

# Japan's Advanced Fibers & Textiles 2025

## 1. Safety (Heat resistant, Flame retardant, High strength & High modulus)

### 1.1 Heat resistant, Flame retardant

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN	Conex	Meta Aramid	Meta type aramid fiber.	material	various applications
	Conex neo	m-aramid	Easy dyeing m-aramid	material	protective clothing
TEIJIN FRONTIER	SUPER EXTAR	E	Copolymer with halogen-free flame retardant.	material	various applications
TORAY	Unfla	E	Flame retardant fabric.	additive, finishing	cartain, carseat
	GULFENG	PPS etc.	Highly flame retardant, and flame blocking.	material	protective clothing, architecture, interior
	Torcon	PPS	Heat resistant, chemical resistant, flame retardant PPS fiber.	material	filter bag used at high temperature
TORAY FINE CHEMICALS	Toyoflon	PTFE	Heat resistant, chemical resistant, flame retardant PTFE fiber.	material	filter bag used at high temperature
TORAY CHEMICAL KOREA	ARAWIN	Meta Aramid	Meta type aramid fiber.	material	industrial materials
KURARAY	Vinarl	PVA	High limited oxygen index (LOI), Self-extinguishing, Carbonize without melting drip.	additive	fiber reinforced cement, building materials, rubber reinforcement, fiber reinforced mortar and concrete
	Polyetherimide fiber	PEI	Low moisture absorption, Low-temperature dependence, Excellent vibration damping, liquid crystal polymer fiber.	material	intereor materials for aircraft, composite
KURARAY FASTENING	Hook & Loop fastener heat resitant type	PPS	Hook & Loop fastener with heat resistance and chemical resistance	Material property	heating jaket, fireman uniform
TOYOBO	HEIM	E	Copolyester with flame-retardant compound.	material	interior, bedding, automotive
	PROCON	PPS	Up to 190degC continuous running, chemical resistant, flame retardant, round or modified cross-section fiber.	material	filter bag for combustion gas
UNITIKA	MEWLON-FR	Vinylon	Kneading flame retardant.	kneading	industrial material
DAIWABO	NBF(H)FR	PP, PE	Flame resistant fiber with kneaded nonhalogen ingredients	kneading	filter
DAIWABO RAYON	DFG	R	Flame resistant viscose fiber with kneaded nonhalogen ingredients	kneading	protective clothing, curtain, bedding, industrial materials
	FR CORONA	R	Flame resistant viscose fiber in which a non-flammable structure remains in fires to become a barrier to flames	kneading	protective clothing, curtain, bedding, industrial materials
KANEKA	Protex M	Modacryl	Kaneccaron/Protex works as the FR blend partner to achieve a high level of FR performance in yarn and fabric. Especially, Protex-M and Q blended with cellulosic fibers, such as cotton or rayon, increases the FR performance overall. Protex Q can pass the Okotex100 class 1.	kneading	workwear, protective clothing, childrens sleep wear, hoods, pinafores, arm covers, insulation, thermal underwear, thermal jackets
	Protex Q	Modacryl			
	Kaneccaron SB	Modacryl	Kaneccaron will prevent the flame spread and help minimize damage.		
	Kaneccaron SYS	Modacryl			

## 1.2 High strength & High modulus

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN	Twaron	Para Aramid	Para type aramid.	material	various applications
	Technora	Para Aramid	Para copolyer type aramid.	material	various applications
	TENAX	Carbon fiber	PAN-related carbon fiber.	material	airplane,sports etc.
	Pyromex	Resist fire fiber	PAN-related resist fire fiber.	material	extinguishing fire etc.
TORAY	SIVERAS	Liquid Crystal Polymer	High strength, high modulus, high dimensional stability, low moisture absorption, high strength retension in water	material	marine rope, marine net, cable, Industrial materials
	TORAYCA	Carbon fiber	PAN-related carbon fiber.	material	airplane,sports, industrial materials
DU PONT-TORAY	Kevlar	Para Aramid	Para type aramid.	material	industrial materials
KURARAY	Kuralon	PVA	Strong alkali resistance,Weather resistance,Good adhesive with cement and rubber, General-purpose high tenacity fiber.	material	FRC, building materials, rubber reinforcement
	Vectran	Polyarylate	Low moisture absorption, Low-temperature dependence, Excellent vibration damping, Polyarylate fiber.	material	marine rope, cable, sports materials
TOYOBO	IZANAS	UHMWPE	High strength, high modulus, low density, wear resistance, impact resistance, cut resistance, high thermal conductivity.	material	rope, net, FRP, safety gloves
	ZYLON	PBO	Thermal stability, flame resistance, high strength, high modulus, low creep, impact resistance, high thermal conductivity.	material	rope, FRP, tension member, filler for rubber, fire protection garment, cushion for high temperature aluminum and glass
	TSUNOOGA	PE	High strength, high modulus, low density, cut resistance.	material	safety gloves

## 2. Electrical characteristics

### 2.1 Electroconductive, Anti-static

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	selguard	E, N	Antistatic material with low dust.	additive	antistatic uniform
	GIGATECH	E	A material with antistatic effect with high-performance conductive threads arranged vertically and horizontally	kneading, aftertreatment	uniform
TORAY	Parel	N, E	Permanent antistatic filament.	additive	inner, jersey, lining
	Megatopia	E	Fabric composed by Parel and Luana.	additive	dust-proof cloth, doctor's smock, working wear
	Luana	N, E	Electrically-conductive filament.	additive	lining, dust-proof cloth
	SA-7	Acrylic	Electrically-conductive fiber.	additive	apparell, electronic apparatus
	MOIST+	N	Texiles with high vaper control and antistatic	fiber structure, cloth construction	clothes
KURARAY	Clacarbo	E	Special carbon impregnated fiber,Long term antielec property.	additive	uniform, underwear, sports materials
KURARAY FASTENING	Hook & Loop fastener with antielectricity	PET with carbon fiber	Hook & Loop fastener with electric cinduction threads textured	Mixed weaving	uniform, clean room wear etc.
ASAHI KASEI	PULSHUT	E	Noise suppression sheet for electronic devises.	finishing	noise suppression sheet

UNITIKA	ELECGUARD	E, E/C	Durable antistatic polyester from aftertreatment.	aftertreatment	uniform
	MEGANA E5	E	Black electroconductive fiber It's electrical resistance is $1 \times 10^5 \Omega$ .	kneading	uniform, clean room wear etc.
	MEGANA E7	E	Black electroconductive fiber It's electrical resistance is $1 \times 10^7 \Omega$ .	kneading	uniform, clean room wear etc.
	MEGANA E	E	White electroconductive fiber.	kneading	uniform, clean room wear etc.
	MEGANA(reverse-sheath core)	E, EC	Sheath: Electroconductive materials Core: Electroconductive fibers	kneading	uniform, clean room wear etc.
	NANO AQUA	E	High strength, water absorption, anti-static, stain resistance	aftertreatment	uniform, sport and industrial material
	NANOPHASE AS	E, E/C	Durable antistatic treated material from low temperature plasma treatment.	aftertreatment	uniform
	DUALPLUS-EM	C/E etc.	Durable antistatic property, water absorbing property and soil resistance from low temperature plasma treatment.	aftertreatment	uniform, shirt, blouse, pants, jacket
KANEKA	Kanekalon KC	Modacryl	Conductive fiber.	kneading	industrial area

## 2.2 Electromagnetic wave shielding

Company	Product Name	Material	Features	Means of processing	Uses
ASAHI KASEI	PULSHUT	E	Noise suppression sheet for electronic devices.	finishing	noise suppression sheet

## 2.3 E-Textile

Company	Product Name	Material	Features	Means of processing	Uses
TORAY	hitoe	E	Wearable material using the textile electrode	finishing	sports, uniform
TEIJIN FRONTIER	Matous	E	The anti-slip ultrafine fiber wear that can detect motion and obtain vital information	product	sports, healthcare, work wear

### 3. Sustainable

#### 3.1 Biobased, Biodegradable

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	PLANTPET	E	Using biological law material.	material	various applications, sanitary materials
	SOLOTEX	E	Polyester fiber using bio-derived ingredients as part of the raw material	material	women's and men's clothes, sports, uniform, material
TORAY	Ecodear PLA	PLA	Plant-derived, biodegradable.	material	various applications
	Ecodear	E	Plant-derived polyester.	material	various applications
	Ecodear 3GT	E	Stretch material with the plant-derived 3GT polymer.	filament	sports, women's, men's, other inner
	Primeflex	N, E	Stretch material using bimetal-type yarn made from partially plant-derived polymer.	material	clothes, inner wear, sports
	Ultrasuede BX	E,Un	sueded artificial leather having the raw materials ratio derived from approximately 30% of plants	material	clothes, interior, industrial materials
ASAHI KASEI	ECORISE	PLA	Nonwoven fabric.The main material is plant-based polylactic acid (PLA), an environmentally friendly material that can biodegrade and compost under industrial compost conditions.	material	teabags and coffee filters, as well as agricultural and industrial materials, etc
	ASAHIKASEI CUPRO	Cupro	Cupro is a regenerated cellulose fiber made from a cotton linter. As a pure cellulose, Cupro is a biodegradable fiber.	fiber	clothing
	Bemliese	Cupro	Regenerated Cellulosic continuous-filament. Nonwoven made from cotton linter.	material	wipers, medical gauzes, facial masks
	Roica V550	Un	Biodegradable premium stretch fiber	specialty spandex	legwear, underwear, other items
UNITIKA	CASTLON	N11	CASTLON made from the seeds of non-food, castor-oil plants.	material	various applications
	TERRAMAC	PLA	TERRAMAC is a biomass material created from plant-derived polymers.	material	various applications
SOALON	SOALON	Triacetate	Semi-synthetic filament mainly made of wood pulp	material	clothing, rinnner wear
FUJIBO	ECO SOFTENER	all	Characterized by its soft texture using natural softening ingredients without any silicone	post-cure processing	general wear
NITTOBO ADVANTEX	PlaX series	PLA	Biodegradable interlining fabric using PLA yarn	material	various applications
DAIWABO	NBF(KK)PL	PLA,PBS	NBF(KK)PL is a biomass material created from plant-derived polymers , and is a biodegradable fiber.	material	various applications
	Apitas E	R	Marine biodegradable non-woven consists of e:CORONA	material	living materials
	C series	Cotton	Non-woven fabric which consists of cotton	material	living materials
	R series	R	Non-woven fabric which consists of rayon fiber	material	living materials
	L series	Lyocell	Non-woven fabric which consists of Lyocell fiber	material	living materials
DAIWABO RAYON	e:CORONA	R	Viscose fiber with good Marine biodegradability derived from wood-based cellulose	material	clothing, nonwovens, industrial material
	Recovis	R	Cotton recycled cellulose fiber blended with cotton cellulose from denim scraps, etc.	material	denim, clothing, nonwovens

### 3.2 Recycling

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	ECOPET	E	Recycled polyester.	material	various applications
TORAY	Ecouse	E	Textile products that were recycled raw materials and manufacturing processes scrap and pet bottle.	filament, staple	clothes, industrial material
	Cyclead	N	Textile products that are intended to be recovered and recycled after use.	firmament	clothes, industrial material
	&+ (andplus)	E, N	Textile made from recycled raw materials including post-consumer materials	material	every uses
	Ultrasuede HP	E,Un	sueded artificial leather using the recycled raw material as microfiber	material	clothes, interior, industrial materials
KURARAY	AQUADUO	N/Un	The artificial leather consisted of the microfibers nonwoven and the polyurethane. The nonwoven is made from Nylon recycled from waste of fishnets and aquaculture ropes.	material , structure	bag
	ECOKURAPET	E	A recycled PET fiber regenerated from PET bottles.	material	industrial material
	Kurarapet	E	A recycled PET fiber regenerated from PET bottles.	material	clothing
TOYOBO	e-VOLANCE	E	Polyester spunbond that composition of PET bottle recycled resin is greater than 50%.	material	geotextile
	Echale Club	E	Polyester fabric using more than 50% of PET bottle recycled resin	material	clothing
	Ecot	C	Recycled cotton	material	clothing
ASAHI KASEI	Roica EF	Un	Re-made from pre-consumer materials	specialty spandex	legwear, underwear, other items
	Dinamica	E/Un	The artificial suede made by the nonwoven fabric mainly consist of recycled microfibers. It is impregnated by the water based polyurethane.	material & structure	seating, upholstery, garment, industrial application
UNITIKA	UNIECOLO	E	A polyester fiber made from recycled PET bottles.	material	various applications
NITTOBO ADVANTEX	RE interlining	E	Interlining using chemically recycled PET yarn	material	various applications
	JEC series	E	Interlining using materially recycled PET yarn	material	various applications
	Real Impact	E,N	Backer for moisture-permeable waterproof woven fabric, made from recycled PET and recycled Nylon yarn	material	various applications
DAIWABO RAYON	Recovis	R	Cotton recycled cellulose fiber blended with cotton cellulose from denim scraps, etc.	material	denim, clothing, nonwovens

### 3.3 Animal Protection (Eco-Friendly Synthetic Leather etc.)

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN CORDLEY	Cordley	E, N	Artificial leather very similar to natural leather	material	furniture, vehicles, materials
TORAY	Ultrasuede BX	E,Un	Sueded artificial leather having the raw materials ratio derived from approximately 30% of plants	material	clothes, interior, industrial materials
KURARAY	AQUADUO	N/Un	The artificial leather consisted of the microfibers nonwoven and the polyurethane. The nonwoven is made from Nylon recycled from waste of fishnets and aquaculture ropes.	material , structure	bag
	CLARINO	N/Un , E/Un	The artificial leather consisted of the microfibers nonwoven and the polyurethane.	material , structure	shoe, upholstery, garment, industrial materials
	TIRRENINA	E/Un	The artificial leather consisted of the microfibers nonwoven and the water based polyurethane.	material , structure	shoe, upholstery, garment, industrial materials
TOYOBO	Breathleather	Un, An	Synthetic leather with rapid moisture absorption and desorption with high permeability	material, additive	car seat, sofa
ASAHI KASEI	Dinamica	E/Un	The artificial suede made by the nonwoven fabric mainly consist of recycled microfibers. It is impregnated by the water based polyurethane.	material & structure	seating, upholstery, garment, industrial application
DAIWABO	DURON	PP	The warmful fabrics which use Polypropylene. It is ecological, light, thermal.	polypropirene fiber	clothing, bedding

### 3.4 Solution of Marine Plastic Litter

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	DELTA freemo	E	Much bulkiness and spongy stretch fabric. Which has unique four dimensional construction to achieve comfortable and less drape fabric.	cloth construction	sportswear, clothes
KURARAY	AQUADUO	N/Un	The artificial leather consisted of the microfibers nonwoven and the polyurethane. The nonwoven is made from Nylon recycled from waste of fishnets and aquaculture ropes.	material , structure	bag
UNITIKA	AIRHOLD NB	E	Heat retention by the organization that makes the air layer large without brushing, which clears marine microplastic problems.	cloth construction	sport
NITTOBO ADVANTEX	D-Align	E,N,PP,PE etc	Reduces shedding of synthetic fiber lint/fluff during washing through dot coating. Various functional treatments can also be applied simultaneously	processing	clothing, linen, housing materials
DAIWABO	Apitas E	R	Marine biodegradable non-woven consists of e:CORONA	material	living materials
DAIWABO RAYON	e:CORONA	R	Viscose fiber with good biodegradability in marine water derived from wood-based cellulose	material	clothing, nonwovens, industrial material

#### 4. Moisture and Water

##### 4.1 Moisture absorbing, Moisture control, Sweat absorbing & Fast drying

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	AQUA DRY	E	High water-absorbing property and make sweat spread from fabric surface.	fabric structure	sportswear
	Triple Dry	E	Consist of 3 layers which intermediate dry-one is sandwiched between water-absorbing ones.	fabric structure	sportswear
	Triple Dry CARAT	E	Consist of 3 layers using water-shedding PE on the skin side. It is easy for sweat to absorb and spread.	fabric structure	sportswear
	CALCULO	E	Light weight, water-absorbing, dry-touch.	material (yarn)	sportswear, casual wear
	BELL OASIS	Acrylate	High water absorbing and high moisture absorbing fiber. Having also deodorant.	fiber	clothes, industrial material
	PORYTY	E	Converting to add hydrophilia on the surface of yarn.	converting	bedding items, sheet,cushion
TORAY	Airfine	E	By using the E yarn with a micro slit structure, about twice the conventional water-absorbing performance sweat treatability comfortable material of excellent light weight bulky, windproof, the transparent proof.	fiber & structure	sports, outdoor
	Quup	N	High moisture absorption naar to cotton,soft touch,good dyeability.	additive	stocking, inner, sports
	Coolmagic	E	It is Water Absorption Fabric made by double layer woven. It have Natural appearance, soft touch, hardness, Anti-see through also.	structure	sports wear, lady's and men's wear
	CEO α	E	Comfortable material that exhibits high water absorption performance using a special combined filament yarn of modified cross-section and circular cross-section.	fiber & organization	sports wear, lady's and men's wear
	Fieldsensor	E	It is Water Absorption Fabric made by special multi layer structure.	structure	sport wear, inner wear, liner, shoes material
	Pentas α	E	Water absorption and dispartion properties, Anti-see-through,UV blocking and cooling properties.	material	uniform, clothing
	Body cool	N	Water absorption, quick dry, cool feeling.	material	inner, sports, casual
	RIRANCHIA S2	E	The comfortable material having sweat absorbency, air permeability and free from sticking feeling and stuffing feeling	fiber	clothes
	MOIST+	N	Texiles with high vaper control and antistatic	fiber structure, cloth construction	clothes
KURARAY	Watermagic	E etc.	High sweat absorbency and quick drying performance is achieved by microfiber and multilayer structure.	microfiber	swimming suit, shirt, nursing care equipment
	Spacemaster UV	E	High sweat absorbency and quick drying performance is achieved by high capillary phenomenon (A cross section of fiber is a cross shape.), Ultraviolet protection by kneaded ceramic, Light weight.	modified cross-section	sports wear
	Panapack-QD	E	High sweat absorbency and quick drying performance is achieved by high capillary phenomenon (A cross section of one fiber is T-shape).	modified cross-section	sports wear
	Sophista	EVOH	Quick drying performance,cool touch and biocompatibility is achieved by hydrophilic group of Ethylene Vinyl Alcohol(EVOH) resin.	material	sports wear

TOYOBO	ALTIMA	E/C	Double knit fabric with dry surface side and water absorption side, sweat-absorbent and release.	cloth construction	sport apparel, outdoor sports
	—	E/C	Thermal and humidity control fabric.	spun construction	general textile
	COOLGEAR	E/C	Knit fabric water evaporation, air penetration and ventilation help body cooling while taking exercise.	cloth construction	golf shirt, tennis shirt
	FIRACIS	E/C	Lustrous spun yarn extra-long staple cotton completely covered by polyester filament, prevent from adhering to the skin, superior sweat-absorbent and release.	fiber structure	sports, casual, inner wear
	AQUAIR	E	Quick sweat-absorbent and release from the skin, combination of fiber diameter difference and yarn density difference in the knit.	cloth construction	sport apparel
	D·D·D	E	Polyester knit fabric with deferent denier mixed filaments, quick sweat-absorbent and release to yarn direction, across the fabric and into the yarn.	material	sport apparel
	—	Acrylic	Continuous porous structured fiber utilizing capillary phenomenon for sweat-absorbent and release fabric, antimicrobial and deodorant.	material	general textile
	Dullfine tetora	E	Cool touch fabric with superior sweat absorption and quick drying by Y-shaped cross section and high content of ceramics	filament	sports wear, uniform
	Refres	R	Heat generating rayon with high moisture absorption	fiber modification	inner wear, sports apparel, bedding
ASAHI KASEI	ROICA BZ	Un	Prevention of stuffy, clammy feel, by rapid, efficient moisture transpiration.	specialty spandex	legwear, underwear, other items in contact with the skin
	Moistex	Cupro/E	A fine-filament yarn combining cupro and textured polyester for dry feel and vapor control.	fiber & structure	sports wear, inner wear
	TECHNOFINE	E	W-cross section polyester filament that can help keep the inside of the garment dry by capillarity action.	fiber	sports wear, inner wear
	SUREDRIYMAX-β	Cupro/E	Dry-keep knitted fabric by the unique structure that cupro layer sandwiched between two polyester layers can help vapor control.	fiber & structure	sports wear, inner wear
	Paircool	Cupro/E	A fine-filament yarn combining cupro and textured polyester for cool and free comfort.	fiber	inner wear, sport wear, home interior
	Maple	Cupro/N	A fine-filament yarn combining cupro and textured nylon with a smooth, soft, cool touch and feel.	fiber	innerwear, sportwear, home interior
UNITIKA	Uchimizu Dry	E	Cooling materials with irregular cross-sectional polyester kneaded with vaporization-promoting ceramic on the core..	fiber	
	AIRROLL	E/C	Blended spun yarn which is composed of hollow polyester and cotton. The feature is lively flavor like a linen cloth, light weight and sweat absorbency, quick drying.	spun yarn	uniform, clothing
	Sulucky	E、E/C	Laminated knitting with diffusion layer and water retention layer. Suppressing water return property, the skin surface is smooth and comfortable. Used for incontinence sheets by providing a waterproof layer.	cloth construction	
	Sui Com	E、E/C	Water absorption quick drying with a function to suppress sweat return to the skin surface, material with excellent skin disengagement	finishing	
	Spassy	E	Knitting with excellent water absorption diffusivity due to the difference in fiberability of yarn used on the front and back surfaces	cloth construction	
	LUMIACE	E	Lumiacce is composed of modified cross section, finess, and shrinkage, the material helps skin feel dry by quickly absorbing and diffusing sweat and moisture from the skin.	material	sports
	HYGRA	N	A Nylon material that demonstrates superior moisture absorption and release through a core-sheath structure.	material	underwear, sports
	HYGRA Lu	E/N	Material of Union knit which is composed of HYGRA and LUMIACE.	knit	sports



FUJIBO	DUPLICE PLUS	C, C/E	Quick sweat absorbing and drying property.	post-cure processing	outer wear, knitted shirt
	PEARL LAUREL	C	100% cotton material with excellent water-absorbing and quick-drying properties that gives off a luster through soft texture processing	post-cure processing	inner, general wear
DAIWABO	DURON XC	PP/C	Mixed Spinning, mixed knitting with polypropylene and cotton.	spun yarn converting	underwear, sports wear
DAIWABO RAYON	Eco Repellas	R	Non-fluorinated, safe, water-repellent sustainable rayon.	material/kneading	nonwovens, clothing
	PARAMOS	R	Viscose fiber with improved moisture-absorbing/releasing properties by kneading a functional agent	kneading	Textile
KANEKA	Kanecaron collagen fiber	Collagen	The excellent water holding property using collagen.	material	cosmetics, wound care

## 4.2 Waterproof & Moisture permeable

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	ECO STORM	E	Recyclable, waterproof and moisture transmission.	converting	sports wear
	NEOZOIC	E/Un	Waterproof and moisture transmission fabric using special membrane.	converting	sports wear
	MICROFT	E	High-density woven fabric with waterproof and breathable functions using microfiber	fiber & structure	sports
	MINOTEC	E	Water repellent and breathable material with micro garter structure	material	fashion,sportswear, umbrella, general goods
	MINOTECH ST	E	Stretch water repellent and breathable material with micro garter structure	material	clothes
TORAY	H <sub>2</sub> OFF	E	Microfiber fabric with a unique high-density structure. High-density polyester microfiber fabric enable Durable water repellency, Superior breathability with a non-coating structure, Water resistance, Soft and supple handfeel,and Minimal wrinkling and easy care.	yarn & fabric design	sports wear, outdoor wear
	Entrant	N, E	The very first waterproof breathable fabric that Toray introduced. Its distinctive microporous coating protected the weare from rain and snow, also allowing perspiration vapors to escape, delivering maximum comfort.	finishing	outdoor wear, rain wear
	Entrant DT	N, E	Defining a new style of waterproof,breathalbe fabrics. Microporous couating enable highly waterproof and moisture permable, windproof and durable water repellency.And due to "Dry Tech"finish on the coating needed no lining, lightweight and packable.	finishing	sports wear, outdoor wear, casual wear
	Dermizax	N, E	Dermizax laminated fabric incorporates an ultrathin monolithic membrane. This membrane provides a superlative degree of waterproofness with minimal condensation in addition to key features such as superb durability,strechability and smooth texture.	finishing	sports wear, outdoor wear, casual wear
	Delfy	N, E	Waterproof, Breathable, Windproof, Durable water repellent treatment of the surface, Soft and flexible on the skin.	finishing	sports wear, casual wear
TOYOBO	AQUAVENT	N, E	Membrane layered fabric good moisture permeability and preventing dew condensation.	finishing	outdoor sports
ASAHI KASEI	SOFANDE	N	Laminated fabrics "SOFANDE" offer excellent waterproof property and high moisture permeability. "SOFANDE-LT" is the light weight type. "SPFANDE-HS" offers stretch property to move comfortably. "SPFANDE-AS" offers sustainable anti-static property even after washing.	lamination	outdoor sports wear
	LEOFEEL	N	Coated fabrics "LEOFEEL" offer excellent waterproof property and high moisture permeability. "LEOFEEL-MX II" offers 20k mm water proof. "LEOFEEL-LT" is the light weight type. "LEOFEEL-TH" has the heat-retention property by aluminum coating.	coating	outdoor sports wear

UNITIKA	PROOFACE	N/E	Highly resistant to water pressure, excellent moisture permeability. The numerical value of water pressure resistance is 100~400 kPa.	aftertreatment	sports, working
	Proof Ace NP	Ny	Proof Ace's high moisture permeability version. Nanoporous PU coating provides excellent moisture permeability and water pressure resistance	aftertreatment	sport, casual wear
FUJIBO	HIREPELLENT	C,CE	Water repellent processing with high wash durability	post-cure processing	outer wear
	ECOREPELLENT	C,CE	Environmentally friendly water repellent processing with high wash durability	post-cure processing	outer wear
NITTOBO ADVANTEX	Real Impact	E,N	Backer for moisture-permeable waterproof woven fabric, made from recycled PET and recycled Nylon yarn	material	various applications
DAIWABO	BREATHINTEC	C,E/C	The after-proceeding outer fabrics which are moisture permeability, waterproof property and air permeability.	finishing	coat, jacket
DAIWABO RAYON	Eco Repellas	R	Water-repellent and dyeable fiber with moisture-absorbing/releasing properties of viscose fiber itself maintained	material/kneading	outdoor wear, nonwovens

## 5. Heat / Light

### 5.1 Warmth retention, Heat storing

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	WARMAL	E	Heat retention performance by infrared effect of ceramic.	additive	comforter, ,batting
	AEROCAPSULE	E	Light weight hollow polyester yarn.	material	clothes, sportswear, batting
	ERGOLITE	E	Lightweight, windproof, strong and comfortable material with enhanced heat retention	fabric structure	uniform
	OPTSENSOR	E	Heat retention performance by near infrared resonance agent.	additive	clothes,uniform
	SUNBURNER	Acrylate	Hygroscopic fever fiber.	material	clothes
	Thermo Fly	E	Environmentally friendly and comfortable material by fusion of non-brushed fluffy structure and Octa technology	fiber, after treatment	outdoor, casual, sports, uniform
	SOLOTEX THERMO	E	Heat storage material by kneading special carbon-based fine particles	material	general clothing
	SOLOTEX FULFLAN	PTT, E	Carded wool-like polyester material, which reproduces the grainy appearance of wool tweed, and easy care.	fiber	sclothes, sportswear, uniform
	HEAT ENAGY	E	Heat storing material which absorbs the light and converts to heat efficiently.	fiber	sportswear, clothes
TORAY	Dynahot	Acrylic	Acrylic fiber with ceramic emitted far infrared rays.	fiber	sweater, sox etc.
	Torayheat	Acrylic, Acrylic/E	Sun light absorption warm fabric with anti-static and anti-Pilling.	fiber & structure	sweater, sox, inner etc.
	Farrillo	N	Light weight fabric made by hollow fiber. It have warmth and hardness.	fiber	sports wear, casual wear, bag fabric
KURARAY	Microwarm	E	Thermal storage fiber kneaded black silica.	additive	under wear, sox, bedclothes

TOYOBO	[eks]	Acrylate	Heat generating fiber (thermal, humidity and harmonize).	material	sport apparel, inner wear, suit, casual wear
	MOISCARE	Acrylate	Repeated moisture absorption/release over a long period of time according to atmospheric conditions, with simultaneous heat release at the time of moisture absorption.	material	sport apparel, inner wear, shoe material, bedding, insulation, cosmetics
	CERAM A	Acrylic	Far-infrared radiating ceramic mixed fiber.	material	blanket, sweater, underwear
	METALGEAR	E, N	Aluminum PVD coating fabric that reflects infrared to the body.	finishing	down jacket, down filled quilt
	COREHOT	Acrylic	Double-layer spun yarn water absorbable, antimicrobial and far-infrared emission fiber.	spun construction	general textile
	Hotnature	R, C	Fabric with heat generation and moisture absorption by modification of cellulose	fiber modification	inner wear, sports apparel, bedding
ASAHI KASEI	GOUGUL	E	High densed knitted fabrics for wind shield.	structure	sportswear, golfwear
	Thermogear	Cupro/Acrylic	A blended spun yarn of cupro and anti-pilling micro acrylic with the functions of heat generation and moisture absorption.	feature	outerwear, innerwear, home interior
UNITIKA	AIRHOLD	E	Heat retention by the organization that makes the air layer large.	cloth construction, finishing	sport
	AIRHOLD NB	E	Heat retention by the organization that makes the air layer large without brushing, which clears marine microplastic problems.	cloth construction	sport
	THERMOTRON	E	A heat-storing heat-retentive material. The warmth retaining property of fabric which made with THERMOTRON is higher (6°C~8°C) than ordinary fabric.	kneading	sports, working, swimwear
	THERMOTRON W	E	A heat-storing heat-retentive material. The warmth retaining property of fabric which made with THERMOTRON is higher (3°C~4°C) than ordinary fabric.	kneading	sports, working, swimwear
	SYLPH AI	Lyocell/Acrylic	SYLPH AI is blended spun yarn which is composed of rayon from pulp and bulked acrylic fiber. The fabric ability can expect hygroscopic and exothermic and thermal insulation.	spun yarn	under wear
FUJIBO	ECOWARM	C/synthetic fiber	When fibers are in touch with perspiration vapour, heat generation occurs. Moisture absorption and heat generation processing is made by this effect.	post-cure processing	outer wear, knitted shirts
	XYLIFRESHCOOL	C,C/E	Water-absorbing and cool touch processing using the lytic and endothermic reaction of xylitol	post-cure processing	general wear
	Pearlmine	C	Cool touch processing with a glossy and soft texture	post-cure processing	general wear
DAIWABO	DURON	PP	The warmful fabrics which use Polypropylene. It is ecological, light, thermal as well as drying quickly.	polypropylene fiber	clothing, underwear, inner, bedding
	THERMO CAPSULE	C,E/C	The materials which controlled the surface temperature using the absorbed fever when it becomes phase change.	finishing	clothing, underwear, inner, liner
	WARMPRO X	C,E/C	The absorbing moisture and heat proceeding materials which make warmth by evaporating water from human skin. It is warm and fresh.	finishing	clothing, underwear, inner, shirt
DAIWABO RAYON	EarthWave	R	Viscose fiber that warms up by absorbing infrared lights from the sun to convert it into heat energy	kneading	textile

## 5.2 UV shielding

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	WAVERON	E	Material with excellent sweat absorption and shading	fiber	sport, uniform, material
	Coolfriede	E	Comfortable material with excellent sweat absorption and shading	material	fashion, uniform
TORAY	Arfix	E	Staple fiber containing special ceramic. transparent proof, cooling properties.	additive	general clothing
	Aloft	E	UV-cut, transparent proof by special ceramic composite, knitted or woven fabric material with excellent cooling properties.	additive	general clothing, sports
	Araignee	E	Knitted or woven fabric material having both of transparent proof of high-level, refreshing feeling of dry, antistatic, UV-cut resistance.	additive	lab coat, student clothing, umbrella cloth
	Aerolead	E	High ventilation with many fine holes on fabric, and UV shielding	fabric structure	clothes, sports
	MICRONOVA	E	UV blocking, and cooling properties.anti-see-through	material	clothes
	uts50+	E	Fabric made of super fine fibers containing special ceramics at high concentration	fiber	clothes
	BODYSHELL EX	E	light blocking fablic having high ceramic content rate and good process passage by core sheath structure	material	sportswear, outdoor wear
	SUMMER SHIELD	E	Laminated textiles having heat shield, visible light and UV cut	finishing	umbrella, outdoor, hut
KURARAY	EXTAGE	E	High concentration ceramics included.excellent UV cut,thermal barrier and high whiteness fiber.	kneading	sport, uniform
	Esmo	E	Ultraviolet protection, Thermal insulation.	additive	sports wear, umbrella, hut
	Spacemaster UV	E	High sweat absorbency and quick drying performance is achieved by high capillary phenomenon (A cross section of fiber is a cross shape.), Ultraviolet protection by kneaded ceramic, Light weight.	modified cross-section	ladies wear, sports wear, uniform
TOYOBO	DULLFINE	N, E	High content of UV, IR and visible light cutting ceramics mixed fiber.	material	golf wear, sports apparel
	Uvinon	Acrylic	UV cut ceramics powder mixed fiber.	material	sports apparel, outdoor sports, casual wear
	Rayblock	E	Knitted fabric shielding UV,IR and visible light by containing of high concentration of special ceramics.	material	sports wear
	Trycool	E	Staple fibers shielding UV, IR and visibl light by containing of high concentration of special ceramics.	material	clothing
ASAHI KASEI	SUNPAQUE	E	Ceramics blended polyester filament for UV rays protection and anti-transparency.	blending	clothing
	Full Dull Cupro	Cupro	Ceramics blended cupro yarn for Ultra Violet protection and anti-transparency.	blending	clothing
UNITIKA	SARACOOOL	E	A high -performance material with a cooling effect from blocking out solar rays.	kneading	sport, ladies' garment, coat
	SUBIO	E	Full dull tapelike yarn,the ability is excellent blocking out solar lays property from tapelike cross section.	kneading	uniform
	SUN GRAND	E/C	UV cut finish.	aftertreatment	shirt, blouse
	Kokage Max	E	A high -performance material with a cooling effect from blocking out solar rays.	kneading	sport, curtain
FUJIBO	RAYFILTERED	all	UV-cut fabric which shields harmful ultraviolet rays effectively.	post-cure processing	sports wear
DAIWABO	SUNDANCE 30 50+	C,E/C	The UV protection fabrics which prepare for the high class(50+) and better class(30+).	finishing	clothing, shirts
DAIWABO RAYON	Scutum	R	Viscose fiber with kneaded functional ceramics having properties of shielding UV and anti-transparency	kneading	underwear, shirts, blouses, bottoms
	RayShield	R	Viscose fiber with kneaded functional ceramics having a property of shielding infrared rays which are a source of heat	kneading	underwear, shirts, blouses

### 5.3 Light weight

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	AEROCAPSULE	E	Hollow polyester fiber.	material	clothes, underwear, sportswear, batting
	Octa	E	A unique, highly modified cross-section with eight projections aligned in a radial pattern around a hollow fiber.	fiber	sports wear, casual wear, outdoor wear, uniform, bedding,
	Octa CPCP	E	Comfortable functional tricot fabric that uses Octa and integrates batting and lining	fiber, after treatment	sports, casual
	CALCULO	E	Water-absorbing and quick dry. False twisting textured yarn with irregular section.	material & textured	casual wear, sportswear
	SHADOW RIP	E	Lightweight woven fabric with a flat appearance and soft texture, but also excellent in tearing and abrasion resistance	fiber & structure	sports wear
	FINE CELL	E	Laminated, Knitted fabric (Very thin, light weight, stretchable, shape recovery, vapor permeability and soft)	material	sport wear
TORAY	Cebonner AR	N	Polyamide 66 fabric by hollow span yarn. Material Characteristic: 1) texture such as the cotton, 2) light weight, 3) good durable abrasivity and fabric strength.	fiber	sports wear, outdoor wear, casual wear, bag fabric
	Farrillo	N	Light weight fabric made by hollow fiber. It have warmth and hardness.	fiber	sports wear, casual wear, bag fabric
	AIRLET	E	Light weight, thermal retention, cooling property and good resilience	material	clothes, uniform
KURARAY	Kuralon K-II	PVA	Lightness and softness is achieved by dissolubing and removing 'Kuraron K-II' with hot water after making spun yarn or textile.	water soluble	clothing
	Spacemaster UV	E	High sweat absorbency and quick drying performance is achieved by high capillary phenomenon (A cross section of fiber is a cross shape.), Ultraviolet protection by kneaded ceramic, Light weight.	modified cross-section	clothing
	Vectran	Polyarylate	High strength, high modulus, and low creep properties are utilized to replace steel wires and reduce weight	material	floating offshore wind turbines, ship mooring cables, slings, marine ropes
	Mintval	PVA	Lightness and softness is achieved by dissolubing and removing Mintval with hot water after making textile.	water soluble	clothing
TOYOBO	AIRMAX	E/C	All season light warm fabric made of hollow fiber.	material	sports apparel, blouson, inner wear
	SILFINE	N	Down proof ultra thin fabric.	material	down jacket
ASAHI KASEI	IMPACT	N	"IMPACT" is the light weight downproof fabric collection. The lightest category of IMPACT is "IMPACT-UL", which weight is under 25g/m <sup>2</sup> . "IMPACT-FT" is composed of textured filament so that it looks like a natural fabric, and its touch is relatively soft. "IMPACT-WR" offers highly durable water repellency even with C6 agent. "IMPACT-AS" keeps sustainable anti-static effect even after washing.	fiber & structure	outdoor sportswear, sportswear, casual wear
UNITIKA	AIRKEEP	E	Macaroni shape light weight hollow fiber the percentage of hollowness is 12%.	material	sport
	AIRLAYER	E/C	Core yarn. A sheath is hollow polyester fiber, and core is cotton.	material	uniform, shirt, pants
NITTOBO ADVANTEX	real impact	E, N	Ultra light fabric about 10g/m <sup>2</sup>	material	lining
DAIWABO	DURON	PP	Mixed Spinning, mixed knitting with polypropylene. Insist on heat retention, light weight, quick drying, dry feeling	Mixed Spinning. Mixed knitting	clothing, underwear, bedding

## 6. Sport

### 6.1 Stretch

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	ESUVIRON	E	Conjugated yarn with retractility.	yarn	clothes, uniform
	SOLOTEX	PTT, E	High retractility.	yarn or textured yarn	clothes, ,sportswear,uniform
	TRIXION	E	Worsted wool feeling fabric with retractility.	yarn	clothes, uniform
	SOLOTEX Siletty	E	Lining fabric with a soft and supple texture	fiber, textile	lining
	DELTA SLX	E	Soft & stretch fabric	fiber,cloth	sports wear
TORAY	SPRINGTEX	E	Stretch material at heavy load, and low hysteresis loss	material	sports, automotive, interior
	Trintee	E/Un, N/Un	2-way tricot made by anti chlorine damage spandex.	spandex	swimwear
	Puluela	E	Comfortable stretch material which balanced wearing comfort and molding of new silhouette resilience and supple elasticity and stretch, such as a rubber ball.	filament	women's, men's, others
	Primeflex	N, E	Stretch material using bimetal-type yarn made from partially plant-derived polymer.	material	clothes, inner wear, sports
	Lightfix	E	Stretch fabric using special polyester DTY	textured yarn, fabric designing	uniform
KURARAY	BEAUFIT	PBT	Textile made of an elastic fiber (Polybutylene terephthalate).	textile	clothing
TOYOBO	Technista48	E	Stretch fabric with 100% polyester.	finishing	sports apparel, casual
ASAHI KASEI	FUGUE	Cupro	Gentle stretch cupro lining with the following functions. ·Naturally anti-static charge. ·Absorption and release of unpleasant humidity. ·Less stress in tight garment with gentle stretch. · <u>Less seam slippage and less clinging.</u>	mechanical	lining
	ELACTION-PRO	E/Un, N/Un	Superior stretch fabric collection that follows and supports the movement at any time. It contributes better performance in active sports, and helps quick recovery from fatigue.	fiber & structure	sports wear, inner wear
UNITIKA	Z10	E	Z10 realizes a very high level of stretchability through combining together latent crimping. The fabric which made with Z10 achieves tightness and HARI.	fiber	ladies' garment, mens' garment, sport
	movefit	PBT,E	Conjugate fiber,soft touch	fiber	sports wear,uniform

### 6.2 Cushioning

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	ELK	E	High modulus three dimensional structure.	forming	cushion, bra
TORAY	SYNTHEFIBER NT	N	Non woven fabric by Nylon nano fiber having sound absorption	Non woven fabric	sound absorbing material
TOYOBO	BREATHAIR	E	Washable 3D spring structure cushion material with excellent durability, air permeability and light weight.	material	bed-mattress, train lines, motorcycle seats

## 7. Health care

### 7.1 Antibacteria & Odor preventing

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	Chemitac Σ	E	Fiber added argentine related agent. Antibacterial and deodorant property.	additive	lothes, uniform, interior, clothes for health care
	ECOPURE	E	Antibacterial deodorant material with pH control	material	spors waer, inner wear, general gppds
TORAY	Severis	E, E/C, Acrylic	Antimicrobial deodorant.	finishing	liner, filling fiber, sox
KURARAY	CLAPURE-RIX	PP	PP spunbond. Antimicrobial and antiviral agent is compounded by SROPE technology.	additive	mask, packing material, clothes cover
	CLAPURE-TR	PP	PP spunbond. Antimicrobial agent is compounded by SROPE technology.	additive	packing material, clothes cover
TOYOBO	EXFRESH	Acrylic	Impregnated with organic antimicrobial chemical.	fiber modification	interior, bedding
	EPISCALL	all	Good balance safety, effectiveness and durability.	finishing & polymer blend	sox, towel, toilet
	FLESCALL	all	Antimicrobial and deodorant fabric good balance safety, effectiveness and durability.	finishing & polymer blend	sox, towel, underwear
	feelfesh	Acrylic	Acrylic antimicrobial and deodorant fiber with metal ion.	fiber modification	toilet, rug
	Airclear	all	Sheet fabrics with high level of balance on safety, durability and anti-bacterial effect.	additive	shirts, bedding
UNITIKA	NANOPHASE UF	E, E/C	Antibacterial activity , water absorbing property ,soil resistance and antistatic property from low temperature plasma treatment.	aftertreatment	uniform, general clothing
	BIOLINER	N	Antibacterial and microbial control property.	kneading	sports, under wear
	UNIFRESHER	N, E	Unifresher is an antimicrobial treatment that restrains the propagation of microorganisms and bacteria on textiles.	aftertreatment	uniform, care garment
FUJIBO	Siltize	all	Antibacterial processing.	post-cure processing	bedding, general wear
	Caretri Nature	C/synthetic fiber	Gentle-to-skin processing by using natural materials originated from animals and plants.	post-cure processing	inner wear, sox, bedding
	DEOSALAT	all	Processing to inhibit bacterial growth, the cause of the half-dry smell	post-cure processing	general wear
	DEOCOMFORT	all	Antimicrobial and deodorant processing to eliminate the middle-aged body odor (diacetyl component)	post-cure processing	general wear
DAIWABO	HERBTREAT	C,E/C	The antimicrobial and deodorant process which is by natural harb essence, such as perilla, aloe and artemisia.	finishing	clothing, underwear, inner, bedding
	MIRACLSET	C,E/C	The antimicrobial and deodorant process which is better washing durability.	finishing	clothing, underwear, inner, bedding
	PZ-Ag	PP	Antibacterial property by adding argentine related agent.	additive	non-woven
DAIWABO RAYON	BactFree	R	Viscose fiber with a property of inhibiting the proliferation of mold on fibers to prevent the generation of obnoxious odor	kneading	underwear, socks, towels

## 7.2 Microbial control

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	VALUE	E	Using organic-nitrogen-related antibacterial agent. Good washing durability.	converting	clothes, uniform, white coat, nurse uniform, hospital curtains
	Chemitac Σ	E	Using argentine agent. Antibacterial and deodorant property.	additive	clothes, uniform, interior, healthcare
TORAY	Makspec	E, E/C	Highly-durable antibacterial material for industrial washing, treated with the safer antibacterial agent.	finishing	hospital wear, working wear, fiber filling, air filter
	Nicepec	E/C, E/R	Durable wash-and-wear property for industrial washing.	finishing	working wear, dress shirt
KURARAY	Saniter EX	E, E/C	Antimicrobial finishing (specific applications) (general applications).	finishing	doctor's white gown, sports wear, nursing care equipment, sox
TOYOBO	EPICOMODO	all	Organic nitrogen antimicrobial chemical, antimicrobial (general use).	finishing & polymer blend	medical white coat, bedding, interior
	ESMARO	all	Antimicrobial (general use).	finishing & polymer blend	uniform, towel, inner wear, bedding
	(Ginsekai)	Acrylic, Acrylic/C	Bacteria elimination by photocatalysis, effective for microbe and eumycetes.	material	sox, towel, bath mat
UNITIKA	BIOLINER	N	Antibacterial ,smellproof and microbial control property.	kneading	uniform
	UNICLEAN	E	Micro bial control finish (general usage, special usage).	aftertreatment	uniform, care garment
	—	C, E/C	Anti-mite processing with antibacterial deodorizing function.	aftertreatment	bedding
DAIWABO	CLEAR FRESH	C,E/C	The SEK antibacterial process which can prevent staphylococcus aureus, moraxella osloensis, colon bacillus, friedländer bacillus as well as MRSA and acnes by ourselves.	finishing	clothing, underwear, inner, bedding, shirts
DAIWABO RAYON	Visclean	R	Viscose fiber having a property of suppressing increase of Moraxella osloensis causing the smell by indoor drying	kneading	underwear, towel, night clothes

## 7.3 Deodorizing

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	deofront	E	Consist of 100% polyester, and excellent deodorant effect for ammonia, acetic acid, and isovaleric acid	after treatment	sports wear, inner wear, uniform, bedding
TORAY	Cosmel	N	Deodorant, antimicrobial deodorant.	finishing	fiber filling, working wear
	MUSHON	E	Quickly ammonia odor elimination, by modifying polymer.	finishing	sports wear
KURARAY	Shine up	E/N	Use of chemical deodorant and photocatalytic deodorant, Good washing durability.	additive	sports wear, uniform
	Shine up-SK	PP	Use of chemical deodorant and photocatalytic deodorant. Good durability.	additive	packing material, clothes cover



TOYOBO	Etiquette	Acrylic	Deodorant by neutralization and ion exchange.	raw material	inner wear, socks, bedding
	Desmel	Acrylic	Chemical absorption for ammonia.	raw material	toilet mat, pet goods
	DEODRAN	all	Absorption and decomposition of sweat odor from aged people.	fiber modification	shirt, inner wear, sports apparel
	CELFINE S	Acrylate	Sulfur compound absorption.	material	medical supplies, filter
	CELFINE N	Acrylate	Ammonia absorption.	material	living materials, filter
	CELFINE A	Acrylate	Acid and aldehyde absorption.	material	living materials, filter
	Tough DEO	All	Fabrics with absorption and decomposition of sweat odor from aged people	fiber modification	clothing
ASAHI KASEI	Semia	E	The deodorant by activated carbon adsorption.	finishing	living material such as filter
	ROICA CF	Un	Absorption of perspiration and foot odors. Inherent, long-lasting effectiveness.	specialty spandex	panty hose, socks, inner wear
UNITIKA	AIR SOFF	C, E, C/E, W/E	Exerting deodorizing power against four major odor substance.	aftertreatment	caregarment, shirt, under wear
	DEO SHUT	C, Lyocell, E/C	Exerting deodorizing power against distinctive body odor of the middle aged and elderly( caused by chemical nonenal), and smell of sweat.	aftertreatment	under wear
	NANOPHASE DE	E, E/C	Deodorant property, water absorbing property, soil resistance and antistatic property from low temperature plasma treatment.	aftertreatment	uniform, general clothing
	PALPA DD	E/C	A multilayer yarn. (Polyester staple fibers wrapped in deodorant cotton.	spun yarn	sport, clothing
FUJIBO	Deomist	C, C/E	Excellent deodorant effect for smell of sweat and wash-resistance with reformed cellulose at the molecular level.	material	inner wear
	DEO SHINE	C,C/E	Deodorant processing to eliminate the smell of sweat without damaging the texture	post-cure processing	general wear
	Deofresca	C,C/E	Deodorant processing to eliminate the aging body odor of nonenal	post-cure processing	general wear
	DEOSKY	C,C/E	Antimicrobial and deodorant processing to eliminate the smell of sweat with water-absorbing quick-drying properties	post-cure processing	general wear
	DEO ELEGANCE	C,C/E	Antimicrobial and deodorant processing to eliminate the smell of sweat	post-cure processing	general wear
NITTOBO ADVANTEX	Dan Fresh	all materials	Deodorizing function for the four major malodors	processing	general wear
	multi deodorizing	all materials	Deodorizing function for nine types of odors	processing	general wear
DAIWABO RAYON	PANACEA	R	Viscose fiber with a deodorizing effect by photocatalytic action against sweaty smell	kneading	outerwear, industrial materials
	PARAMOS	R	Viscose fiber with a deodorizing effect against ammonia and acetic acid	kneading	underwear, bedding
	ATL	R	Powerful deodorizing rayon, stamina, speed, and toughness deodorization are attained.	kneading	clothing, bedding, nonwovens
	PBZ	R	High-safety metal supported viscose fiber with a deodorant effect	kneading	clothing
KANEKA	Kanecaron collagen fiber	Collagen	Excellent water holding property using collagen.	material	cosmetics, wound care

#### 7.4 Soil release, Soil Repellency

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	DUSTOP	E	Easy to release smear and not easy to adhere again.	converting	uniform
	DUSTOP II	E	Easy to release smear and not easy to adhere again.	converting	uniform
	DUSTOP SP	E	Not easy to adhere sebum.	converting	uniform
TORAY	Evalet	E, E/C	Water absorption, Easy soil release by washing.	finishing	uniform, shirt, inner wear
	Tapuard	E	Water & oil repellency. Soil guard & easy soil release.	finishing	uniform, sports wear
	beaulavage	E	Soil release for cosmetics stains.	finishing	blouse
	stainoff	E	Soil release for stains on shirt collars.	finishing	uniform, dress shirt
	Technoclean	E	Soil resistant fabric with high industrial laundry durability.	finishing	uniform
	NANODESIGN	N	Textiles using nano slit nylon. Characteristic are high water repellent and low environment load.	materials	clothes
TOYOBO	ETERNALLY	C/E	Soil resistant fabric washing resistance and water absorption.	finishing	shirt, uniform
UNITIKA	EVERESH	E	Water absorbing and soil resistant finish. There is little performance decrement by autoclaved sterilization.	aftertreatment	uniform
	SKYUP	E, E/C	A post-processing material with excellent recontamination and dirt removal properties made of polyester as hydrophilic. Water absorption is also excellent.	aftertreatment	sport, casual, uniform and inner wear
	SORIE	E, E/C	Water absorption processing using durable water absorption SR processing agent using recycled raw materials	aftertreatment	uniform, sport and clothing
	PEFACE	E	White durable soil resistant polyester fiber. Exerting soil resisting power against a stain produced by mud and darking. There is none performance decrement by washing.	material	sports
	DUALPLUS-EM	C/E etc.	Durable antistatic property, water absorbing property and soil resistance from low temperature plasma treatment.	aftertreatment	uniform, shirt, blouse
	REFRESSA I	C, C/E	Water absorbing and soil resistant finish by property of hydrophilic modification. Easy remove the stains by oil from clothes.	aftertreatment	uniform, shirt, blouse
	REFRESSA II	C, C/E	Durable water repellent, oil repellent and soil resistance finish. Soil release and soil resistant property for stains by oil.	aftertreatment	uniform, shirt, blouse
	NANOPHASE LF	E, E/C	Oil repellent, antisoil finish for stain of solid (e.g. rouge, foundation) from low temperature plasma treatment.	aftertreatment	uniform, shirt, blouse
	NANOAQUA	E	Durable antistatic property, water absorbing property and soil resistance.	after treatment	uniform, sportswear, industrial materials.
FUJIBO	WONDERFRESH	C, C/E	Sweat and moisture absorption with oil stain resistance. When oil stained, easily released.	post-cure processing	outer wear, inner wear
NITTOBO ADVANTEX	Stain-resistant Interlining	E	Adhesive interlining that is resistant to stains, and from which stain is easy to remove if it does adhere	processing	shirt, blouse, uniform
DAIWABO	MiracleRelease	E, E/C	The sebum dirt release processed fabrics which are blended polyester. It has the washing durability.	finishing	clothing, underwear, inner, bedding, shirts

## 7.5 Anti mite, Anti mosquito, Anti mold

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	MIGHTYTOP II	E	Antitic performance.	converting	comforter, batting
	Microguard	E/N	Antitic by high density woven using micro-fiber.	woven structure	bedding
	SCORON	E	Mothproof fiber.	converting	clothes, casual wear, outdoor,sports wear, general goods
TORAY	WithRelief	E, E/C	Anti mosquito textile having both effect and safety	finishing	anti mosquito wear and goods
KURARAY	CLAPURE-DB	PP	PP spunbond. Mite-repellent agent is compounded by SROPE technology.	additive	packing material, clothes cover
TOYOBO	AROWSTOP	E, Acrylic	Mite control.	finishing	bedding
	AROWSTOP DX	all	Mite control and antimicrobial.	finishing	fiberfill, rug
UNITIKA	PARAL	C, C/E	Tick proofing.	aftertreatment	night clothes
DAIWABO	HALZECKE	C,E/C	The mite control process which is high-security and washing durabiliy.	finishing	bedding
	MOSQUITO	C,E/C	Anti-mosquito processing fabrics which is high-security and continuous effects.	finishing	clothing, underwear, inner, bedding,shirts,outdoors
DAIWABO RAYON	Bugnon	R	Viscose fiber with a property of repelling flying bugs by kneading high-safety ingredients used for food additives	kneading	clothing
	Mitect	R	Viscose fiber with a property of repelling hidden bugs in the room by kneading high-safety ingredients used for food additives	kneading	wadding for bedding

## 8. Other Properties

### 8.1 Pollen Barrier

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	POLLEN BARRIER	E	Material with a smooth surface that helps easy removal of any attached pollens by weaving fine fibers in high density.	woven structure	outer wear, uniform
	FCOT	E	Material that can catch pollen by composite multilayer structure	woven structure	curtain etc
SUMINOE TEIJIN TECHNO	CLOTHCABIN	E	High density mesh woven.	woven structure	screen window
TORAY	Anti-Pollen	E	ANTI-POLLEN™ uses a newly developed material, which takes into consideration every aspect of the pollen's size and shape as well as the pollen's difficulty to get on and the easiness to get off.	textile design & finishing	jackets, coats etc.
TOYOBO	ALLERGENBLOCK	Acrylate	Chemical absorption.	material	medical supplies, filter
FUJIBO	KAFUN CLEAN	C/synthetic fiber	Antistatic processing makes pollen and dust hard to stick on the fabric and Smooth processing makes them release easily.	post-cure processing	general wear

### 8.2 Beauty Treatment

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	Raffinan	E	"Wearable cosmetics" that prevent rough skin and supply moisture to the skin.	finishing	inner wear, healthcare supplies
FUJIBO	Caretreatmens	C, C/synthetic fiber	Processing by using squalene, a moisturizing ingredient	post-cure processing	general wear
	Silcharm	all	Silk protein finish. It has great advantage in moisture retaining property with silky texture.	post-cure processing	outer wear, knitted shirt
	MOISTSHEA	C, C/synthetic fiber	Characterized by its moist texture using shea butter, a moisturizing ingredient	post-cure processing	general wear
	MOISTARGAN	C, C/synthetic fiber	Characterized by its moist texture using argan oil, a moisturizing ingredient	post-cure processing	general wear
	MOISTOLIVE	C, C/synthetic fiber	Characterized by its moist texture using olive oil, a moisturizing ingredient	post-cure processing	general wear
	MOISTCOCO	C, C/synthetic fiber	Characterized by its moist texture using coconut oil, a moisturizing ingredient	post-cure processing	general wear
	FUJIBO MOISTCARE	C, C/synthetic fiber	Processing to adhere moisturizing ingredients of aloe and chitosan to the fiber, increasing the moisture content of the fabric	post-cure processing	general wear
DAIWABO	MiracleBalance	C,E/C	The mild acidity adjustment function which is kind to skin and the materials which is antimicrobial, deodorant and odor eliminating process.	finishing	clothing, underwear, inner, bedding, shirts
	TUBAKIBIJIN	C,E/C	The fabrics which attach Japanese camellia's oil. It is smooth, fluent evaporated and water-retentive.	finishing	clothing, underwear, inner, bedding, shirts
DAIWABO RAYON	COCOMOIST	R	Moisturizing rayon kneaded with natural coconut oil	kneading	nonwovens, clothing,
	CELLMIN	R	Viscose fiber containing oleic acid and vitamin E	kneading	underwear, socks, bottoms
	MILEY	R	Viscose fiber containing natural milk protein	kneading	underwear, bottoms, night clothes

### 8.3 Others

Company	Product Name	Material	Features	Means of processing	Uses
TEIJIN FRONTIER	COOLSENSOR EX	PE	Cool contact material	material	clothes, general goods
	Nanofront	E	700nm ultra fine polyester nanofiber	material	glove, wiping cloth, wear, innerwear, parasol, materials, etc.
TORAY	Aquaauclay	E	The durable fabrics of sterilizing by steam, modifying the end of polymer.	finishing	uniform
	hitoe	E	Wearable biological information sensing system.	processing	sports, uniform
	TOYOFLON for sliding application	PTFE + $\alpha$	Low friction and high durability at heavy load sliding.	fabric structure, finishing	industrial material
	LIVMOA	PP	Protective suit (limited use) having high air permeability and comfortable by PP non woven fabric	composite material	protective suit
	BRIANSTAR	E, E/C	Textiles for high visibility wear	finishing	working wear
	uts-FIT	E	Textile having smooth texture, bulkiness and stretch.	material	clothes
	HugFit	N, Un	Half top having no tighten and no slip for patient with breast cancer	composite material	special medical wear
KURARAY	Pyuasu	E	① dyeable polyester in 105°C ② cationic dyeable polyester in ordinal pressure	material	whole garment
	WRAMP	E, N	11 layers stacked easy splitability composite fiber	composite material	whole garment
	Mintval	PVA	Easy solubility water solvable fiber	material	garments and materials
	ELEBREAK	PP/E	"Clacarb" introduced multi-layered PP nonwoven (SS, SMS) Antistatic fabric by Corona discharge.	textile design	anti-exposure protective clothes
	Sofit	E	Sheath-core type binder fiber.	material	various applications
TOYOBO	ICEMAX	PE/E/C	Fabric combining Dyneema with high thermal conductivity.	material	bedding, neck-cooler
	Modena	E (core)	Light weight artificial leather sheet.	finishing	automotive tonneau cover
	i-cold	Pe, E, C	Fabric with cool sensation by containing high thermal conductivity yarns (UHMWPE)	material	bedding
UNITIKA	MELTY, CASVEN, MELSET	E	Sheath-core type binder fiber.	material	various applications
	FISHING LINE	N, PVDF	Several variations are available for lure/bait fishing.	kneading	fishing
	Radiation-shielding waterproof sheet	E, PVC	Shielding against radiation such as X-rays and $\gamma$ -rays.	aftertreatment	geotextile
	UGM Sheet	E, V, PVC	Mesh sheets for use in civil engineering applications.	aftertreatment	geotextile
	TRINEO	Vinylon	Masonry fall prevention net.	woven fabric	geotextile
	trf+H	E	Thermo-sensitive filament for FDM type 3D printing (could be reshaped after molding with heat)	material	material for FDM type of 3D printing
NITTOBO ADVANTEX	HI JUST	E	fabrics with high colorfastness to bleaching with hypochlorite	additive	clothes
	innovative fabric	N, E	innovative fabric <sup>TM</sup> is interlining made of layerd (11dtex fabric and thin film) product. It gives clothes various feature.	aftertreatment	sports wear, outdoor wear, casual wear
DAIWABO	Clear fresh V	E, C	Antiviral	Finishing	clothing, underwear, bedding
DAIWABO RAYON	COOLMODE	R	Water/heat absorbing viscose fiber with kneaded cooling ingredients derived from natural plants	kneading	underwear, socks, bottoms
	FLEXAT	R	Viscose fiber with a flat cross-section modified by making a cell in a fiber, having an improved water retaining property.	material	underwear, nonwovens
	BAILEY'S BEADS	R	Viscose fiber with a round cross-section, having functional properties such as transparency, high brightness and dyeability in deep color	material	underwear, nonwovens

KANEKA	Kanecaron chelate fiber	Modacryl	Those fibers have a high-speed adsorption and desorption.	keading & aftertreatment	waste water treatment, water purification, ultra pure water production, valuable metals recovery
	Kanecaron Ion exchange fiber	Modacryl	Those fibers have a high-speed adsorption and desorption.	keading & aftertreatment	waste water treatment, water purification, ultra pure water production, valuable metals recovery
	Kanecaron collagen fiber	Collagen	Excellent water holding property using collagen.	material	cosmetics, wound care

### <Brevity code>

**E:** polyester, **N:** nylon (polyamide), **PPS:** polyphenylene-sulfide, **PTFE:** polytetrafluoroethylene, **PVA:** polyvinyl alcohol  
**PEI:** polyether imide, **C:** cotton, **PP:** polypropylene, **R:** rayon (viscose), **PE:** polyethylene, **An:** acrylic  
**UHMWPE:** ultra-high molecular weight polyethylene, **PBO:** Poly (p-phenylene-2,6-benzobisoxazole)  
**PLA:** polylactic acid, **Un:** polyurethane, **EVOH:** ethylene-vinylalcohol copolymer, **PTT:** polytrimethylen-terephthalate  
**PBT:** polybutylen-terephthalate, **PVDF:** polyvinylidene difluoride, **PVC:** polyvinyl chloride