



Process technology for the brewing industry



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BIOTECHNOLOGIES



BREWING WATER & WORT TREATMENT

pH ADJUSTMENT OF THE BREWING WATER & WORT

Mix Acid CL

Liquid



Organic acidification agent for pH adjustment of brewing water, mash and wort. Improves the mashing efficiency, reduces the extraction of oxidizable polyphenols during mashing and extends the beer flavor stability. Added to the brewing water 10/15 minutes after mash-in or directly to the wort.

Dosage recommendation	depending on the original pH of the brewing water, mash and wort
Formats	1 kg net bottles in cartons containing 4 kg; 10 kg net drums.
Storage	store in the sealed container, in a clean, dry and odourless place. Crystallization sensitive product. Keep the product at temperatures above 10°C.

Acid P F.G.

Liquid



Acidification agent for pH adjustment of brewing water and wort. Improves the mashing efficiency, reduces the polyphenol extraction during mashing and provides a source of phosphorus readily usable by the yeast. Added to the brewing water 10/15 minutes after mash-in or directly to the wort.

Dosage recommendation	depending on the original pH of the brewing water, mash and wort
Formats	15 kg net drums; 1400 kg net IBC.
Storage	store in the sealed container, in a clean, dry and odourless place. Crystallization sensitive product. Keep the product at temperatures above 10°C.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.





BREWHOUSE

PREVENTION OF THE HOT WORT OXIDATION

Antioxin SBT

Powder



A new generation antioxidizing agent, especially designed for the treatment of malt and unmalted cereals. It inhibits the malt LOX (i.e. lipoxygenase) activity responsible for lipid oxidation and aldehyde formation (i.e. trans-2-nonenal) and other oxidizable compounds present in the wort.

Dosage recommendation	5-10 g/hL of wort during mash-in or after wort boiling
Format	1 kg net packs in cartons containing 4 kg; 1 kg net packs in cartons containing 20 kg; 10 kg net bags.
Storage	store preferably in a dry place away from direct light and heat

Gallobrew

Powder



A very purified gall tannin, which does not cause any undesired bitter or astrigent flavours in beer. The high reactivity towards haze active (HA) proteins and enzymes (i.e. laccase, lipoxygenase, and others) optimises the wort clarification and prevents beer oxidation.

Dosage recommendation	7.5-10 g/hL of wort during mash-in or after wort boiling
Format	5 kg net bags
Storage	store preferably in a dry place away from direct light and heat

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

EXOGENOUS BREWING ENZYMES

BREWHOUSE ENZYMES

Endozym® Alphamyl SB1

Liquid


Bacterial alpha-amylase. It is used at higher temperatures in the brewhouse during mashing in order to facilitate the hydrolysis of starch into maltose, soluble dextrans and glucose of cereal grain adjuncts. Some of the main advantages are a quick reduction of the viscosity of the adjuncts mash, reduction of risk of haze in the final beer and significant improvement of brewhouse yield of higher gravity worts.

Dosage recommendation	100-300 ml/T of malt or adjunct during mash-in or cereal cooker
Formats	250 g net bottles in boxes of 1 kg
Storage	store preferably at a temperature <20°C

Endozym® Glucacel UHT

Liquid


Thermostable beta-glucanase with pentosanase, cellulose, xylanase and arabanase activity. It is used for the treatment of barley at the mash-in. It also promotes the increase of mash filtration cycles and reduces the wort viscosity. Therefore, it optimizes the brewhouse yield and beer filtration capacity.

Dosage recommendation	200-300 ml/T of malt or adjunct during mash-in or cereal cooker
Formats	250 g net bottles in boxes of 1 kg
Storage	store preferably at a temperature <20°C

Endozym® Brewmix Plus

Liquid


Full enzymatic complex that hydrolyzes polysaccharides and sensible proteins present in the mash to improve mash filterability, colloidal stability and brewhouse yield. It decreases mash viscosity, produce similar fermentable sugars and less dextrin levels in comparison to decoction mashing methods. This consequently increases the energy savings.

Dosage recommendation	300-900 ml/T of malt or adjunct during mash-in or wort boiling
Formats	250 g net bottles in boxes of 1 kg; 1 kg net bottles in cartons containing 4 kg.
Storage	store preferably at a temperature <20°C

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Endozym® AMG

Liquid

Enzymatic preparation capable of hydrolizing the glucosidic alpha-1,6 and alpha-1,4 starch linkages. Its application allows a complete conversion of the liquefied starch into glucose. It is used during the production of cold wort, fermentation or in the beer storage tank in order to facilitate starch hydrolisis and its rapid conversion into glucose. It is also used in the production of light beers with a low content of residual carbohydrates.

Dosage recommendation	2,5-6 ml/hL of wort after wort boiling
Formats	1 kg net bottles in cartons containing 4 kg
Storage	store preferably at a temperature <20°C

WORT & BEER CLARIFICATION

Polygel BH

Powder



Wort clarifier that acts both on average molecular weight proteins and polyphenols. It also acts as a combined stabilizer to improve chill haze. Preserves beer colour, aroma and taste. To be dosed at the end of the mash saccharification.

Dosage recommendation	10-40 g/hL of wort
Format	500 g net packs in cartons containing 5 kg; 15 kg net bags.
Storage	it is a slightly hygroscopic product and must therefore be stored in a dry place

Spindasol SB1

Liquid



Colloidal silica sol with a selective reaction provided by its physical characteristics such as surface area, particle size and charge, so as to produce heavy particles that sediment rapidly. Spindasol SB1 has to be added 5-15 min before wort boiling ends.

Dosage recommendation	15-30 g/hL of wort
Formats	1 kg net bottles in cartons containing 4 kg; 1 kg net bottles in cartons containing 20 kg; 25 kg net drums.
Storage	store in a cool and dry place, away from direct sunlight and heat. Keep away from frost (7°C min).

DEFOAMING AGENTS

BATFOAM 858

Liquid



Effective food grade silicon based defoaming agent designed to inhibit foam during wort boiling or beer fermentation allowing the maximization of fermentation vessel working capacity. Batfoam 858 is removed from the beer stream by high adsorption to the brewing yeast at the end of fermentation.

Dosage recommendation	3-5 ml/hL, dilute in 3-10 times its volume with brewing water at the same fermentation set-up temperature of your choice and mix it gently before addition.
Format	25 kg net cans
Storage	Batfoam 858 must be kept away from extreme cold and hot storage temperatures, preferably at room temperature.

FERMENTATION

YEAST NUTRIENTS

Fermocel SB

Powder



Biological and physical-biological regulator, fermentation activator of beer wort. It provides the indispensable mineral elements and vitamins needed for yeast development, growth and biological activity.

Dosage recommendation	25-100 g/hL of wort to ferment
Formats	5 kg net bags; 25 kg net bags
Storage	store in a cool, dry place away from direct light and heat

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Fermoplus® GSH Powder



Brewing yeast nutrient with antioxidant action for the improvement of the beer produced. Patented nutrient based on yeast hulls, autolysates of yeast and thiamine hydrochloride (vitamin B1).

Dosage recommendation	25-50 g/hL of wort 5-15 min during wort cooling
Formats	net packs of 1 kg in boxes of 4 kg
Storage	store in a cool, dry place away from direct light and heat

Fermoplus® Fruity Powder

NEW !


Brewing yeast nutrient with specific natural amino acids, ideal for obtaining beers with high tropical aromatic profile that synergistically enhances hop aroma with pleasant tropical fruit character.

Dosage recommendation	20-40 g/hL of wort 5-15 min during wort cooling
Formats	net packs of 1 kg in boxes of 4 kg
Storage	store in a cool, dry place away from direct light and heat

Fermoplus® Fragrance Powder

NEW !


Brewing yeast nutrient with specific natural amino acids, ideal for obtaining beers with high floral aromatic profile that synergistically enhances hop aroma with elegant floral fragrance.

Dosage recommendation	20-40 g/hL of wort 5-15 min during wort cooling
Formats	net packs of 1 kg in boxes of 4 kg
Storage	store in a cool, dry place away from direct light and heat

BOTTOM FERMENTING YEASTS

Fermolager W

Powder

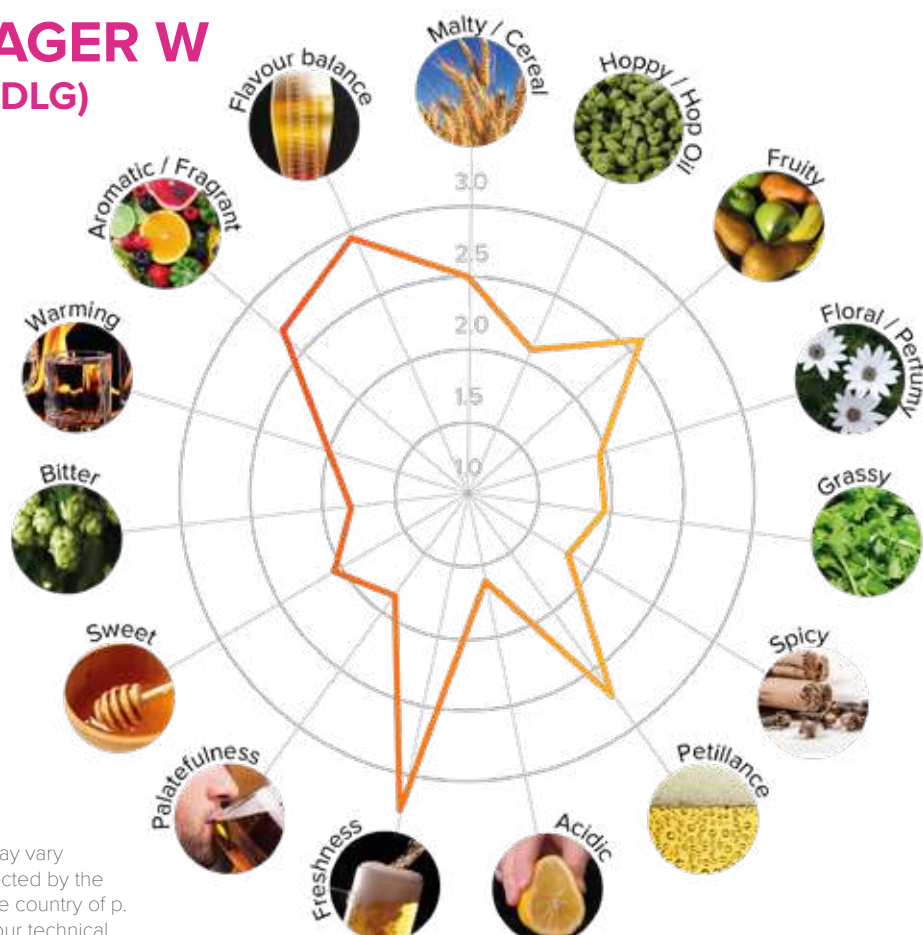


Saccharomyces pastorianus

Fermolager W is a yeast strain for brewing lager beers. It is a bottom fermenting yeast selected by Technical University of Munich Weihenstephan and is used by a large number of craft breweries. The aromatic profile is neutral and balanced. Fermolager W is a high flocculating yeast with fast sedimentation at the end of fermentation. The fermentation time depends on the pitching rate and the fermentation temperature used.

Beer styles	all type of Lagers
Fast fermentation kinetics	fast. 3 days at 22°C, 13 days at 12°C for 12°P
Fermentation temperature range	10-22°C
Apparent attenuation	87%
Flocculation & sedimentation	high
Dosage recommendation	80-100 g/hL of 12°P to 20°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE WITH FERMOLAGER W (According to ASBC & DLG) 12°P 12°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Fermolager Berlin

Powder



Saccharomyces pastorianus

Fermolager Berlin is a yeast strain for brewing lager beers. It is a bottom fermenting yeast selected by Technical University of Berlin and is used by a large number of craft breweries. The aromatic profile is quite fruity. Fermolager Berlin is a high flocculating yeast with fast sedimentation at the end of fermentation. The fermentation time depends on the pitching rate and the fermentation temperature used.

Beer styles	all type of Lagers (i.e. Low alcohol to strong Lagers) and California Common
Fast fermentation kinetics	fast. 3 days at 22°C, 13 days at 12°C for 12°P
Fermentation temperature range	10-22°C
Apparent attenuation	87%
Flocculation & sedimentation	very high
Dosage recommendation	80-100 g/hL of 12°P to 20°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE WITH FERMOLAGER BERLIN

(According to ASBC & DLG)
12°P 12°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

TOP FERMENTING YEASTS

Fermoale Bel-Abbey

Powder



Saccharomyces cerevisiae

FERMOALE BEL-ABBEY is a dry active top fermenting yeast strain especially selected for fermentation of a wide spectrum of Belgian style ales such as Abbey styles (i.e. Enkel, Dubbel, Tripel & Quadrupel), Belgian Pale-, Dark Strong Ale, Belgian Blonde- and Pale Ale.

This strain confers a complex yet very clean and delicate fruity and phenolic flavor character with reminiscences of dried fruits such as figs, raisins, plums and dates in harmony with the maltiness and alcohol content of the designed beer.

	Beer styles	Belgian style ales such as Abbey styles (i.e. Enkel, Dubbel, Tripel & Quadrupel), Belgian Pale-, Dark Strong Ale, Belgian Blonde- and Pale Ale.
	Fermentation temperature range	16-24°C
	Flocculation & sedimentation	medium
Dosage recommendation	50-80 g/hL at 16-24°C	
Viability	> 1 x 10 ¹⁰ cfu/g	
Formats	500 g packs in boxes of 1 or 10 kg	
Storage	store preferably at a temperature <20°C	

Fermoale

Powder



Saccharomyces cerevisiae

Fermoale is a top fermenting yeast strain for brewing ale beers. It originates from Scotland and is used by a large number of craft breweries. Fermoale has a high attenuation capacity and ferments significantly fast. It provides a very fruity aroma profile in beer. Fermoale is a low flocculating yeast with medium sedimentation at the end of fermentation. The fermentation time depends on the pitching rate and the fermentation temperature used.

Beer styles	all type of ales and modern ciders
Fast fermentation kinetics	fast. 8 days at 22°C, 16 days at 12°C for 12°P
Fermentation temperature range	12-25°C
Apparent attenuation	87%
Flocculation & sedimentation	good

Dosage recommendation	50-100 g/hL of 12°P to 20°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE WITH FERMOALE

(According to ASBC & DLG)
18°P 22°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Fermoale AY3

Powder

*Saccharomyces cerevisiae*

Fermoale AY3 is a top fermenting yeast strain for brewing ale beers. It originates from England and is used by a large number of craft breweries. Fermoale AY3 ferments very quickly, the final aroma is quite neutral and with light notes of esters. Fermoale AY3 is a high flocculating yeast with a fast sedimentation at the end of fermentation. The fermentation time depends on the pitching rate and the fermentation temperature used.

Beer styles	all type of English-, Irish-, Belgian- and French Ales. Very versatile.
Fast fermentation kinetics	fast. 7 days at 22°C, 13 days at 12°C for 12°P
Fermentation temperature range	12-22°C
Apparent attenuation	87%
Flocculation & sedimentation ability	high
Dosage recommendation	50-100 g/hL of 12°P to 20°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE

WITH FERMOALE AY3

(According to ASBC & DLG)

18°P 22°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Fermoale AY4

Powder



Saccharomyces cerevisiae

Fermoale AY4 is a top fermenting yeast strain for brewing ale beers. It originates from the United States and is used by a large number of craft breweries. Fermoale AY4 ferments very quickly, the final aroma is quite neutral and balanced. Fermoale AY4 is a high flocculating yeast with fast sedimentation at the end of fermentation. The fermentation time depends on the quantity of inoculated yeast and the fermentation temperature used.

Beer styles	all type of American Ales. Very versatile.
Fast fermentation kinetics	fast. 7 days at 22°C, 13 days at 12°C for 12°P
Fermentation temperature range	12-28°C
Apparent attenuation	89%
Flocculation & sedimentation	high

Dosage recommendation	50-100 g/hL of 12°P to 20°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE WITH FERMOALE AY4

(According to ASBC & DLG)
18°P 22°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Weiss Arome+

Powder

*Saccharomyces cerevisiae*

Weiss Arome + is a top fermenting yeast for the production of wheat beers such as Blanche, American Wheat and Weiss. This yeast strain when fermentes below 20°C confers the characteristic aromas of cloves, while above 22°C confers banana aroma notes. It is suitable for all types of beers produced with wheat or wheat malt. Weiss Arome + has excellent fermentation capacity. This yeast has a low flocculating capacity and remains in suspension even in the final beer product.

Beer styles	wheat beers (i.e. Witbier, Weissbier- / Hefeweizen, Kristallweizen)
Fast fermentation kinetics	fast. 10 days at 12°C, 5 days at 25°C for 12°P
Fermentation temperature range	12-25°C
Apparent attenuation	95%
Flocculation & sedimentation	low

Dosage recommendation	50-100 g/hL of 12°P to 18°P cold wort
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in boxes of 1 or 10 kg
Storage	store preferably at a temperature <20°C

BEER FLAVOUR PROFILE**WITH WEISS AROME+**

(According to ASBC & DLG)

18°P 22°C



Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

BOTTLE CONDITIONING YEASTS

Fermo R03

Powder



Saccharomyces cerevisiae

Fermo R03 is a yeast selected for bottle and barrel fermentation (i.e. conditioning). It has good tolerance to alcohol, rapid fermentation kinetics and highly sedimentation property. Fermo R03 metabolizes only simple sugars, which facilitates the dosage of sugars and the standardization of refermented beer. The yeast sediment is compact and allows the preservation of the characteristics of the main fermentation or of the raw materials, whether they are special malts, hops, spices or other flavouring ingredients.

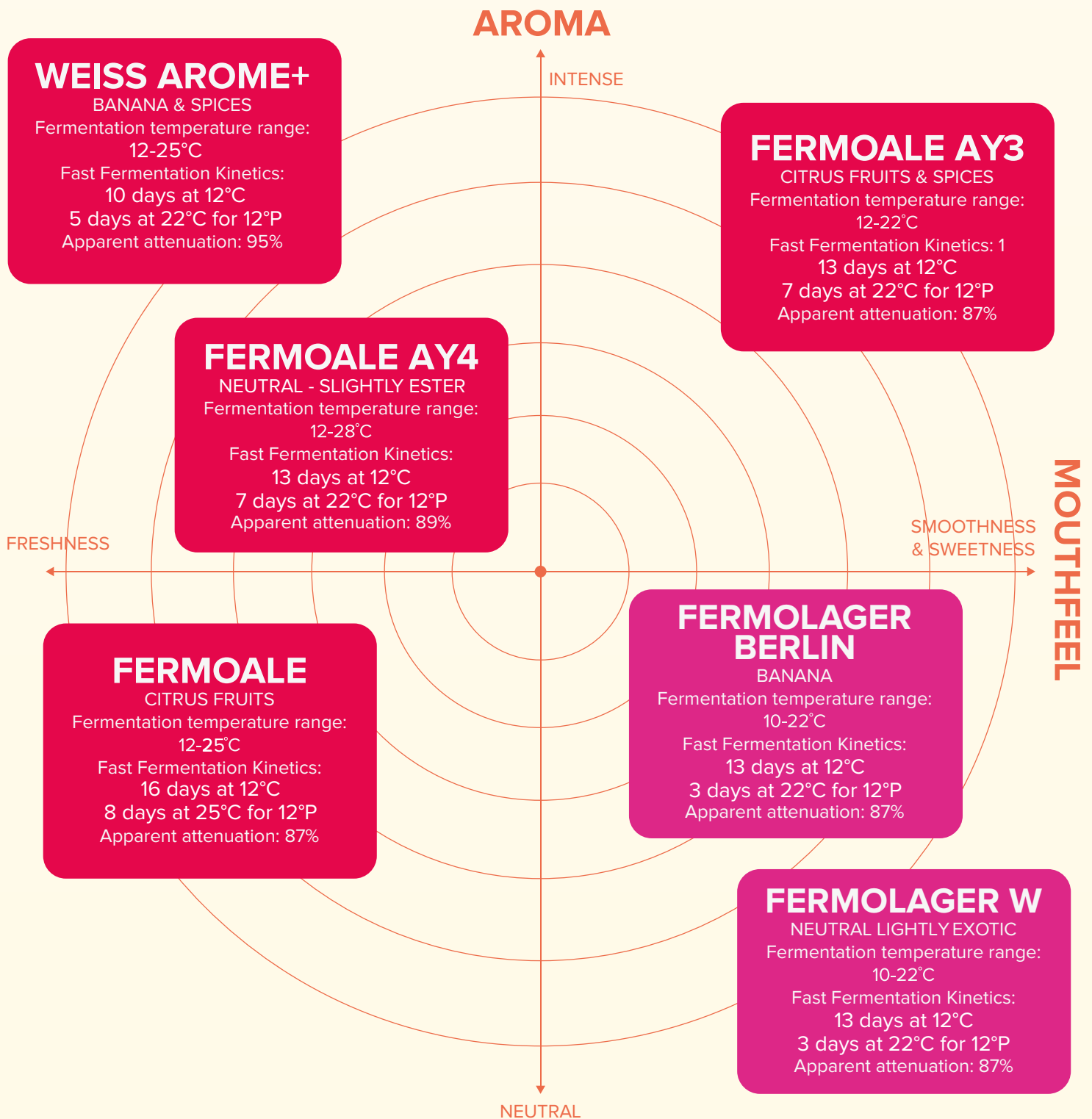
Beer styles	for all bottle conditioning beers
Fast fermentation kinetics	fast. 10 days at 12°C, 5 days at 22°C for 12°P
Fermentation temperature range	12-25°C
Apparent attenuation	95%
Flocculation & sedimentation	very high

Dosage recommendation	filtrated beer: 5-7 g/hL of beer – non-filtrated beer: 4-5 g/hL of beer – strong beer (>6,0% ABV) >7,5%: 8-10 g/hL of beer
Viability	> 1 x 10 ¹⁰ cfu/g
Formats	500 g packs in box of 1 or 10 kg. 100 g packs in box of 2 kg.
Storage	store preferably at a temperature <20°C

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

YEASTS

MOUTHFEEL & AROMAS



EXOGENOUS BREWING ENZYMES

FERMENTATION ENZYMES

Endozym® AGP 120

Liquid



Endozym AGP 120 is used for the treatment of beer wort during brewing or fermentation. Its enzymatic complex permits the hydrolysis of brewing cereal carbohydrates (i.e. dextrins) into fermentable sugars in order to produce higher alcohol level and dryness in beer. This also shortens mashing times and reduces the brewing cereal costs due to less grain load is required to reach the targeted original extract. Endozym AGP 120 is a mixture prepared by controlled fermentation fungal and bacterial strains:

- **Amyloglucosidase:** breaks down the alpha-1,4 and alpha-1,6 glycosidic linkages of starch, dextrins and oligosaccharides completely into fermentable sugars;
- **Alpha-amylase:** hydrolyses the alpha-1,4 glycosidic linkage of starch into dextrins to produce oligosaccharides, maltotriose and maltose;
- **Pullulanase:** debranching enzyme that hydrolyses alpha-1,6 glycosidic linkages of amylopectin in liquefied starch to produce oligosaccharides.

Endozym AGP 120 is a brown liquid preparation with a density of 1.20 - 1.30 g/mL.

Temperature	10-20°C
pH	4.0-5.5
Dosage recommendation	3-10 ml/hL of cold wort at the beginning of fermentation.
Formats	250 g net bottles in boxes of 1 kg
Storage	store preferably at a temperature <20°C

Endozym® Protease GF

Liquid



Endozym Protease GF is an enzymatic endopeptidase and exopeptidase solution for sensible proline-rich proteins (PRPs) degradation to avoid chill haze in beer. It has a very effective capacity in degradation of proteins, including gluten without affecting head retention (NIBEM). It increases FAN levels in wort improving the yeast growth and fermentation performance.

The application of this enzymatic preparation allows a partial or total hydrolysis of peptidic linkages depending on the raw material quality and dosage of the enzyme in cold wort.

- **Proteolytic activity:** > 450 U / g (EC N° 232-642-4)
- **Origin:** *Aspergillus niger* and *Bacillus subtilis*

Dosage recommendation	2-6 ml/hL of cold wort at the beginning of fermentation. The optimal dosage depends on the composition of brewing raw materials and the specific process parameters (i.e. original gravity, fermentation temperature, etc.).
Formats	250 g net bottles in boxes of 1 kg
Storage	store preferably at a temperature <20°C

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

STABILIZATION

Spindasol SB3

Liquid



It is a specific silica sol for the clarification of beer. It improves the sedimentation of yeast in beer maturation/conditioning. This product is more effective if compared to the ordinary silica sols. This leads to a more efficient and quicker sedimentation, and thus reduces the amount of yeast in beer filtration and clarification.

Dosage recommendation	20-40 ml/hL of beer at the end of fermentation.
Format	25 kg net cans. 250 kg net drums.
Storage	store preferably at temperatures above 7°C

Polygel PS30

Powder



Protein and polyphenol beer stabiliser. This PVPP and silica gel based formula builds highly stable complexes with polyphenolic substances in beer and also adsorbs protein substances. This product preserves the beer colloidal stability and has a neutral effect on beer colour, flavour and head retention.

Dosage recommendation	30-70 g/hL of beer. Added directly to the buffer tank or to the dosing unit during or before beer filtration.
Format	15 kg net bags; 500 g net packs in boxes of 5 kg.
Storage	store preferably at temperatures below 20°C in dry environment

Endozym® Pectofruit

Liquid

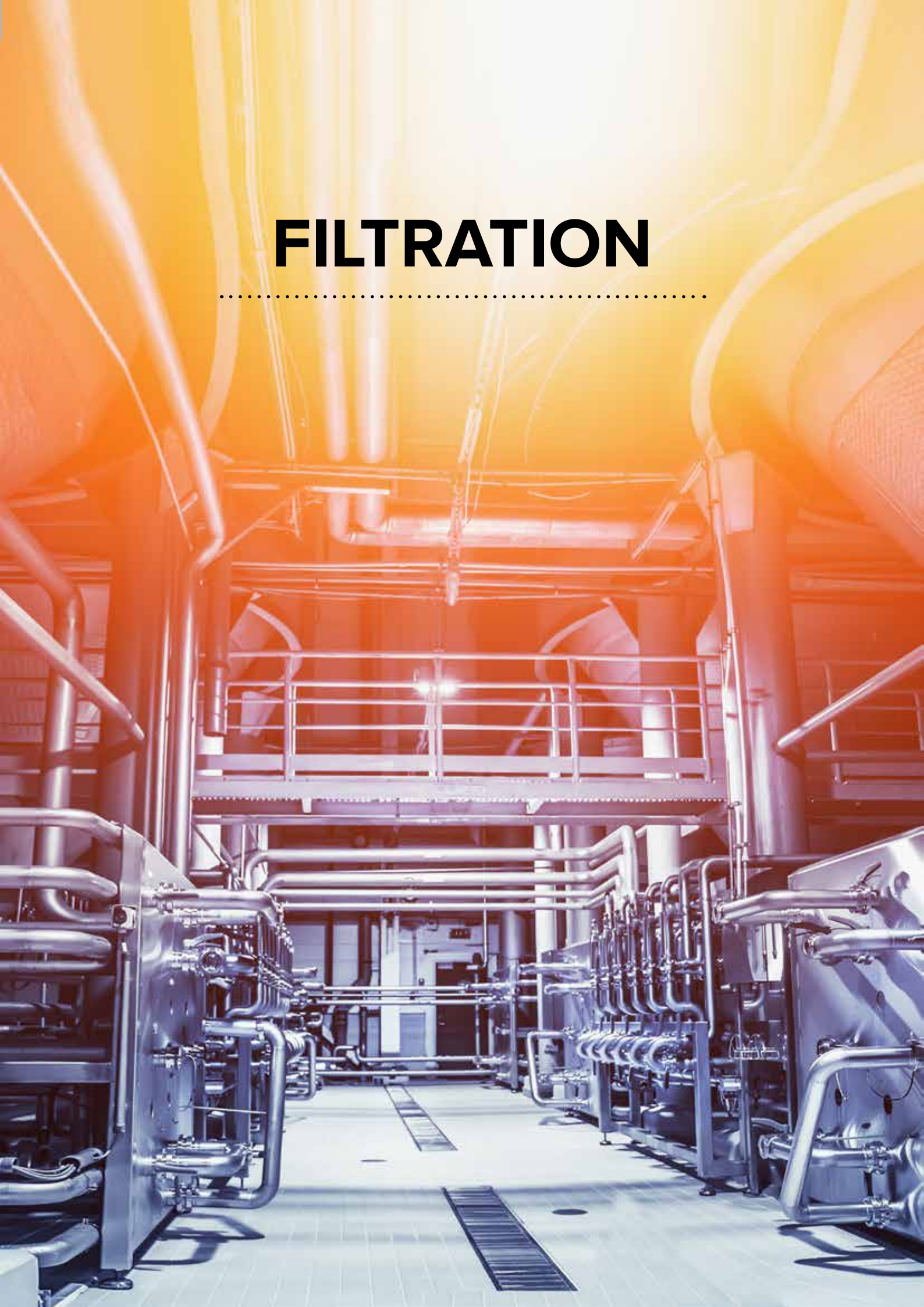


Enzymatic preparation with high content in pectinase (PL), arabanase, cellulase and hemicellulose selected to aid the clarification of fruit beers and ciders.

Dosage recommendation	2-5 g/hL beer during beer maturation or unfiltered beer
Formats	10 & 25 kg net cans
Storage	store preferably at a temperature <20°C

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

FILTRATION



FILTRATION ADJUVANTS

Spindacel

Powder

Continuous dosing filter aids.

In continuous dosing filtration, the function of filter aids is to maintain constant permeability of the filtering coat, thereby delaying beer filtration fouling. These products form a porous structure which remains unaltered for the entire filtration period and bind tightly with the hazy particles. They render the porous coat incompressible, thus allowing its continuous renewal. Spindacel range are obtained by blending perlites of various granulometries and porosities with special celluloses and silica gel. Spindacel are characterized by a high apparent specific weight, which makes their use 20-30% less than that of traditional diatomaceous earths. Spindacel are completely cristobalite-free and therefore completely safe with regard to health.

Dosage recommendation	20-100 g/hL of beer during filtration
Storage	store in cool and dry place away from direct light and heat

Fibroxcel UNI

Powder

Single pre-coat for the reduction of total filter aid volume required for pre-coating, in terms of g/hL dosage up to 30% can be achieved. It reduces the time for preparing and cleaning of the filter by 50%. Quality is improved during filtration thanks to the cellulose compound. Longer filtration runs thanks to larger admissible volume capacity.

Dosage recommendation	700-1000 g/m ²
Format	20 kg net bags
Storage	store in cool and dry place away from direct light and heat

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Fibroxcel 10 and 30

Powder

Chemically inert filter aids used during beer filtration for pre-coating. The product is a uniform blend of perlites and cellulose, which forms a honeycomb structure that remains in place throughout filtration. These filter aids have a high adsorption capacity throughout the entire filtration cycles.

Dosage recommendation:	
Fibroxcel 10	500-1000 g/m ² in precoating formation; 50-500 g/hL of beer during filtration in continuous flow
Fibroxcel 30	800-1000 g/m ² in precoating formation; 20-10 g/hL of beer during filtration in continuous flow
Format	20 kg net bags
Storage	store in cool and dry place away from direct light and heat

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

POST-FILTRATION

Antioxin SB

Powder



A stabilizer specifically created by AEB to protect beer from oxidation. The best possible protection against oxygen which enables an increased beer flavour stability, therefore extends the shelf life of the beer product.

Dosage recommendation	1-3 g/hL of beer during maturation, during filtration or before packaging
Format	10 kg net bags; 1 kg net packs in boxes of 4 kg.
Storage	store preferably in a dry place away from direct light and heat

Arabinol® Multinstant

Powder



Arabinol Multinstant is a natural product used to stabilize the beer head retention and enhance the beer body structure. Its action is much higher than an other products based on arabic gum. After dissolution in water, the solution can be added to the beer before bottling.

Dosage recommendation	5-30 g/hL of filtered or stored beer
Formats	5 kg net bags; 20 kg net bags; 1 kg net packs in boxes of 10 kg.
Storage	store preferably in a dry place away from direct light and heat

TAN WBT

Powder



TAN WBT is a selected tannin, especially developed by AEB Group for Hazy IPA (i.e. NEIPA, Juicy IPA) and German and Belgian wheat beers to maintain their haze properties stable. Exclusively composed of natural tannin, this technological auxiliary is added between maturation and bottling. TAN WBT is manufactured from grinded wood, then extracted with water at 100°C, finally concentrated and dried though atomisation providing to beer the appropriate polyphenol balance. This product does not give bitterness or astringency in beer.

Dosage recommendation	2-15 g/hL of beer before packaging
Formats	5 kg net bags; 1 kg net packs in boxes of 5 kg.
Storage	store preferably in a dry place away from direct light and heat

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Oak Chips

AlternativOAK is a line born from the collaboration with an American supplier with which they have been the wood maturing and roasting processes were born. The process called “slow roasting”, perfected over time, it ensures a uniform and consistent color toasting level.

Thanks to the presence of high quality oaks, the AlternativOAK line is able to respond to any need. The offer includes both **Chips** and **Cubes**, as well as **Staves**, **Mini Staves** and **Sticks**, more suitable when placed in barriques.

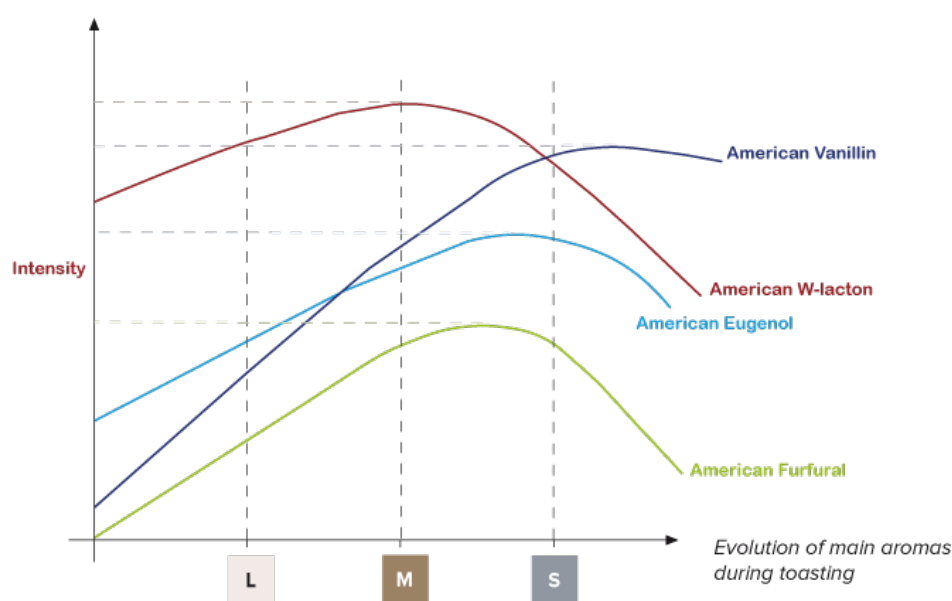
Dosage recommendation: during wort boiling or beer maturation.



	Toasting degrees	Seasoning (months)	Packaging
Chips Small	L M M+ S	24	22,7 kg net weight
Chips Large	L M M+ S	16-18	22,7 kg net weight
Cubes	L M M+ S	18-24	10 kg net weight
Stick	L M M+	24-36	32 pieces
Staves	L M M+ S	36	30 pieces
Mini Staves	L M M+ S	36	100 pieces

OAK TOASTING

The toasting level gives the intensity of the chip characterization.



Seasoning	
L	Light
M	Medium
M+	Medium+
S	Strong

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

POST-FILTRATION

WHISKEY LACTONE

The most important lactones in wood are cis- and trans- beta-methyl-gamma-octalactones, also known with the name of whisky lactones, with the characteristic aroma of coconut. These compounds, if present in small quantities, smell like fresh wood. The Cis combines the sensation of coconut with a light but persistent and sweet herbaceous aroma, the Trans adds a sensation of spiced, but 4 times less intense. The ageing of the oak influences the relationship between cis- and trans- beta-methyl-gamma-octalactones: a more aged wood will have a cis- content higher than fresh wood; heavy toasting decreases the lactone quantity. The American wood normally presents higher quantities of lactones in comparison to French wood.



VANILLA

It is the aromatic compound of wood for excellence and is present in high quantities in oak wood. From the aromatic point of view, the perception of vanillin is lower than the other chips compounds and toasting plays a fundamental role on this compound, as it increases its release up to middle-high levels, but if toasting is too heavy, it is considerably reduced.

GUAIACOL

This aromatic compound gives carbon and smoke notes, and in some cases also associated to spices. It derives from the degradation of wood lignin during toasting.

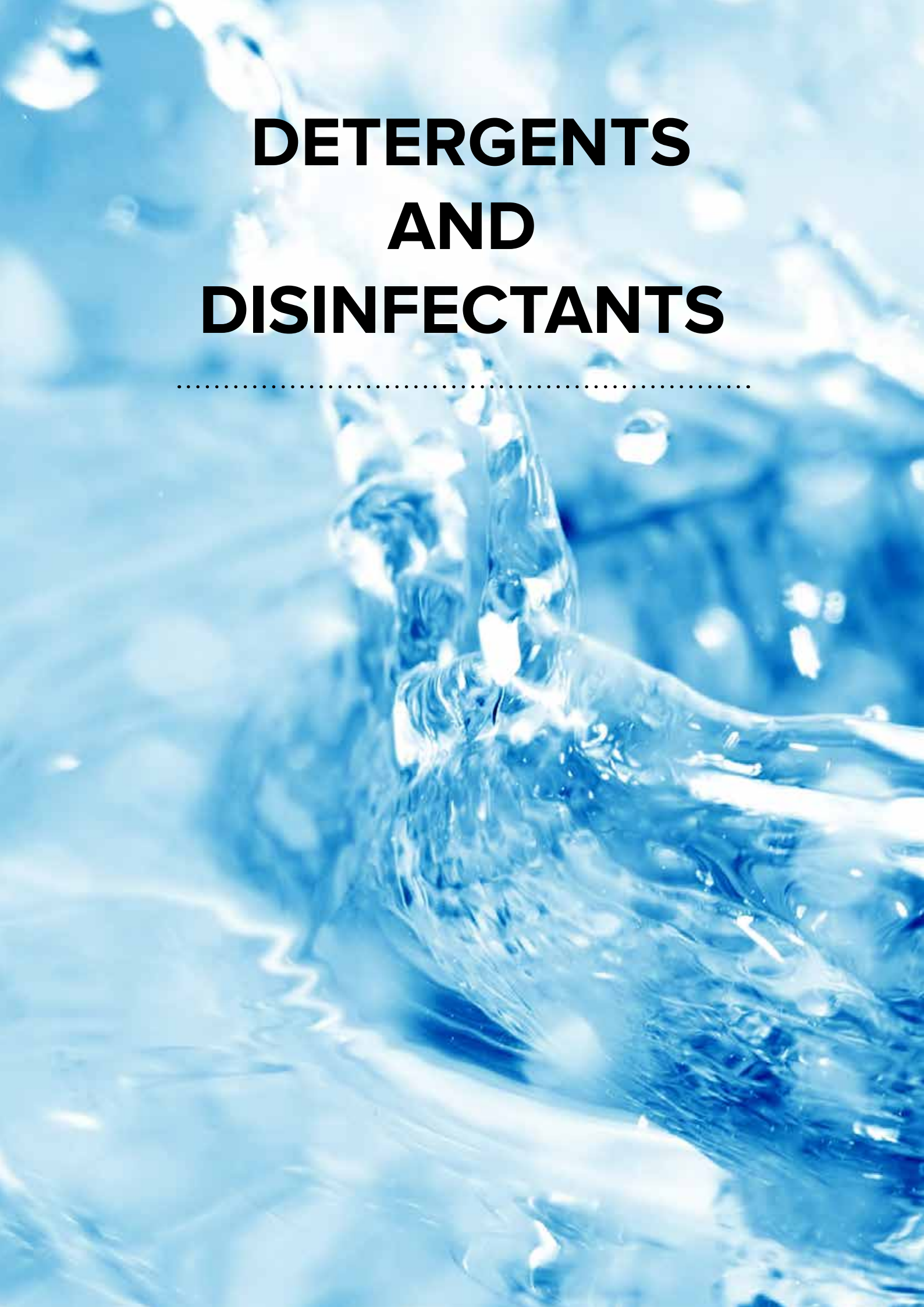
CLOVE / EUGENOL

Associated to the aroma of cloves, it is one of the main odorous compounds of wood. It increases during ageing and with toasting.

CARAMEL / FURFURAL, 5 METHYL-FURFURAL & HYDROXI-METHYL-FURFURAL

They are originated from degradation by thermal induction of sugar and carbohydrates, their main descriptors are peanut butter, sweet and caramel. In order to be perceived, they have to be released at high doses, as they are not easily identifiable. They derive from the heating (toasting) of carbohydrates present in wood. The concentration of such particular aromas decreases if temperature is too high, as the strong energy released by high temperatures induces the Maillard reactions, which makes carbohydrates and sugars react with nitrogenous compounds, facilitating the formation of maltol, thus changing the characteristic aromatic descriptors into the smell of toasted bread.

DETERGENTS AND DISINFECTANTS



DETERGENTS

ALKALINE DETERGENTS

Removil Liquid

Liquid

Removil Liquid is a liquid alkaline formulation with high caustic capacity, suitable for CIP applications, cleaning of closed lines, tanks and heat exchangers.

TECHNICAL CHARACTERISTICS*

Physical appearance	light brown liquid
pH (1% solution)	13.0 ± 0.5
Relative density at 20°C	1.50 ± 0.05
Working temperature range	20-40°C
Dosage recommendation	0 - 5%
Formats	15 & 25 kg net cans; 300 & 725 kg net drums; 1100 kg net IBC.

X5S/S

Liquid

X5S/S is a liquid alkaline monophasic formulation, suitable to be used with hard waters for the recovery cleaning of closed lines subject to heat exchange like brewhouse operations. X5S/S is able to easily remove organic and inorganic residues from surfaces, while the presence of controllers of the water hardness enables to work also with waters with a high content of salts.

TECHNICAL CHARACTERISTICS*

Physical appearance	colourless clear liquid
pH (1% solution)	12.00 ± 0.5
Relative density at 20°C	1.25 ± 0.05
Working temperature range	20-80°C
Dosage recommendation	0.5 - 5%
Formats	25 kg net cans; 250 kg net drums; 1200 kg net IBC.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Nerlik Liquid

Liquid

A detergent for bottle washing machines and stainless steel kegs washing. It has an anti-calcareous action even in the presence of very hard waters and an anti-pulping action thus avoiding the clogging of pumps and filters. It is easy to be applied and rinsed.

TECHNICAL CHARACTERISTICS*

Physical appearance	beige liquid
pH (1% solution)	12.5 ± 0.5
Relative density at 20°C	1.50 ± 0.05
Working temperature range	20-80°C
Dosage recommendation	0.8 - 2.0%
Format	15 & 25 kg cans; 300 kg drums; 1450 kg.

Membran UF

Liquid

Membran UF is a medium alkalinity and high sequestering liquid detergent, to be used for the cleaning of filter cartridges.

TECHNICAL CHARACTERISTICS*

Physical appearance	clear, colorless or slightly yellow liquid
pH (1% solution)	12.0 ± 0.5
Relative density at 20°C	1.25 ± 0.05
Working temperature range	7-30°C
Dosage recommendation	0.5 - 1.0%
Formats	25 kg net cans; 250 kg net drums; 1100 kg net.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

ENZYMATIC ALKALINE DETERGENT

Removil Zyme

Powder

Removil Zyme is an enzymatic powder detergent, suitable for the cleaning of plants and closed equipment both in the brewhouse and cellar. Removil Zyme allows to remove organic scales like proteins, starch and cellulose. Removil Zyme is recommended for both intense cleaning procedures aimed at recovering optimal cleaning levels and for routine treatments.

TECHNICAL CHARACTERISTICS*

Physical appearance	white and grey granular powder
pH (1% solution)	11.5 ± 0.5
Relative density at 20°C	1.01 ± 0.05
Working temperature range	30-50°C
Dosage recommendation	0.5 - 1.5%
Format	10 kg net buckets

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

ADDITIVES FOR NaOH

Adix Liquid

Liquid

Adix Liquid is a liquid, slightly foaming additive, based on surfactants, suitable to boost cleaning power of caustic solutions in case of need of removal of fats and others organic matter. Adix Liquid improves cleaning, wetting and sequestering power of alkaline solutions.

TECHNICAL CHARACTERISTICS*

Physical appearance	amber clear liquid
pH (1% solution)	7.0 ± 0.5
Relative density at 20°C	1.05 ± 0.05
Working temperature range	20-80°C
Dosage recommendation	2-10% of the total quantity of sodium hydroxide used
Format	20 kg net cans; 220 kg net drums; 1000 kg net.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

CHLORINE ACTIVATED ALKALINE DETERGENTS

Spindosan H

Liquid

Chlorine-active alkaline liquid formulation, suitable for the automatic or manual detergency and hygenizing of plants and equipment. It also has a bleaching and deodorizing effect and is particularly suitable for cleaning performed with a medium hardness water also in CIP, as it is non-foaming.

TECHNICAL CHARACTERISTICS*

Physical appearance	clear yellow liquid
pH (1% solution)	11.9 ± 0.5
Relative density at 20°C	1.14 ± 0.05
Working temperature range	temperature above 50°C
Dosage recommendation	0.5 - 4%
Formats	12 kg net cans; 6 kg net cans in in cartons of 24 kg; 1100 kg net.

Idrosan

Liquid

Chlorine, decolorizing detergent and hygenizer, suitable for storage tanks, filters, pipes, fillers and various bottling equipment.

TECHNICAL CHARACTERISTICS*

Physical appearance	clear yellow liquid
pH (1% solution)	11.5 ± 0.5
Relative density at 20°C	1.20 ± 0.05
Working temperature range	20-40°C
Dosage recommendation	0.5 - 5%
Formats	25 kg cans. 1100 kg.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

DETERGENTS

Sanifoam EF

Liquid

Sanifoam EF is an alkaline chlorinated foaming detergent, to be used for the daily cleaning of surfaces. Sanifoam is able to effectively remove different kinds of organic matter and to carry out at the same time an excellent microbiological reduction. The excellent clinging power and rinsing properties make it an excellent performing product. Sanifoam EF can be applied with a wide range of equipment (Easyfoam P, Combifoam, Foamlance, centralized systems etc.).

TECHNICAL CHARACTERISTICS*

Physical appearance	yellow slightly viscous clear liquid
pH (1% solution)	12.0 ± 0.5
Relative density at 20°C	1.20 ± 0.05
Working temperature range	35-60°C
Dosage recommendation	3 - 6%
Formats	20 kg net cans; 1100 kg net .

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

LUBRICANTS

Sintodry

Liquid

Sintodry is a liquid lubricant for conveyor belts for the transport of bottles and cans, to be exclusively used for plastic conveyor belts in the food, cosmetic and pharmaceutical sector.

TECHNICAL CHARACTERISTICS*

Physical appearance	white liquid
pH (as it is)	5.0 ± 0.5
Relative density at 20°C	1.01 ± 0.04
Working temperature range	ca. 20°C (room temperature)
Dosage recommendation	the distribution of this product is carried out without dilution using high pressurized systems.
Formats	1 kg net bottles in cartons of 4 kg; 25 kg net cans; 200 kg net drums; 1000 kg net IBC.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Sintodry FG

Liquid

Sintodry is a liquid lubricant for conveyor belts for the transport of bottles and cans, to be exclusively used for plastic conveyor belts in the food, cosmetic and pharmaceutical sector.

TECHNICAL CHARACTERISTICS*

Physical appearance	white liquid
pH (as it is)	4.5 ± 0.5
Relative density at 20°C	1.00 ± 0.05
Working temperature range	ca. 20°C (room temperature)
Dosage recommendation	the distribution of this product is carried out without dilution using high pressurized systems.
Formats	25 kg net drums

Sintodry FG is homologated NSF H1 (registration no. 159487) for incidental contact with food and beverages.



Nonfood Compounds
Category Code: H1
NSF Registration No.159487

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

ACID DETERGENTS

Celon Special

Liquid

Descaling detergent based on nitric and phosphoric acid able to remove inorganic residues from surfaces. It also acts as passivation agent of stainless steel surfaces, and is able to remove the beer stone (i.e. calcium oxalate). The low foaming makes it suitable also for CIP applications.

TECHNICAL CHARACTERISTICS*

Physical appearance	clear greenish liquid
pH (1% solution)	2.0 ± 0.5
Relative density at 20°C	1.20 ± 0.05
Working temperature range	20 - 70°C
Dosage recommendation	0.5 - 10%
Formats	25 kg net cans; 250 kg net drums. 1100 kg net IBC.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

Please note: The dosage recommendation may vary depending on the processing conditions selected by the brewer. The format is varied depending on the country of p. For exact amounts & formats please contact our technical commercial experts or your branch of reference.

Celofoam SF

Liquid

Celofoam SF is an acid foaming detergent with a strong descaling capacity, recommended for the periodic washing of the surfaces. The excellent gripping power and rinsing make it an extremely performing product. Celofoam SF can be applied with a wide range of dispensing equipment (Easyfoam P, Combifoam, Foamlance, centralized systems, etc.).

Celofoam SF is compatible with most of the materials normally found in food industries if used according to the manufacturer's instructions.

TECHNICAL CHARACTERISTICS*

Physical appearance	colourless clear liquid
pH (1% solution)	2.5 ± 0.5
Relative density at 20°C	1.15 ± 0.05
Working temperature range	ca. 20°C (room temperature)
Dosage recommendation	3 - 6%
Formats	20 kg net cans; 1100 kg net IBC.

DISINFECTANTS

Peracid

Liquid

Hygenizer based on peracetic acid with a wide range of action. It can be used for all closed circuits and for the disinfection of cartridges.

TECHNICAL CHARACTERISTICS*

Physical appearance	colourless clear liquid
pH (1% solution)	≤ 2
Relative density at 20°C	1.25 ± 0.05
Working temperature range	ca. 20°C (room temperature).
Dosage recommendation	0.2 - 1%
Formats	10 & 20 kg net cans; 220 kg net drums. 1000 kg net IBC.

*The chemical-physical data represent the typical product characteristics drawn from the analysis carried out on the product. These values are not a specification.

EQUIPMENT

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EQUIPMENT

REACTIVATEUR 60 B

Reactiveur 60 B allows rehydrating the active dry yeast in complete safety and simplicity. It also allows managing in a semiautomatic way not only the stages of water filling, heating, yeast rehydration and emptying of the tank, but also rinsing and sanitizing of the equipment. The processing is completely customizable and the parameters can be set according to the needs through a convenient touch screen display. The Reactiveur 60 B range is able to reduce yeast latency times, by ensuring extremely regular fermentations. All operations are carried out in a tightly closed and sanitized container, in order to avoid any contamination. Reactiveur 60/100 B is an equipment for the reactivation of small amounts of yeast (rehydration from 1 to 5 kg of dry yeast).

Model	Quantity of rehydratable yeast (kg)
Reactiveur 60/100 B	Up to 5
Reactiveur 60/500 B	Up to 20
Reactiveur 60/1000 B	Up to 40
Reactiveur 60/1200 B	Up to 50



Reactiveur 60 B

LUBIMATIC CONTROL DRY

The Lubimatic Control Dry range comprises 2 models, each consisting of a central plant for the automatic supply of dry lubricants with programmable timed system. The control unit has to be coupled to dripless pneumatic lubrication nozzles, able to ensure the nebulization of the product on the entire surface of the conveyor belt. The system is able to handle up to 80 nozzles.

Model	Manageable systems
Lubimatic Control Dry ECO	Small-sized system
Lubimatic Control Dry 5 zones	Large-sized system



Lubimatic Control Dry

EASYFOAM

Easyfoam is a patented system for the supply of foam detergents with compressed air. All models have a compact size but provide high performances and are ideal for cleaning vertical surfaces and ceilings. Thanks to the total absence of vaporization, they are suitable to be used in complete safety with very high alkalinity foam detergents.

Easyfoam Mix and Easyfoam Mix with wheels enable to supply at the same time also an additive with sanitizing action.

All Easyfoam models are available:

- with connection pipe with a length of 15 or 20 metres;
- with wheels.

Model	Supplied product/s
Easyfoam P 15 MT	Foam detergent
Easyfoam P 20 MT	Foam detergent
Easyfoam Mix P 15 MT	Foam detergent + additive
Easyfoam Mix P 20 MT	Foam detergent + additive



Easyfoam Mix



Easyfoam P 15 MT

MULTIFOAM INOX

Multifoam is a low-pressure foaming nebulizer, used for multiple cleaning applications, in particular for: cleaning with foam detergents, cleaning with nebulization of traditional detergents and environmental hygiene with nebulization of sanitizers. The equipment is available in stainless steel 18/8 AISI 304.

Model	Tank Capacity
Multifoam Inox	24 or 50 lt



Multifoam Inox

CIP MIXER AUTO

Cip Mixer Auto is an equipment that allows to prepare solutions in varying percentages and to set washing cycles that follow each other in fully automatic rinses. It allows you to clean tanks, pipes and any other structure that needs to be sanitized. The great advantage of this equipment is to set up to 30 washing recipes that can be saved.



CIP Mixer Auto

DOSAPROP

Dosaprop is a doser ensuring additions of liquid products proportionally to the flow and it provides a perfect homogenization. Its operation is based on a sensor detecting the quantity of liquid flowing inside the pipe, by sending to the dosing system the impulse for the addition. The product quantity is easily manageable thanks to a micro-push button.

Dosaprop is resizable to satisfy plants with hourly flow from 6 to 60 hL/h and from 100 to 1200 hL/hour. The dosage of agents can be supplied from a maximum of 3 pumps and is dimensioned from 1 to 730 L/hour.



Dosaprop

HOUSING

The housings represent a combination of plants, equipment and accessories for housing and commissioning the different ranges of cartridges and lenticular modules. The materials are all certified and in accordance to an utilization in complete safety.

Model	Number of modules/cartridges per housing	Cartridge height range
FLM (for lenticular modules)	from 1 to 4	from 12" to 16"
FHC (for filter cartridges)	from 1 to 30	from 10" to 40"



Housing FLM



Housing FHC

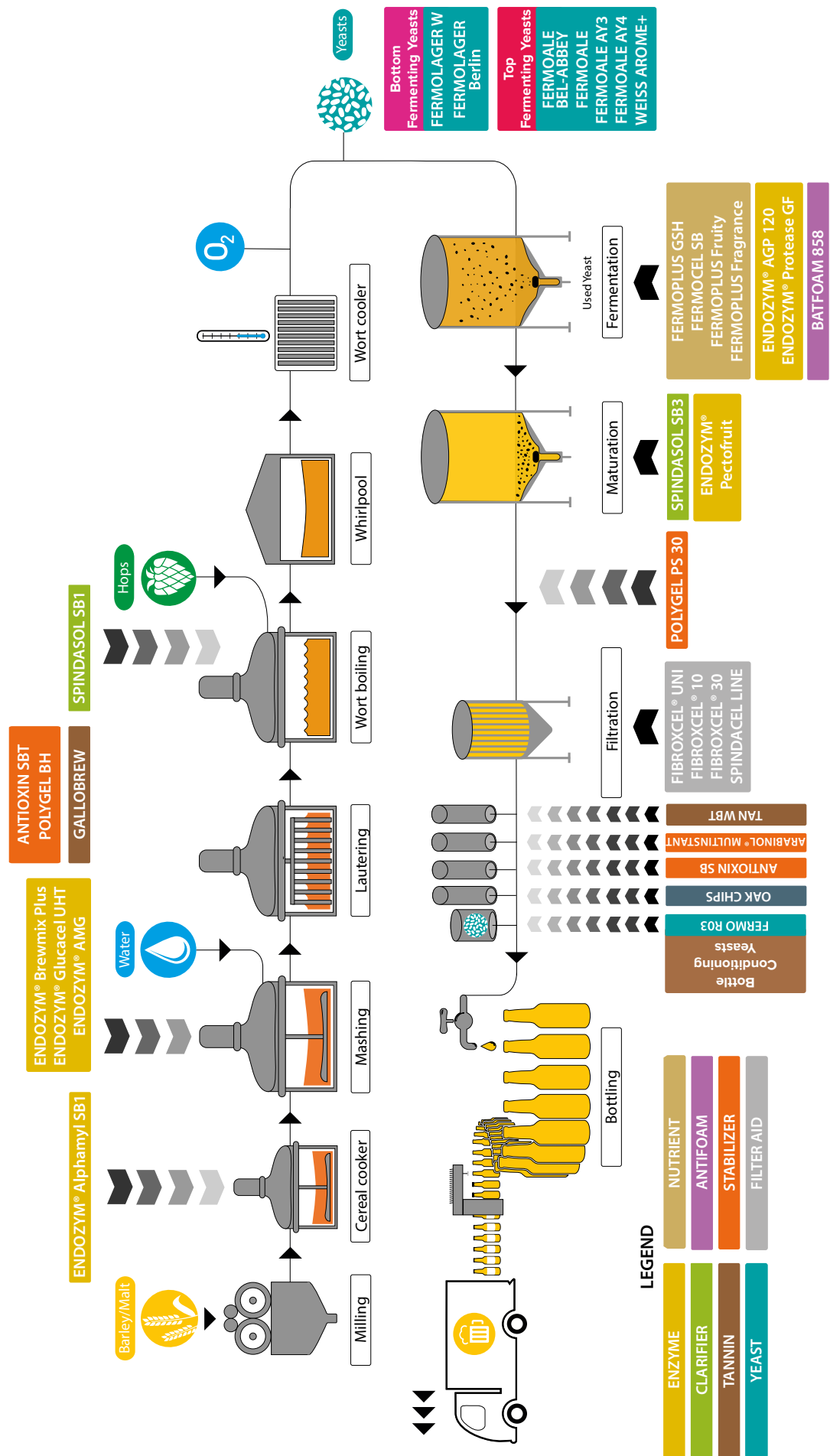
FILTER CARTRIDGES

The beer production involves three main stages: wort production, beer fermentation and beer stabilization. During this third stage, the filtration technology has a role of increasing importance for the obtainment of a superior and quality product. The membrane filtration is an alternative technology to pasteurization, guaranteeing the cold stabilization of the beer by keeping its freshness and authenticity. Filtration is needed to retain diatomaceous earth and PVPP particles after the stabilization stage. Thanks to DANMIL know-how and experience, AEB is able to provide the breweries with a complete range of high quality filter elements. The optimal performance, durability and serviceability of DANMIL filter cartridges ensures the absence of particles and microorganisms, both essential characteristics of a quality beer.

The recommended filter elements for the filtration of beer are: **Fluidclean PES, Fluidclean PP.**



YOUR TOTAL SOLUTION PROVIDER



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