

PERFORMANCE LINE

INDUSTRY AND CONSTRUCTION | COSMETICS AND HEALTH

Ecological base layer made of natural nonwovens



There's a natural way...



... with EXTRA ORGANIC® – Green Up Your Life!

The EXTRA ORGANIC® Team has set itself the task of developing sustainable alternatives to traditional products. Ecological, beautiful, functional, and 100% biodegradable.

Areas of Application:

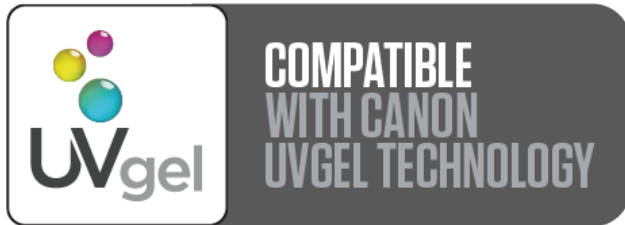
Base layer made of lyocell and/or flax fibers for

- printed wallcovering
- table cloth linen
- interior design
- composites
- coating carrier for imitation leather and technical applications
- technical embroidery
- automotive (visible applications)
- fashion (shoes, bags, etc.)



Base Layer for Printed Wallpaper

- Flax and/or lyocell nonwovens can be used as an ecological base layer & can be imprinted. **Rotary and digital printing** are two examples of possible printing technologies for wallpaper or wall coverings.
- Our base material can be easily printed with the aqueous pigment inks of HP Latex, Canon, Mimaki, Durst, Aleph, Epson, and with UV LED inks.
- Mimaki's **Pigment Transfer Printing** (TRAPIS) is a waterless textile printing process that produces brilliant colors on natural fiber materials.



Naturalness on the table in form of

- **tablecloths and napkins,**
- **place mats or**
- **table runners with flax nonwovens.**

Thanks to the soft touch and the aesthetic design, linens made of natural fibers are an eye catcher.

Another advantage and unique feature is the biodegradability of the material after use.



In terms of interior design, we offer our customers a diverse spectrum of possibilities:

Besides different types of wallpaper – plain-colored, embroidered or printed – our sustainable nonwovens can be applied as carrier material in different areas:

- wall covering
- ceiling panels
- room dividers
- acoustic panels
- banner ads



Our Spunlace technology enables us to produce tear-resistant, durable, and strong nonwovens made from 100% natural fibers. These textiles can be used in many different applications, as reinforcing materials, or as optical surface layer, for example in the areas of:

- Interior design
- Sports
- Automotive/marine
- Caravaning
- Lightweight construction



Which raw materials do we use for our base layer?

We use a variety of renewable and/or sustainable raw materials.

natural fibers	sustainable fibers
flax	viscose
hemp	lyocell
cotton	polylactide (PLA)
wool	recyclable PET

Norafin ECOLINE® is our product line focused on sustainable fibers.

The additional bio-degradability of our nonwovens is indicated with the label **EXTRA ORGANIC**®.



Please ask for our STANDARD 100 by OEKO-TEX® and our FSC™-certified products!



NATURAL FIBERS AT WORK






Alliance for European
Flax-Linen & Hemp

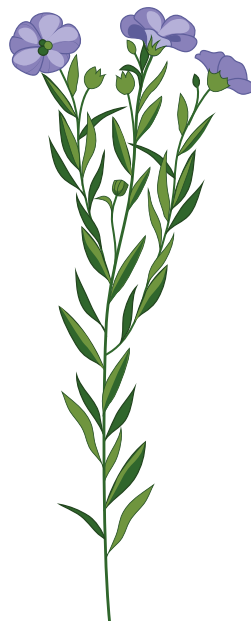


The mark of
responsible forestry
FSC™ C140662



Strong. Sustainable. Silent.

<p>3/4 of the world's long* fibre are produced in France, Belgium and the Netherlands*</p> <p><small>*Long fibres: the main product of scutching, used in the textile industry</small></p>	<p>150,000 hectares in Europe of Flax in 2023 [incl. 87% in France: 131,000 hectares]</p>
<p>Europe, the #1 global producer of Flax fibre</p> 	<p>Today, Flax fibres* account for < 0,5% of global textile fibre production</p> <p><small>*Long fibres + short fibres</small></p>
<p>+133% increase in Flax area from 2010 - 2020</p>	<p>1 hectare of European Flax =</p> <ul style="list-style-type: none"> 900 kg of yarns or 3,750 m² of fabrics or 4,000 shirts or 450 sets of bed linens or 1,375 chairs made of composite Flax 
<p>140,000 tonnes of long fibres in 2023 [incl. 122,000 tonnes in France]</p> 	



CO₂: - 0,9 to of CO_{2-eq}/ha (900 kg fiber/ha) stored
 + 0,5-0,9 to of CO_{2-eq} /to fiber (seed to Norafin)
 = Carbon neutral fiber at our gate

Properties: high tensile strength, vibration damping, noise absorption, antibacterial, liquid absorbent, biodegradable

Norafin: first products in 2006, 45 items in 2025

Application: wallcover, digital printing media, composite, base layer

Source: <https://allianceflaxlinenhemp.eu/en/european-flax-linen-hemp-media-library/25/european-flax-linen-at-premiere-vision-linen-itinerary>

Our product range of ecological base layers

Many manufacturers have been successfully using the nonwovens below for many years – from ultra light, over a strong product to the high-performance article.



Product Code	Description
00803.99	SL 100 FLX FL/1L C
01123.99	SL 80 FLX CA/1L C
01784.99	SL 130 65FLX/35VIS FL/1L C FR finishing
00518.99	SL 130 65FLX/35VIS FL/1L C
00801.99	SL 80 65FLX/35VIS FL/1L C
03314.99	SL 220 65FLX/35VIS FL/1L C strong self-adhesive
03144.99	SL 65 FLX FL



Our ecological base layer items – data sheet

	Norafin	Norafin	Norafin	Norafin	Norafin FR	Norafin FR	Norafin
item number	00518.99	00803.99	00801.99	01123.99	03314.99	01784.99	03144.99
technology	spunlace	spunlace	spunlace	spunlace	spunlace	spunlace	spunlace
composition	65% flax / 35% viscose	100% flax	65% flax/ 35% viscose	100% flax	65% flax / 35% viscose	65% flax / 35% viscose	100% flax
weight*	130 g/m ²	100 g/m ²	80 g/m ²	80 g/m ²	220 g/m ²	130 g/m ²	65 g/m ²
thickness*	0.62 mm	0.64 mm	0.54 mm	0.76 mm	0.7 mm	0.62 mm	0.54 mm
structure	flat	flat	flat	structured	flat	flat	glatt
finishing/ aftertreatment	-	-	-	-	strong self- adhesive	flame-retardant	-

* The values have been evaluated on the basis of the test methods according to DIN EN 29073-1/-2/-3/-6.
The values are based on a sample size of 100 cm².

Lyocell

Lyocell fibers are regenerated cellulose fibers, that are extracted from wood pulp.

Technical nonwovens made of lyocell fibers are characterized by the following **properties**:

- moisture regulating
- tear-resistant
- soft
- sustainable & biodegradable

Applications:

- room concepts with wall coverings, room dividers, acoustic panels
- hygiene & cosmetics
- cleaning wipes



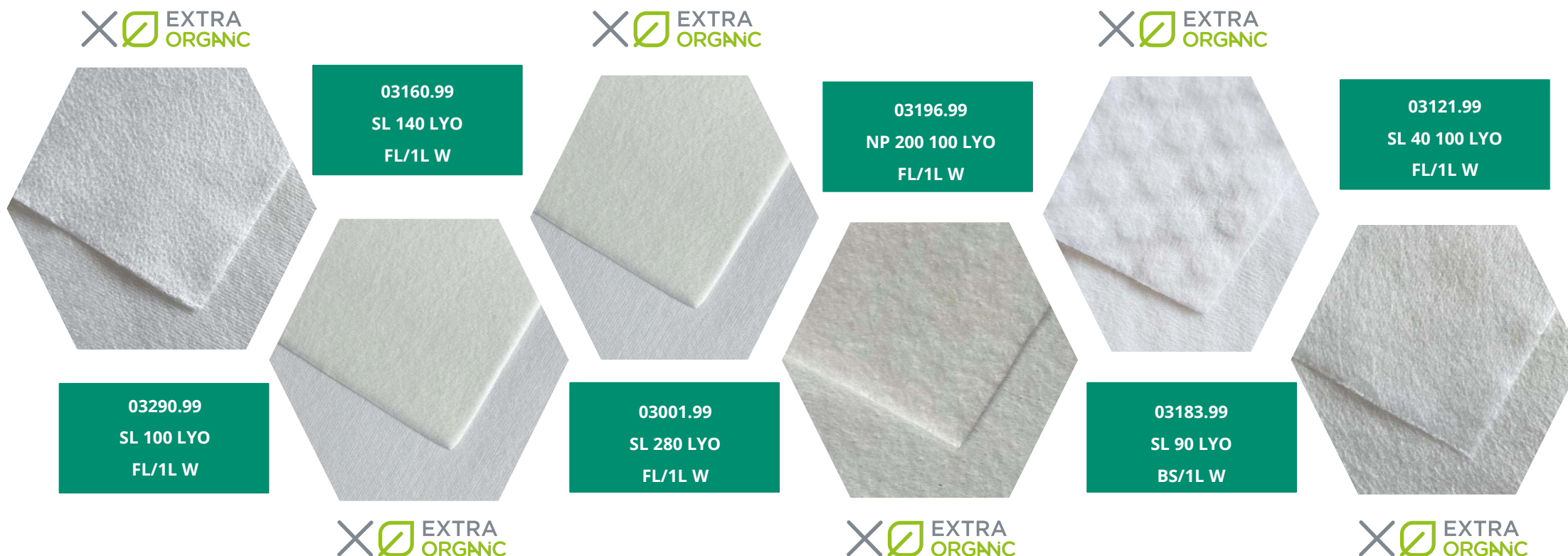
©Lenzing AG



©Lenzing AG

Our product range of ecological base layers - Lyocell

Many manufacturers have been successfully using the nonwovens below for many years – from ultra light, over a strong product to the high-performance article.



Our ecological base layer items – data sheet

	Norafin	Norafin	Norafin	Norafin	Norafin	Norafin
item number	03290.99	03160.99	03001.99	03196.99	03183.99	03121.99
technology	spunlace	spunlace	spunlace	needlepunch	spunlace	spunlace
composition	100% lyocell	100% lyocell	100% lyocell	100% lyocell	100% lyocell	100% lyocell
weight*	100 g/m ²	140 g/m ²	280 g/m ²	200 g/m ²	90 g/m ²	40 g/m ²
thickness*	0.74 mm	0.85 mm	1.34 mm	1.6 mm	1.1 mm	0.37 mm
structure	flat	flat	flat	flat	bubble structured	flat
finishing/ aftertreatment	-	-	-	-	-	-

* The values have been evaluated on the basis of the test methods according to DIN EN 29073-1/-2/-3/-6. The values are based on a sample size of 100 cm².

And what about hemp?

Technical nonwovens made of hemp fibers are characterized by the following **properties:**

- abrasion resistant
- tear-resistant
- abrasive
- sustainable throughout the entire life cycle

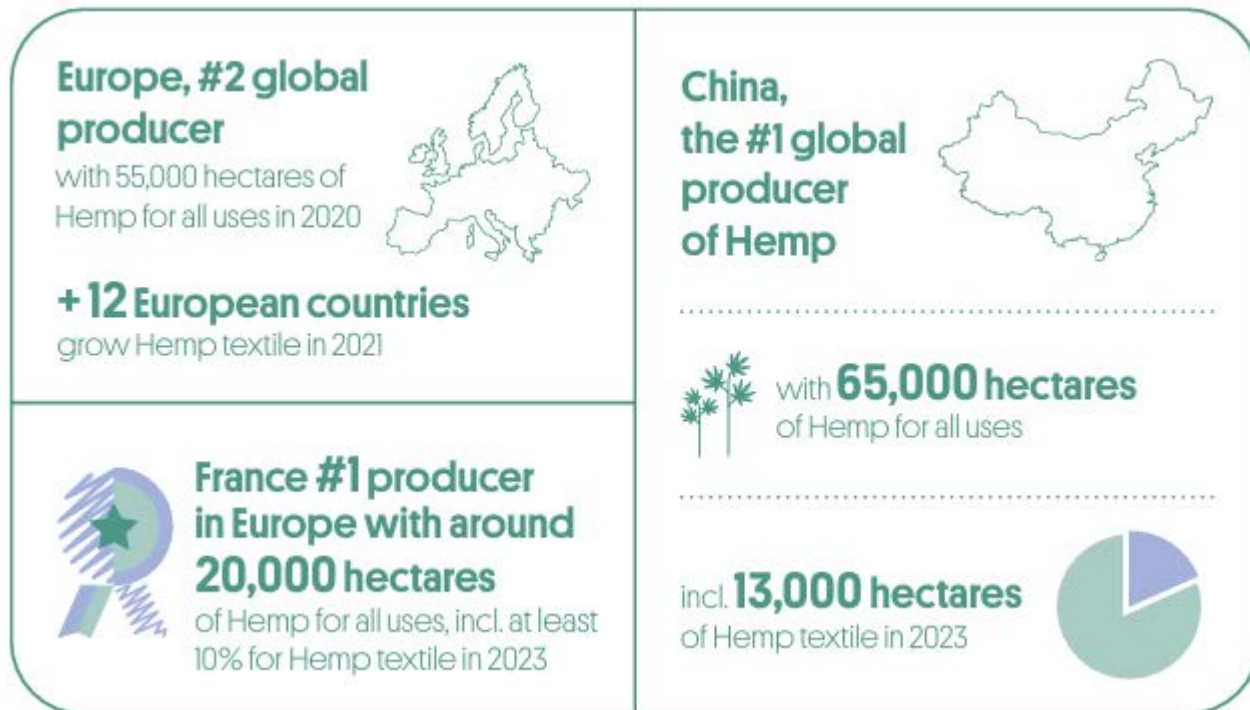
Applications:

- room concepts with wall panelling, room dividers, acoustic panels
- composites
- hygiene & cosmetics
- construction nonwovens

Norafin uses cottonized fibers of 3-8 cm length with a shive content of less than 1% in production.



Abrasive meets gentle



CO₂: - 0,9 to of CO₂-eq/ha stored
+ 0,5-0,8 to of CO₂-eq /to fiber (seed to Norafin)
= Carbon neutral fiber at our gate

Norafin: first products in 2017, 30 items in 2025

Source: <https://allianceflaxlinenhemp.eu/en/european-flax-linen-hemp-media-library/25/european-flax-linen-at-premiere-vision-linen-itinerary>

Our product range of ecological base layers - hemp

Many manufacturers have been successfully using the nonwovens below for many years – from ultra light, over a strong product to the high-performance article.



Our ecological base layer items – data sheet

	Norafin	Norafin	Norafin	Norafin	Norafin
item number	03029.99	03030.99	03189.99	03163.99	03098.99
technology	spunlace	spunlace	spunlace	spunlace	spunlace
composition	60% hemp / 40% viscose	100% hemp	80% hemp / 20% lyocell	60% hemp / 40% lyocell	80% hemp / 20% viscose
weight*	45 g/m ²	60 g/m ²	70 g/m ²	60 g/m ²	85 g/m ²
thickness*	0.42 mm	0.5 mm	0.68 mm	0.8 mm	0.9 mm
structure	flat	flat	flat	3D Performance	3D Performance
finishing/ aftertreatment	-	-	-	-	-

* The values have been evaluated on the basis of the test methods according to DIN EN 29073-1/-2/-3/-6. The values are based on a sample size of 100 cm².

Sheep Wool

Nonwovens made of sheep wool are characterized by the following properties:

- thermal properties
- moisture wicking (inside)
- moisture repellent (surface)
- formaldehyde removal (air filtration)
- heavy metal filtration (water)
- flame-resistant
- anti-static
- biodegradable


Applications:

- hygiene (e.g. sanitary towels, diapers)
- apparel (e.g. shoes, temperature regulation)
- filtration (e.g. liquids, exhaust fumes, dust)
- cleaning (e.g. sponges, wipes)



Clean Air. Warm Body. Safe Home.



CO₂: - 1,8 to of CO₂-eq/to stored
+ 0,75 to of CO₂-eq /to fiber (EU  to Norafin)
Norafin: first products in 2018, 7 items in 2025



Our ecological base layer items – data sheet

In addition to long-standing experience in the development and production of nonwovens made from flax, lyocell and hemp fibers, our portfolio now includes products made from sheep wool.

	Norafin
item number	03410.99
technology	spunlace
composition	80% lyocell/ 20% wool
weight*	50 g/m ²
thickness*	0.5 mm
structure	Flat
finishing/ aftertreatment	-



03410.99
SL 50 80LYO/20Wool
FL/1L W

* The values have been evaluated on the basis of the test methods according to DIN EN 29073-1/-2/-3/-6.
The values are based on a sample size of 100 cm².

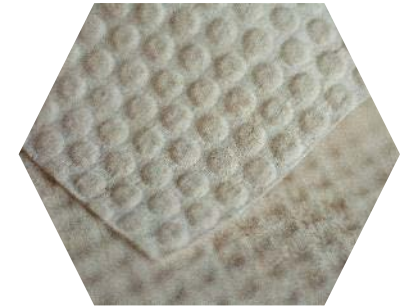
Norafin solutions

Besides the solution-oriented production of nonwovens, Norafin also offers the customized allocation according to your needs.

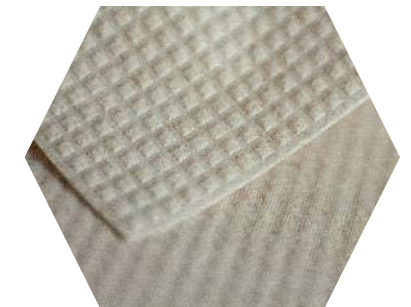
- Individual roll packaging from 50 running meters to roll widths up to a dimension of 1.2 meters.
- Customized widths from 100 mm up to 2,000 mm.
- Different aftertreatment options are possible, e.g. flame-retardant or water-repellent.
- Minimum order quantity under 20,000 m² possible.



coarse apertured



Norafin 3D PERFORMANCE®



Norafin 3D PERFORMANCE®

Why are Norafin nonwoven special?

Spunlace nonwovens, especially by using natural fibers, are perfectly suited as base layers.

- Stability in all directions due to the isotropic fiber orientation that comes from our special Norafin process technology.
- No chemicals or binders over the entire process chain – from the field to the nonwoven.
- Different weights (50 - 130 g/m², more variations possible) allow us to find the optimized product, depending on application and requirement.
- Insulating, sound absorbing, and humidity regulating properties support a natural and healthy indoor climate.
- Fibers of European origin.
- Solely natural components and therefore, completely biodegradable.



How to reach us

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As solution-oriented provider of spunlaced and needlepunched nonwovens, we engage in needs for protection, clean air, and sustainability.

facts | 2024

~51 Mio. Euro turnover

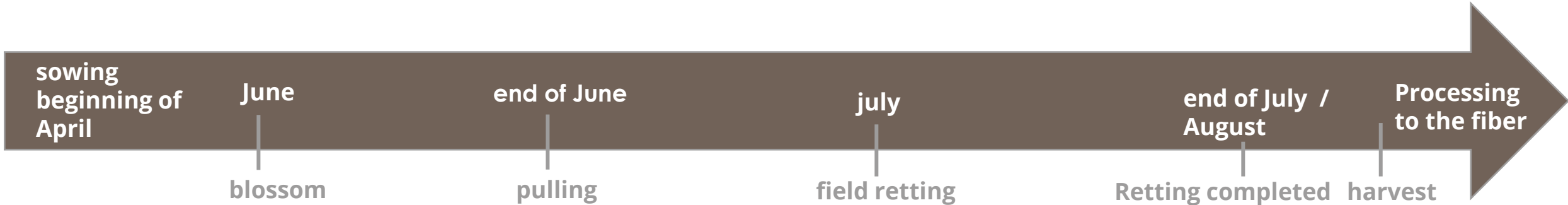
240 employees

2 company sites

Mildenau,
Germany

Mills River, USA





- flax = short-lived plant, however, blossom can last for several days
- Classified as plant of the maritime climate
- no additional water necessary
- best growing areas: coastal areas of Northern France, Belgium



- plants are pulled from the ground, roots and all
- flax is laid out flat on the fields



- the transition between sun, dew and rain along with the help of bacteria and fungi from the soil dissolve stem material surrounding the fibers
- the nutrients that are released from the plants during dew retting are actually reabsorbed by the soil



- turners ensure a uniform ripening process
- once retting is complete, the harvest can be brought in

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