The relevance of enzymes to EU: Supporting innovation, sustainability, and competitiveness

The Association of Manufacturers and Formulators of Enzyme Products (AMFEP) represents 90% of the enzyme industry in Europe.

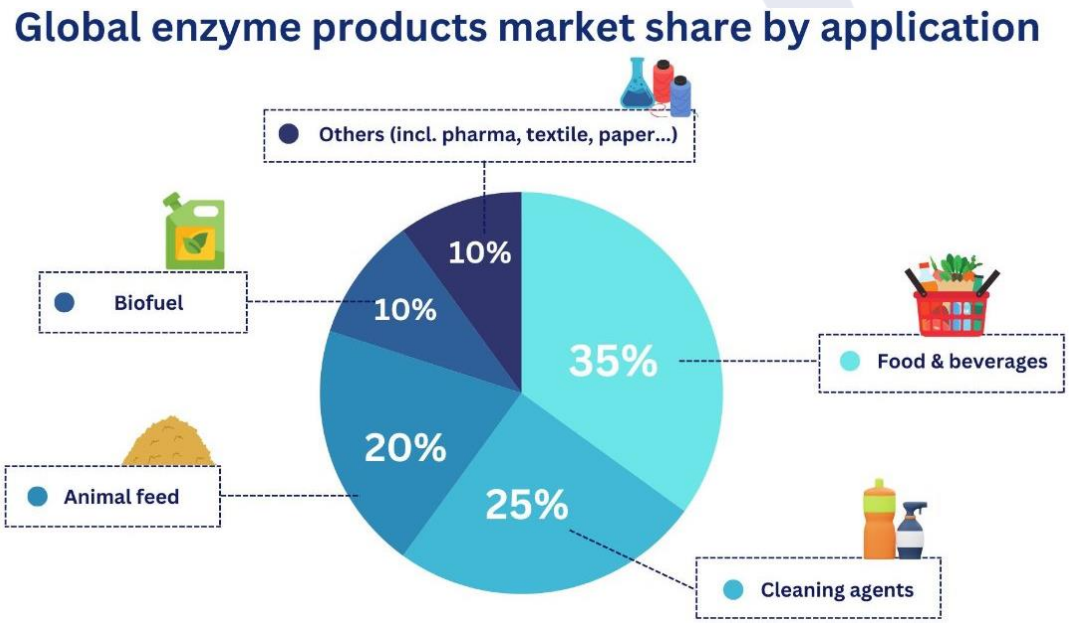
AMFEP consists of **27 Members, driving a sector valued at €2.11 billion, which supports hundreds of thousands of jobs across the value chain**. AMFEP members manufacture enzymes for key sectors such as food, feed, detergents, and other non-food industries.

What are enzymes?

Enzymes are naturally-occurring **proteins, working as biological catalysts that accelerate chemical reactions**. They can be **produced through extraction** (e.g., from plants or animals) **or** more commonly via industrial **fermentation** processes, using microorganisms. Industrial fermentation is used to bio-manufacture enzymes at highly scale and -purity for a multitude of applications.

Applications: Enzymes are indispensable in a variety of sectors:

- **Food & beverages:** enhance dough handling, extend freshness in bakery products, and aid in beverage clarification and fruit juice extraction. In dairy, enzymes like lipases and proteases improve milk coagulation for cheese production. Overall, they increase efficiency, reduce waste, and lower energy use in food processing.
- **Animal feed:** like phytase and xylanase improve nutrient digestion, reduce feed costs, and minimize environmental impact by reducing phosphorus waste and improving feed efficiency.
- **Detergents:** enhance cleaning power, allowing effective washing at lower temperatures, which saves water and energy and entails a lower use of chemicals**.**
- **Textiles:** replace chemicals in fabric finishing, improving texture and appearance while reducing water usage and environmental pollution**.**
- **Pulp & paper:** reduce chemical use in pulp processing, improve fibre quality, and promote cleaner production, leading to lower energy consumption and a smaller environmental footprint.



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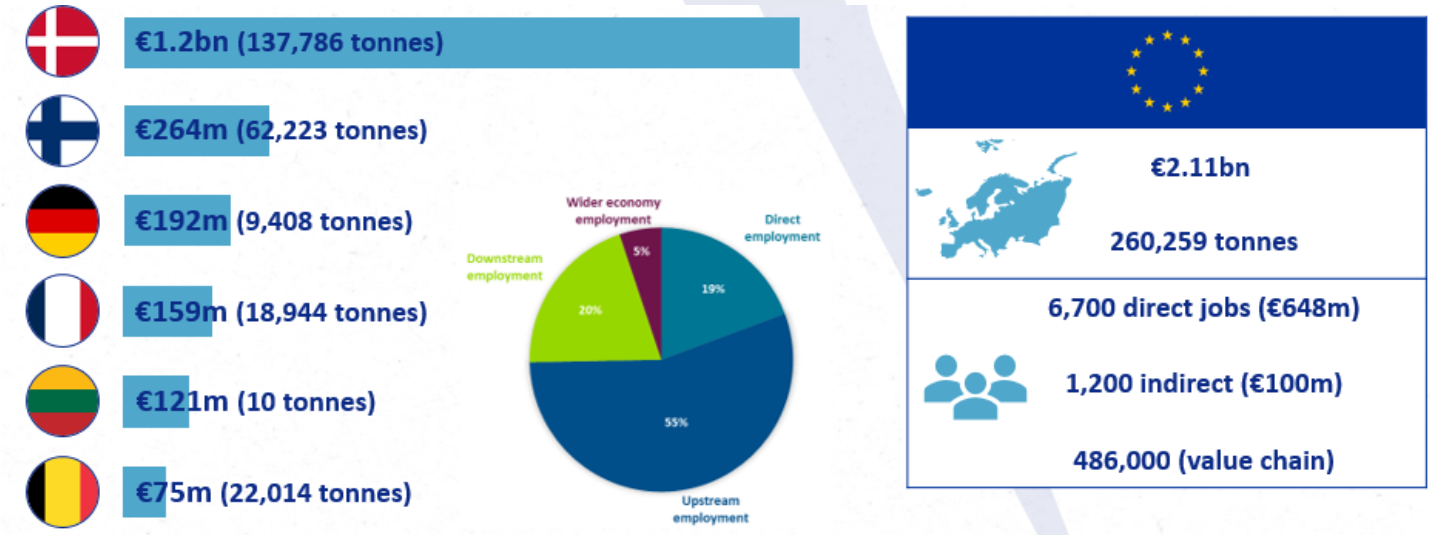
Sustainability and safety of enzymes: Enzymes have an **excellent safety profile and are inherently sustainable**. They contribute to sustainable agriculture, waste management, and industrial processes by reducing reliance on chemicals and lowering carbon footprints.

They are **biodegradable** (unlike persistent chemicals) **and reduce the environmental impact of industrial processes by lowering energy consumption and minimizing waste**. For example, enzymes allow for lower washing temperatures in detergents, saving both energy and water.

Across sectors, **enzymes are proven safe for use**, **backed by stringent safety assessments under the current REACH, the Food Enzymes and the General Food Law and feed additives regulations**. Those frameworks ensure that enzymes meet the highest safety and environmental standards. For further information, please refer to AMFEP's website for information on both consumer and occupational safety.

EU leadership in enzyme production: Europe remains among the global leaders in enzyme production, spearheading innovations that contribute to the EU's sustainability goals, in addition to SDGs, and competitive advantage. EU companies are pioneering advancements in enzyme technology, reinforcing the region's position as a global innovation hub. **EU Member States** below lead the way, **with world-class enzyme producers** that are at the forefront of the industry. For specific production levels, please refer to our socio-economic analysis.



Constant innovation in the enzyme sector: The enzyme industry is at the forefront of innovation, driving **R&D investments** with an **expected 27% growth over the next decade** compared to the last one. This innovation is crucial **for** developing **new applications, improving cost efficiency, and supporting sustainability** goals like circular economy practices and carbon reduction.

The enzyme sector plays a crucial role in driving Europe's green transition and fostering a competitive, resilient economy

We urge the EU to support this innovative and sustainable industry by establishing a regulatory framework that is risk-benefit based and innovation-friendly, while also promoting the adoption of enzyme applications across markets.

This approach will help ensure the continued growth of the sector and its contribution to Europe's biotech leadership.

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