



Factsheet #1
Liquid Detergents



Harnessing the Power of Enzymes
for Greener Consumer Products

Why OXIPRO? Oxidoreductases are enzymes that can be applied as tools to reduce energy, water and chemical usage in industrial processes while improving the quality of the end product. OXIPRO is speeding up enzyme discovery and development for greener, innovative solutions in four consumer sectors.

Our Challenge:

Modern laundry detergents have been optimized for energy-saving washing conditions (< 40°C), but removing bacteria at low temperatures requires environmentally harmful ingredients. The need to reduce energy consumption and maintain hygienisation has led to OXIPRO's goal of developing detergents optimized for lower temperatures.

Our Approach:

OXIPRO is developing enzyme-based technologies using cutting edge methodologies to supply enzymes able to support hygienisation during the washing cycle. The research is focused on the generation of novel enzymes able to use substrates such as alcohols or other detergent ingredients.

What do we want to achieve?

OXIPRO targets enzyme-driven hygienisation steps to improve liquid detergent performance, and reduce the risk of chemical pollution. The aim is that the newly-generated enzymes will overcome functional barriers such as product inhibition, compatibility with other detergent ingredients, and operational stability.

For whom?

Co-creation is practised in our project. This means that your feedback can influence the direction in which the products are developed. Thus, the success of our work is focused on and depends on people like you: consumers, employers, politicians, researchers and investors. We invite you to participate in surveys, workshops and quizzes – all you need to do is register. Join our stakeholder network using the QR code.



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Factsheet #2
Sunscreen



Harnessing the Power of Enzymes
for Greener Consumer Products

Why OXIPRO? Oxidoreductases are enzymes that can be applied as tools to reduce energy, water and chemical usage in industrial processes while improving the quality of the end product. OXIPRO is speeding up enzyme discovery and development for greener, innovative solutions in four consumer sectors.

Our Challenge:

When we go swimming, 25% of the sunscreen we rub into our skin transfers into the water. Commercial sun care products rely on organic and mineral UV filters that pollute coastal waters and wastewater treatment plant effluents. These UV filters may affect marine organisms, inducing acute, developmental and reproductive toxicities.

Our Approach:

OXIPRO aims to enzymatically produce environmentally friendly UV filters. OXIPRO will integrate cutting-edge technologies to generate an enzyme capable of synthesizing a suitable UV filter for the formulation of sunscreens.

What do we want to achieve?

OXIPRO seeks to enzymatically generate UV filters that fulfil different sunscreen formulation parameters, such as UV protection, adequate colour, stability, and solubility, complying with the safety criteria of the European Regulation 1223/2009

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Factsheet #3
Textiles

Harnessing the Power of Enzymes for Greener Consumer Products

Why OXIPRO? Oxidoreductases are enzymes that can be applied as tools to reduce energy, water and chemical usage in industrial processes while improving the quality of the end product. OXIPRO is speeding up enzyme discovery and development for greener, innovative solutions in four consumer sectors.

Our Challenge:

The global textile industry consumed 79 Bn m³ of water, and generated 1715Mt of CO₂ emissions and 92 Mt of waste in 2015. This is estimated to increase by at least 50% by 2030. Moreover, the wastewater generated in some steps of the cotton process can be environmentally damaging and requires treatment to reduce adverse effects

Our Approach:

OXIPRO is designing an environmentally-friendly, one-bath continuous treatment process for cotton bleaching, while developing novel carbohydrate oxidases for a circular bio-bleaching process. The result will be an eco-friendlier and less resource-intensive process for cotton bleaching, re-using wastewater generated in the cotton treatment.

What do we want to achieve?

The developed process is expected to reduce consumption of H₂O₂, caustic soda, and acetic acid by up to 70%, energy by up to 50% and water by up to 43%, contributing to increased circularity by recycling carbohydrates in water baths. These reductions will decrease production costs, and the decrease in chemical exposure during bleaching will contribute to safer working.

For whom?

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Factsheet #4
Nutraceuticals

Harnessing the Power of Enzymes for Greener Consumer Products

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Our Challenge:

Every year, the EU produces millions of tonnes of aquaculture and wild-caught fish products. Nevertheless, a huge amount of seafood by-products is unutilised, wasted, or used in non-food applications. For example, the process of fileting fish gives rise to 50-70% of by-products. In 2016 researchers identified 0,6 million tonnes of unutilised seafood by-products across Europe.

Our Approach:

OXIPRO is targeting enzyme technologies for processing fish by-products. The focus is on the use of oxidoreductases to optimise fish protein hydrolysates that have potential for human consumption due to their nutritional profile and added health benefits. The enzymes are used to optimise sensory attributes to improve consumer acceptance of these products.

What do we want to achieve?

OXIPRO wants to improve the establishment of new value chains for the utilisation of marine by-products, economically boosting other levels of the supply chain. New technologies can improve utilization of marine resources and facilitate a greater inclusion of marine proteins in food while providing added health benefits.

For whom?

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