



# Laundry Detergent Industry Products



Detergent  
Industry





## **Enzymes In Detergent Industry**



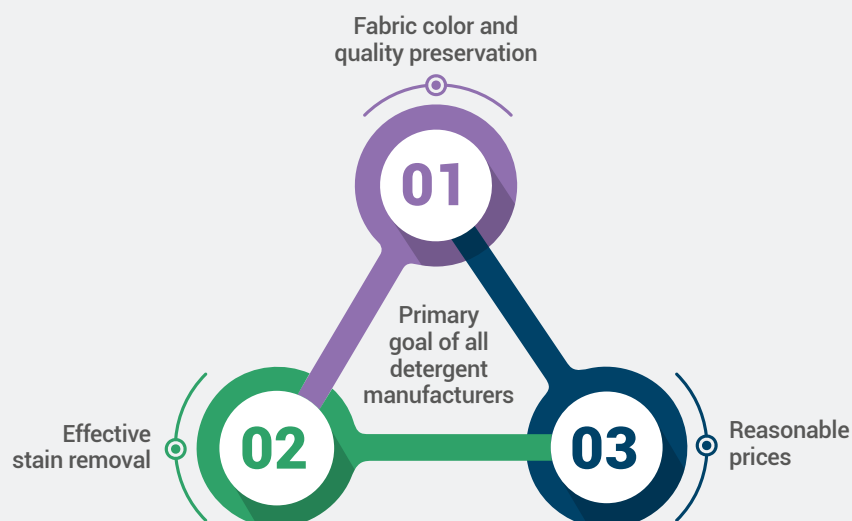
# Economic affordability

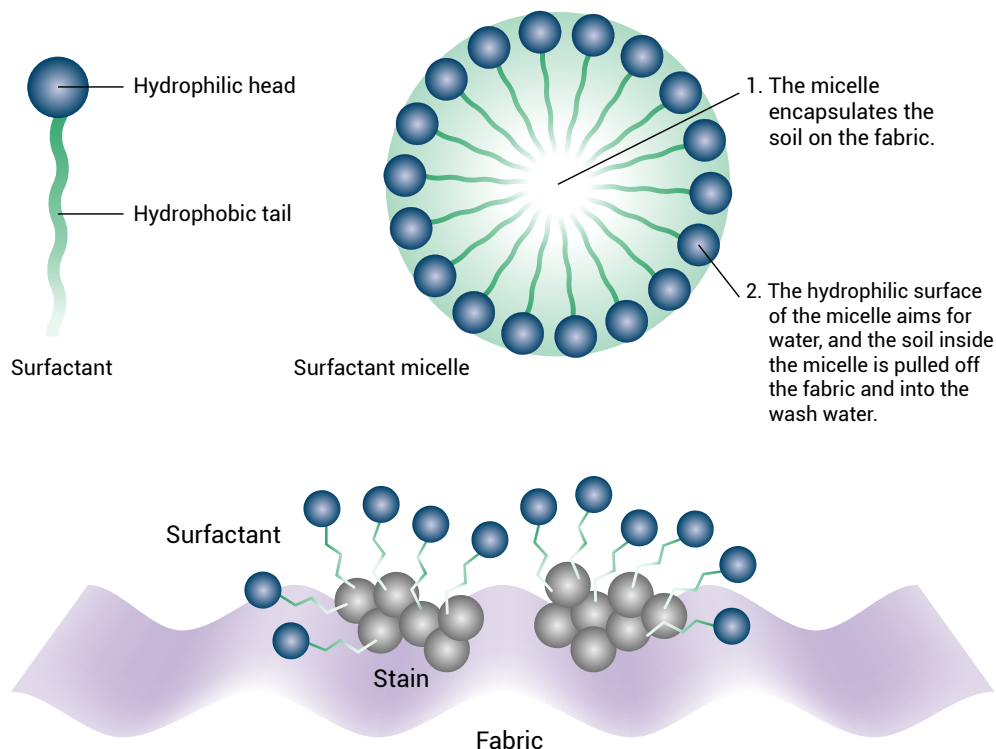
## A desire achievable by detergent manufacturers

Reducing the total cost of detergent products is one of the main challenges for detergent manufacturers.

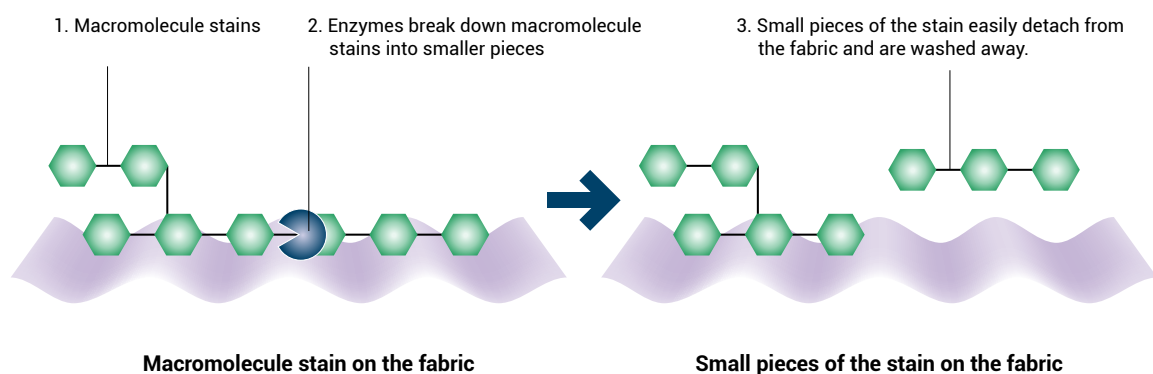
Effective stain removal while maintaining fabric color, warp and weft, and quality is another challenge for the detergent industry.

This important goal is achieved by bringing together the three elements of "effective stain removal", "reasonable and economical pricing", and "maintaining fabric quality"





The formulations of laundry detergents are mainly based on surfactants. These compounds play a key role in the performance of laundry detergents by reducing the surface tension of the wash water.



Enzymes are catalysts that accelerate biological processes. In laundry, enzymes help boost the performance of surfactants. Enzymes work differently than surfactants, enzymes break down stains which are macromolecules into smaller pieces, as a result, smaller pieces are removed from clothes more easily and redeposition of stains on fabric is prevented.





## Enzymes

### The driving force supporting surfactants for effective stain removal

The use of surfactants in detergent formulations is inevitable and they make up a large volume of the formulation. On the other hand, the use of enzymes improves the performance of surfactants and helps reduce surfactant consumption in detergent formulations.

Eliminating bad  
odor of clothes

Preventing  
bacterial growth

Stain removal,  
degreasing and  
boosting surfactant  
performance

Smaller pieces  
dissolve more  
quickly in water  
at a higher  
speed

The effectiveness  
on stains and the  
decomposition of  
organic substances  
and macromolecules  
into smaller  
pieces





## Each enzymes is effective on a specific stain

### **Protease**

Removing protein stains such as:

Grass  
Blood  
Egg  
Human sweat

### **Amylase**

Removing starchy stains such as:

Flour  
Chocolate  
Spaghetti  
Potato

### **Lipase**

Removing grease stains such as:

Butter  
Sauces  
Salad oil  
Tough collar and cuff stains

### **Mananase**

Removing stains such as:

Sauces  
Ice cream  
Processed foods

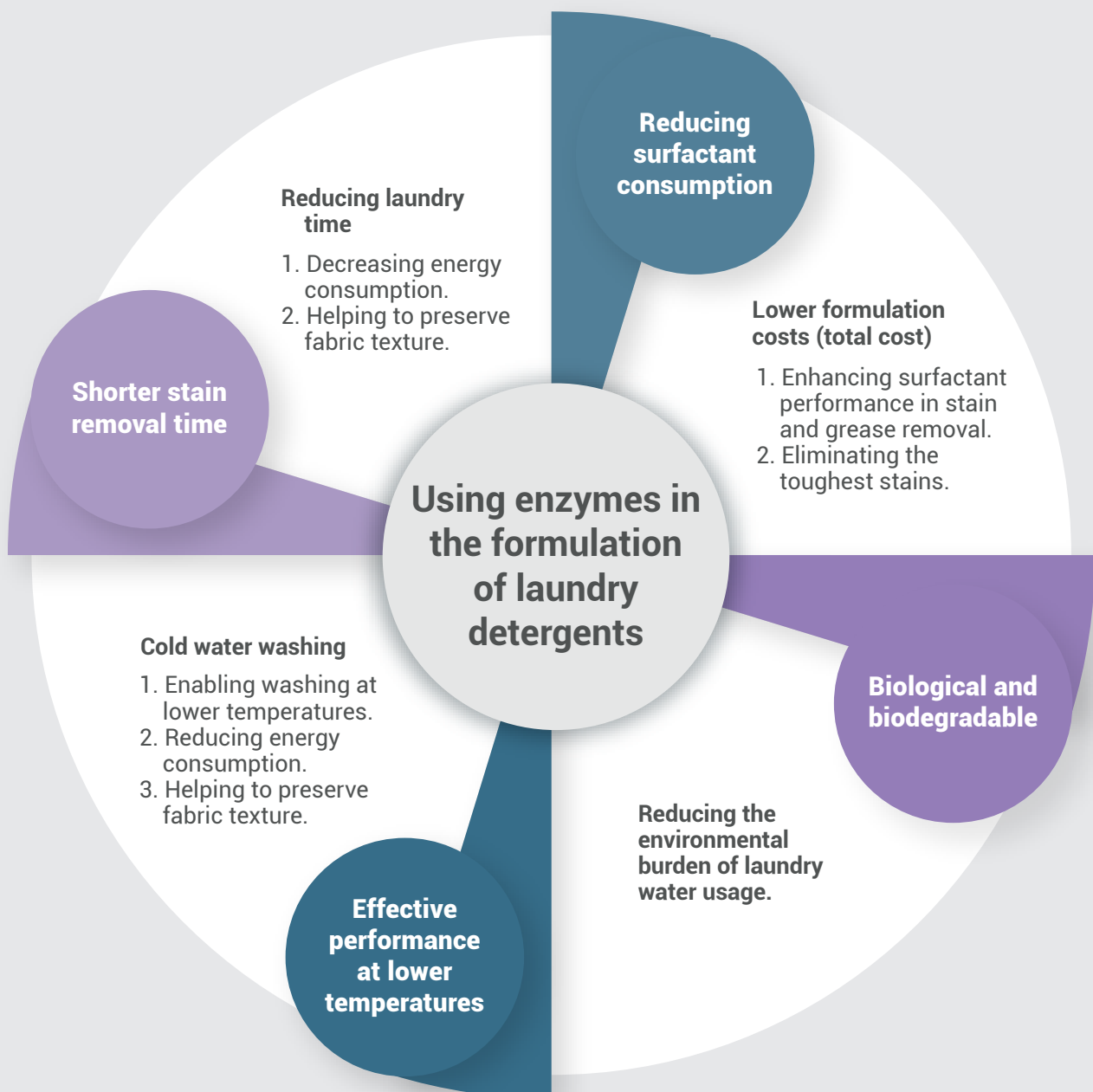
### **Cellulase**

Enhancing brightness and preventing dullness, creating softness and smoothness in fabrics, removing dirt and lint, and preventing clothing from wearing out.



# The impact of enzyme

## Usage on improving the performance of laundry products





# BONTEASE AK

## Features:

- Alkaline protease enzyme with incidental amylase and lipase activity
- Specific formulation for stain removal on various fabrics in aqueous environments

## Benefits:

- No need for soaking garments
- No need for hot water washing
- Effective removal of tough and resistant stains such as blood, ink, and milk
- Reduced surface tension and prevention of re-deposition of protein-based soils (dirt buildup)
- Emulsifying and foaming properties

# BONAMYL AK

**Feature:** Alkaline alpha-amylase enzyme with the ability to remove processed starches

## Benefits:

- Effective removal of stubborn stains left by sauces, baby food, pasta
- Prevention of stain redeposition (processed starches can cause dirt particles in the wash water to stick to stains, making them worse)



## BONACEL AK

**Feature:** Alkaline cellulase enzyme with the ability to modify the structure of cellulose fibers in cotton and linen fabrics

**Benefits:**

- Softening and smoothing of the fabric
- Enhanced fabric brightness and prevention of clothing dullness
- Removal of lint and cotton balls formed on washed clothes

## BONAPAZ AK

**Feature:** Alkaline lipase enzyme with the ability to remove tough oily stains

**Benefit:** Elimination of fatty residues and deposits formed by them

## BMZYME AK

**Feature:** Mannanase enzyme with the ability to eliminate various gums

**Benefits:**

- Removal of stains from various sauces, gum, ice cream, and fast foods
- Elimination of tough residues from the initial wash and prevention of dirt buildup

# MULTIMIX

**final step in maintaining the quality of clothing,  
removing stains effectively, and economic efficiency**

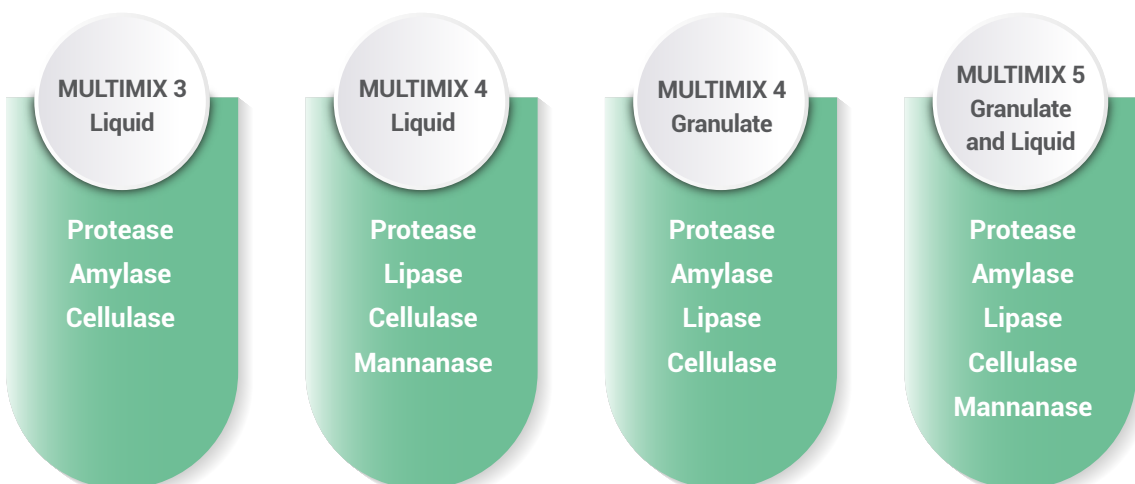
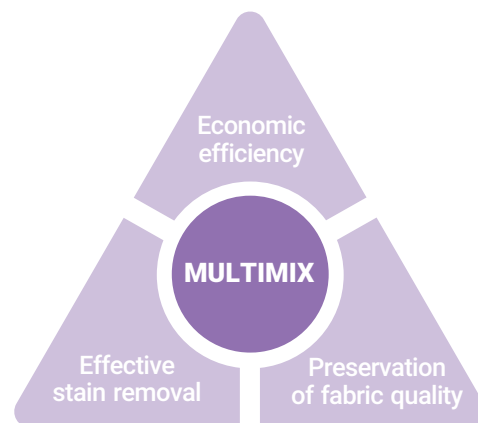
Most everyday stains are formed from various elements, and using a single enzyme is not sufficient for their complete removal. Creating a balanced combination of enzymes to achieve effective stain removal and eliminate various types of stains while remaining cost-effective requires knowledge, experience, and laboratory equipment that may not be accessible to everyone. The use of enzyme mixes not only provides effective and economical stain removal but also simplifies the usage instructions, making enzyme-based products accessible to a wider audience.

## Feature:

- A balanced combination of protease, lipase, amylase, cellulase, and mannanase enzymes

## Benefits:

- Complete stain removal due to the presence of effective stain-removing enzymes and their synergistic effects
- Preservation of fabric texture, color, and softness
- Ease of use







# Detergent Industry







# Laundry Detergent Industry Products



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