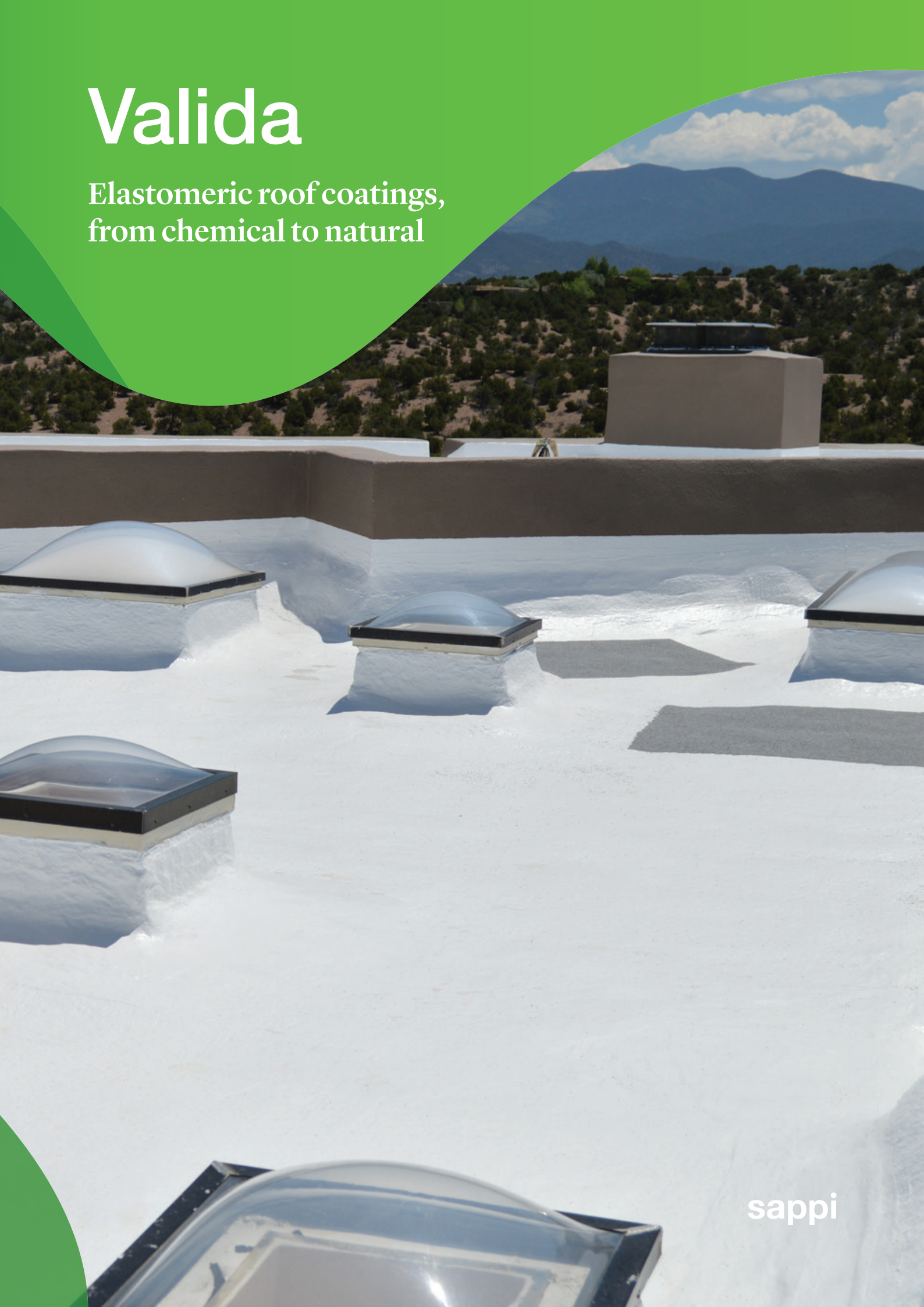


# Valida

Elastomeric roof coatings,  
from chemical to natural



sappi

# Elastomeric roof coatings, from chemical to natural

Across the industrial applications, consumers are seeking more natural ingredients that are capable of increasing the sustainability of the final formula, while keeping or improving performances when compared to synthetic incumbents. Although the demand is clear, companies still struggle to find a suitable replacement that provides unique rheology and other benefits associated with artificial compounds. That's where Valida comes in. Valida is a renewable material that delivers multiple functionalities to coatings applications, from rheology to stability and surface properties, as well as supporting a more sustainable lifecycle.



*Valida is natural cellulose, the most abundant organic material on earth.*



# The power of cellulose. Enhanced by Sappi.

Sappi is a global diversified woodfibre group, focused on dissolving pulp, paper-based solutions and high quality functional biomaterials.

Manufacturing operations can be found on 3 continents with sales in over 150 countries. We are using our global leadership position and significant investment in Research and Development in coated graphics papers, speciality packaging grades, dissolving pulp and biorefinery processes, to respond to the growing global demand for high quality functional biomaterials.

## **CELLULOSE IS THE SOURCE OF OUR INSPIRATION**

As we focus on creating value for our shareholders from relevant, sustainable woodfibre products, we take cognisance of our impact on the planet and our stakeholders to ensure that all benefit in the long term. Our commitment to sustainability is based on being a trusted, transparent, and innovative partner in building a bio-based circular economy. Sustainability is entrenched in the way we manage our daily business activities, mitigate risk, leverage opportunities, and plan for the future. We hold ourselves accountable for global sustainability and best practice standards by transparently measuring, monitoring, and communicating our economic, social, and environmental performance. We further use innovative technology to contribute to a thriving world through reliable and relevant solutions by extracting more value from each tree.



# Sustainability and collaboration

At Sappi, we believe that building a thriving, sustainable world is a moral and business imperative, affecting each and every decision we make.

We are known for our challenge-driven innovation in natural solutions and are continuously looking for strategic partnerships in the quest for a sustainable future.

Minimise energy consumption.



Maximise bio-based circular economy.



Adherence to the highest quality standards.



Natural, biodegradable.



# Valida in Elastomeric Roof Coatings – Natural performance

Elastomeric roof coating is applied to a variety of roof types to protect and seal the underlying roofing material and limit future weathering. These types of coatings are designed to “move” with your roof and maintain a good elasticity, to ensure long term durability. Elastomeric roof coatings have to show a good adhesion to the substrate, since they can be applied to several types of roofs, such as metal roofs, concrete roofs, bitumen and other substrates.

In Elastomeric roof coating formulations, elongation, and tensile strength are very important to ensure longevity. Rheology plays a crucial role to provide good workability, ease of application and the potential to apply a thicker layer (more effective) via spraying or roller application with a reduced amount of time and defects (mud cracking). Lower dust/dirt capturing is key to ensure a prolonged efficiency and a maintained white surface colour, which reflects heat. This aspect is measured by dirt pickup.

## HOW VALIDA CAN HELP?

Valida acts as a stabiliser due to its insoluble 3D network and high surface area. When cellulose fibres are torn down into their smallest components, cellulose fibrils, the surface area dramatically increases. When suspended in water, the fibrils form a 3D network due to physical entanglements and hydrogen bonding. This strong connection between them facilitates stabilisation at low viscosity while providing shear thinning and thixotropic properties.

Valida is produced from natural cellulose, which is sourced from sustainably managed forests and is TUV certified for biodegradability in soil and marine.

Valida is fabricated by mechanically processing cellulose fibres to cellulose fibrils.



Table 1: Key features and benefits of Valida

Product	Benefits	Solid content	Features
Valida S231C	<ul style="list-style-type: none"> <li>Improved rheology – ease of application</li> <li>Enhanced in-can stability and anti-settling</li> <li>Thixotropic properties</li> <li>Improved tensile strength with maintained elongation</li> <li>Reduced dirt pickup</li> <li>Robust vs pH and electrolytes</li> </ul>	3% Gel	Pre-hydrated, Readily dispersible
		8% Paste	Higher active fibre content, usable in formulations with lower water content.

## ELASTOMERIC ROOF COATING FORMULATION

Table 2: Valida S231C consists of 8% active fibres suspended in 92% water

	Raw Material	Functionalities	Dosage wt.%
Dispersion stage	Deminerlized water	Solvent	5.3
	Propylene glycol	Solvent	1.8
	Solution of sodium polymethacrylate	Dispersing agent	0.4
	BIT & Zinc Pyrithione	Biocide	0.3
	Mixture of foam-destroying polysiloxanes and hydrophobic solids in polyglycol	Defoamer	0.2
	<b>Valida S231C</b>	<b>Biobased multifunctional stabiliser</b>	<b>5</b>
	Calcium carbonate + magnesium carbonate	Fillers	35.4
	TiO <sub>2</sub>	TiO <sub>2</sub>	8.0
Let down Stage	Styrene acrylic	Binder	42.0
	Mixture of foam-destroying polysiloxanes and hydrophobic solids in polyglycol	Defoamer	0.1
	Ester Alcohol	Coalescent agent	0.5
	OIT, Zinc Pyrithione & Terbutryn	Biocide	1.0
	Total		100%



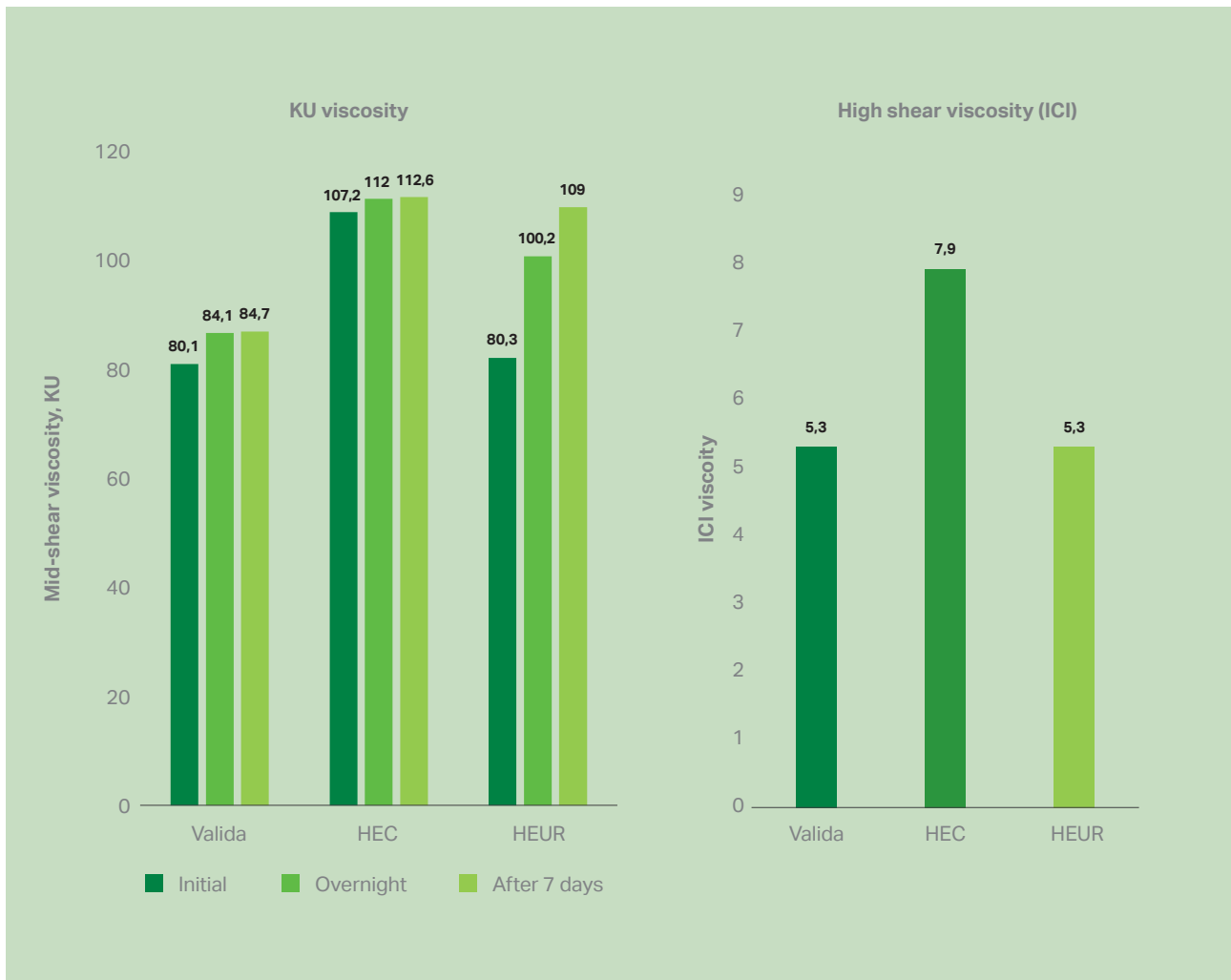
## SUMMARY

Properties	HEC (0.3%)	HEUR (0.3%)	Valida @5%
KU viscosity (7 days)	112.6 KU	109.0 KU	<b>84.7 KU</b>
Dirt pickup*, (7 days), ΔL	0.4 Very low	9.53 Medium	<b>0.31 Very low</b>
Water absorption, (7 days), %	5.0	9.1	<b>5.0</b>
Anti-sag index	24 mils (600 μm)	20.4 mils (510 μm)	<b>24 mils (600 μm)</b>
Elongation at break, %	300	260	<b>320</b>
Tensile strength, MPa	2.1	1.6	<b>3.8</b>
Adhesion to concrete, after 14 days, MPa	8.5 MPa	7.6 MPa	<b>9.0 MPa</b>
Mud-cracking (5-8 mm wet layer at 50°C)	Cracking at the edge	Significant cracking	<b>No cracking</b>

Valida @ 5% = 0.4% active fibre content



## VISCOSITY: STABILISING WITH MINIMAL THICKENING, IMPROVING SPRAY-ABILITY

Table 3: Typical flow profile: KU and ICI viscosity



## ANTI MUD-CRACKING

Elastomeric roof coatings are usually applied at higher layer thickness compared to conventional coatings. High build coatings can suffer from cracking during drying. Water retention property and 3D fibre structure of Valida help in completely solving this issue when compared to conventional incumbents.

Reference Paint:	Mud cracking	Valida @5%	HEC	HEUR
Valida	None			
HEC	Edge cracking and checking			
HEUR	Significant cracking and checking			

**Layer Thickness:** 5-8 mm wet layer at 50°C

## DIRT PICKUP

Low dirt pickup is a key requirement for roof coatings in order to reflect the sun's heat away from the building. The coating must retain a good whiteness, this will allow the minimal amount of heat absorption possible. When the coating gets darker as a result of dirt pickup (dust, dirt particles, particulate), this will result in less efficient insulating performance.

Reference Paint:	Dirt pickup*, (7 days), ΔL	Valida	HEC	HEUR
Valida	0.31 Very low			
HEC	0.4 Very low			
HEUR	9.53 Medium			

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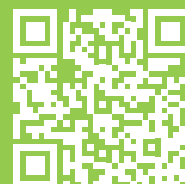
## Working together for sustainable impact

We believe the best ideas and innovations spring from diverse partnerships, so we invite you to help us accelerate meaningful change. We are committed to investing resources to develop applications which progress the commercial realisation of the unique benefits which Valida has to offer.

### INTERESTED IN KNOWING MORE?

Sappi Biotech  
[sappi.com/valida-home](https://sappi.com/valida-home)  
[valida@sappi.com](mailto:valida@sappi.com)





*For further product details please scan the QR code.*

# Sappi unlocks the power of trees to make every day more sustainable

Sappi is a leading global provider of powerful everyday materials made from woodfibre-based renewable resources. As a diversified, innovative and trusted leader focused on sustainable processes and products, we are building a more circular economy by making what we should, not just what we can.

Our raw material offerings (such as dissolving pulp, wood pulp and biomaterials) and end-use products (packaging and speciality papers, graphic papers, casting and release papers, and forestry products) are manufactured from sustainably-sourced production facilities powered with bio-energy. Together with our partners, Sappi will continue to build a thriving world by acting boldly in support of the planet, people and prosperity.