



TTL FRANCE

# PROACTIVE FILTRATION





DEDUSTING - FUME TREATMENT - WET FILTRATION  
LET'S NOT ALLOW ANYTHING **GET THROUGH**

A major player in the world of filtration, TTL France has built its reputation on being demanding and intransigent. The high ecological and economic stakes leave no room for improvisation. The high levels of performance offered by the solutions proposed show we are right.



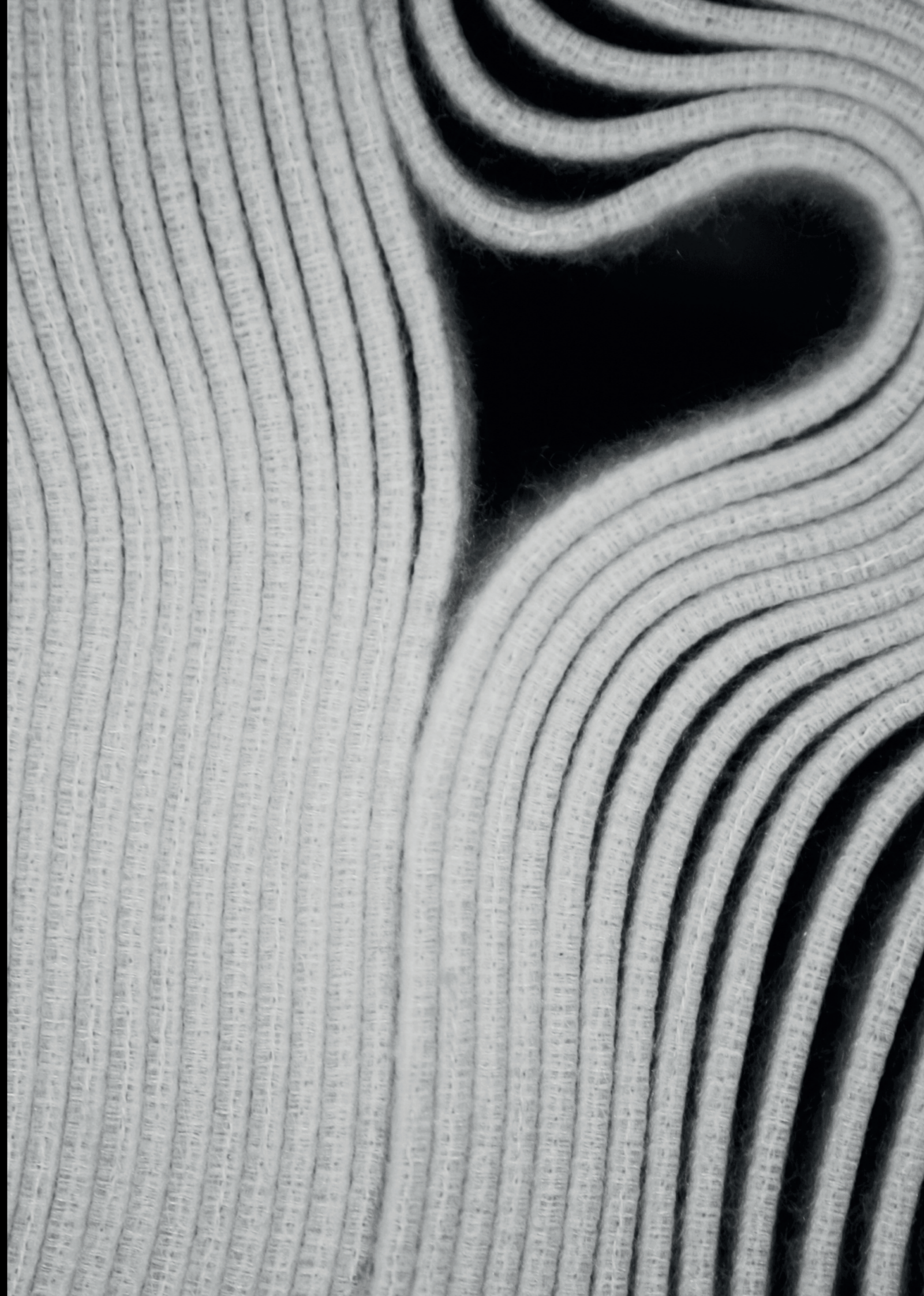


# OUR BUSINESS TO BRING YOU PEACE OF MIND

Filtration is a business.  
It's our business.

Issues relating to filtration are real, complex and numerous... Regulations are becoming more stringent, industrial techniques are evolving and responses need to be adapted and effective.

TTL France has been a major player in gas and wet filtration for over 30 years. TTL's recommendations reflect the very high technical level of its products but also the relevance of the solutions proposed.





TTL has developed a range of products and accessories to facilitate the maintenance of filtration facilities as well as optimize their performance. More often than not, manufacturer's original parts are used.

## FILTER BAGS / FILTER POCKETS

### FILTER BAGS AND POCKETS

- Vertical/horizontal filter Bags: round, flat, square or oblong
- Bags with rings/ Bag house: from 1m to 11m
- Filter pockets / Channel pockets: from 1 to 32 channels
- StarBags
- Ceramic candles
- Catalytic bags

### CAGES

- 1, 2 or 3 parts
- Ring junction / claw fastening / special fastening
- Inside or outside venturi or no venturi at all
- Construction according to OEM design
- Cup in the bottom, welded or pressed on
- Mild steel wires/rings with or without cataphoresis treatment, or powder coating
- Galvanized wires/rings or stainless-steel wire Aisi 304L, 316L, 316 Ti, with or without treatment (pickling and passivation)

### CLEANING SYSTEM

- Solenoid valve / membrane kit
- Solenoid valve without membrane
- Pilot box / sequencer / sequencer pressure switch/differential pressure gauges
- Air pressure tank
- Cleaning ramp

### COMPONENTS

- Drop-Trough Rotary Valves
- Sealing joint
- Explosion vent panels
- Compensators, hoses, flexible sleeves
- Hole plate

### LEAK DETECTION

- Fluorescent powder
- UV lamp kit and goggles
- Triboelectric probe

## CARTRIDGE FILTER

- Cartridges, filter cassettes, wrinkled bags
- Equivalence of the flanges according to manufacturer



## FILTER PRESS

### FILTER CLOTHS

- Cloths and undercloths
- RESISPAM tight and abrasion-resistant sleeve
- Eylet fastening, velcro fastening
- Peripheral coating: 1 side/2 sides
- Coating of the bosses
- Joint face and boss reinforcements

### PLATES

#### All types of plates

- Chamber plates / Membrane plates
- False plates
- Dividers

### COMPONENTS

- Washing facility rollers

### REAGENT

- Flocculants / polymers

## PRESS BELT FILTERS

- Lower/Upper filter cloths
- Clipper seam

## FLUIDISED BED DRYER

- Multi-pockets /Octopus

## CENTRIFUGES-DRYERS

- Pockets for centrifuges
- Liner for centrifuges

## ROTARY FILTER

- Disk filter
- Segment/sector filter
- Drum Filter

## PRESSURE FILTER

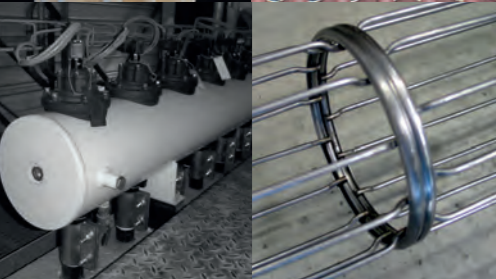
- Horizontal Disc Filter
- Frame filter
- GAF pockets

## VACUUM FILTER

- Band filter
- Frame filter

## FLUIDISED BED / CONVEYOR BELT

- AERTES cloths for fluidized bed transportation, silo bottom





# OUR METHOD AN OVERALL PROCESS APPROACH

We do not have any ready-made answers at TTL.  
Each problem is seen as a new challenge.

For each sector of activity, for each production process,  
the challenges and motivations are different.  
That's why we implement a method, in 5 steps,  
which takes your environment and your requirements into account:



# 1 UNDERSTAND

## FILTER AUDIT

- Inventory
- Cleaning / Clearing
- Bags / Pockets / Cloths
- Cages / Plates
- Removal of dust

## MEASUREMENT CAMPAIGN

Temperature / Flow / Pressure loss / Permeability

## OPERATING PARAMETERS

- Working conditions
- Process study

## LEAKAGE TEST

Fluorescent powder injection for leakage detection  
Determining leakage by turbidity measurements

# 2 ANALYSE

## ANALYSIS OF FILTER BAGS AND CLOTHS

State / Weight / Air permeability  
Dynamometric strength / microscopic observations

## ANALYSIS OF THE DUST AND PRODUCTS TO BE FILTERED

Particle size measures / Analysis of the dust's chemical composition

## IN-SITU FILTRATION TEST

Collection of the product to be filtered / Büchner filtration  
Measurement of turbidities / dryness / Microscopic observations / Selection of suitable cloths

## SIMULATION ON VDI TEST RIG

Comparative test of filtration efficiency, behavior and pressure drop, on various filter media or treatments, by accelerated ageing and by cycle, using a standardized dust AL203 Plural NF D50 of 4µm.

## CFD AERAILIC SIMULATION

Modeling the behavior of the gas flow inside the filter and in its ducts upstream, in order to optimize the distribution and or to correct possible malfunctions or anomalies.

# 3 PROPOSE

## RECOMMENDING SUITABLE SOLUTIONS

- Filter medium / Treatment
- Cages / Plates
- Manufacture
- Setting the operating parameters

## ON-SITE TEST CAMPAIGN

- Trials on filter bags and pockets
- Trials on filter cloths
- Pilot installation equipment

## START-UP PROCEDURES AND TECHNICAL ADVICE

- Installation
- Pre-coating
- Temperature
- Cleaning

# 4 PERFORM

## INSTALLING BAGS AND CAGES

- Removing ramps, cages, bags
- Installing new bags, cages, ramps

## INSTALLING CLOTHS AND PLATES

- Removing cloths
- Cleaning plates
- Installing new cloths

## SUPERVISION

- Training the personnel involved
- Organizing the worksite
- Applying the specific procedure depending on the type of filter medium or the type of filter
- Checking the installation
- Performing a fluorescent powder tightness test

## SUPPORT FOR WASTE DISPOSAL

- Selecting a suitable disposal method
- Transporting the waste
- Disposing of the waste with BSD weighing certification

## JOC'AIR ON-SITE REGENERATION

- Regenerating bags following a boiler leak, after noticing an increase in pressure loss or recurrently to relieve the installation
- Connecting to the customer network or rental of a compressor
- Comparing values before/after regeneration

## REPLACING PARTS

- Solenoid valve
- Membrane kit
- Sequencer box
- Air pressure tanks
- Door seals

## SETTING THE CLEANING PARAMETERS

- Pressure
- Cleaning cycles : sequence or  $\Delta p$  min/max
- Solenoid valve opening time

## START-UP SUPPORT

- Technical advice
- Observation
- Taking part in pre-coating

# 5 MONITOR

## PERIODIC VISITS TO THE INSTALLATIONS

- Inspection during shutdowns
- Monitoring the performance of the installations
- Measuring campaign
- Bag sampling

## SAMPLING AND ANALYSING THE FILTER ELEMENTS

- Evolution of behavior since installation
- Residual lifetime
- Recommending alternative solution in case of problem
- Recommendation

## AFTER SALES SERVICE

- Trouble-shooting
- Response team
- Proximity

## TRAINING

- Preventive maintenance
- Operating filters
- Selecting filter media and treatments
- Selecting cages, construction, materials, bag/cage suitability
- Setting parameters
- Monitoring installations

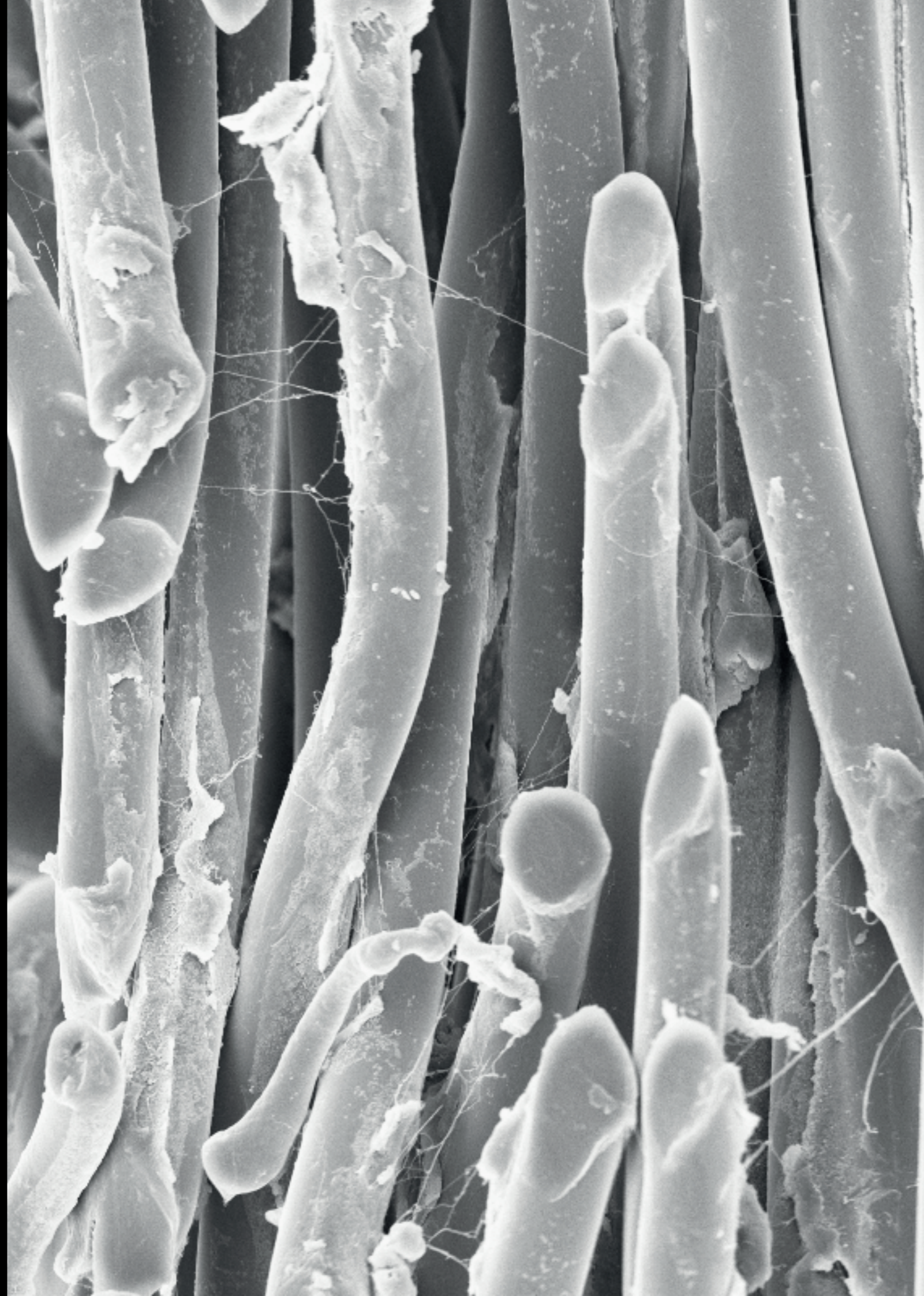




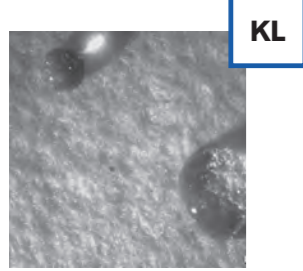
# OUR OBJECTIVE OPTIMISE YOUR PERFORMANCE

We only consider filtration in terms of performance.

TTL filter elements comply with the strictest environmental standards (PM10, PM2.5), promote energy savings by controlling pressure loss and optimizing the cleaning setting, while aiming for ever longer service lives.



## FELTS AND SPECIAL TREATMENTS

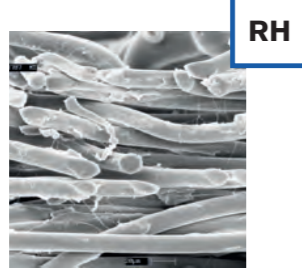


KL

### KLEENTES

Fluorocarbon resin and PTFE bath impregnation.

- Hydrophobic and oleophobic
- Facilitates removal of the cake from the felt surface...

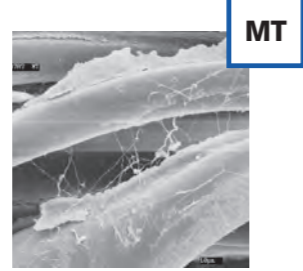


RH

### RHYTES

Fluorocarbon resin and PTFE bath impregnation.

- Hydrophobic and oleophobic.
- Facilitates removal of the cake from the felt surface

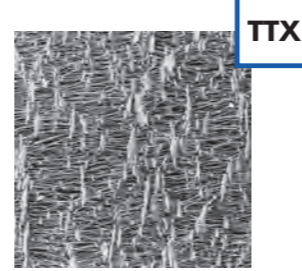


MT

### MANTES

High PTFE concentration coating.

- Hydrophobic and oleophobic.
- Anti-acid and anti-hydrolysis strengthened
- Limits the migration of dust to the core.
- Increases felt cohesion



TTX

### PTFE MEMBRANE

Laminating a PTFE microporous membrane on the filtration side.

- High separation efficiency.
- Surface filtration without the formation of a dust cake



DURAtes

### DURAtes®

Microfibres added in the web of the felt and optimised needling

- Improves filtration efficiency
- Reduces the increase in pressure loss
- Limits the migration of ultrafine dust into the volume of the medium

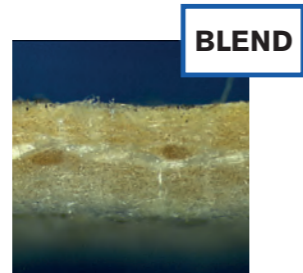


MICRO

### MICRO

Microfibres or very fine fibres added in the web of the felt

- Improves filtration efficiency.
- Limits the migration of ultrafine dust into the volume of the medium

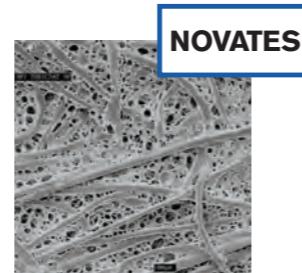


BLEND

### BLEND

Blend of fibres or a web of various fibres is added

- Improves filtration efficiency.
- Improves chemical and heat resistance
- Reduces the increase in pressure loss



NOVATES

### NOVATES

A surface polyurethane foam is applied (resistant up to 140°C)

- Membrane effect on the surface
- Facilitates the removal of the filter cake
- Limits mass setting of the dust cake.

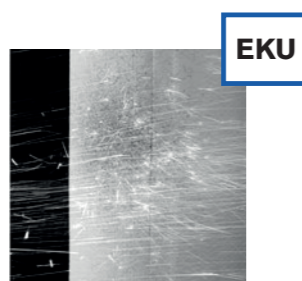


SSB

### SSB

Needling a layer of pre-oxidized fibers on the surface of the media.

- Increases resistance to sparks and incandescent particles
- Limits the spread of heat

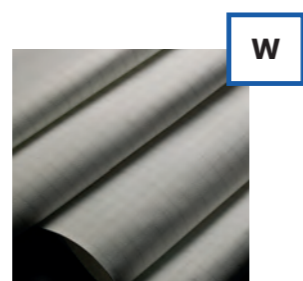


EKU

### EKU

Special anti-incandescent particle chemical treatment.

- Protects the filter media from sparks and incandescent particles when concentrations are low

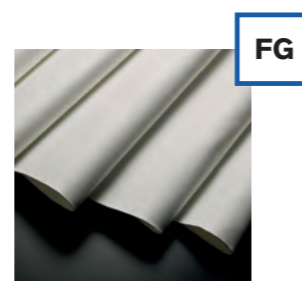


W

### ANTISTATIQUE

Stainless steel fibres added in the structure of the felt in the base fabric

- Low electrical resistances (<math>< 10^4 \text{ ohm}</math>)
- High anti-static performance, on the surface and in the volume of the felt
- Complies with Atex standards



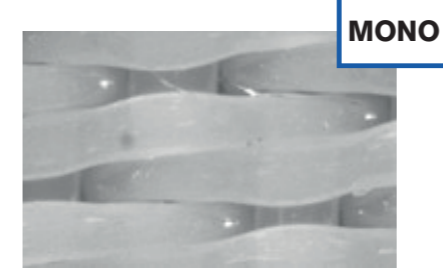
FG

### FOOD GRADE

Polyester felt compatible for food contact

- Applicable in the agri-food industry
- Declaration of conformity for food contact

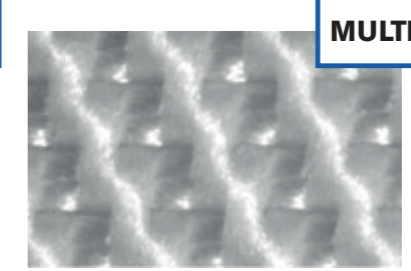
## FABRICS AND SPECIAL FINISHINGS



MONO

### SINGLE FILAMENT YARN

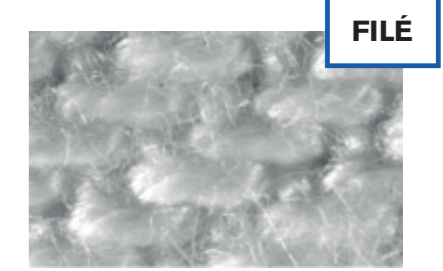
- Very smooth surface finish
- Very easy removal
- Low filtration capacity
- Good mechanical strength



MULTI

### MULTIFILAMENT YARN

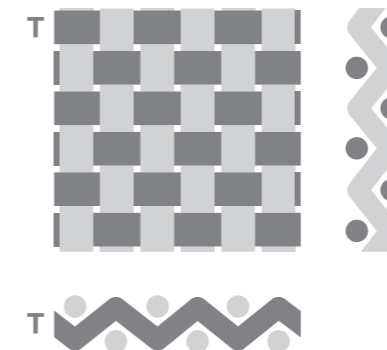
- Unsmooth surface condition
- Average removal
- Good filtration capacity
- Excellent mechanical strength



FILE

### SPUN FIBRES

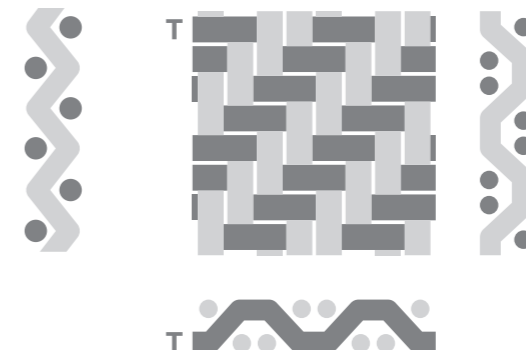
- Fluffy surface condition
- More difficult removal
- Excellent filtration capacity
- Medium mechanical strength



### CLOTH WEAVE

Symmetrical

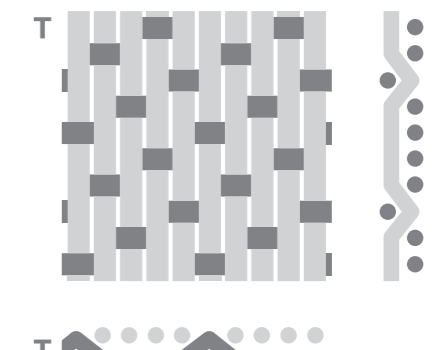
- Unsmooth surface condition
- Very compact structure, excellent mechanical resistance.



### SERGE WEAVE

Symmetrical

- Smooth surface condition
- Compact structure, good mechanical resistance.



### SATIN WEAVE

Asymmetrical

- Very smooth surface condition
- Structure not very compact, Average mechanical resistance.

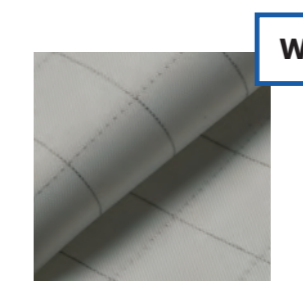


C

### CALENDERING

Smoothing by heating the calender's cylinders and partial melting of the polymer.

- Improved efficiency of the removal
- Precise adjustment of the permeability of the cloth.



W

### ANTI-STATIC

Stainless steel fibres added in the structure of the felt.

- Low electrical resistance (<math>< 10^4 \text{ ohm}</math>)
- High anti-static performance.

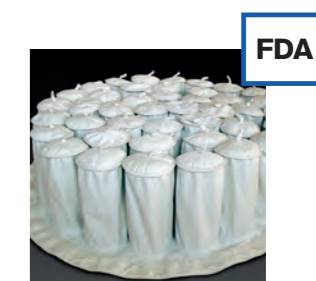


ENDUCTION

### ENDUCTION

Perfect tightness guaranteed throughout the lifetime of the cloth

- FDA version or not
- High mechanical and chemical resistance
- Easy to clean



FDA

### FDA

Agri-food and pharmaceutical certification

- Anti-static version or not
- Various materials: PP, PES, PA, Fluoropolymers



# OUR STRENGTH EXPERIENCE WHICH MAKES A DIFFERENCE

Backed by the Testori Group, which is over 100 years old and present worldwide, the TTL France teams support you in developing complex and specific solutions in order to allow you to benefit from their expertise.

Filtration is empirical, our feedback is a guarantee of competence and shared wealth.



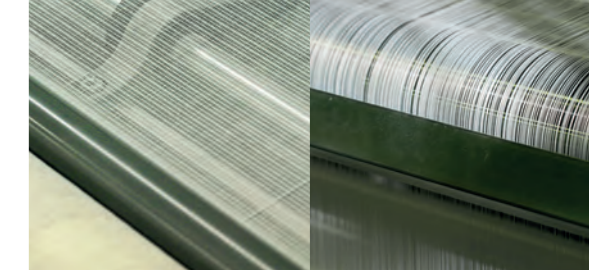
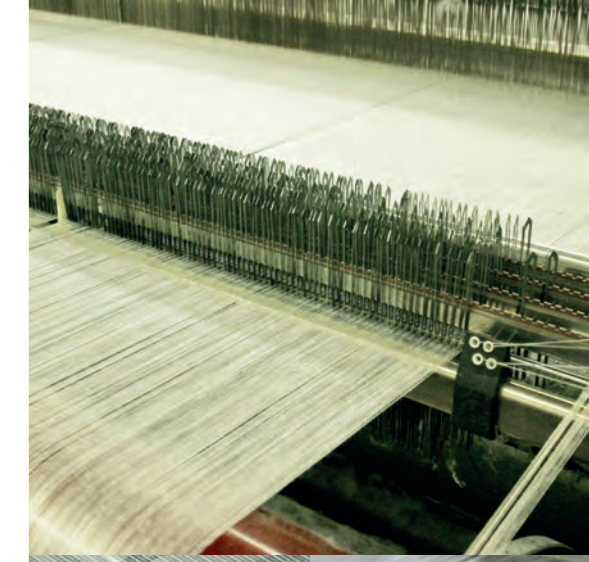
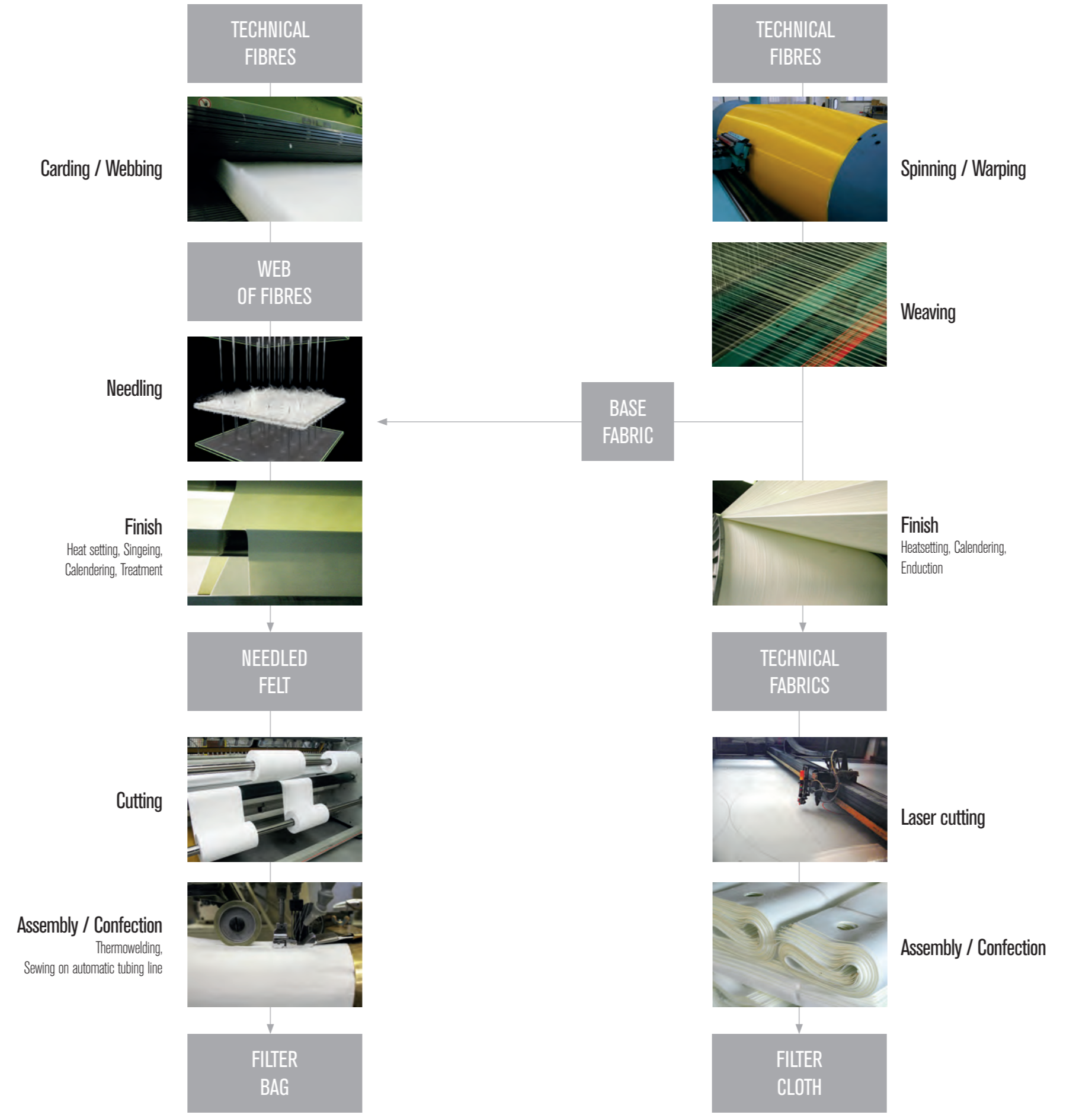


GAS

### INTEGRATED PRODUCTION

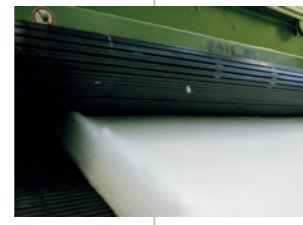
### WITHIN THE TESTORI GROUP

LIQUID



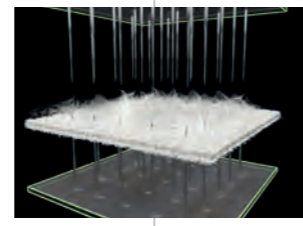
Carding / Webbing

TECHNICAL FIBRES

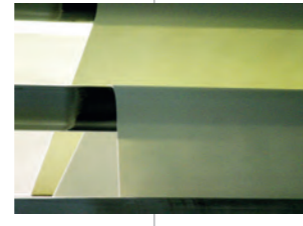


WEB OF FIBRES

Needling



Finish  
Heat setting, Singeing, Calendering, Treatment



NEEDED FELT

Cutting

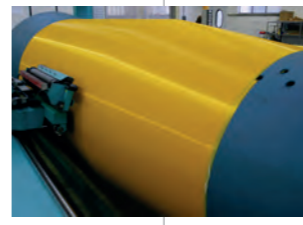


Assembly / Confection  
Thermowelding, Sewing on automatic tubing line

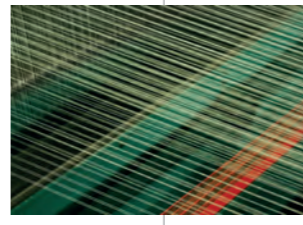


FILTER BAG

TECHNICAL FIBRES

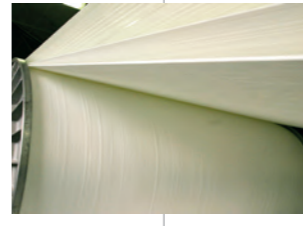


Spinning / Warping



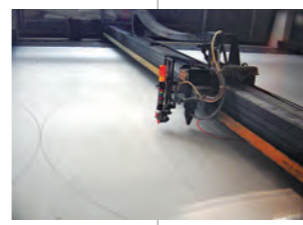
Weaving

BASE FABRIC

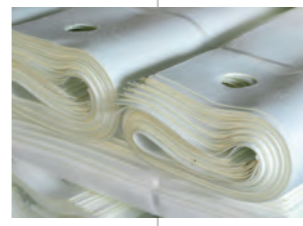


Finish  
Heatsetting, Calendering, Enduction

TECHNICAL FABRICS



Laser cutting



Assembly / Confection

FILTER CLOTH



TTL FRANCE

# RESPECTING MAN AND HIS ENVIRONMENT

Every day we find the strength to give meaning to our actions.

At TTL, we are aware of the importance of the value of human beings related to our profession.

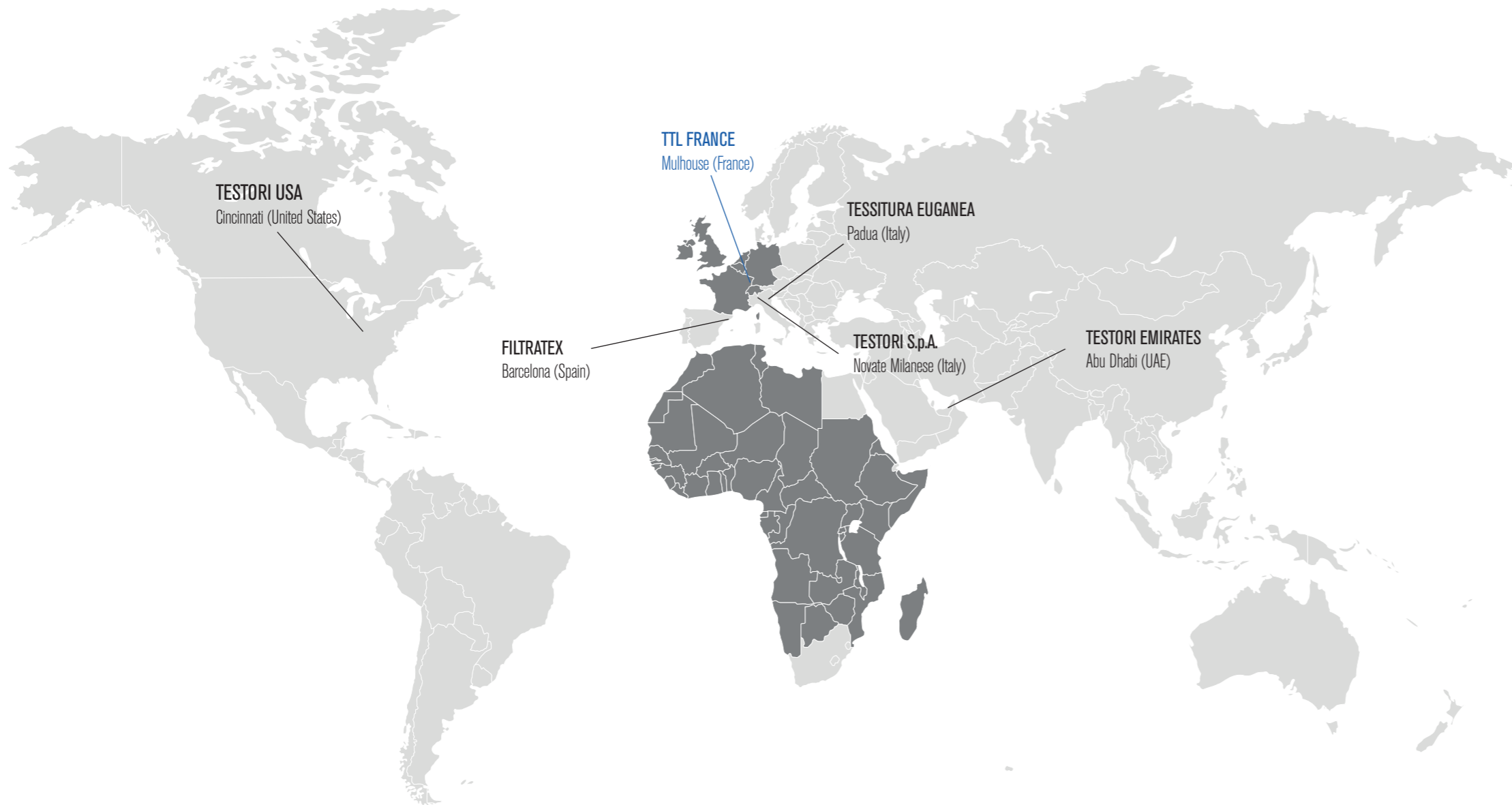
We are committed to developing solutions and applying the most efficient processes, both when it comes to respecting Man and protecting the Environment.



he company TTL France is certified MASE



## INTERNATIONAL PRESENCE



- Production, Sales, Service & Maintenance
- Zones covered directly by TTL France

## THEY TRUST US

### ENERGY, INCINERATION, BIOMASS :

- E-ON, EDF, ESB, VATTENFALL, ENEL, RWE, UNIPER
- VEOLIA, SUEZ, IDEX, INERTAM, INOVA, SÉCHÉ ENVIRONNEMENT, TIRU
- ENGIE, DALKIA, CORIANCE
- COMPTE R, NEXT ENERGIE, LEROUX & LOTZ, WEISS FRANCE

### OEM:

- FCB, FIVES SOLIOS, AAF, BOLDROCCHI, FILTRES INTENSIV HIMENVIRO,
- VINCI ENVIRONNEMENT, HAMON ENVIRONMENTAL, ATS
- SCHEUCH, FILTRES BETH, ERMONT, AMANN, LURGI
- REDECAM, LAB CNIM, DONALDSON, EMO, DIEMME FILTRATION

### CEMENT, LIME, GYPSUM & MINERALS:

- VICAT, HEIDELBERG CEMENT, LAFARGEHOLCIM, EQIOM, KERNÉOS
- CIMAT, CIMAF, DANGOTE, WACEM, CEMEX, THYSSEN KRUPP
- LHOIST, CARMEUSE, MEAC, IMERYS, OMYA
- PLACO SAINT GOBAIN, SINIAT, LAFARGE PLÂTRE, KNAUF, ISOVER, SOKA

### FERROUS AND NON-FERROUS METAL INDUSTRIES, FOUNDRIES :

- ARCELOR MITTAL, RIVA, ASCOMETAL
- EGL, TRIMET, ALCAN, RIO TINTO, ADG, TOMAGO
- FERROGLOBE, NEXANS, NDC, RECYTEC, STAUB, EJ PICARDIE
- FONDERIES DE NIEDERBRONN, FBM, MONTUPET, LA FONTE ARDENNAISE, FOCAST, FIDAY GESTION
- UGITECH, METAL BLANC, CONSTELLIUM, GALVA SWISS
- ERAMET

### CHEMICALS, PHARMACEUTICALS:

- SOLVAY, NYRSTAR, ROHM & HAAS, DOW CHEMICAL
- DUPONT DE NEMOURS, BASF, SANOFI, DSM, HUNTSMAN, CLARIANT, DANISCO, J. RETTENMAIER & SÖHNE
- TIMAC, OCP, SPI PHARMA, HOLLIDAY PIGMENT VENATOR

### AGRI-BUSINESS :

- NESTLÉ, CARGILL, ROQUETTE
- CHAMTOR ADM, LACTALIS

### GLASS AND CERAMICS :

- ISOVER SAINT GOBAIN, EUROCOUSTIC
- UNIFRAX, WIENERBERGER, KERAGLAS
- CRISTALLERIE DE BACCARAT

### ASPHALT:

- COLAS, EIFFAGE, EUROVIA

### WASTEWATER AND DRINKING WATER TREATMENT PLANT :

- VEOLIA EAU, SUEZ WATER TECHNOLOGIES, SDEA, SÉCHÉ ECO SERVICE, SAUR





**TTL FRANCE**

TTL FRANCE - 2 Rue Paul-Henri Spaak 68390 Sausheim  
info@ttlfrance.fr - www.ttlfrance.fr

**+33 3 89 312 231**

