



Catalyst Technologies

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Key Takeaways

We provide innovative technologies in growing markets

We selectively invest where we can grow faster than the market

Customers rely on our customized offerings resulting in predictable growth and strong margins

Catalyst Technologies Business Structure

Catalyst Technologies

Silica Catalysts

(100% ownership)

- **Leading global supplier of silica catalysts and catalyst supports used to produce:**

- High density polyethylene (HDPE)
- Linear low-density polyethylene (LLDPE)
- Polyethylene anti blocking agents
- Methyl Methacrylate (MMA)

- **Custom catalyst products and supports developed for:**

- Chemical production processes
- Polymer production processes
- Renewable materials
- Metal recovery

Zeolyst International

(50% ownership with Shell Catalysts & Technologies - est. 1988)

- **Leading global supplier of synthetic specialty zeolite catalysts and supports for:**

- Hydroprocessing of traditional fuels
- Yield and cold flow improvement of traditional fuels
- Production of renewable fuels
- Emission control technologies

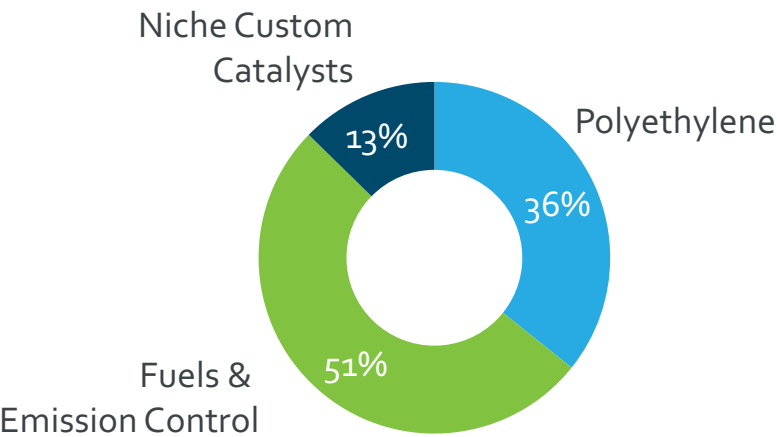
- **Custom catalyst products and supports developed for:**

- Chemical & fuel production processes
- Syngas synthesis
- Emission control
- Pyrolysis processes for polymer (plastic) recycling

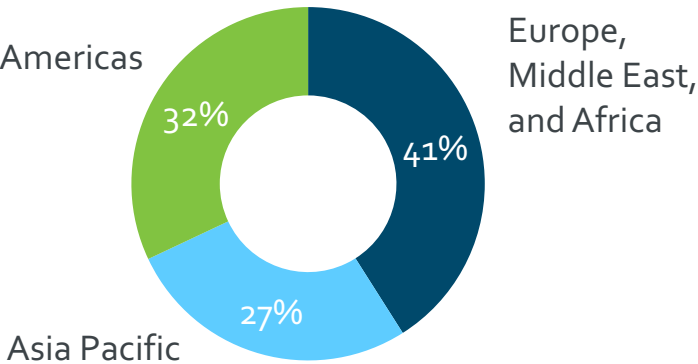
Business Snapshot – Catalyst Technologies

We partner with our customers to help improve the performance, durability and environmental profile of their products. Our products are required to meet the evolving standards of cleaner fuels, reduced waste and emission control.

Sales by End Use Segments¹



Sales by Region¹



ecovyst Advantages



Collaborative customer partnerships



Focused innovation on sustainability



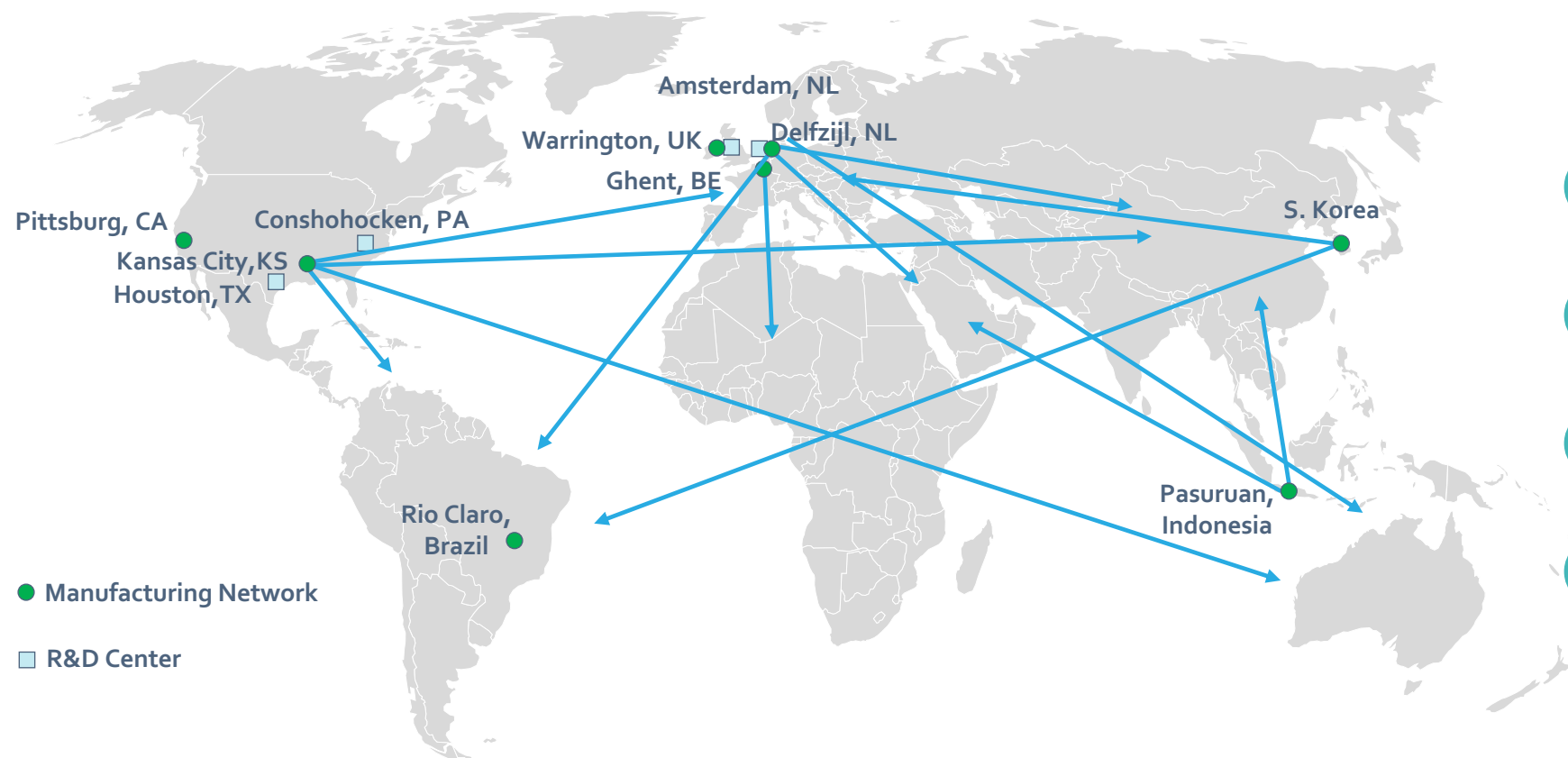
Positioned to grow faster than market



Expected margin expansion

1. As of 2020; Includes 50% portion of the ZI Joint Venture

We Innovate With Customers and Manufacture Strategically to Meet Their Global Needs



- 1 R&D and pilot plant capabilities in multiple regions
- 2 Flexible manufacturing network
- 3 Global sales force deep in catalyst technology
- 4 Product performance is monitored and improved in collaboration with customers

We Enable Our Customers to Address the Sustainability of Their Products

Polyethylene

- Strengthening and lightweighting
- Increasingly efficient production processes
- Recycling of polymers



Fuels & Emission Control

- Increasingly efficient and cleaner fuels
- Increasingly efficient production processes
- Renewable fuels

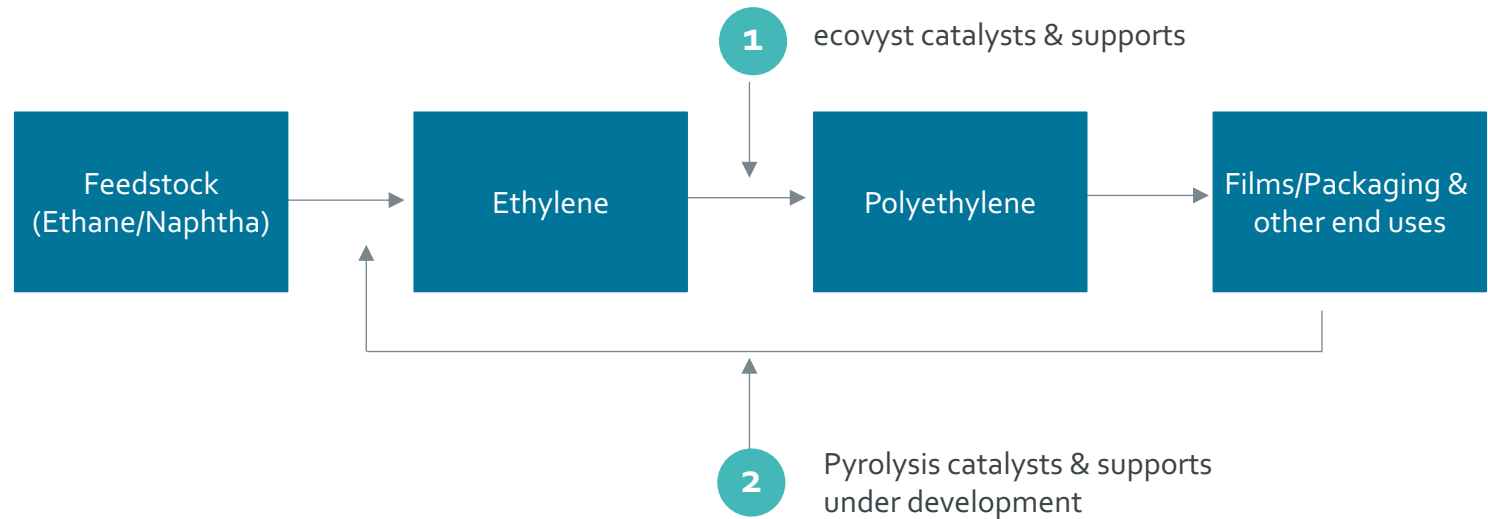


Niche Custom Catalysts

- Novel production processes with increased efficiencies
- Inherently safer and cleaner processes
- Renewable materials



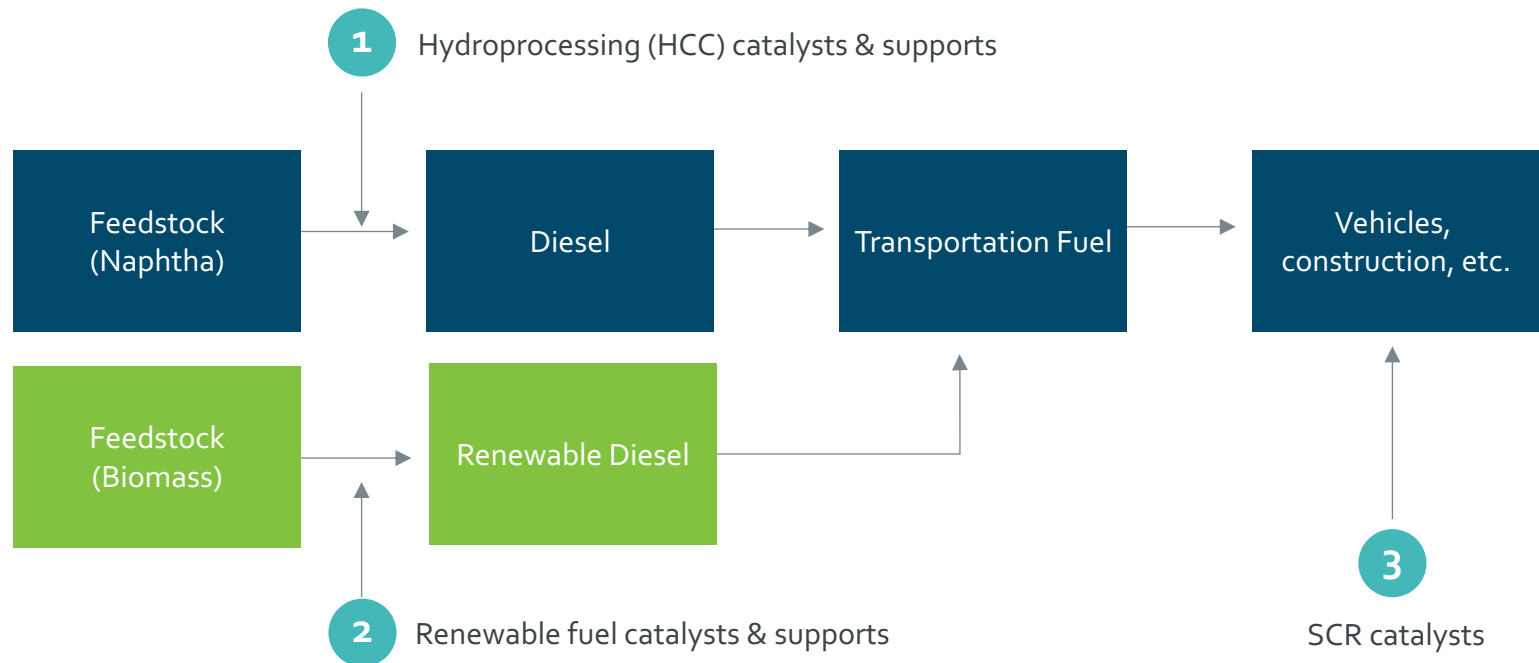
We Play a Critical Role in the Polyethylene Value Chain



Critical Functionality of ecovyst Catalysts

- Production of stronger and lighter weight polyethylene
- Production of clear and strong polyethylene films
- Reduces production cost
- Improves product quality

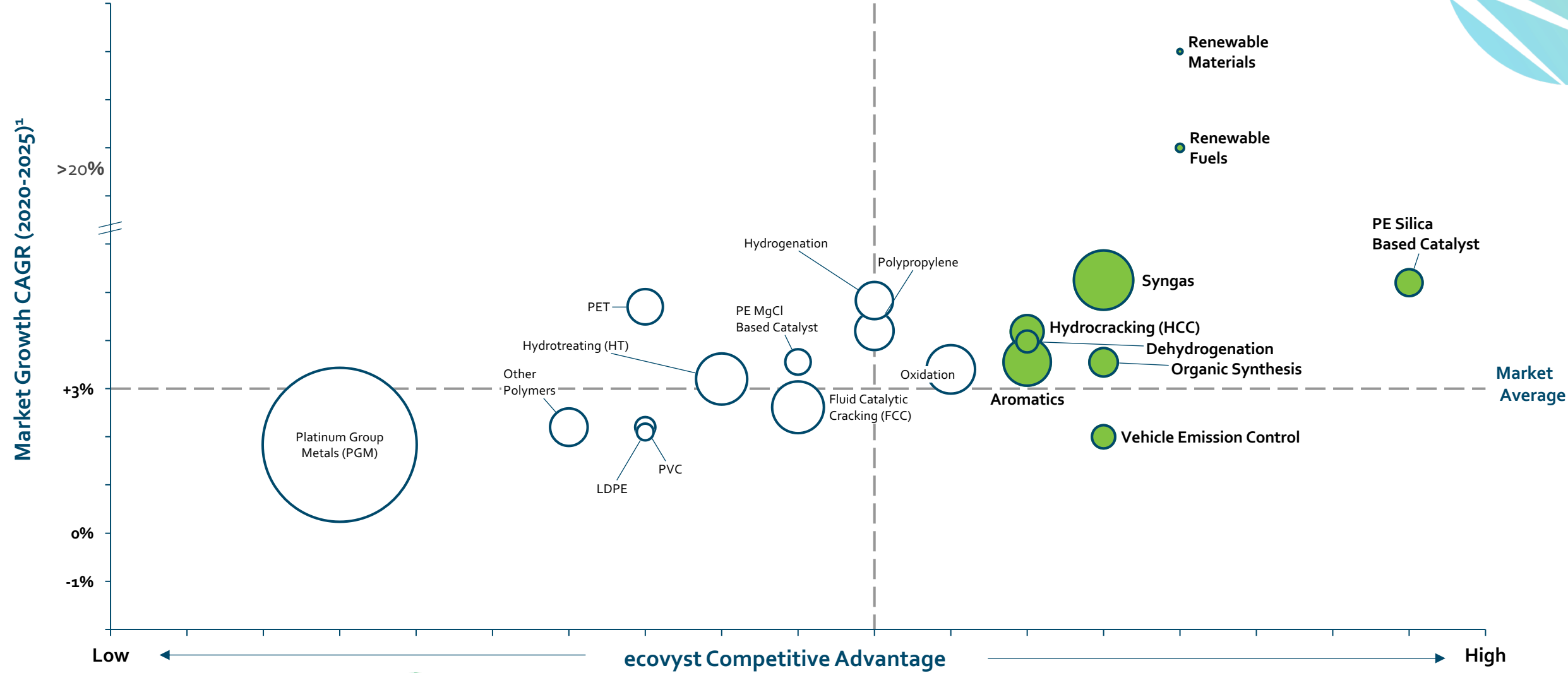
We Are Integral to Clean Fuels and Emission Control



Critical Functionality of ecovyst Catalysts

- Converts heavy oil to more efficient fuels
- Reduces production cost
- Removes sulfur to improve fuel emissions
- Cost effective production of renewable fuels
- NOx reduction to meet increasingly strict emission standards

We Focus on Higher Growth Segments Where We Have Technology Advantages



¹ Sources: TCGR, IHS and Management estimates

Polyethylene Demand Is Growing With Increasing Product Performance Requirements

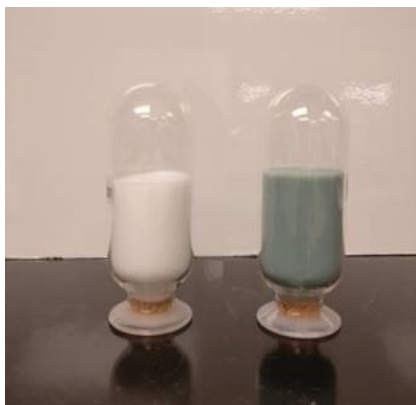
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Size

~4%

Demand CAGR
2020 – 2025

Demand
Growth &
Performance
Requirements
Driven by



1

Increasing use of polyethylene per capita among growing middle class

2

Health & Hygiene trend driving sterile packaging for food and other consumables

3

E-commerce trend driving increasing need for packaging materials

4




Lightweighting of materials for transportation and transported packaging

5

Increasing capability to recycle polymers

Fuel & Emission Control Customers Will Require More and Tailored Catalysts

Segment	Size	CAGR ¹
Hydrocracking	~\$750M	~4%
Vehicle Emissions	~\$400M	~2%
Renewable Fuels	>\$100M	>20%



Demand Growth & Performance Requirements Driven by

- 1 Growing global energy requirements
- 2 Tightening requirements for more efficient and cleaner fuels
- 3 New catalysts for renewable fuels

There Is Increasing Demand for Custom Catalysts in Niche Applications



Renewable Materials

Chemical Synthesis

Syngas Derivatives

ecovyst continues to innovate
custom catalysts to enable:



Lower energy intensity
and production costs of
current materials



The development of
renewable materials

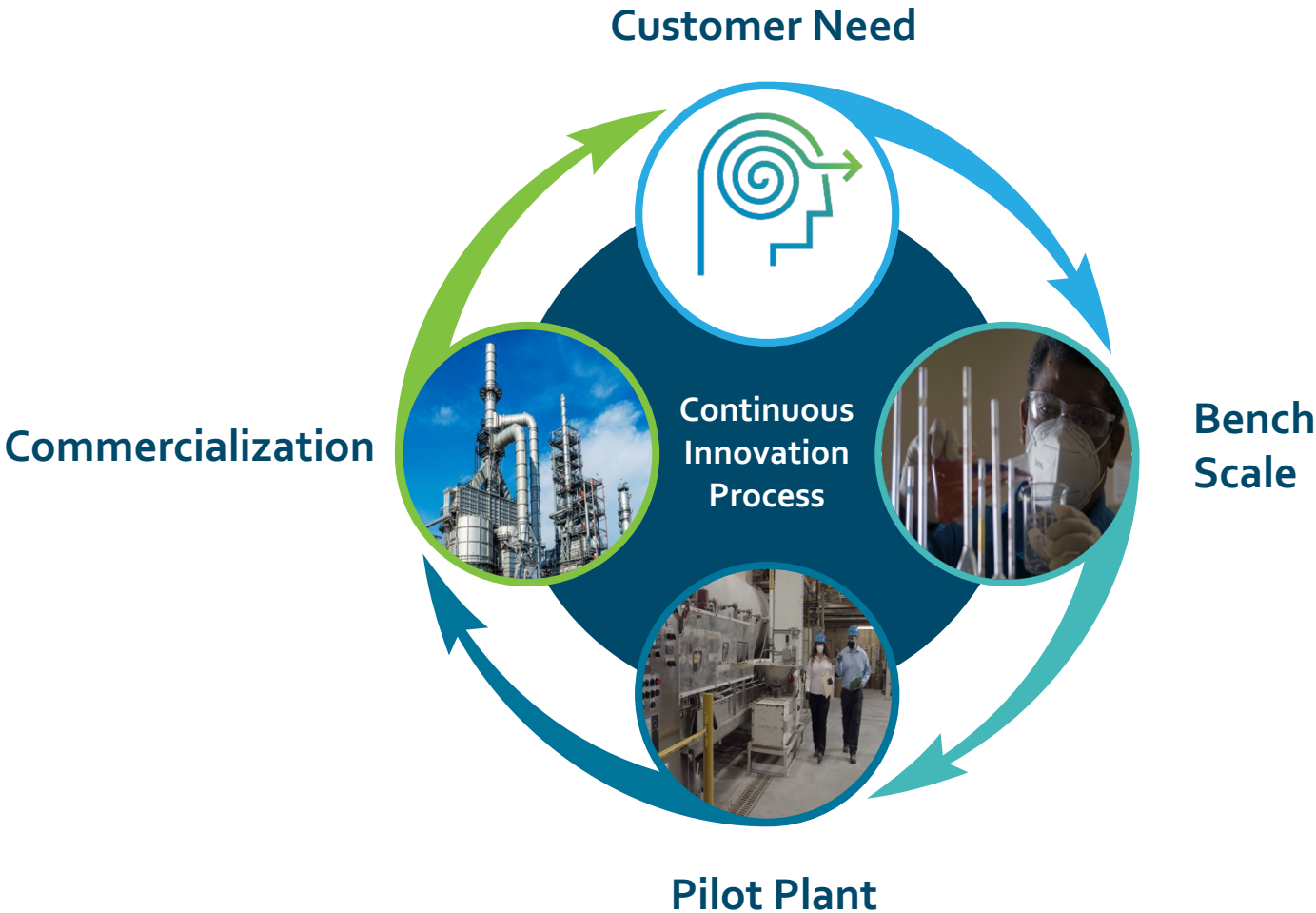


The creation of novel processes that
use syngas or waste to produce
valuable chemical products



The ability to recover
valuable metals from
waste streams

Our Innovation Model is Driven by Customer Collaboration



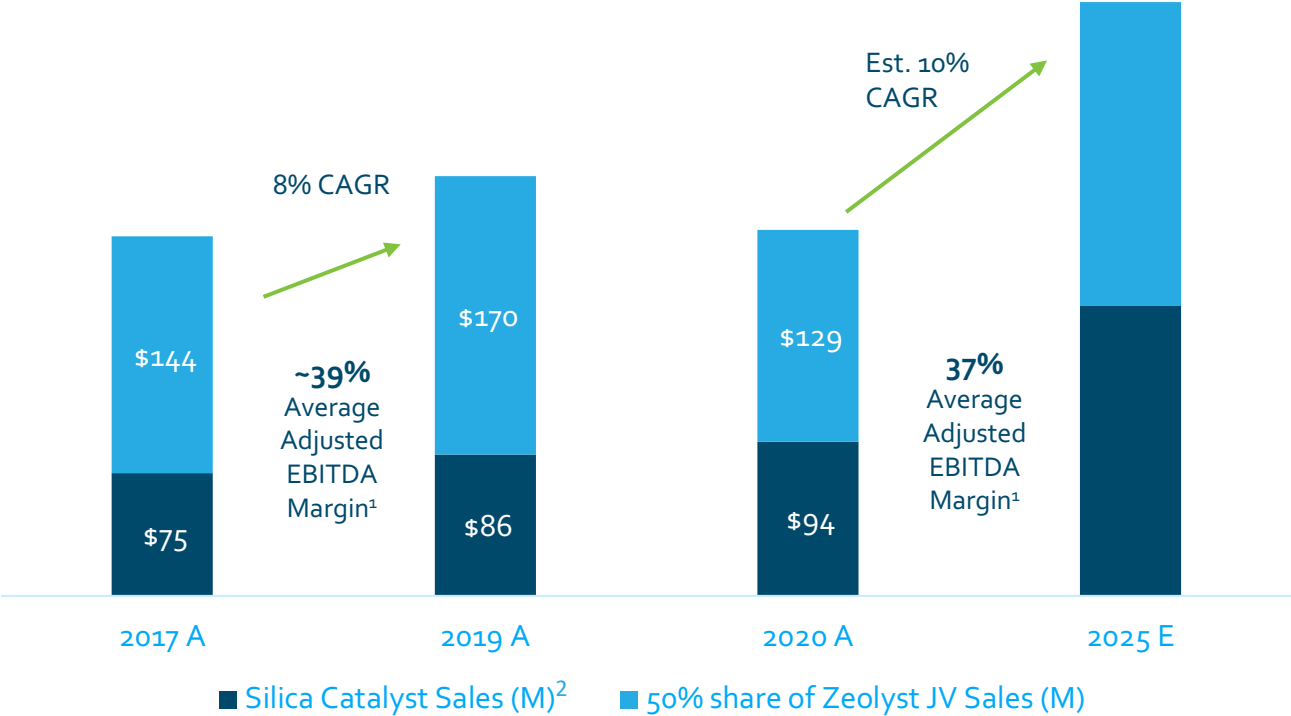
- 1 We enable our customers to develop and produce sustainable products
- 2 We provide technical support to customers from R&D through production
- 3 We are an operating and supply partner for our customers

Organic Growth Outlook

Growth Drivers

- 1 Preferred technology and increasing product offerings projected to drive >8% sales CAGR in each of our three segments through 2025
- 2 Restored manufacturing network efficiencies following 2020/2021 disruption expected to result in projected 15% Adjusted EBITDA CAGR through 2025
- 3 Upside potential from innovation pipeline and potential M&A

Organic Sales Growth Outlook



1 Adjusted EBITDA margin calculation includes proportionate 50% share of Zeolyst Joint Venture
2 Historically the Catalysts segment

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