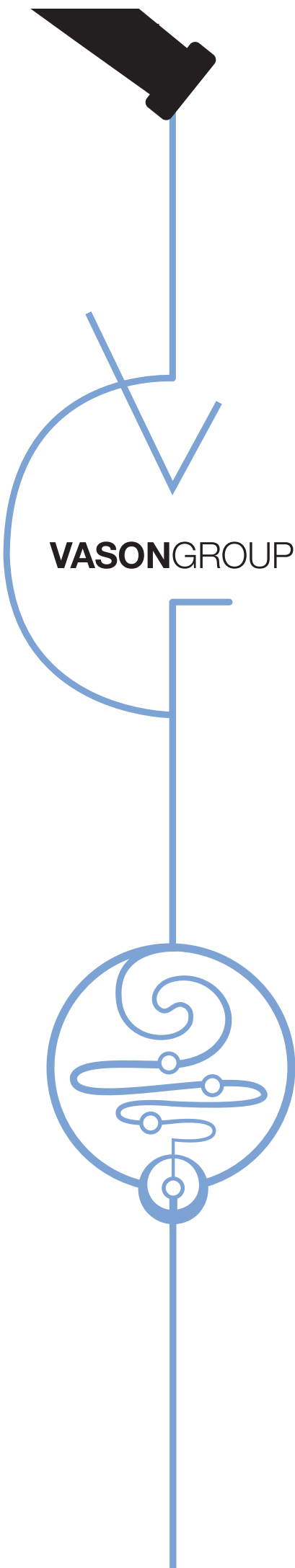




GUM ARABIC

ENOLOGICA
VASON S.p.A.[®]



ENOLOGICA VASON[®] S.P.A.

Technologies, innovation and services: this is the DNA of Enologica Vason, a company that is part of **VASONGROUP**, which in more than 50 years of activity has traced the path from correction oenology to expression oenology, making accuracy its strength. Enologica Vason is specialized in the selection of raw materials and their processing, up to the formulation of adjuvants for the wine and beverage industry in general. A company that stands for professionalism and ethics, the founding principle of the activities carried out with respect for the region, both from an environmental and social point of view. The holder of several trademarks and patents, it first entered the wine world by investigating the infinitely small through molecular oenology.

Arabic gum is the dried gummy exudate produced spontaneously, or obtained by tapping the trunk of *Senegalese Acacia*, commonly known as *Acacia verek* (Leguminosae family). The genus *Acacia* includes more than 900 species, however, from an oenological point of view, two species are mainly considered, namely *Acacia seyal*, whose gum is commonly known as Talha, and *Acacia senegal* (otherwise known as *verek*), whose gum is called Hashab. These two species are typically produced in Sub-Saharan Africa (Senegal and Chad) and differ mainly in the rotating power of their solutions. In fact, *Acacia senegal* is levorotatory, while *Acacia seyal* is dextrorotatory. The range offered by Enologica Vason includes several products:



Acacia senegal – levorotatory

Characteristics:

color stabilization, roundness

Related products:

ICON[®] GUM, ARABAN[®] SPRAY DRY, ARABAN[®] SUPER, SMARTGUM[®]



Acacia seyal – dextrorotatory

Characteristics:

synergy for stability, roundness, filterability

Related products:

EV GUM, ARABAN[®]

Below is a table summarizing the special characteristics of Enologica Vason products:

	Color Stability	Roundness	Tartaric Stability Synergy	Filterability	Allergen free (SO ₂)
EV GUM		X	X	X	
ARABAN [®]		X	X	X	
ARABAN [®] SUPER	X	X			
ICON [®] GUM	X	X		X	
SMARTGUM [®]	X	X		X	X



THE GUM ARABIC PRODUCTION PROCESS

Historically, levorotatory gum arabic obtained from *Acacia senegal* is not filterable. However, thanks to its know-how, Enologica Vason has managed to create two perfectly filterable levorotatory gum arabic solutions, **ICON® GUM** and **SMARTGUM®**, which are highly effective on all the wines they are added. What makes **SMARTGUM®** unique is the absence of sulphur dioxide: the gum is stabilized through an alternative process controlled by a **VASONGROUP** state-of-the-art system, designed and developed to produce gum arabic solutions. The system allows for full process and product quality control, from raw material procurement to the finished product.



SELECTION OF RAW MATERIALS

The best raw materials are selected and controlled by the Quality Control department in order to ensure that they are perfectly aligned with the products to be placed on the market. Raw materials are selected in their raw state, in the form of "pebbles", which are regularly delivered from Sub-Saharan Africa based on seasonal harvests.

HANDLING GUM ARABIC PIECES

In our systems, these "pebbles" are handled in accordance with a standardized procedure that does not allow for errors during the evaluation and selection phase. In fact, in order to be able to guarantee the quality and full traceability of our products, different products will not be processed at the same time.



GUM PRE-DISSOLUTION

In order to optimize the process and avoid any accidental risks during it, the dissolution phase of the gum is preceded by the pre-dissolution of the gum pieces, without being directly handled by the operators. During this phase, it is important to ensure proper dispersion with the right timing, which is why we have chosen the appropriate engineering solutions.

GUM MIXING IN A CONTROLLED ENVIRONMENT

The mixing of the pieces pre-dispersed in osmotized water is the heart of the process, which is why our systems are state of the art when it comes to selecting the construction materials and monitoring strategic parameters during the mixing, ensuring real-time monitoring of all the operating conditions.



FILTRATION AND FILTERABILITY

By mastering the filtration technique, unique products such as **ICON® GUM** and **SMARTGUM®** can be obtained, which are highly effective levorotatory gums with excellent and controlled filterability. These two products are filtered by a system developed as a result of the company's know-how: it involves dynamic tangential filtration on a specific synthetic membrane. With this technique, extremely low turbidity of the gum solution can be obtained as well as excellent filterability. In fact, this technique respects the raw material better than any other filtration system.



The filterability test can be performed very easily with the aid of Q.F.T. systems from Ju.Cla.S.



ARABAN®

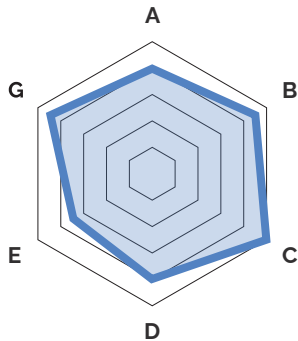
FILTERABLE, HIGH-QUALITY
DEXTROROTATORY



Composition:

Gum arabic (E 414) 20.5%, Citric acid anhydrous (E 330) 3.5%, Sulphur dioxide (E 220) 0.4%, Demineralized water q.s. to 100%.

ARABAN® is obtained from selected Talha gum (dextrorotatory) and has a clear appearance and light color. With regard to its functionality, it is best expressed in terms of roundness and in synergy with conventional tartaric stabilizers. It can be added in the last stages before microfiltration, as it is perfectly filterable, as well as after final microfiltration.



EV GUM

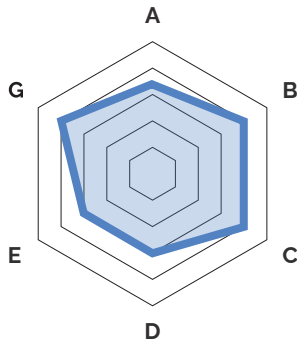
PARTIALLY HYDROLYSED,
FILTERABLE DEXTROROTATORY



Composition:

Gum arabic (E 414) 22%, Sulphur dioxide (E 220) 0.4%, Demineralized water q.s. to 100%.

EV GUM is obtained from Talha gum (dextrorotatory) and is partially hydrolyzed, free of impurities, has a clear appearance and yellow color. With regard to its functionality, it is best expressed in terms of roundness and in synergy with conventional tartaric stabilizers on wines that are easily stabilized and that do not require special attention. It can be added in the last stages before microfiltration, as it is perfectly filterable, as well as after final microfiltration.



ARABAN® SUPER

NON-FILTERABLE, HIGH-QUALITY
LEVOROTATORY



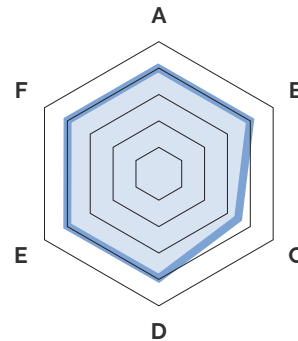
Composition:

Gum arabic (E 414) 21%, Sulphur dioxide (E 220) 0.4%, Demineralized water q.s. at 100%.

ARABAN® SUPER is obtained from selected Hashab gum (levorotatory) with high molecular weight, is free of impurities and has a clear appearance and light color. With regard to its functionality, it is best expressed in terms of roundness and stabilization of the coloring material. It can only be added after final microfiltration since it is not filterable.



COMBOAPPROACH®
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ARABAN® SPRAY DRY

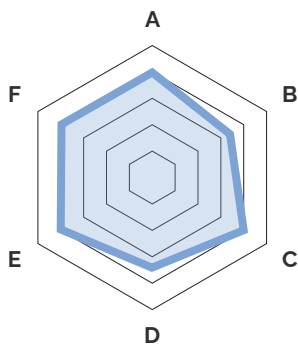
LEVOROTATORY DRIED WITH
SPRAY DRY PROCESS



Composition:

Arabic gum (E 414) purified and dried using the spray dry process.

ARABAN® SPRAY DRY is obtained from selected raw materials derived from levorotatory Hashab gum, comes in solid form typical of the "spray drying" process. Its preparation does not involve the use of chemical or enzymatic treatments in the purification phase. It is dried using the "spray dry" technique, which perfectly respects the structure of the molecule and allows it to be quickly rehydrated. **ARABAN® SPRAY DRY** must be added to the wine just before the final microfiltration and bottling process, ensuring adequate homogenization to guarantee wine filterability.



ICON® GUM

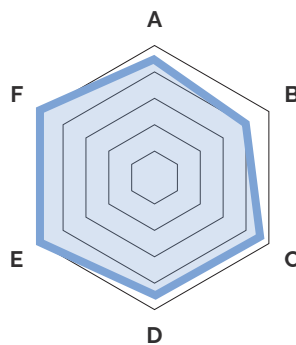
FILTERABLE, HIGH-QUALITY
LEVOROTATORY



Composition:

Gum arabic (E 414) 21%, Sulphur dioxide (E 220) 0.4%, Demineralized water q.s. at 100%.

ICON® GUM is obtained from selected Hashab gum (levorotatory) with high molecular weight, is free of impurities, has a clear appearance and light color. With regard to its functionality, it is best expressed in terms of roundness and improvement of the aromatic clarity of the wines as well as its high effectiveness in stabilizing the coloring matter. It can be added in the last stages before microfiltration as it is perfectly filterable thanks to the innovative filtration system developed as a result of **VASON** GROUP's know-how. Naturally, **ICON® GUM** can also be dosed after microfiltration.



SMARTGUM®

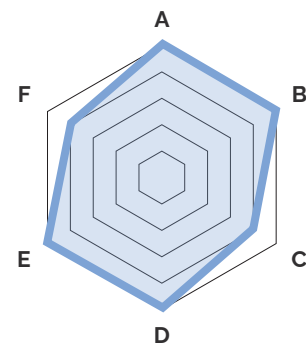
SO2 FREE, FILTERABLE HIGH-
QUALITY LEVOROTATORY



Composition:

Gum arabic (E 414) 21%, Demineralized water q.s. to 100%.

SMARTGUM® is obtained from selected Hashab gum (levorotatory) with high molecular weight, is free of impurities and has a clear appearance and light color. With regard to its functionality, it is best expressed in terms of roundness and improvement of the aromatic cleanliness of the wines as well as its high effectiveness in stabilizing the coloring matter. **SMARTGUM®** can be regarded as an evolution of **ICON® GUM** since it differs from the latter only in the microbiological stabilization method, which is carried out through a groundbreaking physical process, and is therefore completely free of sulphur dioxide or other antiseptics.



PROCESS QUALITY CONTROL

The entire process is scrupulously monitored, especially with regard to the characteristics that the finished product must have. Below we can see how **ICON® GUM** does not interfere in any way with the Filterability Index of the wine to which it is added, unlike solid gum arabic such as **ARABAN® SPRAY DRY** where wine filtration must necessarily take place immediately after in order to avoid unwanted clogging of the microfiltration systems.

	0 h			24 h			48 h		
	I.F.	I.F.M.	Vmax	I.F.	I.F.M.	Vmax	I.F.	I.F.M.	Vmax
CONTROL	2,8	2,2	4328	2,5	2	4912	3	2	4066
100 g/hL ICON® GUM	2,7	1,7	4533	2,3	1,7	5008	2,2	1,3	5181
20 g/hL A.S.D.	6,1	6,8	2563	9,4	8,1	1731	38,5	53,2	907



test tube 1

test tube 2

test tube 3

Performance reliability is of crucial importance, such as color stability: in the image, **ICON® GUM** (test tube 3) is compared to the wine control sample (test tube 1) and to a levorotatory gum arabic available on the market (test tube 2).

Choosing the wrong gum arabic can have disastrous results in terms of wine quality and, for this reason, it is important to carefully monitor each phase of the process.

Quality Control is the key step in the production process; only after all necessary analyses have been carried out the products can be released for final packaging.

..... SMART TECHNOLOGY

The distinctive feature of the **SMART** filtration process is that it perfectly respects the raw material and the final goal is to make the product extremely filterable. This **SMART** technology is the result of the company's know-how and was developed in-house specifically for this purpose. The result is a groundbreaking technology that enables **ICON® GUM** and **SMARTGUM®**, which are extremely effective in terms of color stabilization as well as ensuring proven and verified filterability. The **SMART** technology concept was developed based on the **ICON® GUM** product and not on the filtration process itself, with a view to achieving the theoretical goals set by **VASONGROUP's** R&D department.





COMBO APPROACH®

sinergie per l'eccellenza

The synergy between the various oenological solutions developed by **VASONGROUP** has taken on the connotation of a registered trademark: **Combo Approach®**. There is always new knowledge in the technological field that flows into specific work procedures, therefore into processes, to ensure an optimal final result. In order to better define the potential of these technologies, **VASONGROUP**'s R&D Department suggests the combined use of Enologica Vason products, which are complementary to each other, together with the specific instrumentation developed by its sister company Ju.Cla.S.: in this way, the **Combo Approach®** is born. By choosing from a wide range of **VASONGROUP** products, end users can cover the entire production chain by relying on a single supplier that provides versatile and complementary products and technologies. With regard to the **Combo Approach®**, the most suitable way to obtain the best possible result from a final product can therefore be found. **Combo Approach®** is not only the prerogative of the user, but also plays an essential role in the development of **VASONGROUP**'s products and technologies. In fact, the **SMART** filtration system used to produce **ICON® GUM** and **SMARTGUM®** is the result of an in-house collaboration between Enologica Vason and Ju.Cla.S. Our R&D Department has developed all the **SMART** filtration technology in-house with the specific goal of obtaining levorotatory gum arabic solutions that are highly effective against colloidal stabilization as well as ensuring excellent filterability.

DOSARABAN®

JU.CLA.S.®
JUICE CLARIFICATION SYSTEMS



A high-precision electronic system for the proportional dosage of gum arabic and CMC after microfiltration.

Ju.Cla.S. offers a cutting-edge dosing system called **DOSARABAN®**, which, after undergoing a number of developments since being placed on the market, can now rely on one of the most precise systems available in the wine market for proper in-line dosing: an accurate control system developed by Ju.Cla.S., with systems based on ultrasound measurement for cross-checking flow and perfect dosing. With this system, dosing is more accurate than ever and easy to use. **DOSARABAN®** is an electronic system for the precise injection of gum arabic solutions and for CMC, downstream of microfiltration systems in bottling and packaging lines in general.

DOSABARAN® Ju.Cla.S., an innovative high-precision system for correct in-line dosing, is a valuable technological ally for dosing **ARABAN® SUPER** in packaging systems.

LEGISLATION

From a legislative point of view, gum arabic is an additive (E 414) permitted in oenology pursuant to **COMMISSION DELEGATED REGULATION (EU) 2019/934** of 12 March 2019, the uses and limits of which are specified in Sheet 3.3.6 of the International Code of Oenological Practices. Gum arabic available on the market for oenological use must comply with the specifications set out in the Codex sheet of the **OIV COEI-1- GOMARA**.



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