Esacote® Rolflex®

The Evolution of Haptics and Optical Solutions for Coatings from Matte to Ultramatte

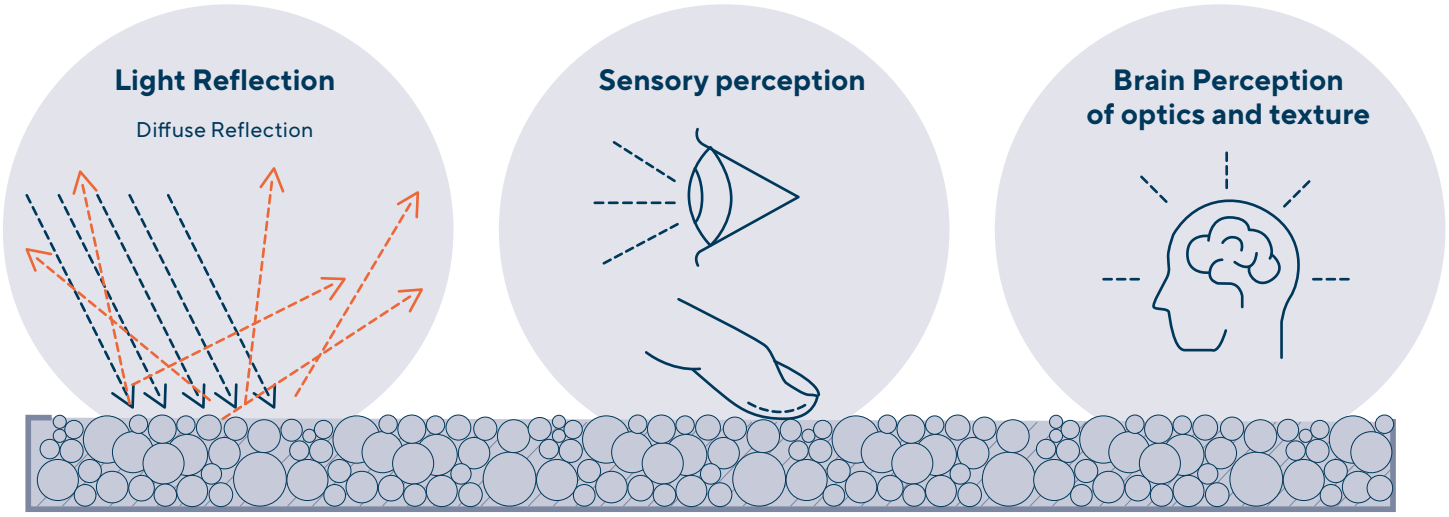
Esacote® and **Rolflex® series** are inherently matte polyurethane dispersions (PUD) obtained through proprietary processes, and accurately designed to bring **the whole palette of haptics and gloss properties**, in a liquid form with a dry content ranging from 28 to 38%.

Esacote® and **Rolflex®** products are usable **alone** or **in combination with polymeric matting agents** like Decosphaera® or Spheromers® or more standard matting agents like silica, titanium dioxide or waxes, in order to adjust haptics and gloss to the desired target.

It is an ever-growing family and one of our **core technologies for matte and ultra matte solutions.**

They can be used **1K or crosslinked** with all the standard crosslinkers.

By adding non-matte Esacote® or Rolflex® products, parameters such as hardness, mechanical and chemical resistance, adhesion and weathering resistance can be enhanced, while maintaining the haptics and gloss properties unchanged.



Matte Surface

The eye perceives a matte surface differently from a flat, glossy one, where most light is reflected through mirroring or specular reflection. This difference occurs **because a matte surface scatters light in all directions**, resulting in diffuse reflection that gives the surface a soft, even appearance. The roughness and morphology of the surface create a visual effect that can range from satin to ultra-matte in the brain's interpretation. Also, a rough and structured surface causes **skin deformation and vibrations in the fingertips during contact and movement** onto the surface. These stimuli are transmitted through the nerve endings to the brain, which interprets and perceives the surface through a wide range of haptic sensations.

Our Markets

LUXURY PAPER & FLEXIBLE PACKAGING
Inherently matte coatings for flexible substrates such paper and plastic films elevate sensory properties of the surface, without compromise of functional features essential to maintain the article's premium high end look. Esacote® and Rolflex® dispersions deliver superior scratch resistance, excellent transparency, clean print, adhesion and surface receptivity to post print decorative methods. Their compatibility with other resins and formulation additives is essential to achieve separation free inherently matte coatings with consistent rheology profile.

WOOD COATING
Matte coatings extend the life of the wood finish while maintaining its integrity, providing protection from moisture, UV damage and wear. They allow the natural texture and grain of the wood to shine through, and help conceal minor flaws and scratches, resulting in a smoother overall appearance. Matte wood finishes are suitable for a wide range of applications in trims, furniture, cabinetry, and flooring.

SYNTHETIC MATERIALS FOR AUTOMOTIVE
Matte coatings are essential for both functional and aesthetic purposes in automotive interiors. Synthetic materials are designed to resist fading, chemicals, and UV exposure, contributing to the longevity of the vehicle seating and other in-dash components. Matte finishes help minimize the light reflection, and often have a softer, more pleasant feel, improving the overall user experience within the vehicle. They further help in masking minor surface imperfections, ensuring more uniform and attractive finishes.

TEXTILE PRINTING & FINISHING
Due to their aesthetic properties and tactile benefits, matte coatings are valuable in textile finishing. They provide a sophisticated look, enhance the visual texture of fabrics and allow for a subtle colour appearance, particularly for the high gloss substrates such as silk. The non-reflective nature of matte coatings is essential in applications like drapery and upholstery for homes and offices. Matte coatings further provide smooth surface for inks to adhere, thus enhance print quality, a critical property for high-quality textile prints.

LEATHER FINISHING
Matte finishes offer a subtle, elegant look that enhances a natural beauty of the leather. In items such hand bags, shoes, and upholstery, the customization of texture and feel allows for creation of unique finishes that meet specific markets demands and design preferences. In automotive leather, where durability and resistance to mechanical and chemical wear is crucial, the non-reflective properties of matte coatings improve the user experience from an optical perspective.

INDUSTRIAL & PLASTIC COATING
Matte finishes are appealing for applications on plastics and composites, for items such as car bumpers, car interior parts, helmets, visors, seals, and 3C products (computers, communication devices, and consumer electronics). Key properties include adhesion that is well-known for being challenging on these materials, UV and heat resistance, scratch and shock resistance, along with a soft-touch and pleasant feel.

METAL & COIL COATING
Matte coatings are versatile and can be applied to various types of metals, including steel, aluminium, copper, across industries such construction, automotive, appliances, and consumer electronics. Although solvent-borne coatings dominate most of these markets, there is a notable demand for waterborne finishes in specific sectors that prioritize the environmental advantages of lower volatile organic compounds levels.

ARCHITECTURAL PAINTS
Matte finishes complement various architectural styles and design preferences. They are co-binders of choice for special effects, and lowering gloss of interior paints without a use of fillers. On exterior renderings, matte coatings can contribute to better thermal performance of buildings and structures by reflecting less heat. Our Esacote® and Rolflex® inherently matte resins grades can be used for interior and exterior architectural finishes applications.

Our Products	Markets								Film characteristics *		Physical-chemical properties				
	luxury paper & flexible packaging	synthetic materials for automotive	wood coating	textile printing & finishing	leather finishing	industrial & plastic coating	metal & coil coating	architectural paints	Main features	MFFT (°C)	Gloss at 60° 50 microns coating on black Leneta card	Dry content (%)	pH	Viscosity (mPa.s)	Rheological profile**	Solvent nature and content (%)
ROLFLEX® OP 80	•	•	•	•	•	•	•	•	Matte with silky and slippery touch – High transparency.	0	< 0.9	32 ± 1	8.5 ± 1	850 ± 250	0	free
ROLFLEX® OP 180			•	•	•	•		•	Matte with slippery and dry touch –Very high sun-test resistance and high UV resistance - Hard film.	5	< 0.1	28 ± 1	8.0 ± 1	1,000 ± 200	0	2.5% DPGDE
ROLFLEX® OP 993		•			•	•			Matte with soft and dry touch – High flex resistance, and high UV resistance	<5	< 0.4	25.5 ± 1.5	8.5 ± 0.5	1,200 ± 400	1	4% TEG 2-EH 0.5% DPGDE
ROLFLEX® OP 997		•		•	•	•		•	Matte with dry touch - High abrasion resistance and high UV resistance.	<5	< 0.4	25 ± 1	9.0 ± 1	1,500 ± 300	0	2% DPGDE
ESACOTE® BIO 9001	•		•	•	•		•	•	Matte with silky and slippery touch – 66% biobased carbon content.	0	< 0.9	32 ± 1	8.5 ± 1	850 ± 250	0	free
ESACOTE® PU 900	•			•	•	•			Matte with silky soft and rubbery touch.	5	< 0.9	32 ± 1	8.0 ± 1	700 ± 200	0	free
ESACOTE® PU 960	•		•	•		•			Matte with rubbery and grippy touch – High dry content.	0	< 0.9	39 ± 1	8.0 ± 1	850 ± 250	0	free
ESACOTE® PU 980 FC	•								Matte with silky and slippery touch - Food contact grade	0	< 0.9	32 ± 1	8.5 ± 1	850 ± 250	0	free
ESACOTE® PU 9510	•			•		•			Matte with soft and velvet touch High scratch resistance and low CoF – TEA free.	<5	< 3.0	34 ± 1	8.5 ± 1	800 ± 300	2	free
ESACOTE® PU 9539	•					•	•		Matte with silky soft and high slippery touch – Low CoF	<5	< 1.2	35.5 ± 1	8.0 ± 0.5	800 ± 400	3	free
ESACOTE® PU 9561	•					•			Matte with rubbery and grippy touch – High scratch resistance and low CoF – TEA free - High transparency.	<5	< 3.0	34 ± 1	8.5 ± 1	800 ± 300	2	free

*not part of product specifications.
**where 0 represents a typical pseudoplastic behavior of the dispersion, and 3 signifies a profile approaching fully newtonian behavior.
Not part of product specifications.

For any inquiry and assistance in selecting the right product for your application, or for any insights in the regulatory domain, please contact our reference persons at **coatings@lamberti.com**, or visit our website at **www.surfacetreatment.lamberti.com**.

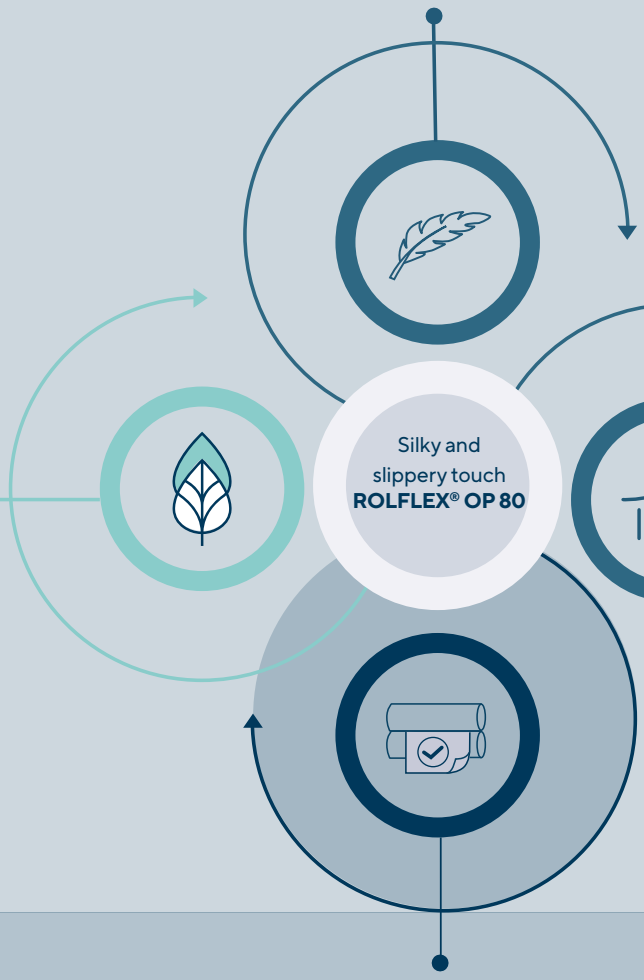
Products map

Product range for
- curtain coating
- blade coating
- spray coating
- rod coating
- size-press
- air knife

Haptics

Rubbery and grippy touch | High solids
> ESACOTE® PU 960

Silky, soft and rubbery touch
> ESACOTE® PU 900



Sustainability

Silky and slippery touch
Food contact grade
> ESACOTE® PU 980 FC

Silky and slippery touch
66% biobased carbon
> ESACOTE® BIO 9001

Performance

Slippery and dry touch
Sun-test and UV resistance
> ROLFLEX® OP 180

Dry touch
Abrasion and UV resistance
> ROLFLEX® OP 997

Soft and dry touch
Flex and UV resistance
> ROLFLEX® OP 993

Product range for
- rotogravure printing
- flexogravure printing

Printability | Flexible Packaging applications

Silky, soft and slippery touch
Low coefficient of friction
> ESACOTE® PU 9539

Soft and velvet touch
Scratch resistance and low CoF | TEA-free | Clean print
> ESACOTE® PU 9510

Rubbery and grippy touch
Scratch resistance, transparency and low CoF | TEA-free | Clean print
> ESACOTE® PU 9561