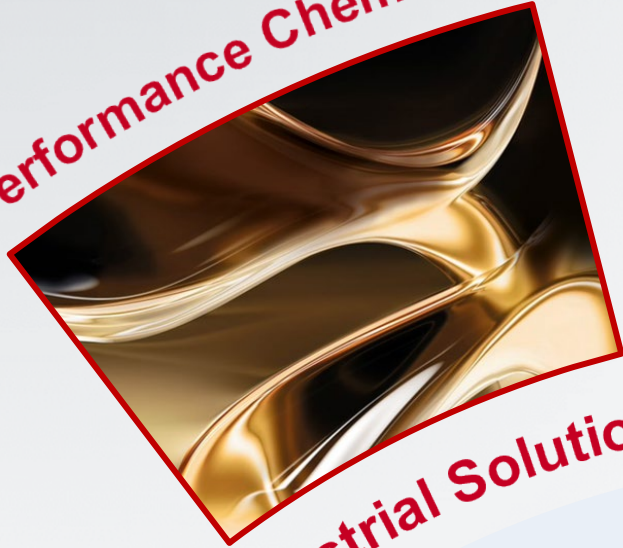


Performance Chemicals



Industrial Solutions



We create chemistry

# Performance Chemicals

Thomas Kloster

President, Performance Chemicals division

BASF Capital Markets Day, March 26, 2021

# Cautionary note regarding forward-looking statements

*This presentation contains forward-looking statements. These statements are based on current estimates and projections of the Board of Executive Directors and currently available information. Forward-looking statements are not guarantees of the future developments and results outlined therein. These are dependent on a number of factors; they involve various risks and uncertainties; and they are based on assumptions that may not prove to be accurate. Such risk factors include those discussed in Opportunities and Risks on pages 158 to 166 of the BASF Report 2020. BASF does not assume any obligation to update the forward-looking statements contained in this presentation above and beyond the legal requirements.*

# Sustainability and digitalization drive transformation in our industries



Emissions reduction

- Improved **fuel economy** and (electric and fuel cell-based) **alternative powertrain** concepts
- Reduced **carbon** and **NO<sub>x</sub> emissions**
- More stringent **emissions reduction** in **marine transportation**



Resource efficiency

- More **efficient water** and **land management**
- **Higher recovery** of **ores** and **energy sources** with lower environmental impact
- Extended product **durability** and **life**



Circular economy

- **Circularity** in **plastics** and other chemical value chains
- Increased use of **renewable resources** and **feedstock**



Digitalization

- **Chemical applications** combined with **digital technology**
- Use of **digital technologies** to **improve efficiency**
- More **digitally enabled collaboration**

# Performance Chemicals: Leading market position in attractive customer industries



## Main applications

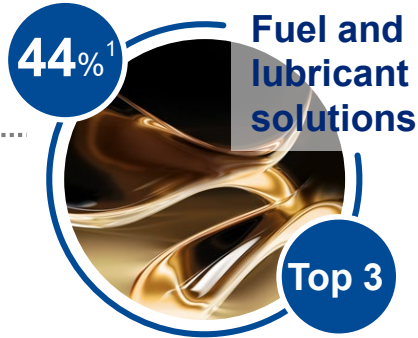
- Plastics in packaging, agriculture, automotive, construction, electronics

## Main products

- Antioxidants
- Light stabilizers
- Customer-specific blends

## Key customer examples

- Exxon, Sabic, LyondellBasell



## Main applications

- Transportation
- Mineral oil

## Main products

- Mineral oil additives
- Automotive fluids
- Polyisobutylenes
- Lubricant components
- Lubricant formulations

## Key customer examples

- Lubrizol, VW, Shell



## Main applications

- Mining and ore processing

## Main products

- Additives and agents for leaching and solvent extraction
- Solid-liquid separation
- Flotation

## Key customer examples

- Glencore, BHP



## Main applications

- Oil and gas

## Main products

- Additives and agents for drilling, stimulation, cementing, production and enhanced oil recovery

## Key customer examples

- Schlumberger, Halliburton



## Main applications

- Coatings, paper, plastics, automotive, agriculture

## Main products

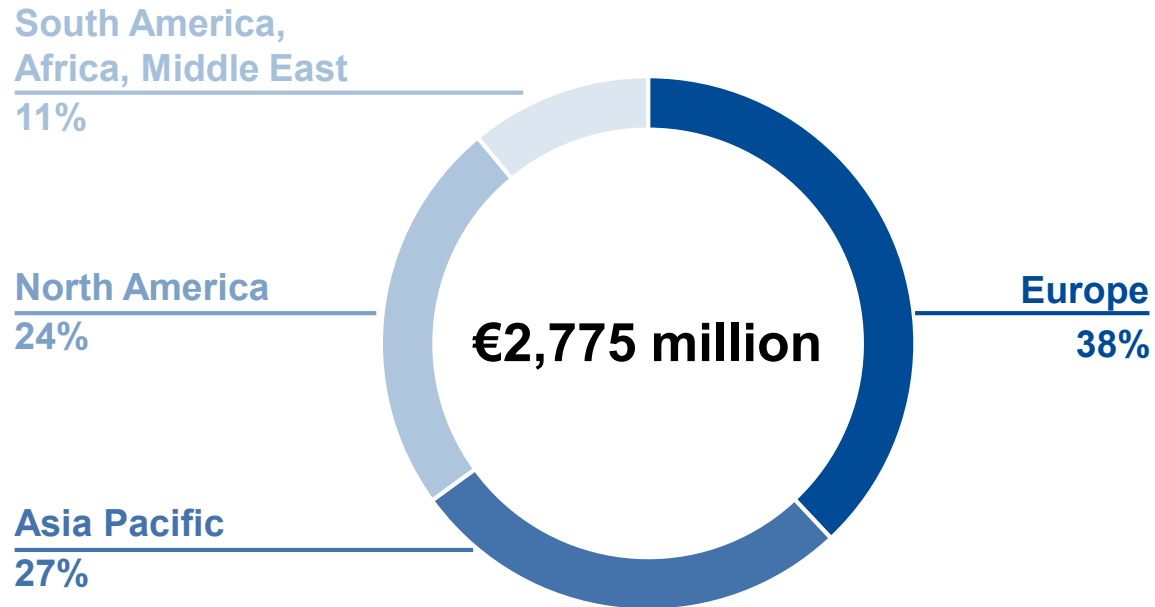
- Industrial performance minerals (calcined and hydrous kaolin)

## Key customer examples

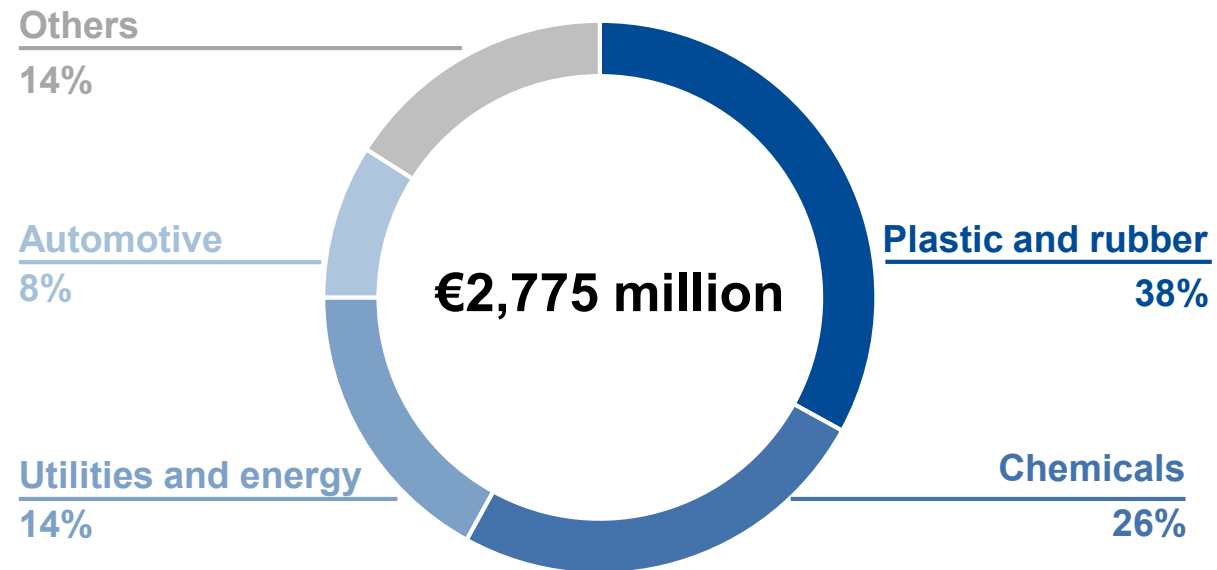
- Corning, Hansol

# Regionally balanced portfolio serving different industries across all regions

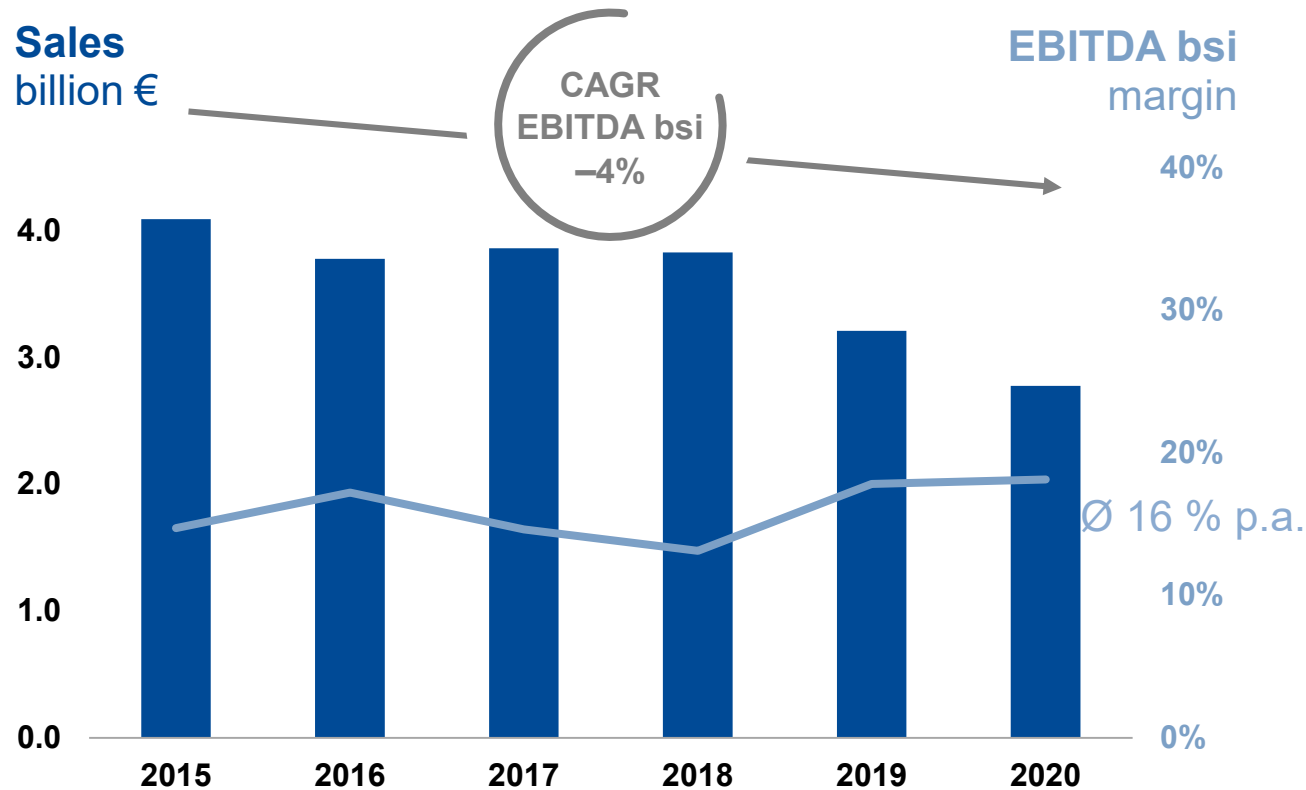
Sales by region<sup>1</sup> 2020  
billion €



Sales by direct customer industry 2020  
billion €



# Portfolio measures drive improved EBITDA bsi margin and decline in net sales



- Portfolio and excellence measures drive EBITDA margin improvement

Average margins

- ▶ 2015–2018: **15%**
- ▶ 2019–2020 : **18%**

- Net sales decline mainly due to **divestitures of non-core business activities**

- ▶ 2015: Textile chemicals
- ▶ 2017: Leather chemicals
- ▶ 2019: Paper and water chemicals, ultrafiltration membrane business

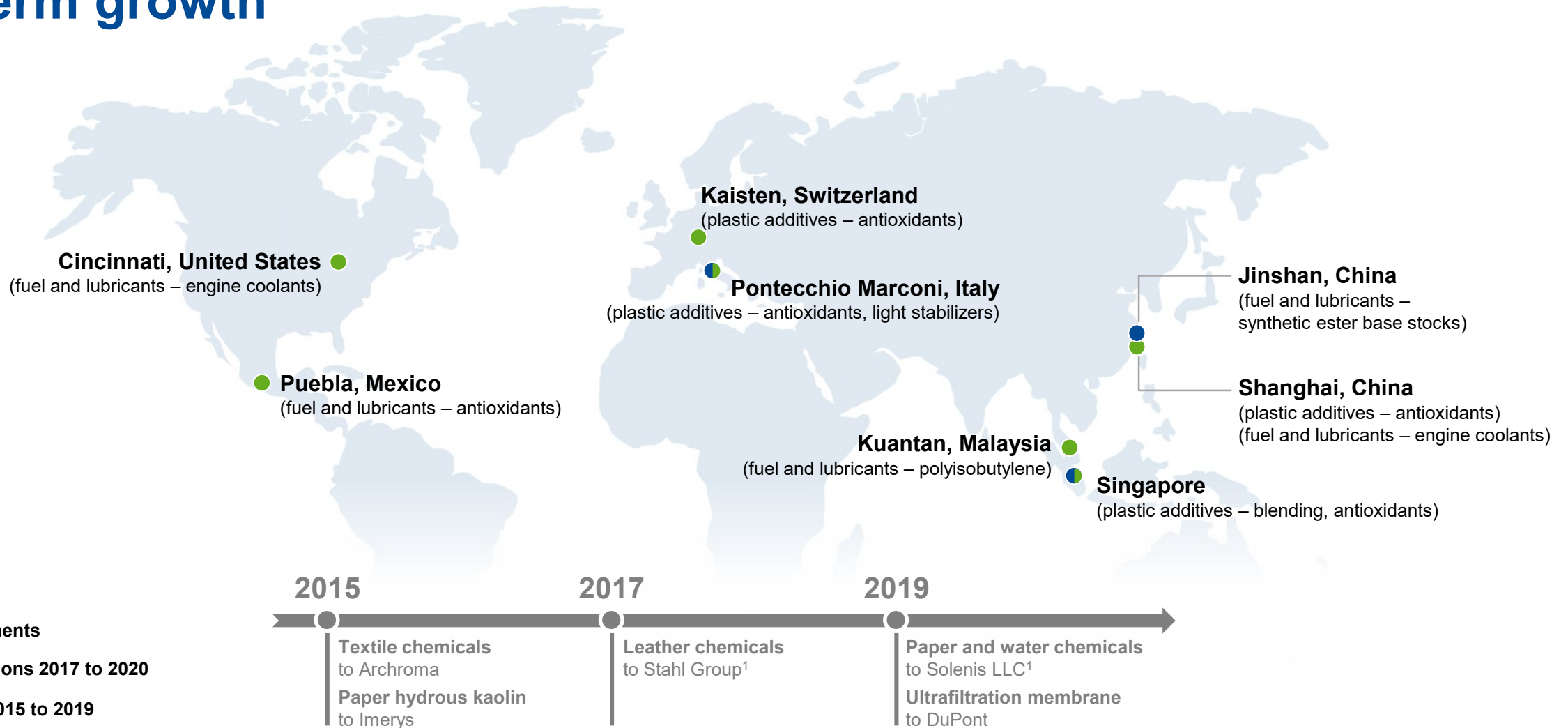
- Volume growth of 2.8% p.a. in core businesses** between 2015 and 2019

- Volume development of **-5.4%** in **2020** due to the pandemic

# Performance Chemicals' global footprint



# We invest selectively while managing our portfolio for profitable long-term growth



- Future investments
- Capacity additions 2017 to 2020
- Divestments 2015 to 2019

<sup>1</sup> Businesses combined to capture global market leading position in target industries, BASF holds minority interest (49% in Solenis LLC, 16% in Stahl Group)



# We strive for profitable growth through customer focus, efficient operations and sustainable innovations

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## Sustainability

Enabling transformation toward a circular economy, emissions reduction and resource efficiency

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## Innovation

Creating value with industry expertise to improve cost to performance ratio

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## Digitalization

Leveraging chemistry know-how with digital technologies for new service-based business models

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## Asia Pacific

Investing for growth

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## Collaboration

Providing innovative solutions in partnership with key customers

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# Sustainability goals drive growth: Enabling transformation in end markets



## Emissions reduction

- Improved fuel economy and lower CO<sub>2</sub> emissions through new-generation fuel performance packages
- Coolants and brake fluids for electric and fuel cell vehicles
- Reduced NO<sub>x</sub> emissions of marine diesel engines through high-performance additives



## Resource efficiency

- Chemicals to enable more efficient water usage and improved land recovery in mining
- Higher ore recovery with less chemical usage; biodegradable products for offshore oil recovery
- Additives enabling extended durability and life of high-performance plastics



## Circular economy

- Additives to improve mechanical recycling of plastics
- Use of renewable resources with biomass balance products
- New business models enabling recycling of products



# Mechanical recycling is a fast-growing market enabled by innovative plastic additives

Mechanically recycled plastics globally  
million metric tons



## Addressing specific issues in mechanical plastics recycling through additive packages:

- **Stability:** Protection from oxidative damage
- **Quality:** Enhanced mechanical and optical properties

## Collaborating across a network of partners to enable prototyping and launch:

- Recyclers
- Manufacturers
- Brand owners and retailers

# Our innovation engine is fueled by our chemical and application know-how, in combination with customer collaboration

## Joint developments with customers and industry partners

- Trusted development partner for customers
- Deep collaboration relationship with key accounts
- Long-standing cooperation with industry partners and academia

## R&D capabilities

- Chemical and formulation expertise and process innovation
- Industry application know-how and test centers in all regions
- Digitalization and data science for increased efficiency

## Expert network

- Global R&D community with dedicated technology platforms
- Renowned industry experts
- Global technical marketing and sales teams

**Plastic additives**

**Light and heat stabilizers**

**Fuel and lubricant solutions**

**Next generation of premium fuel performance packages**

**Mining solutions**

**Technology for copper heap and dump leach processes**

**Oilfield chemicals**

**Hyperbranched paraffin inhibitors**

# Innovating to serve the needs of the fast-growing e-mobility market

**Electric powertrain**  
Components for lubricants

**HVAC housing**  
Long term thermal stabilizers

**Instrument panel**  
Light stabilizers

**Driveline**  
Axle and transmission lubricants

**Battery packs**  
Coolants for thermal management and power supply

**Bumper**  
Process stabilizers

**Brake system**  
Brake fluids



- BASF coolants business with major BEV OEMs, approvals and recommendations for major electric vehicle models

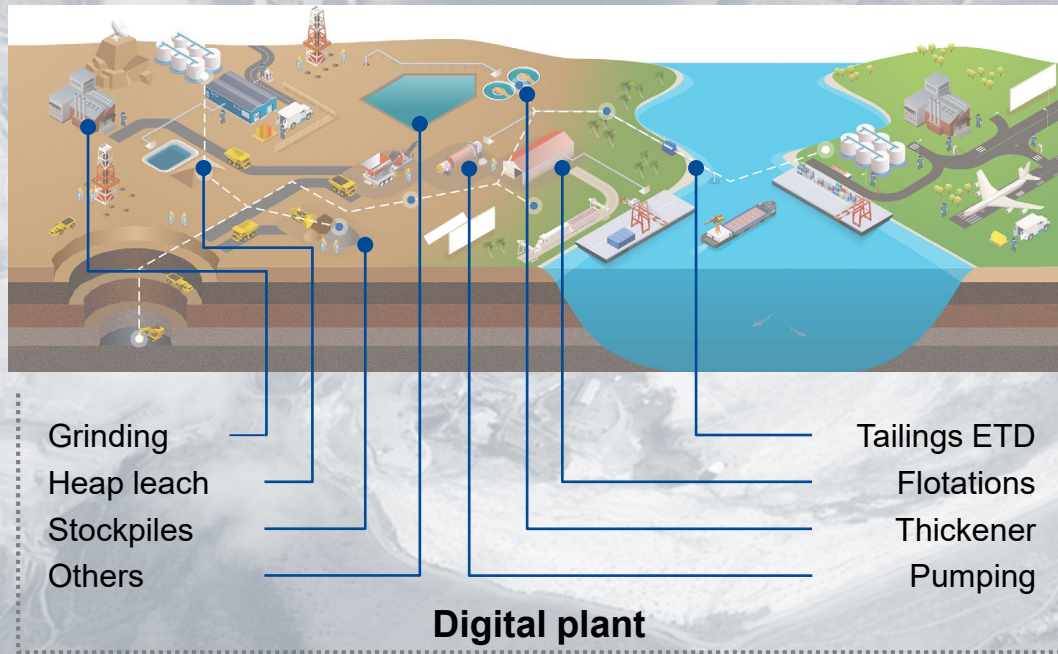
- Cooperation with OEM partners for new coolant concepts for efficient battery and fuel cell thermal management

- Lubricant products for e-mobility with improved viscosity, electrical conductivity and corrosion inhibition

- Low viscosity DOT 4 brake fluid, designed for modern braking systems with electronic control systems

# We are leveraging our chemical know-how with digital technologies to build new businesses and growth fields

## BASF Intelligent Mine: Partnership with IntelliSense.io



Artificial intelligence  
digital expertise



Chemistry and mineral  
process expertise

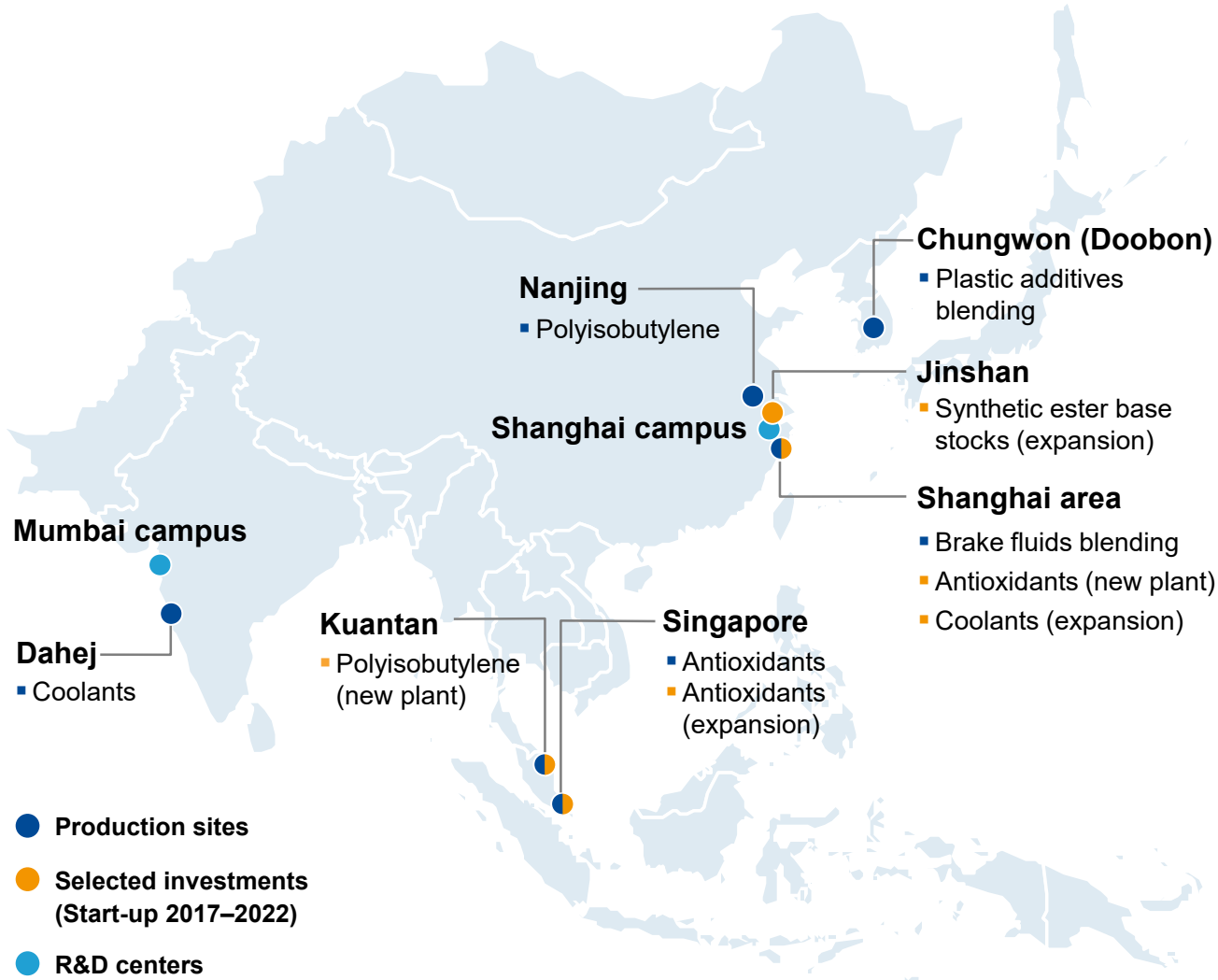


Combination of unique chemical and process expertise and trusted artificial intelligence models enables:

- Increased efficiency and safety through smart and real-time decision making at mines
- Improved sustainability through better recovery, optimized dosing of chemicals and lower water usage
- Process optimization across the full beneficiation process, from pilot to port

> New service-based revenue stream for BASF leveraging complementary industry expertise

# We are investing for growth in Asia



## Continually expanding capabilities and capacities to capture growth in Asia Pacific

- 7 major sites and plants to serve the Asian market
- Main application center in Shanghai with additional leverage of local BASF R&D network
- More than 700 employees, including ~150 technical marketing and sales experts
- More than 60% of overall growth capital spent in Asia (2015–2019)

# Brake fluids with Hydraulan®: High-performance fluids for next-generation brake systems

## Top German automotive customer

### Need: next-level requirements for new brake systems

- New brake fluids required to fulfil needs of sophisticated brake systems with outstanding safety performance
- Global supply security to minimize disruptions in production plants and brake fluid change workshops



### Capability: high-performance product and application know-how

- Only product to fully comply with requirements for next-generation braking systems (DOT4 Class 6)
- Deep understanding of product application and customer requirements
- Know-how to cooperate in complex automotive supply chains with third-party suppliers

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# We are well positioned to continue to grow profitably

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## Sustainability

Product solutions and services that enable emission reductions, higher resource efficiency and a circular economy

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## Innovation

Deep chemical and application know-how with industry-relevant expertise and customer collaboration

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## Digitalization

New businesses and growth fields, leveraging chemical know-how with digital technologies

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## Asia Pacific

Ongoing expansion of our capabilities and capacities to capture growth in Asia Pacific

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## Collaboration

Close collaboration with leading industry players to set new standards in the market

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