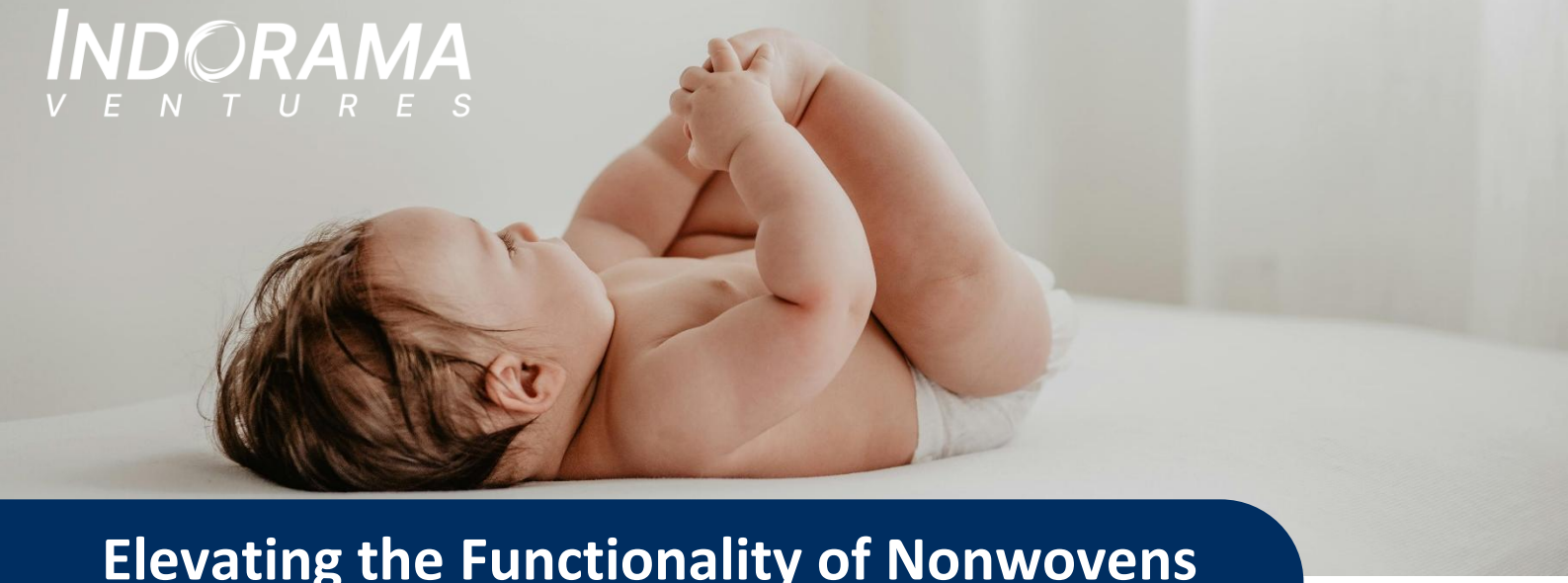
INDORAMA VENTURES

SURFACE MODIFIERS FOR NONWOVENS

Indispensable Chemistry

INDORAMA VENTURES



Elevating the Functionality of Nonwovens

Technology, Performance & Versatility for Smart Nonwovens

We are committed to the maximum performance of Nonwovens

Indovinya's surface modifiers are the ideal solution for maximizing the performance of nonwovens, converting **hydrophobic** surfaces into **hydrophilic** ones and promoting efficient interaction with polar liquids such as water. Our technology improves absorption, percolation, wettability and compatibility with aqueous formulations, extending the functionality and applications of the materials. With **Indovinya**, innovation and efficiency come together to transform surfaces and boost results.

Surface Modifiers

Personalized Solutions: Discover the SURFINOVEN ® Line

SURFINOVEN® 2809 HP	Solution of non-ionic surfactants.
SURFINOVEN ® 6840 HP	Solution of non-ionic surfactants.
SURFINOVEN ® 2209 HP	Solution of non-ionic surfactants.
SURFINOVEN ® 1820 HP	Solution of non-ionic surfactants.

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PERFORMANCE MEASUREMENT

The effectiveness of our surface modifiers is demonstrated by various techniques that evaluate their interaction and affinity with polymeric materials

Methods used

HANSEN SOLUBILITY PARAMETERS

Hansen Solubility Parameters evaluate the interaction of additives with the nonwoven, helping to select the most suitable ones for anchoring

HYDROPHILIC TESTS

Strike-through evaluates the percolation of liquids in nonwovens, while surface tension measures surfactant stability. These techniques offer an analysis of liquid passage and modifier retention in PET and PP

RHEOLOGICAL BEHAVIOR

Viscosity is crucial for the application and stability of the product. It affects the fluidity of the modifier, influencing uniformity and coverage efficiency

HANSEN SOLUBILITY PARAMETERS

Hansen's Solubility Parameters are essential for predicting the compatibility between surface modifiers and polymers, breaking down the material's cohesion energy into three components:

The synergy between the HSP spheres indicates compatibility: greater overlap results in better anchoring of the modifier and greater hydrophilicity potential of the material

D DISPERSION **P** POLARITY **H** HYDROGEN BOND

The SURFINOVEN line shows good interaction with PP and PET, highlighting its versatility.

HYDROPHILIC TESTS

The Strike-Through method assesses the ability of liquids to percolate through nonwovens. An adapted version has been developed to evaluate **PET** and **PP** at different weights. Some products perform at different weights, while others are designed for low weights.

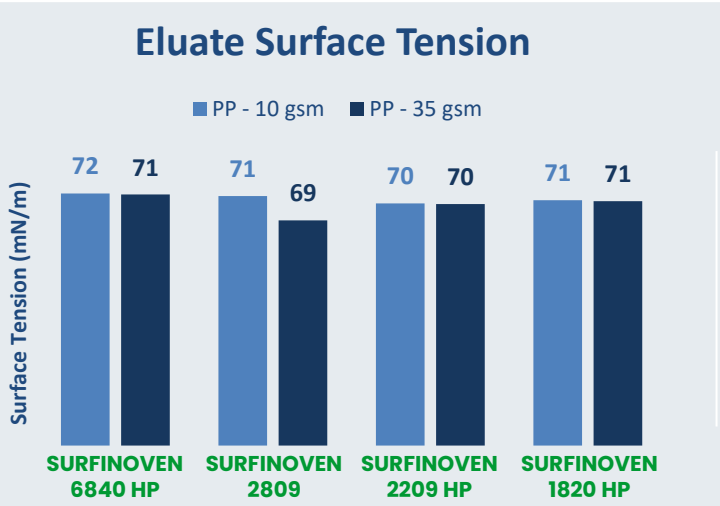
Hydrophobic Nonwoven

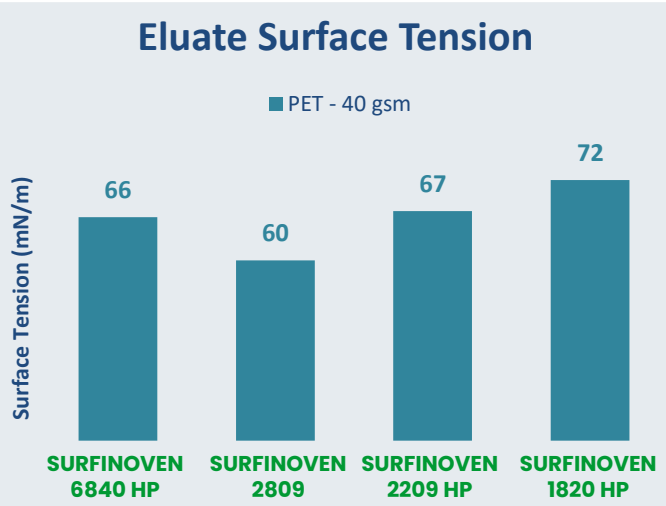
Hydrophilic Nonwoven

Performance by Weight:

- **SURFINOVEN® 2809 HP** — Low & High Weight
- **SURFINOVEN® 6840 HP** — Low & High Weight
- **SURFINOVEN® 2209 HP** — Low & High Weight
- **SURFINOVEN® 1820 HP** — Low weight

After the Strike-Through, the nonwoven is washed to test the drag resistance of the modifier. The surface tension is then measured in the wash water to assess how much surfactant has been dragged away, indicating the stability of the treatment.

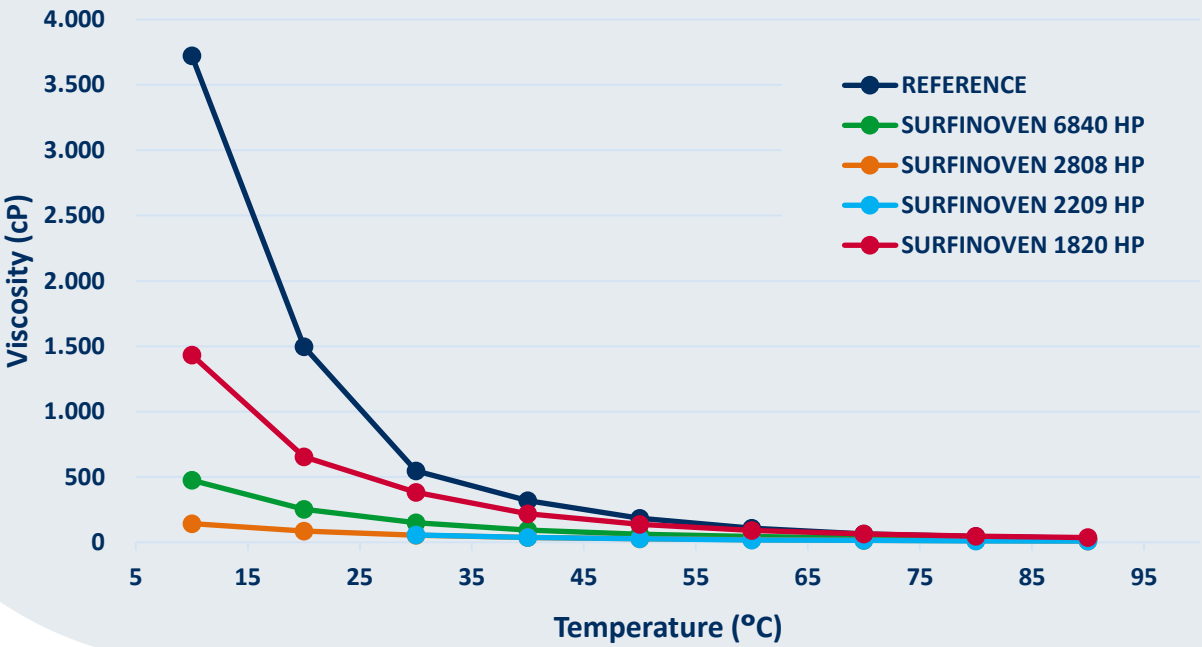


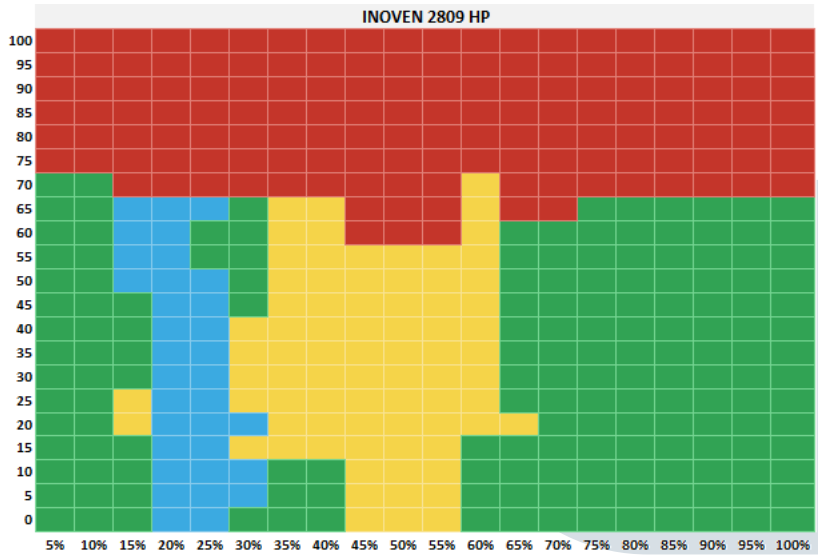


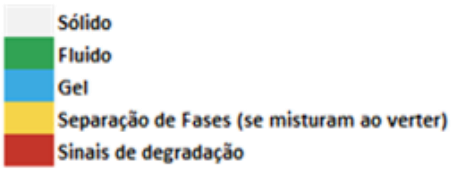
In PET, the hydrophilic anchoring of the surfactant is more easily removed, while in PP, the hydrophobic anchoring ensures greater stability. On PP, the modifiers performed similarly, with **SURFINOVEN® 6840** standing out.

RHEOLOGICAL BEHAVIOR

The rheological behavior of a product, especially its viscosity, influences its application and storage, affecting the fluidity, uniformity and efficiency of the modifier coating.







The **SURFINOVEN®** Line has a **lower viscosity** than the references, making it easier to apply, especially below **25°C.** The Phase Diagrams indicate the most suitable use ranges for application and storage

SURFINOVEN®

Surface affinity modifiers of excellence, with **high performance**, easy application and superior **stability**, ensuring a reliable supply for the entire **nonwovens** value chain.

Local Availability:
Surfactant producer with local stock and high integration in the Americas

Customized solutions:
Specialized service to meet the unique needs of our clients.

OUR PORTFOLIO

PRODUCT	AFFINITY WITH PP	AFFINITY WITH PET	BEHAVIOR HYROPHILIC	VISCOSITY (cP) at 10ºC
SUFINOVEN® 2809 HP	Compatible	Compatible	High & Low Weight	143
SURFINOVEN® 6840 HP	Compatible	Compatible	High & Low Weight	475
SURFINOVEN® 1820 HP	Compatible	Compatible	High & Low Weight	1.433
SURFINOVEN® 2209 HP	Compatible	Compatible	High Weight	ND*

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*Solid product 10ºC

WE ARE INDOVINYA,

the global specialty chemical and surfactants division of Indorama Ventures

With global presence, the company offers innovative and sustainable solutions to drive the long-term success of our customers.

GLOBAL PRESENCE

15 Localidades de manufatura 7 Centros de P&D Presente em 10 países ≈3,000 funcionários