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.
Dyneema®
The world’s strongest fiber™

- Dyneema®, the world's strongest fiber™, is respected as the premium brand for Ultra-High Molecular Weight Polyethylene (UHMwPE) fibers and fabrics. We manufacture and sell products in several forms.

- The business is driven by the need for lightweight, sustainable solutions that offer extreme durability coupled with improved safety and ergonomics:
  - DSM’s global product leadership is based on unique, IP-protected technology platforms.
  - 15 times stronger than steel, 40% stronger than aramid, and floats on water.
  - Dyneema® products typically replace traditional materials such as steel and aramid.
Dyneema®
Product overview

Technologies and form factors

Polymer
→ Uni-Directional Sheets

Fiber
→ Fabrics & Laminates

Key markets

Overview

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<tr>
<th>Industry</th>
<th>Applications</th>
<th>Value proposition</th>
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<td>Defense &amp; Law Enforcement</td>
<td>Ballistic Vests, Inserts, Helmets, Vehicle protection</td>
<td>Lightest weight protection and increased comfort</td>
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<td>Maritime, Offshore, Aquaculture, Industrial</td>
<td>Ropes, cables, slings, nets, fishing and yachting lines</td>
<td>Lower operation cost and footprint and increased worker's safety</td>
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<tr>
<td>Automotive, Manufacturing, Food</td>
<td>Cut resistant gloves, Protective workwear</td>
<td>Better cut protection at higher comfort level</td>
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<tr>
<td>Sports &amp; Lifestyle, Industrial</td>
<td>Outdoor equipment, Footwear, Apparel and denim, inflatables</td>
<td>Ultra-lightweight, increased performance</td>
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Dyneema®

Key market segments and applications

Maritime

Mooring and tow ropes made with Dyneema® SK78 are helping the Maritime industry to achieve new levels of safety, efficiency and reliability. Lighter, more durable, easier to handle and with limited rope backlash.

Heavy Lifting

On- and offshore construction workers and crane operators can lift greater loads further, higher and more quickly with Dyneema® offering them stronger, safer and more efficient equipment that is always up to the task.

Personal Protection

Our market-leading technologies are developed with ballistic protection manufacturers to enable next-generation armor solutions across a wide range of fields in vehicle and personal armor.

Commercial Fishing

Ropes and nets made with Dyneema® enable more sustainable fishing techniques that optimize catch and production, save money, and are sustainable.
Dyneema®

Key market segments and applications

Sports & Lifestyle

Ultralight strength. These exceptional properties have made Dyneema® fiber and fabrics, indispensable for the outdoor, sports and fashion industries, offering innovation without compromising on style or performance.

Offshore

Rope, sling and synthetic link chain technologies made with Dyneema® are helping the Offshore industry to work efficiently.

Renewable Energy

Strong, lightweight, ‘Greenest Strength’ Dyneema® can help developers cut the cost of renewable energy today, and enable the innovative renewable technology we will need going forward.

Mining

Employing high-strength, lightweight synthetic ropes made with Dyneema® is one of the fastest ways to increase productivity, increase safety, and reduce operating costs in today’s competitive mining industry.
As the world’s strongest fiber™, Dyneema® is uniquely positioned when continuous high performance is of utmost importance.
Dyneema® - Global Market & Dyneema® Sales

Global High-performance fiber market (%)

- Other UHMwPE 23%
- Dyneema® UHMwPE 27%
- LCP and other 1%
- p-aramid 49%

Market Growth 2-3%

~€1.2bn (2018)

DSM Sales by application (%)

- Fiber Solutions
- Personal Protection
- Other

€344m (2018)

DSM Sales by Geography (%)

- APAC
- Latin America
- North America
- EMEA

€344m (2018)
Dyneema® - €344m sales (2018)

Sales Overview

Sales (€ million)

- 2015
- 2016
- 2017
- 2018

8% CAGR organic growth 2016-2018
Dyneema®
Solid growth strategy well anchored

Strategy

High

New Mobility & Connectivity

Improved Health & Living

Dyneema®
Fiber Solutions

Dyneema®
Personal Protection

Green Products & Applications

Market growth

Low

DSM’s capability to extract value

High
Dyneema®

Dyneema focuses on current premium portfolio while selectively adding new sustainable, innovative products and solutions

Increased growth
- Accelerated growth in Fiber Solutions and Personal Protection
- Investments to increase global UHMwPE production capacity
- Partnerships for renewable energy solutions

Cost and capital discipline
- Continuous cost and efficiency improvement focus
- Working capital discipline

Fiber Solutions
- Focus on development of new sustainable applications
- New products/solutions in existing segments
- ... with strong patent protection

Personal Protection
- Continue re-focus on growing Personal Protection segment
**Dyneema®**

*Innovation for sustainable real-world applications*

**Dyneema® Composite Fabrics** are made from multiple oriented fiber and resin layers that dramatically increase the performance against tear, puncture and abrasion, while cutting weight and reducing bulk.

**Dyneema® Force Multiplier Technology** fuses breakthrough polymer science, next generation fiber technology and unique uni-directional engineering for maximum ballistic protection in a lightweight solution, enhancing comfort and mobility.

Better lashing **Synthetic link chains** with Dyneema® are eight times stronger than comparable steel chains, and more than 85% lighter. They are soft, quiet, easy to handle and don’t whip back should they break.

**Sustainable clean energy** Dyneema® is ideal for applications in renewable energy technology and sustainable transport. Dyneema® is being used to build the next generation of wind turbines and will be used to harness the potential of tidal and wave energy.
Dyneema®
Protecting people and the environment they live in. Because all life is precious.

3 ways we make Dyneema® greener

- **CLEANER MANUFACTURING**
  Reducing the energy, water consumption and switching to renewable energy

- **INNOVATING PERFORMANCE**
  Constantly improving to achieve higher performance specs with less material

- **INDUSTRY COLLABORATION**
  Investments & initiatives that lead towards a circular economy

Dyneema® outperforms all competing alternatives

- Today, products and solutions with Dyneema® protect 30 million people per year
- Approximately 75% of DSM Dyneema’s fiber production is based on renewable electricity, which saves CO₂ emissions equivalent to nearly 13,000 vehicles off the road for one year
- Dyneema® delivers the lowest carbon footprint per unit of strength because less material is used to achieve a given strength performance