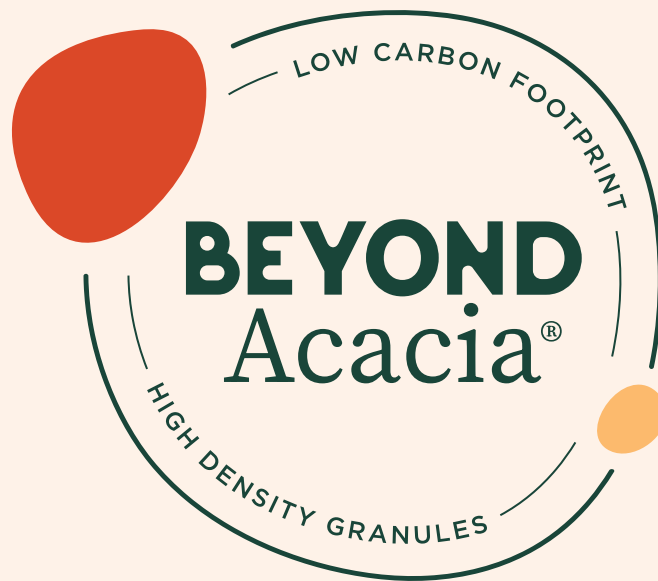


White paper: Implementation of the Beyond Acacia® range



A unique range of acacia gum with **low carbon footprint** and **high dispersion ability**.



LOW CARBON

Environmental exemplarity with the lowest carbon footprint and a sustainable value chain.



HIGH DENSITY

Technological excellence with granules of high density and dispersion ability.



LABELLING

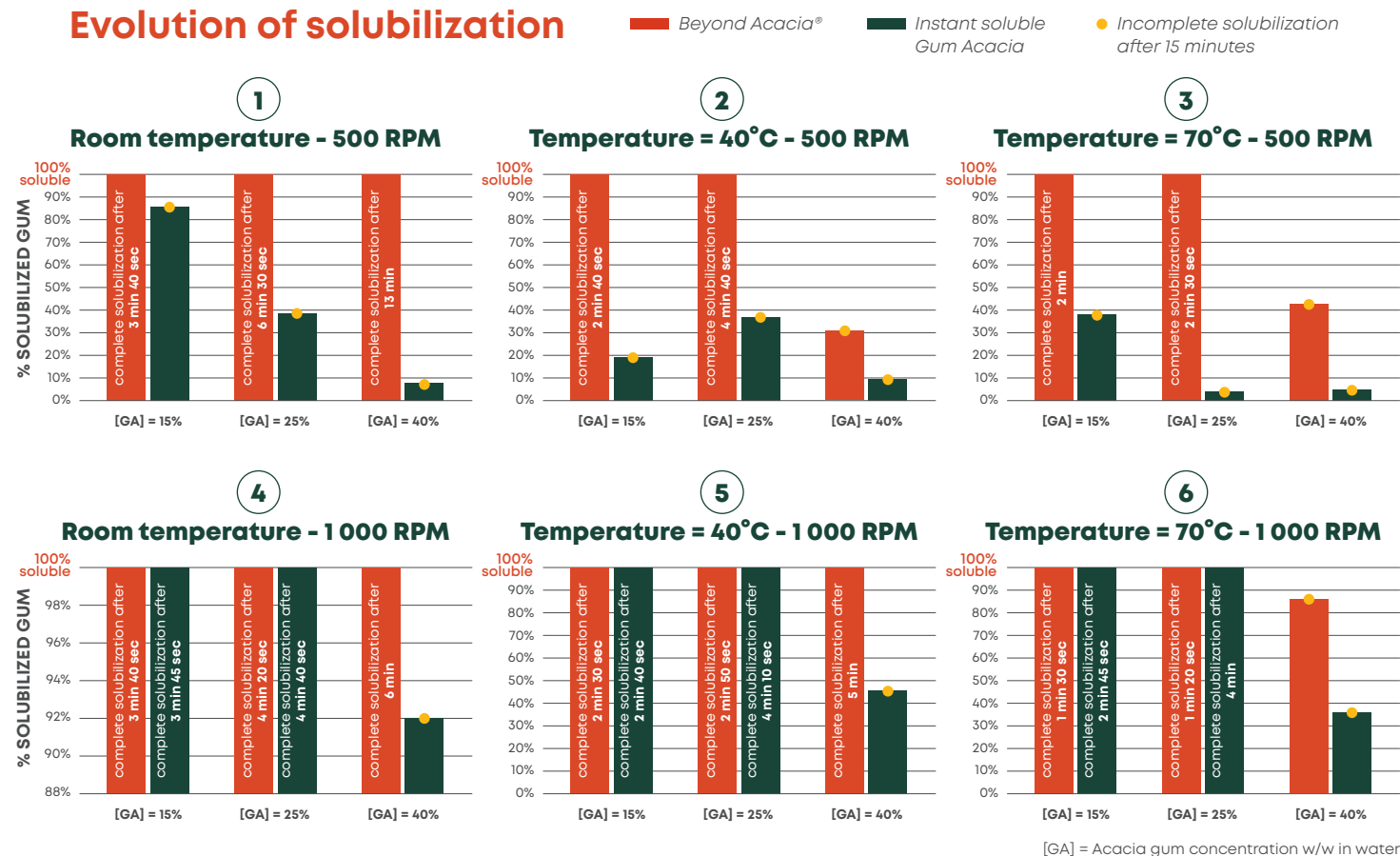
- Acacia Gum / Gum Acacia
- Acacia Fibre
- Gum Arabic
- E414

-51.1% of direct
and indirect emissions (scopes 1+2)

-13.5% of emissions
up and down our value chain (scope 3)

1 / Improved solubilization even in cold manufacturing processes

Evolution of solubilization



- ✓ The tests were carried out with the Heidolf stirrer by positioning the stirring blade at a fixed height.
- ✓ The powder is poured into the water in the same way for all the tests, in 20 seconds.
- ✓ The term "solubilization" corresponds to the complete disappearance of the lumps. When solubilization is not complete after 15 minutes, the lumps still present in the solution are weighed.

Advantages in use

Beyond Acacia® consistently solubilizes faster than Instant soluble Gum Acacia, regardless of temperature or stirring speed. At concentrations below 30%, all Beyond Acacia® grades are 100% solubilized before 15 minutes under slow stirring when no Instant Soluble Gum Acacia is.

When solubilization is incomplete, the fraction of solubilized Beyond Acacia® is always significantly higher than that of Instant soluble Gum Acacia. In cases of incomplete solubilization in both cases, Beyond Acacia® is systematically better solubilized (2 to 10 times more) than Instant soluble Gum Acacia (see graphs 2 - 3 and 4).

Beyond Acacia® implementation advice

The application of high temperatures (approx. 70°C) penalizes the solubilization rate at high concentration >30% (see graph 6).

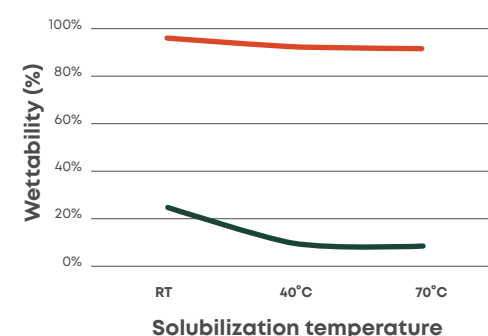
In **Confectionery** : to achieve concentrated gum solutions (35% and more): favor fairly rapid stirring (1000RPM) and a moderate lukewarm temperature such as 40°C (see graph 5).

For **Flavors and Beverages** : for concentrations below 15%, there is no need to heat and apply high stirring speeds 500 RPM is sufficient (see graphs 1 and 4).

2 / Wettability

Wettability test performed on Beyond Acacia® in comparison with an Instant Soluble Gum Acacia, at 3 different temperatures: room temperature (RT), 40°C and 70°C. Method : MDC1-50-701-B control method.

Evolution of wettability as a function of solubilization temperature



Wettability is the measurement of a liquid's ability to interact with other fluids and/or solid surfaces. There is a significant difference in wettability between the Instant Soluble Gum Acacia and Beyond Acacia®.

Beyond Acacia® has a superior wettability, compared to regular gum acacia.

The wettability is impacted by solubilization temperature: both qualities see a decrease of wettability when the temperature increases. This observation nevertheless seems more pronounced for Instant Soluble Gum Acacia.

Lower hydrophobicity helps avoid surface lumps and save time on solubilization.

3 / Impact of granulometry on color

Explanatory sheet – 2 examples

Impact of particle size on color of powders

SEYAL 381



> **Inferior to 100µ** > **100µ to 200µ** > **200µ to 400µ** > **Superior to 400µ**

SENEGAL 396



- > Same original powder with different granulometry after pulverization and sieving
- > All aqueous solutions = 8°Lov

- > Same original powder with different granulometry after pulverization and sieving
- > All aqueous solutions = 5°Lov

The granulometry (particle size distribution) of a powder significantly impacts its visual perception of color due to several physical and optical phenomena. Smaller particles tend to scatter light more diffusely, while larger particles allow light to penetrate deeper before being reflected. In powders with finer particles, the color appears lighter or more muted because light is scattered in multiple directions, reducing the intensity of the color. Coarser powders tend to reflect light in a more direct way, which can result in more saturated or darker colors.

While visually darker, **Beyond Acacia®** provides the same color and functionality once it is solubilised.

BEYOND ACACIA® PRODUCT CHARACTERISTICS

CREAMY WHITE POWDER AVAILABLE IN 25KG PAPER BAGS.

Other packaging available on request.

HIGH DENSITY GRANULES



IMPROVED SOLUBILIZATION even in cold manufacturing processes



EXCELLENT HYDRATION properties



HIGH DISPERSION ability



FOAMING REDUCTION during process



LESS DUSTS during pouring, excellent flowability & less lumps (less than 2% of particles smaller than 63µ)

REDUCED ENERGY USAGE



Better solubilization and higher dispersion ability means **less time and energy in the users process.**



Complete dissolution, even at high concentration, can be reached **without heating.**



Volume reduction thanks to the higher density of the granules.



Packaging reduction, lower storage and shipping volume help **optimize logistics** and **reduce GHG emissions.**

OUR PRODUCTS AVAILABLE AS PART OF THE BEYOND ACACIA® RANGE:

- ✓ Acacia Fibre*
- ✓ Seyal grades
- ✓ Senegal grades
- ✓ DemeCare®



All products are packaged in 25 kg bags.

- ✓ GMO-free, allergen-free
- ✓ Halal and Kosher certified
- ✓ Vegan ingredient
- ✓ Shelf stable with a shelf life of 3 years



We are your expert of acacia gum

Created in 1884, **Alland & Robert** is a family company and a leader in tree exudates, with a strong focus on acacia gum. Alland & Robert's main focus is on customized R&D, customer service and partnerships with internationally recognized universities.

Alland & Robert exports to over **70 countries** through a network of **40 distributors**. With the aim of providing **high-quality natural gums**, Alland & Robert is fully committed to **sustainable growth** in line with its active corporate social responsibility plan. This vision is supported by a large network of raw material suppliers in Africa, **ethical sourcing** and compliance with **international certifications**.

Ask us anything at: info@allandetrobert.fr

Discover more about us:

WWW.ALLANDROBERT.COM

Alland & Robert allandrobert alland_robert

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