



**CORMATEX**

*Textile Machinery and Lines*

# Nonwoven technology

New technologies for fiber and shives joint use

September 2022 – CANAPAFORUM – Napoli

## Who's **CORMATEX**?



- Is a **Textile machinery manufacturer** focused on:
  - Woollen Spinning
  - Nonwovens.
- Is a Family business at **3rd Generation**, founded in 1938.
- Is based in **Montemurlo**, near by Florence – **Italy**.
- Operates on the international markets, having installations **all over the world**.



## Who's **CORMATEX**?

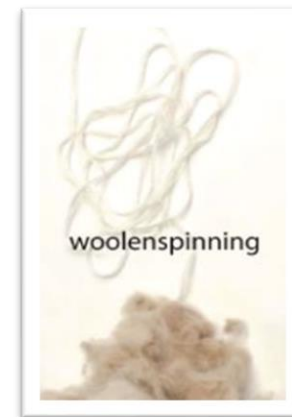


**CORMATEX**  
Textile Machinery and Lines

- Is continuously **innovating** its **technology**, becoming a leading company in the following 2 sectors:

- **Woollen Spinning M/C and Lines:**

Wool Deburring  
Dehairing  
Carding and spinning  
of woollen yarn

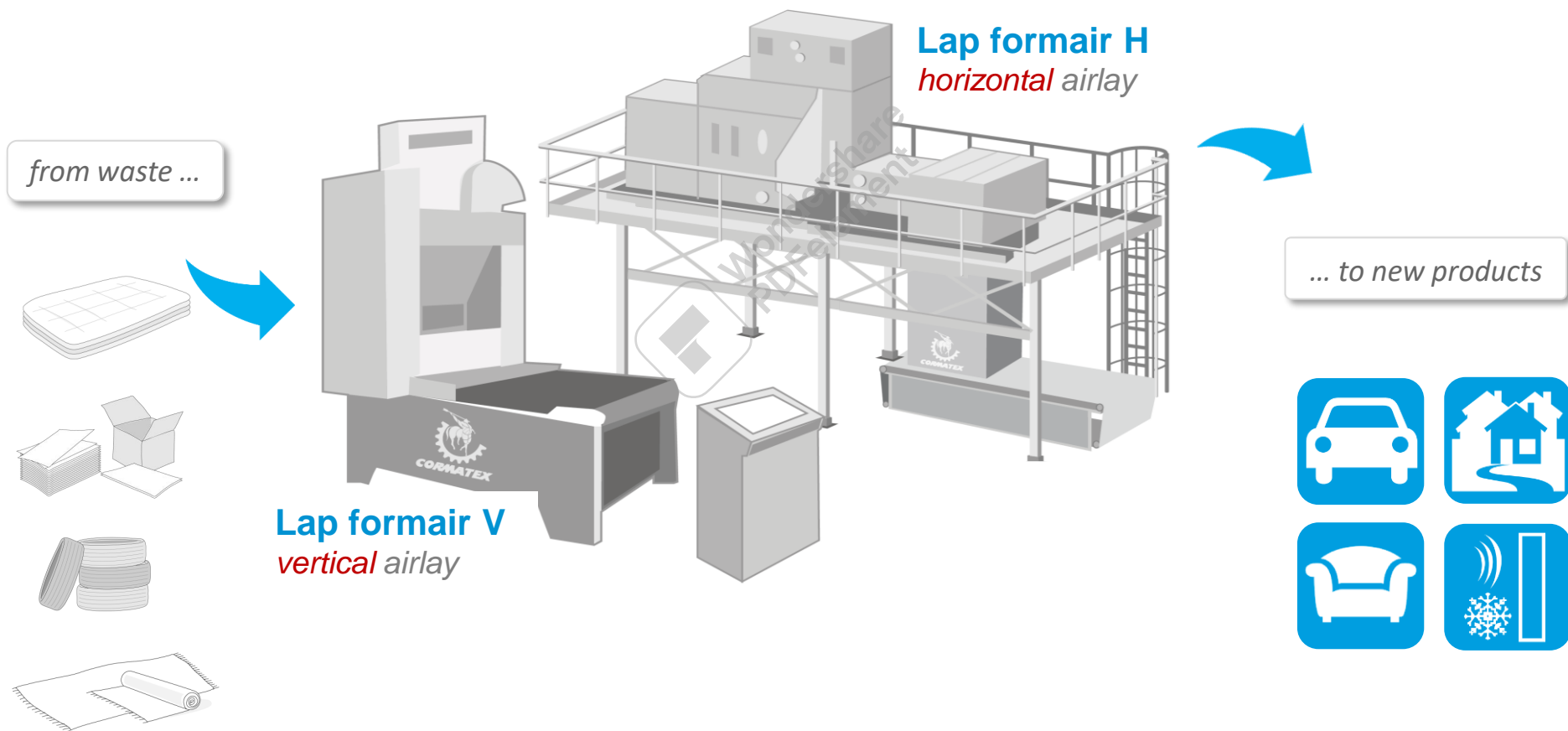


- **Nonwoven M/C and complete Lines:**

Carding + Cross lapping technology  
Airlay lap forming technologies  
Needle punched, Thermobond  
**Recycling solutions**



## Lap formair technology

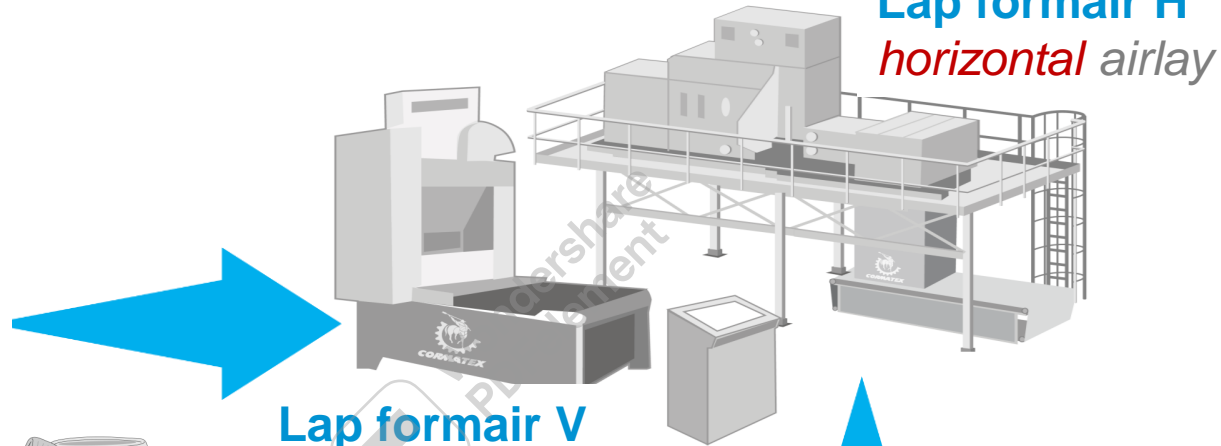


# AIRLAY TECHNOLOGY: from virgin fibres and/or waste materials to several possible applications...

virgin fibres



recycled textile,  
tyre cord,  
mattresses, carpets



**Lap formair V**  
*vertical* airlay



Building,  
automotive,  
furniture,  
insulation.



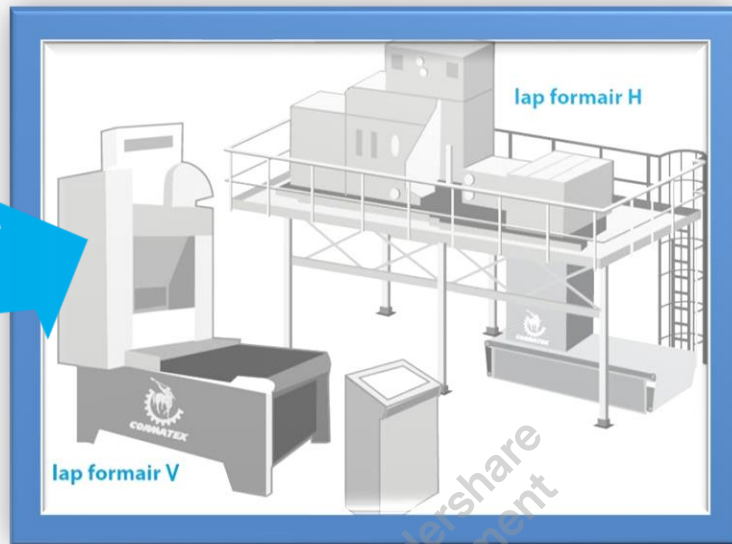


# Textile Recycling - SHODDY

Rag tearing machines to  
open textile fibres



Shoddy waste



## Textile Products Manufacturers and/or Textile Waste Recyclers

Cormatex Airway system can recycle various textile wastes both post industrial (such as spinning and weaving wastes) and post consumer (used garment) to produce thermal and acoustic insulating materials for building, furniture and automotive, as well as hard board for several industries.

### SHODDY MATERIALS

Cormatex Lap Formair H - Horizontal  
Airway: <https://youtu.be/YVZWJ1zI2kl>

Shoddy



Lap Formair H

Shoddy



Lap Formair V

SHODDY MATERIALS  
Cormatex Lap Formair V - Vertical Airway:  
<https://youtu.be/2zLjkn5yoXQ>



## Final applications:



Carpet underlay



Furniture wadding



Automotive Wadding



Thermal & acoustic  
insulation

Roll, wadding,  
hardboard



## Upholstery & Shoes recycling

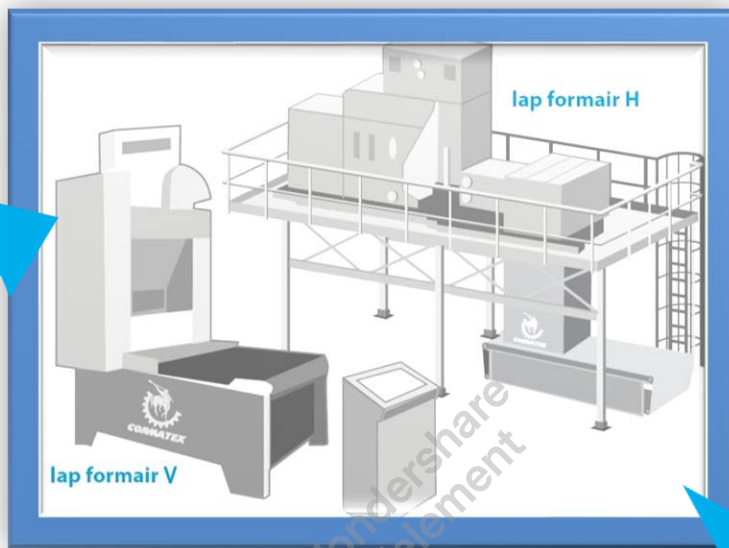
Grinding to small size containing: foam, latex & textiles.



Upholstery waste



Shoes waste



### Apparel/Shoes & post industrial disposal Centres, Carpet/Furniture/Automotive part manufacturers

Cormatex Airway system can process various waste fibres and blend of fibres, obtained by various process from end of life shoes, Upholstery and accessories... Blended with fibres/powder binders (phenolic resin is also possible), those are ideal to produce heat and noise insulation panels and rolls, as well as cushion for layer under carpets or synthetic turf.

### Final applications:



Carpet underlay



Furniture wadding



Automotive Wadding



Thermal & acoustic insulation



# End of Life Boats Airplanes

End of Life Boat,  
Airplanes, others...



Separation of Basalt  
from resins



Virgin Fibres

Staple  
Fibres of  
Fibreglass,  
Basalt and  
Carbon

SPECIAL AIRLAY TECHNOLOGY  
LAP FORMAIR H



## Transportation Waste Disposal Centres & Parts Manufacturers

Cormatex Airlay system can process various waste fibres and blend of fibres, obtained by various process from end of life Boats, Airplanes... Eventually blended with fibres/powder binders (such as phenolic resin or bicomponent fibre), those are ideal to produce high performance moulded parts (also flame resistant) for the transportation industry at a competitive price.

Recycled carbon fibre felt and  
composite panel



**Final applications:**  
Structural components  
Aesthetic components



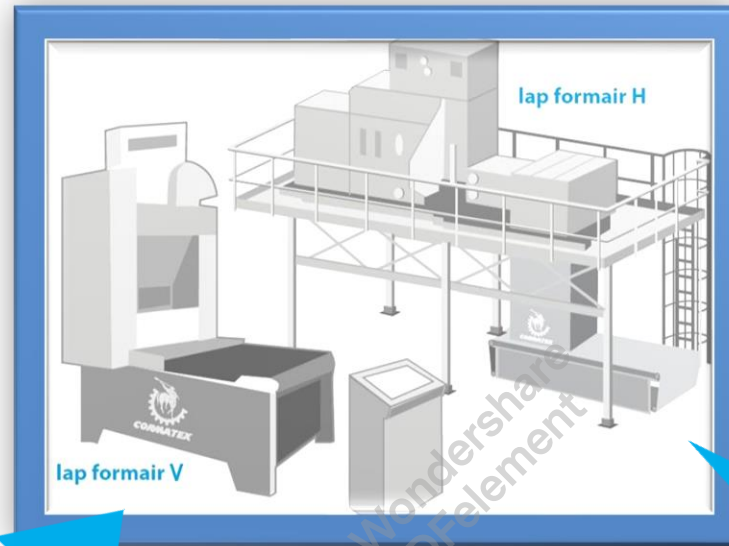


# Wood waste recycling

## Wood working



## Wood waste in chips



## Wood Products Manufacturers

Cormatex Airway system can easily process very short fibers such as wastes from wood processing and convert them into both soft insulation products as well as hardboard materials. Our Airway process is a dry laid, low impact and cost effective process.

## Final applications:



Thermal and acoustic insulation



Hard boards



## Insulation panels

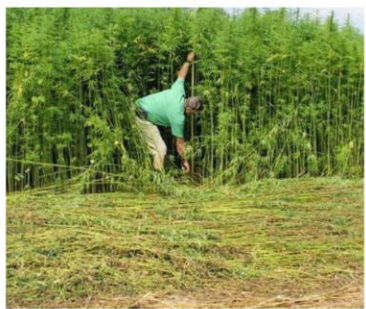


## Hard Board

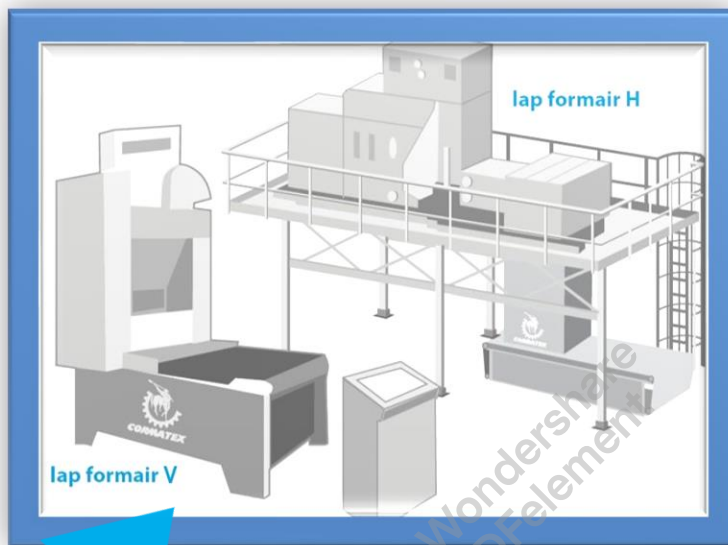


# Vegetable fiber

Hemp and Flax fiber



Vegetable fibres



Panels and rolls



## Vegetable Fibres and Derivative Products Manufacturers

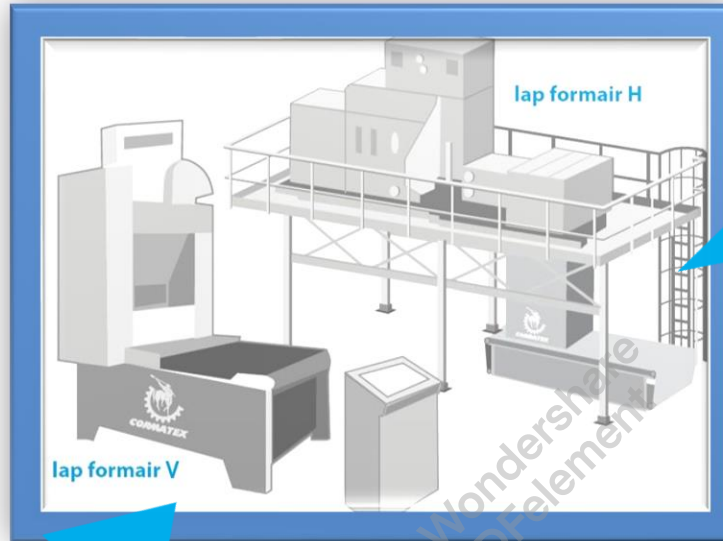
Cormatex Airlay system can process various vegetables fibres (flax, kenaf, jute, hemp, wood and so on) without limitations in terms of length and fineness. This allows to use coarse fibres and wastes from the fibre production process so that to create innovative bio-based products at a competitive price.

# Vegetable waste

Posidonia (seaweed) on the beach



Seaweed fibres



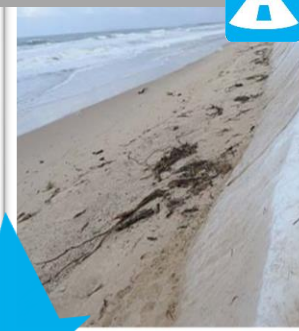
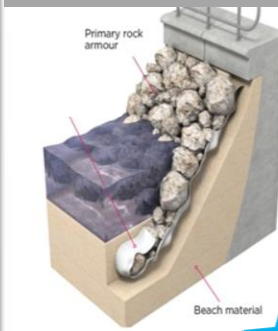
**Vegetable waste Fibres and Agricultural or Civil Engineering products manufacturers**

Cormatex Airway system can process various vegetables waste fibres (posidonia, peat fiber and so on) without limitations in terms of length and fineness. Interesting also the possibility to use PLA or similar biodegradable binder!

Rolls & Panels



Soil & Water stabilization  
Erosion control

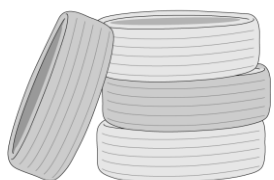


Moisture retention & Seeds growth promotion

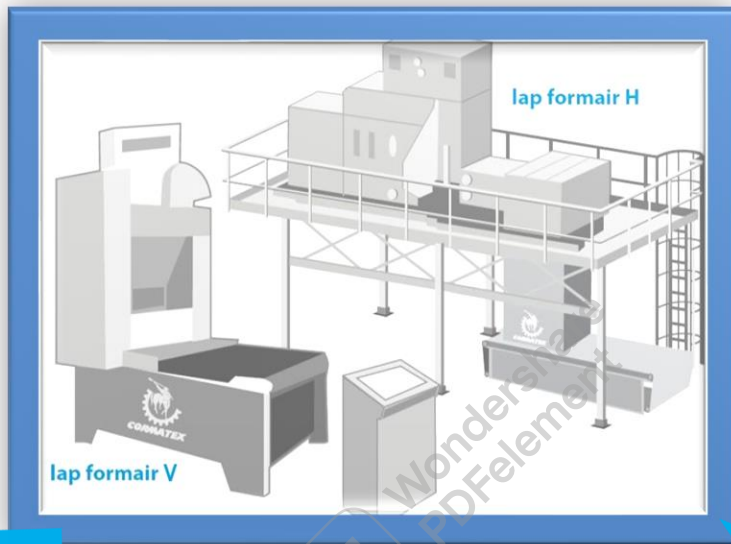




# Tire Cord recycling



Recycled tire cord



## Tires Recyclers

Cormatex Airway system can recycle tire waste such as tire cord and rubber scraps and convert them into shock absorbing products as well as carpet underlay or insulating materials for building construction.

## Final applications:

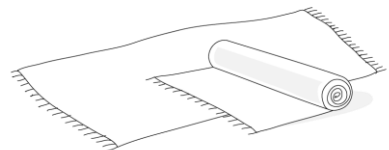
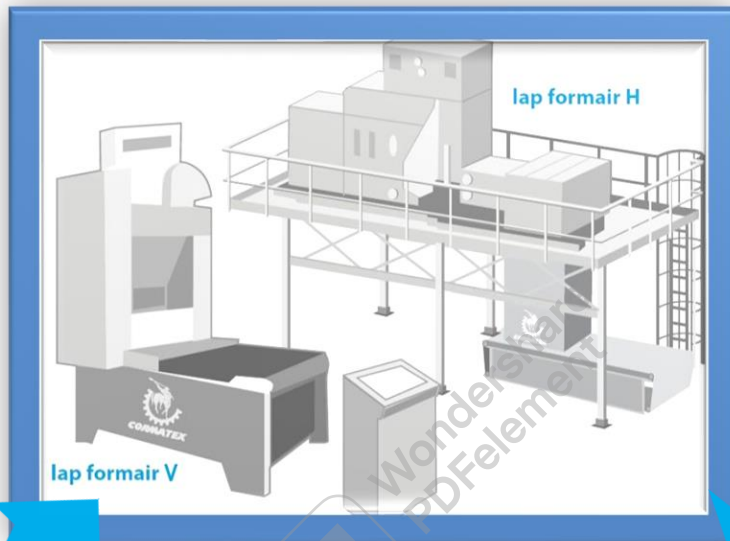


Thermal and acoustic insulation





## Carpets recycling



Carpet waste



### Carpet Manufacturers and/or Carpet Waste Recyclers

Cormatex Airway system can recycle various carpet waste both post industrial (such as spinning and weaving waste) and post consumer (carpets made of synthetic or natural fibres, carcass and so on) and convert them into carpet underlay or thermal and acoustic insulating products.

### Final applications:



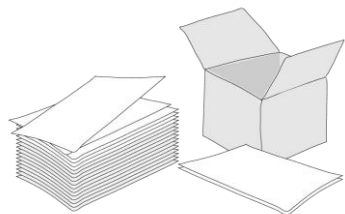
Thermal and acoustic  
insulation



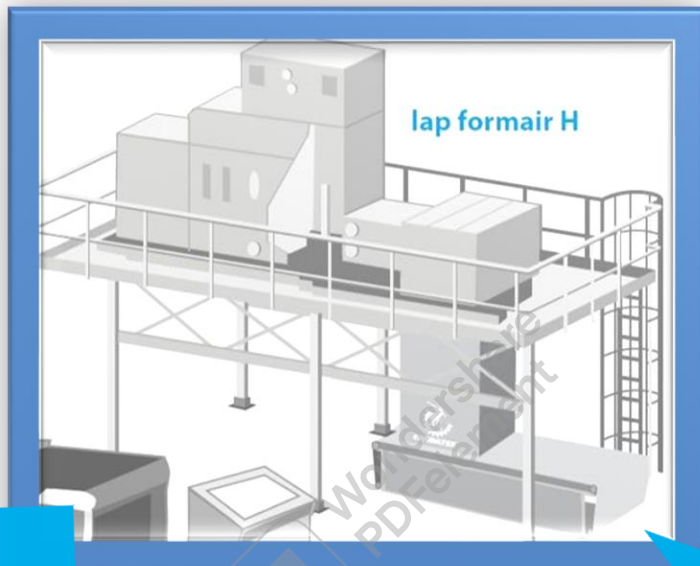
Automotive applications



## Cardboard & Newspaper recycling



Recycled Cardboard &  
Newspaper



### Paper & cardboard Manufacturers and/or those waste Recyclers

Cormatex Airway system can recycle also very short paper & cardboard fibres, also with dust consistency, converting them into thermal and acoustic insulating products.

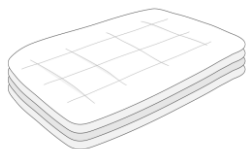
### Final applications:



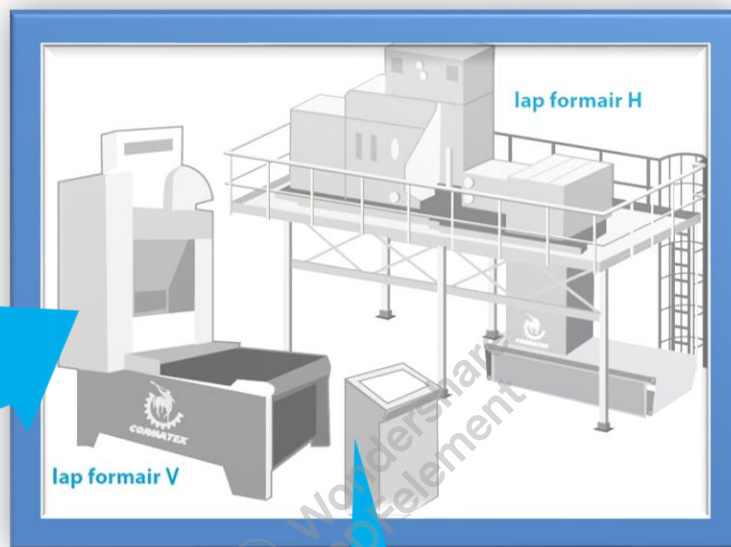
Building Insulation



## End of Life Mattresses Recycling into Nonwovens



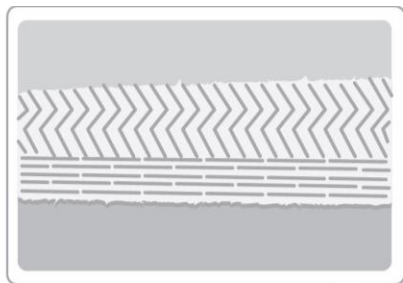
Waste from mattress production and End of life (PU foam and latex)



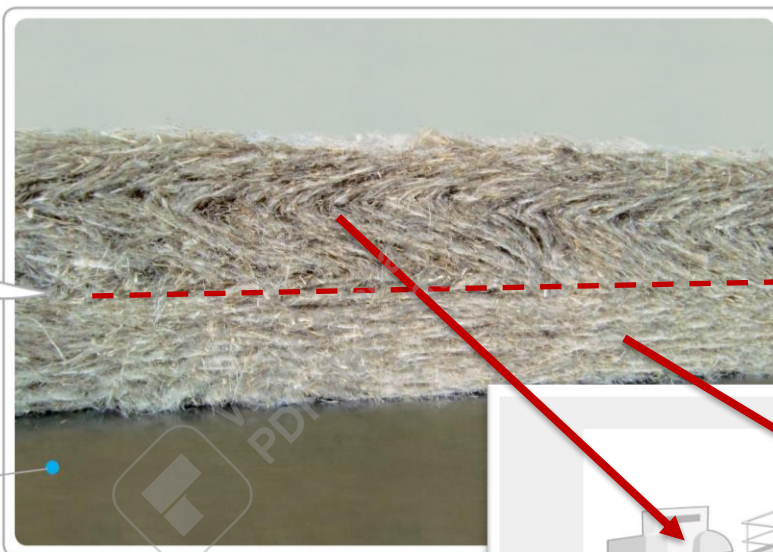
**Immediate** application: New Mattresses from End Of Life Mattresses.

Our Customer provides 5 year warranty, hypoallergenic certificate, several possible configurations (stiffness and layers) and thicknesses.

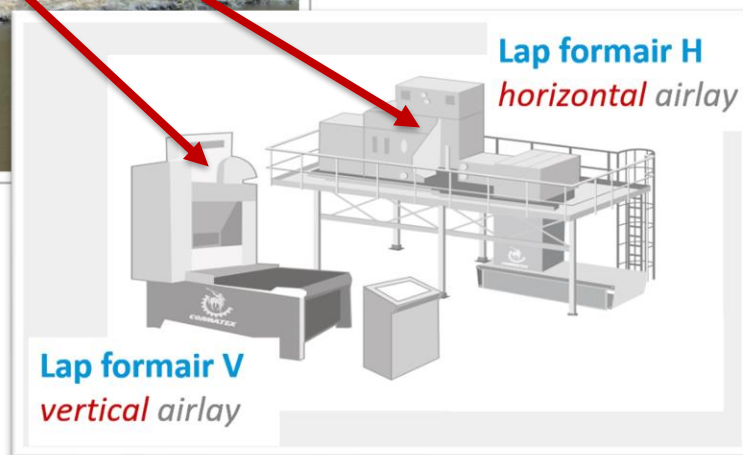
## Two Airlay Technologies for innovative Nonwovens



*Innovative products for  
unique performance*

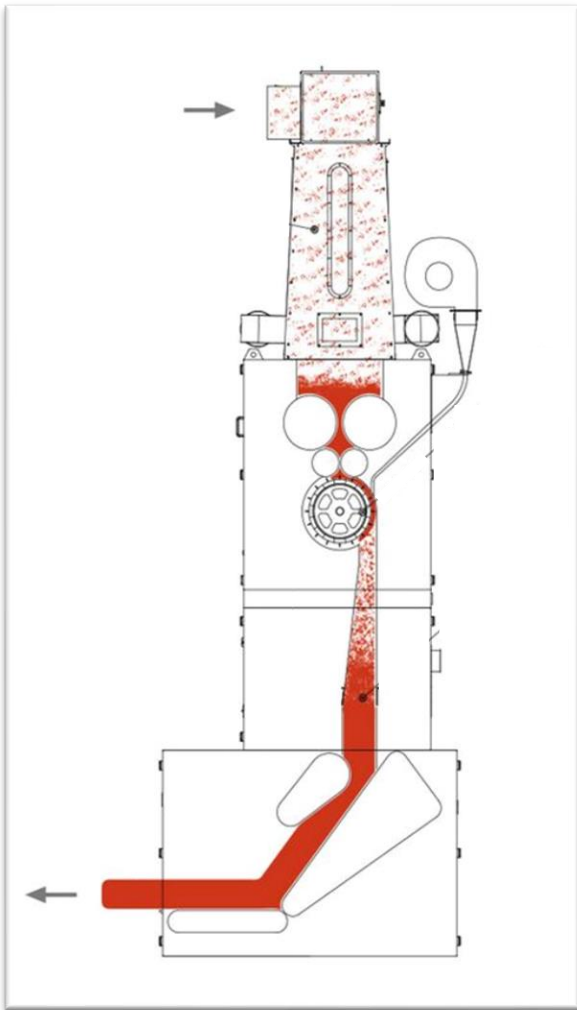


- *excellent thermal and acoustic insulation*
- *extremely high resiliency*
- *unlimited flexibility in terms of materials that can be processed*
- *combination of **vertical** and **horizontal** fibre orientation in the same product*





## **Vertical** airlay - Lap Formair V



- *Fiber orientation: randomly distributed on vertical layers*
- *Production capacity up to 500 kg/h per meter width*
- *Product weight range: from 300 to over 10.000 g/m<sup>2</sup>, depending on the material processed*
- *Final product thickness up to 200 mm (other options available on request)*
- *Fiber length range: from 20 to 150 mm (other options available on request)*

# Nonwoven production Line - Hemp

Raw materials: Shoddy



Bale and primary opener



Chemical application



Fine Opener



Lap Formair V



Thermobonding Oven



Cooling section and longitudinal cut



Cross cut model PLOT



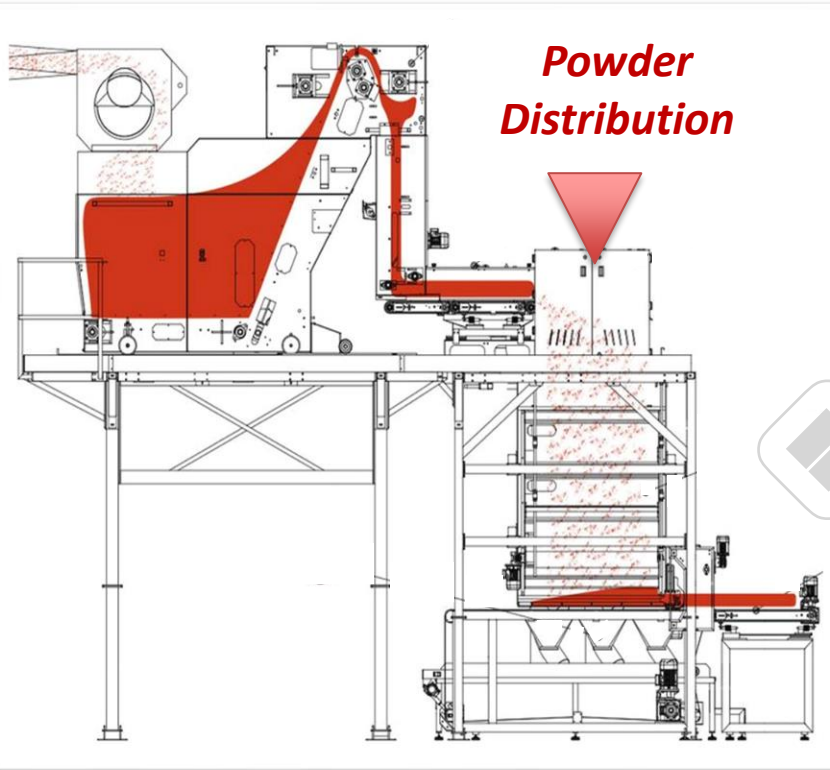
Heavy Weight Panels



Weight over 7.000gsm

VIDEO HEMP Nonwoven  
Cormatex Vertical Airlay:  
<https://youtu.be/iSjDXFzt6EO>

## Horizontal airlay - Lap Formair H



- *Fibre orientation: randomly distributed on horizontal layers*
- *Production capacity up to 500 kg/h per meter width*
- *Product weight range: from 100 to over 5.000 g/m<sup>2</sup>, depending on the material processed*
- *Final product thickness up to 300 mm (other options available on request)*
- *Fibre length range: from 1 to 80 mm (other options available on request)*
- *Possibility to add **powder resin** instead of low melting fibres with extremely **even powder distribution** and **clean process***



## Complete Cormatex Horizontal airlay Line for textile recycling

Raw materials: Shoddy,

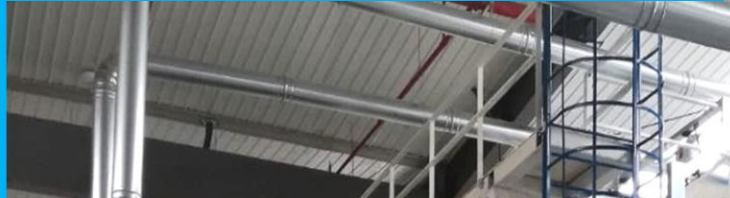
Bale openers and primo

Chemical application de

Blending bin

Metal detector & Fine C

**Lap Formair H**



Thermobonding section



Longitudinal & Cross cut model PLOT

Automatic Stacking and palletizing



Insulation panels and rolls



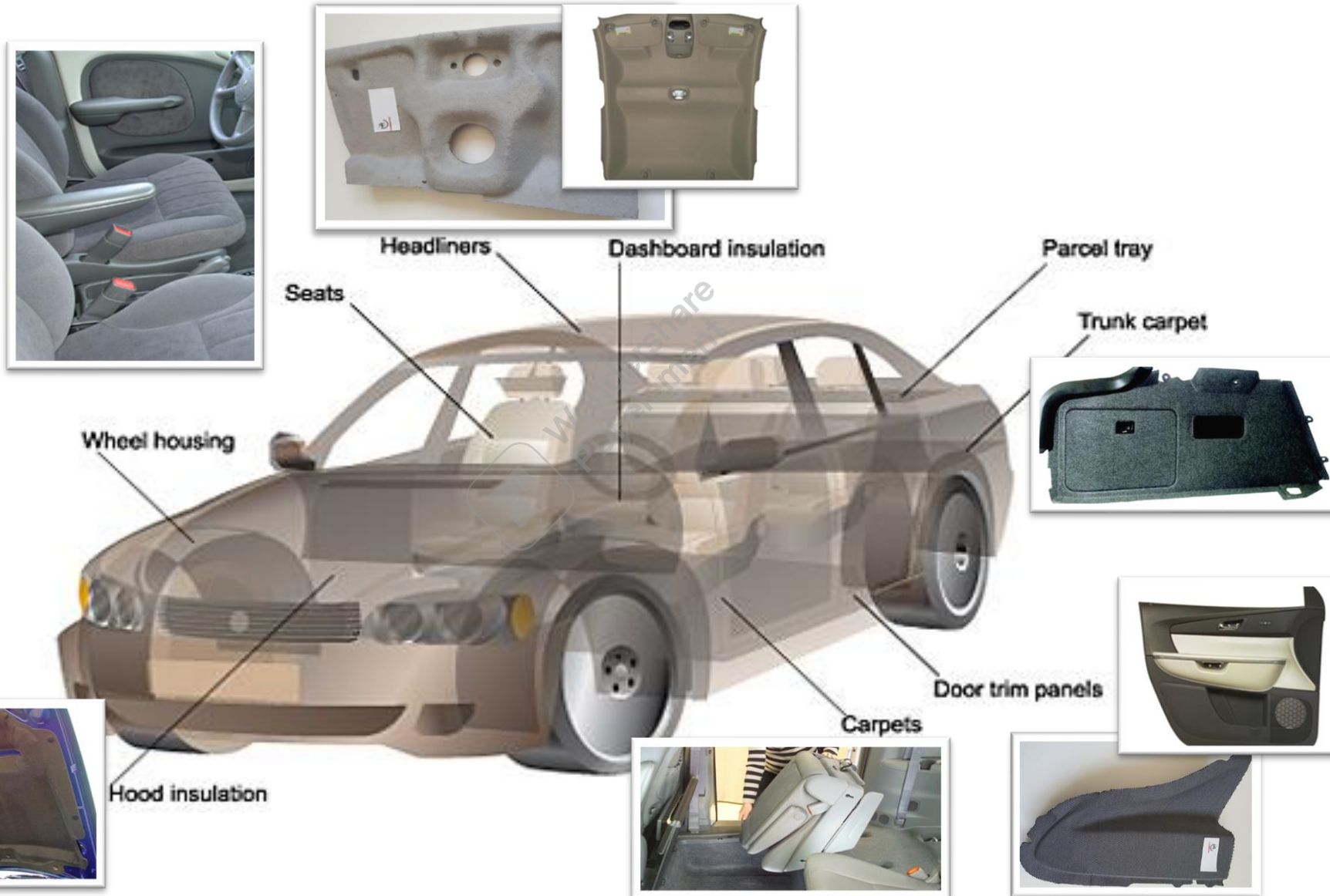
FLAX INSULATION

Cormatex Lap Formair H:

<https://youtu.be/yn0torVr7H4>



# Airlay Nonwovens final APPLICATIONS: automotive

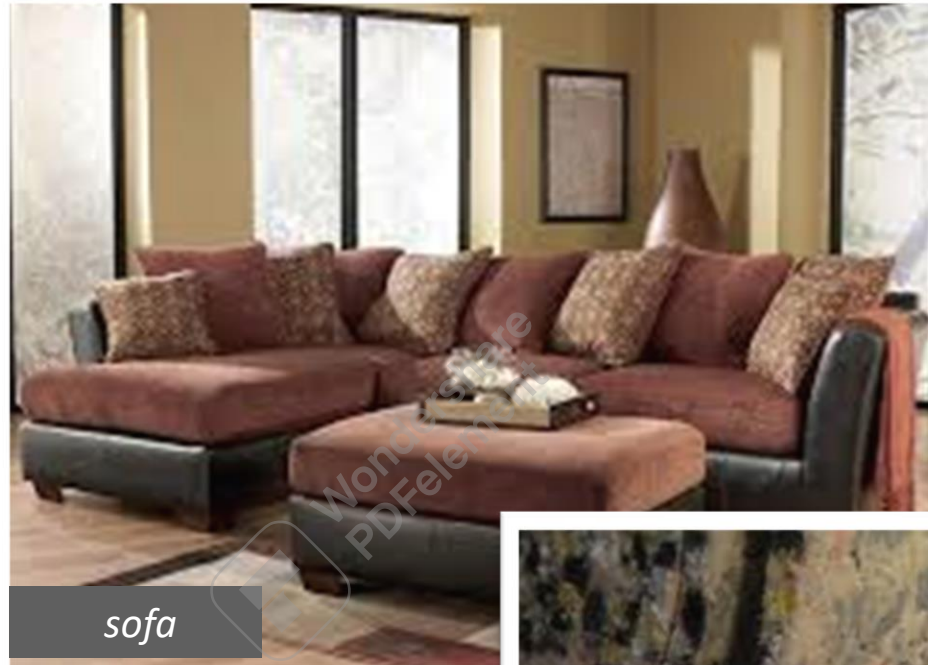


## Airly Nonwovens further APPLICATIONS: building insulation





## *Airlay Nonwovens further APPLICATIONS: home furnishing*



## Airway Nonwovens further APPLICATIONS: packaging



Food packaging



Pharmaceutical  
packaging





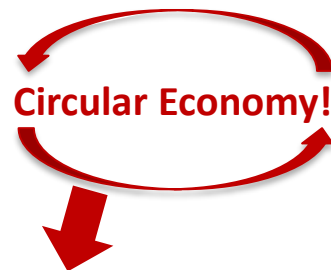


## Economical advantages

Low investment amount if compared to Carding Nonwoven (i.e. fast payback time\*)

Low operating and maintenance cost, due to a technology based on aerodynamic web formation

Possibility to use almost every post industrial and post consumer waste materials



## Ecological advantages

reduction of the amount of waste to be disposed of

reduced consumption of raw materials and energy

reduction of environmental impact of industrial productions

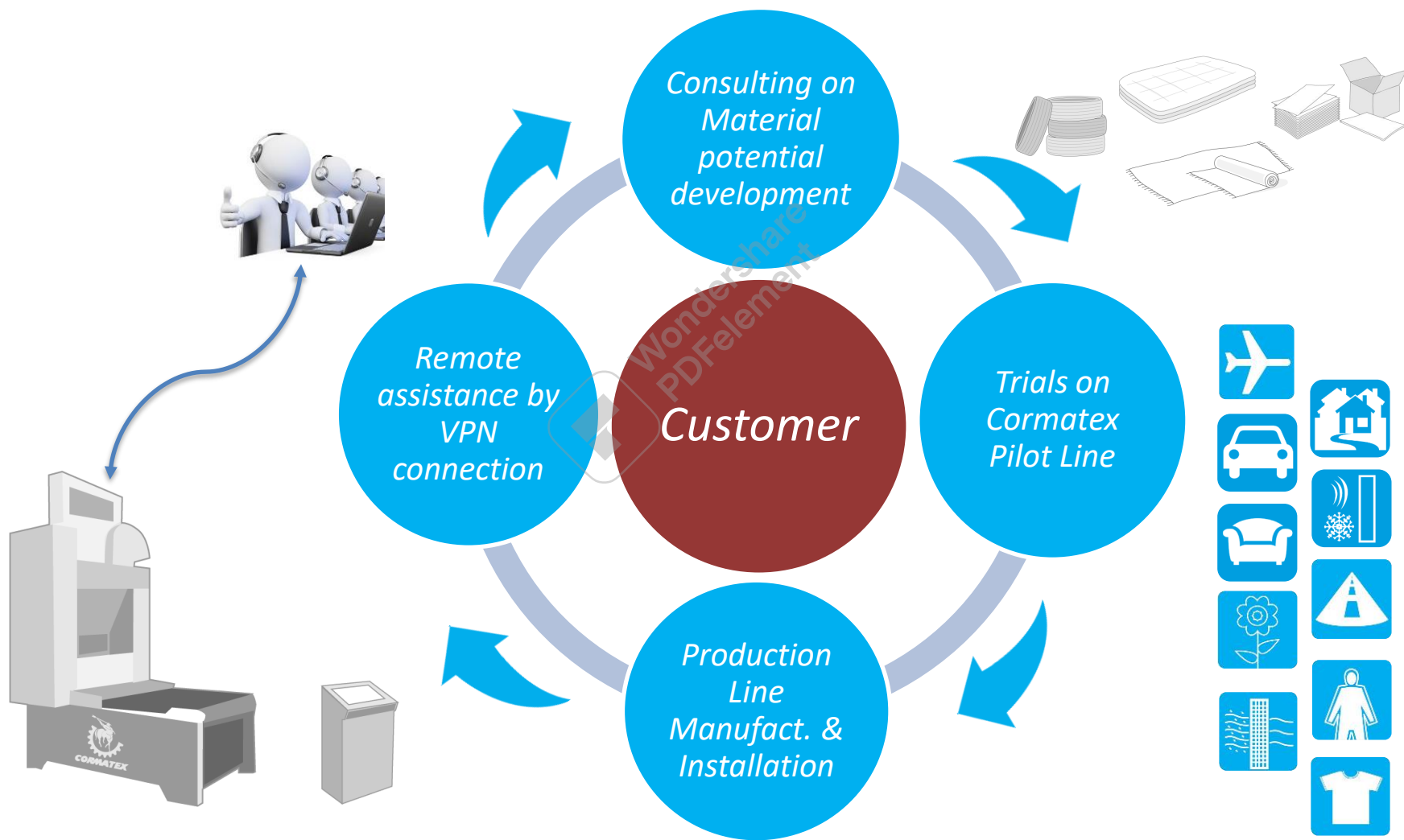
reduced consumption of virgin materials

reduction of waste disposing costs

reduction of production costs

\*available a break even point calculation sheet

# **CORMATEX business approach:** supporting customers to create **INNOVATIVE** solutions for waste recycling

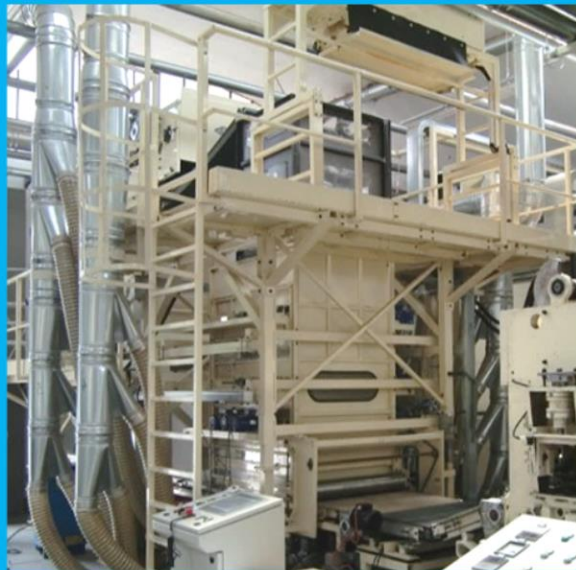


# CORMATEX Nonwovens Technology: Trials on our Pilot Line

## Pilot Line in Cormatex premises:

- It allows our customers to produce samples with its own raw material and to start marketing the new nonwovens products.
- It allows our customers to check the reliability of Cormatex Technology.

### SPECIAL AIRLAY TECHNOLOGY Pilot Line - LAP FORMAIR H



### Needle punching – Pilot Line

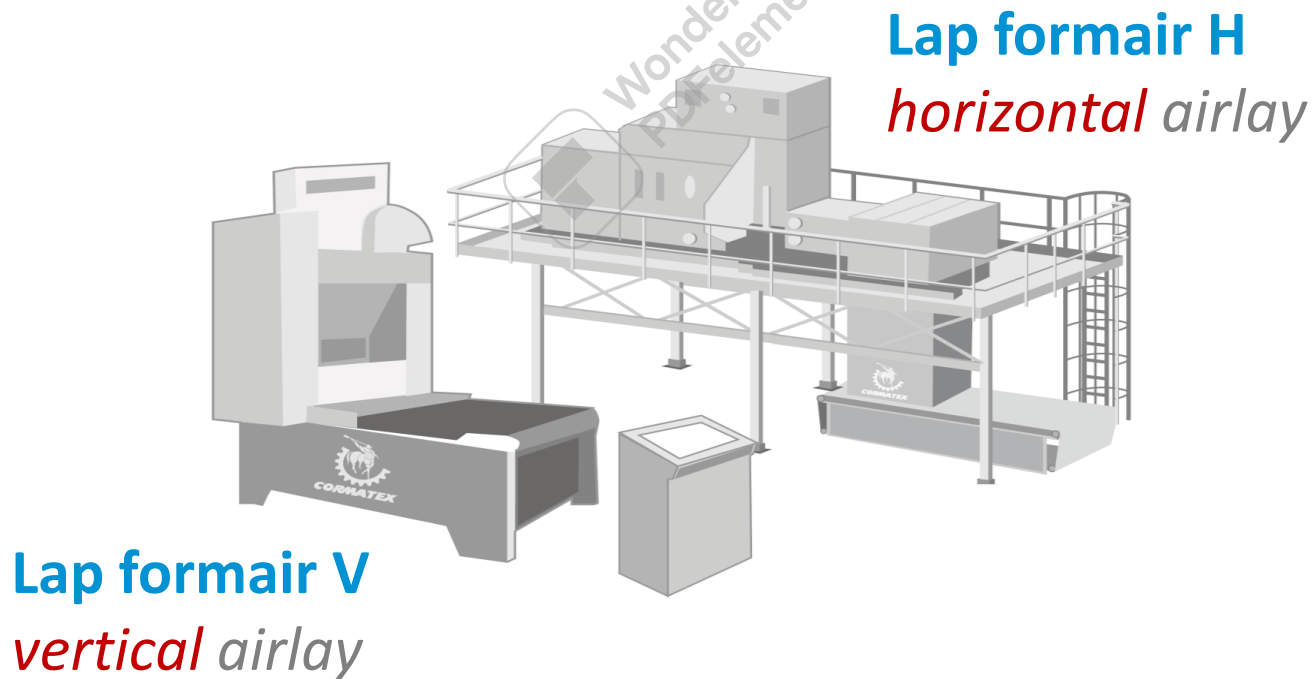


### Thermobonding Oven – Pilot Line





# *HEMP PROCESSING has a PROMISING FUTURE thanks to Cormatex LAP FORMAIR systems*







**CORMATEX**

*Textile Machinery and Lines*

*Thanks for your attention!*

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