

Poland invests for greater efficiency

Poland's chemical industry is enjoying something of an investment boom, unlike the bulk of Europe's petrochemical sector, as it moves to diversify its feedstock base and improve production efficiencies

HEIDI FINCH LONDON

Poland's chemical industry is developing in leaps and bounds, both domestically and in export terms. But it is also facing some challenges in terms of a strong dependency on costly natural gas feedstock and burdensome regulations, such as climate policy.

These are negatively affecting the competitiveness of the Polish chemical sector. However, a drive by the Polish chemical industry for process and technology optimisation and feedstock and portfolio diversification, where possible, are mitigating factors, explains Dr Tomasz Zielinski, president of the board of the Polish Chamber of Chemical Industry.

"First of all, the chemical industry in Poland is still developing. It is a high efficiency industry and this efficiency is still increasing. [But] it is also a highly energy-intensive industry," he says.

The value of chemical production in Poland rose on average by 7.2%/year during the period 2010-2015, points out Zielinski, referring to data from the Central Statistical Office of Poland. This represents a larger increase than the 5.3%/year achieved by overall industrial production in the country over the same timeframe.

HEALTHY EXPORTS

Polish chemical exports also look healthy, with Germany as the main export destination for basic chemicals from Poland. Total chemical export value from Poland to Germany amounted to around €6.9bn in 2016, which reflects a jump of €1.6bn from 2012 to 2016, notes Zielinski, using Eurostat data.

In 2016, chemical exports from Poland to all EU countries generated €21.7bn, while the total exports of chemicals from Poland was worth around €27.6bn. This compares to total Polish exports in 2016 which were worth about €146.3bn according to Eurostat. Zielinski says this export figure is increasing year on year.

Polish chemical players are currently looking further afield for export destinations, to places such as Tunisia, Australia, Morocco, Panama, New Zealand and South America, to name a few. There is a positive trend in exports from Poland to these non-EU destinations, says Zielinski.

The Polish chemical industry is reaping the benefits of the growth, but it is worth pointing out that this is despite the fact that the industry is facing its fair share of energy and feedstock challenges. Historically, Polish chemical producers have relied heavily on coal as their main energy source, with a relatively small part of supply coming from gas and oil.

"The energy costs and carbon dioxide (CO₂) regulations put increasing pressure on our costs," explains Zielinski.

LACK OF NATURAL GAS

Poland is in deficit for one of the main feedstocks for the chemical industry, namely natural gas. Consumption of natural gas in Poland reached about 16bn cubic metres in 2016, of which only around 5bn cubic metres was produced domestically. So the lion's share of natural gas supply needed to be imported and this is still the case today.

The Polish fertiliser industry, and in particular its ammonia production, is heavily dependent on the supply of high purity methane-based natural gas supply from Russia, with its hefty price tag.

The chemical industry in Poland has limited room to manoeuvre in terms of feedstock cost savings. However, it is possible to make further improvements in technology and processes efficiencies to mitigate this, says Zielinski. Some great progress has already been made in this respect, he adds.

The high efficiency ratio achieved by Polish ammonia production is a prime example of this, as it produces around 0.9:1 natural gas feedstock to ammonia. This equates to 900 cubic metres of natural gas to 1.0 tonne of ammonia.

Chemical major PKN Orlen is in the process of constructing a sizeable new metathesis unit at its Plock site in Poland, which is expected to be operational in the second half of 2018. The metathesis process is not considered to be a conventional production method in Europe, but it is part of the PKN Orlen strategy for "value creation through the use of modern technology."

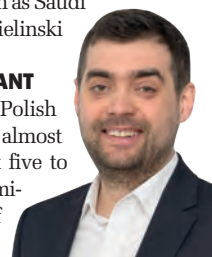
It adds that this project will optimise its internal olefin feedstock supply and increase the efficiency of the downstream segment. PKN Orlen has recently signed the agreement to supply propylene to its Basell Orlen Polyolefins (BOP) joint venture.

Introducing a wide range of production process improvements to eliminate losses, for example of material or steam, such as by installing more efficient reactors and pumps, helps to mitigate the energy/feedstock challenges, explains Zielinski.

In addition, some steps have already been taken in the Polish chemical industry towards feedstock diversification, with crude oil coming via a pipeline franchise from Russia to the chemical refining companies PKN Orlen and Grupa Lotos. PKN Orlen also receives crude oil from other sources such as Saudi Arabia and Iran, says Zielinski

INVESTMENT BUOYANT

Investment in the Polish chemical industry has almost doubled over the past five to seven years, with preliminary estimates of



"We are still investing in Poland, it is our main market... [but] we need some friendly regulations, we need time to be ready for them"

DR TOMASZ ZIELINSKI

President, Polish Chamber of Chemical Industry

» around €1.8bn in investment in 2016, using data from the Central Statistical Office of Poland, adds Zielinski.

The Polish chemical industry has benefited from this investment boost over recent years. Infrastructure projects intensified before the Euro 2012 European Football Championship and there has also been continued investment in the Polish chemical industry since then from both the government and private sectors.

State-owned companies have completed a major investment in a new liquefied natural gas (LNG) terminal of around 5bn cubic metres of natural gas capacity, which is supplied from Qatar, and located in the northwest part of Poland in Świnoujście. With a further capacity increase to around 7.5bn cubic metres in total expected, remarks Zielinski.

This new LNG terminal was necessary in order to lessen the Polish industry's heavy reliance on Russia's natural gas supply, he says.

Due to expensive methane-based natural gas, there is a push for Polish chemical players to diversify their portfolio. Grupa Azoty, which is a main producer of fertilisers, oxo alcohols, plasticizers among other products, has plans for a new propane dehydrogenation (PDH) unit, which will provide the company with an internal propylene feedstock supply.

"We are still investing in Poland, it is our

main market and we would like to be here. We need some friendly regulations, we need time to be ready for them," says Zielinski. "It is difficult to be ready for regulations, while our industry is still developing. We need more time to be well prepared for implementing regulations."

OVER-REGULATION

He says that Poland, as part of the EU, is "over-regulated," especially in the industrial context, and considers the regulations to be "costly and too complex". He adds that the EU Emission Trade System (ETS) and its hefty CO2 emission target cuts weaken the EU industry's competitiveness when compared to other regions in the world.

Looking ahead, he says that more time is needed in order to comply with these regulations. The legislation should be more "business-friendly," especially as the chemical industry is a key driver for economic growth as it is present in every aspect of everyday life.

Fine chemicals/specialties is a subsector with a faster pace of growth than commodities, says Zielinski, who hopes for a stronger push in the direction of fine chemical/specialty in the future.

"We need more specialties in our country, we need to diversify. We need to be more innovative and have more specialised products. ■

POLAND'S MAIN CHEMICALS PRODUCTION 2016, TONNES

Polymers	2,930,000
Anhydrous ammonia	2,623,000
Nitric acid	2,338,000
Nitrogenous fertiliser	1,970,000
Sulphuric acid, 100%	1,637,000
Phosphate fertiliser	470,000
Ethylene	447,000
Potash fertiliser	389,000
Propylene	336,000
Polyethylene	322,000
Sodium hydroxide, 96% NaOH, acq	315,000
Polyvinyl chloride	259,000
Polypropylene	245,000
Oleum, 100%	225,000
Synthetic rubber	222,000
Caprolactam	164,000
Styrenic polymers	148,000
Ammonia solution	96,400
Sodium hydroxide, 96% NaOH, solid	69,500
Butadiene	54,714
Phenol	39,902
Toluene	15,854
Acetic acid	8,833

Source: Central Statistical Office of Poland