

Just a few years ago, the US polymers industry seemed to be dead on its feet. Consolidation was the order of the day, rather than expansion.

But over the last five to six years, a great deal has changed.

There has been, of course, the rise of shale gas in the US, which has radically redrawn the map of global competitiveness.

And the macro-economic environment continues to undergo equally big tectonic shifts.

Right now, for instance, the US Federal Reserve is withdrawing economic stimulus as China restructures its economy.

ICIS Consulting produces an annual study on the global commodity polymer market that takes into account all the above trends. It covers nine major thermoplastics (LDPE, LLDPE, HDPE, PP, PVC, PS, EPS, ABS and SAN).

The ICIS World Plastics Annual Study also provides forecasts on what the next five years and beyond are likely to mean for the global polymers business.

The latest edition of the plastics annual study, will take a close look at how the megatrends highlighted above will evolve – along with many other important shifts in the global polymers industry.

Here are some important findings that are detailed in the report:

- In 2005–2013, the global polymer industry grew by 45m tonnes to 202m tonnes, corresponding to an average annual consumption growth of 3.2%. This is not a bad performance when compared with global annual GDP growth of 2.3% during the same period.
- The market is likely to be better over the next few years. Global consumption of the nine major thermoplastics should grow by around 4.5% per year during 2013-17, adding a further 40m tonnes of polymers demand by 2017.

- Demand for polymers has been growing at different rates in the various regions of the world, based on the maturity of the different markets. The different regions will continue to perform unevenly, with the emerging regions growing at rates typically three times higher than those of North America and Europe.

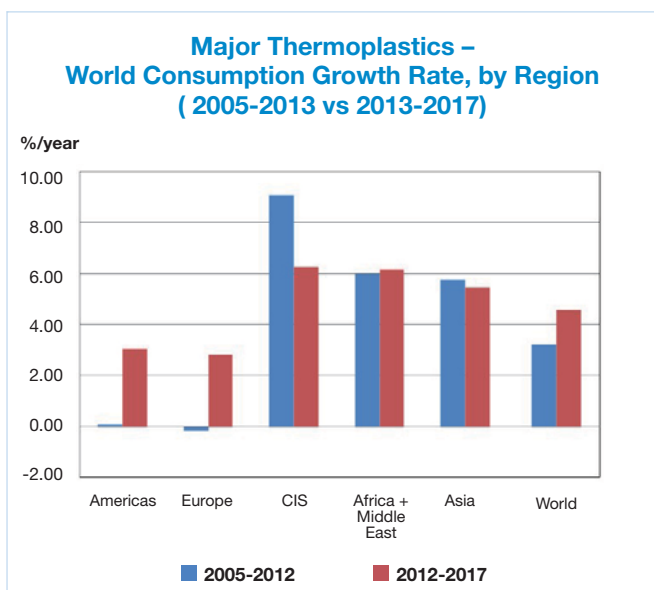
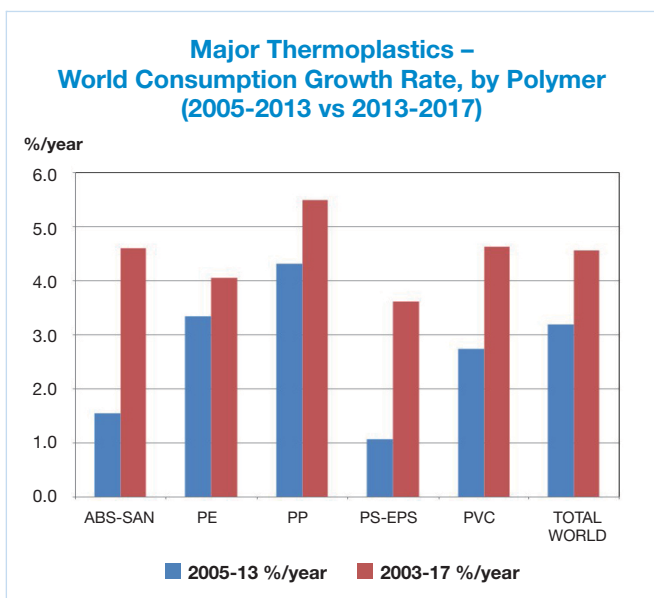
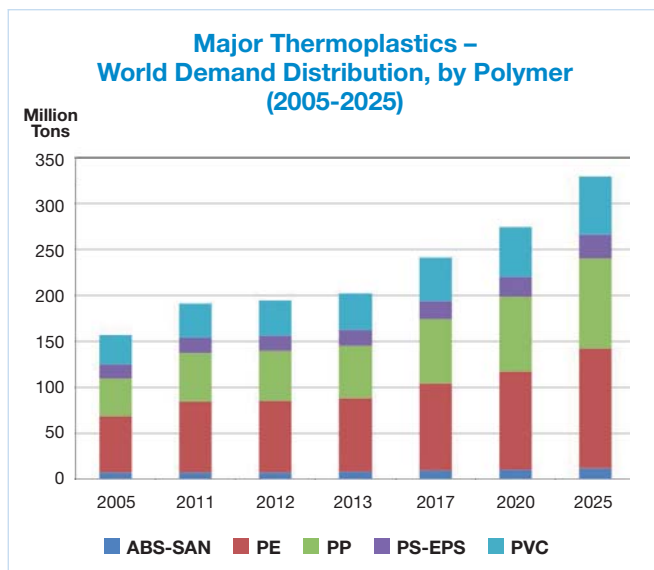
NORTH AMERICA

Only a few years ago, North America was expected to progressively trim its polymer export surplus, and to even become a net importer of ethylene-based products.

Now there is no doubt that the advent of commercially viable shale gas technologies in the US will have a huge impact on the global structure of the polymers business.

Here are some of the key effects of the ‘shale gas revolution’:

- The cost advantage for US ethylene-based products, such as polyethylene (PE), is expected to give new impetus to the local processing industry. It will also support polymers investment – not only for the domestic market, but also for exports.
- The progressive shift to the cracking of lighter feedstock in this region has started to curb propylene co-product volumes, with the first tangible effects already being seen on polypropylene (PP) production. The parallel increase of propane availability is prompting significant investments in propane dehydrogenation (PDH) projects, which will promote substantially higher PP production starting in 2015–2016.
- New North American steam crackers and polymer capacities are expected to come on stream in the last part of this decade.
- There is a risk that the start-up of too many giant plants in North America will result in overcapacity by 2018–19, if all projects are completed according to the announced plans. However, we believe that capacity increases will be more staggered.



- The impact of this structural change is already being felt well before the new North American plants come on stream. For instance, several big projects for integrated polymer plants in Latin America have been reconsidered because of the shift in the cost competitiveness position.

EUROPE

As for Europe, the ICIS Consulting view is as follows:

- The region cannot compete in commodity polymers, as Europe faces major disadvantages in petrochemicals feedstock costs and energy costs. Additional challenges include more stringent regulations concerning labour contracts and environmental protection than in some other regions.
- More than 7m tonnes/year of aged/smaller plants were closed during 2005–2013, with more of this type of capacity set to be shut down. This is the result of high raw material and environmental compliance costs.
- Conversely, the total European capacity of the nine thermoplastics increased by around 4.6m tonnes/year from 2005 to 2013, including expansions of existing units and new plants. Interest in building new grass-root plants in Europe is very low, and even scrap-and-build projects are unlikely. Expansions of the most efficient existing plants are possible, particularly when investment is aimed at obtaining higher quantities of premium polymer grades.
- On top of new world-scale plants being built in other regions, a further important drawback for new investments is the slow rate of polymers demand growth in Europe, given its mature markets for basic plastics. Some important end-uses for polymers in Europe, such as packaging, are increasingly being fed by imports, not only of polymers but also of processed materials, such as film. ICIS sees growing competition from imports of both resin and processed materials. Imports, though, are likely to be limited by stringent EU product requirements relating to quality and other product characteristics. Changes in import duties may also affect trade flows.
- Demand in some areas of Eastern Europe and Turkey has recently slowed more than had been expected, but longer term economic growth remains favourable. The potential is high because of relatively low per-capita consumption, and the climate remains favourable for further investments including from abroad in downstream industries. However, these countries will be exposed to imports from other regions.

CHINA

The outlook for China takes into account a changing macro-economic environment.

Double-digit GDP growth rates are excluded by the government for the next few years at least, as China's new leaders implement changes to the country's entire economic growth model. Investment as the main driver of GDP growth is being replaced by consumption. This is expected to result in an adjustment period of lower growth as consumption catches up with lost momentum resulting from lower investment.

In 2008-2013, polymer demand growth was often higher or lower than increases in overall GDP as a result of inventory distortions created by the frequent introduction and withdrawal of economic stimulus. ICIS World Plastics Annual Study analyses this trend and will keep a close eye on whether it becomes a permanently-embedded feature of China's polymers markets.

Based on preliminary information, numbers show that the total Chinese trade deficit of the nine polymers (measured as production less consumption) exceeded 15m tonnes in 2013.

Supply and demand forecasts for China are given in ICIS annual studies, which take into account:

- Lower GDP growth as the central government tackles investment bubbles in sectors such as real estate and oversupplied industries, including steel, aluminium and cement.

- Huge investments taking place in the coal-to-chemicals sector, as well as in dedicated propylene supply via propane dehydrogenation facilities.
- The increasing importance of environmental protection. This could lead to fewer approvals of coal-to-chemicals projects. Many older and smaller petrochemicals and polymer plants may also be shut down, because of their high emissions levels.
- The need to increase self-sufficiency in higher-quality polymer grades. At the same time, there could be more control of "me too" investments in order to avoid overcapacities already evident in some polymers (EPS, PVC).
- The need to reduce the reliance of the Chinese plastics converting industry on exports, particularly to the West because of concerns over the sustainability of economic recoveries in Europe and the US. The focus will instead be on domestic consumption, especially in poor rural areas.
- The fact that labour costs have risen very sharply in China over the past five years, meaning that lower-value manufacturing, including plastics processing, is increasingly migrating to cheaper locations, such as Vietnam, the Philippines and even Cambodia.

ICIS ANNUAL STUDIES

ICIS Annual Studies on plastics provide you with detailed analyses of global, regional or country-specific markets, as well as forecast data and commentary to support your strategic planning in the medium-to-long term.

World plastics annual study

A comprehensive review covering all major commodities, with analysis and information presented by commodity and region. It provides historical data including supply, demand, capacity and trades from 2000, and forecasts up to 2025.

- ▶ A comprehensive review of the nine major thermoplastics
- ▶ Supply/demand forecasts and import/export assessments
- ▶ Production and consumption forecasts

Enquire about the World Plastics Annual Study –
www.icis.com/plasticsglobal

China plastics annual studies

Detailed analyses for the Chinese plastics markets. They contain in-depth information on domestic consumption, upstream and downstream markets, as well as commentaries on other factors affecting trading activities.

- ▶ Insights into the Chinese supply and demand situation
- ▶ Updates on government policies and key price drivers
- ▶ Detailed information on refinery output, consumption and import/export activity

Enquire about the China Annual Studies –
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REST OF ASIA

Here is an important overview of the structure and outlook for the polymer industries in the rest of Asia. Further analysis are given in our annual study on the points below:

- A distinction being made between relatively developed countries, like Thailand and Malaysia, and developing and densely populated countries, such as India, Indonesia, Vietnam and the Philippines, where per capita consumption of polymers is very low and far below the world average.
- Thailand and Malaysia have their own petrochemical industries with plants built to also serve export markets. Both countries have been noticeable exporters of polyolefins to their neighbouring countries, and to China.
- India is, and will remain, heavily dependent on imports for PE and PVC, but is more or less balanced for styrenics and is a net exporter of PP.
- Growth potential remains good throughout Southeast Asia. In this part of the world many countries (e.g. India and Vietnam) are likely to see polymers demand growth well in excess of GDP, while the more industrialised Thailand and Malaysia will probably see growth more in line with GDP.
- South Asia's imports are set to grow because of demand growth in excess of local supply additions.

The combined effects of China's economy undergoing a mid-term structural slowdown, together with too many new plants coming on stream in China, the Middle East and North America, could lead to global overcapacity in 2017–18.

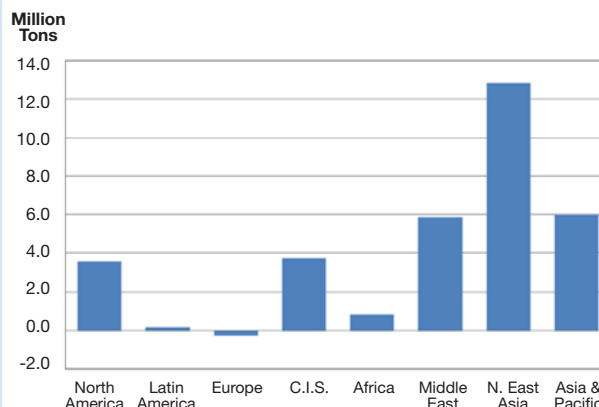
Although still under review, an additional 32m tonnes/year of new capacities in the nine major thermoplastics is at the moment expected to come on stream by 2017.

North East Asia, mostly China, will account for the biggest capacity additions, at 39%. It will be followed by the Middle East and Asia-Pacific, each at 18%, and by North America and the C.I.S. (mostly Russia), each at 11%.

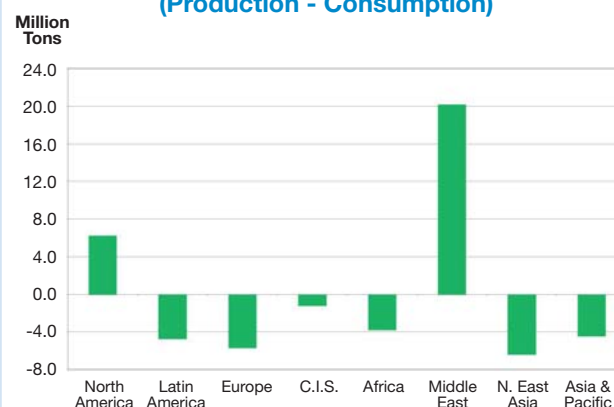
When comparing production and consumption, only two regions will record a trade surplus in 2017 – the Middle East at over 20m tonnes, and North America at 6.2m tonnes.

All other regions are predicted to show trade deficits. North East Asia is expected to record a negative balance of 6.4m tonnes, and Europe a negative balance of 5.7m tonnes.

Major Thermoplastics Planned Capacity Increases (2017 vs 2013)



Major Thermoplastics – Net Position 2017 (Production - Consumption)



About Fabrizio Galiè



Fabrizio Galiè joined Parpinelli TECNON (now part of ICIS Consulting) in 2005. As a member of the Petrochemicals Division, he contributes to the periodical multi-client reports and publications for plastics, as well as to single-client activities. He is the author of the ICIS Polypropylene (PP) Europe Price Forecast Report, launched in March 2013. Recently, Fabrizio has been a speaker at ICIS conferences on polyolefins in Boston, Berlin, and Hamburg.

Fabrizio graduated in Economics at the University of Bologna, Italy.

Before Parpinelli TECNON, he worked for a number of small and medium-sized companies in diverse fields. He participated in several research projects and marketing activities, including market and strategic analysis, competitive intelligence, marketing planning and international consulting services.

About Carlo Trabucchi



Carlo M. Trabucchi, a chemical engineer, joined Parpinelli TECNON (now part of ICIS Consulting) in 2001 and is based in Milan. He is responsible for the polymer sector, but also carries out studies on chemical intermediates and inorganics.

Carlo has more than 30 years experience in the chemical industry, and particularly in the petrochemical and polymer sectors, having held managerial positions as business head and corporate planning manager in Montedison and EniChem. In these duties, he was engaged in market and marketing studies, business and strategic planning, merger and acquisition deals, feasibility and benchmarking studies, and valuations of new investment projects.