DSM Engineering Plastics
Safe harbor statement

- This factbook may contain forward-looking statements with respect to DSM's future (financial) performance and position. Such statements are based on current expectations, estimates and projections of DSM and information currently available to the company. DSM cautions readers that such statements involve certain risks and uncertainties that are difficult to predict and therefore it should be understood that many factors can cause actual performance and position to differ materially from these statements. DSM has no obligation to update the statements contained in this factbook, unless required by law.

- A more comprehensive discussion of the risk factors affecting DSM's business can be found in the company's latest Annual Report, which can be found on the company's corporate website, www.dsm.com.
DSM Engineering Plastics

A global engineering plastics player with a broad range of value-adding polyamides and polyesters

- DSM Engineering Plastics is a global engineering materials player with a broad range of value-adding, high performance polyamides and polyesters (€1,516m in sales in 2018)
- DSM is a world leader in high-performance sustainable thermoplastics used in automotive, electrical & electronics, building & construction, medical, food packaging and consumer goods
- Our materials enable lighter, stronger and more durable products - which in turn makes people’s lives safer, more convenient and healthier – and all while helping to tackle carbon emissions
- We are well positioned as one of the leaders in ‘thinnovation’ - the trend for creating smaller, lighter, greener and safer working parts in electronic devices
DSM Engineering Plastics
A global engineering materials player with a broad range of value-adding polyamides and polyesters

- Broad range of high-quality materials portfolio with value-adding, high performance polyamides, polyesters and polyphenylenesulphide
- Global leadership positions in many of its products, such as Stanyl®, Akulon® PA6 and Arnitel®

Key industries:
- **Automotive**: reduce fuel consumptions & emissions via weight / friction reduction, electrification and connectivity, safety and comfort
- **Electrical & electronics**: improve functionality, miniaturization and process efficiency; address e-waste issue

**Applications**
- **Automotive**
  - Powertrain
  - Air/turbo management
  - Safety components
  - Electronics & lighting
  - Interior/exterior
- **Electronics**
  - Connectors
  - Frames & casings
  - Wire & cable
  - Power distribution
  - Electrical components
  - LED lighting
- **Consumer Goods**
  - Furniture, white goods, food packaging, and sporting equipment.

**Solutions**
Work in close collaboration with customers to develop breakthrough innovative solutions:
- Low emission
- Halogen-free
- Eco-efficiency
- Recycle-based
- Bio-based
DSM is a leading innovator in high-performance materials

Global market leading positions with:

- Stanyl® PA46 in High Temperature Polyamides as PA46, PA4T, PPA
- Arnitel® TPC in Thermoplastic Elastomers
- Akulon® PA6 in Injection and Blow Molding and Flexible Food Packaging Film Extrusion
### DSM Engineering Plastics

**Materials Portfolio**

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<th>Product</th>
<th>Strengths</th>
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| **Stanyl®**  | - Excellent high-temperature mechanical properties  
- Excellent wear and friction behavior  
- Superior melt flow                  |
| PA46         |                                                                                              |
| **Fortii®**  | - Best mechanics <160°C  
- Highest peak temperature performance  
- High chemical resistance            |
| PA4T         | 30% lower moisture uptake than PA66 with higher mechanical performance                        |
| PPA          | - Excellent surface finish  
- 72% bio-based                       |
| **EcoPaXX®** |                                                                                              |
| PA410        |                                                                                              |
| **Xytron™**  | - Dimensional stability  
- Heat aging performance up to 240°C  
- Extreme Chemical resistance        |
| PPS          |                                                                                              |

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| **Arnitel®** | - Range of hardnesses varying from 85 shore A up to 72 shore D.  
- High temperature resistance within the TPE family, up to 170°C. |
| TPC          |                                                                                              |
| **Arnite®**  | - Applicable in high precision components  
- Good electrical properties                   |
| PET PBT      |                                                                                              |
| **Akulon® Novamid®** | - True workhorse materials with good balance between mechanical properties and toughness  
- Easy processability                          |
| PA6 PA66     |                                                                                              |
Our portfolio of tough yet lightweight materials are driving manufacturers to produce automotive components that are extremely light, reduce engine friction, and can operate in extreme environments – particularly at very high temperatures.

Our broad portfolio of materials cover a broad range of applications, from water management systems to roofing membranes to heating systems and window systems.

Our portfolio of engineering materials are developed with the knowledge that technology and innovation go hand-in-hand. They're used across a broad range of consumer goods, including appliances, furniture, white goods, flexible food packaging, and sporting equipment.

Developing electrical components and products that are compliant with the regulation, are kind to the planet and deliver on all the major trends – from smart electricals to quest for safe ingredients – and all while managing costs as efficiently as possible.

Designers and engineers at the world’s leading electronics brands rely on our expertise and materials to develop next-generation devices. They challenge us to transform their design vision into reality with innovative, advanced plastics for frames and enclosures, connectors, cables, wearable straps, and automotive electronics devices.
Industrial equipment is driven by multitudes of mechanical parts such as gears, bearings, valves. As we continue to develop new and better engineering plastics, we are helping our customers develop mechanical parts that are higher quality, safer, more sustainable, and more cost-efficient.

Our broad portfolio of materials enables manufacturers of medical devices, fabrics and packaging to design for the future, developing new, innovative options that perform better than what was available before.

Our materials meet the high demands needed to set new standards in design, comfort and ease of use, as well as accelerating the quest to drastically cut energy use.

Transportation by truck, train and airplane is essential to running the world. Improving transportation by making it smarter, safer, lighter, and greener is a key focus for the industry and governing bodies. Our high-performance materials, coupled with the knowledge and resources behind them, are helping manufacturers change the way they think about application design.
DSM Engineering Plastics
Value chain driven by application development at leading OEMs and system integrators

High-Performance Materials

Monomer → Polymer → Compound → Convertor → System Supplier → OEM → End User

Science, Expertise & Support

Design
- Review application requirements
- Analyze datasets
- CAE support

Measure Performance
- Temperature
- Mechanical
- Chemical resistance
- UL and other global safety standards

Production Support
- Quality control
- Identify production efficiencies

Compliance
- Documentation
- Data sheets
- Regulatory affairs statements
- Life cycle analysis
DSM Engineering Plastics

Value chain: Developing applications further down the value chain

DSM

Polyesters
High Performance Polyamides PA46, PA4T, PA410
PPS
PA66
PA6

Parts producers/molders

System suppliers

OEMs

Automotive

Electronics & Electrical

Consumer Goods

Flexible Food Packaging
DSM Engineering Plastics
Sales by region and by end-market

Sales by region (%)

- Europe
- Asia-Pacific
- China
- Latin America
- North America

~€1.5bn (2018)

Sales by end-market (%)

- Automotive
- Consumer Goods
- Flexible Food Packaging / other
- Electrics & Electronics

~€1.5bn (2018)
DSM Engineering Plastics: €1,516m in sales in 2018

Sales overview

Sales € million

- 2015: 1300
- 2016: 1200
- 2017: 1400
- 2018: 1500

5% CAGR organic growth 2016-2018
Two Mega Trends are re-shaping our industry

*Sustainability and New Technology*
Industry Mega Trend: New Technology
Rapid shift to New Mobility, Connectivity & Artificial Intelligence ...
Industry Mega Trend: New Technology

*Technology shift asks for new and innovative high-performance materials*

- Increasing demand for higher-performance materials that can be used in new form factors
  - Increased innovation challenge
  - Increased complexity
- Demand for new applications including radically new designs (thinnovation, miniaturization, simplification)
- Demand for functional materials

**DSM Engineering Plastics supports with:**

- High-performance materials for automotive and E&E components as Connectors, Sensors, Power Distribution
- Strong application and technology support for OEMs and Tiers
- Application-specific CAE simulations for mold flow, mechanics, thermal and EMI shielding characteristics
DSM Engineering Plastics is ideally positioned for growth

**Broad portfolio of high-performance materials**
- Broad range and know-how of high-performance polyamides and polyesters offers solutions for many challenges driving substitution growth
- Broad range differentiator to service increasingly demanding customers

**Strong innovation/ R&D capabilities**
- Close cooperation with customers to develop breakthrough innovative solutions
- Continuous investments in new technologies
  - Multiple platform launches based on ForTii® technology

**Global reach and leadership**
- Global network provides application development capabilities and service for global OEM customers whenever, wherever
  - Increased footprint in emerging economies
  - Very strong presence in China

**Specified application development**
- 75% of business is highly specified by leading global brands (vs. 50% in 2015)
  - Customers as well as resilient income locked in
DSM Engineering Plastics - Strategy

Focus on higher-growth, higher-margin applications

- Maintain above market growth
- Drive higher margin businesses
DSM Engineering Plastics - Strategy

Continue application-driven growth path while continuously improving operational efficiency

**Increased growth**
- Focus on capturing growth from macro themes & UN SDGs, well aligned with DSM’s strengths in Sustainable Living
- Accelerate growth in High Performance Materials
- Grow position in PA6 Compounds
- Maximize value in PA6 Extrusion

**Enhanced by:**
- Commercialization of innovation
- Customer centricity and agility programs
- Continuous operating efficiency improvements

**High-Performance Plastics**

**PA6 Compounds**

**PA6 Polymers**

**Focus on highly specified application development for global customers in ‘winning’ segments in new mobility & connectivity**

**Continue to grow by leveraging global presence and footprint**

**Fully utilize assets and supply compound needs**
DSM Engineering Plastics - On the road to zero emissions

Strong commitment toward Climate & Energy, Resources &Circularity

**Sustainable solutions**
- Enabling our customers to design and manufacture sustainable solutions
  - Cleaner and safer cars
  - Safer ingredients in Electronics
  - Food waste reduction

**Bio-based products**
- Castor-oil based
  - EcoPaXX®
  - ForTii® Eco
- Rapeseed-oil Based
  - Arnitel® Eco

**Recycled-based products**
- Fishing nets: recycled-resources based
  - Akulon® RePurposed

**Safer ingredients in our products**
- Halogen-free flame-retardant grades in PA, PBT, HPM
  - PVC or PFC-free alternatives
  - Arnitel XG®
  - Arnitel VT®

**Renewable electricity in our operations**
- 63% purchased renewable electricity
  - Pune (India) operations powered by own solar field
  - Geleen (Netherlands) operations by wind energy
Offering bio- and/or recycled-based alternatives for our entire portfolio By 2030
DSM Engineering Plastics

Global footprint to support customers across the globe

Locations

Production locations
R&D locations
Offices
BRIGHT SCIENCE. BRIGHTER LIVING.™