



## **The Catalyst Group Resources**

Gwynedd Office Park P.O. Box 680 Spring House, PA 19477 Phone: 215-628-4447 Fax: 215-628-2267

E-mail: [tcg@catalystgrp.com](mailto:tcg@catalystgrp.com) Web Site: [www.catalystgrp.com](http://www.catalystgrp.com)

### **PRESS RELEASE . . .**

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### ***Polymerization Catalysts in China – “Self-Sufficiency” in the Foreseeable Future?***

Based on recent technological progress and commercial developments, it is increasingly clear that China is moving towards “self-sufficiency” in selected areas of polymerization catalysis. The country’s production of six major resins (PE, PP, PS, ABS, PVC and PET) is dominated by polyolefins (8.3 MIL t/yr) and PET (12.6 MIL t/yr), but the volumes produced are well-short of domestic demand. Efforts are currently underway to add capacity, improve technologies and move from “commodity” to more “value-added” applications; these plans include the development and commercialization of proprietary catalytic process technologies. Dominated by oil-majors SINOPEC and CNPC, research in China has led to successes for a range of polymers (including PE and PP), where output of some grades is competitive on a world-class level. A major supplier of polyolefin (PO) catalysts in China, Beijing Auda, will increase its capacity by 300% (from 200 t/yr to 800 t/yr) over the next five years, lifting it to the second largest PO catalyst supplier in the world. The issues this raises, and the opportunities it creates, are significant yet complex.

In its study of the polymerization catalyst industry in China, completed late last month, The Catalyst Group Resources (TCGR) has documented a number of findings which should be of interest to global resin producers, catalyst suppliers and process technology licensors/licensees:

- In most cases, Chinese catalyst technologies are mimics of, or improvements on, existing commercial practices. There are, however, a few noteworthy exceptions where innovation has led to differentiated products. Examples include some polyolefin grades, produced in advanced or modified slurry and gas phase processes, which offer application-specific properties for use in films and molded products. Catalysts for elastomers are not as well-advanced
- Metallocene and single-site organometallic catalysts for PE and PP are being evaluated in commercial trials, with patent coverage for structures and uses abroad (including the US and Japan); claims include catalyst activity levels on par with industry leaders
- Chinese catalyst producers are supplying catalysts for licensed process technologies such as Mitsui Petrochemical’s slurry process HDPE and Dow/Union Carbide’s Unipol gas phase PE process. SINOPEC Daqing and Yangzi Petrochemical are using Beijing Chemical Research Institute’s BCH catalyst for HDPE; Shanghai Leader Catalyst makes its SCG-1 series for use in the Unipol gas phase PE process.
- Opportunities currently exist for Western and other Asian catalyst companies to work with Chinese catalyst suppliers, not only in production but in development and scale-up to commercialization. Although SINOPEC dominates the research institutes, CNPC is the weaker major and could be approached. There are currently no restrictions on foreign companies to access the Chinese market this way. The model established by Akzo Nobel, which has been involved for over 20 years in the Chinese catalyst and initiators markets, includes working through joint ownerships/ventures such as Tianjin-Akzo Nobel Peroxide and Akzo Nobel Peroxide (Ningbo)

In its comprehensive study of the strategic challenges and opportunities in the catalytic process industries in China, TCGR is completing a series of four (4) reports, each dedicated to a major catalytic process area: Refining; Petrochemical/Chemical; Polymerization; and Environmental (Mobile and Stationary). **The “segment” report on polymerization catalysts was just completed and shipped to subscribers; the segment reports on refining and petrochemical/chemicals were completed in April and May, respectively. The final report on environmental catalysts is scheduled for completion early next month.** Each segment report is a “stand alone” but integrated strategic assessment of the current situation in China, offering executive level guidance on opportunities and threats, with supporting data to enable further analyses in-house. Reports document market sizes, suppliers and buyers, industry structure, price trends and trade flows as well as technological developments and the competitive landscape. Analyses are provided so that resultant opportunities are identified and characterized, including notable hurdles. Conclusions and recommendations are made with specific action steps to be considered for short-term implementation.

The value of the report, “*The Catalytic Process Industries in China: Markets, Technologies & Strategic Implications*”, will be drawn from findings developed by two well-known and well-respected sources: The Catalyst Group Resources (TCGR) and the China National Chemical Information Center (CNCIC). TCGR has a history of nearly 25 years of providing catalyst industry evaluations and assessments for a global client base; CNCIC is the PRC’s leading data and information provider, with proven capabilities in data gathering and industry evaluation. It is clear that understanding how the markets, the players and the governmental bodies interact is crucial for successful involvement; knowing the specific market sizes, potential for growth and opportunities for participation will undoubtedly increase the likelihood of success.