoven air filters	High Efficiency Particulate (HEPA) and Ultra Low Penetration (ULPA) products and other non-HVAC air filters for industry.
Indutech: Nonwoven dust filters	Filter media for dust bag-houses
Indutech: Nonwoven liquid filters	Filter media for swimming pools, food, vessel bags, etc.
Indutech: Other nonwoven filters	All other nonwoven filters
Indutech: Papermaking felts	Batting and support elements of press, forming and drying fabrics (or felts) in papermaking
Indutech: Cable components	Central strength members and rip cord yarns for use in cables
Indutech: Fibrefill	Fibrefill and waddings for miscellaneous industrial applications
Indutech: Liftingwebs	Webs and roundslings for lifting purposes
Indutech: Ropes	Ropes and cords for use in industry
Indutech: Misc. coated fabrics	Heavy coating substrates for covers and miscellaneous applications such as storage (silos), military, oil booms, etc
Medtech: Woven gowns, drapes	Patient and surgeon gowns, drapes and garments used in surgical and other medical situations (excluding nurse-type garments)
Medtech: Nonwoven gowns, drapes	Lightweight nonwoven garments used in protective and medical situations
Medtech: Woundcare woven, knit	All medical wovens and knits such as bandages and dressings, gauze, slings, etc
Medtech: Woundcare nonwoven	Nonwovens for bandages, dressings and other medical end-uses not elsewhere specified
Medtech: Sterile packaging	Sterile medical packaging
Medtech: Medical mattresses	Waterproof coated fabrics for mattresses
Medtech: Coverstock	Outer fabrics used in sanitary towels, diapers, incontinence pads
Medtech: Wipes	Wipes for cleansing skin, face, hands, etc
Mobiltech: Car tyre cord	Fabric for reinforcement of car tyres
Mobiltech: CV tyre cord	Fabric for reinforcement of tyres other than for cars

Continued.....

Exhibit 1.2
(continued)

**List of Polyester
End-Use Products
Covered in this
Report, with
relevant
Application Area**

Application Area and Product	Product Description and Function
Mobiltech: Auto drive belt	Fabric for reinforcement of automotive drive belts, etc
Mobiltech: Auto hose	Fabric for reinforcement of automotive hoses
Mobiltech: Seat belts	Narrow woven safety belt fabric for vehicles
Mobiltech: Tufted carpet	Tufted automotive floor-covering - face fabric only
Mobiltech: Needled carpet	Needlepunched nonwoven automotive floor-covering
Mobiltech: Auto carpet backing	Primary (for tufted) and secondary carpet backing for automotive end uses
Mobiltech: Woven & knit trim	Woven, knitted automotive trim : boot liners, head liners, shelving, door panels, etc
Mobiltech: Nonwoven trim	Nonwoven automotive trim : boot liners, head liners, shelving, door panels, etc
Mobiltech: Upholstery	Woven & knitted automotive seating face and backing fabric
Mobiltech: Insulation	Insulation for engine compartments, wheel arches, foot-wells, etc
Mobiltech: Truck covers	Heavy woven fabrics for truck covers, curtain-sides and other protection and storage applications (e.g. ships' hold covers)
Mobiltech: Tiedowns	Narrow woven belts for truck curtain-sides and cargo restraints
Mobiltech: Ropes	Ropes used in transport, including marine, tethering, etc
Packtech: FIBC big bags	Flexible Intermediate Bulk Containers, ("Big Bags"), laundry bags and other bulk packaging products
Packtech: Misc. nonwoven packaging	All nonwoven packaging items except tea bags, e.g. food soaker pads, envelopes/durable papers
Packtech: Misc. woven packaging	Miscellaneous woven packaging items such as lightweight mail-bags, fibre strapping
Protech: FR clothing	Fabrics for use in clothing worn to protect against flame and heat
Protech: cut, slash protection	Fabrics for garments and gloves used to provide protection from knives, glass or other sharp implements; chain saw protection
Protech: Face masks	Face masks for medical, industrial (clean room), and domestic applications
Protech: Dust protection	Lightweight barrier fabrics for garments worn to provide protection against dust or other particulate matter
Protech: Disposable chemical protection	Fabrics for disposable garments worn to provide protection against harmful chemicals and gases, pesticides, etc
Protech: Durable chemical protection	Fabrics for durable garments and gloves worn to provide protection against harmful chemicals and gases
Protech: FWC	Fabrics for foul weather clothing using coating or laminates, for all end uses
Protech: Hi-vis	Fluorescent and phosphorescent (not retro-reflective) fabrics for gilets, trousers (excludes FWC)
Protech: Harnesses	Safety straps for workers, climbing, push chairs, child car seats, etc
Sporttech: Boat covers	Boat covers and other fabrics used to provide protection from adverse weather on pleasure craft
Sporttech: Bookcloth	Substrate for leather-type covering of hard backed books
Sporttech: Shopping bags	Outer fabrics plus substrates for soft sided shopping and other small bags, carriers, etc (excluding handbags, leathersgoods)
Sporttech: Artificial leather substrates	Substrates for artificial leather handbags, luggage, small goods
Sporttech: Sports bags, luggage	Face fabrics and substrates for soft sided luggage, bags for carrying sports gear, rucksacks
Sporttech: Sailcloth	Fabrics used in mainsails, foresails and spinnakers
Sporttech: Climbing ropes	Ropes and cords used for climbing, yachting, etc
Sporttech: Footballs	Substrates for artificial leather used to cover footballs and similar

Continued...

Exhibit 1.2
(continued)

**List of Polyester
End-Use Products
Covered in this
Report, with
relevant
Application Area**

Application Area and Product	Product Description and Function
Sporttech: Air sport fabrics	Fabrics for balloons, kites, para-gliders, parachutes
Sporttech: Tents	Fabrics for use in lightweight, portable tents for personal camping/sleeping purposes
Sporttech: Sleeping bag fabrics	Outer fabrics for sleeping bags
Sporttech: Sleeping bag filling	Fibrefill/wadding for sleeping bags
Sporttech: Animal webbing	Pet leads, collars, horse halters, etc
Sporttech: Flags	Fabrics for flags, pennants, bunting - parades, shows, etc.
<i>Oekotech: Erosion Control Woven Filters Nonwoven Dust Filters Automotive Insulation</i>	<i>Products already included in the list above that are used for environmental protection applications</i>

Source: DRA

1.6 LEVELS OF DETAIL IN THIS REPORT

Not all variables included in the DRA consumption forecasting system are relevant to polyester. Hence, in this report, the physical make-up of each of the 109 polyester products listed in Exhibit 1.2 is analysed in terms of 8 polymer/fibre forms and 6 fabric/final textile product types as shown in Exhibit 1.3. Also, for the sake of conciseness, the 210 countries in the consumption forecasting system have been condensed into 8 regions.

Exhibit 1.3

Reporting Levels used in this Report

Regions	Polymer/Fibre Forms (Yarn Types)	Fabric Types
N America	Polymer Chip	Unspun Fibre
S America	Staple Fibre	Woven
W Europe	Spun Staple	Knitted
E Europe	Textile Multifilament (regular tenacity)	Nonwoven
S Asia	Industrial Multifilament (high tenacity)	Yarn-Type Products
N E Asia	BCF	Other Fabrics
S E Asia	Monofilament	
Rest of World (Central Asia, Middle East, Africa, Oceania)	Tape/Slit Film	
Total: 8	Total: 8	Total: 6

Source: DRA

Further details of the variables used in this report are given in Exhibit A1.3, Appendix 1.

1.7 SCOPE AND STRUCTURE OF THE REPORT

Chapter 2: The Relative Importance of Polyester in the Technical Textiles Market provides summary forecasts for the technical textiles market in total and then compares the current size and prospects for synthetic fibres/polymers in technical textile markets with the other broad fibre groups: natural, inorganic and regenerated. It then looks briefly at inter-fibre competition between polyester and other individual fibre types (e.g. nylon).

Chapter 3: Polyester End-Use Products and Markets draws on the detailed Tables in Chapter 4 to highlight some of the important trends in the use of polyester in technical textiles and nonwovens

Chapter 4: Polyester End-Use Products: Detailed Forecast Tables provides a set of 60 Forecast Tables drawn from the DRA consumption forecasting system analysing the world market for polyester in technical applications from 1995 to 2010. These tables are split into 7 Parts:

Part A consists of **5 Summary Tables**, which provide an overview of polyester consumption worldwide over the period 1995-2010. These tables split polyester consumption by polymer/fibre form, fabric type, region, application area and end-use product.

Parts B-D provide a detailed analysis of **109 individual polyester end-use products** with consumption forecasts to 2010:

- Part B (10 tables) shows the relative importance of each of the **8 polymer/fibre forms** (e.g. spun staple) in the production of each polyester product over the period 1995-2010.
- Part C (9 tables) provides estimates and forecasts of consumption for each product across **8 regions** of the world (e.g. North America) over the period 1995-2010.
- Part D (8 tables) shows the relative importance of each of the **6 fabric types** (e.g. nonwovens) in the production of each polyester product over the period 1995-2010.

Parts E and F provide an analysis of **overall polyester end-use consumption by the 8 main polymer/fibre forms** with forecasts to 2010:

- Part E (10 Tables) provides estimates and forecasts for the use of each polymer/fibre form in each of the **6 fabric types** (e.g. polymer in nonwovens) over the period 1995-2010.
- Part F (10 Tables) provides estimates and forecasts for the use of each polymer/fibre form in each of **8 regions** of the world (e.g. high tenacity multifilament in South Asia) over the period 1995-2010.

Part G (8 Tables) provides an analysis of **overall polyester end-use consumption** by the **6 fabric types** in each of **8 regions** of the world over the period 1995-2010 (e.g. knitted fabrics in North East Asia)

Appendix 1: Definitions and Assumptions outlines the main assumptions and definitions underlying the projections in this report and provides a description of the main table formats used to present the forecasts.

Appendix 2: The DRA Textile Products End-Use Consumption Forecasting System describes the consumption forecasting system developed by David Rigby Associates which is the basis of the volume and value estimates presented in this report.