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Textile Innovations: Leading the Way to a "Greener" Future

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Green Textiles: What you need to know....

- Fibers – It all starts here.
- Product Durability and Life Expectancy.
- Processing/Handling Costs.
- Ancillary “Green” issues and your textile supplier.



Fibers

Is one fiber “Greener” than another?

Cotton vs. Polyester...

Organic Cotton...

Bamboo...

Recycled Fibers...



Cotton vs. Polyester

Renewable Resource:

Cotton	Yes	√	No	
Polyester	Yes		No	√

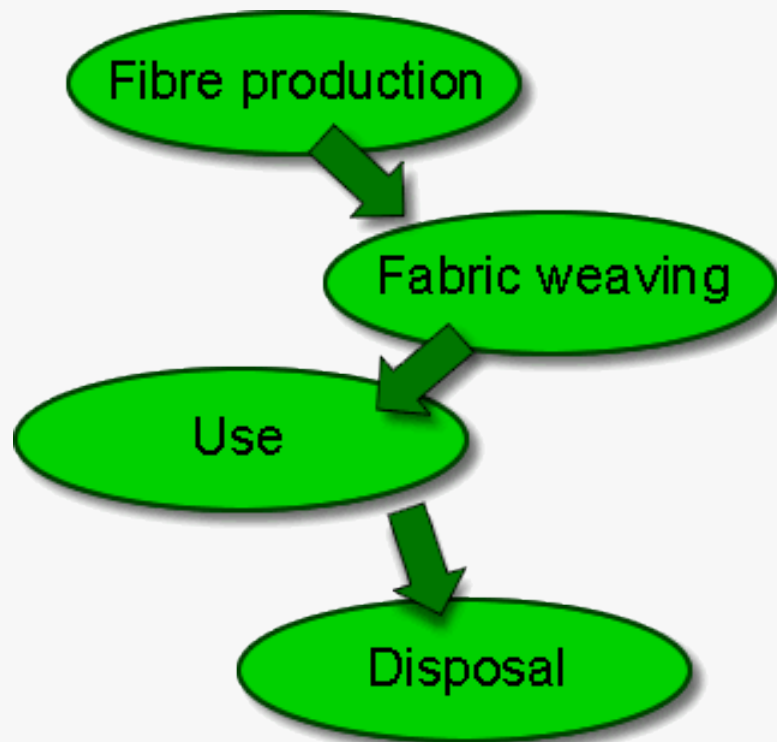
Recyclable Resource:

Cotton	Yes	√*	No	
Polyester	Yes	√	No	

* Generally, recycled cotton cannot be re-used for the exact same application as the result of recycling is shorter staple length and a weaker fiber.



Cotton or Polyester ?



Fiber production		
	Polyester	Cotton
Energy (megaJoules)	97 MJ	60 MJ
Oil or gas	1.5kg	-
Fertilisers	-	457g
Pesticides	-	16g
Water	17 litres	22,200 litres
Carbon dioxide emissions	2.3kg	3.0kg

Fabric weaving		
	Polyester	Cotton
Energy (megaJoules)	33 MJ	40 MJ
Water	1,291 litres	3,900 litres
Carbon dioxide emissions	1.5kg	2.3kg



Cotton vs. Polyester

Environmental Impact – Cradle to Grave

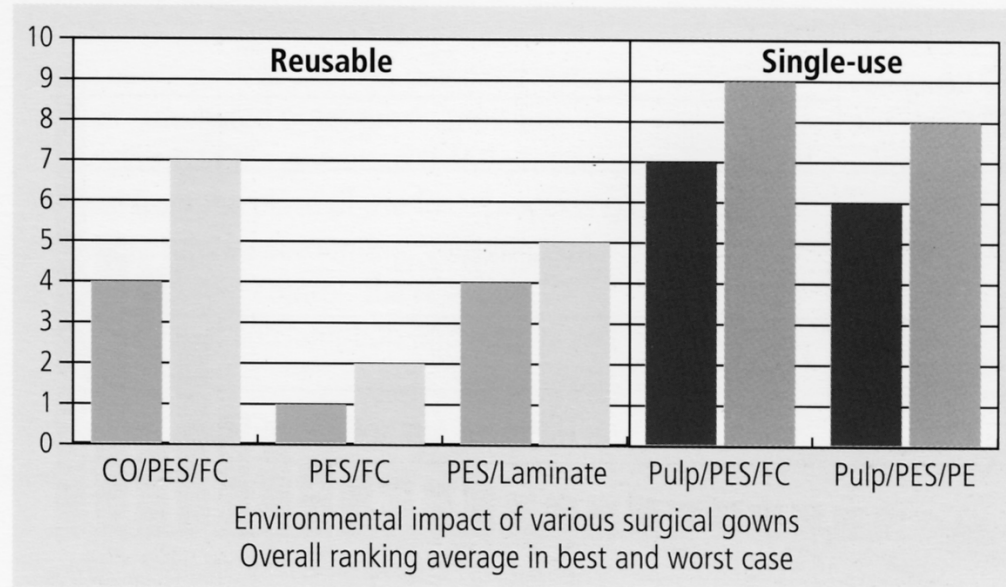
Energy

Water

Green House Effect

Acidification

Eutrofication



Fabric components: Cotton (CO), Polyester (PES), Fluorocarbon finish (FC), PTFE- or Polyurethane laminate (Laminate), wood pulp (Pulp), Polyethylene (PE)



Organic Cotton

There are strict standards in the United States for organic cotton, and it is not easy to become a certified organic cotton operation.

"Organic" means the cotton is produced to a set of strict USDA standards, enforced by USDA-certifying agents who must annually inspect fields and the operation for adherence to National Organic Program (NOP) standards. NOP standards require a 3-year conversion for land before organic crops can be harvested, so becoming an organic cotton producer is a long-term decision.



Organic Cotton

- Interest in organic cotton has increased among retailers and brands but there is no sustained, measurable increase in the organic cotton supply, which is estimated at only 0.1% of global cotton production. In fact, the entire world supply of organic cotton would fit on one medium-sized cargo ship.
- Generally, organic production means higher costs, which typically translate into premiums of 50% to 100% in raw fiber prices. From a production perspective alone, it would take an additional 6 million acres – 40 percent of the current harvested cotton acreage in the U.S.—to meet the current market demand for U.S. cotton.



Alternative Fibers: Bamboo

- Most bamboo fabric is chemically manufactured by “cooking” the bamboo leaves and woody shoots in strong chemical solvents such as sodium hydroxide (NaOH – also known as caustic soda or lye) and carbon disulfide in a process also known as hydrolysis alkalization combined with multi-phase bleaching.
- This is the same process used to make rayon – which is no longer done (or permissible) in the United States because of its negative environmental impact
- Both sodium hydroxide and carbon disulfide have been linked to serious health problems - tiredness, headache, irritation of the skin and eyes, and nerve damage.

(Note: Sodium hydroxide, in its dry crystalline form, is one of the major ingredients of Drano.)



Bamboo

- Textile manufacturing of regenerated fibers using hydrolysis alkalization with multi-phase bleaching is not considered sustainable or environmentally supportable because of the potential health risks and damage to the environment surrounding the manufacturing facilities.
- The fiber that results from this process is rayon, NOT bamboo – even if bamboo is the source of the cellulosic material.
- New labeling requirement: “Rayon from Bamboo”



Recycled Fibers

Products made with recycled materials are becoming better and more available

- New Green line of commercial upholstery fabrics for contract and commercial marketplace (Made from 100% recycled polyester).

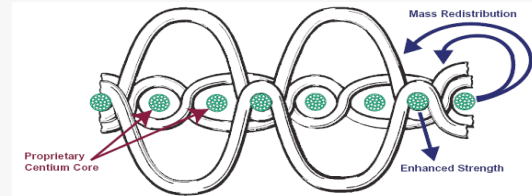




Product Durability and Life Expectancy

Products can be made that last longer

Stronger products = Longer product life



- Precise control of yarn spinning
Long staple fibers, carding and amount of twist can impact the strength and durability of a finished product.
- Construction
A plain weave (1:1) is generally the most durable construction as compared with double pick yarns, twill weaves or knitted products.
- Selective use of polyester filaments
Terry products can be designed to be 40%-70% higher in tensile strength.
Sheeting products can be designed to be as much as 100% higher in tensile strength.



Processing and Handling Costs

Two paths to savings:

1. Reduced Product Weights

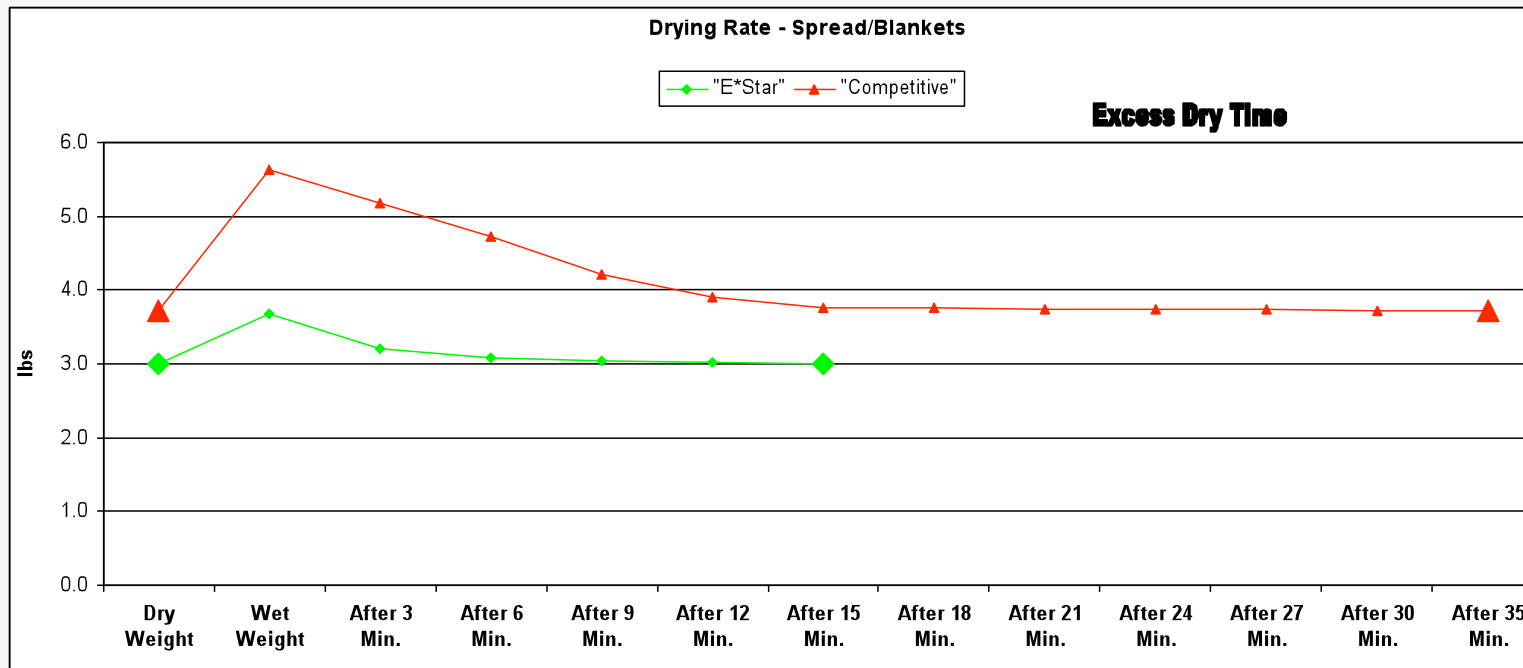
- Higher through put...more items washed per load

2. Use of Polyester Fibers

- Dries Quicker
- Reduces dryer damage to textiles



Processing and Handling Costs

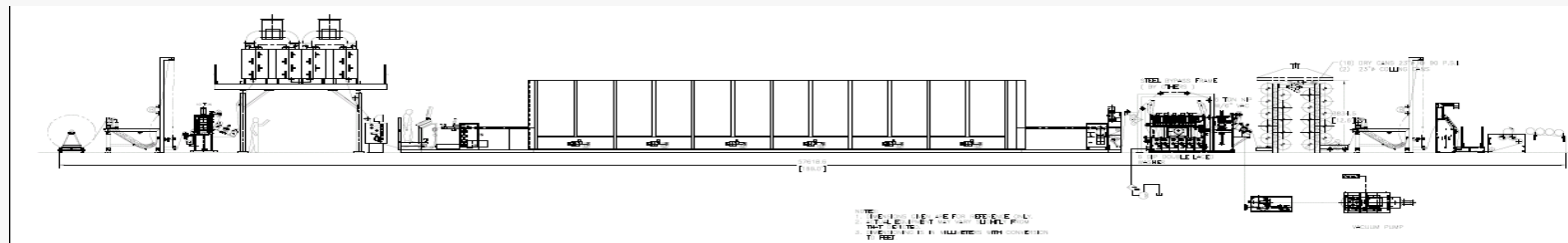




Room Ready Products

Sheets and towels can be made “room ready”

Due to industrial engineering and process efficiencies **operators can launder and dry product with 58% less energy consumption** than a typical laundry serving a healthcare facility



Environmental impact:

- 15,675 pounds of carbon dioxide and 28,119 grams of sulfur dioxide (per 100,000 pounds processed) which would be created by a typical healthcare market laundry facility are avoided
- Equivalent to:
 - 182 seedlings grown for 10 years (per 100,000 pounds processed), or
 - 5.93 acres of pine forest storing carbon for 1 year (per 100,000 pounds processed)



Ancillary “Green” Issues and Your Textile Supplier

Your textile supplier is a good resource to help guide you down the road of moving towards “Greener” reusable textiles, from type of yarns and blends to alternative fabric constructions. In addition, many have implemented programs to reduce their carbon footprint to further enhance a reduction in the environmental impact of the products you purchase. These include:

- Use of sustainable energy sources, i.e., hydroelectric, solar, wind, etc.
- Re-use of yarn cones and pallets
- Recycle waste fiber created in manufacturing
- Recycle water used in fabric finishing
- Use of recycled corrugate to ship products
- Minimizing packaging materials per products shipped



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Questions....

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