



SHELL AND TRANSFAR CHEMICALS SHOW THE TRUE VALUE OF A STRONG STRATEGIC TECHNICAL PARTNERSHIP

SHELL PROCESS OILS MAKE IT POSSIBLE

SHELL PROCESS OILS
TOGETHER ANYTHING IS POSSIBLE



DIFFERENTIATION FOR REMAINING COMPETITIVE

Transfar Chemicals holds more than 50% of the local Chinese drawn textile nylon yarn (DTY) coning oil market, but production pressures from land and labour changes meant that the company needed to differentiate itself to remain competitive. Transfar Chemical's leadership team chose to offer customers a more consistent product using superior raw materials. They supported this by designing and investing in an automated, high-end, nylon-fibre coning oil production line, a first for China, which uses Shell Risella X as the base oil to ensure high quality.

DTY coning oil ensures good lubrication between fibres, and fibres and metal. It reduces static build-up and prevents fibre rupture during drawing and texturing. The basic coning oil formulation contains up to 85% process oil, with the remainder being emulsifier and other functional additives,

which means that the major component must perform highly and be consistent in composition.

Lu Jiping, Technical Manager at Transfar Chemicals, decided to select Shell Risella X because of the real business benefits it offers: less yarn wastage through its excellent colour stability and, importantly for the health of employees, an improvement in plant air quality.

These benefits come from Shell Risella X's technically advanced properties:

- high purity
- colour stability on exposure to light and high heat conditions
- good high- and low-temperature performance
- low evaporation loss.

EXCELLENT COLOUR STABILITY

Shell Risella X has a purity comparable with that of medical white oil and it delivers very good anti-yellowing performance. Yellowing is associated with the unsaturated, typically polyaromatic hydrocarbon (PAH), content of a process oil. A high PAH content in coning oil can cause nylon fibre to discolour on exposure to light, which means quality losses, as the discolouration cannot be washed out.

IMPROVING HEALTH, SAFETY AND ENVIRONMENTAL STANDARDS

Shell Risella X has shown good high-temperature performance and low volatility. The results of tests have proved that the DTY coning oil on which Shell Risella X is based (TF-703G) features very low evaporation loss compared with major competitors' oils. A plant that operates with lower oil mist levels supports healthier working conditions for employees and requires less oil top up because of evaporative losses.

A TRUE TECHNOLOGY PARTNERSHIP

Transfar Chemicals was so satisfied with the technical benefits Shell Risella X delivered that the company commercialised its use in the DTY coning oil formulation. However, one of the last challenges was to create a stable mixture. The Shell Shanghai Technology Centre played a key role in finding a compatible formulation containing a suitable emulsifier and the gas-to-liquids (GTL) technology-based process oil.

Li Yanhai, General Manager of Chemicals at Transfar Chemicals, thinks highly of the new co-operation model, saying, "Shell is not just a supplier but our technical partner; we are operating as a single team. The outstanding performance of both research and development teams in creating the new product formula served as a great foundation for deeper co-operation on many other levels."

In addition to the technical partnership, both parties are working together to improve understanding of customers' needs and fulfil local demand for Shell Risella X and the Transfar TF-703G product.



THE SHELL RISELLA X RANGE IS THE NEXT GENERATION OF PROCESS OILS BASED ON SHELL GTL TECHNOLOGY.

UNDERSTANDING YOUR NEEDS

Textile auxiliary formulations are critical in the manufacturing processes for yarns, nonwoven fabrics and all products made from fibres. They prevent wear and rupture of the fibres, avoid electrostatic charging of fibres and reduce dust formation on fibres and roller points. These formulations can be applied as an emulsion with water, as a spin finish or purely as a coning oil.

At Shell, through working closely with the world's leading textile auxiliary manufacturers, we understand your challenges. We appreciate that to succeed in the competitive global marketplace, it is essential to maximise productivity and process efficiency while minimising emissions and avoiding ageing effects and discolouration of the fibres. The Shell Risella X range is the next generation of process oils based on Shell GTL technology. They have been developed to unlock competitive advantage because they offer excellent performance and extra purity.



SHELL RISELLA X: NEXT-GENERATION PROCESS OILS

Shell Risella X oils are manufactured at Shell's world-class Pearl GTL plant in Qatar, which is the culmination of more than 40 years of research and development.

Extra purity

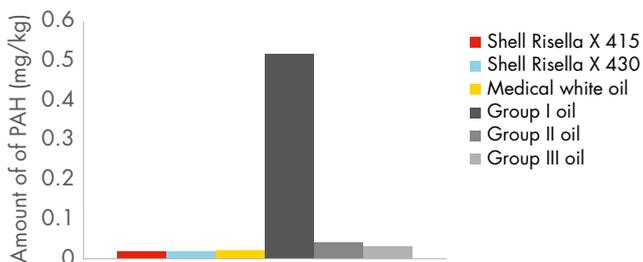
Shell Risella X oils provide key qualities for many applications, thanks to their high paraffinic hydrocarbon content and exceptional purity. For instance, they

- are colourless
- are almost odourless
- contain virtually no sulphur, nitrogen or aromatics
- have an extremely narrow hydrocarbon distribution range.

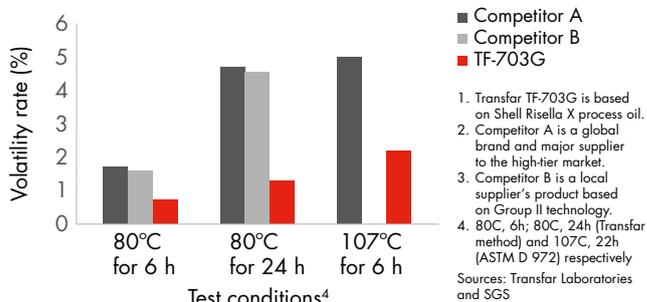
Excellent performance

Shell Risella X synthetic process oils can enhance the performance of the applications in which they are used by offering an outstanding combination of characteristics, including

- low volatility
- low pour point
- high flash point
- high viscosity index
- outstanding UV and thermal colour stability.



Purity comparison: A comparison of PAH content between Shell Risella X and conventional mineral oil products.



Evaporative loss of comparable DTY coning oil products.

1. Transfar TF-703G is based on Shell Risella X process oil.
 2. Competitor A is a global brand and major supplier to the high-tier market.
 3. Competitor B is a local supplier's product based on Group II technology.
 4. 80C, 6h; 80C, 24h (Transfar method) and 107C, 22h (ASTM D 972) respectively
 Sources: Transfar Laboratories and SGS



**“WHATEVER YOUR NEEDS AND APPLICATIONS,
SHELL CAN PROVIDE A FULL RANGE OF PROCESS OILS.”**

ABOUT TRANSFAR

Founded in 1986, Transfar Group, one of the “Top 500 Chinese Enterprises,” is a private enterprise group with diversified businesses spanning chemicals, logistics, agriculture, an industrial park and investment.

With nearly 5,000 employees, Transfar Chemicals, one of the five business platforms in the group, has one of the most comprehensive and largest product portfolios in China. Transfar Chemicals has been gaining strong momentum in such areas as functional chemicals, petrochemicals and coal chemicals.

It is the world’s largest producer and seller of DTY coning oil, with annual production capacity of up to 200,000 t. With its headquarters in Hangzhou, Transfar Chemicals serves the local Chinese market and some countries in Asia and Africa.

ABOUT SHELL PROCESS OILS

Shell is one of the leading process oil manufacturers and has more than 25 years’ experience in the process oils business. We recognise the crucial role that process oils play in your products and operations.

We also understand that the quality of these vital oils is paramount and that using a process oil that has a highly consistent quality can have a major bearing on the success of your business.

Whatever your needs and applications, Shell can provide a full range of process oils. Customers in a wide range of industries have unlocked value by using Shell process oils. We also offer expert consultation and technical advice to support your business needs.



Find out more by visiting
www.shell.com/processoils

