

## Target PQ (ecovyst) Virtual Investor Conference: April 8, 2021

### RAY KOLBERG – INNOVATION & TECHNOLOGY

#### Slide 1: Introduction

- Hello everyone. My name is Ray Kolberg, Vice President of Technology and Business Development.
- I'm excited to be here today to discuss what has historically been and will continue to be the driving factor behind our success and the force multiplier for our future ambitions. I will give an overview of our innovation and technology development portfolio, processes and their relevance to the future industry drivers.

#### Slide 2: Key Takeaways

First, I would like to stress three important takeaways from my presentation today:

- We collaborate with customers to develop and produce sustainable products that are increasing in demand.
- We are with our customers at every stage – from the laboratory to full production scale.
- We take a structured approach to our innovation, and enjoy an innovation pipeline that is both rich and relevant addressing the shifting industry drivers in order to deliver value creation.

#### Slide 3: Innovation Ecosystem

- Let me elaborate further. We have an in-depth product development and science competency, allowing us to both tailor and scale specialty catalysts to meet changing demands. We have instituted a disciplined innovation process to reduce time to market, which has allowed us to build a rich and

relevant product development pipeline to drive new growth. Our technology investments have positioned us well to be leaders in developing novel catalysts that address unmet needs across a broad customer base.

#### **Slide 4: Extensive Capabilities Driving Growth**

- We have extensive R&D capabilities to drive growth. We develop our novel catalysts in Conshohocken, Pennsylvania, and in Warrington in the UK. In addition, we collaborate with other world-class scientists at Shell's technology centers, through our Zeolyst joint venture, to develop novel refining catalysts and this is all done in close collaboration with our customers' research and development groups.
- Through our approaches, we develop unique, fit-for-purpose catalysts solutions. Our innovation investments have given us extensive pilot plant capabilities and technical support to help us partner with customers through every step of the development process.
- In addition, we offer strong technical service and support, especially through our Ecoservices business.

#### **Slide 5: Balanced Development Portfolio Approach**

- I'd like to take you through our balanced development portfolio approach, which blends the needs of current and new customers as well as current and new product and technology offerings.
- We use a market-focused approach to expand into new markets with derivatives of existing materials. We also use a technology-focused approach on new products to meet the changing demands of existing customers and a step-out business focus to selectively create new novel catalysts that position us to expand into market adjacencies.
- For example, our competency in sulfuric acid allows us to expand existing technology offerings to new markets like the electronics industry. We have created next-generation zeolite-based dewaxing catalysts with improved

performance for existing customers and have developed novel advanced ion exchange catalysts for a new market adjacency in metals removal & recovery.

### **Slide 6: Rich and Relevant Pipeline**

- Against this backdrop, we instill a structured innovation process that drives efficiencies from idea generation to commercialization.
- This stage-gated process has reduced the timeframe for novel catalysts platform development – which has historically taken five to ten years – to just two to four years. And we've been able to drive derivative products from existing platforms on average to less than one year. You can imagine what benefits that compression of time brings to our customers – with a matching value creation for investors.
- Now, I mentioned that we have a rich and relevant pipeline of new products. As you can see from the sample pipeline, we have a very active ideation process which aligns to the market drivers, our customer's challenges and other research and academia sources. This drives a healthy number of new products in varying stages of development. These relate to critical themes such as emission control, light weighting and improved performance of polyolefins, custom fit for purpose catalyst applications, renewable fuels and renewable materials.

### **Slide 7: A Peak into Some Active Innovation Projects**

- Our commitment to innovation is how we differentiate ourselves in the marketplace as we tailor catalysts to meet our customer's specific needs and support them in addressing their challenges. To illustrate some examples of those innovations, we're in the demonstration phase of a custom catalyst that enables the chemical recycling of mixed plastics. Our zeolite catalysts are especially adept at converting the mixed plastics streams into higher value carbons of shorter length while allowing lower energy consumption in the process.

- We are also in the pre-commercialization phase of introducing a novel catalyst for converting biomass into aviation fuel to support the sustainability goals of the airline industry. Proven processes like Fisher Tropsch gas to liquids is used which is enabled by our Silica Catalyst.
- And lastly, we are launching a new emission control catalyst that meets the regulations for China VI with improved processability. Our Zeolite catalysts are used to convert NOx to Nitrogen and are effective over a wide temperature range of the exhaust system to meet ever tightening regulations.

### **Slide 8: Impact on New Sustainable Solutions**

- This pipeline carries with it a very strong tie to sustainability. We continue to develop products that improve air quality through lower sulfur and NOx emission in fuels. We are focused on the development of catalysts that help make plastics stronger and lighter and enable the recycle of mixed plastics to complete the plastics circularity curve. We also enable higher alkylation for improved fuel economy and help transform biomass into biofuels and synthetic rubber for green tires.
- Sustainable products continue to become a larger part of our R&D investment. Our innovation investment ratio on new sustainable products has gone from 60% in 2015 to 80% in 2020, and we anticipate further advancement to 90% by 2025.

### **Slide 9: Key Takeaways**

- In conclusion, we have depth in product development and science competency to develop fit for purpose sustainable catalysts through close collaboration with our customers.
- Our extensive capabilities allow us to accelerate technology support from laboratory to production scale, and we are an operating and supply partner at every step of the journey.

- And finally, we have a structured innovation approach and process with a key focus on sustainability that has resulted in a rich and relevant pipeline for growth.
- Thanks for listening to our approach to innovation and technology. At this stage, I would like to introduce Mike Crews.