Samil Spinning

Functional Yarn

Small pieces of string are twisted into yarn. A little yarn is made into fabric. The beauty and value is created from the tiny things around the world.

SAML SPINNING CO., LTD.
Air Jet Spun Yarn

Ring Spun Yarn

100% Synthetic Air Jet Spun Yarn

Flame-resistance Yarn

Our Yarn Brand
Products List

1. ECOSIL / Porexil ?

2. Porexil Series
   1) Porexil - Standard
   2) Porexil - Fresh
   3) Porexil - Fresh+
   4) Porexil - Clean
   5) Porexil – ThermoCool
   6) Porexil - Warm & Light
   7) Porexil - Bio
   8) Porexil - Eco

3. Cellulose Functional Yarn
   1) Modal - Sun, Tencel - Sun
   2) Tencel - C
   3) Outlast
   4) Viloft

4. Other Functional Yarn
   1) Heat generating Acrylic : Renaiss
   2) Flame retardant :
      ➢ Lenzing - FR ➢ meta - Aramid ➢ para - Aramid ➢ Modacryl
I. ECOSIL/Porexil ?
ECOSIL is a yarn brand of SAMIL-SPINNING, which is the product of the innovational and advanced technology.

ECOSIL = ECO(Ecology) + SIL(Yarn is called “SIL” in Korean.)
• ECOSIL provide special value besides the function.

◎ Air jet spun yarn
▷ Dual Structure System
High moisture absorption
▷ Low Hairiness
Anti Pilling
▷ Stability against Deformation
▷ Dry and Elastic Touch
• Anti Pilling 100% Synthetic Air-jet Spun Yarn

• POLY (Polymer) + REX (King) + SIL (Yarn is called “SIL” in Korean.)

• Functional Porexil is as in the following:
II. ECOSIL porexil Series
Features

• Porexil is an air-jet spun yarn. Fiber is turning in air-jet, it twisted automatically without mechanical force. So it has anti-pilling, less hairiness and clean surface.
• Moisture absorption and quick dry better than ring spun yarn because of capillary phenomenon in the structure.
• Dry and comfortable touch, excellent drape.
# TEST DATA

(FITI)

- Porexil-S 30’s 100% Single Jersey

<table>
<thead>
<tr>
<th>Test method</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilling</strong></td>
<td>ASTM D 3512</td>
</tr>
<tr>
<td></td>
<td>30min : 4 grade</td>
</tr>
<tr>
<td></td>
<td>60min : 4 grade</td>
</tr>
</tbody>
</table>

## Application

- Sports wear, Casual wear
- Home textile, Leisure wear
- Application for all clothes

## Products

- Porexil - S 20’s ~ 40’s (100%)
- Porexil - S / Viscose 20’s ~ 40’s (65/35)
- Porexil - S / Modal or Tencel 20’s ~ 40’s (70/30)
- Porexil - S / blended other fibers
Material
  • 4-channel modified cross-section polyester

Features
  • Quick absorption & Evaporation, Breathable, Comfortable

• 4 capillaries for quickly wicking away sweat from the skin
• It uses a 30% larger surface area than general fiber to quickly dry and discharge moisture, using the inflow of outside air to keep you comfortable.
## Test Data (FITI)
- Porexil-Fresh 40’s 100% Single Jersey

<table>
<thead>
<tr>
<th></th>
<th>Test method</th>
<th>Porexil-Fresh</th>
<th>Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilling</strong></td>
<td>ASTM D 3512</td>
<td>30min : 3.5</td>
<td>60min : 3.5</td>
</tr>
<tr>
<td><strong>Infiltration capacity (mm)</strong></td>
<td></td>
<td>wale : 97</td>
<td>course : 94</td>
</tr>
<tr>
<td><strong>Diffusion area (cm²)</strong></td>
<td>KSK 0815</td>
<td>7.70</td>
<td>5.74</td>
</tr>
<tr>
<td><strong>Drying velocity (min)</strong> (10% residual moisture regain)</td>
<td></td>
<td>30</td>
<td>55</td>
</tr>
</tbody>
</table>

## Application
- Sports Wear, Leisure Wear
- Home textile and Socks
- Inner Wear
Products

• Porexil - F  20’s ~ 40’s (100%)

• Porexil - F / Nylon6.6  20’s ~ 40’s (70/30)

• Porexil - F / Blended other fibers
Material
- 4-channel modified cross-section polyester with UV cut

Features
Quick absorption & Evaporation, Breathable & Comfortable, UV-cut

- Porexil–Fresh+ has excellent moisture absorption and evaporation addition to UV-cut.
- Application for extreme sports wear with enjoy various outdoor activities
- It has superior function for UV-cut which apply nano-technology in fiber.
**Test Data (FITI)**

- Porexil - UVP 20’s single jersey

<table>
<thead>
<tr>
<th>Test method</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV Blocked</td>
<td>UV Blocked-R : 96.8</td>
</tr>
<tr>
<td></td>
<td>UV Blocked-A : 96.1</td>
</tr>
<tr>
<td></td>
<td>UV Blocked-B : 98.5</td>
</tr>
<tr>
<td>UPF Rating</td>
<td>UPF : 50+</td>
</tr>
<tr>
<td></td>
<td>UV-A penetration ratio(%) : 3.9</td>
</tr>
<tr>
<td></td>
<td>UV-B penetration ratio(%) : 1.5</td>
</tr>
</tbody>
</table>

**Application**

- Sports Active Wear, Leisure Wear
- Inner Wear
- Baby & Women's item
Products

- Porexil - F+  20’s ~ 40’s (100%)
- Porexil - F+ / Nylon6.6  20’s ~ 40’s (70/30)
- Porexil - F+ / Tencel  20’s ~ 40’s (70/30)
- Porexil - F+ / Blended other fibers
Material
- 4-channel modified cross-section polyester with Anti-Bacteria

Features
- Quick absorption & Evaporation, Breathable & Comfortable, Permanent anti-bacteria

- Fungistat (Ag)
- Porexil-Clean fabric
- Skin

- Excellent anti-bacterial function of Porexil-clean comes from the silver element it contains.
- The silver used in, remains after washing enhancing the anti-bacterial longevity of the fiber.
**Test Data** (FITI)

- Porexil-Clean 20’s 100% Single Jersey (FITI)

<table>
<thead>
<tr>
<th></th>
<th>Test method</th>
<th>Decreasing rate of bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staphylococcus aureus</td>
<td>KSK 0693</td>
<td>99.9%</td>
</tr>
<tr>
<td>pneumonia</td>
<td></td>
<td>99.9%</td>
</tr>
</tbody>
</table>

**Application**

- Sports wear, Leisure wear (Prevention of mold and bad smell with sweat)
- Medical wear – Hospital uniform, Patient uniform, Home textile, Pillow, etc.
- Inner wear
- Baby & Women's item
Products

- Porexil - Clean  20’s ~ 40’s (100%)
- Porexil - Clean / Nylon6.6  20’s ~ 50’s (50/50)
- Porexil - Clean / Blended other fibers
Material

• 4-channel modified cross-section polyester + Hollow Type Polyester

Features

Multi-channeled surface cross section [50%] + hollow core cross section [50%]

Application

• Sports Wear – When you climb the mountain, Jogging, etc.
• Keeping warm wear - Slip wear, Inner wear
• Socks - Sports Leisure

Products

• Porexil-ThermoCool 20’s~40’s
• Porexil-ThermoCool/Nylon6.6 20’s~30’s (70/30)
• Porexil-TMC/Blended other fibers
• Porexil-ThermoCool/Tencel 20’s~40’s (50/50)
The asymmetric lobular cross section of the multichannel fibers provide more surface than a regular round cross section fiber. The channels in the fibers conduct perspiration improving dramatically the wicking and transport capability of the fiber.

HIGH ACTIVITY: EVAPORATIVE COOLING

The hollow round cross section fibres provide lightweight insulation providing thermo buffering capability. The hollow’s voids attenuate temperature differences between the inside and the outside of the garment in the same way a double glass window help to prevent a room’s temperature to drain too quickly to outside’s warm or cold conditions.

LOW ACTIVITY: THERMO BUFFERING
Features – Thermal and light

[ light weight ]

- Specific gravity

<table>
<thead>
<tr>
<th></th>
<th>Porexil-W&amp;L</th>
<th>Nylon</th>
<th>PET</th>
<th>Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>1.14</td>
<td>1.14</td>
<td>1.38</td>
<td>1.54</td>
</tr>
</tbody>
</table>

Specific gravity is 1.14 which is 26% lighter than Cotton, 17% lighter than PET.
[Thermal]

- Coefficient thermal conductivity

<table>
<thead>
<tr>
<th>Porexil - W&amp;L</th>
<th>Wool</th>
<th>Polyester</th>
<th>Acryl</th>
<th>Nylon</th>
<th>Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6</td>
<td>6.4</td>
<td>7.3</td>
<td>8</td>
<td>10</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Thermal : 2.6times than Cotton and that similar grade with Wool

[Easy Finishing]

- Same Finishing with PET
# Test Data (FITI)

- Porexil - W&L 30’s 100%, Single Jersey

<table>
<thead>
<tr>
<th>Test Data</th>
<th>Test method</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilling</td>
<td>ASTM D 3512</td>
<td>30min : 3.5grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60min : 3.5grade</td>
</tr>
<tr>
<td>Color fastness to washing</td>
<td>KSK 105 C06</td>
<td>change in color :</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4~5 grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Part of the pollution:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4~5 grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P : 3~4 grade</td>
</tr>
<tr>
<td>Color fastness to light</td>
<td>KSK 105 B02</td>
<td>4 grade</td>
</tr>
</tbody>
</table>
**Application**

- Sports wear – Thermal and light, Comfortable, Keeping body temperature
- Blanket - Plane, Mountain, Military
- Inner Wear – Warmer than Wool

**Products**

- Porexil - W&L 20’s ~ 36’s
- Porexil - W&L / Micro Modal 20’s ~ 40’s
- Porexil - W&L / Nylon 6.6 20’s ~ 36’s
- Porexil - W&L / Blended other fibers
Material
• Biodegradable Polyester

Features
• It has a decomposing function in compost within a year without leaving any harmful residues.
• 90% Biodegradation within 45 weeks (Temperature 55+3°C, RH 90%, pH 8.5)

[Compost Test(Lab) : Temperature 55+3°C, RH 90%, pH 8.5]
Application

- Outdoor wear, Sports wear, Formal wear, Inner wear, etc.

Products

- Porexil-Bio 20’s~40’s
- Porexil-Bio / Nylon6.6 20’s~30’s (70/30)
- Porexil-Bio / Blended other fibers
Material
  • Eco-friendly Recycled Polyester

Features
  • Eco-friendly operation of recovery system
  • Conservation of energy and oil resources & minimization of CO₂ emissions
  • The same quality experience compared with existing polyester products
  • Comfortable wear & Easy care

[Recycle Process]
Application

- Casual wear, Outdoor wear, Sports wear, Women’s & Men’s formal wear,
  Innerwear, etc.

Products

- Porexil-Eco 20’s~40’s
- Porexil-Eco / Nylon6.6 20’s~30’s (70/30)
- Porexil-Eco / Blended other fibers
III. Cellulosic Functional Yarn
Features

[UVP]

• Permanent and inherent UVP property on highly hydrophilic cellulosic fibers (In combination with Modal or Tencel)

Test Data  MODAL-SUN 40’ Spandex single jersey(FITI)

<table>
<thead>
<tr>
<th></th>
<th>Test method</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV Blocked</td>
<td>AATCC 183</td>
<td>UV-R Blocked : 99.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UV-A Blocked : 99.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UV -B Blocked : 99.8</td>
</tr>
<tr>
<td>UPF Rating</td>
<td>AATCC 183</td>
<td>UPF : 50+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UV-A penetration ratio(%) : 3.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UV-B penetration ratio(%) : 1.5</td>
</tr>
</tbody>
</table>
Application

- Sports wear, Beach wear
- Casual wear
- Children’s wear

Products

- Ecosil Modal-Sun 20’s ~ 50’s (100%)
- Porexil-Fresh+ / Modal-Sun 20’s ~ 40’s (60/40)
- Ecosil Tencel-Sun 20’s ~ 40’s (100%)
- Porexil-Fresh+ / Tencel-Sun 20’s ~ 40’s (60/40)
- Tencel-Sun or Modal-Sun / Blended other fibers
Features

- Anti-bacterial, Skin friendly
- Tencel + Chitosan Treatment

[Permanent anti-bacterial function, Cell proliferation]

- Tencel C additionally supports the natural skin functions by the properties of an ocean biopolymer.
- It has anti-bacterial function and cell proliferation the reason why viscosity and moisture enhanced by amidogen and hydration.
[Moisture management]

- TENCEL® C optimizes skin moisture for sensitive skin.

When wearing TENCEL® C, the skin can hold more moisture.
**Application**

- Under Wear, Leggings
- Casual Wear
- Bed sheet, Gown, etc.

**Products**

- Ecosil Tencel-C  20’s ~ 50’s(100%)
- Porexil-Clean / Tencel-C  20’s ~ 40’s (60/40)
- Ecosil Tencel-C / Blended other fibers
Outlast
Material: Rayon

Features:
- Heat and Cool material
- Phase Change Material in Fiber

PCM is as small as paraffin wax. (2~5 micron)
• PCM-mechanism

[Heat and Cool] – When the body temperature is too high, outlast materials absorb the overheat and store it. When the body temperature falls down, outlast materials keep the body warm by releasing heat. This cycle is constantly repeated.
Application

- Inner Wear
- Sports Outwear
- Shoes
- Home textile

Products

- Ecosil Micro Modal / Outlast  20’s ~ 40’s (70/30)
- Ecosil Micro Tencel / Outlast  20’s ~ 50’s (70/30)
- Porexil-S / Outlast 20’s ~ 40’s (70/30)
VILOFT
Material: Flat type Rayon
Features: Soft Touch, Thermal

[Flexible, Soft]

• It is a rayon fiber with flat cross section in ratio of 5:1 for length and width of the fiber and a grooved surface.

• It has slit pattern on the surface and a unique flat cross section. So it is more flexible and softer than the fiber which has a circular cross section

• It provides comfortable and soft touch.
When blended, often with polyester or cotton, VILOFT®’s engineered flat cross-section traps pockets of air to protect and insulate the skin against the cold.
Application

• Thermal slip wear, Inner wear
• Socks
• Sports Wear, Functional wear, etc.

Products

• Ecosil Viloft  20’s ~ 40’s 100%
• Porexil-S / Viloft  20’s ~ 40’s (50/50)
• Ecosil Viloft / Blended other fibers
IV. Other Yarns
RENAISS$\alpha^{\text{	exttrademark}}$
**Material**: Acrylic

**Features**: Heat generating performance,
Moisturizing action
Absorbs moisture from the air
And produces an increase in temperature.

**Test Data (KATRI)**
Modal / Renaiss 40’s (85/15) Single Jersey
(The Changes of Temperature for Humidity Change)

<table>
<thead>
<tr>
<th>Material</th>
<th>Temperature (max)</th>
<th>Temperature (average)</th>
<th>Rising Temperature</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modal/Renaiss 85/15</td>
<td>24.38°C</td>
<td>20.36°C</td>
<td>4.02°C</td>
<td>+2.8°C</td>
</tr>
<tr>
<td>Cotton 100%</td>
<td>21.33°C</td>
<td>20.11°C</td>
<td>1.22°C</td>
<td></td>
</tr>
</tbody>
</table>

Rising Temperature: Average temperature from 20°C RH 20% to 20°C RH 90% in Chamber
Application

• Sports Wear

• Inner Wear

• Home textile, etc.

Products

• Ecosil Modal / Renaiss  20’s ~ 40’s (70/30)

• Porexil-S / Renaiss  20’s ~ 40’s (70/30)

• Ecosil Renaiss / Blended other fibers
Flame resistance

Lenzing FR
Features

[Flame resistance]
Lenzing FR is a natural fiber derived from wood pulp. It offers permanent protection from all kinds of heat and flame.
- Excellent heat defense
- No melting in heat and flame
- Nontoxic cracking gas

[Hydrophilic]
Only hydrophilic flame-resistance fiber, Breathable, preventing natural static electricity
- Comfortable wear
- Best moisture control and ventilation
- No stimulus to the skin

[Eco friendly]
It made from wood pulp which is bio-degradable fiber.
Application

- Industrial safety uniform
  (electric, iron, automobile, ship, metal uniforms)
- Fireproof uniform, Police uniform (Tank driver, Pilot)
- Baby wear, Old man’s wear
- Gloves, Interior
- Industrial

Products

- Lenzing FR 100%, Aramid 100%
- Aramid / Lenzing FR
Thank you very much for your attention.