



# A dream comes true

Use of CO<sub>2</sub> for the production of plastics

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# Challenge: Saving our fossil resources

Use of carbon in the most productive way



- Chemical industry is dependent on the element carbon
- Current carbon source: fossil raw materials, such as oil
- 4% – 6% of global output is used for plastics production
- But oil reserves are finite and will be depleted in the long run

# Solution: Using CO<sub>2</sub> instead of oil

The waste gas a new raw material



- Chemical industry needs a broader and sustainable raw materials base
- Plant-based raw materials already in use
- CO<sub>2</sub> gaining importance as alternative carbon source
- Using CO<sub>2</sub> is technically very demanding, however

# Realization: Production launched

First products on the market



- First customers supplied with new product – cardyon™
- Production facility at Dormagen site near Cologne, Germany
- Production capacity: 5,000 metric tons per year
- CO<sub>2</sub> sourced as a waste product from adjacent chemical plant



# Impact on sustainability

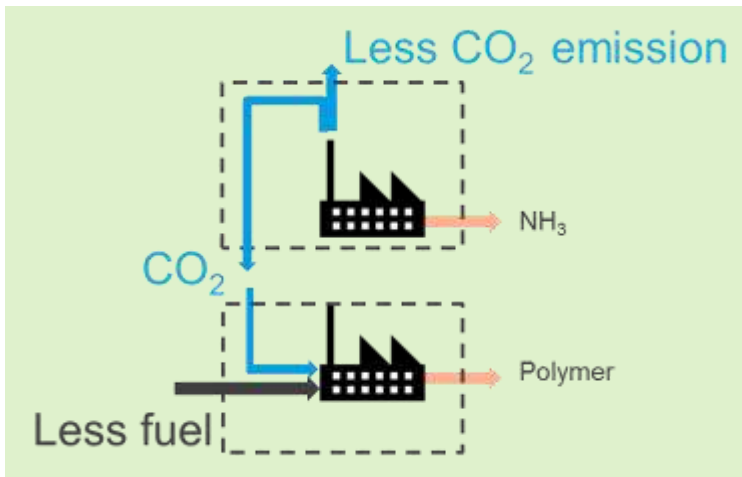
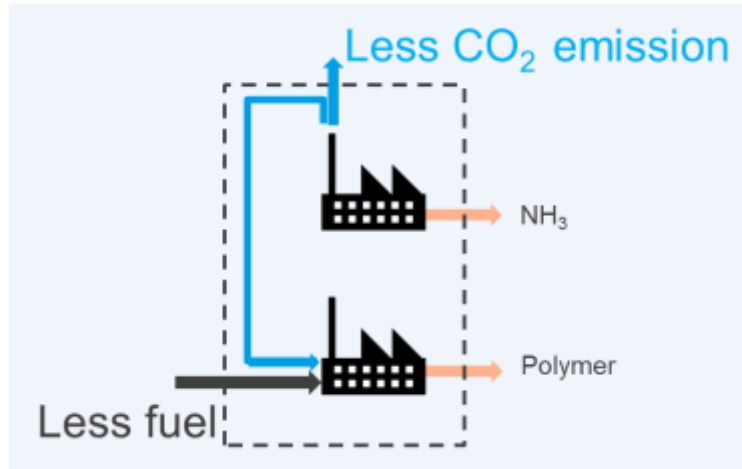
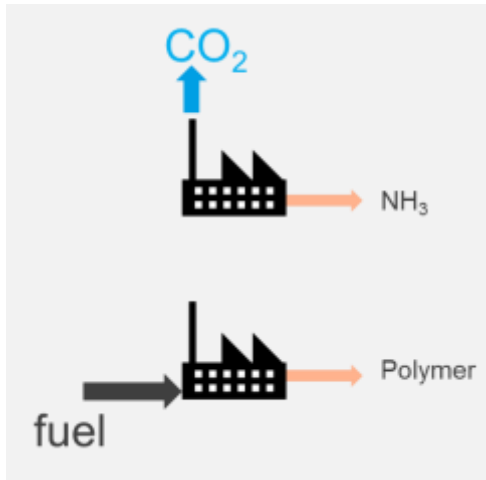
Conserve resources, promote circular economy



- Contributes to resource efficiency by saving petroleum-based raw materials
- Contributes to circular economy by returning CO<sub>2</sub> to the value chain
- Carbon footprint reduced compared with conventional polyol, but
- Value dependent on assumed impact of CO<sub>2</sub>

# Evaluate impact of CO<sub>2</sub>

## Methodology



- System expansion for global perspective sufficient
- Allocation needed for product perspective
- Evaluation of CO<sub>2</sub> as raw material leaves room for debate
- Intensive cooperation with academia and independent institutes



Thank you for your  
attention