

Only the best for our horses!



Real
Brewers'
Yeast

Since 1954

Horse



Leiber
Excellence in Yeast

Brewers' yeast upcycling at a world-market level – since 1954

Leiber refines brewers' yeast (*Saccharomyces cerevisiae*) into innovative products for humans and animals. For our customers we conduct research in our own laboratories and develop tailor-made solutions for healthy nutrition, biotechnology and agricultural applications. We reliably supply excellent products – and have been upcycling at world market level since 1954.

Our actions are environment-friendly and climate-conscious

Our activities have an impact on humans, animals, and the environment. That's why we promote responsible behaviour and offer sustainable products. We take care to treat our stakeholders with fairness and appreciation. Our actions are environment-friendly and climate-conscious. We work to keep society healthy long-term – which of course includes taking responsibility for our employees. For us, sustainable behaviour is a vital component of our core business. After all, upcycling brewers' yeast is at the heart of what Leiber has always been about:

“Give Yeast a Second Life”

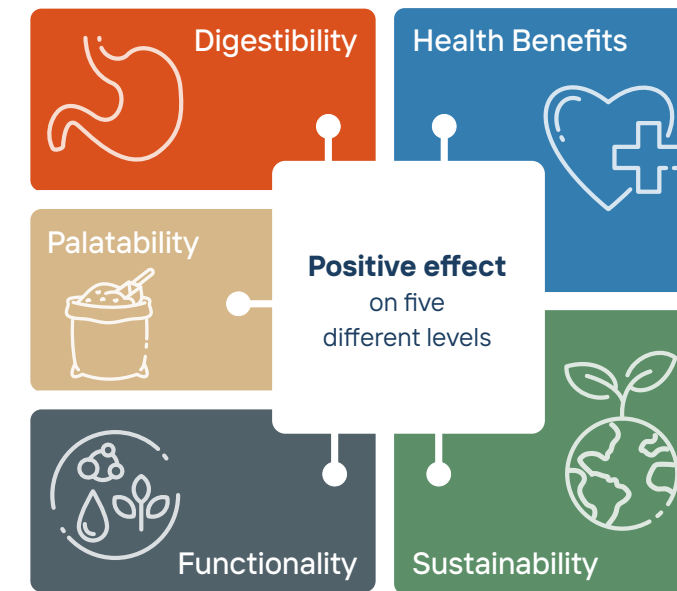
Animal Nutrition: keeping an eye on what's important

Leiber Animal Feed develops and produces sustainable brewers' yeast products. Our primary goals are to improve feed quality, feed acceptance, and the well-being of your animals, especially in terms of animal welfare. We rely on the latest scientific findings and collaborate with international research institutions and universities.

All Leiber Brewers' Yeast products represent uncompromising quality. The highest standards are applied during production in the breweries and during refinement in our modern production plants. Long before sustainability became a buzzword, Leiber's maxim was: “There are only valuable secondary streams.” We are building our future on this solid foundation – with inquiring minds, passion for innovation and the latest technologies.

Naturally versatile!

Brewers' yeast (*Saccharomyces cerevisiae*) is a proven raw material with many positive effects. Despite often being seen as only a high-quality natural protein and vitamin B source, Leiber Brewers' Yeast products can do so much more:



With extensive expertise, uncompromising quality standards and a tireless spirit of innovation, Leiber refines healthy, sustainable products for the nutrition of all equids from a brewery by-product.

Leiber Brewers' Yeast products are designed to:

- | stabilize the gastrointestinal tract
- | provide dietetic and prebiotic mechanisms
- | adsorb and inactivate harmful bacteria, mycotoxins and alkaloids
- | strengthen specific and non-specific immune response

Our product range:

Leiber Brewers' Yeast®

- | Pure brewers' yeast (unextracted)

Leiber YeaFi®

- | Brewers' yeast bound to functional fibres

CeFi®pro

- | Brewers' yeast autolysate

Biolex® MB40

- | Yeast cell walls

Leiber® Beta-S

- | Highly purified beta-glucans










Real brewers' yeast, really effective!

The raw materials for Leiber Brewers' Yeast products are produced in breweries in compliance with strict food guidelines. At Leiber, they are refined and inactivated using state-of-the-art, partly self-developed processes.

Leiber Brewers' Yeast® is rich in many bioavailable active ingredients and nutrients, such as proteins, amino acids, B vitamins and trace elements. Leiber Brewers' Yeast® is a 'real' brewers' yeast because it contains the polyphenols (alpha and beta acids) of the hops that are added during the brewing process. The hop ingredients have antioxidant and bacteriostatic effects.

Leiber Brewers' Yeast® product benefits:

-  high bioavailability of nutrients and active ingredients
-  supports digestion
-  positive effects on skin and coat quality, coat shine and coat change
-  long-term promotion of hoof quality
-  supports muscle development and performance



Leiber Brewers' Yeast® composition:

Analytical constituents and contents	
Crude protein:	46.0%
Crude fat:	2.7%
Crude fibre:	1.0%
Crude ash:	8.0%
Lysine:	3.2%
Methionine:	0.6%
Physical properties	
Structure:	dust-fine product*
Colour:	light brown
Odour:	typical of brewers' yeast
Minimum shelf life:	3 years
Dosage per animal per day	
Horse (600kg):	approx. 100g
Pony (350kg):	approx. 50g
Horse (600kg) in acute stress situations, advanced pregnancy or lactation:	approx. 150g
Rearing:	approx. 25–50g

* available in different qualities, e.g. spray-dried, roller-dried, tablet grade or food grade

Note for sport horses:

Compliant with Anti-Doping and Medication Control (ADMR) regarding the maximum amount according to FN (www.pferd-aktuell.de) of max. 150g per animal/day. Special regulations in international sport (FEI) must be observed!

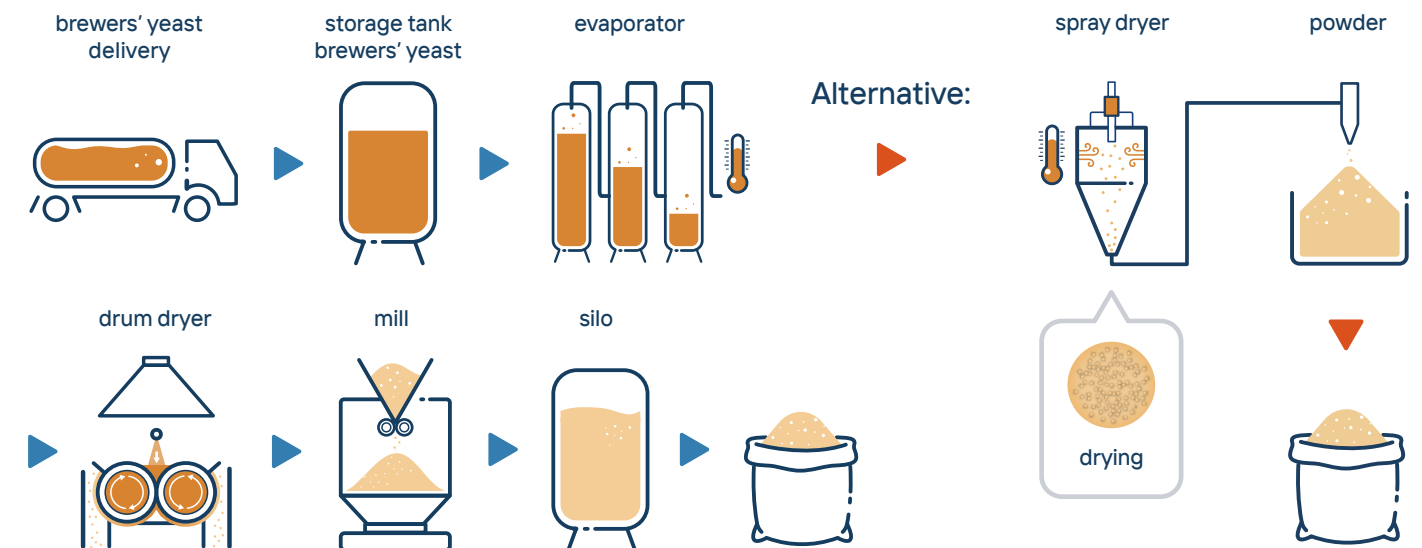


Where does the brewers' yeast come from?



- | In the beer-brewing process, brewers' yeast ferments malt sugar to form carbon dioxide and alcohol.
- | The brewers' yeast multiplies during this fermentation.
- | Leiber takes over the brewers' yeast directly from the breweries.
- | Leiber refines brewers' yeast into natural and healthy products for humans and animals.

Production process: Leiber Brewers' Yeast®



Brewers' Yeast is a well tried and tested feedstuff with a long tradition in horse feeding!

Its use has been proven in practice and often recommended in scientific literature, e.g.:

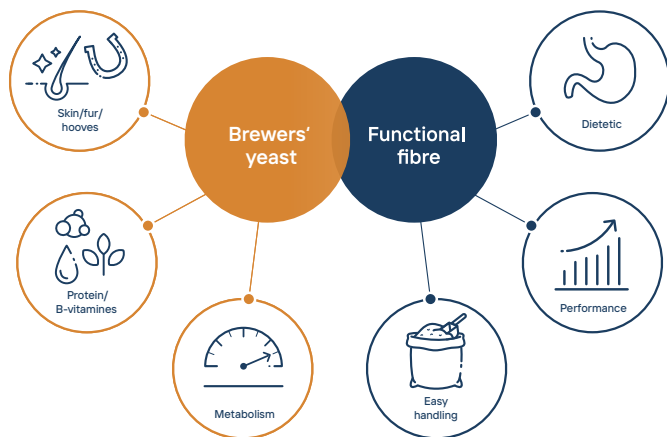
- | in cases of chronic intestinal sluggishness or resected intestinal sections (COENEN & VERVUERT 2020)
- | for horses that are prone to colic or diarrhoea (ZENTEK et al. 2008, COENEN & VERVUERT 2020)
- | for long-term digestive disorders, damage to the intestinal flora, loss of appetite or generally poor performance (COENEN & VERVUERT 2020)
- | in cases of pre-existing myopathies due to stress or diseases of the liver (COENEN & VERVUERT 2020)
- | as protein feed, especially in breeding and rearing (KARP 2011)
- | in rations which are rich in concentrated feed and poor in structure (COENEN & VERVUERT 2020)
- | in rations with low hay quality (MORGAN et al. 2007)



Unique brewers' yeast fibre products!

Leiber YeaFi® is a unique combination of inactive brewers' yeast (**Yeast**) with high-fibre roughage and functional fibres (**Fibre**) that are essential for a proper diet. Leiber YeaFi® has been produced according to the original recipe since 1954. A classic as a brand - for healthy and sustainable horse nutrition!

Functional fibres from secondary food streams are not only in line with today's sustainability trend, they also provide many dietary and prebiotic benefits! The fibre components perfectly enhance the positive nutritional and physiological properties of brewers' yeast.



Leiber YeaFi® product benefits:

- optimizes body condition score (BCS)
- improved coat gloss and coat change
- supports fertility and reproduction rate
- easy handling, dosage and storage

Leiber YeaFi® AB composition:

Analytical constituents and contents	
Crude protein:	31.0%
Crude fat:	7.0%
Crude fibre:	9.5%
Crude ash:	5.5%
Lysine:	1.8%
Methionine:	0.6%
Physical properties	
Structure:	non-hygroscopic
Colour:	brown
Odour:	yeast with fruity notes
Minimum shelf life:	3 years
Dosage per animal per day	
Horse (600kg):	approx. 200g
Pony (350kg):	approx. 100g
Horse (600kg) in acute stress situations, advanced pregnancy or lactation: approx. 250g	
Rearing:	approx. 50-100g

Note for sport horses:

Compliant with Anti-Doping and Medication Control (ADMR) regarding the maximum amount according to FN (www.pferd-aktuell.de) of max. 350g per animal/day. Leiber YeaFi® BM is not suitable for sport horses due to the malt sprouts! Special regulations in international sport (FEI) must be observed!

The Leiber YeaFi® product group:

Leiber YeaFi® BT

- | Brewers' yeast bound to spent grains

Leiber YeaFi® AB

- | Brewers' yeast bound to apple pomace and beet pulp

Upon request, Leiber YeaFi® products are available as finely milled variants and with other fibre carriers, such as wheat bran and carrot pomace.



Research

Impact of a feed supplement based on brewers' yeast on various stool parameters and the general condition of young horses while they are being broken in; Osnabrück University of Applied Sciences Faculty of Agricultural Sciences and Landscape Architecture, Horse Competence Center (HCCG) Osnabrück; Germany; unpublished

Fig. 1: Ultrasound measurement of subcutaneous fat thickness for objective assessment of BCS development

Characteristic	Control			Trial		
	Start	End	Diff.	Start	End	Diff.
Subcutaneous fat thickness in mm M3	14.4 ^{ab} ± 3.7	18.7 ^a ± 5.7	4.3	13.0 ^b ± 4.6	19.0 ^a ± 5.2	5.7
Subcutaneous fat thickness in mm M2	9.0 ^a ± 1.5	10.9 ^b ± 2.2	2.0	8.4 ^a ± 2.9	11.7 ^b ± 2.3	3.0
Subcutaneous fat thickness in mm SwHh	5.3 ^{ac} ± 1.5	6.6 ^{bc} ± 1.5	1.3	4.9 ^a ± 1.7	7.8 ^b ± 2.2	2.1

^{a,b,c} letters indicate significant differences (p < 0.05)

Impact of a supplementary feed supplement based on brewers' yeast on body condition, stool parameters and external appearance of old horses; Osnabrück University of Applied Sciences, Faculty of Agricultural Sciences and Landscape Architecture, Germany; unpublished

Fig. 2: improved coat gloss
1-dull, 2-normal, 3-shiny

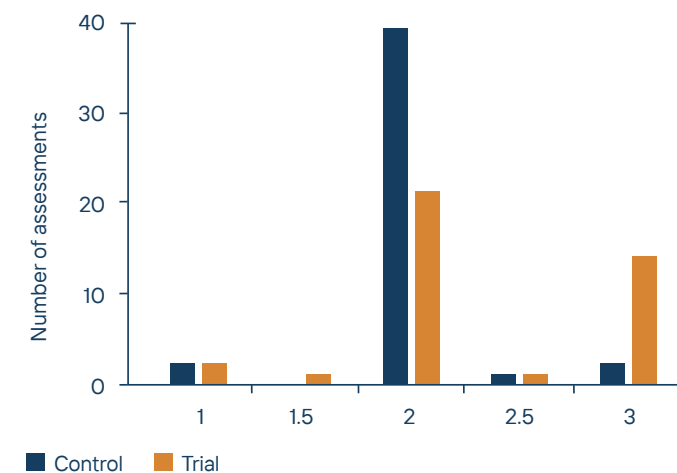
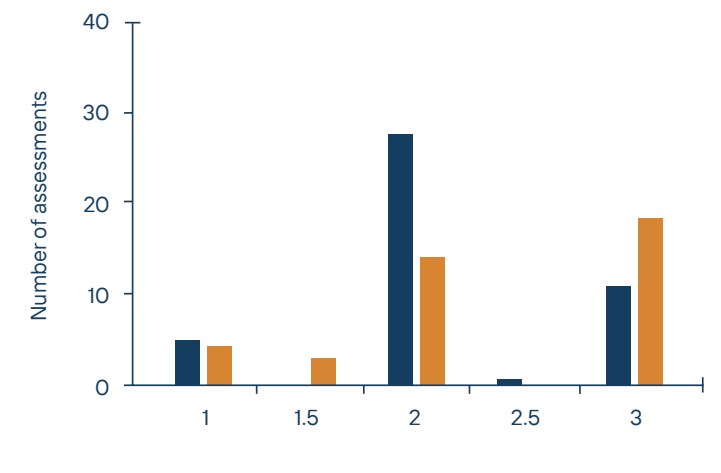


Fig. 3: improved coat quality
1-shaggy, 2-normal, 3-smooth



Leiber YeaFi® BT shows:

- | improved coat shine and coat quality (Fig. 2 and 3)
- | faster coat change in old horses
- | optimized stool quality
- | less weight fluctuations and more stable body condition score (BCS) development in old horses







Best values in bioavailability!

CeFi^{pro} is especially suitable for feeding young and very old animals or animals in stress situations. The reason for this is that the autolysed yeasts in Leiber CeFi^{pro} are partially pre-digested, therefore increasing the nutrients' bioavailability for the animal significantly.

CeFi^{pro} combines the positive effects of beta-glucans and mannan-oligosaccharides (MOS) from the cell wall with the natural components of the cell interior, such as peptides, free amino acids and nucleotides. Nucleotides, for example, are considered essential for intestinal development because they can support cell growth and cell regeneration.

CeFi^{pro} product benefits:

-  high bioavailability of nutrients and active ingredients
-  supports the development and integrity of intestinal tissue
-  promotes the metabolism
-  supports performance and muscle development

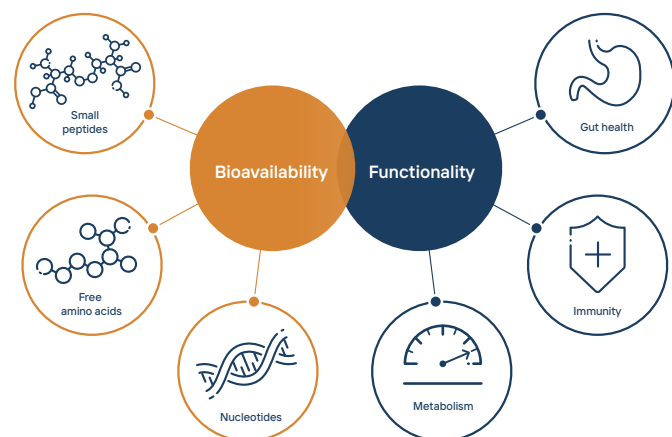


CeFi^{pro} composition:

Analytical constituents and contents	
Crude protein:	50.0%
Crude fat:	3.0%
Crude fibre:	1.0%
Crude ash:	6.6%
Lysine:	3.6%
Methionine:	0.8%
Mannan oligosaccharides (MOS) + glucans:	20–25%
Physical properties	
Structure:	dust-fine product
Colour:	light brown
Odour:	typical of brewers' yeast
Minimum shelf life:	3 years
Dosage per animal per day	
Horse (600kg):	approx. 50g
Pony (350kg):	approx. 30g
Horse (600kg) in acute stress situations, advanced pregnancy or lactation:	approx. 80g
Rearing:	approx. 15–30g

Note for sport horses:

Compliant with Anti - Doping and Medication Control (ADMR) according to FN (www.pferd-aktuell.de). Special regulations in international sport (FEI) must be observed!



Research

In vitro evaluation of different Leiber[®] products on the fermentation performance of starch-rich substrates (HS) in horses.; University of Glasgow, College of Medical Veterinary and Life Sciences, School of Veterinary Medicine, Prof. D. J.-A. Murray; unpublished

Short chain fatty acids (SCFA) such as propionate, acetate and butyrate are available to the horse as energy sources (BUZA 2016). They provide about 70% of the energy converted in the mucosa of the large intestine. (ROEDIGER 1980). BERG et al. (2005) concluded that the concentration of SCFA is therefore a measure of the intestinal health of the horse. CeFi^{pro} increases SCFA production, especially propionate production (Table 1).

Table 1: CeFi^{pro} (AY50) increases SCFA production (in mg/kg) from starch-rich substrates (HS)

Substrates	SCFAs (mg/kg)				
	Acetate	Butyrate	Propionate	Total	%
HS+AY50	2008	286	1311	3605	+ 9.71
HS	1830	285	1170	3286	

Effect of Leiber yeast products on immune parameters (specific & non-specific) and antiinflammatory/proinflammatory interleukins (in vitro). Faculty of Vet. Med., Dept. of Virology, Parasitology and Immunology; Ghent University, 9000 Ghent Belgium; unpublished

The non-specific immune system uses macrophages to target pathogens, among other things, by recognising and phagocytising them based on their surface structure. In the process, messenger substances (interleukins; IL) are released, which react pro-inflammatory (inflammation-promoting) or anti-inflammatory (inflammation-inhibiting). IL-6, IL-8 and IL-17 are so-called inflammatory markers and can be key elements in acute and chronic inflammatory reactions. CeFi^{pro} reduces pro-inflammatory markers, such as IL-6, IL-8 and IL-17A (see Fig. 1, 2 and 3).

Fig. 1: IL-6 secretion after stimulation with 200 µg/ml sample vs. medium.

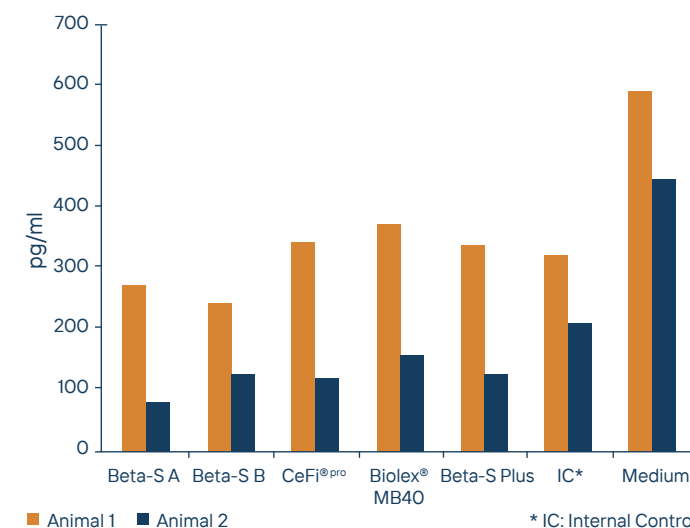


Fig. 2: IL-8 secretion after stimulation with 200 µg/ml sample material vs. medium.

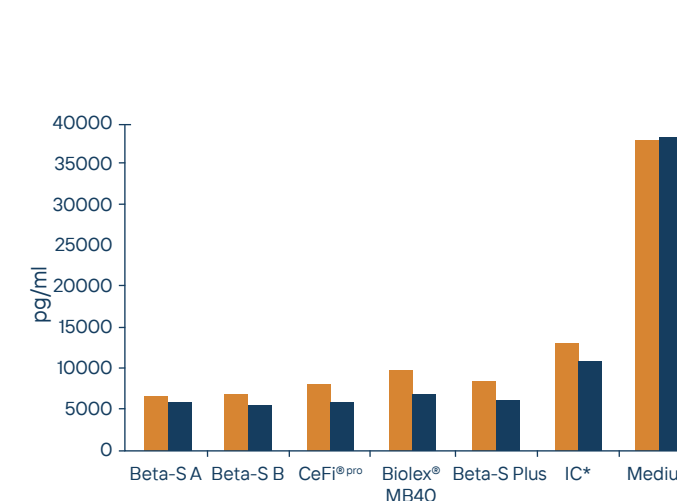
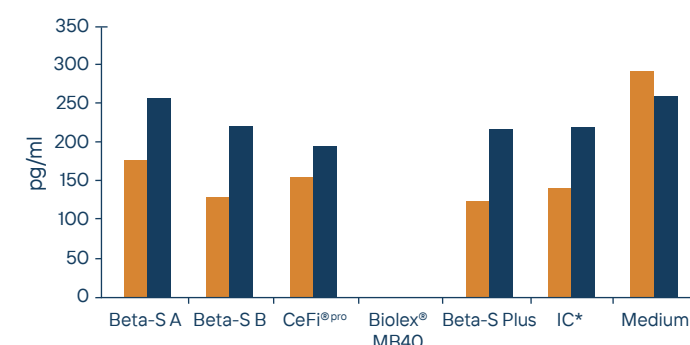


Fig. 3: IL-17A secretion after stimulation with 200 µg/ml sample material vs. medium.

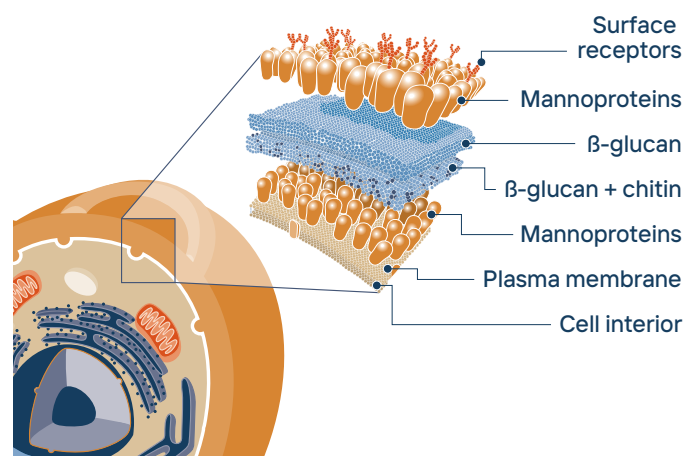


Biolex MB40

Prebiotic! Pro health!

Leiber Biolex® MB40 is characterized by its high content of beta-glucans and mannan-oligosaccharides (MOS) and a special surface structure with associated high adsorption power.

In a complex production process, the yeast cell walls are separated from the cell interior (yeast extract). The active segments of the cell wall are thus gently released without destroying the surface structure.



The positive effects, in particular on the microbiome (prebiotic effect), the immune system and binding activities of pathogens and mycotoxins have been scientifically proven many times.

Biolex® MB40 product benefits:

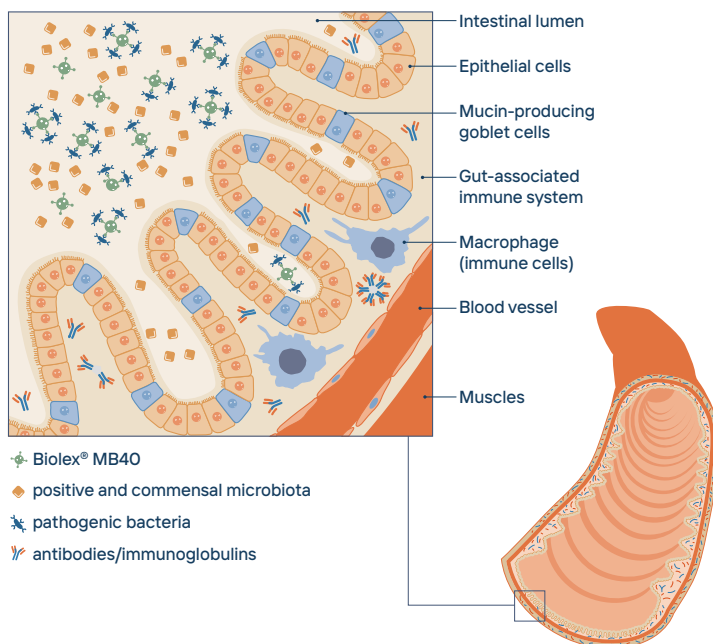
- prebiotic effect
- intestinal health and protection
- displaces pathogens and binds mycotoxins and alkaloids
- supports immune system

Biolex® MB40 composition:

Analytical constituents and contents	
Crude protein:	28.0%
Crude fat:	7.5%
Crude fibre:	0.5%
Crude ash:	4.0%
Lysine:	2.0%
Methionine:	0.5%
Mannan oligosaccharides (MOS):	20–25%
Glucans:	25%
Physical properties	
Structure:	dust-fine product
Colour:	light brown
Odour:	typical of brewers' yeast
Minimum shelf life:	3 years
Dosage per animal per day	
Horse (600kg):	approx. 15g
Pony (350kg):	approx. 10g
Horse (600kg) in acute stress situations (on a treatment series basis):	approx. 20g
Rearing:	approx. 5–10g

Note for sport horses:

Compliant with Anti - Doping and Medication Control (ADMR) according to FN (www.pferd-aktuell.de). Special regulations in international sport (FEI) must be observed!

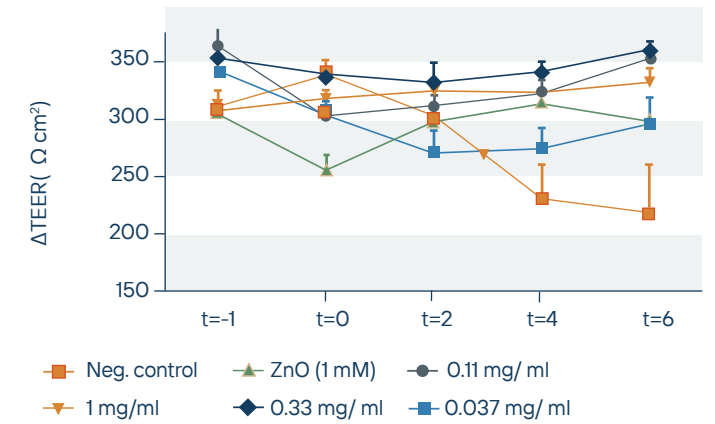


Research

Effect of brewers' yeast cell walls on pathogen binding and gut barrier integrity after infection; Review article M. Rakebrandt, Leiber GmbH

Transepithelial electrical resistance (TEER) serves as a measure of intestinal integrity. This is crucial for nutrient supply and first barrier against pathogens, among other things. In an in vitro experiment, the change in the TEER value was measured during infection with ETEC (enterotoxigenic Escherichia coli). After infection, the TEER value and thus the barrier function for the negative control continuously decreased. The positive control (zinc oxide, ZnO) exhibited a strong decrease during the first hour without infection. Biolex® MB40, on the other hand, exhibited a dose-dependent, stable TEER value and thus good barrier function and/or intestinal integrity over the entire test period (see Fig. 1).

Fig. 1: Change in TEER values with Biolex® MB40 alone (t=-1 to=0) and Biolex® MB40 in the presence of ETEC t=0 to=2 h, 4 h and 6 h.



Evaluation of ergot alkaloid binding capacity of brewers' yeast cell wall product rich in (1,3HL6)-β-D-glucans and mannans under in vitro gastro-intestinal conditions; 13th International Conference on Mycotoxins and moulds – current trends, Uniwersytet Kazimierza Wielkiego W Bydgoszcz, Poland

Fig. 1: Dose-dependent ergot alkaloid Binding activity (%) of Biolex® MB40 at pH 3

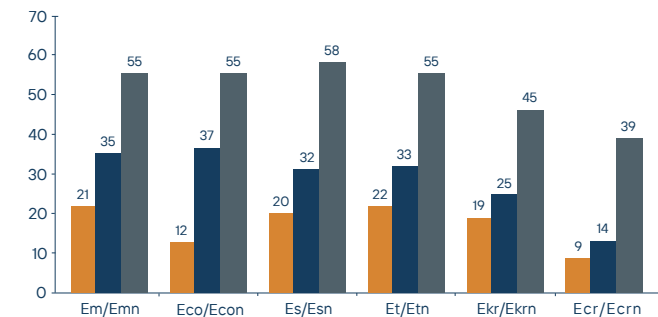
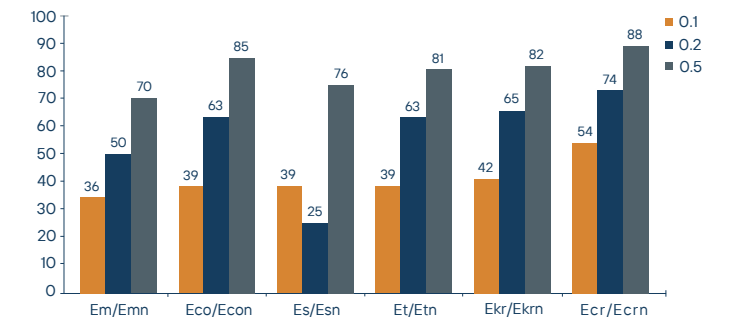


Fig. 1: Dose-dependent ergot alkaloid Binding activity (%) of Biolex® MB40 at pH 7



Eco/Econ	Ergocornine/Ergocorninine
Ecr/Ecrn	Ergocristine/Ergoctistine
Ekr/Ekrn	Ergokryptine/Ergokryptinine
Em/Emn	Ergometrine/Ergometrinine
Es/Esn	Ergosine/Ergosinine
Et/Etn	Ergotamine/Ergotaminine

Biolex® MB40 with:

- | good binding capacity with various alkaloids and their epimers
- | dose-dependent effect
- | good binding at pH3 as well as at pH7





For a strong immune defence!

The high purity of the beta-glucans in Leiber® Beta-S contributes to stimulating the immune system of the animals and strengthening their immune system. This has been scientifically proven many times over. The beta-glucans are dissolved from the cell wall complex of the brewers' yeast using a particularly gentle process. This preserves the inert structure and thus its biological activity much better. It ensures the unique efficiency of the immunostimulating and immunomodulating effect during intestinal passage.

Leiber® Beta-S for your products:



immune stimulation and modulation

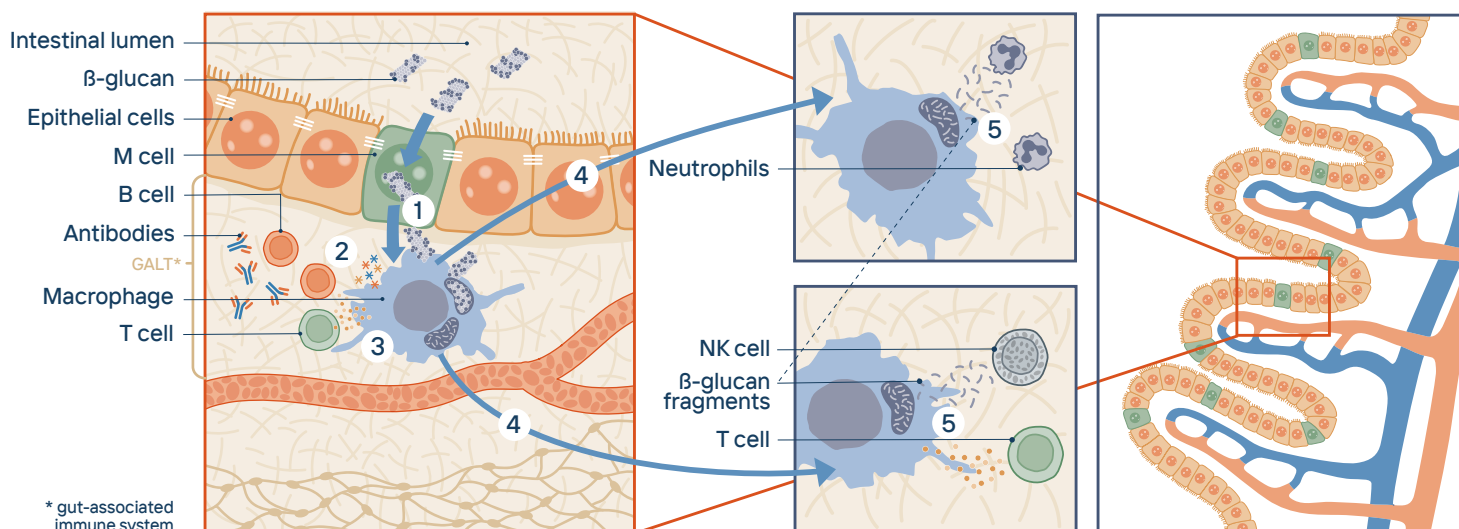


promotes specific and non-specific immune response



supports recovery and regeneration phases

1. Uptake of beta-glucans from the gut lumen by macrophages
2. Activation of macrophages increases phagocytosis.
3. Release of cytokines and chemokines recruits more immune cells. Macrophages present antigenic structures to T and B cells, to subsequently produce antibodies.
4. Activated macrophages migrate to organs of the immune system.
5. In the bone marrow, spleen and lymph nodes, the beta-glucan fragments and cytokines activate other immune cells.



Leiber® Beta-S composition:

Analytical constituents and contents	
Crude protein:	4.0%
Crude fat:	4.0%
Crude fibre:	0.5%
Crude ash:	3.0%
Lysine:	0.2%
Methionine:	0.1%
Beta-glucans:	80.0%
Physical properties	
Structure:	dust-fine product*
Colour:	beige
Odour:	neutral
Minimum shelf life:	3 years
Dosage per animal per day	
Horse (600kg):	approx. 5g
Pony (350kg):	approx. 3g
Horse (600kg) in acute stress situations (on a treatment series basis):	approx. 7g
Rearing:	approx. 0.25–3g

* also available as Leiber® Beta-S Plus (combination of Leiber® Beta-S and Biolex® MB40)

Note for sport horses:

Compliant with Anti - Soping and Medication Control (ADMR) according to FN (www.pferd-aktuell.de). Special regulations in international sport (FEI) must be observed!

Research

Effect of Leiber yeast products on immune parameters (specific & non-specific) and antiinflammatory/proinflammatory interleukins (in vitro). Faculty of Vet. Med., Dept. of Virology, Parasitology and Immunology; Ghent University, 9000 Ghent Belgium; unpublished

Fig. 1: Effect of different concentrations of Leiber® Beta-S on ROS production (phagocytosis). RLU: relative light units.

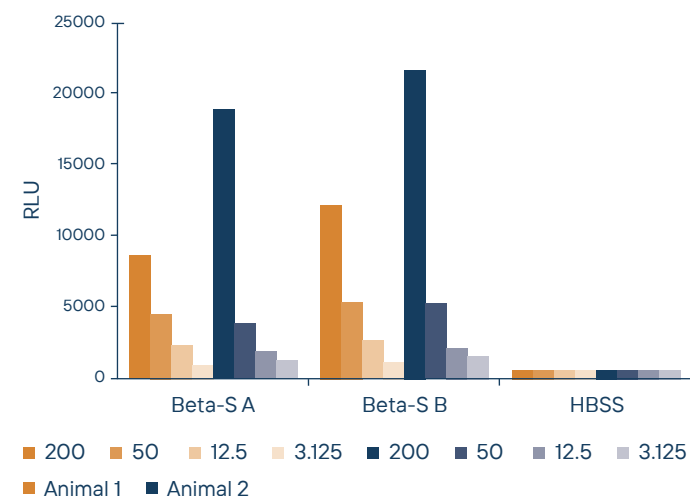
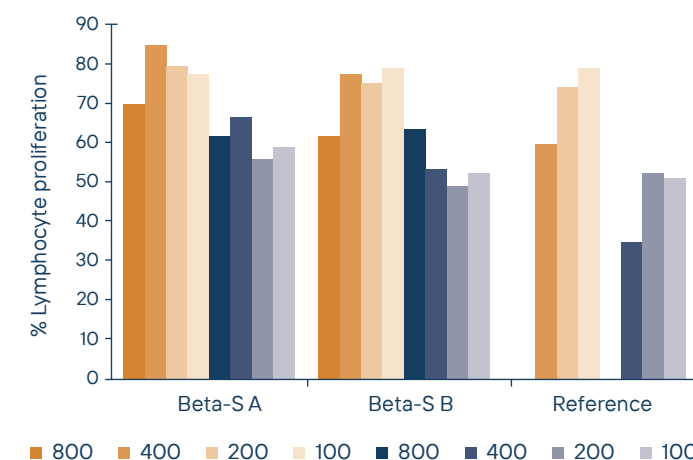


Fig. 2: Effect of different concentrations of Leiber® Beta-S on lymphocyte proliferation (bundle T cells) vs. reference product

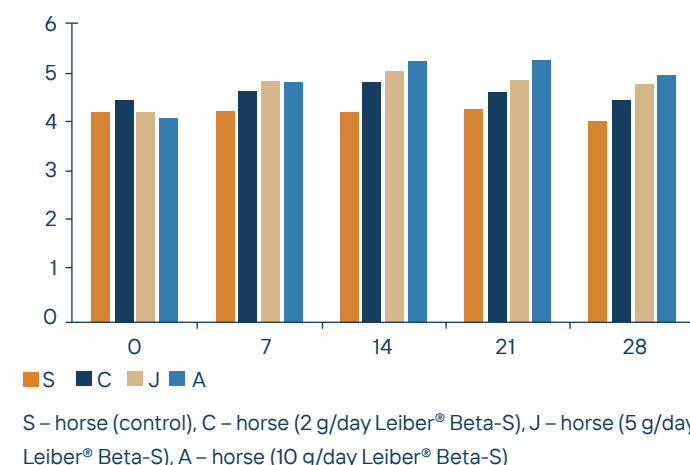


Leiber® Beta-S:

- increases ROS production (phagocytosis) as an indicator of the non-specific immune system (Fig. 1)
- promotes lymphocyte production as an indicator of the specific immune system (Fig. 2)
- promotes lymphocyte proliferation (B and T cells) even at higher doses, in contrast to the reference product (Fig. 2)

Effect of Brewers' Yeast Beta-Glucan Supplementation on Immune Parameters in Horses; Poster Session; GA – Society of Medical Plant and Natural Product Research Conference, Thessaloniki

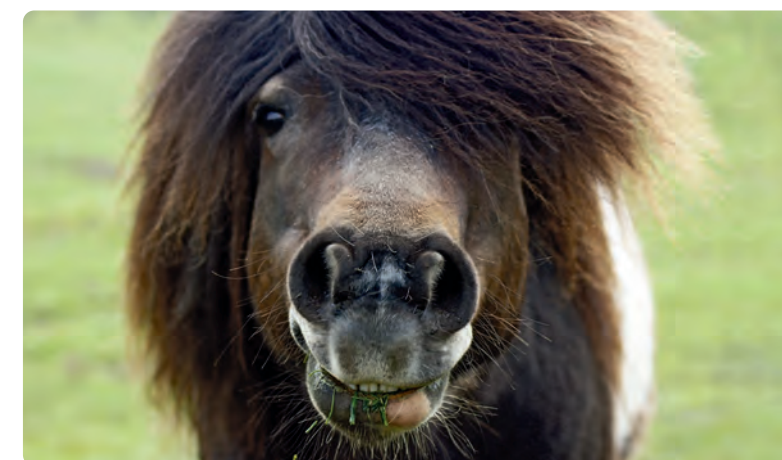
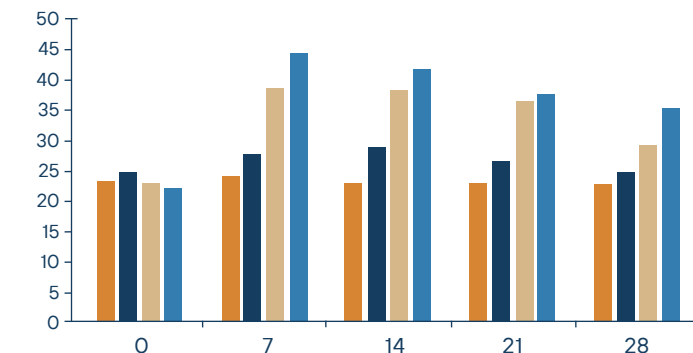
Fig. 3: Lysozyme activity in blood serum



Leiber® Beta-S:

- stimulates non-specific cellular and humoral defence mechanisms (Fig. 3 and 4)
- increases non-specific immune response after vaccination (adjuvant effect)

Fig. 4: Gamma globulin level in blood serum



Get in touch

Leiber Brewers' Yeast products have always stood for *healthy quality*. The highest standards apply to brewers' yeast, both during production in breweries and during refinement by Leiber itself. Long before sustainability became a buzzword, Leiber already lived by the maxim "There's no such thing as waste; there are only valuable secondary streams".

Sustainable management is not a mere aspiration at Leiber, it is put into practice every day – which the "ZNU Sustainable Management" certificate verifies.

The ZNU Quality Seal for Sustainable Management is awarded by the Center for Sustainable Leadership (ZNU) at Witten/Herdecke University. Leiber selected this standard because it makes sustainability verifiable and quantifiable and thus leads to continuous improvement. In addition, annual audits check the continuous improvement process.

We are building our future on this solid foundation – with an inquiring mind, passion for innovation and the latest product solutions for our customers!

Quality from raw material to product solution

Do you consider the quality of your products paramount? Then we have something in common. At Leiber, we plan quality into all processes and products from the very start. On top of that, our products and processes are audited and certified both internally and externally. As a result we hold the following certificates.

BioSuisse | Biozertifikat | FSSC 22000 Feed | FSSC 22000 – Leiber Sp. z o.o. | ISO 50001 | QS – Factory Bramsche | QS – Factory Engter | QS – Leiber Sp. z o.o. | VLOG FEED – Factory Bramsche | VLOG FEED – Factory Engter | VLOG FEED – Leiber Sp. z o.o. | VLOG FOOD – Factory Engter | VLOG FOOD – Leiber Sp. z o.o. | ZNU Certificate – ZNU Driving Sustainable Change



Certificate download

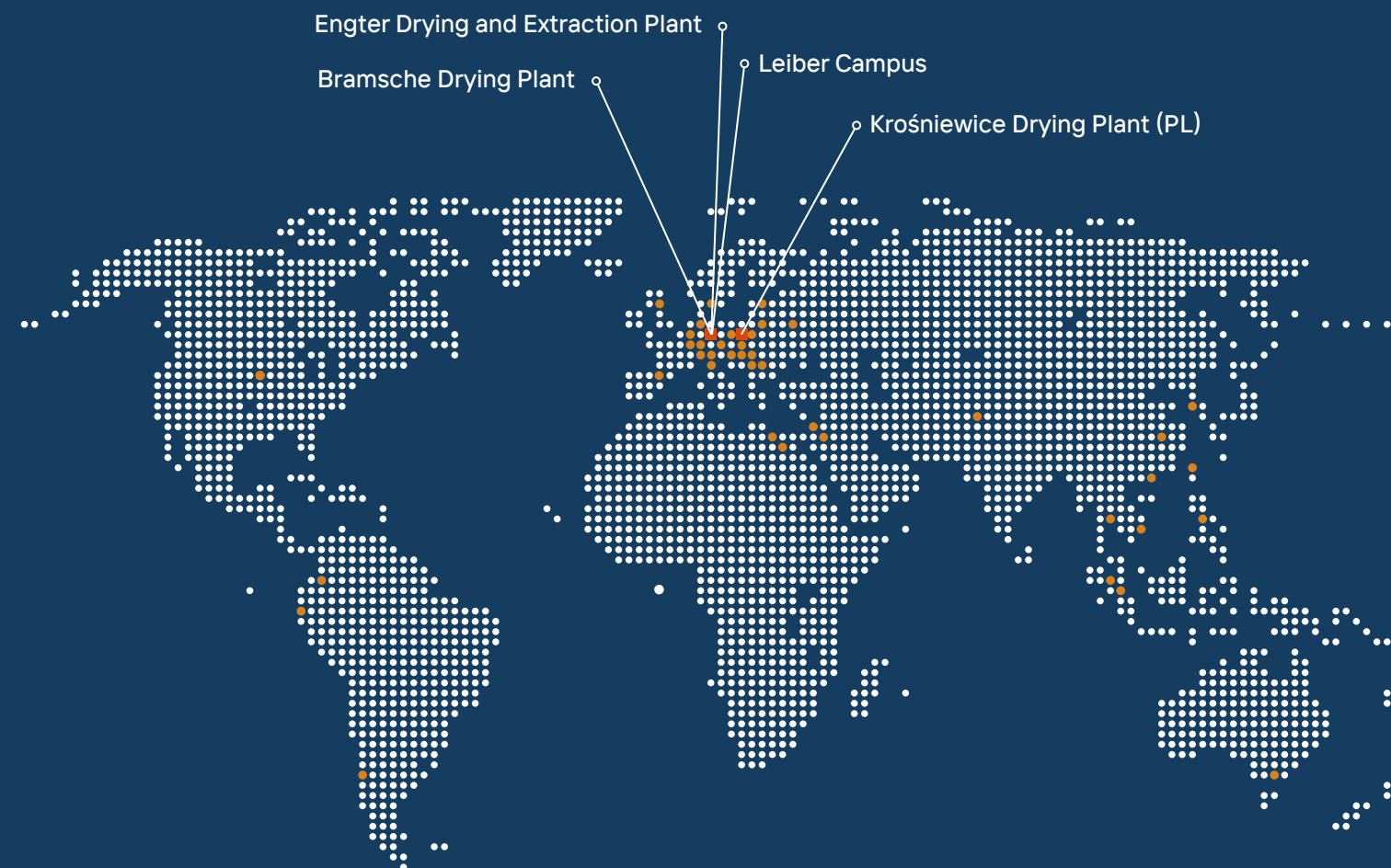
For more information, ask our horse specialist:



Maike Rakebrandt, Senior Product Management Equine & Pet
Phone: +49 5461 9303-750 | m.rakebrandt@leibergmbh.de



Working for you worldwide!



Leiber Campus

Leiber GmbH | Franz-Leiber-Straße 1 | 49565 Bramsche-Engter | Germany
Phone +49 5461 9303-0 | Fax +49 5461 9303-28 | info@leibergmbh.de | leibergmbh.de

Bramsche Drying Plant

Leiber GmbH | Hafenstraße 24 | 49565 Bramsche | Germany
Phone +49 5461 9303-0 | Fax +49 5461 9303-28 | info@leibergmbh.de | leibergmbh.de

Engter Drying and Extraction Plant

Leiber GmbH | Heywinkelstraße 21 | 49565 Bramsche-Engter | Germany
Phone +49 5461 9303-0 | Fax +49 5461 9303-28 | info@leibergmbh.de | leibergmbh.de

Drying Plant in Poland

Leiber Sp. z o.o. | ul. Łęczycka 38 | 99-340 Krośniewice | Poland
Phone +48 24 251 0360 | info@leiberspzo.pl | leibergmbh.de/pl

Sustainable. Innovative. Effective.



Errors and changes excepted. 11/2022



We have been upcycling at world-market level since 1954 and keeping the environment and climate in mind.



Leiber
Excellence in Yeast

Leiber GmbH | Franz-Leiber-Straße 1 | 49565 Bramsche
Germany | info@leibergmbh.de | leibergmbh.de