

## The Definitions and Assumptions behind these Forecasts

### Technical Textiles

Technical textiles and nonwovens (referred to in this report collectively as technical textiles) are defined by DRA as comprising all those textiles-based products (either finished products in their own right, such as ropes or tarpaulins, or components of other products, such as tyre cord for tyres or overstock for diapers), which are used [principally for their performance of functional characteristics, rather than for their aesthetics, or are used for non-consumer (i.e. industrial) applications. So nonwoven carpet backing (functional) is included as technical, but needle punched carpets (largely aesthetic) are not, except for those used in automotive (i.e. high technical specification) applications. Similarly, shoe components (hidden, functional) are included as technical, whilst shoe uppers (visible, largely aesthetics) are treated as non-technical.

### Market Estimates refer to textile Product End-Use Consumption, not Mill Consumption

Technical textiles consumption is defined in this study as taking place where the textiles are either consumed as products in their own right, or are first used by another industry outside the textile sector, rather than where the textile is produced or the eventual destination of any product incorporating those textiles.

Thus, the use of German-made headlining fabric within Japanese-built cars which are subsequently exported to North America is attributed to the Asian region; likewise, clothing components such as interlinings and threads which are incorporated into garments in, say Vietnam, are defined as being consumed in Asia, even if the finished garments are then exported to, say, Europe. A geotextile, on the other hand is not considered to undergo any significant industrial transformation before its eventual use in a civil engineering project. Consumption therefore takes place at the point of final use.

On this definition the market estimates in this report relate to textile products' end-use consumption and their associated raw material content; they are not the volumes and values of mill consumption of fibre by the technical textile industries of the countries/regions concerned. The difference, of course, lies in trade in technical textile trade between regions. On the whole, inter-regional trade in technical textiles, fibres and yarns is still relatively limited although it is not always likely to remain so.

### Scenario used

The forecast in this report are based on a scenario which assumes the continuation of recent social, demographic, technology, industry and market trends within a slowly expanding world economic environment.

The following specific assumptions were made:

World economic growth will make a medium term recovery to trend, post September 11, 2001 (forecast made Quarter 1, 2002)

Fibre consumption per head will continue to rise less rapidly than income per head on a region by region basis

Past trends in fabric and fibre shares will continue, reflecting existing patterns of change in inter-fibre and inter-fabric competitiveness on a regional basis, but no change in relative fibre prices over time, for example in response to fibre shortage.

No major technological breakthrough that will significantly affect demand for textile products directly or indirectly during the forecast period

Increasing environmental pressures globally, especially in the area of recycling in general and the automotive industry in particular

Increasing life expectancy world-wide, increased expenditure on health, increased leisure time and outdoor and sporting pursuits.

## **Treatment of Composites**

Unless otherwise specified, the term “composites” in this study refers to products which comprise reinforcing fibres or textiles, embedding within a matrix of thermosetting or thermoplastic polymer, mostly for structural end-uses. The loose fibres, yarns, or woven, knitted or nonwoven fabrics that represent the reinforcement of such composites are included in their respective categories in the “final textile product type” analysis.

## **Table Structures**

Tables in this report show end-use consumption projections in either volume ('000 tonnes) and, in some cases, value (US\$ million) terms. Tables take the form either of time series, showing 1995 and each year from 2000 and 2010, or of cross-tables, analysing individual technical textile products by one variable (for example by polymer/fibre type) for single years (2000 and 2010). In all time-based tables, the final three columns provide percentage compound annual growth rates (% CAGR) for the five year periods 1995-2000, 2000-2005, and 2005-2010.

In all tables, numbers may not add to totals due to rounding. Zeros imply quantities less than half the final digit shown. A dash (-) denotes not applicable.

## **Volume Definitions**

Volume estimates are based solely on the weight of the textile fibre content of the finished products. Textile fibres are defined as encompassing all natural, man-made and inorganic fibres and yarns including polymer chip made directly into nonwovens; staple fibres; multifilament yarns; monofilament yarns, and slit film and tapes (other than extruded strapping tapes). Wood pulp is included only in those few applications (e.g. wipes) where it is used as an air-laid nonwoven and as such competes with more “traditional” fibres. All “textile” glass is included, down to the shortest milled fibres and chopped strands (mostly used in composites), but glass wool (mostly used for insulation) is excluded.

In the case of natural fibres (other than cotton and wools). The report considers all mainstream uses of the principal textile fibres, including jute sacks, but does not attempt to account for every tonne of the highly variable and largely unquantifiable volume of “surplus” bast fibre resulting from bountiful harvests.

In the case of all other fibres, total technical textiles volume estimates have been subjected to a reality check by subtracting DRA's own estimates for fibre consumption in non-technical end-uses such as clothing and household textiles (as derived from the overall Textile Products End-uses

Consumption Forecasting System) from estimates of overall apparent fibre availability according to reputable industry sources such as CIRFS, the Fiber Economics Bureau (US) and the Japanese Chemical Fibres Association. Only in the area of polyolefin fibre, which is produced largely in small scale operations which are more difficult to quantify, are there significant doubts about the level of overall fibre availability (particularly for China).

Free availability is assumed for all fibres across the forecast period.

## **Value Definitions**

Market value forecasts are derived by multiplying the appropriate volume forecast for the region, product and year in question by an average world market price as at Quarter 1, 2002. Either "actual" market price have been used, or unit prices have been estimated by compounding together the raw material prices and all the value added by the various yarn forming, fabric forming, finishing and coating processes performed within the technical textiles industry. Conversion costs incurred further down-stream, such as making-up and packaging, have in general been excluded from the value calculations. Where market prices have been used, these have been taken to represent a weighted average of all products regardless of composition. The use of this approach for some products means that it has not been possible to produce an accurate analysis across all finished products in value terms by different fibre type or ploymer/fibre form.