

## Proposed Item for Biobased Designation

The following biobased product information has been collected to support item designation by USDA for the Federal Biobased Product Preferred Procurement Program (FB4P). This summary reflects data available as of March 3, 2006.

### **Title: Clothing**

**Description:** Coverings designed to be worn on a person's body; coverings for the torso and limbs as well as coverings for hands, feet, and head that are made of biobased materials.

**Manufacturers Identified:** 3 manufacturers producing Clothing have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

**Industry Associations Investigated:** The following industry associations have been investigated for member companies producing Clothing:

- Biobased Manufacturers Association
- United Soybean Board
- Organic Consumers Association
- Real Diaper Association
- Tailored Clothing Association
- US Garment Contractors & Textile Association

**Commercially Available Products Identified:** Of the manufacturers identified, 5 Clothing products are commercially available on the market.

**Product Information Collected:** Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 0 Clothing products.

**Industry Performance Standards:** Product information submitted by biobased manufacturers indicate that have typically been tested to the following industry standards:

- NATICH Military Wicking Rate of Fabric
- NATICH Military Air Permeability
- NATICH Military Fabric Count
- NATICH Military Weight
- NATICH Military Seam Strength
- NATICH Military Burst Strength
- NATICH Military MVT Rate
- NATICH Military pH
- NATICH Military Dimensional Stability % After

**Samples Tested for Biobased Content:** 2 samples of Clothing products have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

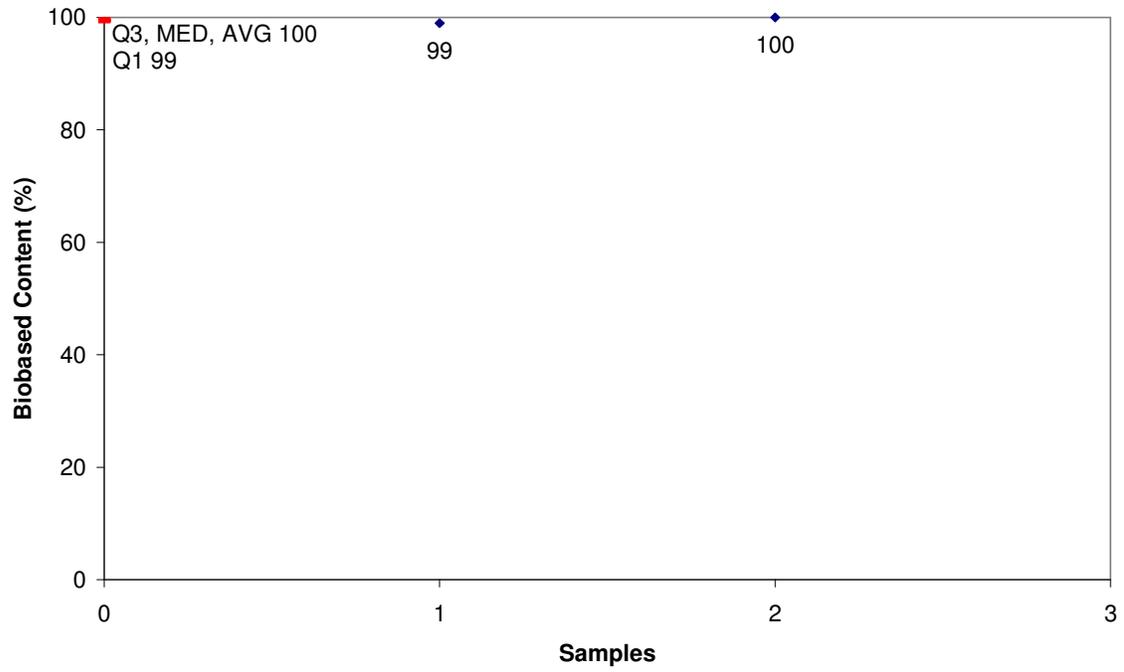
**Biobased Content Data:** Results from biobased content testing of Clothing products indicate a range of content percentages from 99% minimum to 100% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

**Products Submitted for BEES Analysis:** Life-cycle cost and environmental effect data for 1 Clothing products have been submitted to NIST for BEES analysis.

**BEES Analysis:** The life-cycle costs of the submitted Clothing products range from \$12.50 minimum to \$12.50 maximum per usage unit. The environmental scores range from 0.0143 minimum to 0.0143 maximum. A detailed summary of the BEES results is included as Appendix B.

## Appendix A - Biobased Content Data

### Biobased Clothing



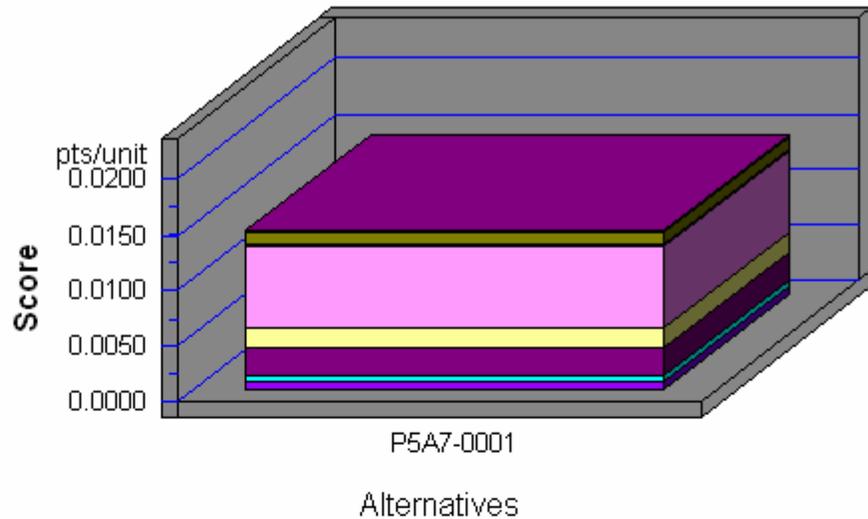
	Manufacturers Identified	Products Identified	C14	BEES
1	P5A7	P5A7-0001	99	yes
2	P5A7	P5A7-0002	100	

## Appendix B - BEES Analysis Results

Functional Unit: 1 XL T-Shirt

# Environmental Performance

<span style="color: cyan;">■</span> Acidification
<span style="color: magenta;">■</span> Crit. Air Pollutants
<span style="color: olive;">■</span> Ecological Toxicity
<span style="color: blue;">■</span> Eutrophication
<span style="color: pink;">■</span> Fossil Fuel Depletion
<span style="color: yellow;">■</span> Global Warming
<span style="color: orange;">■</span> Habitat Alteration
<span style="color: purple;">■</span> Human Health
<span style="color: green;">■</span> Indoor Air
<span style="color: darkgreen;">■</span> Ozone Depletion
<span style="color: cyan;">■</span> Smog
<span style="color: purple;">■</span> Water Intake

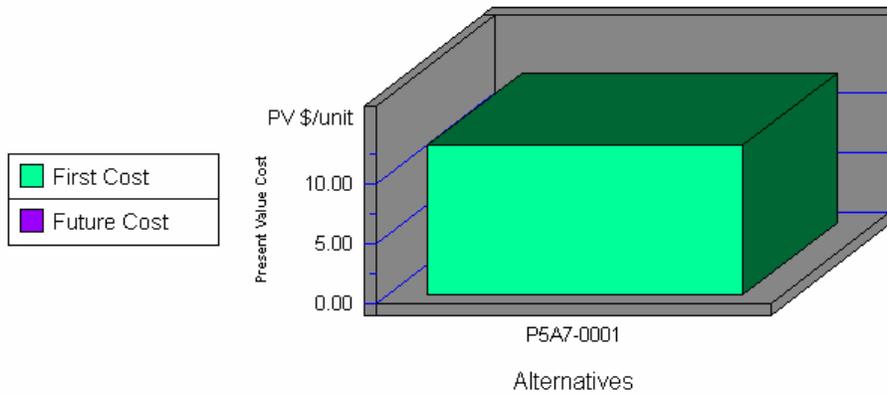


**Note: Lower values are better**

Category	P5A7-0001
Acidification--5%	0.0000
Crit. Air Pollutants--6%	0.0001
Ecolog. Toxicity--11%	0.0010
Eutrophication--5%	0.0002
Fossil Fuel Depl.--5%	0.0073
Global Warming--16%	0.0019
Habitat Alteration--16%	0.0000
Human Health--11%	0.0024
Indoor Air--11%	0.0000
Ozone Depletion--5%	0.0000
Smog--6%	0.0006
Water Intake--3%	0.0008
<b>Sum</b>	<b>0.0143</b>

## Appendix B (continued)

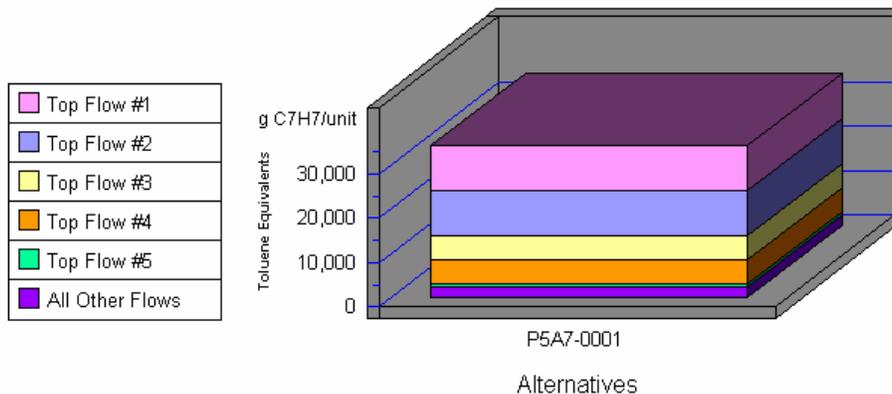
### Economic Performance



Category	P5A7-0001
First Cost	12.50
Future Cost- 3.9%	0.00
<b>Sum</b>	<b>12.50</b>

\*No significant/quantifiable durability differences are expected among competing biobased alternatives. Therefore, future costs were not calculated.

### Human Health by Sorted Flows\*



**Note: Lower values are better**

Category	P5A7-0001
Cancer--(a) Arsenic (As)	10,212.51
Cancer--(a) Dioxins (unspecifie	10,032.68
Cancer--(w) Arsenic (As3+, As5+	5,627.82
Cancer--(w) Phenol (C6H5OH)	5,307.92
Noncancer--(a) Mercury (Hg)	897.29
All Others	2,376.80
<b>Sum</b>	<b>34,455.01</b>

\*Sorted by five topmost flows for worst-scoring product