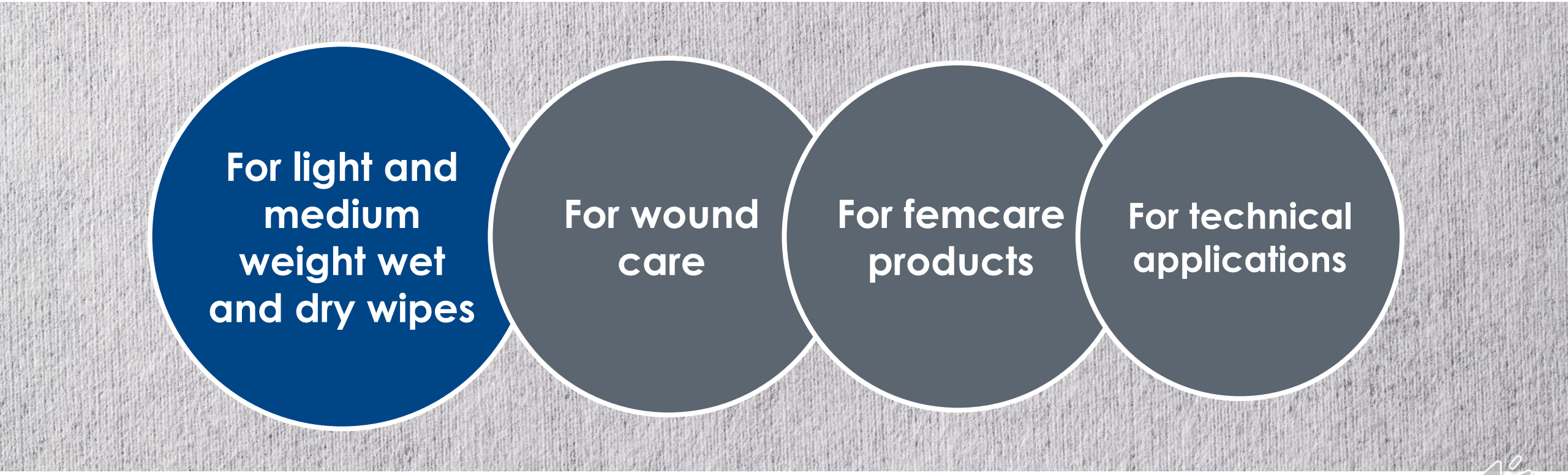
# Opportunities in spunlacing

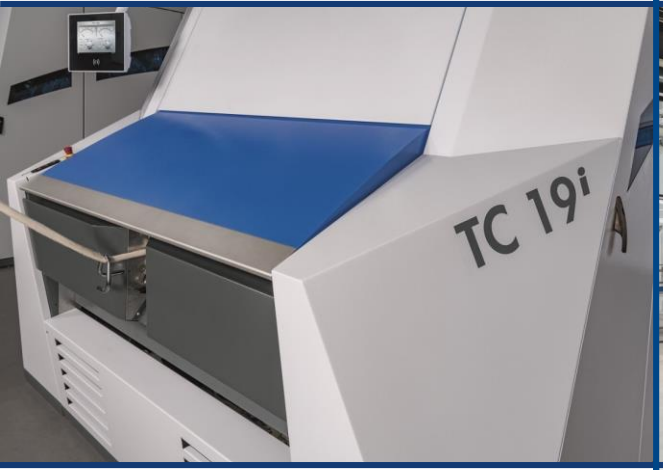



## The Wipes Sector

# The Truetzschler Group

TRÜTZSCHLER NONWOVENS

TRÜTZSCHLER SPINNING




## SPINNING

Machines for spinning preparation

TRÜTZSCHLER NONWOVENS

## NONWOVENS

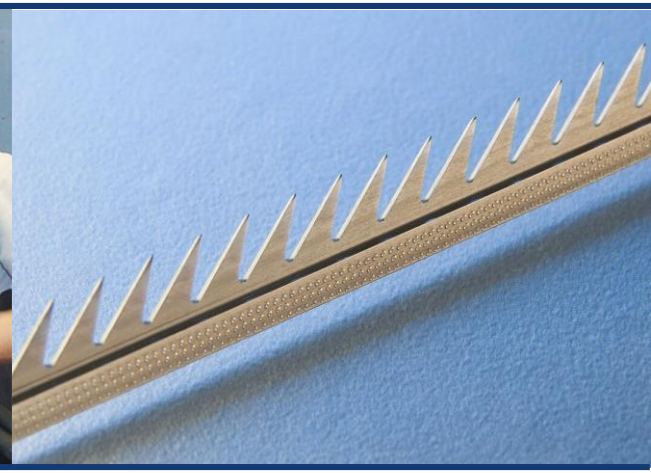
Lines and machinery for the production of cardedand wet-laid* nonwovens

TRÜTZSCHLER MAN-MADE FIBERS

## MAN-MADE FIBERS

Machinery systems for the production of carpet filament yarns and industrial yarns

TRÜTZSCHLER CARD CLOTHING



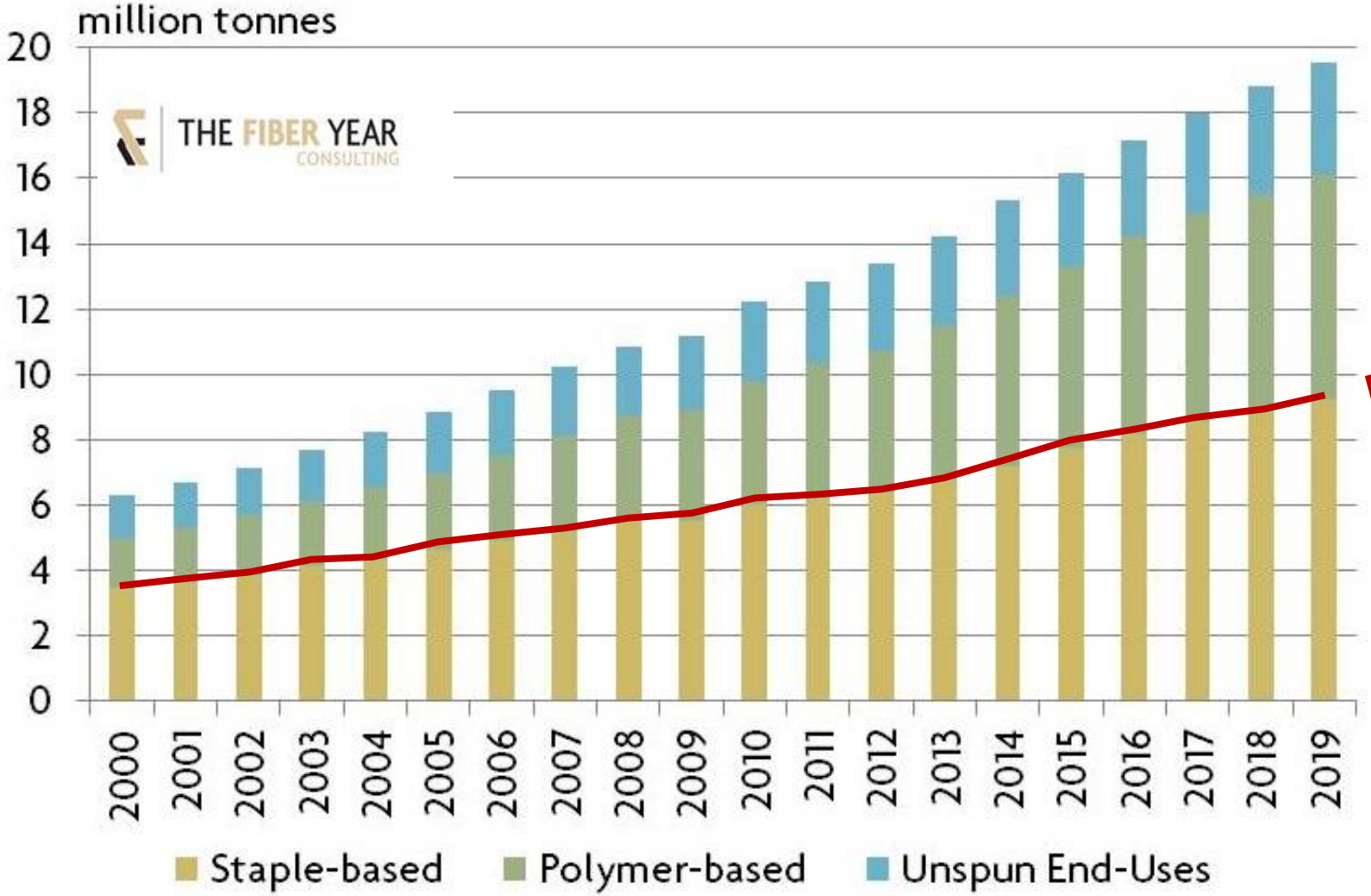
## CARD CLOTHING

High performance clothings for cards and roller cards

* In cooperation with Voith

# Why invest in nonwovens?

## Projected unbroken growth




**Growth until 2023:**

**all nonwovens:** **4.8% p.a.** (est.)

**+ 750 tpa** (est.)

**Growth 2000-19:**

**all nonwovens:** ~ 8% p.a.

+ 350 tpa

Source: The Fiber Year 2020, INDA/EDANA and own estimate

# Why invest in nonwovens? II

## Sought-after disposables and durable end products

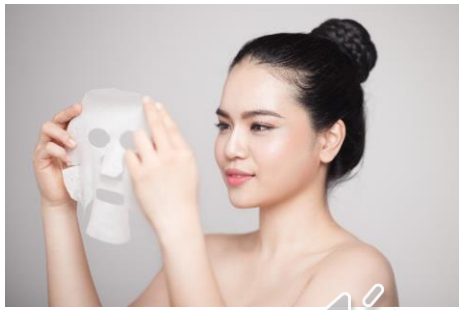
- Baby, personal care, disinfection, household wipes
- Beauty masks
- Coating substrates
- Cosmetic pads
- Femcare products
- Filter media
- Hygiene - diapers
- Medical products
- Technical applications











# Hydroentangled nonwovens

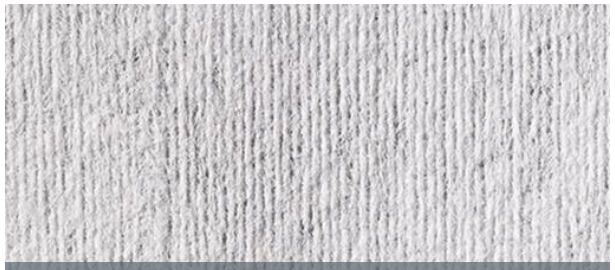
## Samples from more than 120 spunlacing lines delivered worldwide

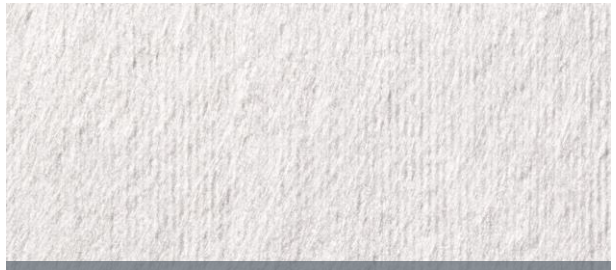

PET/CV 60/40; 50gsm; wipe

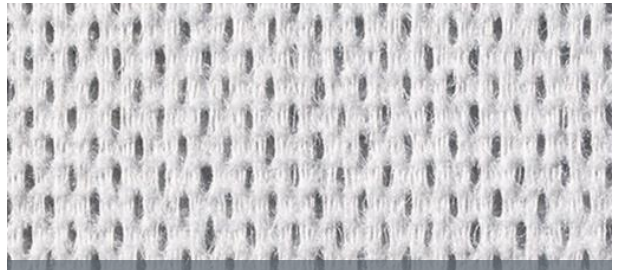

Micro fiber; 100 gsm; industrial wipe

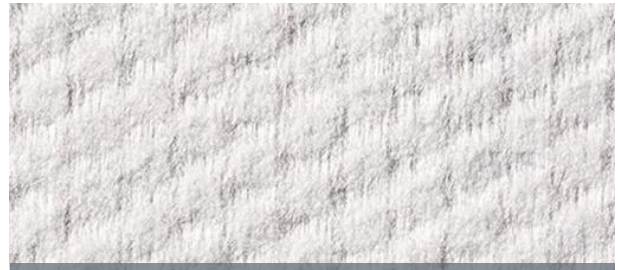

Unbleached cotton; 50gsm; femcare topsheet


Virgin cotton; 50 gsm; wipe


Bleached cotton comber noils; 38 gsm; wipe


PET/CV; 160gsm; coating substrate


Lyocell; 38 gsm; wipe


Viscose; 40 gsm; medical textile


Pulp/CLY 60/40; 45 gsm; wipe

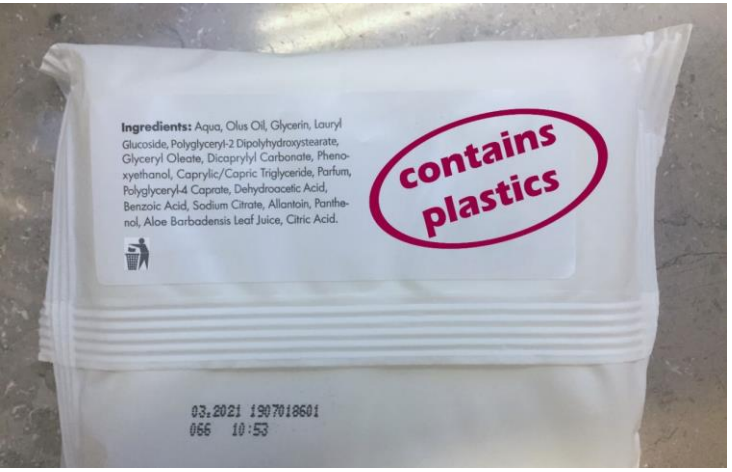

Cotton; 200 gsm; 3-layer cosmetic pad


Pulp/CLY 80/20; 60gsm; flushable WLS wipe


Flax/CLY 60/40; 85gsm; industrial wipe

# Why sustainability is an issue today

**Micro plastics and micro fibers from PET and PP which stay in the environment for decades.**




**Coming regulations in major consumer markets.**

For instance: EC's "Single-Use Plastics Directive":

- Labels on packages about appropriate disposal and waste management
- Labels to indicate the presence of plastics in the product
- Labels about negative environmental impacts of littering or inappropriate disposal of the products

# A promising product: sustainable (wet) wipes

## Requirements




- **Fully-functional (strong, soft, absorbent, …)**
- **Free of chemicals (e.g. binders)**
- **Biodegradable**
- **From renewable resources**
  - Cotton and natural fibers
  - Viscose and lyocell fibers
  - Paper-grade pulp

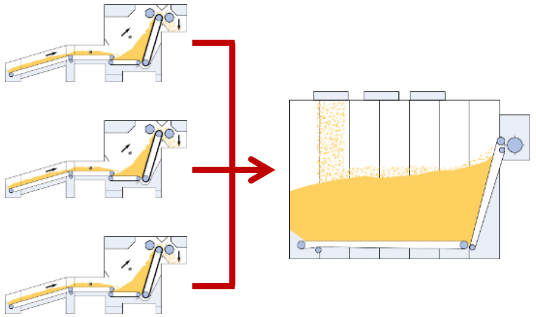



# Cotton wipes and cosmetic pads

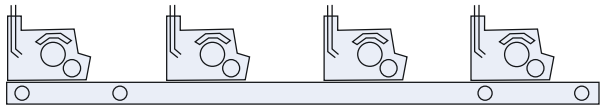
## A small capacity solution

TRÜTZSCHLER NONWOVENS

### FIBER PREPARATION



### CARDING AND WEB FORMING

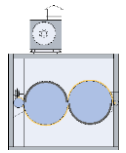


Flat top cards

### HYDRO-ENTANG-LING

AquaJet

### DRYING



Multi-drum dryer

### WIN-DING

Winder

A small-capacity spunlacing line with

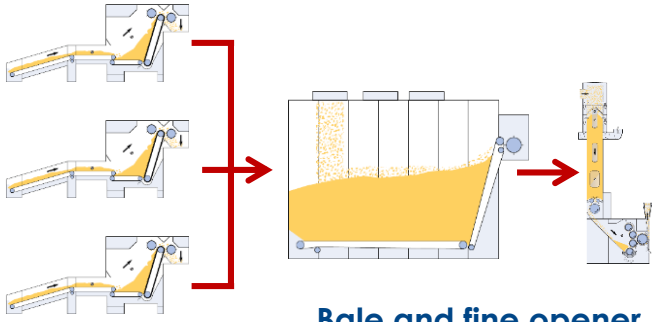
- with Truetzschler flat top cards and collecting belt and
- MiniJet for spunlacing.

# Cotton wipes high-speed line

## With NCR random cards

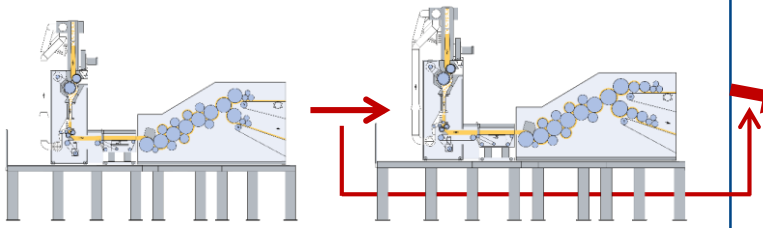
TRÜTZSCHLER NONWOVENS

### FIBER PREPARATION



Bale and fine opener, blending bin

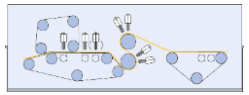
### CARDING AND WEB FORMING



NCR random card

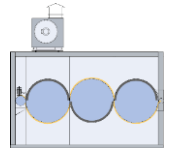
NCR random card

### HYDRO-ENTANG-LING



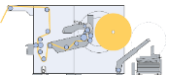
AquaJet

### DRYING



Multi-drum dryer

### WIN-DING



Winder

A large-capacity spunlacing line with

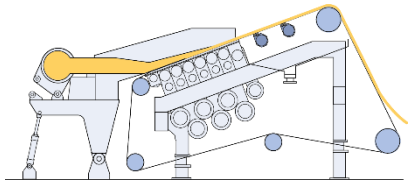
- with random cards and
- AquaJet for spunlacing.

Including a NCA airlay card between the 2 random cards gives a flexible production line for both cosmetic pads and wipes.

# Wet-laid/spunlaced (WLS) wipes with pulp

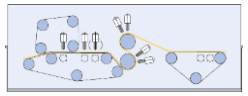
## A cooperation with Voith

**STOCK FORMATION AND WEB FORMING**



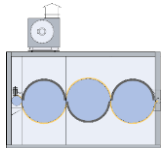
HydroFormer by Voith

**HYDRO-ENTANG-LING**



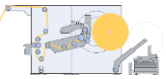
AquaJet

**DRYING**



Multi-drum dryer

**WIN-DING**



e.g. Turret disc winder

A wet-laying/spunlacing line with

- HydroFormer, an inclined wire former by Voith and
- AquaJet for spunlacing.

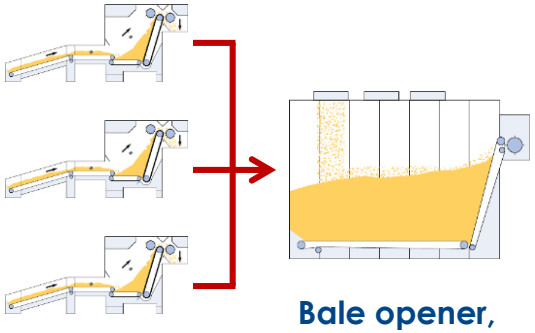
A cost-effective blend of NBSK pulp and lyocell/viscose fibers is reliably processed into (flushable) wipes.

# Indispensable: non-biodegradable disinfection wipes

## from PET/PP and viscose fibers

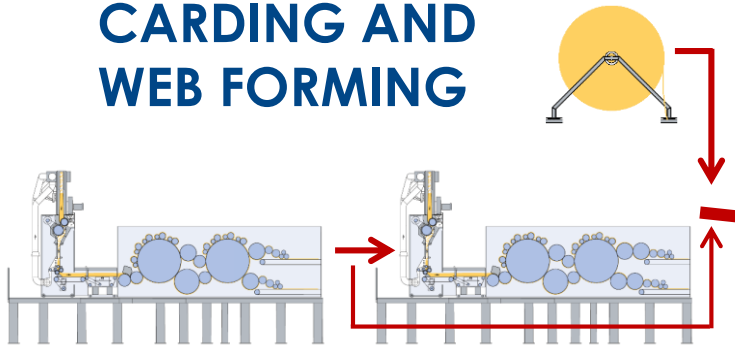
TRÜTZSCHLER NONWOVENS

### FIBER PREPARATION



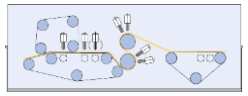
Bale opener, blending bin

### CARDING AND WEB FORMING



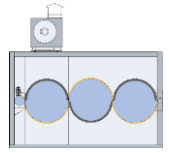
2 NCT high-speed cards + unwinder

### HYDRO-ENTANG-LING



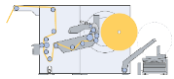
AquaJet

### DRYING



Multi-drum dryer

### WIN-DING



Winder

## A high-capacity spunlacing line with

- with 2 inline cards and
- an unwinder for a spunbond layer to increase strength.

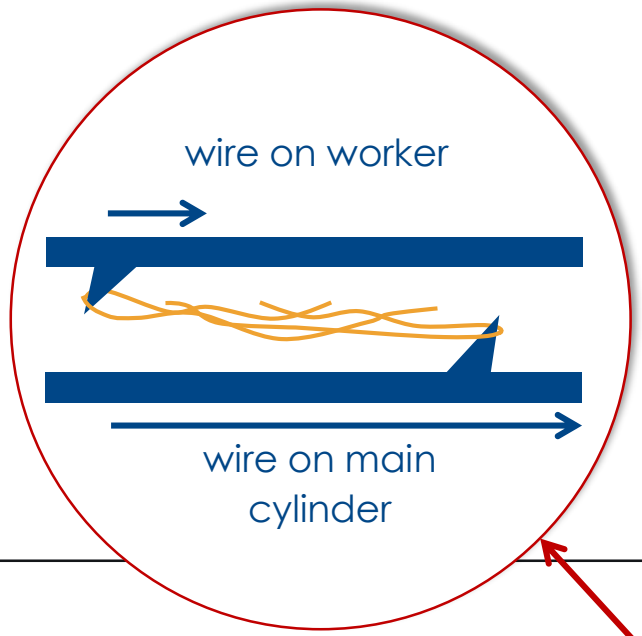
This configuration - without unwinder - is also suited for producing biodegradable wipes from 100% viscose or lyocell fibers.

# A closer look: carding

TRÜTZSCHLER NONWOVENS

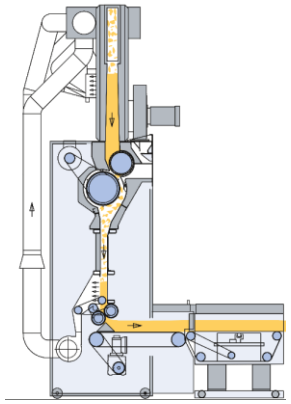
## Carding and web forming:

**Wire tips (card clothing) grab single fibers and pull them out of the fiber tuft. The single fibers form a loose fiber mat.**

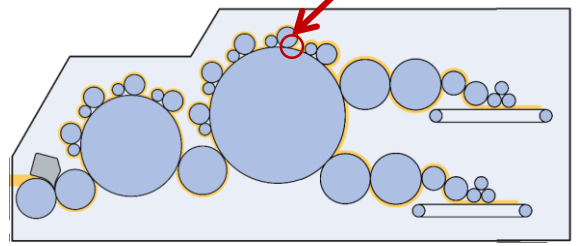



**natural and man-made fibers with a length of >15 mm**

**bale opening & blending**



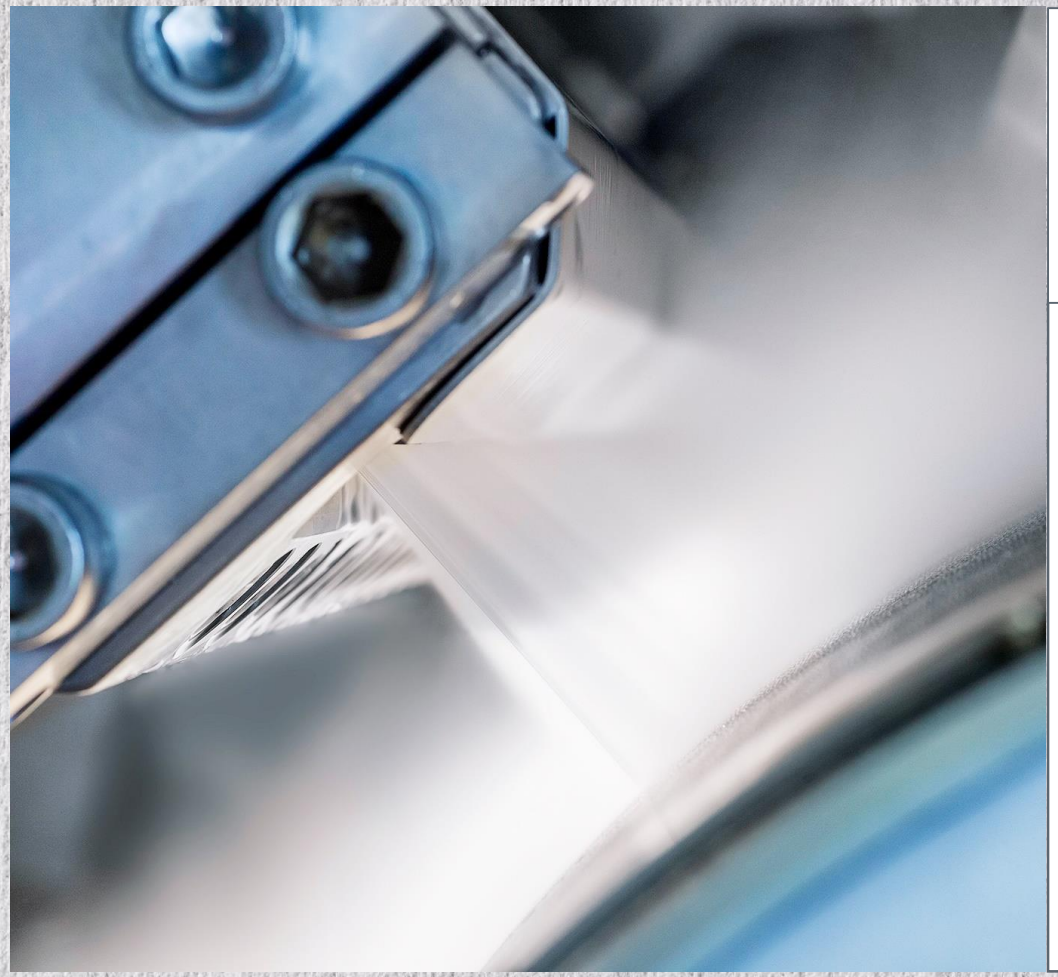
**Card feeding**



**Carding, blending and web forming**

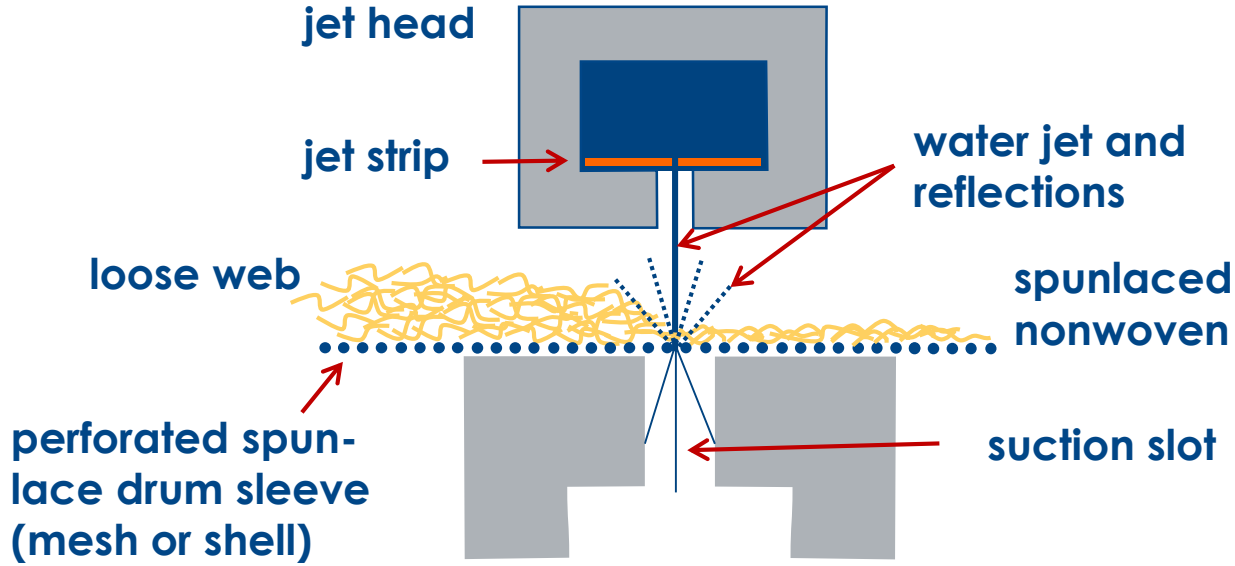
# A closer look: hydroentangling (spunlacing)

## Web bonding



### Working principle:

**High-pressure water jets and their reflections entrain single fibers and entangle them.**




Spunlaced, plain nonwoven from 100% virgin cotton

# Thank you.

**Please visit us:**
www.truetzschler.com