

# Intelligence Report:



## *Business Shifts in the Global Catalytic Process Industries, 2019-2025*

### 18<sup>th</sup> Biennial Edition

The future of competitiveness in the catalytic process industries in 2020 (and beyond) will depend on difficult, yet critical, decisions related to technology position and market participation. The industry has been on a macroeconomic upswing for almost a decade, yielding gains from strategic restructurings made back in 2008-09. There remain opportunities for above-average growth, but focused and dedicated approaches will be required for success. The following will be key drivers as we enter the 2020-2025 forecast period:

- The timing and nature of a general, macro-economic slowdown, expected during the 2020-25 forecast period, will determine the impacts on specific industries/end uses
- Some rationalization/consolidation will be justified in catalyst production/supply and process licensing. Key factors - like degree of integration, market share, and production costs - will determine both targets and acquirers
- The movement towards "oil-to-chemicals" (O-T-C) will increase and intensify, with competitive implications for both leaders and laggards as well as those producing fuels vs. those into aromatics/olefins
- The utilization of abundant natural gas (NG) and natural gas liquids (NGLs) as fuels and feedstocks will expand the advantage over less competitive sources of energy and olefins/aromatics (e.g., coal, naphtha, etc.)
- The role to be played by Industry 4.0, the Industrial Internet of Things (IIoT), and artificial intelligence (AI) in industry operations and planning will increase
- Climate change impacts, including circularity and sustainability, will increasingly affect catalyst industry applications and industry participants (see "Special Feature" section nearby)

**The way that catalyst suppliers and process technology licensors address these changes, and which ones strategically position themselves for the future, are critical considerations for the 2020 edition of The Intelligence Report.** These are challenging, but exciting, times for all industry participants - visionary thinking is required. TCGR will inject some interesting dynamics for 2020 and beyond via this biennial edition!



### The Catalyst Industry's "Gold Standard"

The **Intelligence Report** deliverables, in study and slide formats, will provide new business and technology perspectives, including:

- Comprehensive, concise and detailed industry statistics on catalyst volumes and values, including forecasts
- Producer- and user-specific developments in production and technology, including alliances, ventures and acquisitions/divestitures
- Covering the refining, petrochemical/chemical, polymer and environmental markets
- Identification of new growth opportunities across the value chain
- Assessment of geographical, technological and competitive gaps
- Analysis and recommendations leading to specific actionable items

The combined deliverables of a detailed statistical reference document, along with an (optional) "**Exec Deck**" of critical findings via PPT slides, TCGR's 2020 edition of **The Intelligence Report** will be invaluable for achieving technical, market, competitive and strategic advantage!

### A Snapshot of Our Past Analysis...

The seventeenth edition (2018) predicted that inexpensive capital via low interest rates would fuel M&A activity in the industry, with ownership changes and substantial capital outlays to underpin future growth. Trends in the following were deemed insightful: (1) rising demand for octane (vs. diesel); (2) oil-to-chemicals conversion (vs. traditional refining); (3) the industrial internet of things (IIoT) and process/planning impacts; (4) natural gas (and NGL) utilization in fuels and chemical (olefins/aromatics) production; and (5) substitution of bio-derived feedstocks for fossil-based fuels, intermediates and polymers. Overall, the global merchant catalyst market was forecast to grow from \$31.3 BIL/yr in 2017 to reach \$39.5 BIL/yr by 2023, reflecting an AAGR of 4.3%. If you were to include licensing and other direct services, the market reaches nearly \$50 BIL/yr.



*The "Intelligence Report" has evolved from documenting technological and commercial progress into a tool for identifying strategic business opportunities and providing major investment guidance...*

## Special Feature Section

In order to add value/perspective(s) beyond industry statistics and commentary, a **Special Feature** section (Section VII; see ToFC nearby) will address the **impacts of climate change on the catalytic process industries**. These go beyond the catalysts themselves to include the breadth of products that they make, and the industry participants affected. What is the fate of liquid transportation fuels and the routes being used to make them, from established to developing pathways which are non-CO<sub>2</sub> generating (e.g., electro/photo-catalytic H<sub>2</sub>, other “energy carrier” chemicals, etc.)? Future routes include: Power-to-X; green/blue H<sub>2</sub>; fuel cells and batteries; plastics recycling; “circularity” in intermediate/end products; and others (e.g., CCUS in refining/petrochemicals). Metrics including life-cycle analyses (LCAs) and technology readiness levels (TRLs) will be utilized to assess future prospects and provide strategic/competitive guidance.

### PRELIMINARY OUTLINE

#### VII. Special Feature: "Climate Change Impacts on the Catalytic Process Industries"

- A. The Climate Drivers for Innovation in Catalysis
- B. Major Applications where Technology Advancements are Required and/or Underway (e.g., fuels, energy carrier chemicals, polymer re-use/recycling)
- C. Catalyst/Process Technology Developments by Majors and Start-Ups: Status and Outlook (with LCAs and TRLs)
  - 1. Fuels (and Energy Carriers)
  - 2. Chemicals/Intermediates
  - 3. Polymers
  - 4. Others (e.g., Small-scale, Modular, and Distributed)
- D. Implications on Industrial Catalysis and the Competitive Landscape

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\_\_\_\_ Please enter our order for the **Intelligence Report: Business Shifts in the Global Catalytic Process Industries, 2019-2025** (to be published May 2020). This includes two (2) printed copies of the report. The pre-publication cost of the report is US\$22,500 (“post-publication” pricing, for orders after May 2020, is US\$25,500).

\_\_\_\_ Please send \_\_\_\_\_ additional corporate copies @ US\$250 each.

\_\_\_\_ We would like an electronic version (PDF file) of the report for use at our site for an additional cost of US\$1,000.

\_\_\_\_ Please enter our order for the **“Intelligence Report 2020 - Exec Deck”** PowerPoint slide presentation for an additional US\$3,500 (i.e., requires concurrent subscription to report). This includes a 2-hour presentation by the TCGR report team, to be conducted via webinar with time for subscriber-specific Q&A (additional fees apply for on-site presentation).

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