

Short Staple Spinning (“cotton” route)

The Ingeo™ PLA fiber has characteristics which are similar to many other thermoplastic fibers such as controlled crimp, smooth surface and a low moisture regain. Consequently, processing conditions will in many cases be similar to those for 100% polyester.

1.5dtex 38mm semidull fiber generally

Limited opening needed

Blending required for consistent dye uptake;
blending with other fibers possible

Cards set for polyester processing—cotton
wires and speeds are too aggressive

2 passages of drawing

Relatively low twist levels in roving

Ring spinning only (to 40 Ne); care on
traveler type and speed

Winding and waxing as for other lower
melting point fibers

| Short Staple Yarn Properties | | | |
|-------------------------------------|-----------|-------------|-----------|
| 100% 1.5dtex 38mm Ingeo PLA | | | |
| Count (Ne) | 20 | 30 | 40 |
| Tenacity (cN/tex) | 18 -19 | 16.5 - 18.5 | 14.5 - 16 |
| Elongation (%) | 28 - 30 | 25 - 27 | 24 - 26 |
| Uster CV% | 10 - 11 | 12 - 13 | 14 - 15 |
| Thins (-50%) | 0 | 0 - 1 | 15 - 25 |
| Thicks (+50%) | 2 - 4 | 10 - 15 | 25 - 40 |
| Neps (+200%) | 2 - 4 | 15 - 25 | 30 - 50 |

Long Staple Spinning (Worsted)

Processing is possible on conventional long staple equipment used for thermoplastic fibers in blend with wool. As with other fibers, care needs to be taken to ensure thorough blending of the tops as well as prevention of mechanical and thermal damage.

3.3dtex variable (bias) cut 80-110mm
semidull fiber

Carded and combed tops—no stretch
breaking tow

Care with additives to prevent accidental
weakening of fibers

Conventional blending and gilling, usually with
wool (needs to be SR treated)

Rubbed or twisted roving

Spinning to normal limits (typically 48Nm) and
with normal worsted twists

Folding, winding and waxing as for
polyester/wool blends

Yarn properties dependent on the wool, but
similar to those for 100% wool generally

Fabric Formation—Knits

Currently it is recommended that for apparel applications only knitted fabrics be considered:

Knit as for other staple yarns

Similar or slightly longer stitch lengths
than for cotton

Avoid excessive takedown tensions

Circular or flat bed knitting

Be aware of dyeing and finishing issues
with elastomeric or nylon yarns inlaid
into the fabric

Fabric Formation—Wovens

No special techniques have to date been found necessary for weaving Ingeo PLA, but the following points need to be considered:

PVA sizing (to avoid strong alkaline
conditions in scouring)

Low melt point and high fiber extension
so care on tensions and drying in sizing

Care on warp tensions

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