Industrial Solutions

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Member of the Board of Executive Directors
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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 2020¹</td>
<td>14%</td>
<td>18%</td>
<td>13%</td>
<td>28%</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>EBITDA bsi 2020¹</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>
</tr>
<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™</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 region¹ 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%

€7,644 million
Industrial Solutions is a stable earnings contributor and cash generator for BASF

Sales (billion €)

- CAGR EBITDA bsi -1%
- Ø 14% p.a.
- Ø 11% p.a.

EBITDA bsi margin %

ROCE %

Sales
- 2020: 13%
- 2020: 16%

EBITDA bsi
- 2020: 59.1
- 2020: 7.4

R&D expenses
- 2020: 8%

Planned capex
- 2021 to 2025: 4%

BASF Group

Industrial Solutions

Industrial Solutions is a stable earnings contributor and cash generator for BASF.
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
- 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

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

**Main applications**
- Automotive, industrial coatings
- Furniture and flooring
- Printing and packaging

**Key customer examples**
- PPG, Sun Chemical/DIC Group

**Main applications**
- Adhesives
- Agricultural, paper, industrial, automotive and wood coatings
- Printing and packaging

**Key customer examples**
- Akzo Nobel, Henkel

**Main applications**
- No. 1 position in ultra-pure materials for semiconductors
- Displays
- Metal powder injection molding

**Key customer examples**
- TSMC, Intel, Samsung

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

1 Percentage of Dispersions & Pigments division sales 2020, excluding the pigments business
Performance Chemicals: Leading market position in attractive customer industries

**Plastic additives (39%¹)**
- **Main applications**
  - Plastics in packaging, agriculture, automotive, construction, electronics
- **Main products**
  - Antioxidants
  - Light stabilizers
  - Customer-specific blends
- **Key customer examples**
  - Exxon, Sabic, LyondellBasell

**Fuel and lubricant solutions (44%¹)**
- **Main applications**
  - Transportation
  - Mineral oil
- **Main products**
  - Mineral oil additives
  - Automotive fluids
  - Polyisobutlenes
  - Lubricant components
  - Lubricant formulations
- **Key customer examples**
  - Lubrizol, VW, Shell

**Mining solutions (8%¹)**
- **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

**Oilfield chemicals (3%¹)**
- **Main applications**
  - Oil and gas
- **Main products**
  - Additives and agents for drilling, stimulation, cementing, production and enhanced oil recovery
- **Key customer examples**
  - Schlumberger, Halliburton

**Kaolin minerals (6%¹)**
- **Main applications**
  - Coatings, paper, plastics, automotive, agriculture
- **Main products**
  - Industrial performance minerals (calcined and hydrous kaolin)
- **Key customer examples**
  - Corning, Hansol

¹ Percentage of Performance Chemicals division sales 2020
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

36% Internal sourcing

- Coatings
- Performance Materials
- Care Chemicals
- Others

6% Internal sales

1 BASF calculation for full year 2020
Strong Verbund integration – adding value for BASF

- ~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
- ~85% of the fuel additive and PIB business is based on BASF’s C4 value chain
- Fuel and lubricant solutions account for ~65% of BASF’s isobutene production in Europe
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

Efficient use of resources and reduction of waste

- 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

Digitalization and new business models

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

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

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
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

<table>
<thead>
<tr>
<th>2–4%</th>
<th>14–17%</th>
<th>&gt;14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>organic volume growth p.a.</td>
<td>EBITDA bsi margin</td>
<td>ROCE</td>
</tr>
</tbody>
</table>

- 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**
・BASF
We create chemistry
# 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(^1)</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>
</tr>
<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>
</tr>
</tbody>
</table>

\(^1\) 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

<table>
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<tr>
<th>Divisions</th>
<th>- Dispersions &amp; Pigments&lt;br&gt;1 - Performance Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>- Drive organic growth in key industrial markets with low cyclicity&lt;br&gt;- Grow value-enhancing ingredients and solutions by building on industry and application know-how</td>
</tr>
<tr>
<td>Verbund integration</td>
<td>- Deeply embedded in the C2, C3 and C4 value chains&lt;br&gt;- Tapping into BASF’s strong expertise in catalysis, process development, formulation technologies and sustainable technologies</td>
</tr>
<tr>
<td>Innovation</td>
<td>- Increased focus on formulation development&lt;br&gt;- Enhanced process innovation focus to maintain cost competitiveness</td>
</tr>
<tr>
<td>Capex</td>
<td>- Selectively expand into high-growth regions by leveraging the integration into BASF value chains</td>
</tr>
<tr>
<td>Sustainability</td>
<td>- Address resource efficiency as key market driver (“more from less”)&lt;br&gt;- Capture opportunities from societal and regulatory trends</td>
</tr>
<tr>
<td>Peers</td>
<td>- Arkema, Clariant, Dow, Lanxess</td>
</tr>
</tbody>
</table>

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