
Kulvinder Kaur– Head of Sales Personal Care Valida
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Discover sustainable replacements for microplastics with new technology cellulose
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Microplastic Legislation

- On October 17th 2023 the EU regulation EU 2023/2055 to ban synthetic polymer microparticles "microplastics" came into force
- All intentionally added microplastics, on their own or in mixtures, at ≥ 0.01% by weight

Must meet **both** conditions:

1. Are contained in particles and constitute at least 1% by weight of those particles; or build a continuous surface coating on particles;
2. At least 1% of these particles have dimensions ≤ 5 mm or have length ≤ 15 mm and their length to diameter ratio is greater than 3

Impact on cosmetic formulations

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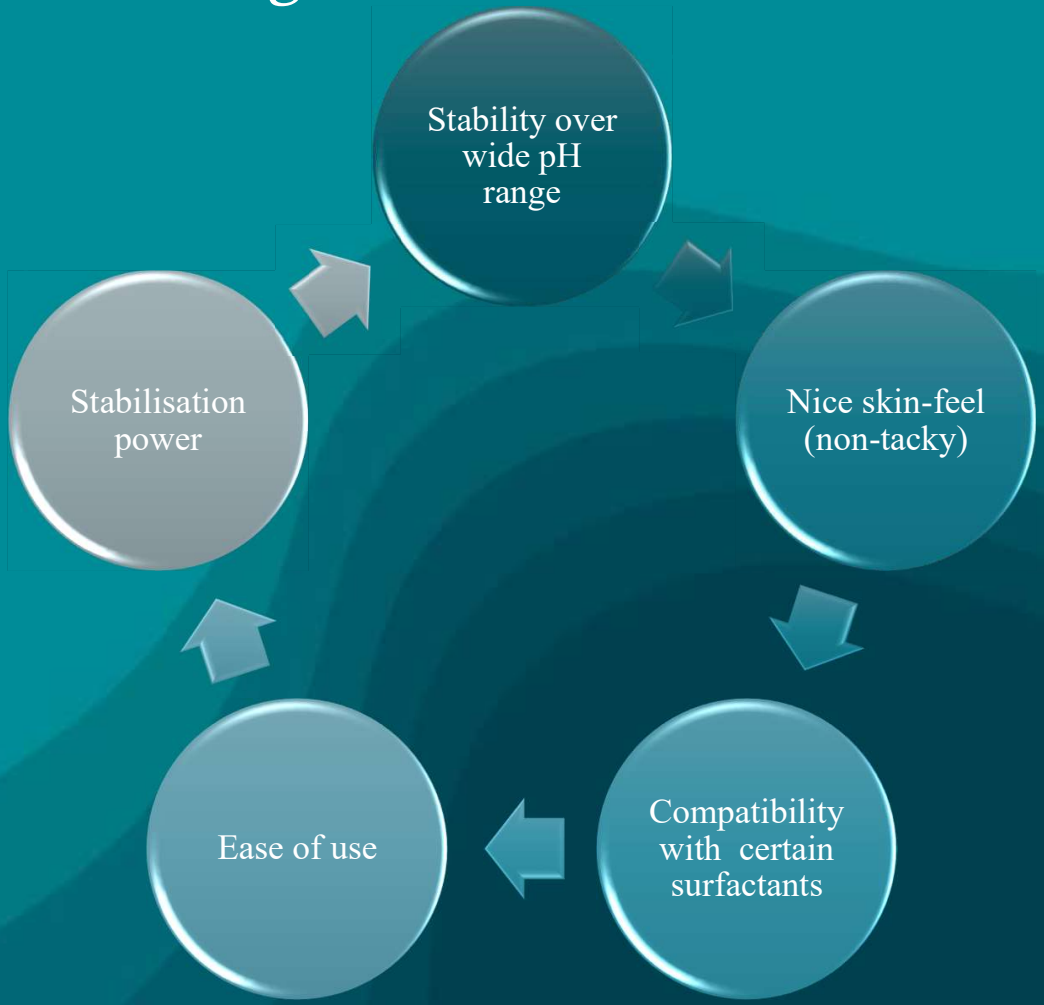
It's more than just plastic microbeads in rinse-off products…

Solid synthetic polymers also fall into the definition

Uses in cosmetics:

- Stabilisation
- Enhance skin-feel
- Improve spreadability
- Opacifying effect

Many natural polymers in the market but often lacking in at least one of the following:



Valida

INCI of cellulose: cellulose and/or cellulose gum

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Renewable

Non-toxic

Fully bio-degradable

COSMOS

Sustainable

Iso naturality of 0.99

Cold-processable

Picture: Sappi Lothair plantation, South Africa

Cellulose is the most abundant organic polymer on earth!

FSC

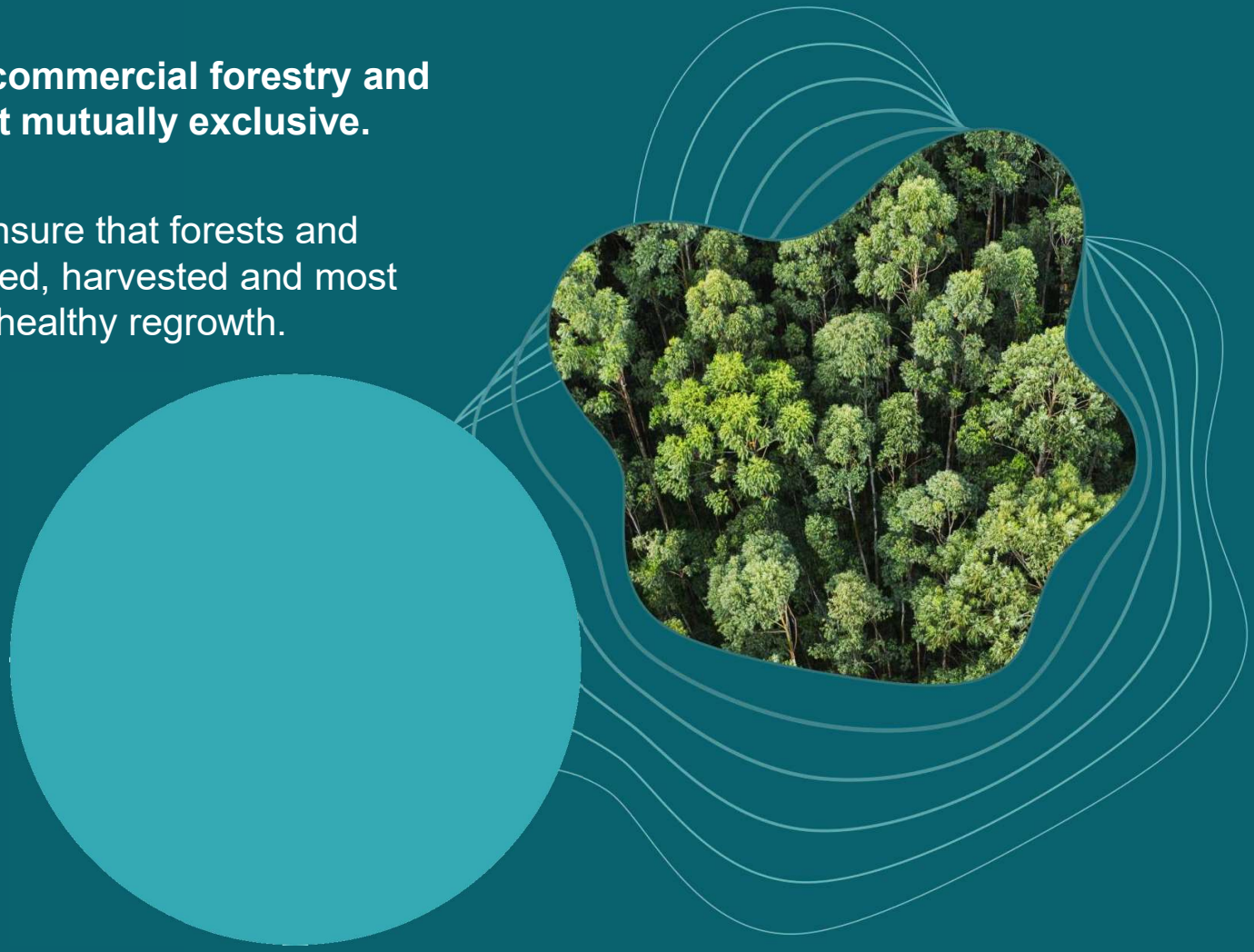
SUSTAINABLE FORESTRY INITIATIVE

PEFC

We grow wood-fibre responsibly

We are here to prove that commercial forestry and forest conservation are not mutually exclusive.

Our policies and practices ensure that forests and plantations are expertly tended, harvested and most importantly, regenerated for healthy regrowth.



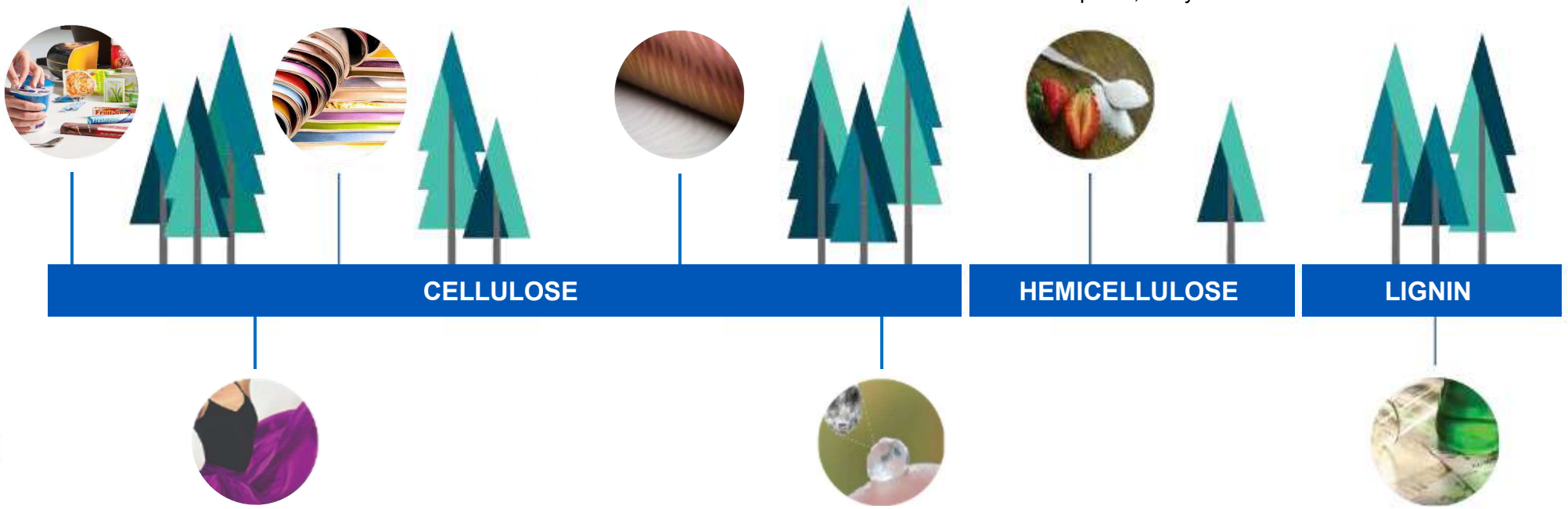
Unlocking the power of trees

Packaging and Speciality Papers
Product Packaging, Technical papers

Graphic Papers
Commercial Print, Publishing

Casting and Release Papers
Textures for materials, Functional films, Automotive wraps

Xylitol, Furfural, and Chemicals from Sugars
Low-calorie Sweetener, Toothpaste, Recyclable Plastics



Verve
Textiles, Cellophane, Pharmaceuticals

Valida Fibrillated Cellulose
Reinforcing Agent, Control Release Agent, Viscosity Modifier

Chemicals from Lignin
Binding Agent, Dispersion Agent, Emulsion Stabiliser

Sustainable Leadership

- Global Sappi commitment to reduce carbon emissions by 2030
- Circular economy – reduce waste treatment and long-term journey to zero waste
- 80 energy projects in the period 2020-2025
- 54% of Sappi global energy used is renewable clean energy; 76% from own biomass
- Achieved Ecovadis rating of platinum in 2022.

What sets Valida apart from other celluloses?

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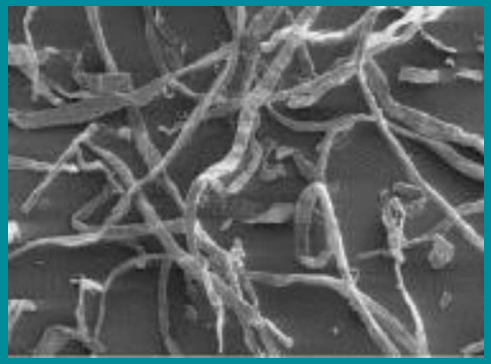
Cellulose (uncoated/untreated)



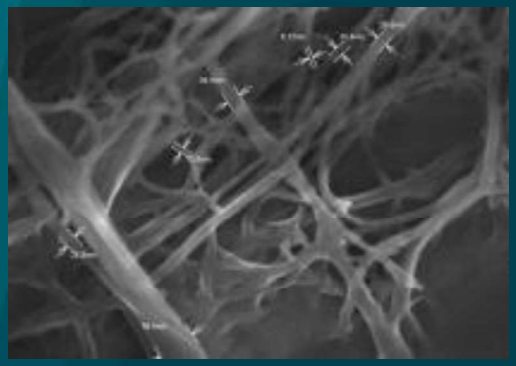
Cellulose powder

Grinding

Acidic treatment

Microcrystalline Cellulose

Mechanical fibrillation – no chemical treatment!



Valida, Fibrillated Cellulose – large surface area and 3D network formation

Valida is Fibrillated Cellulose

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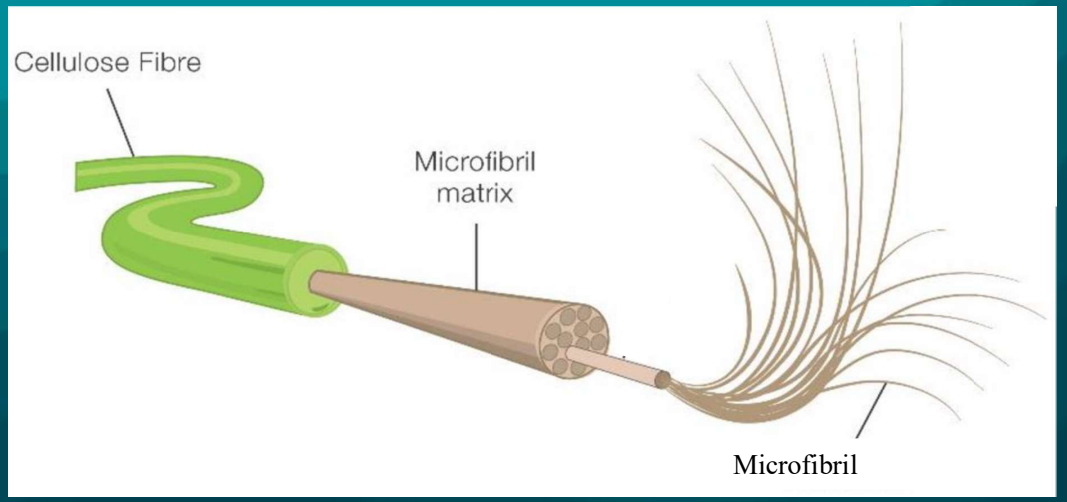
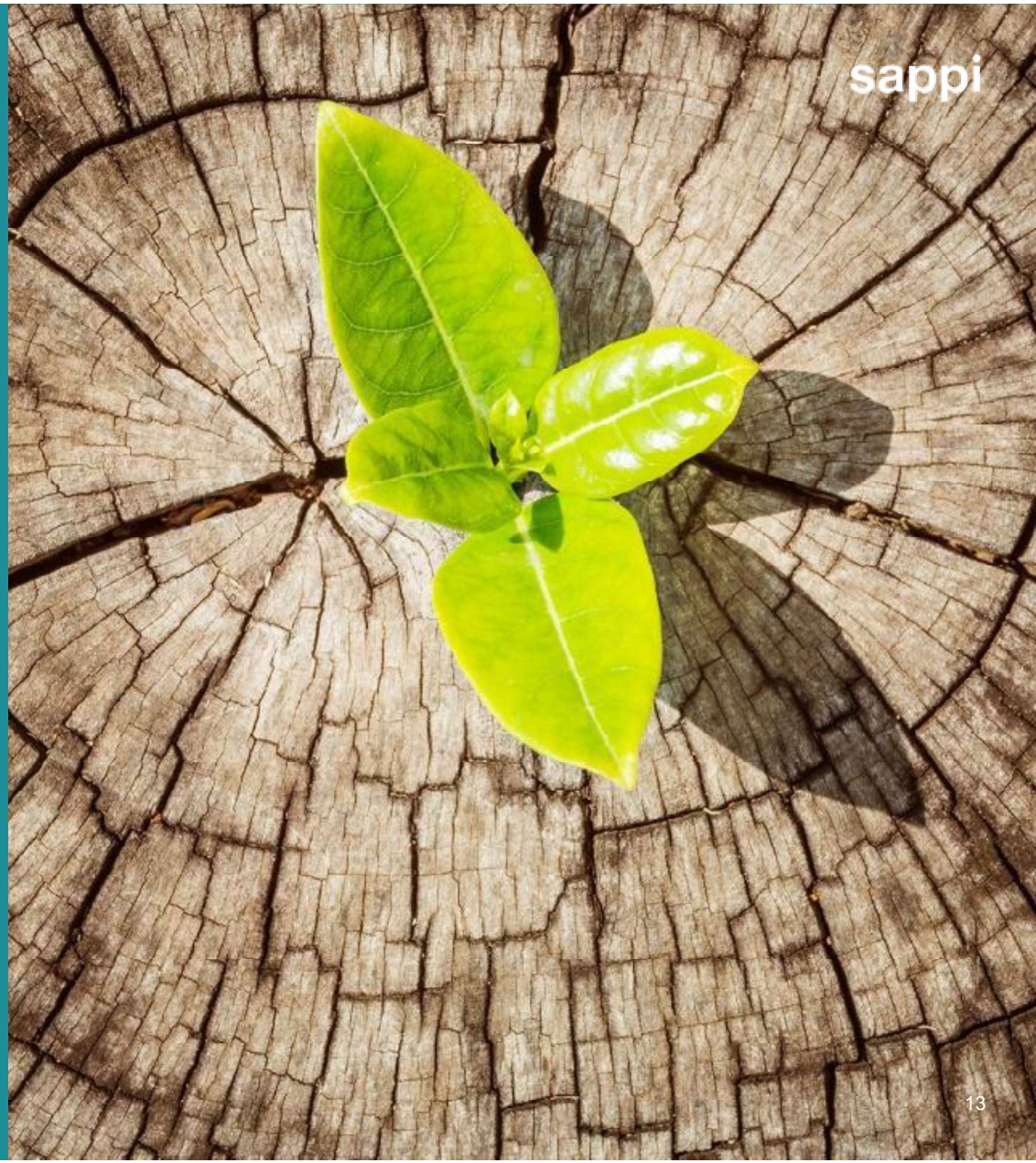


No chemical treatment or modification of cellulose polymer → 100% natural and **fully biodegradable**

Mechanical processing → strong 3D network

Properties of Valida



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Stabilising particles without increasing viscosity or flow!

Additive boosting effect

Due to 3D network, Valida can evenly distribute particles of:

- Pigments, dyes, biodegradable glitter
- Actives – AHA, BHA, powders
- UV filters

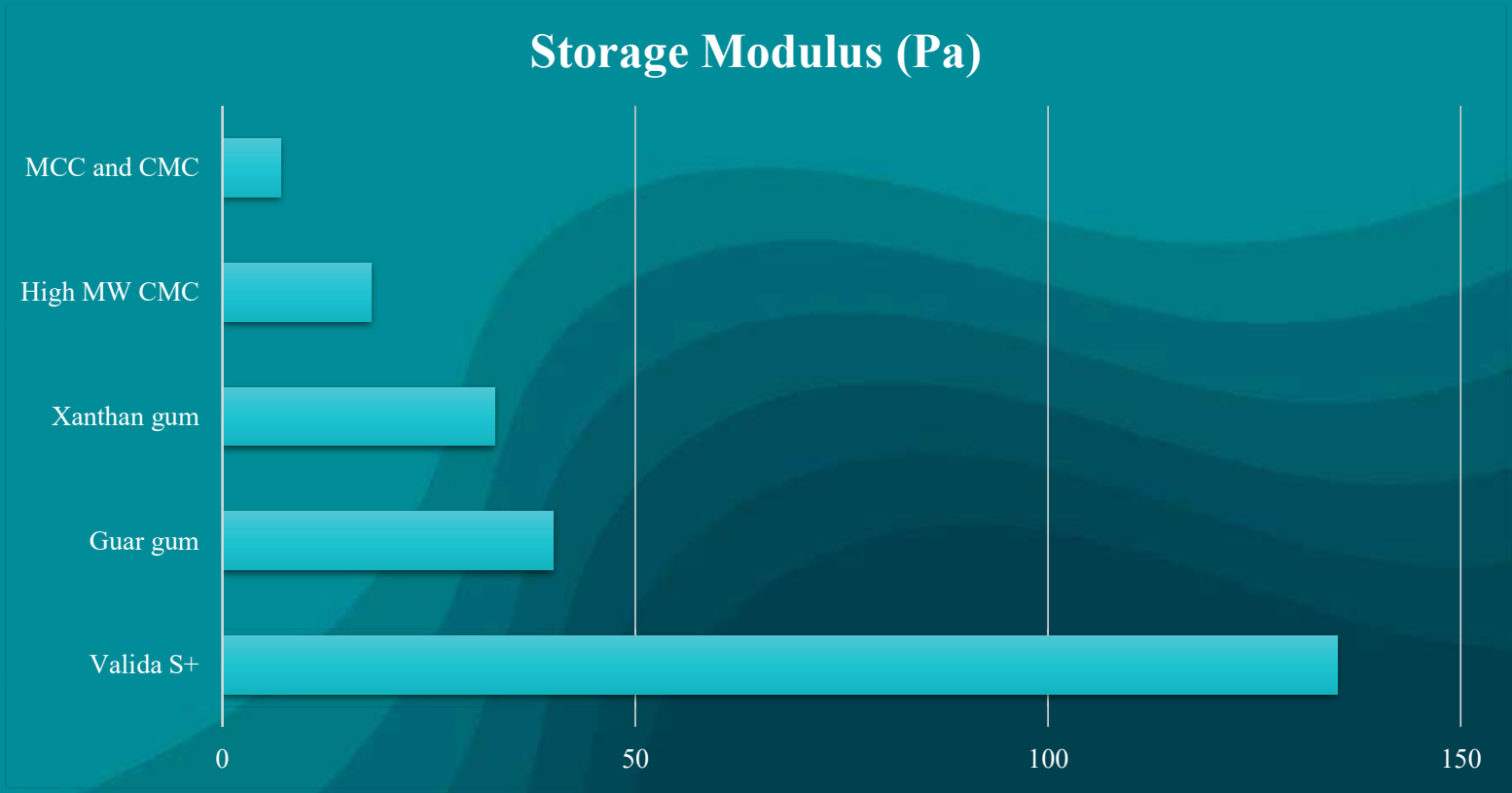
Increasing performance and slow-release of actives onto the skin!

2% HEC

2% Valida S+, gel

*Whilst creating a luxurious skin-feel!

Stabilising capability



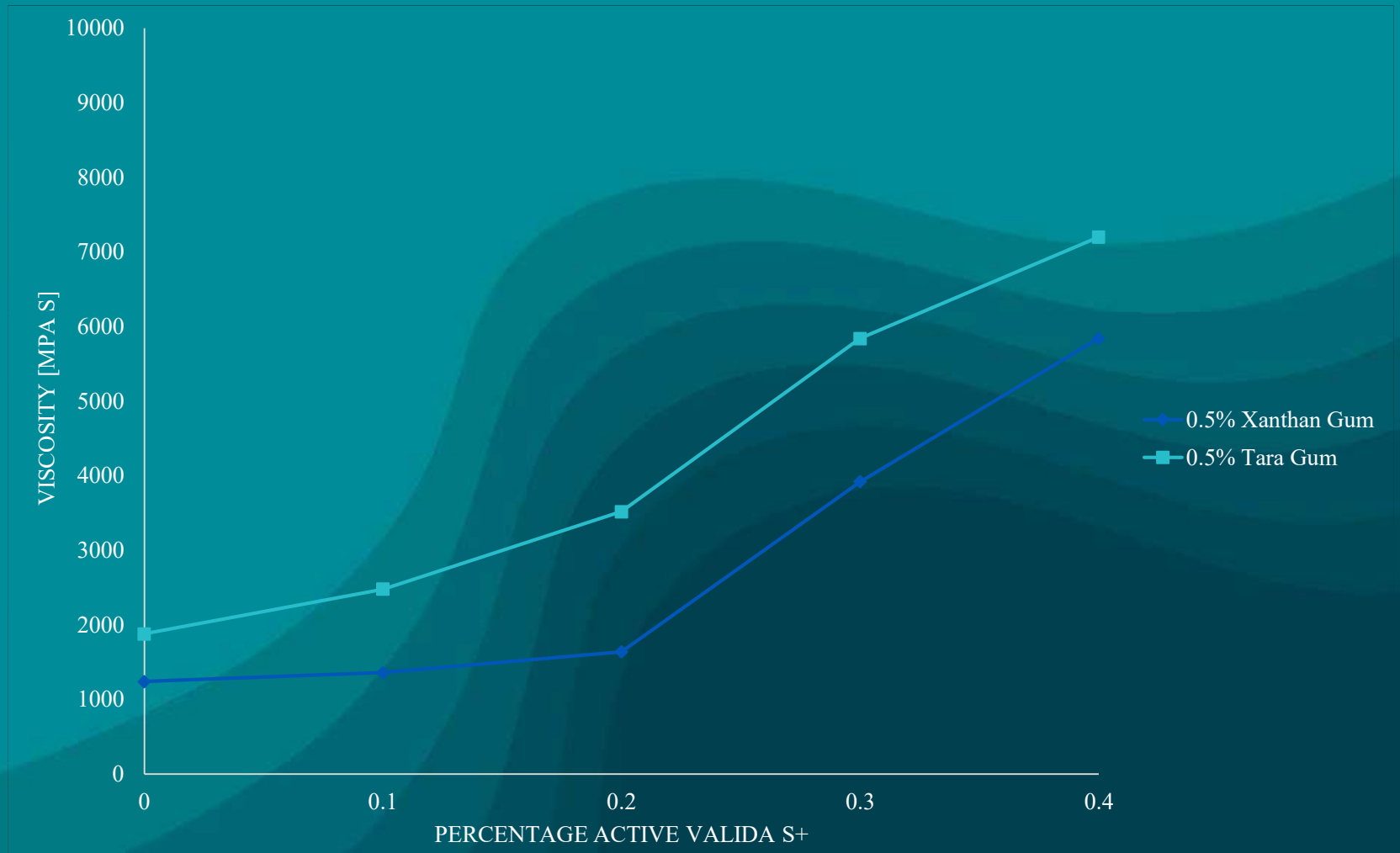
Measured at 1 wt% of active content of substances

Valida has high shear-thinning rheology

Boost the viscosity of thickeners

Create various textures

Synergy with thickeners



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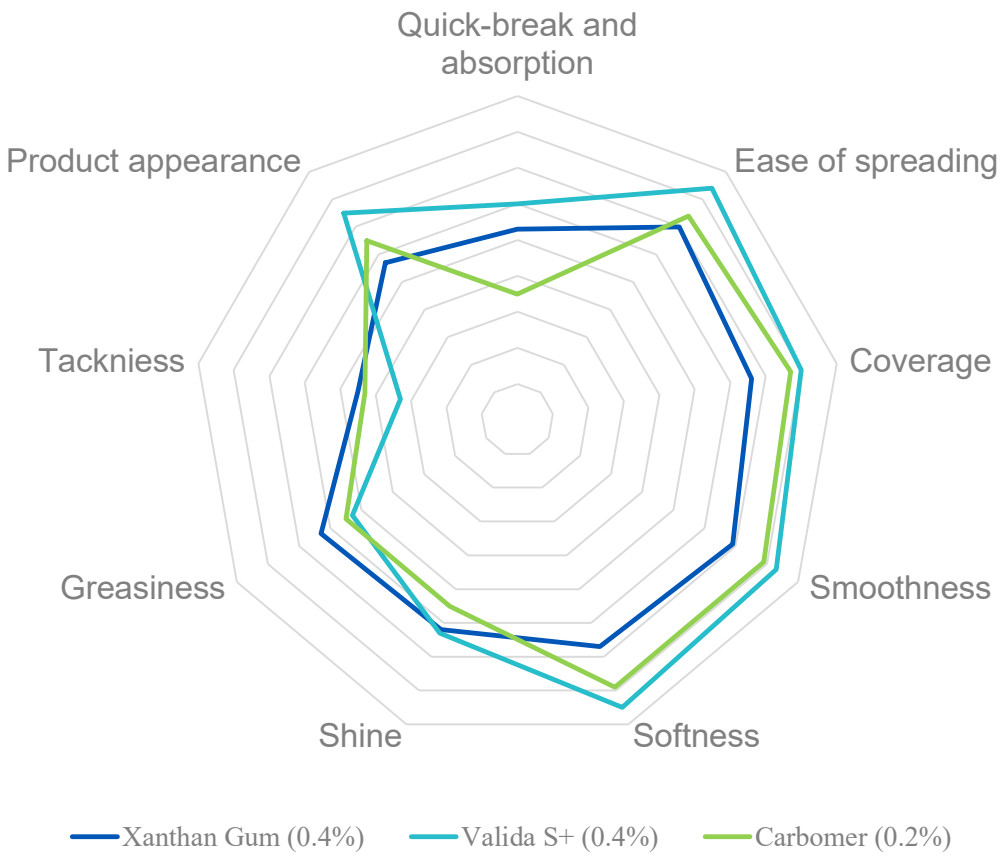
Supreme skin-feel without being tacky

Mattifiying, blurring effect

Easy to spread formulation

Sensory panel test and soft-focus effect



Immediate wrinkle-blurring, softening effect with addition of 0.4% Valida using Visioscan

Approved by ECOCERT RAW MATERIAL

COSMOS APPROVED

Valida in formulations

Case study – SLES-free shampoo

The Ross-Miles foam test measures the foamability according to ASTM D1173.
Valida ~ doubles the foam height and remains stable over time

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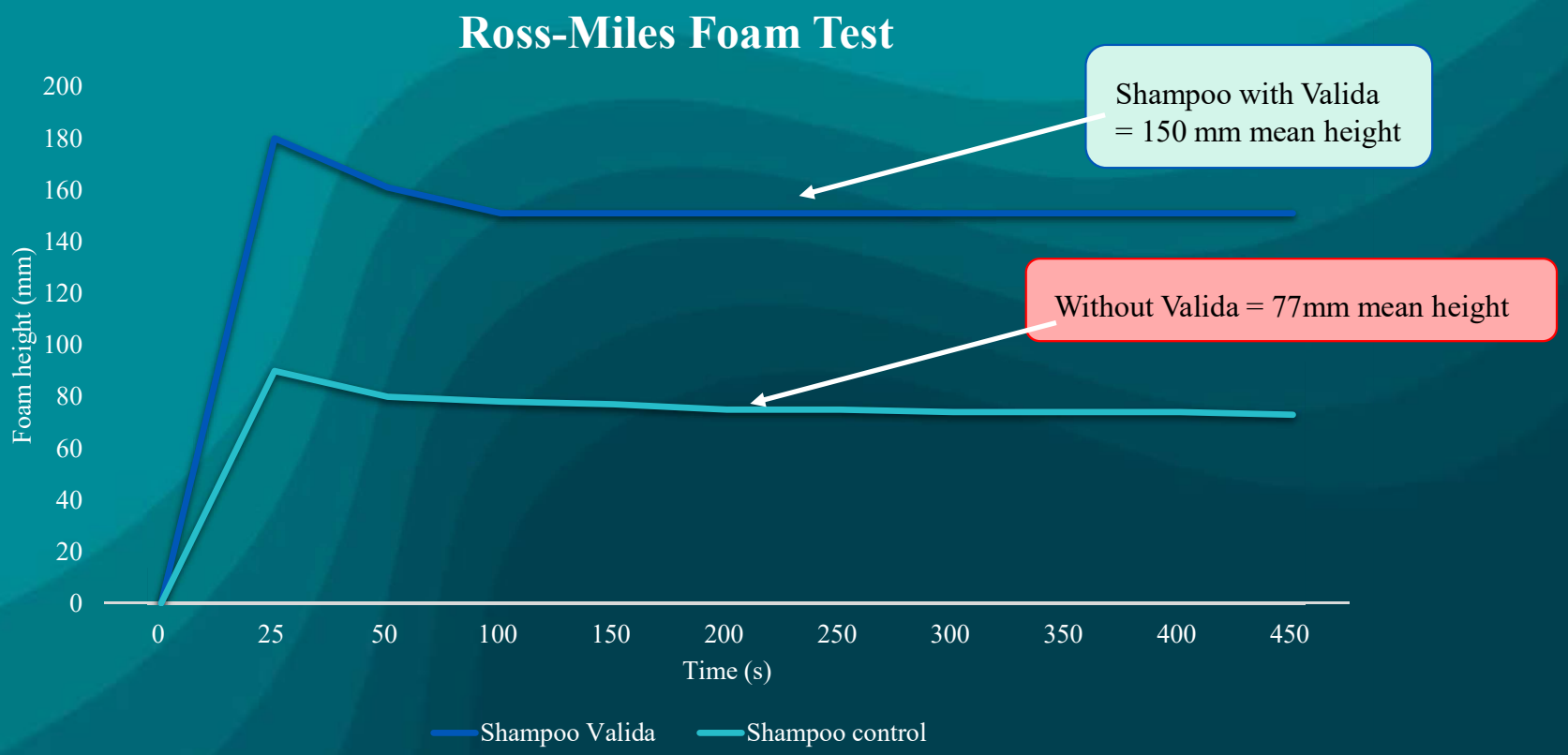
azelis Innovation through formulation

Study in partnership with Azelis France

2 months at 40°C
Left = control
Right = with Valida



Case study - shampoo

Foaming capacity on hair strands

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200 µl of shampoo added to length of hair strand

1.5 ml of water added along hair strand

With the thumb, three curl patterns were made 20 times across hair strand to observe foam capacity

Case study - shampoo

Foaming capacity on hair strands

With Valida, there is more creamy foam with ***good hold*** on hair strand

Without Valida, there is ***very little foam*** on hair strand

Valida in haircare

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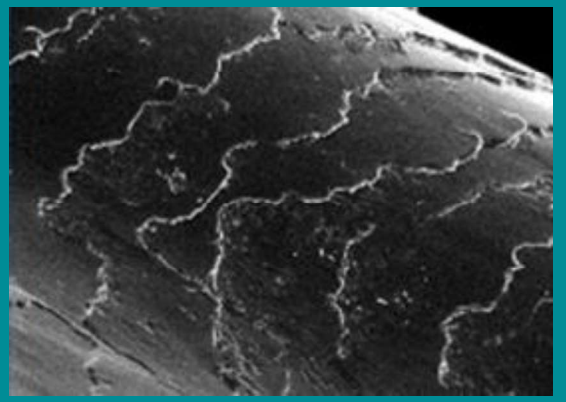
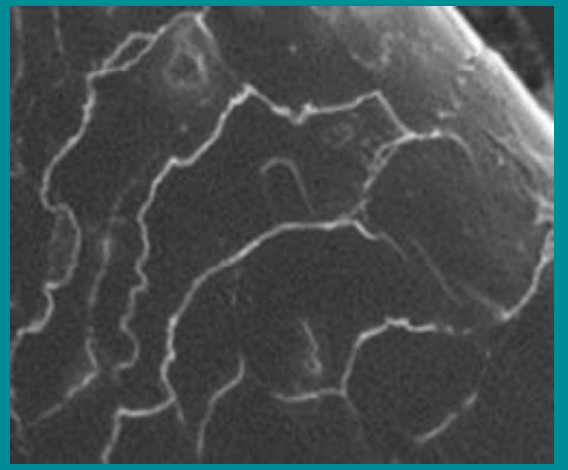
- 3D network with high surface area and available OH groups → conditioning effect
- Can reduce combing force due to relatively small fibre size
- Good spreadability
- Can improve styling → Reduces flyaways and static → potential to reduce PVP
- Stabilises foam and increases lather – high yield stress and stabiliser



Washed with shampoo



Treated with conditioner containing 0.1% actives Valida S+

Suspend oil in water droplets

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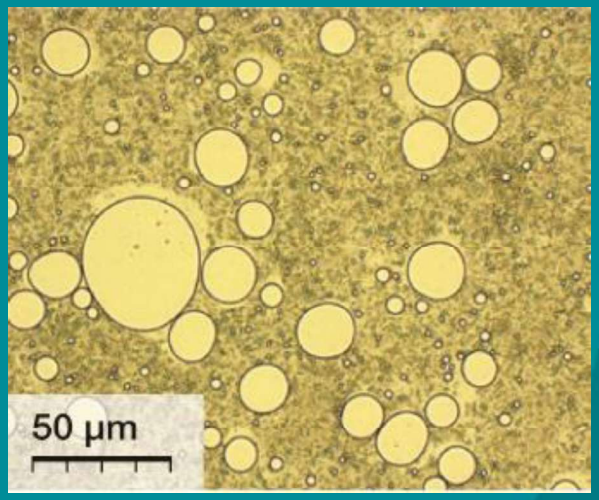
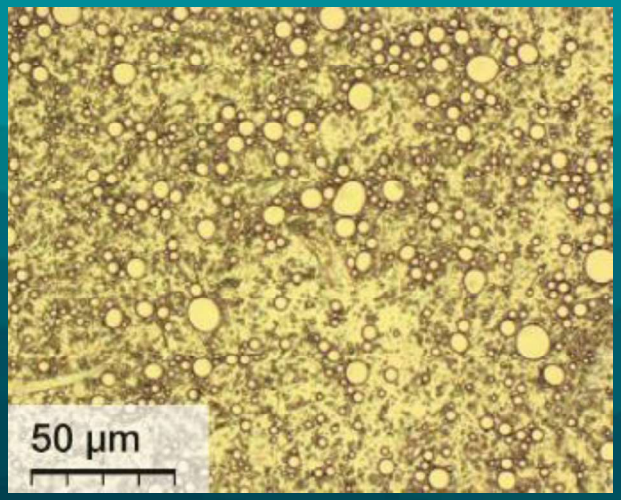


5% o/w emulsion with no Valida

Only Valida, no surfactant!



5% o/w emulsion with 5% Valida S+

*Valida can help to suspend low oily phase alone depending on polarity of oil

Valida in suncare

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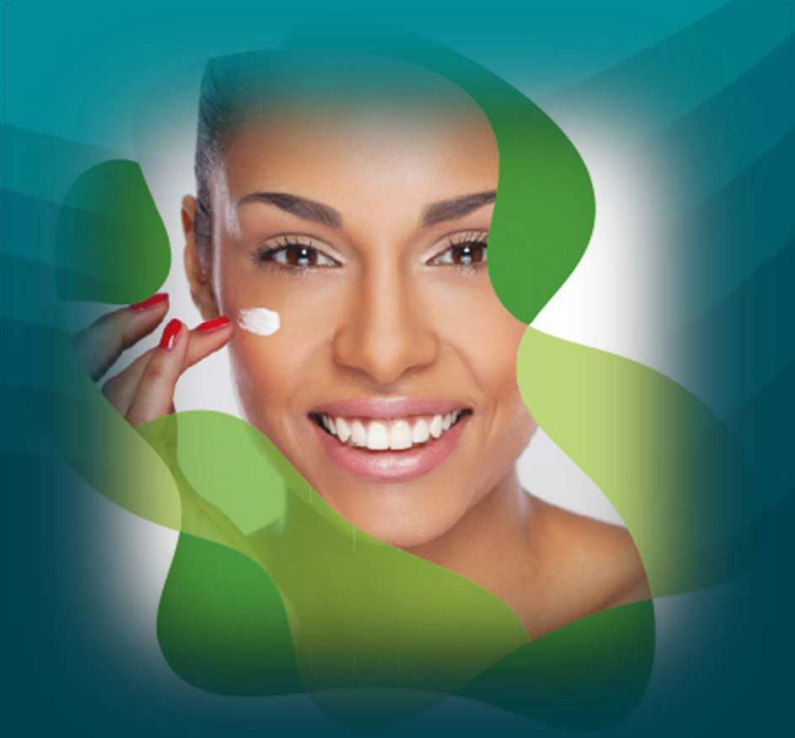
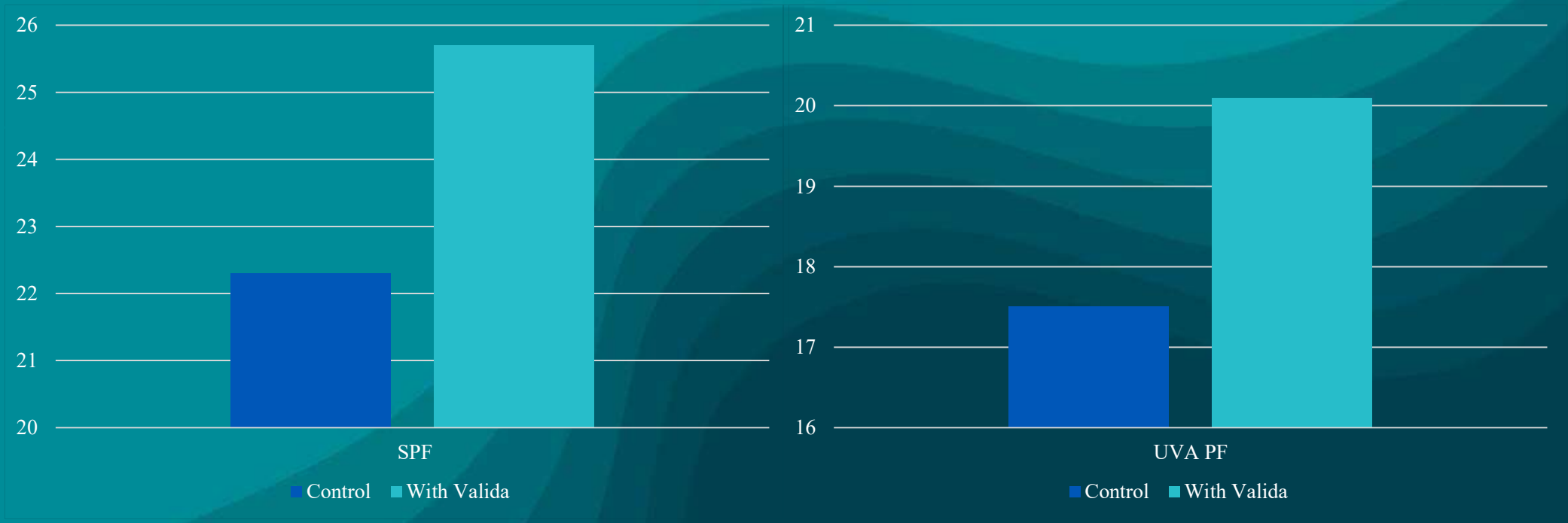
- Boosts the SPF of physical and hybrid UV filter sunscreen
- Improves spreadability leaving no white caste
- Creates lightweight, silky product that is not greasy!
- Increases hydration due to excellent water retention
- Anti-drip due to thixotropic nature → sprayable



Naturally boosting SPF and UVA PF – Mineral & chemical hybrid sunscreen



0.4% active concentration Valida boosts SPF by ~20%. Formulation available upon request.
In-vivo studies also available

Valida In Tanning Products

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In water, DHA initially has a pH of 5.5 but as it oxidises, the pH shifts to 3-4.

With Valida you can:

- ✓ Successfully stabilize DHA while offering a nice silky texture.
- ✓ Boost the performance of DHA therefore reduce the concentration of DHA
- ✓ Create a non-tacky and non-greasy product!

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Valida is very versatile!

pH range 3-10

Stable against electrolytes

Cold processable

Valida grades

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3% active, gel

8% active, paste

?

Products are preserved, COSMOS grades are also available.

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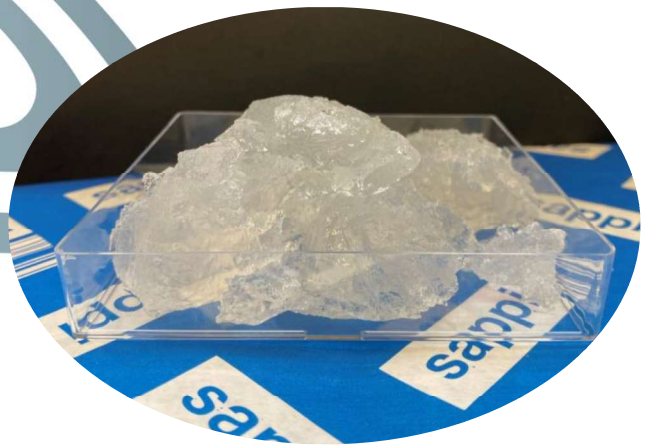

Valida T

Applications:

- Cosmetics
- Fragrance
- Styling Gel
- Transparent hair care/body care
- Hair dye

What sets Valida T apart from other Celluloses?

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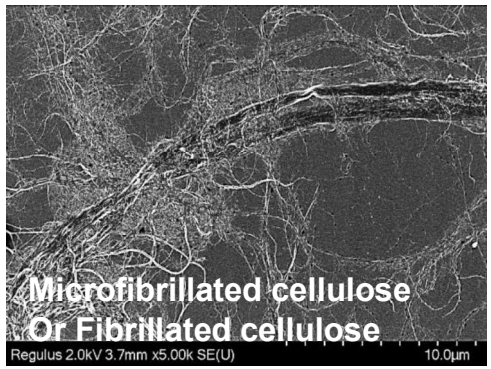
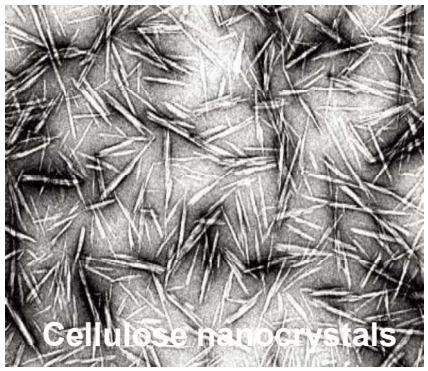
Cellulose

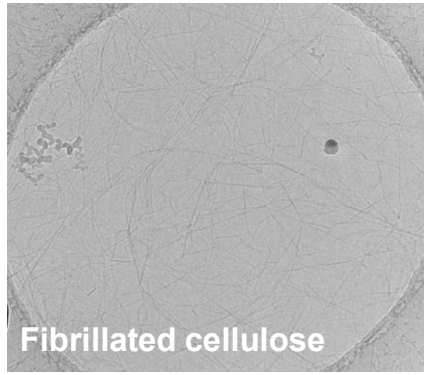
Mechanical defibrillation

Acid

Chemical Pretreatment + Mechanical defibrillation







Opaque

Translucent

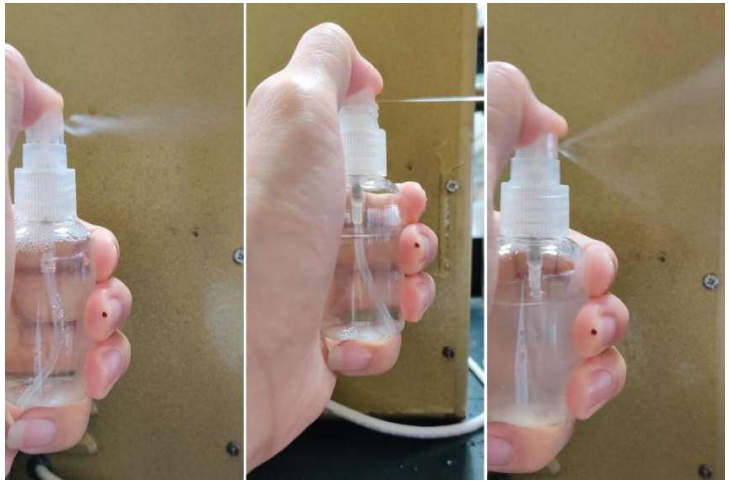
Transparent

Valida T vs cellulose gum

Parameters	Valida T	CMC
INCI	Cellulose gum	Cellulose gum
Particle stabilizing performance	**Excellent**	**Poor**
Thixotropic behavior	**Extreme shear thinning with fast viscosity recovery**	**Moderate**
Temperature dependent viscosity	Low	High
Viscosity	Low with exponential increase	High, linear increase
Sensory	**Fresh skin feel**	**Sticky or tacky**

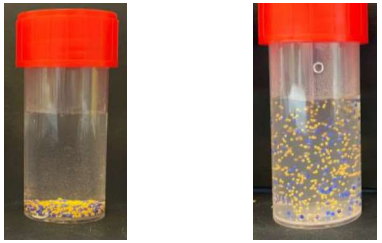
Sprayability

Water CMC Valida

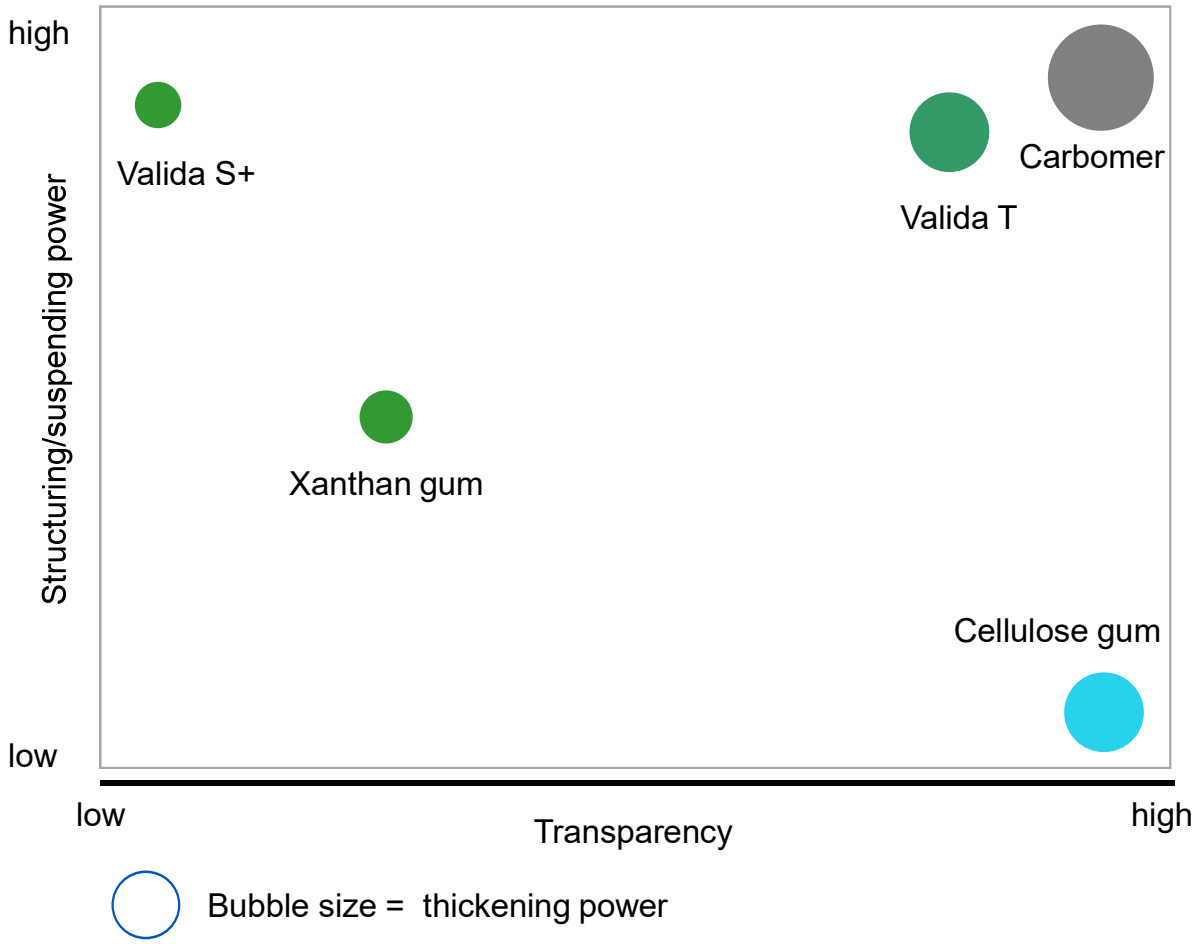


Particle stability

0.4 wt.% CMC 0.4 wt.% Valida T



Valida T and S+ stabilising power



In Summary….

- ✓ Stabilise and suspend active ingredients in ***transparent*** formulations, comparable to carbomer
- ✓ Non-tacky, fresh velvety skin-feel
- ✓ Synergistic effect with Xanthan Gum to boost viscosity while improving the skin-feel
- ✓ Compatible with nonionic surfactants
- ✓ Easy to use
- ✓ Sourced from sustainably-managed forests