

# Covestro Site Visit

Exane BNP Paribas Chemicals German Tour

Dormagen – September 7, 2016

### Forward-looking statements



This presentation may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG.

Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Covestro's public reports which are available on the Covestro website at <u>www.covestro.com</u>.

Covestro assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

### Covestro key investment highlights

Global leader in high-tech material solutions



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Leading and defendable global industry positions based on focused portfolio

- 2 Favorable industry dynamics with robust above GDP growth prospects in a diverse range of end-markets
  - Positioned to deliver volume growth

through well-invested, large-scale asset base with competitive cost position

- Portfolio including high-value CAS business with attractive and historically resilient margin profile
- 5 Attractive cash flow growth outlook underpinned by disciplined cost management

### Headed by experienced management with full commitment to value creation



### • Leading global polymer produ

- Leading global polymer producer in polyurethanes and its derivatives as well as polycarbonates
- Proven track record of process and product innovation, customer proximity as well as market-driven solutions

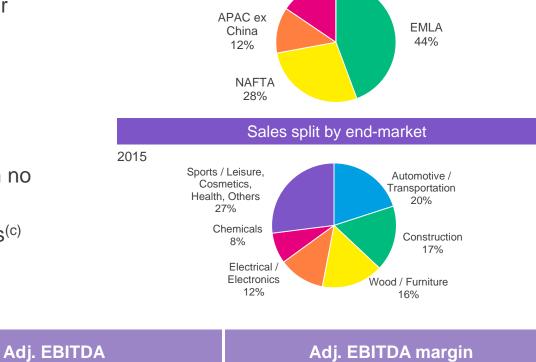
Inventor and leader in high-tech material solutions driven by global trends

- State-of-the-art asset base with leading process technology and total production capacity of 4,800kt<sup>(a)</sup> distributed across 8 worldscale production facilities in three main regions
- Backward-integration into chlorine, propylene oxide and other feedstock, aimed at sourcing critical raw materials internally with no or limited merchant market sales
- Headquartered in Leverkusen, Germany, with 15,750 employees<sup>(c)</sup> globally

Sales

2015 €12.1bn

# Covestro at a glance



China 16%

Sales split by geography(b)

2015 13.6%



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Covestro

key financials

2015 €1.6bn

2015

(b) Based on Covestro Annual Report 2015; EMLA = Europe, Middle East, Africa, Latin America (without Mexico); NAFTA = USA, Canada, Mexico; APAC = Asia, Pacific (c) Employees refers to full-time-equivalents (FTE), rounded to nearest 50

tes:

<sup>(</sup>a) Includes total nameplate capacity for PUR and PCS in 2015, rounded to nearest 100kt

### **Covestro business units**



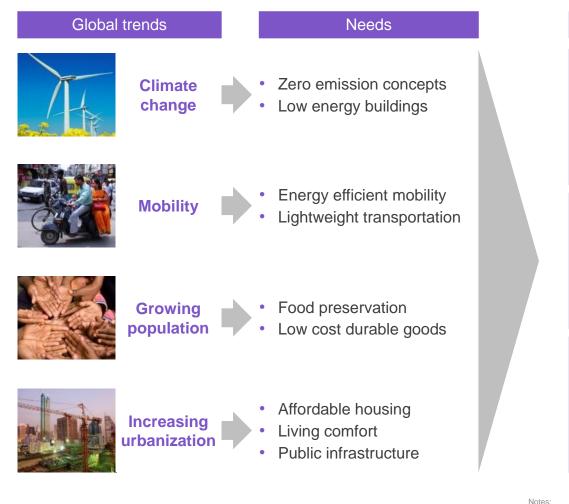
### Three industry-leading, structurally attractive business units

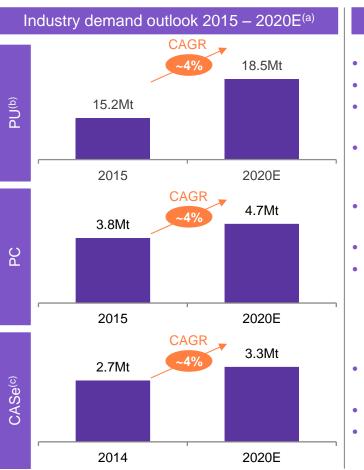
Business Units	Polyurethanes (PUR)	Polycarbonates (PCS)	Coatings, Adhesives, Specialties (CAS)
Global Position <sup>(a)</sup>	<ul> <li>Global #1 (3,470kt)</li> <li>MDI: #2 (1,420kt)</li> <li>TDI: #2 (720kt)</li> <li>Polyether polyols: #2 (1,330kt)</li> </ul>	Joint Global #1 (1,280kt) <ul> <li>EMEA: #2 (540kt)</li> <li>NAFTA: #2 (230kt)</li> <li>APAC: #2 (510kt)</li> </ul>	<ul> <li>Global #1:</li> <li>Aliphatic isocyanate derivatives</li> <li>Aromatic isocyanate derivatives</li> <li>Polyurethane dispersions</li> </ul>
Sales 2015	€6.1bn or 50% of Covestro	€3.2bn or 26% of Covestro	€2.1bn or 17% of Covestro
Adj. EBITDA Margin 2015	10.2%	17.7%	23.5%
Key Applications	Rigid foam:         • Building insulation         • Cold chain         • Automotive parts         Flexible foam:         • Furniture         • Bedding/mattresses	<ul> <li>Automotive parts</li> <li>IT and electrical equipment, electronics</li> <li>Construction (windows, roof structure)</li> <li>Consumer products, medical and other applications</li> </ul>	<ul> <li>Surface coatings</li> <li>Adhesives and sealants</li> <li>Elastomers</li> <li>Specialty films</li> </ul>
Key Applications	Furniture		

Notes: (a) Based on total nameplate capacity for PCS, MDI, TDI and Polyether polyols at year-end 2015 relative to competitors as per Covestro internal estimates; for PCS: joint global leader (SABIC is the other #1); based on entire polycarbonates nameplate capacity as per Covestro internal estimates; for CAS: based on total volume in 2015A relative to competitors as per Covestro internal estimates.

## Exposure to fundamental macro trends

Above GDP industry growth supported by global trends





#### **Covestro solutions**

- Building insulation
- Insulation along the cold chain
- Foam mattresses and comfort solutions
- Weight-saving car parts
- Lightweight materials for transportation
- Roofing and glazing for buildings
- Blends and composites for electronics / IT and consumer goods
- High performance surfaces and coatings
- High-tech films
- · Solvent-free coatings and adhesives

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(a) Assumes global GDP CAGR 2015 – 2020E of ~3%
 (b) Comprises MDI, TDI and polyether polyols

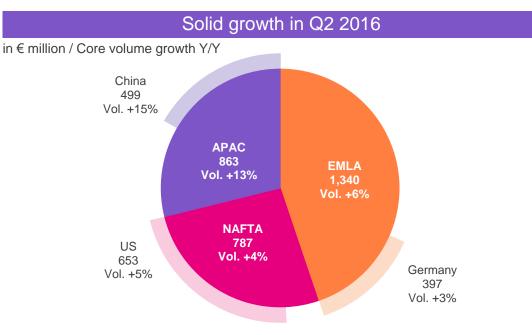
(c) Shows PU raw materials industry demand in coatings, adhesives and sealants

Source: Company information. CASe market: Orr & Boss 2014 & Covestro internal estimates with annual growth of 4% for 2015

# Q2 2016 and 6M 2016 – Sales per Region

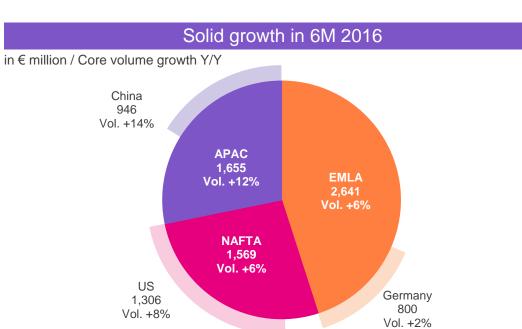
### Above-GDP volume growth in all regions





#### Q2 2016 Highlights

- Strong core volume growth of 7.7% Y/Y
- APAC and China with double-digit growth
- Growth accelerated in Germany
- US and NAFTA with slower sequential growth due to high comparison basis



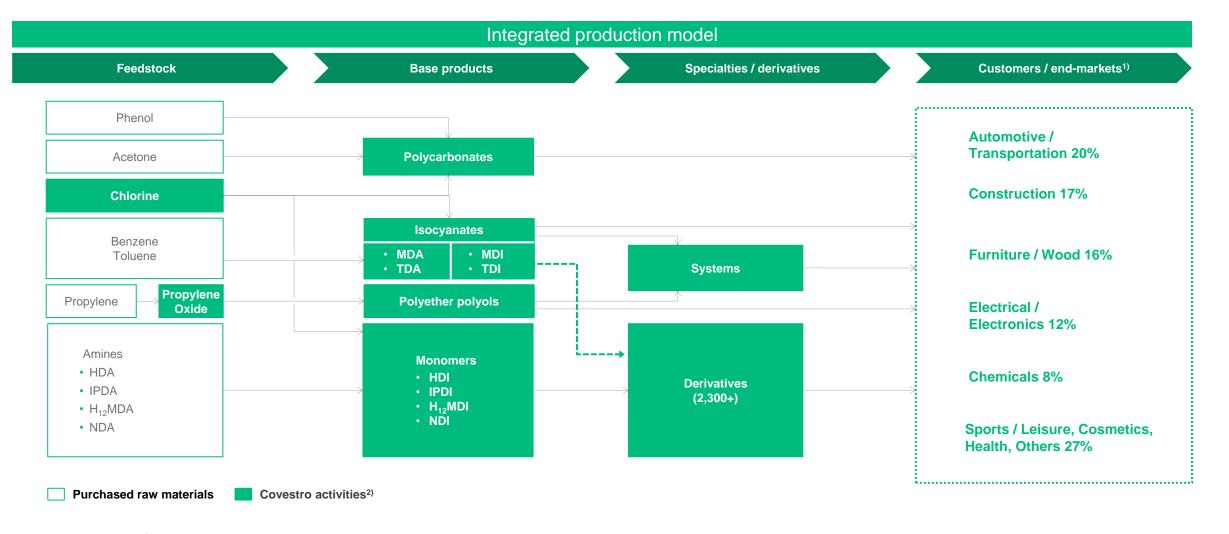
#### 6M 2016 Highlights

- Strong core volume growth of 8.1% Y/Y
- China remains a high growth market with 14% Y/Y
- Significant core volume growth in the US with 8% Y/Y
- Solid growth in EMLA

# A common chemical backbone across all segments

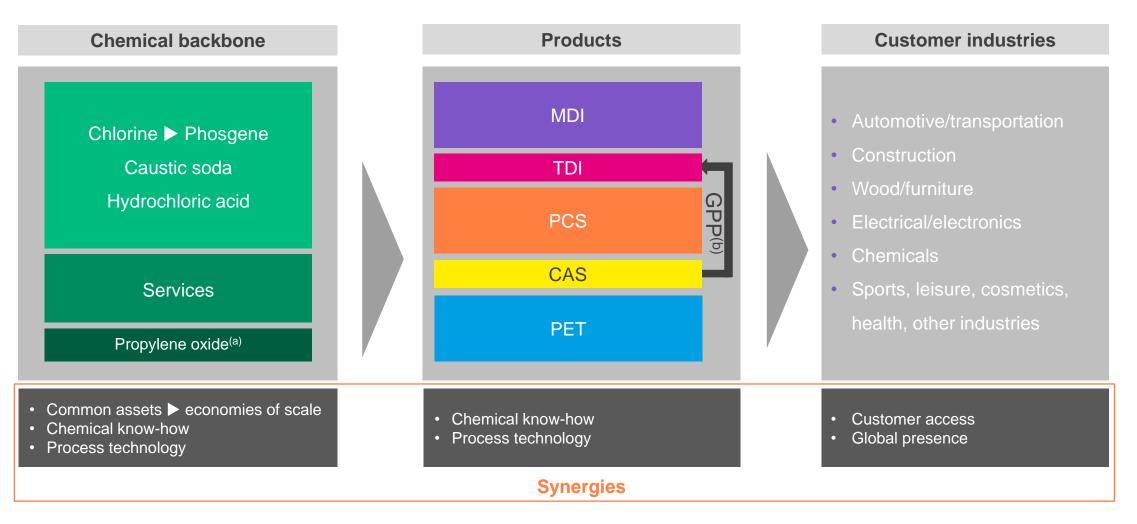
Significant synergies in scale, process technology and chemical know-how





# A common chemical backbone across all segments

Significant synergies in scale, process technology and chemical know-how



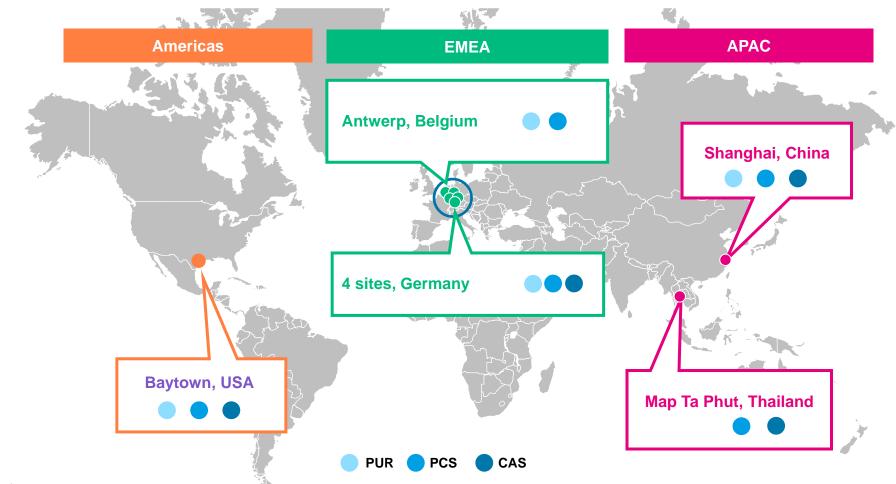


# A common chemical backbone across all segments

Significant synergies in scale, process technology and chemical know-how



Covestro operates 8 interlinked world-scale sites in all key regions



# Covestro NRW sites



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produced finished

products worth (2015)

~€3.5bn



Source: Google Map









#### At a glance

- Covestro Corporate Headquarters
- Various CAS production plants
- Chlorine capacity: 390kt
- Research labs and technical centers for PUR, PCS and CAS
- ~3,550 employees Covestro (converted to full-time equivalents)

### Site Leverkusen

Construction of a multipurpose plant for coating raw materials

Rising demand for high-performance polyurethane coatings

- Total investment: EUR 35 million
- Production of isocyanates HDI and IPDI efficient and flexible in line with customer demand
- Commissioned in January 2014









# Uerdingen site



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### Uerdingen site





#### At a glance

- History: silks and satins
- Polycarbonates capacity: 300kt
- Isocyanates (MDI) capacity: 200kt
- Chlorine capacity: 260kt
- ~ 1,000 employees Covestro (converted to full-time equivalents)

### Site Uerdingen

Oxygen depolarized cathode (ODC) for innovative chlorine production

#### **Facts and figures**

- Over 55% of sales in the chemical industry are based on chlorine chemistry
- Electricity saved by the new process: 30–50%
- Reduction in CO2 emissions: 10,000 tons per year

#### Successful technology transfer

- Installation at other Covestro chlorine production plants
- Expansion of own ODC production and global marketing to third parties
- Potential of ODC technology: if entire German chlorine production was converted to ODC, this would save approx. 1% of Germany's entire electric power requirement (equivalent to city of Cologne)

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ODC technology: important contribution to climate protection





# Dormagen site

CANCELLE MALE

covestro

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### At a glance

- Headquarters of NRW site management and largest NRW site by area: 24 hectars
- Isocyanates (TDI) capacity: 250kt
- Polyols capacity: 250kt
- Various CAS production plants and Specialty Films production
- Chlorine capacity: 480kt
- ~ 1,400 employees in Covestro (converted to full-time equivalents)

# Polyether polyols process technology development



Cost leadership through proprietary IMPACT technology and next generation CO2-based polyols

IMPACT catalysts for efficient polyether polyol production





- Start-up in 2003A (Dormagen)
- Covestro able to run continuous production of polyether polyols through IMPACT technology
- Highly efficient catalyst
- -10 tonnes sufficient to produce c. 400kt of polyether polyols
- -ecological and economic benefits
- Successfully out-licensed to major polyether polyols producers

Carbon dioxide as raw material for polyols production

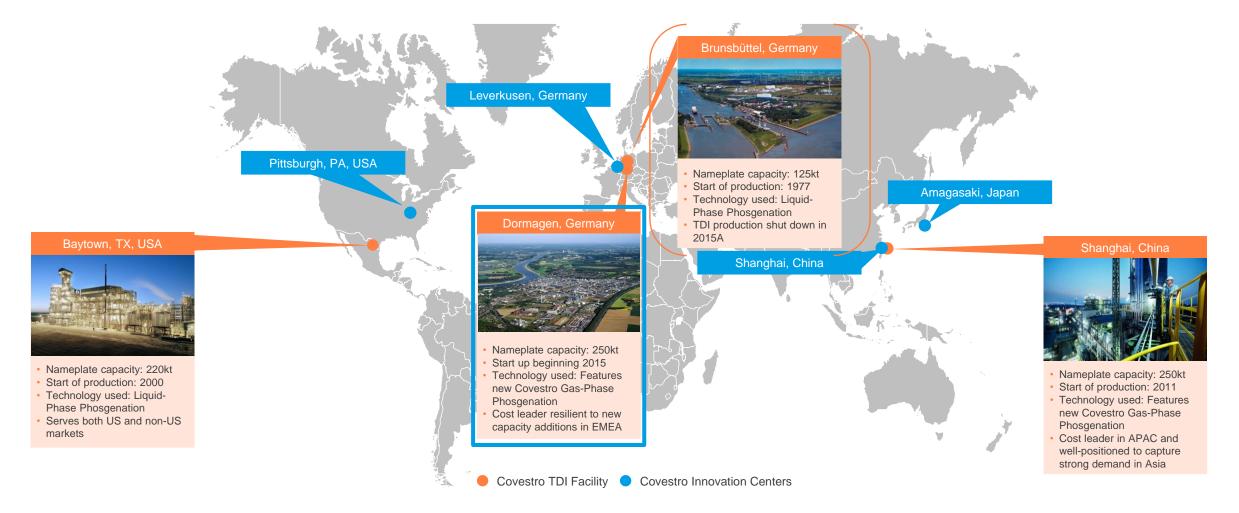


- New technology to co-polymerize CO<sub>2</sub>
- Overcomes key industry challenges and provides superior technology in core of polyurethanes
- reduced carbon footprint
- replaces petrochemicals
- improves performance of end-products
- Potential to revolutionize industry
- New polyurethane foams have been intensively tested, properties are at least as good as those of conventional materials
- New 5,000 tpa line at the Dormagen site inaugurated in 2016
- Market launch in 2016E with first end-consumer products: mattresses
- Driver of polyether polyols growth in mid-term

## **Global TDI operations**

Ongoing European efficiency program to further enhance quality of existing world class assets

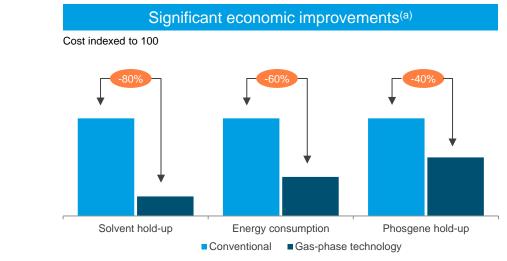




# Proprietary gas-phase production technology sets industry standards in efficiency and sustainability

**TDI** process technology





#### Key benefits of gas-phase technology for TDI

- Major source of competitive advantage and cost leadership position in TDI
- ✓ Lower energy consumption vs. liquid phase technology
- Shorter reaction time vs. conventional processes with significantly higher throughput

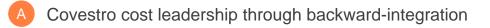
#### Innovative gas-phase technology for TDI



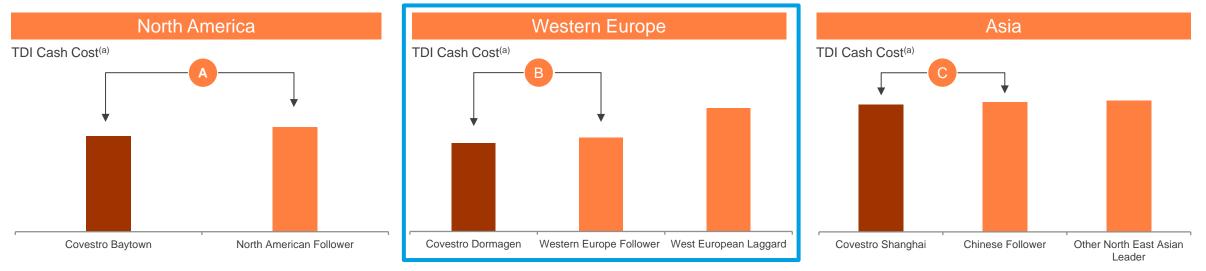
- TDA and phosgene heated
- Subsequently transferred in a gaseous form to the
- Condensed to a liquid and distilled to yield purified TDI with recovered solvent and phosgene
- First introduced in 2011A
- Shanghai facility first to implement gas-phase in full scale
  - Applied in all Covestro facilities in regions with high energy costs (EMLA & APAC) from 2015E

How it works

Status



- Covestro advantages from superior process technology
- Raw material integration and process technology advantages driving superior cost position for Covestro



# TDI regional industry cost curve

### Combination of scale, integration and technology provides global cost leadership



### Dormagen site tour



