

## PTT offers unique design opportunities for China's textiles industry

Growing awareness of the performance properties of Shell's polytrimethylene terephthalate (PTT) fibres polymer in China's giant textiles industry has led to the development of innovative new types of garments - from crease-resistant suits and stretch swimwear, to body-hugging underwear and foldaway wrinkle-free raincoats.



“In China, one good fabric sample speaks more than a thousand words ever could.”

# Fibre at the height of fashion

China's textile and clothing industry is the largest in the world and one of the country's most important industrial sectors. It is a dynamic industry, continually searching for innovative new materials from which to produce fibres, yarns and textiles that offer unique performance or design qualities.

PTT is a polymer that can be spun into fibres for use in, amongst other things, yarns for clothing and household textiles. Its molecular structure gives fabrics key qualities including softness and touch, drape, resilience, wrinkle recovery and stain- and crease-resistance that are highly valued in the fashion textiles industry.

Shell is the world's largest producer of 1,3-propanediol (PDO), the principal raw material for making PTT. It developed the first commercially viable process for producing PDO, which was key to bringing PTT to the market.

CORTERRA\* Polymers, the Shell tradename for PTT, were first introduced to China's textile industry on a small scale around five years ago. Since then, following the startup of commercial scale PTT manufacturing and increased marketing activity, awareness of CORTERRA Polymers' suitability for use in clothing textiles has grown steadily.

In response to interest from fibre, textile and garment producers, the CORTERRA Polymers business has expanded its



Teddy Song, Sales Executive PDO/CORTERRA, China - "PTT has unique and superior qualities".

presence and activities in China significantly. A marketing business unit has been established in Shanghai, a sales force with specialist textiles industry knowledge recruited, and a local supply chain developed.

A showroom has also been opened in Shanghai to display the wide variety of fabrics and garments that have already been developed by Chinese producers.

"We have located our business unit in Shanghai because it is surrounded by the major textile producing regions in China," says Peace Chen, CORTERRA Business Development Manager - China. "Building local inventory of polymer has also been important because delivery times in the Chinese textile industry are critical."

Despite the challenge of gaining acceptance for a new high performance

synthetic fibre in a very competitive, cost-sensitive market, over the last 12 months there has been a rapid expansion in PTT clothing applications including denims, sportswear, swimwear, underwear, sweaters, casualwear jackets and suits.

"PTT has unique and superior properties to many other synthetic fibres, combining the best of nylon and conventional polyesters," explains Teddy Song, Sales

Executive PDO/CORTERRA - China.

"The inherent crease-resistant properties of PTT fibres can produce 'memory' fabrics that retain their shape and drape even after folding and creasing, and require no pressing or ironing.

"Its compatibility with other synthetic or even natural fibres also offers opportunities for fibre blends that improve the aesthetics or performance properties of fabrics."

### STRETCH PROPERTIES

PTT has generated a lot of interest from branded sportswear manufacturers. "In swimwear, for example, it has advantages over competitive stretch fibres because it is not broken down by chlorine in swimming pools, and so the fabric lasts much longer," says Song

He says that working with players throughout the textiles value chain is key to bringing PTT to the mainstream market. "Textile producers and fashion designers need to see finished fabrics to really appreciate the design and performance opportunities it offers. In China, one good fabric sample speaks more than a thousand words ever could."

To assist in this, the business has enlisted the support of Donghua University, China's leading textiles and fashion design college. "Donghua is acting as Technical Consultant and, with its excellent industry contacts, is helping us to reach key players throughout the textiles value chain," says Chen.

The University carries out technical studies on weaving and knitting with PTT fibres and provides technical support and advice to textile producers.

Professor Lily Zhao from the University is responsible for technical development programmes for knitted textile applications. "PTT is quite different to other synthetics and so we are working closely with →



Peace Chen, CORTERRA Business Development Manager China, checks out a new casualwear sweater sample developed from fibres based on PTT.



yarn and textile producers to explore how its unique properties can be best applied and commercialised," says Zhao.

"It is still a relatively new material and producers need time to develop and refine certain processes, such as dyeing and finishing, in order to produce commercial quantities of fabrics."

Because of the general preference for natural materials, PTT's ability to produce yarns that have cotton-like and wool-like properties has generated particular interest. "PTT can be used to produce textiles with the touch and feel of naturals but with the added advantage that you can achieve more vibrant colours due to the ease of dyeing," she adds.

### PROCESSING ADVANTAGES

PTT also has potential to offer processing advantages over other synthetics. "Because PTT can be dyed at lower temperatures – 110 degrees compared to 130 degrees for conventional polyester – the process is both quicker and less energy intensive."

She says the quality and productivity of PTT textiles is improving all the time as commercial experience grows. "One thing is certain - when the market for a new textile takes off in China it requires a large amount of fibre."

To capitalise on growing commercial interest the business has also stepped up its presence at China's leading textile

shows in Shanghai and Beijing. At the 2008 Beijing Intertextile Apparel Fabrics exhibition seven manufacturers and one distributor exhibited yarns, fabrics and finished garments made using fibres from CORTERRA Polymers.

The event attracted some 25,000 visitors from 74 countries, with around 1,130 exhibitors from 15 countries taking part. "It was an excellent platform to reach potential customers in northern China and Beijing," says Song.

"Judging from the response of visitors, our display helped them to understand the unique properties that PTT fibres can offer for fabrics and garments. Displaying real product samples allowed visitors to fully appreciate the advantages of PTT over other synthetic fibres such as polyester, nylon and spandex."

A workshop on knitting and weaving PTT fabrics held during the event, supported by presentations from Donghua University, also generated enquiries, ideas for new applications and requests for follow-up discussions. The business is now preparing to exhibit at the Intertextile Shanghai Apparel Fabrics tradeshow in October 2008.

\*CORTERRA is a Shell trademark

Donghua University, China's leading textiles college carries out technical support and development programmes for PTT fibre and textile applications (top and below).



For more information please visit:  
[shell.com/chemicals/corterra](http://shell.com/chemicals/corterra)