

Service status

Sven Royall, Vice President Global Intermediates, comments on the progress of a major chemicals expansion project in Singapore, the commercial debut of new MEG process technology, the introduction of more transparent service and delivery standards, and Shell's responses to the global challenge of climate change.



It is just over two years since the groundbreaking ceremony for the Shell Eastern Petrochemical Complex (SEPC) – the largest chemicals investment by the Shell Group in over 100 years of operating in Singapore.

Despite challenging global conditions - and specifically a shortage of experienced workers, materials and space to work in - the complex has made great progress this year, with most of the large structures, including some giant reactors and columns, already in place (see box).

SEPC not only represents a major investment in new capacity for Shell Chemicals in Asia, it is also a significant opportunity to leverage the integration and optimisation of the Group's existing oil and chemicals assets in Singapore.

The new 800,000 tonnes per annum cracker at the heart of the complex will take feedstock from a Shell refinery - the largest in the Group - on nearby Bukom Island. The cracker in turn will supply SEPC's 750,000 tonnes per annum mono-ethylene glycol (MEG) plant being built on neighbouring Jurong Island, as well as other Shell joint ventures and over-the-fence customers that will be supplied by pipeline.

You can read more about the progress of the complex and some of the challenges overcome by the project team on page 8.

Output from SEPC's MEG plant, one of the world's largest, will help to satisfy the increasing demand from China's polyester fibres and packaging industries. Over the

past two decades, China's MEG consumption has soared. It already accounts for over a third of global MEG demand and by 2015, according to industry observers, could consume more than half of global production.

While the market continues to grow the number of planned MEG capacity projects, mainly in the Middle East and all aimed at the Chinese market, suggests the sector may be heading for supply surplus.

This could mean a period of pressure on operating rates and profitability, which producers without the advantages of integration or proximity to markets will find tough. Our focus is always on ensuring we achieve the highest levels of integration, efficiency and competitiveness.

The SEPC's new MEG plant in Singapore may have another key advantage in that it will also benefit from the high efficiency of Shell's new OMEGA process technology.

The OMEGA process combines a high selectivity catalyst for the conversion of ethylene to ethylene oxide (EO), with a catalytic process to convert the EO to glycol. This results in by far the lowest consumption of ethylene per tonne of MEG achieved in the industry.

The first commercial plant to utilise the OMEGA technology was successfully started up earlier this year (see page 14).

Despite anticipating some turbulence in the coming years, we are optimistic for the long term strength and viability of the MEG business. The OMEGA process will be key to satisfying demand in the most efficient way possible.

Having sustainable value chains also means finding ways to recycle or re-use products. New technologies for recycling polyester are developing all the time and on page 17 you can read about one that started life in Shell but is now being developed by a new company under a Shell-backed technology venture fund.

The novel extrusion process can help to turn waste PET bottles into luxury counter tops that have the look and feel of natural stone but the practicality of plastic.



Asia's growth in MEG consumption is being driven by soaring demand from China's polyester textiles industry.



FOCUS OF GROWTH

Asia as a whole remains the focus of Shell Chemicals growth and investment plans. We continue to actively evaluate plans for world-scale SMPO investments with joint venture partners, which could utilise another of our highly efficient proprietary technologies, in order to meet customers' needs in the region.

We are also assessing the viability of a joint venture with Qatar Petroleum for a world-scale ethane-based cracker and derivatives complex in Qatar in the Middle East. Its products would be marketed in China.

A SUSTAINABLE FUTURE

A major challenge faced by all industrial companies globally is carbon dioxide (CO₂) emissions and their impact on climate change. As Jeroen van der Veer, Chief Executive of Royal Dutch Shell plc, says in the article on page 20, the debate about climate change is over for us.

As the article explains, there is no single solution to the challenge of meeting rising demand for energy and petrochemicals with diminishing supplies of fossil fuels and the potentially negative impact of their continued use on the climate of the planet. It outlines the measures, or pathways, Shell plans to take in order to contribute to a more sustainable energy future.

Shell Chemicals will make their own contribution to this 'Blueprint'. First and foremost through opportunities to further improve the energy efficiency of our

manufacturing operations. The Shell Group is seeking 1st Quartile energy efficiency across its facilities.

We also continue to improve the efficiency of our process technologies and to optimise our production facilities to deliver more capacity through better utilisation of existing assets.

Our products can also contribute to reducing CO₂ emissions. Polyurethane foams, made from polyols, are one of the most thermally efficient materials available and help to significantly improve the energy efficiency of homes. Read more about the increasing contribution of polyurethane foams on page 24.

While CO₂ emissions are a challenge for the industry, there are other day-to-day pressures - more competitive markets, rising costs and logistics capacity restraints - that have the potential to impact the ability to service customers safely, reliably and efficiently.

On page 12 you can read about the work of the Chemicals Operations and Process Excellence team to deliver safe, high performing and efficient processes that ultimately enable us to serve our customers more effectively.

One of the outcomes of this work has been the introduction of new *Service and Delivery Standards* for deliveries of bulk products by road and rail. These new simple guidelines bring transparency and consistency to the services we offer - and are designed to ensure we can continue to provide high levels of service in the face of competitive industry conditions and

REACHING NEW HEIGHTS

Using a crane with the largest lifting capacity ever used in Singapore, the tallest column in the Shell Eastern Petrochemicals Complex (SEPC) project's entire infrastructure was safely and successfully lifted into place earlier this summer.

Standing at 107 metres high, the propylene fractionation column is equivalent to a 30-storey building and weighs 1,000 tonnes.

The specially designed crane, the largest ever used in Singapore - with a lifting capacity of 2,000 tonnes - arrived by ship in 88 separate containers and had to be assembled on site to achieve its 130-metre height.

A specialist crew supported the lifting of the fractionation column at the site of SEPC's new ethylene cracker complex on Pulau Bukom. Read more on page 8.

capacity constraints in logistics markets. They are about making more efficient use of available resources, not about trying to make money from these services. Many customers already work along similar lines and we believe that others will benefit from these standards because they help us to work more efficiently together.

The roll-out in Europe has gone well and we are preparing for their introduction in the US and Canada at the start of 2009.