Industrial Solutions

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Member of the Board of Executive Directors
BASF Capital Markets Day, March 26, 2021
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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.
Industrial Solutions – focus, integration and customer value

**Broad portfolio** highly relevant to **specific customer industries**

**Enabling resource efficiency and sustainability** in customers’ applications

**Superior customer value through deep application expertise** and chemical know-how

**Strongly integrated in BASF Verbund via multiple value chains**
### Each segment has a clear and compelling path forward

<table>
<thead>
<tr>
<th></th>
<th>Chemicals</th>
<th>Materials</th>
<th>Industrial Solutions</th>
<th>Surface Technologies</th>
<th>Nutrition &amp; Care</th>
<th>Agricultural Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of sales 2020(^1)</td>
<td>14%</td>
<td>18%</td>
<td>13%</td>
<td>28%</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>EBITDA bsi 2020(^1)</td>
<td>1.3 billion</td>
<td>€1.7 billion</td>
<td>€1.2 billion</td>
<td>€1.0 billion</td>
<td>€1.2 billion</td>
<td>€1.7 billion</td>
</tr>
<tr>
<td>Core theme</td>
<td>Verbund</td>
<td>Advanced materials</td>
<td>Additives platform</td>
<td>Surface modification platform</td>
<td>Consumer ingredients</td>
<td>Integrated offering of crop protection, seeds &amp; traits, digital solutions</td>
</tr>
<tr>
<td>Innovation focus</td>
<td>Improved or new processes</td>
<td>Applications, biomaterials</td>
<td>Formulations</td>
<td>Battery materials, surface effects</td>
<td>Biotechnology, formulations</td>
<td>Crop protection, seeds &amp; traits, digital farming</td>
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<tr>
<td>Capex relevance</td>
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<tr>
<td>M&amp;A relevance</td>
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<tr>
<td>Sustainability</td>
<td>ChemCycling(^\text{TM})</td>
<td>Bio-based materials</td>
<td>More from less</td>
<td>Low-emission mobility</td>
<td>Bio-based and natural, traceability</td>
<td>Better with less</td>
</tr>
</tbody>
</table>

\(^1\) Other (sales 2020: €2.4 billion, EBITDA bsi 2020: –€609 million) not depicted on this slide
Industrial Solutions: Our sales split at a glance

Sales by region\(^1\) 2020

- South America, Africa, Middle East: 7%
- North America: 25%
- Asia Pacific: 30%
- Europe: 38%

Sales by division 2020

- Performance Chemicals: 36%
- Dispersions & Pigments: 64%
Industrial Solutions is a stable earnings contributor and cash generator for BASF

Sales in billion €

- CAGR: Ø 14% p.a.
- EBITDA bsi margin %: 13%
- ROCE %: 16%

Sales and EBITDA bsi for BASF Group and Industrial Solutions from 2015 to 2020.

- 2020 Sales: 59.1 billion €, EBITDA bsi: 7.4 billion €
- R&D expenses: 2.1 billion €, CAGR: Ø 11% p.a.
- Planned capex for 2021 to 2025: 22.9 billion €, CAGR: 4%
Value-optimizing exits have focused the portfolio and improved profitability

Textile chemicals
- Sold to Archroma Textiles S.à.r.l., Luxembourg
- Sales in 2014: €195 million
- Transaction closed June 2015

Leather chemicals
- Transferred to Stahl Group¹
- Pro forma sales 2016: €850 million
- Transaction closed October 2017
- Target: full exit
- Pischelsdorf site (dispersions)
- Kankakee site (resins)
- Photoinitiators business (additives)

Paper and water chemicals
- 51% stake divested to Solenis
- Pro forma sales 2017: €2,400 million
- Transaction closed January 2019
- Target: full exit
- Pischelsdorf site (dispersions)
- Ultrafiltration membrane business

Pro forma impact of divestitures (average 2015–2020)
- ~1 p.p. higher EBITDA bsi margin
- ~3 p.p. higher CAGR EBITDA bsi
- ~2 p.p. higher ROCE

2015
- Kankakee site (resins)
- Photoinitiators business (additives)

2017
- Pischelsdorf site (dispersions)

2019
- Micronal PCM business

2021
- Ultrafiltration membrane business

Pigments
- Business carved out since July 2016 to facilitate focus and optimization
- BASF and DIC reached an agreement on the acquisition of BASF’s pigments business in August 2019
- Sales 2018: ~€1,000 million
- Transaction expected to close in H1 2021, subject to the approval of the U.S. competition authorities

¹ BASF received a minority stake of 16% in Stahl Group
Dispersions & Pigments: Our products add value to multiple industrial applications

**Main applications**
- Adhesives
- Architectural, construction, paper coatings
- Nonwovens

**Key customer examples**
- Behr, Sika

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**Dispersions**

#1

- 51% of sales
- Automotive, industrial coatings
- Furniture and flooring
- Printing and packaging

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**Resins**

#3

- 17% of sales
- Automotive, industrial coatings
- Furniture and flooring
- Printing and packaging

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**Additives**

#3

- 13% of sales
- Adhesives
- Architectural, paper, industrial, automotive and wood coatings
- Printing and packaging

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**Electronic materials**

#4

- 18% of sales
- No. 1 position in ultra-pure materials for semiconductors
- Displays
- Metal powder injection molding

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**Key materials for multiple industries, but predominantly serving the coatings industry**

Key materials for multiple industries, but predominantly serving the coatings industry

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Performance Chemicals: Leading market position in attractive customer industries

**Main applications**
- **Plastics in packaging, agriculture, automotive, construction, electronics**
- **Transportation**
- **Mineral oil**
- **Mining and ore processing**
- **Oil and gas**
- **Coatings, paper, plastics, automotive, agriculture**

**Main products**
- **Antioxidants**
- **Light stabilizers**
- **Customer-specific blends**
- **Mineral oil additives**
- **Automotive fluids**
- **Polyisobutlenes**
- **Lubricant components**
- **Lubricant formulations**
- **Additives and agents for leaching and solvent extraction**
- **Solid-liquid separation**
- **Flotation**
- **Additives and agents for drilling, stimulation, cementing, production and enhanced oil recovery**

**Key customer examples**
- **Exxon, Sabic, LyondellBasell**
- **Lubrizol, VW, Shell**
- **Glencore, BHP**
- **Schlumberger, Halliburton**
- **Corning, Hansol**

1 Percentage of Performance Chemicals division sales 2020

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BASF Capital Markets Day, March 26, 2021 | Industrial Solutions
Industrial Solutions is an integral part of the Verbund

- C3 acrylic acid chain
- C2 ethylene oxide chain
- Oxo-C4 value chain
- Aromatics styrene monomers chain
- Others

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36% Internal sourcing

- Coatings
- Performance Materials
- Care Chemicals
- Others

6% Internal sales
Strong Verbund integration – adding value for BASF

- Approximately 90% of C3 raw materials for dispersions products are sourced from BASF or its joint ventures.
- Dispersions are the highest value outlet for BASF’s C3 value chain.
- Approximately 85% of the fuel additive and PIB business is based on BASF’s C4 value chain.
- Fuel and lubricant solutions account for approximately 65% of BASF’s isobutene production in Europe.


- Petrochemicals
- Dispersions & Pigments
- Performance Chemicals
Catering to trends and demands in multiple industries

- Additives to improve mechanical recycling of plastics
- Dispersions and additives for low-VOC\(^1\) and low-odor coatings
- Waterborne/biodegradable adhesives and polymers

- Additives to reduce fuel consumption
- Products that enable higher yields in the mining industry
- Antioxidants and light stabilizers for more durable plastics
- Electronic chemicals for increased process and device speed

- Efficient interfaces for joint development of products and formulations
- Example: Intelligent Mine, a combination of chemical and process expertise with artificial intelligence models

Environmentally friendly industrial products
Efficient use of resources and reduction of waste
Digitalization and new business models

\(^1\) Volatile organic compounds
Acronal® 6292: Converting challenges into solutions

- Acronal® 6292 is a styrene-acrylic binder, containing low volatile organic compounds. Its increased pigment binding power makes it a cost-competitive alternative to vinyl acetate ethylene emulsions.

- A biomass balance version, Acronal® MB 6492 from renewable feedstock uses less fossil-based resources and reduces the carbon footprint by up to 90% with no change in performance or customer formulation.

- Acronal® 6292 facilitates the manufacture of biocide-free paints tested and certified by independent agencies.

- Paints based on Acronal® 6292 provide superior indoor air quality. They are a growing part of product portfolios of major paint manufacturers.

- The use of Acronal® 6292 provides a broad latitude for paint formulations.

High hiding power

Excellent scrub resistance

Low-odor

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

BASF Intelligent Mine: Partnership with IntelliSense.io

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
Customer proximity and deep application know-how drive sustainable solutions

- More than 15 major R&D sites and technology centers
- Networked technical expertise and industry know-how
- Joint development and collaboration with strategic customers and external institutions
- Customer-driven product development
- Performance enhancements by combining product development, technical service and data harvesting
- Digital tools to enable efficiency and accelerate time to market
- New formulations and components
- New business models
Industrial Solutions – our ambition for sustainable growth

- 2–4% organic volume growth p.a.
- 14–17% EBITDA bsi margin
- >14% ROCE

- Serve selected industry segments with an optimized portfolio and high customer relevance
- Build on customer proximity and deep application know-how to meet emerging customer needs
- Realize new business opportunities with resource-efficient solutions and new business models
- Focus on cash generation and ROCE
Industrial Solutions – Broad range of products for many different industrial applications

<table>
<thead>
<tr>
<th>Divisions</th>
<th>BASF’s offering for our customers</th>
<th>Financial figures billion €</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispersions &amp; Pigments</td>
<td>- Dispersions</td>
<td>Sales</td>
<td>9.1</td>
<td>8.4</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>- Resins</td>
<td>of which Dispersions &amp; Pigments</td>
<td>5.3</td>
<td>5.2</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>- Additives</td>
<td>Performance Chemicals</td>
<td>3.8</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>- Electronic materials</td>
<td>EBITDA bsi</td>
<td>1.1</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>- Pigments&lt;sup&gt;1&lt;/sup&gt;</td>
<td>EBITDA bsi margin (%)</td>
<td>12.0</td>
<td>14.9</td>
<td>15.6</td>
</tr>
<tr>
<td>Performance Chemicals</td>
<td>- Plastic additives</td>
<td>EBIT bsi</td>
<td>0.7</td>
<td>0.8</td>
<td>0.8</td>
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<tr>
<td></td>
<td>- Fuel and lubricant solutions</td>
<td>ROCE (%)</td>
<td>8.7</td>
<td>12.5</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>- Oilfield and mining solutions</td>
<td>Investments (incl. M&amp;A)</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>- Kaolin</td>
<td>R&amp;D</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
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</tbody>
</table>

<sup>1</sup> On August 29, 2019 BASF and DIC reached an agreement on the acquisition of BASF’s global pigments business. Closing is expected in H1 2021, subject to the approval of the U.S. competition authorities.
## Industrial Solutions – focused portfolio with core chemistries and deep application know-how

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<td>Performance Chemicals</td>
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<table>
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<tr>
<th>Strategy</th>
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<tbody>
<tr>
<td>Drive organic growth in key industrial markets with low cyclicity</td>
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<tr>
<td>Grow value-enhancing ingredients and solutions by building on industry and application know-how</td>
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<thead>
<tr>
<th>Verbund integration</th>
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<tbody>
<tr>
<td>Deeply embedded in the C2, C3 and C4 value chains</td>
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<tr>
<td>Tapping into BASF’s strong expertise in catalysis, process development, formulation technologies and sustainable technologies</td>
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<table>
<thead>
<tr>
<th>Innovation</th>
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<tbody>
<tr>
<td>Increased focus on formulation development</td>
<td></td>
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<tr>
<td>Enhanced process innovation focus to maintain cost competitiveness</td>
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<thead>
<tr>
<th>Capex</th>
<th></th>
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<tbody>
<tr>
<td>Selectively expand into high-growth regions by leveraging the integration into BASF value chains</td>
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<thead>
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<th>Sustainability</th>
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<tbody>
<tr>
<td>Address resource efficiency as key market driver (“more from less”)</td>
<td></td>
</tr>
<tr>
<td>Capture opportunities from societal and regulatory trends</td>
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<tr>
<th>Peers</th>
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<tbody>
<tr>
<td>Arkema, Clariant, Dow, Lanxess</td>
<td></td>
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