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# PolyOlefins Planning Service

Get the Competitive Edge
CHEMSYSTEMS Return on Analysis

2013 Program (March 2013 - February 2014) Prospectus www.chemsystems.com



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## PROSPECTUS July 2013

## PolyOlefins Planning Service 2013 Program (March 2013 – February 2014)

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#### **SECTION 1.**



## **Introduction to the Program**

#### **The Program**

The ChemSystems PolyOlefins Planning Service (POPS) Program has provided the most detailed, accurate and insightful analysis, of the global polyethylene and polypropylene business since its first publication in the 1990s.

The service is regarded by many in the industry as the definitive analysis and forecast program for polyolefins. By means of an annual Executive Report, Quarterly Business Update reports, three special topic reports per year, plus a tri-annual Technology analysis, the program delivers a comprehensive commercial analysis of the industry.

The analysis in the program is developed by Nexant's polyolefins consultants based on detailed research and field work for all global regions. The forecasts are developed using Nexant's ChemSystems Simulator, the state-of-the-art simulation model of the global petrochemical industry, ensuring that the forecasts are compatible with and integrated to forecasts of olefins and of competing commodity plastics. Subscriptions to Nexant's ChemSystems Simulator are also available, allowing subscribers to develop private scenarios and forecasts.

#### **Key Industry Issues**

The global polyolefins industry has shown strong character in recovering from the economic crisis of 2008 and 2009. Growth returned to the industry in many regions as early as 2010 and global demand has continued to grow above global GDP levels. A certain amount of stability has returned to the global markets in 2011 and 2012, despite some residual volatility and continued economic difficulties in the more mature markets. The long term consequences of the economic crisis will be felt for many years to come as the governments of Western Europe, Japan and the United States address the problems of large amounts of debt and falling competitiveness.

The lasting economic difficulties have affected the polyolefins industry in many regions, where restructuring has been a feature over the last few years. Demand growth has remained relatively weak in mature regions. The housing and automobile industries (a major end-use market for polyolefins) have continued to struggle in many countries. Polyolefins producers have looked to developing regions such as Asia Pacific to maintain high growth rates and to drive the global markets. The progress in China will be key to the future direction of the global polyolefins industry, with a large expansion in the regional market expected over the next few years and the development of coal to olefin technologies. Polyolefins producers have also looked at the continued progress of shale gas developments in North America, which are anticipated to reposition the region in the global polyolefins market.

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#### Demand

In 2012, global polyolefin consumption growth declined marginally from the previous year, decreasing to 2.6 percent. The low growth was maintained as mature regions continued to struggle with the long term effects from the economic crisis in 2008. Global consumption growth continued to be driven by strong Asian polyolefin demand, which increased by 4.5 percent.



Figure 1 Global Polyolefin Demand (2000–2012)

#### Supply

The emphasis to invest in locations of advantaged feedstocks or to build in regions of high market growth has led to Asia Pacific increasing its share of world polyolefin capacity from 33 percent ten years ago to 41 percent in 2012 and the Middle East from six to 15 percent. The capacity increase in Asia Pacific was largely driven by growth in China and this is set to continue with the development of coal to olefins technology. The United States and Western Europe markets combined have fallen substantially from 50 to 33 percent over the same period. Although Western Europe markets are projected to decline further, North America markets will stabilise as shale gas developments are realised.

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#### Figure 2 Polyolefins Capacity Growth by Region

Polyolefin Capacity Split 2002





#### Trade

In terms of trade, the Middle East continues to cement its position as the major global supplier. The region is forecast to export of over 11 million tons per year by 2015, rising to 18 million tons in 2025: under the same scenario, Asia is set to import over 16 million tons per year in 2025. The advances with shale gas in North America will allow the region to remain as a strong exporter and improve its position by 2025. On the other hand, Western Europe will remain a large polyolefin importer, with net imports increasing each year.

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#### Introduction of the Program

There are several important issues for the polyolefins industry.

- The economic recession in many parts of the world has caused significant reduction in polyolefin demand in some countries. How quickly will demand recover and when will consumption be restored to at least historic consumption levels?
- In the medium term, operating rates are set to improve. In this context, and against a background of a relatively fragile world economy, what timing can be anticipated for the next cycle and for industry margins and profitability to reach "top-of-cycle" levels?



#### Figure 3 Global Polyethylene Operating Rate

Middle East capacity development: What does the future hold? The Middle East is the main investment focus for many companies and capacity addition has been immense but availability of cheap ethane is getting scarce. As a result, capacity growth rate is slowing down (Figure 4).

#### Figure 4 Steam Cracker Capacity Growth in the Middle East



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#### Introduction of the Program

China: Demand growth for polyolefins has been very strong in recent years. The question remains as to what demand growth will look like in the coming years. There is also a strong increase in polyolefins capacity. A key issue is whether this additional capacity will lead to a declining import requirement or whether strong Chinese domestic demand growth will maintain imports at high levels. Our POPS reports will have the latest supply, demand and trade analysis.



#### Figure 5 Chinese Imports of Selected Polyolefins

- Other regional issues include:
  - Future of the United States: With Shale Gas projects projected to make a major impact on the availability of relatively low cost ethane in the U.S, and many firms announcing studies on constructing new ethylene capacity, what is the outlook then for United States supply, demand and trade position for polyolefins?
  - Future of Western Europe: With imports of finished goods and commodity polyolefin grades on the increase, the challenges facing West European producers remain difficult ones. What is the outlook then for West European producers and how will the combination of demand and supply issues impact on industry operating rates?
  - The outlook for Eastern Europe: This region has the benefit of extensive petrochemical feedstocks. With growing demand, the report will look at a view of capacity development in the region and the result on trade flows.
- Technology development: Most of the focus has remained in the single site/metallocene area but there are other developments that will impact the business. The Executive report will provide a detailed outlook for single site/metallocene products, developed for all regions to determine the global demand outlook for these products.



**SECTION 2.** 



## Value of the Program

The POPS program is used by, amongst others, Business Managers, Corporate and Business Planners, Industry Analysts, and Investors to understand the dynamics of this global business so that they may improve business performance and shareholder returns.

#### Our 2013 POPS Program:

We update our commercial database annually. This is based on fieldwork, published statistics and other publicly available information. The fieldwork is conducted in each region and consists of discussions with a variety of industry participants, including polyolefin resin producers, fabricators, end users, trading companies, compounders, and trade associations. These contacts will be in commercial, technical, R&D and various other roles in order to get a detailed and concise set of data and understanding of the key issues.

#### **Polyolefins Producers**

Most of the global and regional polyolefins producers subscribe to the POPS program, relying on it to provide detailed market analysts and forecasting. In the complex world of polymer substitution, a reliable source of market forecasts is valuable and provides competitive advantage.

#### **Polyolefin Consumers**

Processors and component manufacturers need a sound understanding of their suppliers and the polyolefin industry. POPS provides the global benchmark for supply and market development.

#### Financial

The financial community has a need to understand polymer markets both through its role in project financing of polyolefin projects and in trading of polyolefin company bonds.



#### **SECTION 3.**



## Scope of the Program

The POPS program provides analysis of the technical and commercial polyethylene and polypropylene industries. The three polyethylenes: low density polyethylene (LDPE), linear low density polyethylene (LLDPE), and high density polyethylene (HDPE), and polypropylene (PP) are analysed with consumption for both conventional and metallocene grades. Production of LLDPE with co-monomers of butene, hexene and octene are presented. Consumption of polypropylene for homopolymer, random copolymer, impact copolymer and metallocene grades are presented.

Consumption of the four commodity polyolefins is analysed by segmentation of the markets in each country into first level applications:

- Film food packaging, non-food packaging, retail bags, trash bags, shrink and film wrap, and others as appropriate to each polyolefin
- Fibre

.....

- Blow Moulding liquid food bottles, non-food bottles, industrial drums, gas tanks, and others as appropriate to each polyolefin
- Injection Moulding lids, caps and closures, housewares, tubs & containers, crates/totes, pails, and others as appropriate to each polyolefin
- Extrusion Coating flex packaging and laminates, paper board, and others as appropriate to each polyolefin
- Rotomoulding
- Other Extrusion Uses wire & cable, sheet, and others as appropriate to each polyolefin
- Other Applications including adhesives, coatings, and others as appropriate to each polyolefin

Consumption drivers for each country and trading region are discussed. The industry is global and trade from low cost producing regions to regions of high consumption is highly influential on regional balances and prices. Consequently the program analyses the industry in:

- North America
- South America, Central America and the Caribbean
- Western Europe
- Central Europe
- Eastern Europe
- The Middle East
- Africa
- Asia

Developments in the industry are discussed quarterly including consumption, production, pricing and trade, new capacity developments, and company news.



#### **SECTION 4.**



# Detailed Description of the Program

Our 2013 POPS program has been structured to meet the information and analysis needs of our subscribers and to reflect the changing nature of the industry. All of our reports and databases will be available electronically and in printed form. Subscription to the program is corporate, allowing as many employees access to the data and reports as required. POPS 2013 will provide timely topical data and valuable insights with commercial and technical information to support your company's competitive positioning in the industry. This will consist of the following:

- An Annual Executive Report covering commercial aspects of the global polyolefins business (LLDPE, LDPE, HDPE, polypropylene and second generation technology products (metallocene, bimodal, etc.). This will include global, regional and country-by-country supply, demand, net trade, production, and operating rates.
- Quarterly Business Updates (QBUs) provide an executive level analysis of key developments in the polyolefins industry. The reports include data reflecting quarterly demand, trade and pricing for selected regions, an updated table of new capacity additions, and a listing and assessment of important industry events (mergers, acquisitions, outages, etc.). Special topics of interest and strategic importance to the polyolefins industry will also be analysed in each QBU (consolidation, restructuring, technology shifts, feedstock issues, etc.). These will be published in the month following the close of each quarter.

Our POPS 2013 program is aimed at providing in-depth coverage plus topical analysis and commentary information. Three **supplements** will be provided covering in-depth analysis of key issues and developments that will likely impact the polyolefins businesses. The three supplements included in our POPS 2013 program are:

- Supplement I Global Metallocene LLDPE Review. The global metallocene LLDPE market has grown at about 13% annually for the past ten years, far outpacing the conventional LLDPE (~6%). Growth rates are expected to remain robust going into the future. An estimated 3.5 mil tons were consumed in 2012 with customers typically preferring its superior performance and economic benefits, for example, ability to downgauge the film thickness. The main markets have been more developed countries but Asia (led by China) is forecast to boom! This report studies the demand outlook for single site/metallocene LLDPE globally and in the main regions.
- Supplement II Coal-based Polyolefins Outlook in China. The first coal-based polyolefins plant in China was commissioned by Shenhua in 2010. Since then, there has been a proliferation of new project announcements. Among the new players joining the bandwagon are Shanxi Coke Group, Wanbei Electricity Group, Wison Chemical Co., Pucheng Clean Energy Chemical Company, Yulin Energy and Chemical and Huating Zhongxu. As long as crude oil prices remaining high, the interest in coal-based feedstock shall remain high. However, with Chinese government tightening up environmental control and potential lack of resources (engineers, fabricators, water) to expedite the projects, some plants may get delayed. This report will offer Nexant's view on when these plants are likely to start-up and how it will impact domestic and import markets.



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#### **Detailed Description of the Program**

Supplement III – Olefins and Polyolefins Regional Cost Competitiveness. Production economics for polyolefins show notable disparities both within and between regions of the world. It is these disparities that influence market behaviour, investment, and consolidation. The main driver of polyolefin cost is the cost of feedstock. Traditionally produced from the refining of crude oil or the processing of natural gas but recently, alternative process routes utilizing coal, biological hydrocarbons and unconventional natural gas, particularly shale gas, have gained more attention as potential feedstock sources. This report provides an analysis of production costs by region. This report has been developed as a database of regional production costs and location factors over the course of a typical petrochemical cycle. A discussion of the key factors underlying each region's cost estimates will also be included.

In addition to the print reports, subscribers are provided with a CD containing the **Global Database**. Our database will include demand, supply (capacity by location and technology), production, net trade, and operating rate for each major country, while regional and global summaries will also be prepared. More specifically, our database will have a detailed demand analysis by processing category (film, injection molding, blow molding, pipe, fiber, etc.). It will also include estimates for both new (speculative) capacity additions by country/region that will be needed and the demand for second generation technology (single site/metallocene and non-metallocene) for all of the polyolefins.

Support for the program is provided through our **Presentation/Consulting** service: Companies will be entitled to a half-day presentation of the program results along with a half-day of discussion in smaller groups or workshops. Each presentation will be tailored to the individual company. Travel expenses are not included and will be invoiced at cost.



#### **SECTION 5.**



## **Costs and Subscription**

The cost of the 2013 POPS Program is US\$33,100. Amounts are net of all local taxes, duties, and other applicable charges. Companies will be invoiced upon authorization payable within 30 days of receipt of the invoice. POPS 2013 can be ordered using the form provided with this prospectus or online at our web site: <u>www.chemsystems.com</u>.

#### **Technology Report:**

Nexant's latest POPS Technology Report was published in December 2011. This report consists of an in-depth analysis of all key polyolefins technologies employed in the industry. The cost of the POPS Technology Review report is US\$18,000 and is priced separately from the main POPS program.



This Subscription Agreement (this "Agreement") is by and between the undersigned (the "Subscriber") and Nexant, Inc. ("Nexant"). Pursuant to this Agreement, Subscriber will purchase the ChemSystems PolyOlefins Planning Program (POPS) (the "Subscribed Report") for the 2012 subscription year (the "Subscription Year"), produced by Nexant in accordance with the following terms and conditions.

- 1. Subscribers to the Subscribed Report will receive one (1) copy in published form and access to the Subscribed Report via a password-protected area from www.chemsystems.com. All rights and limitations described above apply equally to hard copy and electronic versions of the reports. Nexant will provide up to eight hours in a single day of consulting services, at cost to be invoiced separately, provided by a senior study manager consisting of a half-day summary presentation of the Subscribed Report and a half-day of individual/small-group focused meetings organized by the Subscriber. Travel expenses are not included and will be invoiced at cost. All amounts invoiced are net of all local taxes, duties, and other applicable charges. Additional published copies of the Subscribed Report are available at US\$1,000.00 (one thousand U.S. dollars) each.
- 2. The information disclosed in the Subscribed Report is for the sole and confidential use of Subscriber and any 51 percent or greater owned affiliates and subsidiaries of the Subscriber ("Affiliates") except those Affiliates which are engaged in the business of marketing research, management consulting, or publishing or are subsidiaries of such firms ("Permitted Users"). However, the Permitted Users may use such information in their own research and commercial activities, including loaning the data on a confidential basis to third parties for temporary and specific use for the sole benefit of the Subscriber. Breach of this covenant of use shall entitle Nexant to terminate this Agreement immediately with no obligation to return any portion of the Subscription Fee. It is the responsibility of the Subscriber to notify Nexant from time to time of the Permitted Users who will require access to the information disclosed in the Subscribed Report in accordance with Clause 3 below
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- 5. In consideration of the Subscribed Report, Client will be billed by and shall pay to Nexant a total subscription fee of US\$33,100.00 (thirty-three thousand one hundred U.S. dollars), the Base Subscription Fee. If Client selects to also purchase the POPS Technology Report (2011), Client will be billed by and shall pay to Nexant an additional subscription fee of US\$18,000.00 (eighteen thousand U.S. dollars). Client shall be invoiced upon signature of this Agreement. Amounts are due upon receipt of invoice and payable within thirty (30) days. Late payments shall accrue interest at the rate of 1.5% per month. Fees quoted do not include any applicable sales tax, or use or value added tax, all of which are for the account of Client.
- 6. Unless specified otherwise, there are no warranties of any kind for reports and consulting services provided under this Agreement. Nexant's total liability under this Agreement is limited to the total amount paid to Nexant for the reports.
- 7. A person who is not a party to this Agreement shall have no right under this Agreement.
- 8. This Agreement will be governed by the laws of the State of New York, United States of America.
- 9. By signing below, Nexant and Subscriber agree that this is the complete agreement between them regarding the Subscribed Report. No change, modification, extension, termination or waiver of this Agreement, or any of the provision herein, shall be valid unless made in writing and signed by duly authorized representatives of the parties.



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