

Widopen

#01 - April 2021

“And into
the forest I go,
to lose my mind
and find my soul”

John Muir



| *A word from Sonia,*

With eyes wide open to the world, WIDE OPEN awakens, surprises, questions and amazes us. And beyond contemplating new horizons, aims to open our senses and minds to the discovery and understanding of others, giving us the desire to dream, to share and to act.

WIDE OPEN has three sections: Look, Explain and Respect.

#Look: looks at trends, new ways of consuming, up and coming ingredients, unusual markets, new territories to explore.

#Explain: explains technical issues, offers a formulator's insight, and a curious sourcing.

#Respect: covers environmental awareness, building a better world, societal and humanitarian concerns, and ecological commitments. WIDE OPEN regularly offers commentary, insights, and reflections in parallel to Naolys' core activity: the creation of active beauty ingredients from plant cells.

The theme for our first issue is trees. A Japanese proverb says, "even dead trees decorate a mountain", reminding us that beauty exists everywhere.

Happy reading, keep your eyes wide open!

Sonia GUILLAUME LEGLISE, MARKETING & SALES



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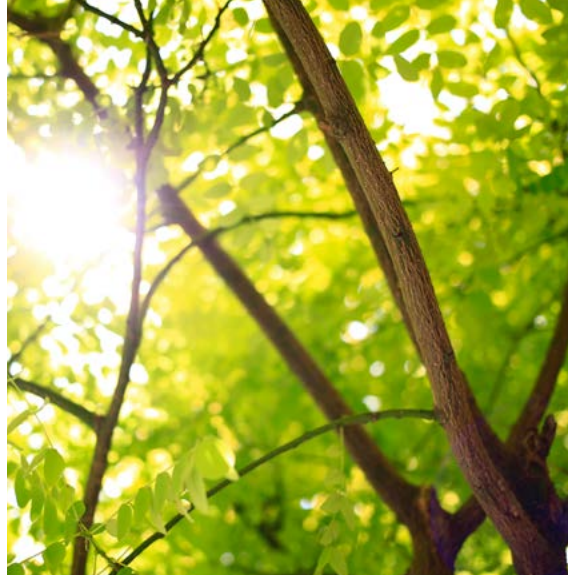
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The hidden beauty of trees

Symbols of power,
longevity and resilience,
trees protect both
the body and the mind.

Symbols of power, longevity and resilience, trees protect both the body and the mind.

And while some question the scientific basis of “forest bathing”, a practice developed in the 1980s to combat anxiety in Japanese employees, “sylvotherapy” remains popular. Some of the credit is due to Dr. Qing Li, a professor at Tokyo Medical University, who in his book *“Shinrin Yoku, The Art and Science of Forest Bathing”* claims to demonstrate that “forest medicine” can strengthen the immune system, lower stress and blood pressure, and improve sleep and mood. This is due to the presence of phytoncides in the air, molecules such as terpenes, which are released by trees to protect themselves against harmful insects, bacteria and fungi, and to communicate with other trees, and which Dr Qing Li claims (as does research in Canada and the US) have a beneficial effect on the human parasympathetic nervous system, which regulates the body’s regenerative and relaxation response. More generally, in this passion for trees, the rise of a green economy, the publication of tree-related books and magazines, the creation of festivals and meditative forest walking groups, beauty also plays a role. For we cannot separate beauty



from this flora whose proximity can affect our bodies and minds. Bark, softwood, leaves, buds, sap, resin and even tree cells infuse fragrances and skin care products, being used on a one-off basis in formulas or even as the foundation for an entire brand.

Maritime pine seed oil, anti-ageing and restructuring, with its powerful antioxidant properties, has long been known to be beneficial. But this precious oil (*150,000 seeds are required to obtain one litre*) is accompanied by seed extracts (also rich in polyphenols), esters, vegetable butter and bark powder (*obtained by grinding seed cakes*), all exuding the scent of Cap Ferret's pine forests.

Pure pine polyphenols or OPCs (*oligo-proanthocyanidins*) are extracted from the bark of maritime pine (*1 ton pine bark yields 1 kilo OPC*).

Their antioxidant properties, up to 30 times those of vitamin C, neutralize the free radicals responsible for skin ageing. In addition to Landes, Siberian and longleaf pine,

Japanese elm and oak can be integrated into formulas. In this way, the antioxidant, regenerating and stimulating powers of the ancient sessile oak, *Quercus petraea*, are the basis of a range of anti-blemish and anti-ageing products created by a family of coopers.

All parts of the tree are used, from beech buds or xylose (*natural sugar*) to Mukul myr-

rh resin or the red sap of the dragon's blood tree, olive tree sap, white willow, sequoia or harunga leaf extracts, desert date palm totum (*seeds + leaf + oil*) and neem root. All the way down to the tree's plant cells!

**“The oaks united,
in a way never
seen among human
beings, the dual
beauty of age
and youth...”**

*François-René de Chateaubriand
(Memoirs from Beyond the Grave, 1849)*

**“Earthbound by its roots, but with its branches
tangled in the stars, it is as a bridge between us
and the celestial”**

*Antoine de Saint-Exupéry
(extract from The Wisdom of the Sands, 1948)*

Trees and people



INTERVIEW WITH
Nathalie Gorse,
formulator
at NAOLYS

This first issue covers general aspects of the use of NAOLYS actives and our latest developments in men's care. Nathalie, our R&D laboratory manager for more than two years, gives us an introduction to some basic concepts.

In what forms do Naolys cells exist?

Naolys cells come in three forms: Whole cells dispersed in glycerine, dispersible in the aqueous phase of a formula. Sonicated cells (*i.e. fragmented by ultrasound*) that are soluble in water. And to be able to incorporate our active ingredients in the oil phase, we also offer whole cells dispersed or sonicated in sunflower oil. It is easier to use them sonicated in gel or spray formulas, since whole cells can bind together. And in transparent forms, whole cells can become apparent if there is not sufficient viscosity to prevent their sedimentation. In fact, whole cells can be seen with the naked eye in our samples. Finally, we also prepare freeze-dried cells, which can be dispersed in the aqueous or oil phase of formulas and especially in anhydrous and solid forms, for example in make-up (*loose, pressed or stick powders*).

For effectiveness, is it better to use whole cells or sonicated cells?

The cells' effects are demonstrated with *in vitro* tests, in fragmented form. We reproduce what happens in the real world, when they are in a formula, and when they burst on application to the skin, releasing their various components. What is important are the active molecules they contain. The fact that they burst does not alter their effectiveness, because the molecules inside are not damaged.



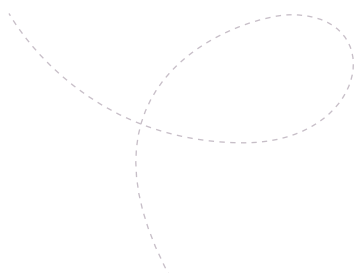
How are cells implemented within a formula? Is there a risk of damage due to mechanical (agitation, filtration, etc.) or chemical treatment? (osmolarity, pH, etc.)

Because we develop finished cosmetic products, with a wide variety of galenic formulas, as illustrations for our customers, we have been able to show that our plant cells can be easily included in all galenic forms, by handling them as completely standard actives. It is important not to heat them above 40°C, although they can withstand temperatures of up to 80°C for 30 hours without losing their effectiveness. This means that they can be used perfectly well in hot-cast lipsticks, for example. Cells are broken down when subjected to high shear stress, such as that induced by a powerful homogeniser, but not the metabolites they contain. However, they lose their effectiveness when they are exposed to strong acids or the presence of powerful oxidants.

What was the creative approach for the two new applications that Naolys has developed for men's care? How did you choose the ingredients based on the brief you received? Could you take us through it?

It came as a request from our in-house marketing. The aim was to respond to a major demand for new versions of traditional formulas without silicones, suitable for men. So I created a protective serum and emulsion, incorporating active ingredients from the catalogue.

We chose active ingredients with an obvious masculine connotation and that are multifunctional for a relatively simple male skincare routine. The Sequoia, symbol of strength, solidity and longevity, is the source of our key active ingredient for men: **MReload Sequoia™** has moisturizing, protective and anti-ageing effects. It has a dual action, with a preventive and repairing effect. The only active ingredient tested on men,



we have naturally incorporated it into the two new formulas:

The green day cream, called **Skins Reload** (*0.5% of whole cells dispersed in glycerine, incorporated cold*) and the translucent serum, Ultimate Perk, which also contains **Foreseen Shield Nopal™** to reinforce protection against photo-ageing (*each active ingredients is present at 1.25%*). Derived from the iconic Mexican cactus (*whose surface even resembles a beard*), **Foreseen Shield Nopal™** is an overall anti-ageing active ingredient that protects cellular DNA, the skin's defence system and reduces pigmentation deterioration due to UV light. For these two products, the choice was focused on using raw materials of natural origin: Propanediol, has a natural moistening action (*from Activon*) coupled with moisturizing and anti-microbial effects, and **Emogreen™** L19 from Seppic, a rapidly biodegradable liquid emollient of natural origin with a unique texture, as an alternative to silicones.

We also take great care over how the product feels. The serum provides a light cooling sensation to soothe razor burn, while the light-textured emulsion gives skin a soft finish and a matte effect, with a quick-drying feel.

If you would like to know more about **Skins Reload** and Ultimate Perk, the **Skins Reload** and Ultimate Perk formulas and samples of NAOLYS active ingredients are available on request via samples@naolys.com

Complying with the ISO 16128 standard, both formulas have a naturalness index of over 96%

(96.72% for the serum and 97.19% for the emulsion).



Sequoia and Nopal are part of the “forest” of biotech plant cells grown by NAOLYS.

Here we present our selection sourced from trees:

TREE Naolys reference	BEAUTY PROPERTY
EUCALYPTUS Full Detox Eucalyptus™	REGENERATING ENERGIZING MATIFYING ANTI-POLLUTION
GINKGO Light&Energy Ginkgo™	ENERGIZING ANTIOXYDANT
OLIVE TREE All Fiber Booster Olive Tree™	REGENERATING ANTI-AGEING
SEQUOIA MReload Sequoia™	ANTI-WRINKLE MOISTURIZING FIRMING ANTIOXYDANT
COMMIPHORA Sun Protect Commiphora™	PROTECTING SOOTHING BIOLOGICAL PROTECTION
INDIAN OLIBANUM HydraSoothing Indian olibanum™	MOISTURIZING REGENERATING SOOTHING ANTIOXYDANT
ALMOND TREE HydraGeneration Almond Tree™	MOISTURIZING REGENERATING SKIN BARRIER PROTECTION
APPLE TREE Soothing Light Apple Tree™	SOOTHING ANTI-REDNESS LIGHTENING DETOXIFYING
APRICOT TREE Soothing Light Apricot™	SOOTHING LIGHTENING
RED-FLOWERED SILK Whole Protection Red-flowered COTTON TREE Silk Cotton Tree™	SOOTHING PROTECTING
CHERRY TREE OxyRelax Cherry Tree™	ANTIOXYDANT ANTI-STRESS
JAPANESE CHERRY TREE Fragile Japanese Cherry Tree™	SOOTHING ANTIOXYDANT
TEA BUSH All Fiber Booster Tea™	ANTI-AGEING REGENERATING

#Explain

風の中で育った木は根が強い

JAPANESE SAYING

The tree that grows
in the wind has
strong roots.

Figures

China's first forest-city in numbers

In construction since 2017, designed by the Italian architect Stefano Boeri, the objective of the ecological, self-sufficient, futuristic city of Liuzhou Forest is to combat air pollution.

30,000 inhabitants an area of 175 hectares. a million plants with around a hundred different species and 40,000 trees.

10,000 tons of carbon dioxide and 57 tons of fine particles absorbed per year 900 tons of oxygen produced per year

Trees are among the oldest living organisms on the planet - the earliest known fossil forest dates back 385 million years - and the plant world makes up 82.5% of the Earth's biomass.

In comparison, humans have been around for slightly more than 300,000 years and represent only 0.01% of this organic mass. (*"Trees" exhibition July 2019 - January 2020, Fondation Cartier*)

2012

Francis Hall. lists a hundred tree species that exhibit behaviour similar to shyness. In this allelopathic phenomenon, they maintain a distance between them which could be a way of letting light through and avoiding contagious diseases.

2014

In Switzerland, CERN is proving that trees play a role in the formation of clouds. (*"Trees" exhibition July 2019 - January 2020, Fondation Cartier*)

It is estimated that researchers know comparatively little about 80-90% of the species found in natural forests. In the field of micro-organisms, fungi and bacteria alone, there are hundreds of thousands of species that are still unknown. (*Peter Wohlleben, agroforestry engineer, author of "The Hidden Life of Trees"*)

Plant a tree!

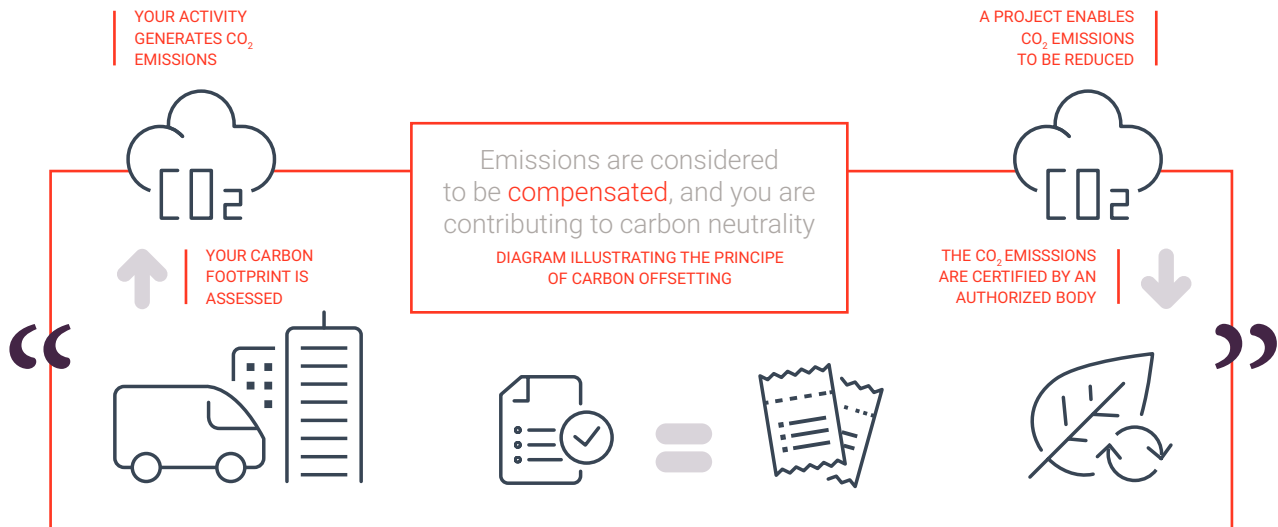
Today, there is a widespread movement to plant trees embraced by numerous people, associations and companies with varying degrees of militancy.

Environmental action is no longer the preserve of niche brands, its importance is beginning to be recognized by the industrial heavyweights. Including the cosmetics sector where reforestation initiatives are plentiful... and in this forest of good intentions, Naolys has its own seeds to sow!

In addition to committing to a net zero emissions (mainly of carbon or greenhouse gases), cosmetic brands are asking their suppliers for quantifiable reduction targets and/or are trying to offset their own carbon footprint. There are many forest-related examples, a few of which we will mention here. The purchasing department of a major French cosmetics group has just donated one tree per employee in France, i.e. one thousand trees planted with its partner Pet Power in a national park in Uganda and in

the Netherlands, in partnership with the Trees for All foundation and the United Packaging Forest initiative. Each tree will capture CO₂ for decades and improve air quality. In the USA, a beauty brand recently announced "The Earth CPR Initiative", a sustainability roadmap launched with a commitment to plant 500,000 trees. For every online order and every post with the **#SustainabilityStartsNow** hashtag, the brand will plant an additional tree. It has also announced its intention to become totally carbon neutral by 2025. The brand plans to achieve this by, among other initiatives, restructuring how waste is handled from its shops, offices, and warehouses, while continuing to plant trees.

These considerations apply to all companies all over the world. A British multinational beauty company intends to go further in the fight against deforestation by guaranteeing a deforestation-free supply chain by 2023. The group therefore needs accurate visibility regarding its supply sites. Traceability and transparency will be ensured by using emerging digital technologies - such as satellite surveillance, geolocation and blockchain. In a more creative way, but with the same eco-friendly approach, a new luxury brand from a Japanese cosmetics giant is inspired by the "power of trees". It is named after the word for "tree" in German and based on "coexistence with nature", a highly-valued concept in Japanese culture. The brand aims to contribute to "a sustainable society that fully embraces the benefits of trees and preserves them for the future". Among other things, it offers recycled wood offcuts in its packs, several refill options for its products and will protect forests by planting and growing oak trees. The first planting of seedlings grown in their stores is planned in 2021. These initiatives are starting



Explanatory diagram of the operation of Carbon Compensation | Source: <https://omnegy.com/la-compensation-carbone-pour-les-entreprises/>

now and will continue on a long-term basis. For example, by 2030, 100% of the plant-based ingredients used by the world's top beauty brand in its products will come from certified sustainable sources, and its Fund for Nature Regeneration will have restored a million hectares of damaged forest ecosystems.

Other stakeholders become involved in reforestation programmes out of love for a region, or a particular area, and a desire to strengthen biodiversity. Naolys has also chosen to take part in an environmental challenge, choosing an association located, like itself, in the heart of the Landes de Gascogne. Created in 2000 and named Du Pin sur la Planche (*a pun on du pain sur la planche, which means "we've got a lot to do", and pin, a pine tree*), this association proposes to plant an alley of umbrella pines, two hundred and fifty kilometres long, in the Gironde, Landes and Lot et Garonne departments. Since Naolys also wants to offset its carbon footprint, it is participating in the project by looking after baby pine trees at its facilities.

“When people think of our region, they think of wine (especially in Gironde), but in fact the turnover generated by forests is the same as for the vineyards. We’re hoping the project can help to improve this image”

*says Yves Simone,
the association's president.*

In addition to contributing to the reforestation desired after the terrible storm of 1999, this alley will be lined with deciduous trees (*oaks, birches, star gum, etc.*) to reinforce biodiversity in the Landes forest. The project brings together urban and rural dwellers, ecologists, foresters and scientists, children and adults. It is ecological but also human, and has been launched to mobilize, motivate and empower the region's inhabitants. The planting operations will take place over several years.

Naolys values the long-term approach, with a collective mobilisation (including schools) to benefit future generations.

For more information and if you would like to participate in this challenge, see <https://www.dupinsurlaplanche.org>

***And you? Have you decided to make an environmental commitment?
Tell us about your experiences and your plans on our social media***



Figures

Singapore stands out as a pioneer. Since its foundation in the early 19th century by Thomas Stamford Bingley Raffles, a British soldier, statesman and botanist, the city-state has always had a taste for greenery.

And even more so since a 2013 law obliges builders to reserve 30% of a site's area for vegetation. According to a study conducted by MIT, vegetation now covers 29.3% of the city's total surface area, which is about three times more than Paris (8.8%)! "Plants are the only way - along with ponds and swimming pools - to circulate air and cool buildings naturally, and to protect inhabitants from the sun's rays, without using more building materials, thereby improving the quality of life, and all this without creating any pollution", says Phua Hong Wei, associate architect at the Woha agency. (*Geo magazine, special edition, Les Bienfaits des arbres*)

by 2100,

substantial areas of forest could disappear from at least half of France (*Eric Meyer, editor of the GEO special edition, Les Bienfaits des arbres, August-September 2020*)

by 2040,

Fontainebleau forest will be as flammable as those in Corsica or Provence today.

Further reading

Books

- "Shinrin yoku, l'art et la science du bain de forêt"
Dr Qing Li, First Edition
- "La Vie Secrète des Arbres", Peter Wohlleben
- "Se sentir vivant par la sylvothérapie"
Serge Mang-Joubert, April 2021
- "Être un chêne sous l'écorce de Quercus"
Laurent Tillon, February 2021, Actes Sud

<https://www.youtube.com/watch?v=ouJW4vi-dErA> "Laurent Tillon: "Walking in a forest strengthens your immunity" France Inter



On the web

- <https://www.premiumbeautynews.com/en/shiseido-launches-new-sustainable,16474>
- <https://www.natureandforesttherapy.org/about/science>
- Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation
- <https://www.greenbiz.com/article/these-14-businesses-are-growing-money-trees>
- <https://www.beautyindependent.com/the-de-tox-market-sustainability-starts-now/>
- <https://treesforall.nl/en/>
- <https://unitedpackagingforest.com/en/>
- <https://www.premiumbeautynews.com/en/unilever-wants-all-their-products,16822>