



Britase PAL Mix

Enzyme mixes for laundry detergents
in granules and liquid

Product information

Britase PAL Mix are granule and liquid enzyme mixes specially designed to improve the performance of laundry detergents at low washing temperatures. They are TiO₂ free.

Britase PAL Mix contains the following enzymes-types: **protease, amylase, lipase.**

Enzymes increases the performance on a broad scale of organic stains, specifically related to the substrate of each enzyme-type. As common stains we experience in our daily life are frequently made up from different ingredients (read substrates) the use of a complex enzyme system will have a synergetic effect of these stains.

Proteases hydrolyze proteins into smaller molecules such as amino acids and poly peptides. Proteins can be found as example in grass, blood, egg (yolk), milk, gravy and perspiration.

Amylases breaks down both the amylose and the amylopectin part of starch. Amylopectins are not water soluble and therefore difficult to remove from an attached surface like fabrics. Amylopectins act as a glue. Starches are one of the major components of our daily food. Examples include corn, potatoes, wheat, and rice. These starches and modified starches are used in processed food such as gravy, baby food, porridges, pasta, pudding and sauces.

Lipases break down the triglycerides in edible oils and fats, which are found in greasy foods and many cosmetic products. The triglycerides are broken down to fatty acids, diglycerides and monoglycerides, which are more soluble in wash water and therefore more efficiently removed from the textile. Lipid stains are especially cumbersome for Cotton fabric as they tend to move by capillary force into the inner cavity of cotton. Surfactants will not be able to remove this.

Product specifications

Britase PAL Mix	Granulate		Liquid	
	mass-%	activity	mass-%	activity
protease	36	min. 170 PU/g	36	30 - 50 PU/g
amylase	12	min. 3.000 AU/g	12	8.000 - 10.000 AU/g
lipase	6	min. 4.000 LU/g	6	3.000 - 5.000 LU/g

Further composition	Granulate	Liquid	
	typical mass-%		typical mass-%
sodium sulphate	21	propane-1,2,3-triol	16
calcium carbonate	5	water	30
cellulose	5		
dextrin	5		
polyethylene glycol	5		
fibers	5		

Physical/chemical	Granulate	Liquid
appearance	broken-white granulate	light-amber liquid
bulk density	1.1 - 1.2 kg/l	
dust content	max. 60 ng/g	

Microbiological: Total viable count 0 - 50.000 CFU/g
Production strain negative

Storage conditions:

Keep packaging intact, cool, dry, away from sunlight
Shelf life 1 year after opening package
2 years in closed at 15°C

Manufacturing certifications:

ISO 9001:2015
ISO 22000:2018
Halal

Safety handling enzymes:

Inhalation of enzyme dust, mists should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. For detailed handling information please refer to the appropriate Material Safety Data Sheet.

Technical

Figure 1: Example of a wash trail at 40°C, 8dH with EMPA 117 Detergent without Protease (left) and Detergent plus increasing amount of Protease (as of 2nd from the left to the right)

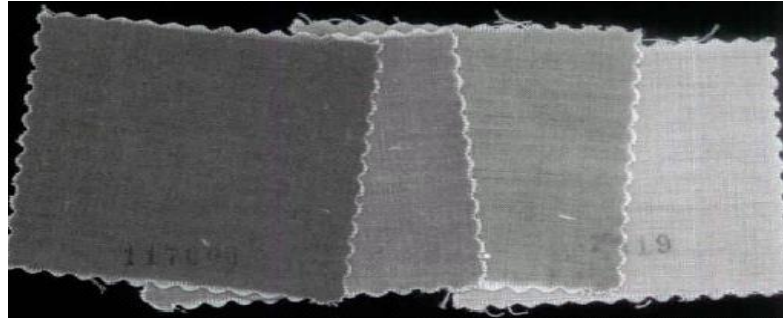


Figure 2: Example of a wash trail at 40°C, 8dH with EMPA 112 Detergent without Amylase (left) and Detergent plus increasing amount of Amylase (as of 2nd from the left to the right)



Figure 3: Example of a wash trail at 40°C, 8dH with an Olive Oil Stain. Detergent without a Lipase (left) and Detergent plus a Lipase (right)



Non-GMO Declaration

Britase PAL Mix does not contain GMO products and itself is Non-GMO. The organisms producing Britase PAL Mix are selected from nature and bred by selecting the strongest strains.

Packaging

The product is available in 40kg plastic bags protected by HDPE drums

Classification according to Regulation (EC) No 1272/2008

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