# THE ASIA-PACIFIC CATALYST INDUSTRY: MARKETS, TECHNOLOGIES AND MANUFACTURERS

## **MULTI-CLIENT STUDY PRESENTATION**

(Study completed September 2015)





# THE ASIA-PACIFIC CATALYST INDUSTRY: MARKETS, TECHNOLOGIES AND MANUFACTURERS

#### I. BACKGROUND

The Asia-Pacific region has undergone massive transformation since TCGR's last benchmarking report "The Dynamics of Asia-Pacific Catalyst and Technology Business – The Growth Market" in 1997. At that time, the Asian Financial crisis had not yet fully played out and the future of the region was unclear. Fast forward to 2015, and in the intervening period it would have been difficult to predict the dramatic fall-off in the Japanese chemical industry as well as the emergence of countries such as Indonesia, Malaysia and Thailand in the global economy.

The Catalyst Group Resources (TCGR) has been active in Asia-Pacific over the last 20 years, both through "on-the-ground" consultants and partnerships with other consultancies such as the China National Chemical Information Center (CNCIC). The ability to have local insights from industry experienced experts ensures that a robust and thorough analysis is completed. This study entitled "THE ASIA-PACIFIC CATALYST INDUSTRY: Markets, Technologies and Manufacturers" examines the following key Asia-Pacific catalyst markets:

- India
- South Korea
- Japan
- Thailand
- Indonesia
- Vietnam
- Malaysia
- Australia/New Zealand
- Singapore

Note that <u>China is excluded</u> from this study, as TCGR with its partner the CNCIC completed a four (4) part series in 2013 on the Chinese catalyst markets – "The Catalytic Process Industries in China: Markets, Technologies & Strategic Implications". Further information is available at <u>www.catalystgrp.com</u>. Other countries such as Myanmar, Cambodia, Laos and the Philippines are also excluded from the scope of this study – markets deemed as currently too small to warrant in-depth consideration.

The GDP growth rate for Asia-Pacific was estimated to increase by 5.4% in 2014. As Chinese growth slows, but remains strong in a global context – the prognosis for growth in the Asia-Pacific is net positive. These countries are experiencing growth in (i) urbanization, (ii) middle classes and (iii) GDP. These growth indicators will ensure governments start to shift focus to ensure self-sufficiency via improved infrastructure, laws and regulations to facilitate the growth of the local petrochemical/chemical, polymer and environmental industries. In turn, new local catalyst companies will aim to meet these local needs.

A country such as Indonesia, with its 250 million (approx.) population means there is a large group of potential middle class consumers for new products. Other countries have low manufacturing costs (primarily labor) but require better infrastructure to compete with China and other more established locations.



Bearing this in mind, there are many dramatic changes country by country from when TCGR completed its 1997 report - "The Dynamics of Asia-Pacific Catalyst and Technology Business – The Growth Market". TCGR understands the need to benchmark the catalyst capabilities of this region, as business managers look to plan for future growth in this increasingly important and dynamic region.

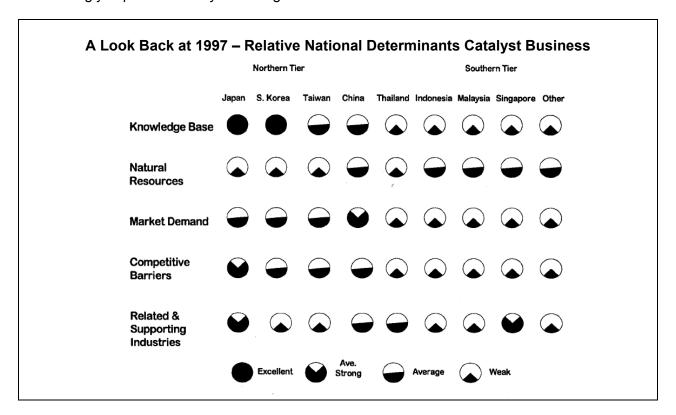


Figure I-1 Asia-Pacific Catalyst Business Markets – TCGR's 1997 report.

Source: The Catalyst Group Resources, 1997

Considering the chemical market alone, although China is the dominant player in the Asia-Pacific market - Asia-Pacific (excluding China) accounted for €772 Billion (approximately \$US 1 Trillion) in 2012 rising to €1,150 billion (approximately \$US 1.3 Trillion) in 2020. Most of this growth will be driven by the other Asian Pacific countries excluding Japan (see Figure I-2).

Japan's chemical industry and economy is forecasted to have moderate growth in 2014-15 aided by "Abenomics" - the aggressive stimulus and fiscal policy encouraged by Japanese Prime Minister Shinzo Abe. However, the Japanese chemical, polymer and refining industries – once global powerhouses – have fallen on difficult times. The economics of manufacturing in Japan are harder to justify and therefore raises the question: where next for these industries, what are the current catalyst technology players' motivations? Will it lead to consolidations, new partnerships, divesting of assets, etc.?

These are important questions and TCGR has completed a "Special Feature" (Section V) in this report on the Japanese catalyst markets to address these issues.





Figure I-2 World Chemical Sales - € Billion (2012)

Source: CEFIC, 2013

With these rising chemical sales in Asia-Pacific (excluding China) opportunities exist for both global as well as local catalyst manufacturers.

The Asia-Pacific refining catalyst market is also scheduled to grow from 2013-2020, but not at the same rate as the chemical market outlined above (see Figure I-3). For local Asia-Pacific refining catalyst manufacturers – the growth may be linked with either displacing Western catalyst manufacturers or exporting beyond their own domestic markets.

The Asia-Pacific polymers catalyst markets are also forecast to grow, and it is likely that low grade polymer catalyst demand will be increasingly met by local catalyst manufacturers. Environmental catalyst growth in the Asia-Pacific Region (excluding Japan) is expected to be dominated by Japan, and our cameo on the Japanese catalyst market addresses this segment.

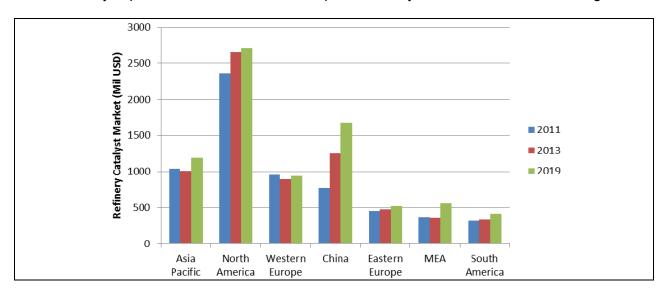


Figure I-3 World Refining Catalyst Market – MIL \$US (Highlights Growth by Region)

Source: The Catalyst Group Resources; The Intelligence Report, May 2014



### II. THE NEED FOR THE STUDY

Asia Pacific markets (excluding China and Japan) are forecasted as high growth over the coming decade. More and more global companies are investigating how best to penetrate these markets. Some of the market demand for all products will be met by local manufacturers, as well as "in-tune" Western companies. This applies to the catalyst industries as much as any other industry associated with the refining, chemical/petrochemical, polymer and environmental segments.

The difference of course is that information from other sources is "sparse" at best because of the nascent nature of these markets. Having expert 'feet on the ground' is vital to provide a clear overview, and will help detail both the market and the business in order to define the opportunities. The Catalyst Group Resources (TCGR) is uniquely positioned with the skill, knowledge, and resources to assemble this report update.

For those who understand and appreciate this study undertaking, you will know how important it is to have a better understanding of the respective catalyst market segments both for new potential sales as well as understanding the capabilities of emerging manufacturers – either to understand local competition better or as potential M&A targets.

This newly updated report "THE ASIA-PACIFIC CATALYST INDUSTRY: Markets, Technologies and Manufacturers" complements an ongoing portfolio of similarly well-received studies TCGR has delivered to clients over recent years. This growing experience demonstrates TCGR's unique capability, resources, and expertise to deliver exceptional insight.

In order to heighten the value-added from study participation, TCGR worked with "charter" subscribers (i.e., those who signed up for the study before its launch) in order to define the scope of the report by delineating areas of particular interest for inclusion in the assessment.

Recent multi-client reports and limited-client reports include:

- The Intelligence Report: Business Shifts in the Global Catalytic Process Industries, 2013-2019 (May 2014)
- The Catalytic Process Industries in China: Markets, Technologies & Strategic Implications (4 part Series – 2013)
- Specialty Zeolites in Catalysis, 2002-2020: International, Commercial and Technical Progress – A New Era! (March 2014)
- The Industrial Adsorbents Business: Commercial Strategy, Technical and R&D Assessment in Refining, Chemicals/Syngas, Natural Gas and Industrial Gases (July 2013)
- Unconventional Catalytic Olefins Production: Commercial Vision and Breakout? (January 2013)



### III. SCOPE AND METHODOLOGY

This study looks at the following key Asia Pacific catalyst markets:

- India
- Japan
- Indonesia
- Malaysia
- Singapore
- South Korea
- Thailand
- Vietnam
- Australia/New Zealand

The catalyst market size and growth of each country are evaluated, updated and shown by industry segment (i.e. refining, petrochemicals/chemicals, polymers, and environmental) in **Section III**. Past/historical information is updated and summarized, whereas existing trends and developments that are important growth areas in the future are highlighted in more detail. It also completes an overview of the technical landscape in each country (**Section III**). Current projects and partnerships between Western and local catalyst manufacturers are discussed, along with a description of the current competitive environment.

**Section IV**, contains 15 local and 5 multinational "cameos" of catalyst companies in the region. These cameos are completed across the different catalyst segments (i.e. refining, petrochemicals/chemicals, polymers and environmental) and includes SWOT analysis. "Charter" subscribers have nominated company profiles of particular interest.

**Section V**, Special Feature – "Japanese Catalyst Industry; Where Next?" details the challenges facing the Japanese chemical and refining industry. Of most importance is providing an expert opinion on the potential future directions of the Japanese catalyst industries – considering in particular motivations of the main players, and the potential future strategies employed (i.e. consolidation, venturing, exiting the markets, shifting offshore).

**Section VI**, Strategic and Competitive Analyses, provides a more insightful analysis of critical points in commercial developments. Issues of manufacturing capacity, process licensing and global positioning are evaluated. This section is expanded and very pertinent due to the impacts of the forward looking timeframe to 2020.

The report's Table of Contents, including the list of Figures and Tables, appears on pages 6-12. Pricing information and the order form appear on pages 14-15.



# THE ASIA-PACIFIC CATALYST INDUSTRY: MARKETS, TECHNOLOGIES AND MANUFACTURERS

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### IV. QUALIFICATIONS

The Catalyst Group Resources, a member of The Catalyst Group, works with clients to develop sustainable competitive advantage in technology-driven industries such as chemicals, refining, petrochemicals, polymers, specialty/fine chemicals, biotechnology, pharmaceuticals, and environmental protection. We provide concrete proven solutions based on our understanding of how technology impacts business.

Using our in-depth knowledge of molecular structures, process systems, and commercial applications, we offer a unique combination of business solutions and technology skills through a range of client-focused services. Often working as a member of our clients' planning teams, we combine our knowledge of cutting-edge technology with commercial expertise to:

- Define the business and commercial impacts of leading-edge technologies
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  - World-class seminars, conferences and courses
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The client-confidential assignments conducted by The Catalyst Group include projects in:

- Reinventing R&D pipelines with techno-economic and intellectual property analyses
- Technology acquisitions including technology screenings and M&A due diligence
- Market strategy including competitive benchmarking, new market entry, voice of customer

We have built our consulting practice on long-term client relationships, dedication, and integrity. Our philosophy is clear and focused:

We Provide the "Catalysts" for Business Growth by Linking Technology and Leading-Edge Business Practices to Market Opportunities



### V. DELIVERABLES AND PRICING

This report is timely and strategically important to those industry participants and observers both monitoring and investing in the Asia-Pacific markets for manufacturing and investment, as well as to process technology companies evaluating the respective catalyst markets. TCGR's report, based on technology evaluations, market assessments and interviews with key players goes beyond public domain information. As a result, subscribers are requested to complete and sign the "Order Form and Secrecy Agreement" on the following page.

The study, "THE ASIA-PACIFIC CATALYST INDUSTRY: Markets, Technologies and Manufacturers" was completed in September 2015.

<u>Participation</u>	<u>Deadline</u>	<u>Price</u>
THE ASIA-PACIFIC CATALYST INI and Manufacturers	DUSTRY: Markets, Technologies	\$18,000
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The Catalyst Group Resources, Inc.

Tel: +1.215.628.4447

Gwynedd Office Park

Fax:+1.215.628.2267

P.O. Box 680

e-mail: tcgr@catalystgrp.com

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