World Fibres To 2025 – Acrylic Fibres in Context

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AGENDA

• Historical and Forecast Man Made Fibre Production
• Polyester Market Trends
• Cotton Market Trend
• Cotton-Polyester-Acrylic Market Dynamics
• Other Fibres
• Conclusions

Source: Tecnon OrbiChem
Acrylonitrile • Acrylic Fibre 2015
WORLD FIBRE DEMAND vs GDP

Demand (Million Tons)

GDP (Billion 2000 $)

$R^2 = 0.967$

$R^2 = 0.964$

Source: Tecnon OrbiChem
Acrylonitrile ● Acrylic Fibre 2015
WORLD FIBRE PRODUCTION 1980-2025

Source: Tecnon OrbiChem
• Although there is an excellent correlation between global GDP and world fibre production over time, 2014 production growth slowed to more than a percent below GDP levels reaching 88.4 million tons.

• A key factor in weaker fibre production growth was slowing polyester production in China…the world’s polyester driver.

• Despite much slower growth for polyester in 2014 (3%), it still continues to grow at about 3x all other fibres.

• Cotton production was 25.8 million ton in the 2014/15 season and is expected to decline to 23.8 million tons in 2015/16.

Source: Tecnon OrbiChem
Acrylonitrile • Acrylic Fibre 2015
WORLD POLYESTER FILAMENT PRODUCTION

Million Metric Tons

Source: Tecnon OrbiChem
WORLD POLYESTER STAPLE PRODUCTION

Source: Tecnon OrbiChem
Polyester filament production growth fell to 3% in 2014 due to Chinese growth weakening to 4%.

Over the past five years polyester filament production growth was 8.3%.

Growth is expected to slow to 6.5% per annum over the next 10 years.

Polyester staple production growth during the last five years was a more modest 3.1% per year.

Production growth in the next 10 years is expected to increase to 5% due to lower cotton production.

Source: Tecnon OrbiChem
Acrylonitrile • Acrylic Fibre 2015
COTTON vs POLYESTER STAPLE PRICES

Dollars per Ton

Source: Tecnon OrbiChem & Cotton Outlook
COTTON TRENDS

- Cotton production has limited upside due to competition for land and water resources and limited potential for yield improvement.

- Cotton production in 2014/15 season was 25.8 million tons and is expected to decline to 23.8 million tons next season.

- Cotton price volatility pushed retailers and brand houses to polyester substitution in the past 2-3 years.

- Limited production growth and higher costs are expected to put upwards on pressure cotton prices in the longer term.

Source: Tecnon OrbiChem
**Acrylonitrile • Acrylic Fibre 2015**

**WORLD ACRYLIC FIBRE PRODUCTION**

- Million Metric Tons

[Graph showing the world acrylic fibre production from 1980 to 2025 for various regions such as China, Northeast Asia, S & SE Asia, ME & Africa, East Europe, West Europe, South America, and North America.]

*Source: Tecnon OrbiChem*
Global acrylic fibre production has declined by an average 5% per year during the last five years.

Production in 2014 was 1.735 million tons registering the first year on year growth (0.9%) during the last five years.

Acrylic fibre costs continue to suffer from propylene prices and high acrylonitrile conversion costs.

Despite a sharp fall in production over the past 10 years, Tecnon OrbiChem expects modest (0.4%) production growth in the next 10 years, due to weak supplies of wool and cotton and continuing technical advantages for acrylic fibre in certain markets.

Source: Tecnon OrbiChem
COTTON vs POLYESTER STAPLE PRICES

Source: Tecnon OrbiChem & Cotton Outlook
COTTON/POLYESTER/ACRYLIC DYNAMICS

- Cotton prices are expected to increase long term due to limited yield opportunities and competition with food crops.
- Propylene and acrylonitrile conversion costs are expected to hold steady to modestly improve (at steady oil prices) due to move to propane dehydrogenation.
- Polyester costs continues to dominate allowing additional penetration wherever product function allows.
- Acrylic fibre will hold market sectors where it maintains a cost advantage (vs. wool) or in markets where it maintains technical superiority (vs. polyester) in outdoor furniture, awnings and car/boat covers.

Source: Tecnon OrbiChem
**Acrylonitrile • Acrylic Fibre 2015**

**WORLD POLYAMIDE FILAMENT PRODUCTION**

Source: Tecnon OrbiChem
Polyamide production growth has been approximately 1% per year during the last 10 years.

Production growth has been limited to China over the past five years with declines of 2-7% experienced in all other regions.

Polyamide filament production growth is expected to remain in the 1-1.5% range limited by polyester substitution in carpeting and industrial applications.

Source: Tecnon OrbiChem
Acrylonitrile • Acrylic Fibre 2015
WORLD POLYPROPYLENE FIBRE PRODUCTION

Source: Tecnon OrbiChem
Global polypropylene fibre production has fallen 1% per annum in the last five years due to volatile propylene costs. This has facilitated polyester substitution in some markets.

More stable propylene costs as a result of increased propane dehydrogenation and growing nonwovens’ markets are expected to reverse recent trends and result in a 1-2% growth in polypropylene fibre production during the forecast period.

Source: Tecnon OrbiChem


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**WORLD CELLULOSIC FIBRE PRODUCTION**

Source: Tecnon OrbiChem
Global production of cellulosic fibre has grown 7.9% per annum over the last five years, underpinned by Chinese production growth and relatively high cotton costs.

2014 production increased to 4.3 million ton (3.2% above 2013).

Slower projected growth of 3.4% per annum is expected for the forecast period.

Source: Tecnon OrbiChem
CONCLUSIONS

- Polyester fibre (both staple and filament) continues to outpace growth for all other synthetic fibres

- Cotton production limitations over the forecast period will primarily benefit polyester (although viscose and acrylic fibre will gain modestly as well)

- Reducing propylene to its traditional cost structure through propane dehydrogenation will be the key to above forecast growth for acrylic fibre

Source: Tecnon OrbiChem
your source of expert chemical industry knowledge