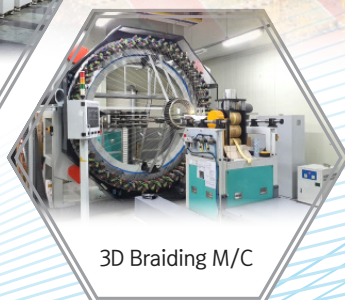


Korea Textile Development Institute

Facilities Utilizaion Support Information

www.textile.or.kr
www.textopia.or.kr



Eco-friendly Textile Development Center

Super Textile Development Center

Test analysis and evaluation center



Major Tasks

- Technical Support for Corporate Difficulties
- Performance/Physical Analysis Evaluation
- Technical Development, Information Support, Technical Guidance and Training
- Research and Development(source, commercialization)
- Perform And Support



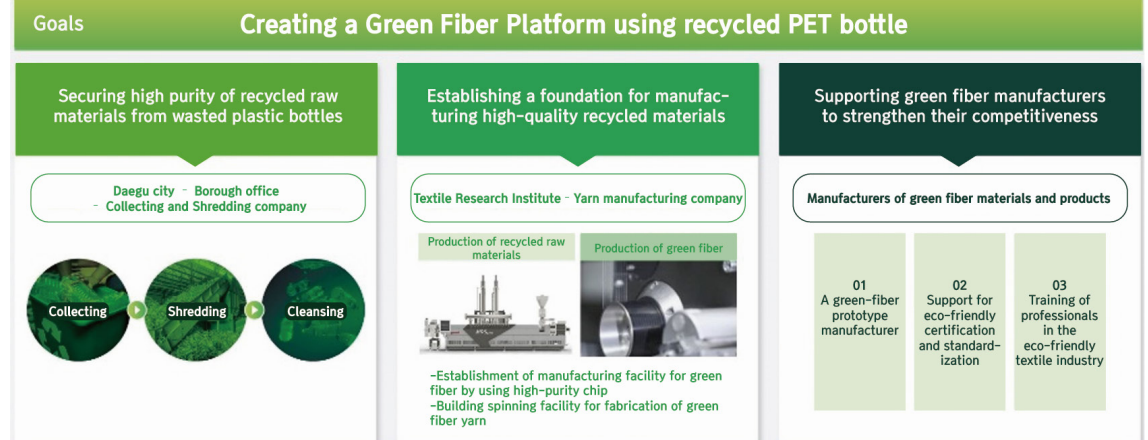
Your Idea!

It Becomes a Product with the Korea Textile Development Institute.

Project of Building Green Fiber Platform by recycling PET bottle

Ministry of Public Administration and Security | DAEGU METROPOLITAN CITY | ktedi

Business Period : 2021. 10. 01. ~ 2024. 12. 31.

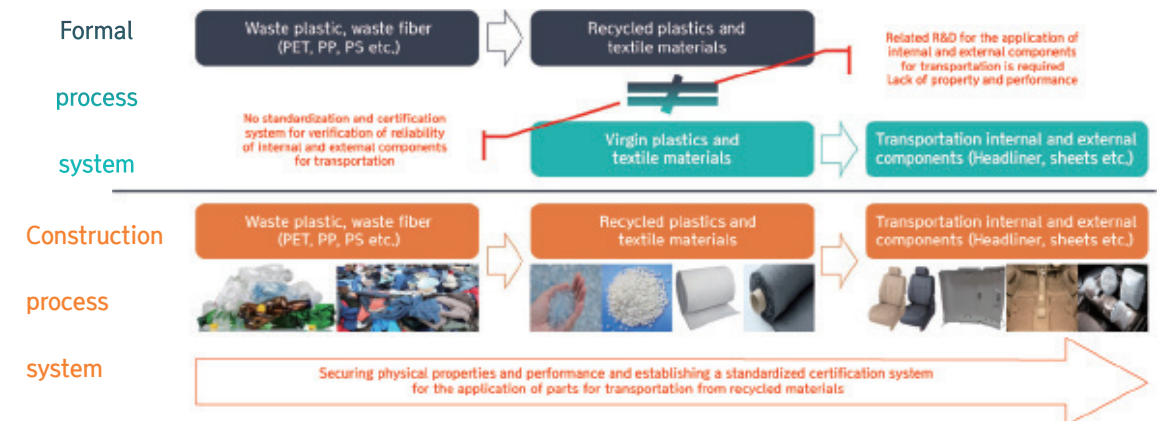


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Project of Establishing Foundation for Industrial Innovation

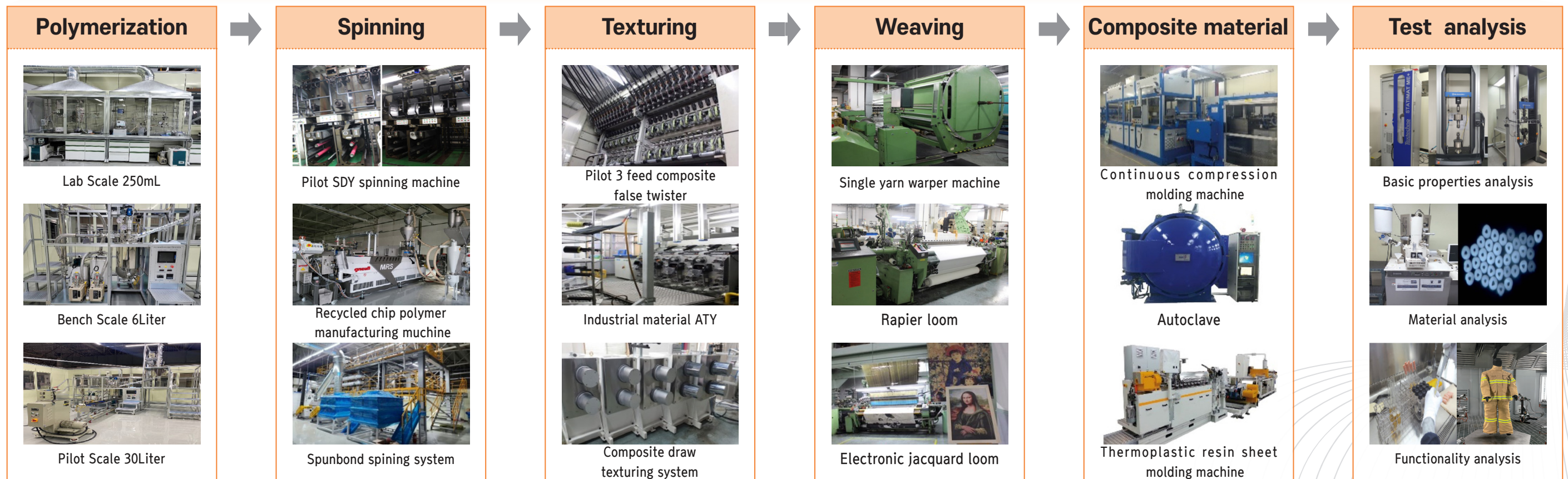
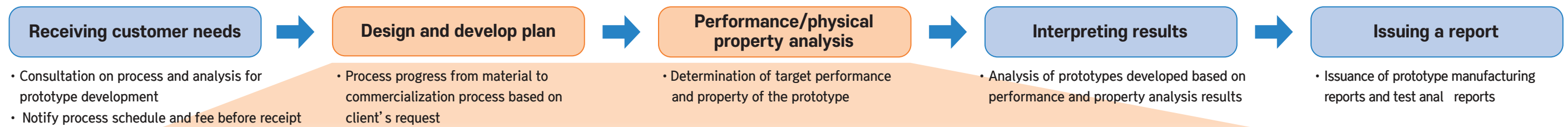
Development infrastructure for transportation internal and external parts using recycled materials and establishment of environmental standardization certification system

- ✓ Utilization of waste plastics and fibers, Establishment of recycling materials and transportation internal and external materials process
- ✓ A method of analyzing authenticity, Designation of GRS certification institution, Development of K-GRS certification system
- ✓ Operation of consultative group for recycling materials and components / Support for prototype development and commercialization



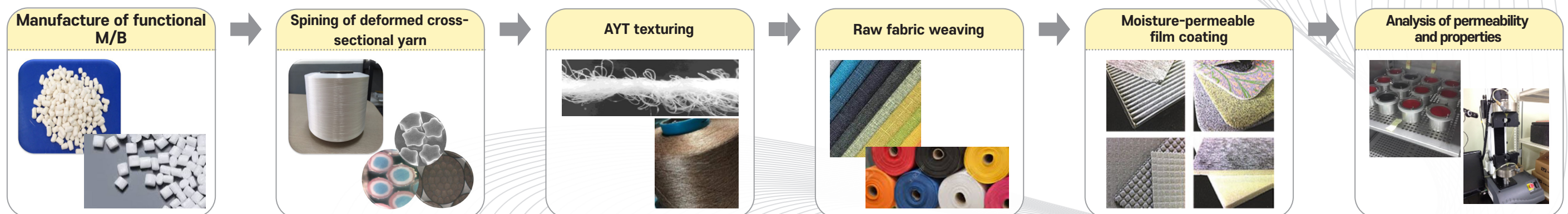
E-mail jino@textile.or.kr

ktedi One-Stop Prototype Manufacturing Process



● ● Example for One-Stop Development Process

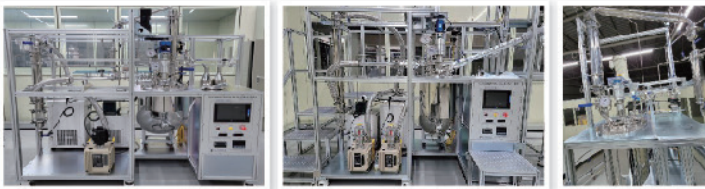
(Manufacturing process of moisture-permeable coated fabric)



Source Material Development

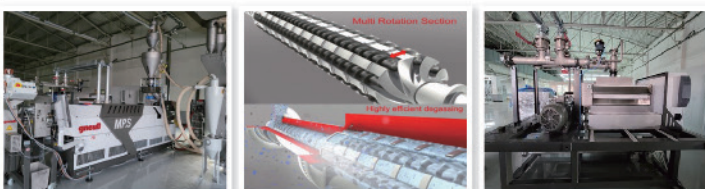
Biomass biodegradation raw material polymerization system

- Manufacture of recycled polymerization chips through depolymerization process
- Biomass manufactures biodegradable polymeric chips
- Capacity : Max. Lab. 250 mL, Bench 6 L, Pilot 30 L



Recycled chip manufacturing system

- Manufacture of waste plastic flake recycling chips
- Manufacture of functional chips using additives
- Capacity : Max. 150 kg/h



Development of Filament

A multi-component melt spinning machine

- For manufacturing fine yarns and composite down yarn and composite undrown yarn
- MOY, POY, HOY can be manufactured depending on spinning and drawing conditions
- Capacity : Max. 15 kg/h



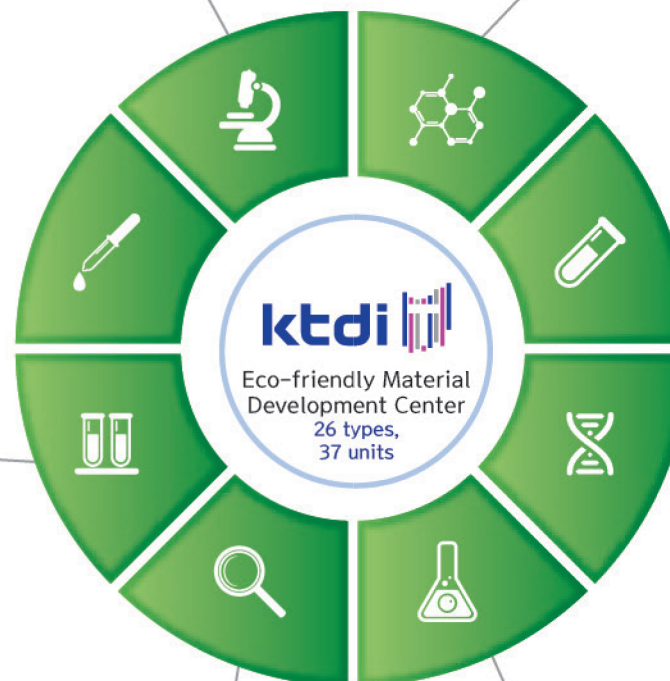
A monofilament spinning machine

- For the production of composite monofilament
- Composite spinning is possible using two types of polymers(S/C, S/S)
- Capacity : Max. 3 kg/h



The platform for recycled PET fiber using PET bottle

- Recycling of PET bottles
- Physical and chemical recycled raw materials study
- First GRS certification research institute in domestic



Yarn Texturing

pilot composite false twister

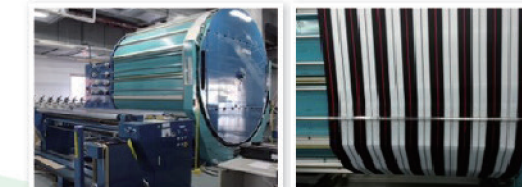
- Use for manufacturing small quantities of various composite textured yarn
- 3 feeding device can be used up to 3 Fly simultaneously
- Can be controlled for yarn shrinkage with 2 PIN heater method



Preparation for the Weaving and Weaving

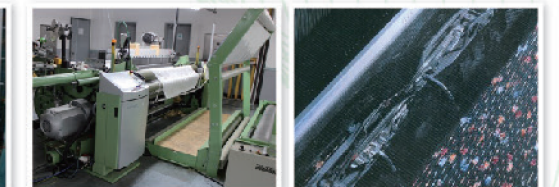
Single end warping machine

- For beam warping
- Beaming is possible with a small amount of yarn
- Capacity : Max. 1,500 m/min



Industrial rapier loom

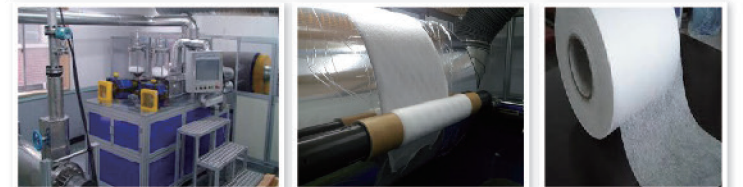
- Apparel and industrial textile manufacturing applications
- Aramid and industrial yarn available
- Capacity : 600 m/min



Development of Nonwoven Fabrics

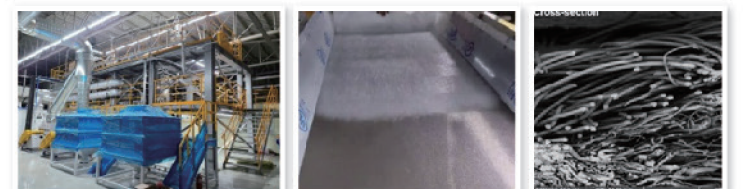
Melt blown spinning machine

- For the manufacture of fine fiber nonwoven fabrics such as filters, and pulp
- Two types of polymer for combination(PET, PP etc)
- Capacity : Max. 4 kg/h



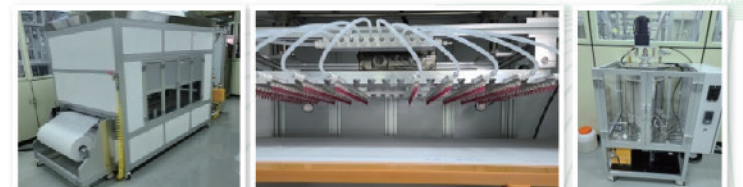
Spunbond spinning system

- Fine fiber, high speed, and continuous nonwoven fabric manufacturing applications
- Composite spinning is possible using two types of polymers(S/C)
- Capacity : Max. 100 kg/h



Biomass electrospinning equipment

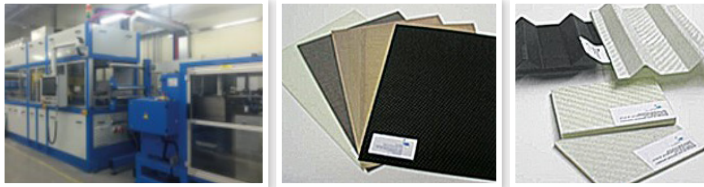
- For the manufacture of nano-scale microfiber nonwoven fabrics in industrial, medical, and other fields.
- It can be spun without limitation on the type of solution
- Capacity : Max. 183.3 L/day



Composite Molding

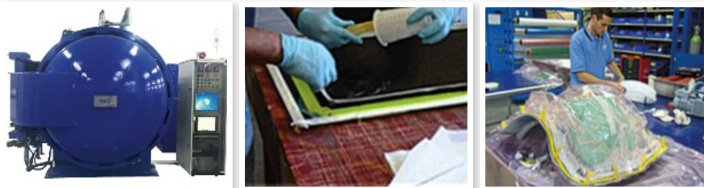
Continuous compression molding machine

- Impregnation facility of thermoplastic resin for industrial textile
- Resin: PP, PE, PET, Nylon, PC, PPS, Surlyn, PEEK etc
- Capacity : Max. 50 m/hr, Max. 410°C, Width 600 mm



Autoclave for composite material(Autoclave)

- Thermosetting composite material forming facility using high temperature and high pressure
- UD and fabric prepreg can be verified for formability after manufacture
- Capacity : Vol. $\phi 1.5$ m x L 2.5 m, Max. 250°C, Max. 12 bar



Thermoplastic sheet molding machine

- Manufacturing facility of thermoplastic resin sheets for composite materials
- Possible to manufacture sheet-like binders required for thermoplastic composite materials
- Capacity : Max. 120 m/min, Max. 400 °C, Width 700mm



Industrial Textile Weaving

Spread machine

- Carbon fiber opening facility
- 12K, Max. 40mm can be opened
- Capacity : 1~20 m/min



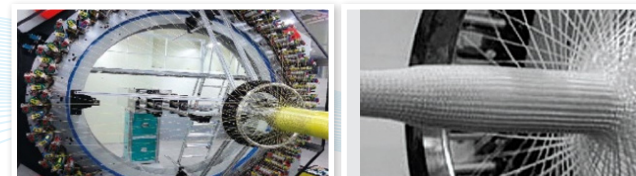
Spread loom

- Use of weaving with opened carbon fiber
- Fabric width 1,000 mm woven
- Capacity : Max. 9.6 m/hr



3D braiding machine

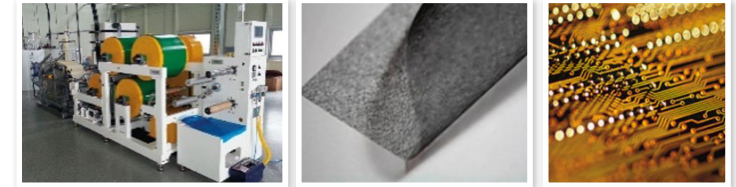
- Formation of fiber structures in industrial fiber materials
- Formation of tubular structures such as fishing stands, golf clubs and bike frame
- Capacity : 128 Carriers, Max. 200 rpm



Manufacture of wet nonwoven fabric

Pilot machine for wet nonwoven formation

- Manufacture of an isotropic thin film nonwoven fabric using staple fiber and pulp, etc.
- Basic materials such as secondary battery separators and filters can be manufactured
- Capacity : 1~10 m/min, Width 300 mm, Weight 20~150gsm



Industrial calender

- Increased smoothness of industrial woven fabric materials
- Electrical insulating paper & heat-resistant paper can be made of basic materials
- Capacity : 5~30 m/min, Max. 380°C



Prepreg Manufacturing

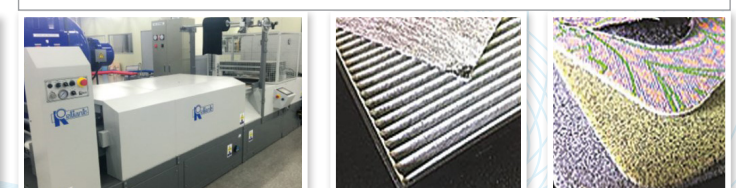
One-way prepreg manufacturer(UD M/C)

- Fabrication of one-way prepreg for fiber reinforced plastics(FRP)
- Thermosetting(Epoxy), thermoplasticity(Resin Film) Prepreg can be manufactured
- Capacity : Max. 20 m/min, Max. 300 °C



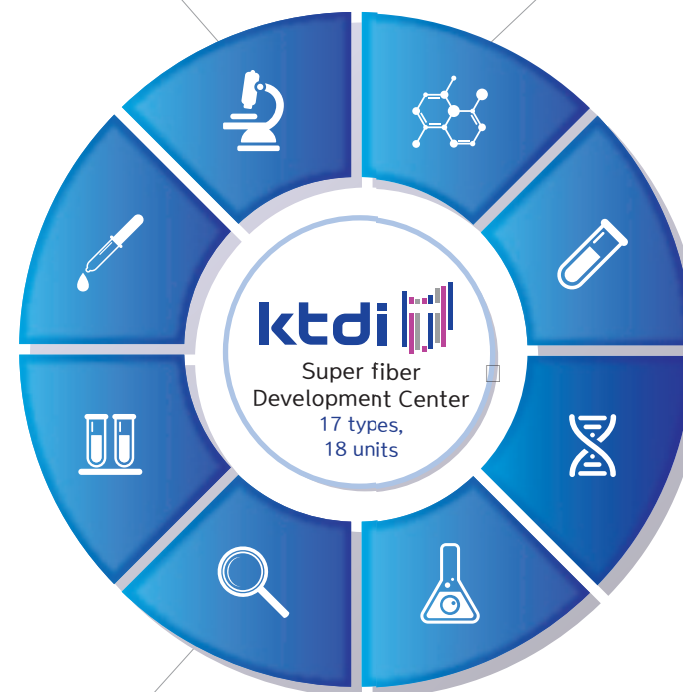
Thermoplastic Scattering machine

- Industrial woven fabric/nonwoven fabric and thermoplastic resin laminating equipment
- Scatterable of pigments, functional particles and thermoplastic resin powder
- Capacity : 1~10 m/min, Scattering Volume: 5~300 gsm



Participate in industrial innovation-based platform(i-platform)

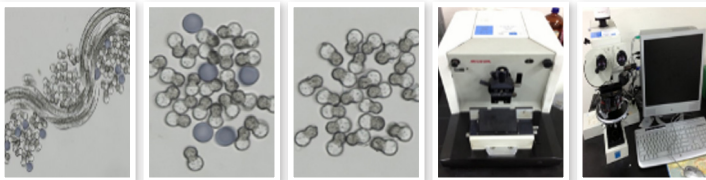
- Industrial textile and composites-material platform
- 'One-stop' support from design to commercialization
- Support for packaged technical consulting



Material and Product Defects Analysis

- Physical test of normal and abnormal areas

- between normal and abnormal areas
- Optical analysis using an optical microscope(microtome), an electron microscope
- Device analysis for identifying the causes and defect of textile



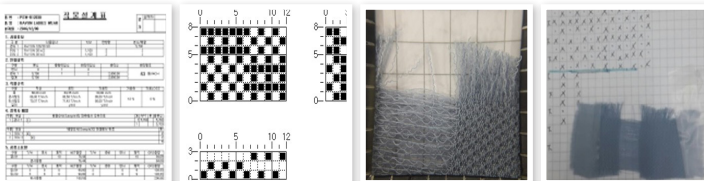
Fabric Deconstruction and Weaving Design

Fabric Deconstruction

- Yarn spec, weight, density, specification, textile weave analysis

Weaving Design

- Weaving design idea through fabric disintegration



Nonwoven(mask/filter)performance analysis

- Mask performance test for face intake resistance/leakage rate/dust collection efficiency
- Analysis of filter performance such as pore characteristics, liquid resistance, and air permeability
- Analysis of nonwoven material properties such as particle size, fiber field, dielectric constant, bonding, smoothness, etc.



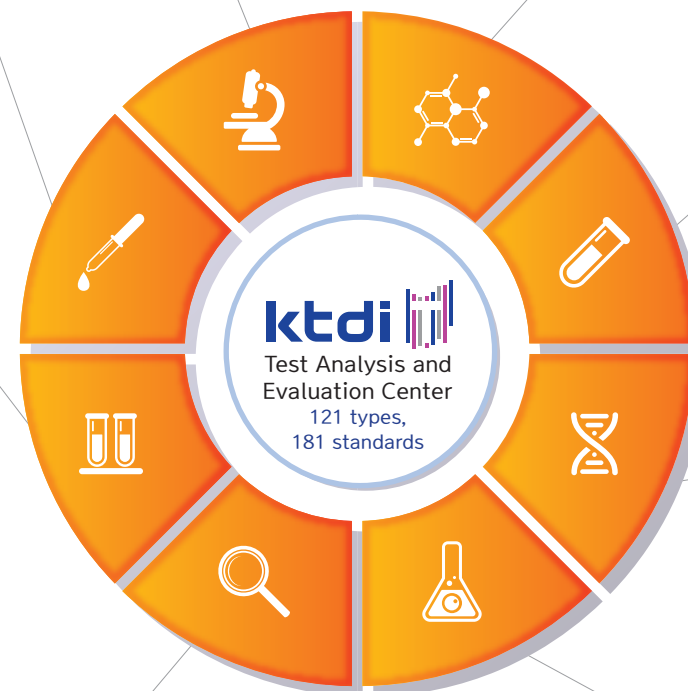
Evaluation of burning properties

- Analysis of various combustion behaviors such as smoke density, limiting oxygen index, combustion (45 degree, horizontal, vertical method)
- Preliminary test of fire protection performance based on notification by fire department
- Mobile Flame Manikin Analysis of burn by Human Part according to Function of fire protect material Products



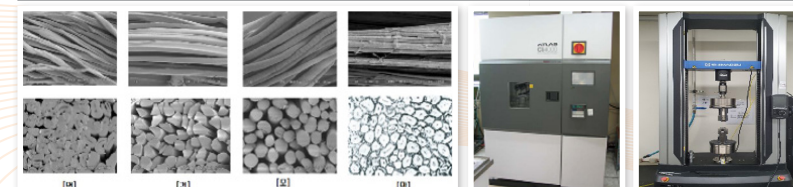
An internationally certificated testing agency(KOLAS)

- Korea's 10th international accredited testing institution
- Defect analysis/fabric disintegration design, industrial/fusion material analysis



Physical and chemical Test

- Fastness test of light/weather resistance/washing/dry cleaning/rubbing/sweat/water/sublimation, etc.
- Chemical tests such as fiber identification, blended fiber ratio, ph, evaporated residue, oil content, etc.
- Physical tests such as count, number of twists, density, tensile strength, tear strength, and peeling



Analysis of Hazardous Substance

- Qualitative and quantitative analysis of hazardous substances using HPLC, GC, UV-Vis, etc.
- Analysis of heavy metals and inorganic elements using ICP and EDX
- Analysis of conditions for elution and release of hazardous substances through test environment and conditions



Analysis of Eco-friendly Materials

- Measurement of biodegradability using biodegradable tester
- Microscope-FTIR for qualitative analysis in specific areas
- Instrument analysis to determine the authenticity of the recycling (GC, HPLC, GPC, etc.)



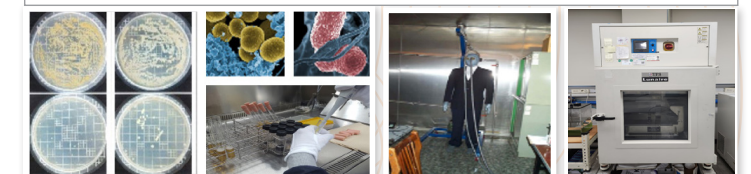
Analysis of Industrial Materials

- Analysis of physical properties such as tensile/bending/shear/compression/impact strength of industrial materials
- Biaxial tensile test for biaxial tensile/strength characteristics
- Accelerated life test to evaluate durability and usefulness of the product



Functional Analysis of Materials

- Hygiene analysis by antimicrobial/anti-mite/deodorizing effect analysis
- Analysis of comfort in artificial climate room(thermal mannequin), moisture permeability resistance, drying speed, etc.
- Analysis of convenience such as shape stability, water repellency/



Facility Operation Development Support Team/ New Product Development Team

Test Analysis Team

Tel. (+82)53-560-6784

E-mail ischoi@textile.or.kr

- Development of commercialization prototypes by spinning/processing/weaving
- Research services / business order

- General management of facility operation
- Prototype consultation and development

Tel. (+82)53-560-6641

E-mail yskim6047@textile.or.kr

- General management
- Fabric decomposition design / Defect analysis
- Research services / business order

Tel. (+82)53-560-6787

E-mail jhjung@textile.or.kr

- Polymerization/recycle/electrospinning equipment operation
- R&D / Development of new product
- Research services / business order

Tel. (+82)53-560-6513

E-mail shkwak@textile.or.kr

- Super Textile Development Center Equipment Operation
- Consultation on Prototype Manufacturing
- Order for research service projects

Tel. (+82)53-560-6647

E-mail jino@textile.or.kr

- Nonwoven Test-bed and industrial/super fiber analysis
- Device analysis/hazardous substances

Test analysis and evaluation team application
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<http://www.textopia.or.kr>(information portal site)