AEB® Spirits

PRODUCTS AND SOLUTIONS FOR SPIRITS PRODUCTION

A complete range
for every stage of distillation

WHO WE ARE

Since 1963, AEB has served as a global technology partner, supporting food and beverage producers worldwide in optimizing and improving their production processes.

Thanks to our data-driven expertise acquired in over 150 countries, we offer advanced biotechnological solutions, specific sanitation products, filtration aids and devices, and dedicated equipment. All the result of continuous innovation and ongoing investment in research and development.

With a strong global presence and a team of experienced experts worldwide, AEB delivers technologies that enhance quality, efficiency, and sustainability across production processes—empowering customers to achieve the highest standards of performance and product excellence.

The world of distilled spirits is a complex universe where tradition and innovation meet to give life to products of excellence. Every detail, from the choice of raw materials to the management of fermentation and maturation processes, contributes to defining the unique character of a spirit.

In this context, AEB positions itself as a strategic partner for producers seeking to elevate the quality of their creations, offering cutting-edge biotechnological and technological solutions.

Our expertise in the food industry has evolved over the years, enabling us to transfer know-how and innovation to the world of distilled spirits, where precision and control are indispensable elements.

INNOVATION AND TRADITION, DISTILLED TO PERFECTION

The AEB Spirits range was created to respond to the specific needs of distilled spirits producers, offering a comprehensive portfolio that includes:

- Selected **yeasts** for efficient fermentations characterized by distinctive aromatic profiles.
- **Activators and Nutrients** to ensure safe and complete fermentations, even under difficult conditions, and to develop unique aromatic profiles.
- **Enzymes** to optimize the extraction and conversion of sugars, improving the yield and quality of the must.
- **Tannins and Polysaccharides** for the stabilization and sensory definition of the final product in the world of liqueurs and fortified wines.
- **Filtration and cleaning solutions**, essential for maintaining high hygiene standards and guaranteeing the purity of the spirit.
- **Technologies and machinery** designed to support every phase of the production process.

Our goal is to equip producers with the tools they need to fully express their unique identity, blending craftsmanship with innovation. Every AEB product is developed through rigorous research and ongoing collaboration with industry professionals, ensuring reliable performance and consistently superior quality results.

With AEB, the production of distilled spirits is not merely a technical process, but a journey of valorization of the territory, raw materials, and the creativity of the producer.

This catalogue represents our proposal to accompany you through every phase of this journey, with solutions designed to transform your vision into excellence.


AEB®
Spirits
YOUR TRUSTED PARTNER IN THE PERFECTION OF DISTILLATION

ACTIVE DRY YEASTS

At the heart of every exceptional spirit lies a carefully selected yeast strain.

Our yeasts are specifically chosen for their ability to thrive under the demanding conditions of fermentation for spirits production: high sugar concentrations, elevated alcohol levels, and variable temperatures. These microorganisms guarantee efficient conversion of sugars into alcohol, while also playing a vital role in the development of the aromatic and flavor profile of the spirit.

Whether you are creating a bold whisky/whiskey, a funky rum, a smoky mezcal, an elegant brandy, or a neutral alcohol, the yeast strain you choose significantly influences the final character of your spirit. AEB Spirits offers a selection of high-performance strains to meet every production goal.

We help distillers choose the perfect yeast strain, for maximum yield and complexity, ensuring consistent results and an exceptional sensory experience.

AEB SPIRITS YEAST RANGE: SAFE SOLUTIONS FOR DISTILLERS

We adopt a rigorous approach to food safety, combined with meticulous attention to product quality at every stage of the supply chain. From production to quality control, through logistics and distribution, we implement constant monitoring, aware that yeast quality is an indispensable value. Our commitment is aimed at guaranteeing food safety at all stages of the process.

AEB's Quality Management System (QMS) enables producers to maintain full control over the production process, optimizing both food safety and the quality of the finished product. Through our QMS, we ensure the achievement of the highest standards in terms of yeast quality and food safety.

Safety, purity, vitality and stability are the fundamental pillars of our quality management procedures: parameters that are constantly monitored and verified according to the strictest quality standards and certifications adopted by AEB.

AEB complies with the highest food safety and quality standards: GMO FREE, organic, vegan and palm oil free.

FROM SUBSTRATE TO SPIRIT: AEB STRAINS

AEB YEAST	SUBSTRATE	SPIRIT	INFORMATION	AROMATIC DESCRIPTION
FERMOL Spirit DS	Grape / Pomace	Cognac Brandy Grappa Orujo	For fermentation of musts from grapes, fruit and virgin pomace suitable for the production of aromatic spirits	Floral and fruity esters
Zymasil DS	Fruit / Sugarcane	Cognac Brandy Rum	For musts of various origins, particularly grape and sugarcane derivatives suitable for the production of spirits for aging	Floral and fruity esters. Aromatic complexity and sweetness
FERMOL Citrus C101	Sugarcane	Cachaça Rum	For fermentation of cane juice and molasses	Flowers and citrus notes
FERMOL Spirit S16	Sugar musts	Neutral alcohol Vodka	For fermentation of sugar musts suitable for the production of neutral spirits	Neutral notes. Low ester production
FERMOL Blanc DS	Agave, Sotol	Tequila Mezcal	Active dry yeast for fermentation of agave-based musts	Floral and fruity notes. Good acidity
FERMOL TEQ90	Agave, Sotol	Tequila Mezcal	For fermentation of agave-based musts	Complex and intense fruity notes, good mouthfeel softness
FERMOL Silver	Agave, Sotol	Tequila Mezcal	For fermentation of agave-based musts for the production of premium spirits	Floral, fruity and citrus notes. Good acidity

Availability of products may vary from country to country: contact your AEB sales representative for more information.

FROM SUBSTRATE TO SPIRIT: AEB STRAINS

AEB YEAST	SUBSTRATE	SPIRIT	INFORMATION	AROMATIC DESCRIPTION
FERMOL VDQ	Grains / Sugar musts	Neutral alcohol Vodka	For fermentation of musts suitable for the production of neutral spirits	Neutral notes. Low ester production
FERMOL W Max	Grains	Whisky	For fermentation of must obtained from malted and unmalted grains or corn for the production of Bourbon-style whisky	Medium aromatic profile with fruity and complex descriptors
FERMOL AY Max	Grains	Whisky	For fermentation of must obtained from malted grains, for the production of single malt whisky	Neutral and balanced aromatic profile
FERMOL SK	Grains	Whisky	For fermentation of must obtained from malted and unmalted grains or corn	Complex and intense fruity notes. Soft palate sensation
FERMOL Ennecri	Grape / Pomace / Fruit	Pisco Aguardiente Grappa	For fermentation of grape musts suitable for pisco production and virgin pomace	Esters with floral and fruity descriptors typical of Negra Criolla
FERMOL Moscatel	Grape / Pomace / Fruit	Pisco Aguardiente Grappa	For fermentation of Moscatel grape musts suitable for pisco production, and virgin pomace	Floral and fruity esters
Turbo Spirit DS	Sugar musts	Neutral alcohol	For fermentation of sugar musts suitable for the production of neutral spirits	Neutral profile

Availability of products may vary from country to country: contact your AEB sales representative for more information.

FROM SUBSTRATE TO SPIRIT: AEB STRAINS

FERMOL Spirit DS

Ideal for cognac, brandy, grappa and orujo, this active dry yeast is designed for the fermentation of musts from grapes, fruit and virgin pomace. It guarantees safe and regular fermentations, enhancing the aromatic component with floral and fruity esters.

It is a strain suited to fermentations under conditions of high sugar concentration and high temperature. Its vigor makes it a strain with high prevalence, preventing the development of indigenous bacterial flora.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Flower – Distillervit – FERMOPLUS Distiller Integrateur

Zymasil DS

Perfect for cognac, brandy and rum, it is a versatile yeast for grape musts and sugarcane derivatives.

It stands out for its high production of fermentative esters, responsible for intense fruity and floral aromas, and allows distillates to be obtained with roundness and aromatic complexity, particularly well-suited for aging.

Active within an optimal temperature range of 20 to 27°C, ZYMASIL DS performs well even under fermentation stress conditions.
It has good alcohol tolerance and medium to low nitrogen requirements, which also makes it suitable for ***sur lie*** fermentation.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Tropic – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Citrus C101

Specific for cachaça and rum, this yeast works best on cane juice and molasses, developing floral and citrus notes that enrich the aromatic profile of the spirit.

The ideal fermentation temperature to enhance its characteristics is between 20 and 25°C, but it works excellently at higher temperatures as well.

In combination with specific nutrition, it develops notes that can contribute to diversifying the organoleptic profile of the final spirit.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Flower – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Spirit S16

Designed for the production of neutral alcohol and vodka, it ensures clean and stable fermentations on sugar musts, with a neutral profile and low ester production.

This strain adapts exceptionally well to high sugar concentrations and extreme osmotic conditions. It is also capable of performing very well at high temperatures and high alcohol concentrations.

The ease of flocculation ensures very good clarification of the fermented product, guaranteeing the separation of lees if a "clean" distillation is desired.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Distiller Millennium – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Blanc DS

Saccharomyces Cerevisiae r.f. *Bayanus* strain ideal for tequila and mezcal, optimized for agave and sotol-based musts.
It works well even at low fermentation temperatures and withstands high alcohol concentrations.

It imparts floral and fruity notes with a pleasant acidity, preserving the typicality of the raw material.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Tropic - Distillervit – FERMOPLUS Distiller Integrateur

FERMOL TEQ90

A specialized strain for tequila musts, it guarantees regular fermentations on agave and sotol musts, developing complex and intense fruity notes perfect for a product destined for aging.

It is a yeast with low nutritional requirements that exhibits the killer phenotype, guaranteeing extreme strain prevalence.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Tropic – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Silver

Designed for tequila and mezcal, this yeast enhances floral, fruity and citrus notes, maintaining good acidity and aromatic freshness.

This yeast works by accentuating the aromatic profile of the raw material and enhancing its organoleptic characteristics, making it perfect for the distillation of tequila or mezcal.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Flower – Distillervit – FERMOPLUS Distiller Integrateur

FROM SUBSTRATE TO SPIRIT: AEB STRAINS

FERMOL VDQ

Perfect for the production of vodka or neutral alcohol, this yeast ensures neutral and controlled fermentations, with low ester production and an extremely clean aromatic profile, while withstanding very high alcohol concentrations.

It has a fructophilic character that makes it also perfect for restarting stuck fermentations by metabolizing the fructose that other strains do not attack.

It also develops the killer factor, guaranteeing excellent prevalence over indigenous flora.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Distiller Millennium – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL W Max

Robust yeast for whisky and bourbon, suitable for malted and unmalted grain musts.

It imparts fruity and complex notes, ideal for structured distillates such as bourbon.

It guarantees attenuations exceeding 80% and good alcohol tolerance.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Choco - Distillervit – FERMOPLUS Distiller Integrateur

FERMOL AY Max

Designed for whisky, Scotch/single malt; it guarantees balanced fermentations with a neutral and balanced aromatic profile, enhancing the notes of the grains used, ideal for clean and harmonious bases.

It guarantees attenuations exceeding 80% and alcohol resistance up to 12% vol.

It performs best at temperatures between 20 and 25°C.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Distiller Millennium – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL SK

A whisky yeast that develops intense fruity notes and softness in the mouth with a highly pronounced esteric development, perfect for complex spirits rich in personality.

It guarantees attenuation around 80% and can ferment at very high temperatures, between 30 and 40°C.

It has extreme alcohol resistance, withstanding up to 16% vol.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Tropic – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Ennecri

Ideal for pisco, aguardiente and grappa, this strain enhances grapes and virgin pomace, with floral and fruity esters typical of the Negra Criolla and Moscatel varieties.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Flower – Distillervit – FERMOPLUS Distiller Integrateur

FERMOL Moscatel

This strain proves perfect for the production of pisco, aguardiente and grappa, enhancing the qualities of fresh grapes and pomace.

It imparts floral and fruity aromas to the spirit, characteristic of the Negra Criolla and Moscatel varieties.

Dosage: 30-60 g/hL

Recommended nutrients: FERMOPLUS Flower – Distillervit – FERMOPLUS Distiller Integrateur

Turbo Spirit DS

High-performance yeast for neutral alcohol from sugars, ideal for rapid and safe fermentations, with a neutral aromatic profile.

Turbo Spirit DS is a blend of yeast and nutrients that guarantees a healthy and vigorous fermentation from the very first inoculation stages.

Dosage: 30-60 g/hL

Recommended nutrients: it is a yeast and nutrient blend - ready for use

Availability of products may vary from country to country: contact your AEB sales representative for more information.

Yeast Reactivation and Acclimatization: A Crucial Step for Fermentation

Proper yeast management prior to inoculation is essential to ensure regular, complete fermentations free from any deviation.

Active dry yeasts require a reactivation phase to restore cellular functionality after dehydration. This process is carried out by rehydrating the yeast in clean water at 35–38°C, in a quantity approximately 10 times its weight, for 15–20 minutes. Thermal shock must be avoided: the temperature difference between the suspension and the must should not exceed 10°C.

Following rehydration, a gradual acclimatization phase is recommended, whereby small amounts of must are added to the suspension to allow the cells to adapt to the osmotic conditions, sugar content, and temperature. This practice reduces cellular stress and improves yeast viability, promoting rapid starts and consistent fermentation kinetics.

To further optimize performance, the use of fermentation activators such as FERMOPLUS Energy Glu 4.0 is recommended. This product supplies assimilable nitrogen, vitamins, minerals, and survival factors. This specific activator also allows rehydration with water at room temperature, eliminating the need for heating.

These nutrients stimulate cell multiplication, increase resistance to fermentative stress, and reduce the risk of stuck fermentations or aromatic deviations.

Integrating this phase into the production protocol is a guarantee of safety and quality, particularly when working with complex or high-sugar matrices.

YEAST NUTRIENTS

THE FERMOPLUS RANGE

A high-performance yeast needs a balanced environment to best express its potential.

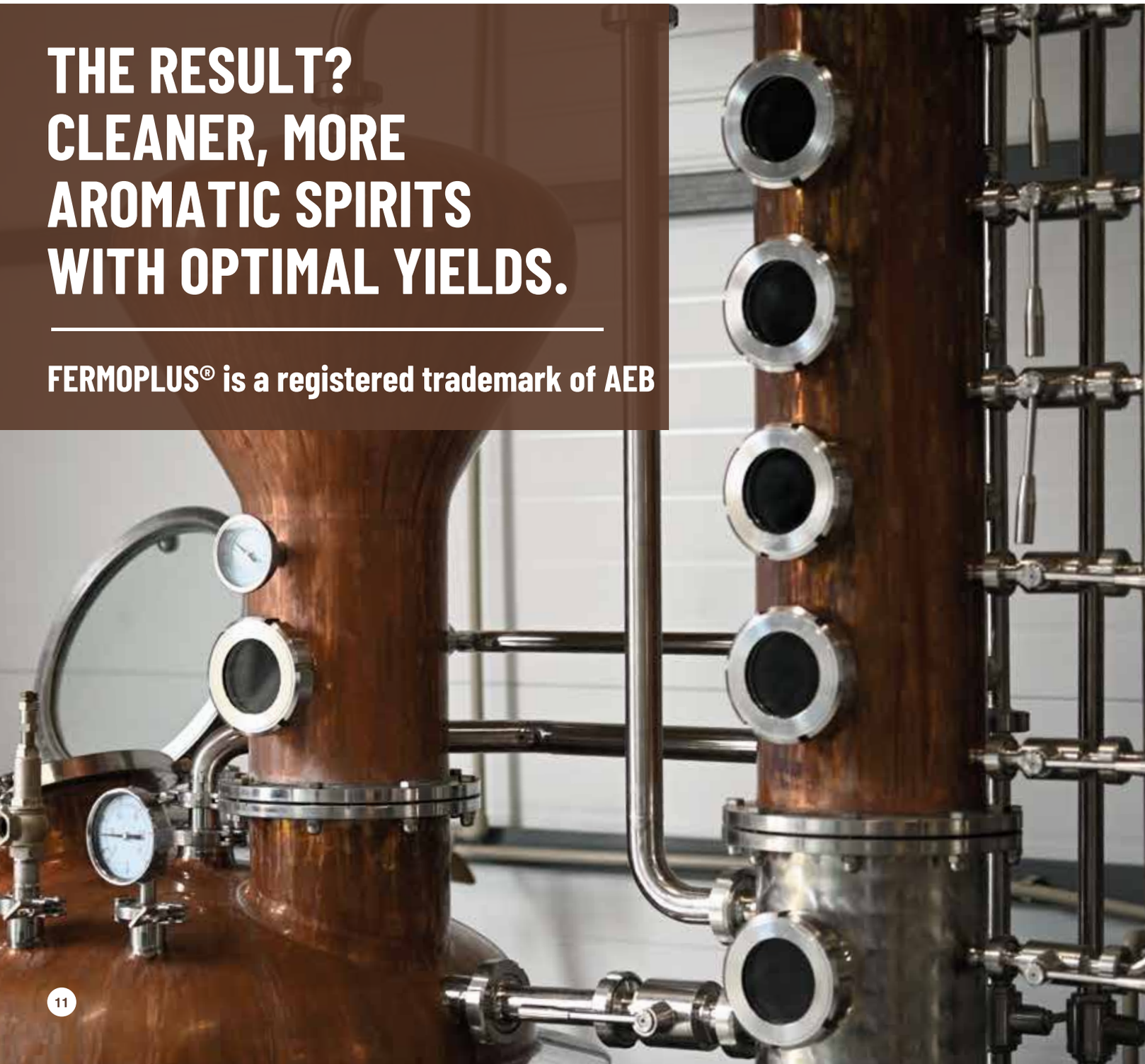
AEB FERMOPLUS yeast nutrients are formulated to prevent fermentation arrests, reduce the formation of sulphurous compounds, and improve cell vitality.

Thanks to targeted combinations of assimilable nitrogen, vitamins and minerals, our solutions ensure safe and consistent fermentations, even in complex or stressful musts.

Yeast nutrition in a distillery plays a key role in spirits production: its value is comparable to that of the yeast itself. Until recently, nutrients were called activators, as they were essentially considered "boosters" for alcoholic fermentation. Today, thanks to continuous research and the advent of targeted yeast lysis, it is possible to obtain compounds that, in addition to promoting the proper progress of fermentation, allow the aromatic profile of the spirit to be modulated, promoting antioxidant action and contributing to the organoleptic complexity of the final product.

THE RESULT? CLEANER, MORE AROMATIC SPIRITS WITH OPTIMAL YIELDS.

FERMOPLUS® is a registered trademark of AEB



WHY USE YEAST NUTRIENTS?

Maximizing Fermentation Efficiency and Alcohol Yield

The use of yeast nutrients is a critical factor in optimizing fermentations in spirits production, where the efficiency of sugar-to-ethanol conversion directly determines the profitability of the production process. The raw materials used in distillation (such as sugarcane, molasses, unmalted grains and alternative substrates) are frequently deficient in yeast-assimilable nitrogen (YAN), essential amino acids, B-complex vitamins and fundamental micro-elements such as zinc, magnesium and manganese.

The FERMOPLUS® range, developed through over 60 years of biotechnological research, provides scientifically balanced formulations that significantly increase alcohol yield, reducing fermentation times and preventing stuck fermentations even under high alcohol conditions (>15% ABV).

Food Safety and Quality

Food safety in spirits production requires strict control of the fermentation microflora, where the use of food-grade certified nutrients represents a fundamental barrier against microbial contamination and the formation of toxic compounds.

AEB nutrients are manufactured according to GMP (Good Manufacturing Practices) standards and subjected to rigorous analytical controls to guarantee the absence of mycotoxins, heavy metals, microbiological contaminants and food allergens. The balanced formulation of the nutrients prevents yeast cell stress, significantly reducing the production of unwanted sulphurous compounds, acetaldehyde and other congeners that could compromise the organoleptic quality and safety of the final product.

Complete supply chain traceability and AEB certifications guarantee compliance with international regulations for the production of alcoholic beverages, supporting producers in obtaining certifications and accessing the most demanding export markets.

Environmental Sustainability and Valorization of By-products

AEB's sustainable approach to yeast nutrition is based on circular economy principles, using by-products from the food industry as the basis for its nutrients, significantly reducing the environmental footprint of the production process.

FERMOPLUS® nutrients are formulated primarily from Saccharomyces cerevisiae cell walls from primary fermentations, yeast autolysates and natural extracts, transforming what would traditionally represent a waste product into a resource of high biological value. The use of natural nutrients also facilitates composting of post-fermentation residues, closing the production cycle in an eco-compatible way and creating added value for the agricultural sector through the production of quality biofertilizers.

Biotechnological Innovation and Process Optimization

Innovation in yeast nutrition for distillates focuses on modulating aromatic expression through the selective supply of precursor amino acids, allowing precise biotechnological control of the organoleptic profile of the spirit.

AEB has developed specialized nutrients such as FERMOPLUS® Distiller Choco, enriched with specific amino acids for the characterization of fermentations with a sweet fruity aromatic profile, demonstrating how targeted nutrition can influence the biosynthesis of ethyl esters, higher alcohols and terpenic compounds.

AEB's research into yeast-nutrient interactions at the molecular level opens new perspectives for the development of premium spirits, where the biotechnological control of fermentation becomes a strategic tool for competitive differentiation and the creation of distinctive aromatic signatures in the international quality spirits landscape.

Availability of products may vary from country to country: contact your AEB sales representative for more information.

YEAST NUTRIENTS WITH ACTIVATING FUNCTION

FERMOPLUS Energy Glu 4.0

FERMOPLUS Energy Glu 4.0 is the new frontier in rehydration nutrients, allowing the yeast to be rehydrated with water at approximately 20°C.

This formula, thanks to the specific amino acids available, sterols, natural glutathione and minerals, allows rehydration in line with the growing orientation of companies towards energy savings, without negatively interfering with cell growth.

Its application allows the production of a yeast that, from reactivation onwards, has a vigor strongly superior to the norm, positively influencing its multiplication rate. By directly providing readily assimilable amino acids, FERMOPLUS Energy Glu 4.0 ensures that the cell does not need to synthesize them itself. Thanks to the natural sterols and mineral trace elements, it allows a membrane fluidity superior to previous versions of similar products to be maintained; it guarantees a perfect start to fermentation and its regular progress.

FERMOPLUS Energy Glu 4.0, through a special enzymatic lysis of yeast cells, manages to increase the glutathione content, which, acting as an antioxidant, ensures the best conditions to get the most out of fermentation and reduce cell aging. This new frontier in nutrition allows yeasts to fully express their characteristics, which are normally not reached due to metabolic alterations.

Dosage: 1 kg of nutrient for every 4 kg of yeast

FERMOPLUS Distiller Integrateur

It is a nutrient designed to promote an optimal fermentation course, providing the yeast with all the elements it needs, allowing greater aromatic complexity and intensity to be obtained.

FERMOPLUS Distiller Integrateur, in addition to increasing the level of readily assimilable nitrogen, supplements the must with vitamins, sterols and microelements, increasing the vitality of yeast cells and enabling a strong and active population capable of exhausting sugars even in musts with high alcohol levels.

The low molecular weight glycoprotein colloids constitute the main and most valuable part, from a technological standpoint, of the cell walls of the inactivated microorganisms present in FERMOPLUS Distiller Integrateur, because they are easily assimilated and develop a series of positive actions for the active yeasts and for the alcohol component in formation, which proves superior in all sensory descriptors.

Its use during the third or fourth day of fermentation allows the formation of malodorous compounds to be prevented, minimizing the appearance of unpleasant odors that can develop in the post-fermentative phase.

In the case of sluggish fermentations or late enrichments, a timely intervention with FERMOPLUS Distiller Integrateur, possibly accompanied by brief aeration, restores ideal conditions for yeast development.

Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

DISTILLERVIT

Nutrient that regulates and activates the fermentation of musts, by activating and stimulating the multiplication of yeasts. This results in an early onset of fermentation with a shortened fermentation cycle duration.

Distillervit restores the optimal ammoniacal nitrogen content, as well as providing the correct supply of vitamins and microelements, in cases of nutritional deficiencies due to the characteristics of the raw material. By guaranteeing an increase in cell concentration, Distillervit prolongs the vitality of yeasts, promoting the completion of fermentation, especially in the critical phase of declining cell population.

This nutrient prevents the formation of hydrogen sulphide, preventing yeasts from breaking down the proteins of the musts to obtain the assimilable nitrogen necessary for their growth and multiplication.

In the fermentation of virgin or semi-fermented pomace, Distillervit allows the total conversion of sugars into distillable alcohol.

Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

FERMOPLUS Distiller Millenium

Specific for cachaça and rum, this yeast works best on cane juice and molasses, developing floral and citrus notes that enrich the aromatic profile of the spirit.

The ideal fermentation temperature to enhance its characteristics is between 15 and 20°C, but it works excellently at higher temperatures as well.

In combination with specific nutrition, it develops notes that can contribute to diversifying the organoleptic profile of the final spirit.

Fermoplus Distiller Millennium is a complex nutrient specifically designed to maintain healthy fermentations even in the presence of high-concentration inocula (high inoculation rates). The yeast population is able to complete the fermentation until the total exhaustion of all fermentable sugars.

Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

Availability of products may vary from country to country: contact your AEB sales representative for more information.

YEAST NUTRIENTS WITH AROMATIC FUNCTION

THE FERMOPLUS Distiller – AROMA RANGE

The availability of specific amino acids allows yeasts to conduct a regular fermentation and, most importantly, to create novel organoleptic characteristics. In particular, in musts from aromatic raw materials it is essential to be able to count on compounds such as: Leucine, Phenylalanine, Isoleucine and Valine.

The metabolic functions of yeasts are also strongly influenced by glutamine, the amide of glutamic acid, a fundamental carrier of ammonium ions across the cell membrane, which is indispensable for cell multiplication and nutrition.

There are also other very important amino acids, such as arginine, which serve a dual function both enhancing typicality and providing a large and rapidly assimilable nitrogen source.

Based on these considerations, AEB has developed the nutrients of the FERMOPLUS Distiller – AROMA range. These are activators rich in yeast hull preparations, particularly abundant in specific amino acids that are fundamental for the characterization of musts and the achievement of novel aromatic profiles.

Higher alcohols are produced by yeasts both directly from sugars, and from the amino acids available in the must through Ehrlich reactions; the amino acid enters an irreversible chemical process that leads to the formation of a by-product of alcoholic fermentation: higher alcohols, which contribute to the aromatic complexity of the spirit.

FERMOPLUS Distiller Choco

FERMOPLUS Distiller Choco. This enhances fruity and spicy notes, increasing complexity and boosting aromatic potential.

It is an activator based on yeast hulls, autolysates and tannin particularly endowed with specific amino acids that are fundamental for the characterization of a sweet fruity aromatic profile.

The use of this nutrient in the must makes it possible to amplify aromas and notes that will characterize the finished product. This confirms how, through the Ehrlich mechanism, certain aromatic notes are an expression of the amino acid heritage.

Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

FERMOPLUS Distiller Flower

FERMOPLUS Distiller Flower enhances floral and citrus notes, increasing complexity and boosting aromatic potential.

It is an activator based on yeast hulls and autolysates particularly endowed with specific amino acids that are fundamental for the characterization of a fresh floral aromatic profile.

The use of this nutrient in the must makes it possible to amplify aromas and notes that will characterize the finished product. This confirms how, through the Ehrlich mechanism, certain aromatic notes are an expression of the amino acid heritage.

Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

FERMOPLUS Distiller Tropic

FERMOPLUS Distiller Tropic enhances tropical and exotic notes, increasing complexity and boosting aromatic potential.

It is an activator based on yeast hulls and autolysates particularly endowed with specific amino acids that are fundamental for the characterization of a tropical aromatic profile.

The use of this nutrient in the must makes it possible to amplify aromas and notes that will characterize the finished product. This confirms how, through the Ehrlich mechanism, certain aromatic notes are an expression of the amino acid heritage.

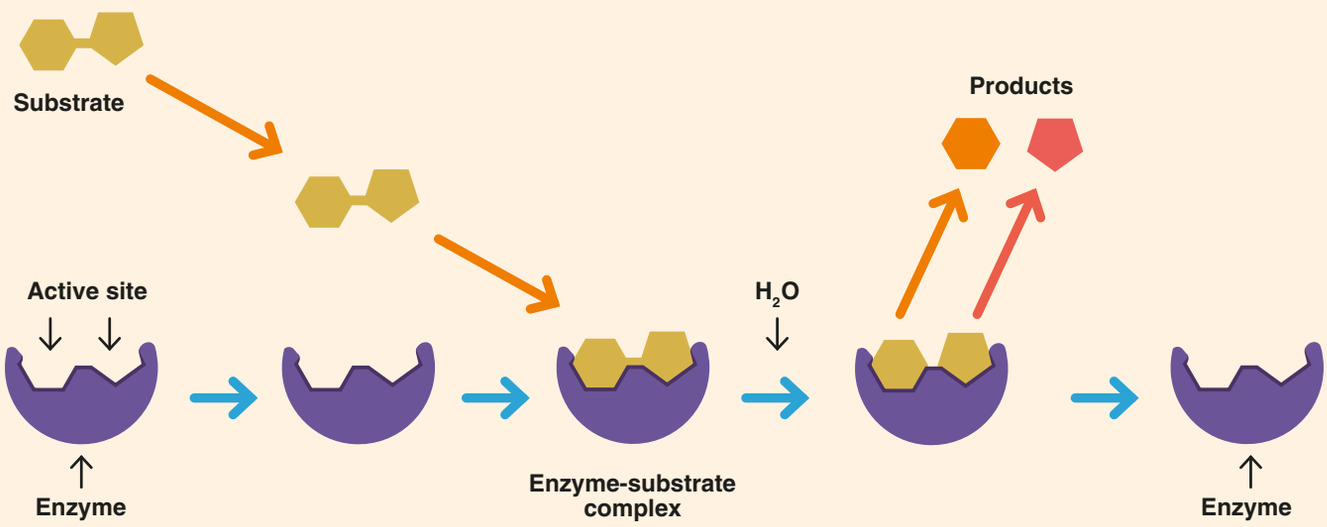
Dosage: up to 75 g/hL depending on the free nitrogen concentration of the must

ENZYMES

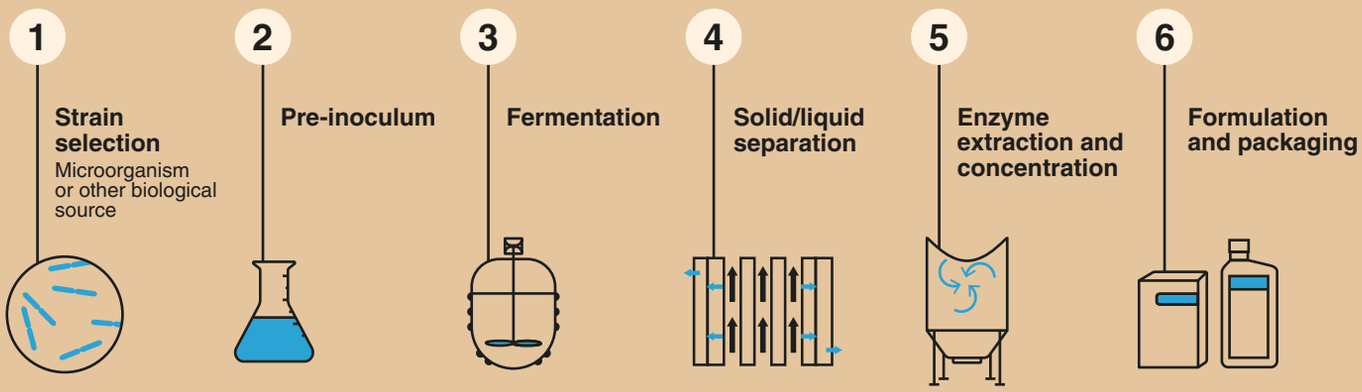
Enzymes are essential tools for optimizing the conversion of starchy and sugary raw materials, ensuring effective and selective transformation. The AEB ENDOZYM® line offers enzymatic solutions designed to increase the efficiency of production processes and promote sustainability, thanks to higher yields, reduced processing times, and a lower environmental impact.

WHAT ARE ENZYMES?

An enzyme is a protein that acts as a biological catalyst, i.e., it accelerates chemical reactions within living organisms without being consumed in the process.
Its structure is highly specific and contains an active site, a kind of molecular "key" that recognizes and binds to a particular molecule called the substrate.
Once bound to the substrate, the enzyme facilitates the chemical transformation, making the process faster and more efficient than it would occur spontaneously.
Enzymes operate under very specific temperature and pH conditions, and their activity can vary significantly if these conditions change. They are fundamental to life, as they regulate and enable reactions that would otherwise be too slow to sustain biological processes.
They can be produced naturally by living organisms (endogenous enzymes) or added from outside (exogenous enzymes).
Enzymes are used to improve the efficiency, yield and sustainability of production processes, reducing times, costs and environmental impacts.



PRODUCTION PROCESS



Present in nature in every living organism, the enzymes used in the food industry are obtained through controlled biotechnological processes, which guarantee their purity, safety and consistent quality standards.

WHY USE ENZYMES?

Technical and Economic Optimization of the Production Process

The use of thermostable amylases (e.g. α-amylase for liquefaction) guarantees complete hydrolysis of starch into fermentable sugars, increasing extraction yields by up to 15–20% compared to traditional processes.

The use of xylanases, beta-glucanases and cellulases further optimizes the degradation of fibrous structures, reducing must viscosity and improving filtration.

Operational Advantages and Sustainability

From a technical-economic standpoint, the use of amylolytic enzyme preparations makes it possible to optimize the thermal process by operating at lower temperatures (60–65°C) after the starch gelatinization phase. In fact, once the temperature necessary for gelatinization (85–90°C) has been reached – which makes the granular structure of the starch accessible to enzymatic hydrolysis – it is possible to rapidly lower the temperature to the optimal activity range of the enzymes.

This two-phase approach reduces the time spent at higher temperatures, minimizing the overall energy requirement of the process and preserving heat-sensitive aromatic compounds that would degrade during prolonged exposure to high temperatures.

The reduction in saccharification times accelerates plant productivity, while the increase in fermentation yields translates into greater volumes of ethyl alcohol per tonne of processed raw material.

Enzymatic specificity also eliminates the formation of unwanted by-products, improving the organoleptic quality of the final distillate and reducing downstream purification costs.

The enzymatic approach therefore represents a winning strategy for optimizing the ROI and environmental sustainability of the production process.

ENZYMES – THE ENDOZYM® RANGE

Efficiency and yield begin with optimal conversion of raw materials.

AEB Spirits enzymes are designed to improve the transformation of starches, proteins and complex polysaccharides into fermentable substrates, guaranteeing maximum extraction and process efficiency. Whether you are processing grains, sugarcane, fruit or molasses, our enzymes work with precision to reduce viscosity and release precious fermentable sugars. The result is a cleaner must, higher alcohol production and a more efficient distillation process.

Each enzyme is supported by thorough research and validated under real production conditions. For tailored applications and dosage guidance, our team of expert technicians is available to help you integrate enzymatic treatments into your specific production environment.

ENDOZYM® Alphamyl SB1/ PF NaCl

Thermostable α-amylase–based enzymatic preparation designed to enhance starch hydrolysis efficiency by cleaving polysaccharide chains and promoting the formation of soluble dextrins and oligosaccharides. Its enzymatic activity improves yield during wort production, including when unmalted cereals are used.

Application benefits and technical characteristics:

- More rapid and consistent hydrolysis
- Stable at high temperatures: thermostable alpha-amylase that maintains its catalytic activity during rapid heating, allowing rapid starch hydrolysis and liquefaction which translate into overall shorter process times.
- Raw material flexibility: allows efficient processing of unmalted grains or raw materials with low diastatic power. This reduces dependence on malt, lowering costs.
- Viscosity control: acts rapidly on gelatinized starch, achieving a drastic and immediate reduction of must viscosity (liquefaction). This improves pumping, filtration and reduces the risk of blockages.
- Yield improvement: the complete degradation of starch into dextrins during liquefaction maximizes the extraction of fermentable (or hydrolysable) sugars, guaranteeing an increase in the final process yield.
- Energy efficiency: thanks to its thermal stability, it allows shorter processing cycles, optimizing energy consumption for gelatinization/liquefaction.

Optimal operating conditions:

- **Operating range: 80- 95°C**
- **pH: 5,5 – 8,5**
- **Recommended dosage: 200–600 mL/T of grains**

ENDOZYM® AGP120

ENDOZYM® AGP 120 is an enzymatic preparation composed of α-amylase, amyloglucosidase, and pullulanase, formulated to maximize the conversion of dextrins into fermentable sugars. The synergistic action of these enzymes enables the hydrolysis of both linear and branched starch chains, releasing glucose from the non-reducing ends of dextrins and increasing the availability of fermentable sugars for yeast metabolism.
The result is a highly attenuated wort, characterized by a reduced content of non-fermentable dextrins and an increased glucose concentration, indicating complete enzymatic efficiency. This makes the product ideal for producing highly attenuated worts and for optimizing final alcohol yield.

Application benefits and technical characteristics:

- Application: used during fermentation to maximize alcohol yield and achieve near-complete must attenuation.
- Enzymatic action: allows the hydrolysis of dextrins into fermentable sugars (mainly glucose), minimizing residual maltotriose content.
- Fermentation efficiency: thanks to its high dextrinase activity, it ensures a more complete fermentation and a higher final degree of attenuation compared to reference samples.

Optimal operating conditions:

- **Operating temperature: active from 25–35°C (denaturation >65°C)**
- **pH: 4–5**
- **Recommended dosage: 3–10 mL/hL of must (to be optimized based on the desired degree of attenuation and type of substrate).**

ENDOZYM® AMG

ENDOZYM® AMG is a glucoamylase-based enzymatic preparation developed for brewhouse applications. The enzyme promotes the hydrolysis of both branched and linear starch dextrins, releasing glucose and degrading maltotriose, thereby increasing the availability of fermentable sugars.
This allows the wort attenuation degree to be increased by up to 15%, while maintaining partial fermentation and ensuring a balanced sugar profile.

Application benefits and technical characteristics:

- Enzymatic action: hydrolyzes the α-1,4 and α-1,6 glucosidic bonds of starch, releasing glucose units and destructuring the branches of amylopectin.
- Effect on must: partially increases attenuation, promoting a higher content of fermentable sugars and improving the sugar profile without reaching complete fermentation.
- Stability: stable at typical mashing temperatures.

Optimal operating conditions:

- **Operating temperature: 50–75°C**
- **pH: 3–5**
- **Recommended dosage: 500–1000 mL/T of grains.**

Availability of products may vary from country to country: contact your AEB sales representative for more information.

ENZYMES – THE ENDOZYM® RANGE

ENDOZYM® Brewmix Plus

ENDOZYM® Brewmix Plus is a complex enzymatic formulation composed of α-amylase, β-glucanase, xylanase, and protease, developed to enhance hydrolysis efficiency during mashing and to optimize the rheological properties of the mash.

The combined enzymatic activity promotes viscosity reduction through the degradation of structural polysaccharides, particularly β-glucans, while accelerating the conversion of starch into fermentable sugars and improving liquid separation performance.

The product increases overall yield by reducing residual extract in the solid fraction and provides greater flexibility in raw material selection, allowing the use of up to 30% unmalted adjuncts without affecting wort sugar composition or fermentation process efficiency.

Application benefits and technical characteristics:

- Wort optimization and grain flexibility: improves blend composition and allows the use of unmalted adjuncts.
- Reduction of mashing times and improvement of filterability: accelerates the conversion of starch into fermentable sugars and reduces beta-glucans, lowering viscosity and promoting more efficient lautering.
- Increased yield in the brewhouse: reduces residual extract in the draff, guaranteeing greater extraction of soluble extract.
- Improvement of soluble protein fraction and FAN: contributes to an optimal nutritional profile for fermentation.

Optimal operating conditions:

- **Operating temperature: 35°C up to above 85°C**
- **pH: 3.6–6**
- **Recommended dosage: 250–700 mL/T of grains**

ENDOZYM® Pectofruit BR

ENDOZYM® Pectofruit BR is a highly effective enzymatic preparation, formulated on the basis of pectinases, including Pectin-lyase (PL), Polygalacturonase (PG) and Pectinmethylesterase (PME). These enzymes act synergistically to catalyze the depolymerization and de-esterification of pectins, the main components of the cell wall of fruits.

Application benefits and technical characteristics:

- Improvement of the extractive yield of the sugar component
- Reduction of must viscosity with facilitation of pumping
- Improvement of mash filterability

Optimal operating conditions:

- **Operating temperature: 45–55°C**
- **pH: 3.3–4.5**
- **Recommended dosage: 2–5 mL/hL of pectic substance to be treated**

ENDOZYM® Glucacel UHT

ENDOZYM® Glucacel UHT is an enzymatic mixture of β-glucanase and xylanase, with collateral cellulase activity, specifically formulated to reduce wort viscosity and improve mash filterability through the hydrolysis of non-starchy polysaccharides (arabinoxylans and β-glucans). This enzymatic preparation also makes it possible to increase the percentages of unmalted grains in the recipe, such as oats, which are naturally rich in β-glucans but appreciated for their positive contribution to the aromatic profile and texture of the finished product, thus offering greater formulative flexibility and optimization of the quality/cost ratio of raw materials.

Application benefits and technical characteristics:

- Improves mash filterability reduces the effects of beta-glucans and the high release of hemicellulose during agitation, even in the presence of poor-quality malts.
- Reduces wort viscosity: the combined action of β-glucanase, xylanase and cellulase facilitates rapid and efficient wort separation.
- Enables the use of unmalted grains: such as oats, which although rich in beta-glucans, bring aromatic benefits and increase flexibility in the choice of raw materials.
- Increases extract yield improves the extraction of soluble sugars from the draff, optimizing overall yield.

Optimal operating conditions:

- **Operating temperature: 50–75°C**
- **pH: 4.7–7**
- **Recommended dosage: 200–300 mL/T of grains**

ENDOZYM® Protease NP

ENDOZYM® Protease NP is a high-activity neutral protease enzymatic preparation, designed to operate under neutral pH conditions. The enzyme rapidly hydrolyzes proteins, releasing low molecular weight amino acids and peptides that provide essential nutrients for yeast during fermentation. It finds application in the production of distillates from malted and unmalted cereals and in the production of fruit brandy, contributing to improved fermentation efficiency and optimized alcohol yield.

Application benefits and technical characteristics:

- Rapid protein hydrolysis: releases amino acids and peptides, improving the extractive yield of the protein component.
- Optimized clarification: in combination with adjuvants such as bentonite, gelatin and silica sol.

Optimal operating conditions:

- **Operating range: temperature 50–70°C**
- **pH: 6–7.5**
- **Recommended dosage: 3–15 mL/hL**

ENZYMATIC ACTIVITIES ON REQUEST

We can address all enzymatic needs with a comprehensive approach that goes from research and development to the selection of the most suitable enzymatic activities. Contact us for more information.

PRACTICAL GUIDE TO THE USE OF ENDOZYM® ENZYMES IN THE DISTILLERY

ISSUE	RECOMMENDED ENZYME	KEY BENEFIT	APPLICATION PHASE	SPIRITS	RECOMMENDED DOSAGE	OPERATING CONDITIONS
High must viscosity (liquefaction)	**ENDOZYM® Alphamyl SB1/ PF NaCl**	Rapid starch liquefaction, viscosity reduction, better pumping	Mashing (cooking)	Whisky / Vodka / Gin / Grain spirits	200–600 mL/T of grains	T°: up to >95°C pH: 5,5 – 8,5
Poor mash filterability (beta-glucans and arabinoxylans)	**ENDOZYM® Glucacel UHT**	Hydrolysis of β-glucans and arabinoxylans, more efficient wort separation	Mashing	Whisky / Grain spirits (especially with oats)	200–300 mL/T of grains	T°: 50–75°C pH: 4.7–7
Poor filterability + process time reduction	**ENDOZYM® Brewmix Plus**	Faster process, better filterability, increased overall yield	Mashing	Whisky / Grain spirits	250–700 mL/T of grains	T°: 35–>85°C pH: 3.6–6
Use of unmalted grains (up to 30%)	**ENDOZYM® Brewmix Plus**	Raw material flexibility, cost reduction, yield maintenance	Mashing	Whisky / Grain spirits	250–700 mL/T of grains	T°: 35–>85°C pH: 3.6–6
Low alcohol yield / incomplete attenuation	**ENDOZYM® AGP120**	Maximum conversion to glucose, near-complete attenuation, maximum alcohol yield	Fermentation	Vodka, neutral spirits, high-yield spirits	3–10 mL/hL must	T°: 25–35°C pH: 4–5
Need for controlled attenuation (15%)	**ENDOZYM® AMG**	Partial increase in attenuation, balanced sugar profile	Mashing (cooking)	Whisky / Grain spirits	500–1000 mL/T grains	T°: 50–75°C pH: 3–5
Low extractive yield from fruit	**ENDOZYM® Pectofruit BR**	Pectin depolyme-rization, greater sugar extraction from fruit	Mashing/ Extraction	Brandy / Fruit spirits (apples, pears, plums, etc.)	2–5 mL/hL	T°: 45–55°C pH: 3.3–4.5
High viscosity/turbidity of fruit must	**ENDOZYM® Pectofruit BR**	Viscosity reduction, better pumping and filterability	Mashing/ Extraction	Brandy / Fruit spirits	2–5 mL/hL must	T°: 45–55°C pH: 3.3–4.5

Availability of products may vary from country to country: contact your AEB sales representative for more information.

PRACTICAL GUIDE TO THE USE OF ENDOZYM® ENZYMES IN THE DISTILLERY

ISSUE	RECOMMENDED ENZYME	KEY BENEFIT	APPLICATION PHASE	SPIRITS	RECOMMENDED DOSAGE	OPERATING CONDITIONS
FAN deficiency (yeast nutrients)	**ENDOZYM® Protease NP**	Release of free amino acids and peptides, more efficient fermentation	Mashing	Whisky / Grain spirits, Fruit brandy	3–15 mL/hL	T°: 50–70°C pH: 6–7.5
Clarification difficulties	**ENDOZYM® Protease NP**	Protein hydrolysis, optimized clarification (with bentonite/gelatin/ silica)	Pre-clarification	Grain spirits / Brandy	3–15 mL/hL	T°: 50–70°C pH: 6–7.5
Use of rye or other unmalted grains (high β-glucan content)	**ENDOZYM® Glucacel UHT**	Allows use of rye while maintaining filterability, improved aromatic profile	Mashing	Whisky (especiall y with rye) / Grain spirits	200–300 mL/T of grains	T°: 50–75°C pH: 4.7–7
Mashing times too long	**ENDOZYM® Alphamyl SB1/ PF NaCl**	Rapid starch hydrolysis, process time reduction, energy efficiency	Mashing (cooking)	Grain spirits	200–600 mL/T of grains	T°: 80 - 95°C pH: 5,5 – 8,5
Low overall brewhouse yield	**ENDOZYM® Brewmix Plus**	Reduction of residual extract in draff, greater extraction of soluble extract, yield increase	Mashing	Grain spirits	250–700 mL/T of grains	T°: 35–>85°C pH: 3.6–6

IMPORTANT NOTES RELATING TO THE TABLE:

- *Enzymes can be combined with each other to address multiple issues*
- *The indicated dosages are indicative and must be optimized based on the specific process*
- *Temperature and pH significantly influence enzymatic activity: respect the indicated ranges*
- *For maximum yield: combine ENDOZYM Alphamyl SB1 / ENDOZYM PF NaCl (cooking) + ENDOZYM AGP120 (fermentation)*
- *For unmalted grains: ENDOZYM Brewmix Plus or ENDOZYM Glucacel UHT based on the % of adjuncts used*
- *For more information and application details, always consult the technical documentation/TDS of each product or contact the AEB team.*

TANNINS

THE ELLAGITAN RANGE

The quality of a liqueur or fortified wine is measured not only in purity, but also in structure and sensory harmony.

AEB tannins and polysaccharides are designed to refine the organoleptic profile, improve stability and protect against oxidation.

Thanks to targeted selections, it is possible to intervene in a natural way on the body and aromatic complexity, preserving the identity of the product.

AEB tannins are technical solutions for spirits that want to stand out.

WHAT ARE TANNINS?

Tannins are polyphenolic compounds present in many plants, known for their ability to bind to proteins and influence the taste, stability and structure of numerous food products and beverages.

Chemically, they belong to the flavonoid family and are distinguished into two main categories: hydrolysable tannins and condensed tannins, depending on their structure and behavior.

Their main function, in nature, is protective: they help the plant defend itself from predators, fungi and bacteria, thanks to their bitter taste and their ability to precipitate proteins.

In the field of liqueur production and fortified wines, tannins play important roles in color stabilization, taste structure and the antioxidant capacity of the finished product.

LIQUID TANNINS

The different types of ELLAGITAN Barrique Liquid bring different sensory notes depending on the type of oak used in their production, whether French (notes of vanilla, increase in structure) or American (spicy and smoky notes) and on the degree of toasting that the wood undergoes before the extraction of the tannin from the plant matrix.

In the table below we list the different notes that each of our five tannins brings to the product.

Compound	ELLAGITAN Barrique Liquid	ELLAGITAN Barrique XO	ELLAGITAN Fruit Reserve	ELLAGITAN Berry Mix	ELLAGITAN Goud-Ron	Aroma
Furfural	+++	-	+++	++	++++	Caramel
5-Methylfurfural	++	++++	+++	-	++	
2(5H)-Furanone	+	++	++	+++	+	
5-Hydroxymethylfurfural	+++	++++	++++	++	+++	
Coniferaldehyde	-	++++	++	-	-	Syrup
Guaiacol	+++	+	+	++	++++	Toasted
Syringaldehyde	+++	++++	++	++	++++	
Phenol	++	+	+	+++	++	Spices Cloves
Eugenol	+	+	+	+	+	
Isoeugenol	+	+	+	-	-	
4-Vinylguaiacol	+	++	++	--	-	
cis-Whiskey Lactone	+	-	-	++	+++	Coconut
trans-Whiskey Lactone	++	+	+	+++	++++	
Vanillin	+++	++	+	+++	++++	Vanilla
Vanillic Acid	++++	++	+	-	-	
Acetovanillone	++++	+++	+++	-	-	
Homovanillic Acid	+++	+++	+++	++	++	
2-Phenylethanol	-	-	+	+++	++++	Fruity
Ethyl Succinate	-	+	++	++++	++	

Availability of products may vary from country to country: contact your AEB sales representative for more information.

LIQUID TANNINS

ELLAGITAN Barrique Liquid

ELLAGITAN Barrique Liquid is an ellagic tannin extracted from oak wood aged for over two years which, thanks to its particular preparation system, guarantees perfect homogenization in the mass and stability of the solution over time.

The extraction of the tannin is carried out through a particular delicate system that allows only sweet tannins to be obtained, thus avoiding the release of compounds that could result in green, bitterly astringent and unpleasant notes.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique XO

ELLAGITAN Barrique XO is an ellagic tannin extracted from oak wood characterized by a toasted, spicy and citrus note with hints of smokiness and cocoa. In certain fortified wines it enhances notes of plum and red fruits and has a light note of leather and tobacco.

It is very distinctive because it ranges from spice to sweetness, is aromatically complex and is characterized by a very broad bouquet that goes from spicy to sweet. Depending on the product in which it is used, a note of tea and a floral aroma are perceived.

On the palate it proves to be well-balanced tannic and intense on the nose.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique Fruit Reserve

ELLAGITAN Barrique Fruit Reserve is an ellagic tannin extracted from oak wood characterized by a fruity note, particularly of red fruit such as cherry.

A vanilla and citrus note is also perceived; on the palate, spicy notes of cinnamon, dried aromatic herbs and balsamic notes are found.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique Berry Mix

ELLAGITAN Barrique Berry Mix is an ellagic tannin extracted from oak wood. Products treated with it are easier to perceive on the palate and this makes them easily appreciated by the market.

A complex note of red fruits is perceived, with a finish reminiscent of oak toasting. In certain wines it enhances notes of plum and red fruits and has a light balsamic note. It is very distinctive because it ranges from spice to sweetness, is aromatically complex and is characterized by a broad and sweet bouquet.

On the palate it proves to be well-balanced tannic, while intense on the nose.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique Goud-Ron

ELLAGITAN Barrique Goud-Ron is an ellagic tannin extracted from oak wood. It enriches the product with toasted, strong notes, also known as ***goud-ron***. The balanced and full-bodied vanilla integrates well with products of great structure.

It is very distinctive because it ranges from spice to sweetness, is aromatically complex and is characterized by a very broad bouquet.

On the palate it proves to be well-balanced tannic, while intense on the nose.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

Availability of products may vary from country to country: contact your AEB sales representative for more information.

POWDERED TANNINS

The ELLAGITAN powdered tannin range is obtained through a hydrolysis and drying process of tannins that guarantees the separation of unwanted bitter compounds.

These powders are highly soluble, do not release resins or other unwanted substances and guarantee an organoleptic enrichment of the product treated during finishing.

ELLAGITAN Barrique Chene

ELLAGITAN Barrique Chene is an ellagic tannin extracted from oak wood. It enriches the product with toasted notes; the balanced and full-bodied vanilla guarantees aromatic depth.

It is very distinctive because it ranges from spice to sweetness, is aromatically complex and is characterized by a very broad bouquet. On the palate it proves to be well-balanced tannic and sweet, while intense on the nose.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique Blanc

ELLAGITAN Barrique Blanc is an ellagic tannin with very low coloring power extracted from French oak wood. It enriches the product with silky tactile sensations, lending complexity and structure on the nose.

It guarantees richness and roundness on the palate, increasing the final pleasantness and complexity of the product.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

ELLAGITAN Barrique Rouge

ELLAGITAN Barrique Rouge is an ellagic tannin from oak wood aged for more than two years and heavily toasted. It prolongs the gustatory perception of the product with notes of vanilla and chocolate.

It contributes to increasing the sensation of fullness and softness on the palate, significantly improving the pleasantness and organoleptic complexity of the finished product.

Dosage: up to 50 g/hL or according to the desired organoleptic profile

Availability of products may vary from country to country: contact your AEB sales representative for more information.

SPECIFIC TREATMENTS

Every distillery faces unique challenges, and we provide the tools to overcome them.

AEB Spirits offers specialized treatments for technical issues such as excessive phenolics, copper contamination, unstable color or off-flavors.

These targeted solutions are supported by scientific research and customized to resolve specific production bottlenecks.

Rather than proposing standardized solutions, we work directly with the distillery's production team to precisely identify critical issues and devise targeted, effective and sustainable interventions. By choosing AEB, you can count on a specialized technical network that constantly supports you, guaranteeing concrete results and compliance with the highest quality standards.

SPECIFIC TREATMENTS: GUM ARABIC

Gum arabic compounds are long-chain arabinose polysaccharides derived from the resin of two different acacia species, Seyal and Senegal.

- **Acacia Seyal – DEXTROROTATORY structure: easier to filter, good viscosity**
- **Acacia Senegal – LEVOROTATORY structure: denser, imparts greater viscosity to the product**

Both impart sweetness and structure to the product without adding calories, and have a protective role with regard to the product's color.

Gum arabic compounds are stable up to alcohol concentrations of around 40% vol.

ARABINOL

ARABINOL is a gum arabic solution at a concentration exceeding 20% extracted from Acacia seyal, perfectly clear and immediately addable to the finished product.

It allows all the benefits of a high-purity gum arabic to be obtained: it improves softness and velvety perception, stabilizes color and imparts sweetness without raising caloric content.

It can be added even after the last filtration given its exceptional purity.

Dosage: up to 150 mL/hL or according to the desired organoleptic profile

ARABINOL HC

ARABINOL HC is a natural polysaccharide concentrated above 30%, obtained from Acacia *seyal* with medium molecular weight chains, easily filterable. ARABINOL HC is a natural product that positively influences the organoleptic quality of the products to which it is added, contributing to increasing sensations of richness and body.

It has a softening and amplifying action that makes gustatory perception and aromatic complexity longer lasting.

Dosage: up to 80 mL/hL or according to the desired organoleptic profile

ARABINOL Dolce

ARABINOL Dolce is AEB's gum arabic produced through hot concentration and polysaccharide complexation processes.

ARABINOL Dolce is a product that aids colloidal stabilization and that, thanks to this new process, positively influences the organoleptic quality of the liqueur or fortified wine, contributing to increasing sensations of richness, sweetness and body.

It is ideal for those products in which sweet taste sensations are to be amplified, reducing the need for residual sugars.

Dosage: up to 150 mL/hL or according to the desired organoleptic profile

ARABINOL Arôme

ARABINOL Arôme is a mix of gum arabic compounds specifically selected and blended to stabilize and protect the specific aromas of the product where it is applied.

Its physicochemical characteristics confer a high colloidal power, a good softening power, the ability to attenuate acidic sensations and, above all, make it the reference preparation for aroma stabilization.

Dosage: up to 180 mL/hL or according to the desired organoleptic profile

Availability of products may vary from country to country: contact your AEB sales representative for more information.

PRACTICAL GUIDE TO THE USE OF GUM ARABIC IN THE DISTILLERY

PRODUCT	PROBLEM	SOLUTION	SPIRITS APPLICATIONS
ARABINOL®	I have already filtered the product and want to soften it / add sweetness and structure without re-filtering. I am looking for a gum arabic of very high purity for the finished product.	Add ARABINOL® directly after the last filtration. Thanks to its exceptional purity it does not cloud the product (it is the only one in the line with this characteristic). Dosage: up to 150 mL/hL.	Brandy Cognac Aged Rum Whisky Gin
ARABINOL® HC	The distillate is flat, short in the mouth, lacks structure. Aromatic complexity is poor and the finish is brief.	ARABINOL® HC (with concentration >30% and medium molecular weight chains) prolongs gustatory persistence and amplifies aromatic complexity. Dosage: requires a lower dose compared to the classic (≤ 85 mL/hL) for the same effect.	Agricultural Rum Cognac Aged fruit spirits Structured Whiskies
ARABINOL® Dolce	In a liqueur the sweet perception is insufficient, but I don't want to increase residual sugars due to: - calories/labelling - raw material costs - regulatory bureaucracy	ARABINOL® Dolce enhances sweet sensations thanks to the hot concentration process and polysaccharide complexation. Reduces dependence on added sugars without adding calories. Dosage: up to 150 mL/hL.	Liqueurs (crèmes, amaretto) Chocolate liqueurs Fortified wines
ARABINOL® Arôme	The delicate aromas of the product (botanicals, fruit, spices, flowers) tend to disperse or fade over time or during packaging/blending.	ARABINOL® Arôme is formulated with a selected mix of gum arabic compounds to stabilize and protect specific aromas. It offers high colloidal power, softening action and attenuation of acidic sensations. It is the reference product for aroma stabilization. Dosage: up to 180 mL/hL.	Gin Flavored Vodka Amari Flavored Grappas White Rum

IMPORTANT NOTES RELATING TO THE TABLE:

- *Filtration not required up to 40% vol; above 40% vol add before the last filtration to eliminate any haziness (does not raise the blocking index).*
- *Critical alcohol limit: gum arabic compounds are stable up to ~40% vol. of alcohol. Always check the alcohol level of the finished product before dosing.*

Availability of products may vary from country to country: contact your AEB sales representative for more information.

SPECIFIC TREATMENTS: ANTIFOAM

BATFOAM SB1

BATFOAM SB1 is a food-grade antifoaming agent. An emulsion based on food-grade silicone.

It can be used pure or diluted, with all types of pH and at temperatures between 10 and 100°C.

An effective product, based on food-grade silicone, designed to address foam problems in the beverage industry, for example during fermentation, thanks to the lowering of surface tension, enormous dispersion power in liquids and foam particles, and it incorporates additives capable of destroying re-forming foam.

It can also be used in the distillation process to avoid foam formation in plants.

Dosage: from 0.01 to 0.3%. Preliminary tests are recommended. Contact our team of technicians for dedicated information and support.

SPECIFIC TREATMENTS: CLARIFIERS

GELSOL

GELSOL is a special water-solubilized gelatin designed for the clarification treatment of liqueurs and distillates. It is a stable, clear, odorless and ready-to-use solution.

It has a combination index with tannins that is higher than that of normal liquid gelatins.

GELSOL is easy to use because it does not require solubilization in hot water and has an effective gel strength that facilitates the adsorption of the unstable molecules present, polyphenolic and colloidal substances.

The clarification process is immediate, since GELSOL reacts immediately and specifically, becomes insoluble and flocculates forming heavy macro-coagulates that incorporate the suspended solids. The sediments obtained are compact and adherent to the bottom.

The use of GELSOL with distillates that have been in contact with new wood for too long reduces the concentration of tannins present and with them the bitter-astringent perception.

Dosage: up to 50 mL/hL. Preliminary tests are recommended.

SPECIFIC TREATMENTS: DECOLORIZATION

DECORAN

DECORAN is a special decolorizing activated carbon of highly adsorbent action. It is prepared through a carbonization process carried out in a controlled atmosphere by chemical catalysis and process activation. It is thanks to this exclusive method that DECORAN has a surface area of between 900 and 1100 m^2/g of product and a particle diameter from 10 to 100 Ångströms, physical characteristics that ensure the maximum results of specific decolorizing activity.

This special decolorizing carbon is chemically inert, does not release impurities and specifically adsorbs unstable and volatile molecules, preserving the valuable organoleptic characteristics.

By virtue of its characteristics, DECORAN can be aspirated directly from the bag by means of a Venturi tube, avoiding creating even the slightest amount of dust.

After achieving the desired effect, its subsequent separation can be effected by filtration or precipitation.

Dosage: up to 100 g/hL. Preliminary tests are recommended.

SPECIFIC TREATMENTS: DEODORIZATION

DEODAL

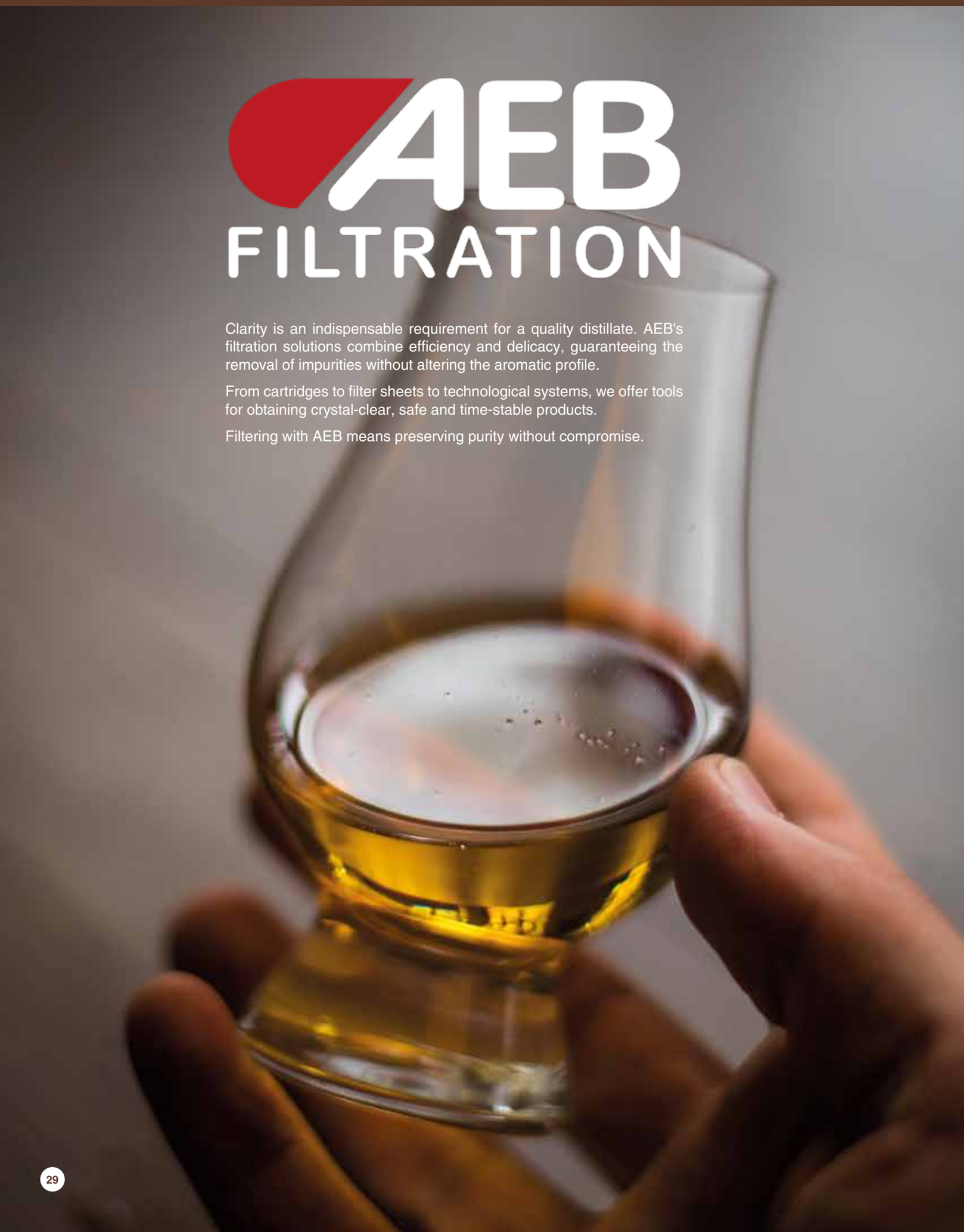
DEODAL is a special activated carbon obtained through specific carbonization processes of plant substances which are subsequently activated to increase their porosity and therefore their adsorbent power.

DEODAL has a particular adsorbent activity with respect to abnormal odors and flavors, and its action is particularly selective with regard to negative characteristics, preserving the overall quality and ensuring the maintenance of the valuable organoleptic characteristics of the treated products.

This adjuvant has a high deodorizing power combined with a limited adsorption of coloring substances. Due to the careful selection of raw materials and production systems, its use even at high doses does not result in the release of metals or other unwanted substances.

Dosage: up to 100 g/hL. Preliminary tests are recommended.

AEB FILTRATION: FILTRATION



AEB FILTRATION

Clarity is an indispensable requirement for a quality distillate. AEB's filtration solutions combine efficiency and delicacy, guaranteeing the removal of impurities without altering the aromatic profile.

From cartridges to filter sheets to technological systems, we offer tools for obtaining crystal-clear, safe and time-stable products.

Filtering with AEB means preserving purity without compromise.

AEB FILTRATION: FILTRATION

FILTER SHEETS

Depth filtration filter sheets – Depth Filtration Range – designed for the filtration of every product category. For the correction of color and off-flavors, the range includes AEB CARBON filter sheets composed of activated carbon powder incorporated within a matrix of cellulose fibers. All manufactured with first-choice and particularly pure natural materials bearing cationic charge: finely fibrillated cellulose fibers from hardwood and softwood, diatomaceous earth and perlite at different concentrations.

Our filter sheets are available with porosity from 0.2 to 35 microns and in sizes 40×40 or specific dimensions depending on requirements.

LENTICULAR MODULES

AEB DISC lenticular modules offer a complete and hermetically sealed solution for filtration, through the technology of filtration through filter sheets.

Each module consists of 16 cells, each of which consists of 2 filter discs or lenses shaped around an internal polypropylene skeleton. The outer edges of the discs are sealed by an injection-molded polypropylene strip. A polyester layer covers each face of the filter discs to protect them during handling. AEB DISC lenticular modules are available in 12” (332 mm) or 16” (410 mm) diameter and the filter surface varies from 1.8 to 3.7 m^2 per module.

CARTRIDGES

ABSOLUTE PP

Heat-welded polypropylene pleated filter medium, without electric charge. Absolute porosities 0.6 – 0.8 – 1 – 3 – 5 – 10 – 20 µm, with particle rating β 5000. Wide compatibility with regenerating and sanitizing products.

Compliant with food contact regulations.

Configuration suitable for frequent chemical regeneration.

ABSOLUTE PES

Asymmetric pore structure hydrophilic polyethersulfone membrane, without electric charge. Absolute porosities 0.2 – 0.8 – 1.2 µm; the microbiological grade is defined with specific microorganisms.

Membrane integrity testable repeatedly. Wide compatibility with regenerating and sanitizing products.

Compliant with food contact regulations.

Configuration suitable for frequent chemical regeneration.

HOUSING

We have housings of different sizes that can be combined in circuits according to customer needs.

SANITATION

To complete its AEB Filtration proposal, AEB has also developed a wide selection of detergents and products for washing, regeneration and sterilization of filter elements. To guarantee producers not only the best product at purchase, but also the best possible performance over time.

SANITATION SOLUTIONS

Impeccable hygiene as the first ingredient of quality.

Cleanliness is indispensable in the production of distilled spirits, liqueurs and fortified wines. Our sanitation solutions are developed to protect your process from microbial contamination while preserving the sensory integrity of your product.

Designed for use on equipment, tanks, pipelines and surfaces, these agents guarantee hygienic conditions during fermentation, distillation and bottling.

Adequate sanitation minimizes the risks of microbiological contamination, prevents cross-contaminations and guarantees compliance with food safety standards.

With AEB you are supported by a team of hygiene specialists who can help you design, implement and validate effective sanitation protocols customized to your production setup.

REMOVIL Liquid

REMOVIL Liquid is a highly caustic alkaline liquid formulate suitable for the cleaning of closed lines in all sectors of the food industry and in beverage bottling.

REMOVIL Liquid is capable of easily removing residues of animal and vegetable fat, proteins, oil and organic contamination in general from treated surfaces.

It has wetting components that facilitate the washing action of the alkalinity and that allow washing with lower operating concentrations compared to the use of simple sodium hydroxide. The hardness controllers present (sequestrants) then allow the negative effects of medium-hardness water to be eliminated.

To optimize the results of washing cycles in certain sectors, the subsequent acid descaling phase is recommended periodically.

Dosages: use REMOVIL Liquid with concentrations varying from 0.8% to 3.0% (from 8 to 30 mL/L) depending on the type and degree of contamination present. Although, like all caustic products, REMOVIL Liquid exercises its maximum activity at temperatures above 50°C, the formulation has shown excellent detergent and descaling capacity even at room temperature, especially in the winery sector. Final rinse with potable water until the complete elimination of any possible detergent residue.

IDROSAN

IDROSAN is an alkaline chlorine-active liquid formulate suitable for the cleaning and sanitization, automatically or manually, of plants and equipment in the dairy sector and in the food industry in general.

IDROSAN is capable of easily removing residues of fat, proteins and grease from closed circuits.

The presence of chlorine also guarantees the achievement of excellent sanitizing action. IDROSAN is also particularly suitable for washing carried out with medium to high hardness water (good sequestrant action).

Dosages: after an initial rinse with water apply an IDROSAN solution with concentrations varying from 0.5 to 5% (5–50 mL/L). Temperatures above 40°C are not recommended. Final rinse with potable water until the complete elimination of any possible detergent residue.

SANIFOAM

SANIFOAM is a high-chlorine-content alkaline foaming detergent for daily washing in all sectors of the food industry, suitable for all surfaces, with strong oxidizing power. SANIFOAM is capable of effectively removing the various types of organic contamination such as animal and vegetable fats, greasy and protein-containing dirt, and processing residues from vegetables even in heavily contaminated areas.

SANIFOAM presents itself in functional terms with characteristics intermediate between a traditional foamer and a gel: excellent gripping power on vertical surfaces with lasting duration and better detergency with rapid rinsability. SANIFOAM can be applied with a wide range of dispensing equipment (Easyfoam P, Combifoam, FoamLance, centralized systems, etc.).

Dosages: pre-wash with water (from 35°C to 60°C) followed by foam application of SANIFOAM directly onto the surfaces to be washed at concentrations between 3% and 6% (30–60 mL/L) depending on the type of dirt and the level of contamination. Use at room temperature and on non-hot surfaces. After 10–15 minutes of contact, carry out a thorough final rinse with potable water to eliminate any trace of the washing solution. Avoid prolonged contact with surfaces (>1 hour).

NERLIK liquid

NERLIK Liquid is a highly caustic alkaline formulate with high wetting and sequestrant capacity, suitable for the cleaning of heavy soiling in all sectors of the food industry and in beverage bottling.

NERLIK Liquid is capable of easily ensuring the removal of the most stubborn organic residues and is particularly indicated for bottle and keg washing in the beverage sector in general.

The presence of hardness controllers allows working even with medium-hardness water so as to prevent calcium precipitation phenomena. NERLIK Liquid also finds use in various applications such as CIP and spray washing where it ensures excellent control of foaming phenomena.

Dosages: after an initial rinse with water apply a NERLIK Liquid solution with concentrations varying from 0.8% to 3.0% (8–30 mL/L). Temperatures above 50°C are recommended. Final rinse with potable water until the complete elimination of any possible detergent residue.

SANITATION SOLUTIONS

CELON Special

CELON Special is a formulate based on nitric and phosphoric acid that allows the achievement of a high-descaling-power solution capable of removing inorganic residues from surfaces.

It also acts as a passivating agent for stainless steel surfaces. CELON Special can be used for a wide range of applications within the food industry, beverage bottling and the dairy sector, being also capable of removing milk stone and beer stone.

CELON Special has low foaming tendency, which makes it suitable for CIP applications.

CELON Special can be used through automatic dosing and control systems, via conductivity, ensuring the correct dosage of the formulate.

Dosages: use CELON Special with concentrations between 0.8% and 5% (8–50 mL/L), and in a temperature range preferably between 20 and 70°C. The exact method is strictly linked to the type of application, contamination and the level of scale present. Carry out a thorough final rinse with potable water.

CELOPOL Liquid

CELOPOL Liquid is a formulate based on organic acid that allows the achievement of a washing and descaling action solution capable of removing organic and inorganic residues from surfaces.

CELOPOL Liquid can be used for a wide range of applications within the food industry, beverage bottling and the dairy sector, especially where problems related to drains are present. CELOPOL Liquid has low foaming tendency, which makes it suitable for CIP applications. CELOPOL Liquid can be used through automatic dosing and control systems, via conductivity, ensuring the correct dosage of the formulate.

Dosages: use CELOPOL Liquid with concentrations between 1% and 3% (10–30 mL/L). Washing temperatures above 45°C are recommended. The exact method is strictly linked to the type of application, contamination present and the level of scale present. Carry out a thorough final rinse with potable water.

PERACID

PERACID is an oxidizing liquid sanitizer based on peracetic acid, acetic acid and hydrogen peroxide, with a broad spectrum of activity, suitable for use in food, pharmaceutical and cosmetic industries and in the livestock sector.

PERACID is based on a stabilized peracetic acid solution formulated to produce a broad-spectrum activity formulate being effective against bacteria, molds, yeasts and spores.

PERACID is non-foaming, easy to rinse, sensitive to organic matter and insensitive to water hardness. Due to these characteristics it is recommended for use in recirculation plants (CIP) where it can be applied with automatic injection dosing systems. The oxidizing action also allows deodorizing and decolorizing properties to be obtained.

Dosages: use PERACID with concentrations varying from 0.2% to 1% (2–10 mL/L) depending on the type and degree of contamination present. Contact times range from 5 to 30 minutes depending on the desired effect. It is advisable to use freshly prepared solutions at room temperature. Final rinse with potable water until the complete elimination of any possible residue. The formulate must not come into direct or indirect contact with food. It is not recommended to keep plants flooded for a long time, especially in the presence of water containing chloride concentrations above 25 mg/L.

Availability of products may vary from country to country: contact your AEB sales representative for more information.

AEB ENGINEERING – EQUIPMENT

AEB ENGINEERING – EQUIPMENT

Precision engineering solutions are the backbone of a consistent and scalable spirits production. Innovation and robustness combine to accompany producers towards ever higher quality standards.

AEB ENGINEERING is the division specialized in the construction of plants and equipment which, thanks to the expertise acquired and 100% in-house and on-site production, guarantees the maximum quality and reliability of AEB technologies.

AEB brings decades of engineering expertise to the design and installation of distillation equipment that guarantees process control and data traceability. Our modular systems adapt to your production objectives, whether artisanal or industrial.

The uniqueness of AEB ENGINEERING lies in the constant support of our technicians, both during installation and after-sales. For an unparalleled service, flexible and customized based on customer needs.

Every installation is supported by the AEB technical team which works in close collaboration with distillers to optimize layout, performance and integration into existing systems.

We do not just build equipment: we build solutions.

BIOREACTOR X10 1.5

Specific equipment for the optimal rehydration of yeast and the perfect achievement of multiplied biomass.

BIOREACTOR X10 1.5 guarantees excellent yeast rehydration and the subsequent creation of biomass without causing any cellular stress.

The perfect achievement of biomass is guaranteed by the "fed-batch" working mode and safe aerobiosis, in combination with a judicious supply of amino acids and microelements.

Advantages:

- Perfect achievement of multiplied biomass
- No analyses required before carrying out inoculation
- Automatic loading of nutrients and "sugars"
- Automatic washing
- Ease of use

BOISÉLEVAGE EXTRACTOR

Plant for minimizing maturation times related to the use of wood.

BOISÉLEVAGE EXTRACTOR is an extraction system that combines the best technical measures to achieve rapid extraction that is nonetheless respectful of the noble substances in wood derivatives. This equipment is capable of extracting the best of what the product has to offer and of minimizing certain unwanted sensations in the finished product.

The range consists of two models:

- **BOISÉLEVAGE EXTRACTOR 100**, with capacity up to 100 kg
- **BOISÉLEVAGE EXTRACTOR 300**, with capacity up to 300 kg

Advantages:

- Well-distributed liquid flow
- Homogeneity of extraction
- Washing of the precious wood derivative without stressing it
- Avoids the extraction of strongly astringent substances

REACTIVATEUR 60

Automatic plant for the reactivation and acclimatization of yeasts.

REACTIVATEUR 60 enables all the operations necessary to prepare the yeast for inoculation to be carried out automatically, and to guarantee extremely regular alcoholic fermentations.

The improvement of the fermentative process of musts is mainly linked to achieving yeast prevalence, since it is superfluous to choose strains with improved characteristics if there is no certainty that they will prevail over indigenous microorganisms. To be certain of achieving the prevalence of selected yeasts, it is necessary to inoculate a concentration that is at least 20 times higher than that of the indigenous yeasts.

To standardize and therefore limit human error in the yeast preparation phase prior to inoculation, the REACTIVATEUR 60 range was created, which over the years has adapted its characteristics increasingly to customer needs.

Advantages:

- Reduction of yeast lag times
- Regular alcoholic fermentations
- Guarantee of prevalence in fermentation
- Better fermentation kinetics, even in non-ideal conditions
- Guarantee of correct reactivation
- Reactivation of stuck fermentations

AEB ENGINEERING – EQUIPMENT

DEMIPLUS

Water demineralization plant by passage over ion exchange resins.

Water demineralization is achieved by passage over ion exchange resins: the water passes through the resins and is softened in a single passage at a pre-set speed such as to completely remove the ions present.

Once exhausted, the resins are automatically regenerated with Acid+ Demi and Alca-.

Advantages:

- Total use of the water to be softened
- Maximum water resource savings and minimum environmental impact
- Use of resins specific to water
- Automatic management via the control unit

RESIN REGENERATION

Resin regeneration is controlled via the reading of water conductivity with cycles and times programmable via an EPROM memory.

The cationic and anionic resin matrices used are of the highly cross-linked macroporous polystyrenic type with high exchange capacity, resistant to oxidation and osmotic pressures.

They are specific for producing waters with low conductivity and have a uniform granulometry to minimize head losses and maximize cycles.

OSMO

Equipment for reverse osmosis of water for food use.

Reverse osmosis today represents the safest and most effective system for the treatment of water for food use.

It is in fact capable of retaining from 90 to 99.9% of the dissolved substances in the water. Reverse osmosis plants are preferably used when there is a continuous demand for pure water, minimum footprint and low costs for assistance and maintenance.

The treated water is safe and bacteriologically sound, as 99.99% of bacteria and 98.00% of viruses are eliminated. It is therefore also an excellent defense against micro-pollutants, pesticides, pyrogens, viruses and bacteria.

OSMO guarantees, depending on the flow rate, to modulate the quantity of calcium and magnesium salts constituting water hardness, reducing it. This treatment makes available water ideal for use in cation exchange plants.

The range consists of two models:

- **Osmo 2000**, capable of treating **up to 2,000 L/hour of permeate**.
- **Osmo 3000**, capable of treating **up to 3,000 L/hour of permeate**.

In the case of Osmo 2000, the feed water must have at least 1 Bar of pressure and a minimum flow rate of 6,000 L/hour; while in the case of Osmo 3000 it must have at least 1 Bar of pressure and a minimum flow rate of 9,000 L/hour.

Advantages:

- Safest and most effective system for water treatment
- No use of chemicals
- Elimination of up to 99.99% of bacteria and 98.00% of viruses
- Automatic plant management

EASYFOAM

System for the dispensing of foaming detergents with compressed air.

The EASYFOAM models are compact foam dispensers with high performance: they generate very consistent foam with a high gripping power, making them ideal for cleaning vertical surfaces and ceilings.

The total absence of vaporization also makes them suitable for the use of highly alkaline foaming detergents, allowing operation with maximum safety.

EASYFOAM equipment is manufactured by our AEB ENGINEERING division, which, thanks to 100% in-house and on-site production, guarantees the maximum quality and reliability of the technologies used.

Advantages:

- Dispensing of foaming detergents in complete safety
- Simple and rapid installation
- Combined dispensing of foaming detergents and additives
- Ideal for cleaning vertical surfaces and ceilings

Availability of products may vary from country to country: contact your AEB sales representative for more information.

AEB ENGINEERING – EQUIPMENT

CIP MIXER

Equipment for the automation of washing cycles and rinsing of tanks, pipelines and other structures.

Thanks to CIP MIXER it is possible to clean tanks, pipelines and any other structure: it is sufficient to insert the suction probes into the various products to be mixed with the water and then connect the compressed air, power and mains water.

The CIP Mixer range consists mainly of two models:

- CIP Mixer Inox 1000 (available with 10 and 5.5 Hp washing pump), which allows solutions to be prepared at variable percentages and washing cycles to be set that follow one another with rinsing cycles, in a totally automatic manner.
- CIP Mixer Eco, ideal for formulating solutions (up to three products) in total safety simply by entering the settings on the touch screen.

Advantages:

- Complete autonomous operation
- Possibility of saving up to 30 washing recipes
- pH verification via pH meter
- Traceability of every process

SILOSFOGGER

Compressed air aerosol nebulizer for sanitizers, biocides and insecticides.

Ceilings, interstitial spaces, ducts, suction chimneys, ventilation systems are all spaces that can create problems for cleaning and sanitizing activities.

SILOSFOGGER was conceived precisely in order to obtain sanitized working environments, thanks to its powerful jet and micro-nebulization. It is a compressed-air-operated nebulizer for the dispensing of aqueous solutions of sanitizers, biocides and insecticides, also suitable for the nebulization of disinfectant solutions.

Advantages:

- Spray range of over 6 meters
- Penetration even into small spaces
- Convenience and simplicity of use
- Easy transport and positioning thanks to its small size
- Compressed air operation that does not require electricity

MICROSAFE

Equipment for micro-oxygenation and macro-oxygenation.

Microsafe is an innovative dosing system designed for the controlled introduction of pure oxygen (O_2) into distillates and liqueurs.

Unlike traditional aeration techniques, Microsafe allows precise micro-oxygenation, which significantly improves the organoleptic profile of the finished product.

Thanks to its ability to precisely regulate oxidative reactions, Microsafe allows the most aggressive notes to be softened, the taste to be rounded and aromatic complexity to be enhanced, without compromising the stability of the distillate. This is particularly advantageous in the production of premium spirits, where every sensory detail makes a difference.

Another strength is hygiene-sanitary safety: oxygen is dosed in a sterile manner and in compliance with food standards, reducing the risk of contaminations. Furthermore, the system is modular and easily integrable into existing production lines, making it suitable for both artisanal and industrial settings.

In summary, Microsafe is not just a dosing unit: it is a quality enhancement tool, supporting innovation and consistency in the production of distillates and liqueurs.

Three models of Microsafe O2 are available:

- Microsafe O2 single unit, for the control of one tank with fully digital settings management: it allows easy selection of the dose of oxygen to be added, in a simple and safe manner.
- Microsafe O2 5X5, which allows the management of up to 5 tanks, starting from a central unit. Compact and easy to assemble, it allows the diffusers to be connected to the supply system quickly.
- Microsafe O2 15X15, a micro-oxygenation plant that allows the management of up to 15 tanks. It consists of a central processor which, in addition to managing all the oxygen dosing satellites, allows control of refrigeration systems with their thermal units, fermentation kinetics of the tanks, pump-overs, punch-downs and sprinklers.

Advantages:

- Dosing of O2 in absolute value
- Self-monitoring via microprocessor
- Various oxygen dosing modes: micro, macro and single dose
- Temperature control during dosing
- Adjuvant dosing system managed directly by the micro-oxygenation unit
- No need for special calculations or error compensation tables

OXISYSTEM

The new patented AEB technology for the abatement of odors, BOD and COD in wastewater.

The main purpose of OXISYSTEM is to induce radical oxidation in order to reduce the quantity of COD (Chemical Oxygen Demand), BOD (Biochemical Oxygen Demand), sulphides, iron and many other compounds.

OXISYSTEM eliminates bad odors and increases the biodegradability of wastewater. Furthermore, the use of the products added to trigger the reaction (water and oxygen) causes no problems whatsoever. The equipment has an extremely small footprint and is easily installable. It is dimensionable based on the discharge flow rate.

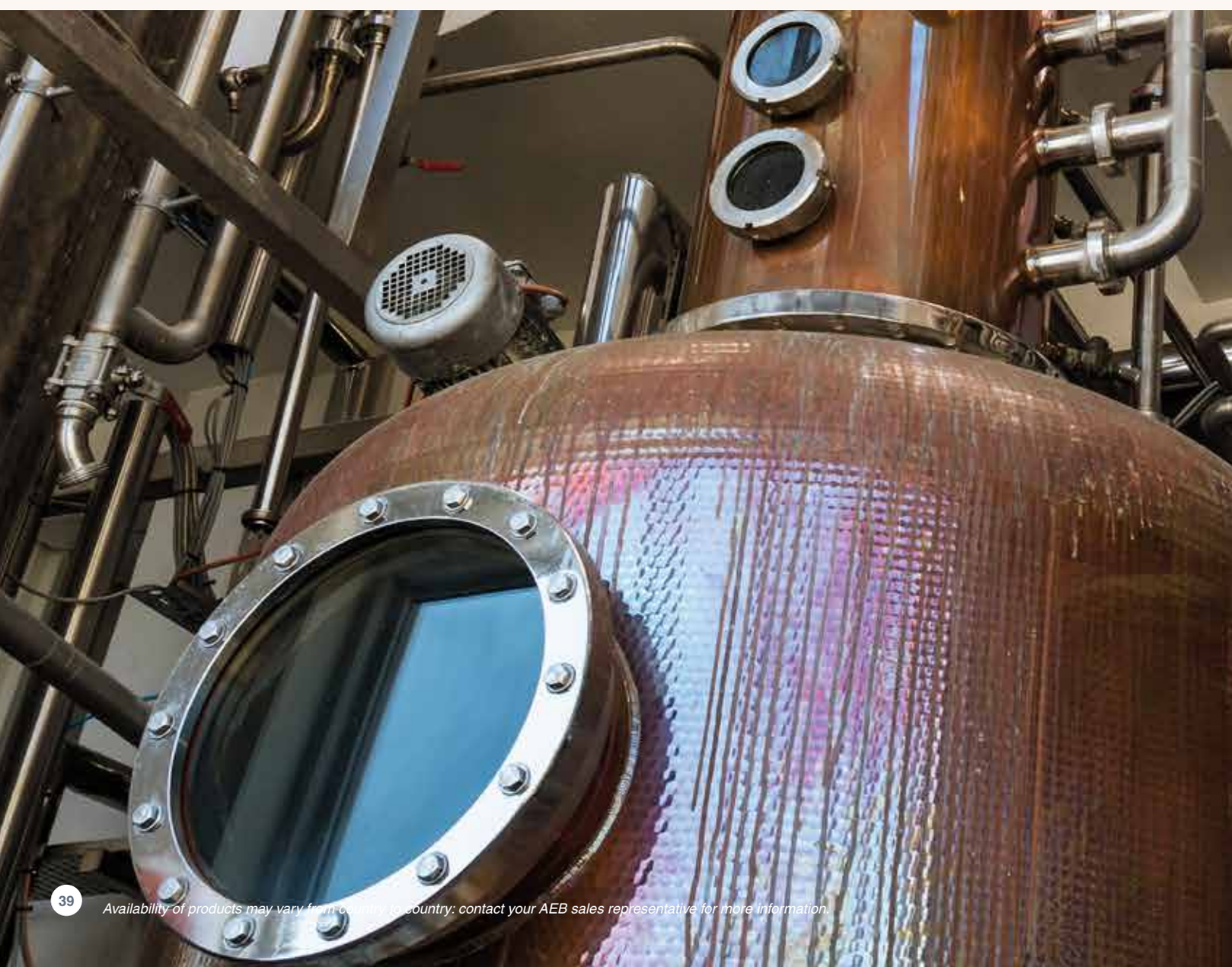
OXISYSTEM falls within the AOP (Advanced Oxidation Process) category, a state-of-the-art technology for wastewater treatment. It is an innovative patented technology not comparable to other systems on the market.

The operating process of OXISYSTEM falls within the AOP category, is continuous and in-line. It does not require recirculation and is applicable both when one has a purification plant and when one only has cumulative collection wells or equalization tanks.

Radical oxidation is extremely rapid and is induced by the particular design of the equipment and by the proportional injection as the wastewater passes through of reagents that create no problems whatsoever in the post-treatment situation.

Advantages:

- Reduction of organic load
- Increase in biodegradability
- Decrease/elimination of unpleasant odors
- Color abatement and degradation of coloring substances
- Facilitates the work of biological purification plants
- Effective even if no purification plant is present
- Reduction of sedimentation times and increase in compaction



Availability of products may vary from country to country: contact your AEB sales representative for more information.

CERTIFIED QUALITY MANAGEMENT SYSTEM

AEB guarantees the excellence of its products for distillates through a rigorous Quality Management System certified ISO 9001, supported by the food safety certifications ISO 22000 and FSSC 22000.

This solid quality management organizational framework ensures optimized production processes and total control over every phase of the supply chain, from raw material to finished product. For distillers operating in the organic segment, AEB offers a complete range of BIO/NOP compatible products, guaranteeing compliance with the most stringent international regulations and the possibility of maximizing the value of certified productions.

Control and traceability for the Safety of the production process

AEB's quality philosophy translates into concrete advantages for spirits producers: minimization of the possibilities for error, optimization of production efficiency and guarantee of food safety at every stage of the process.

Thanks to the environmental certifications ISO 14001 and social responsibility certification SA 8000, AEB supports distillers in achieving the sustainability objectives increasingly required by the market. The complete traceability system and allergen declarations provided allow spirits producers to safely manage labeling and to promptly respond to the growing regulatory requirements of the sector, always maintaining the highest quality and safety of the final product.

OUR CERTIFICATIONS AND ATTESTATIONS

AEB has obtained the certificate of excellence for its Management Systems in conformity with the standards:

- **UNI EN ISO 14001 for the Quality Management System,**
- **UNI EN ISO 9001 for the Food Safety Management System,**
- **UNI EN ISO 22000 for the Environmental Management System,**
- **UNI ISO 45001 for the Health and Safety at Work Management System,**
- **SA8000 for the Social Responsibility Management System.**

NOTES

Advice and product availability

The information contained in this guide should be understood as general technical advice and does not constitute binding operational protocols. For specific applications, it is advisable to contact the AEB Spirits team in your geographic area, which will be able to provide updated and personalized information based on production needs and local conditions.

The products mentioned may not be available in all markets or countries in which AEB operates. It is therefore recommended to verify range availability with the local AEB team before planning the use of any product.

Regulatory assessment

Before adopting ingredients, processing aids, additives, stabilizers or preservatives, it is mandatory to carefully assess the current national legislation on production. Regulations may vary significantly between countries and markets, both in terms of permitted substances and methods of use, and with regard to label declarations.

Certain products (such as potassium sorbate, potassium metabisulphite, etc.) are subject to specific use limits and authorizations that may vary from country to country. It is the responsibility of the producer to ensure that their use complies with local regulations.

Safety and responsibility

The effectiveness of preservatives and stabilizers may depend on various factors, including pH, product matrix and the presence of specific microorganisms. It is advisable to carry out preliminary tests and constantly monitor the microbiological quality of the finished product.

This guide underlines that food safety and regulatory compliance are the exclusive responsibility of the producer. AEB accepts no responsibility for the improper or non-compliant use of the products and procedures recommended.

Updates and support

Technical and regulatory information is subject to change. It is recommended to regularly consult the AEB team for updates and technical support, as well as to stay informed of any legislative changes or changes to product availability.

The information contained in this document is provided exclusively for informational purposes and does not constitute an operational protocol. It is advisable to contact the AEB technical team in your area for personalized and updated assessments. Product availability may vary depending on the destination market. It is the responsibility of the producer to verify compliance with local regulations relating to ingredients, processing aids, processes and label declarations.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Spirits

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