

## **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. Additional performance standards added as of March 26, 2007.

### **Title: Durable Plastic Films**

**Description:** Films like bags, packaging contents, etc. that resist water, ammonia, etc. and do not readily biodegrade.

**Manufacturers Identified:** 2 manufacturers producing Durable Plastic Films 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 Durable Plastic Films:

- Biobased Manufacturers Association
- United Soybean Board
- American Chemical Society
- Society of Plastics Engineers
- American Institute of Architects
- Small Business Association of Michigan
- International Card Manufacturers Association
- Industrial Designers Society of America

**Commercially Available Products Identified:** Of the manufacturers identified, 2 Durable Plastic Films 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 1 Durable Plastic Films.

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

- American Society for Testing and Materials #D6400-04 Standard Specification for Compostable Plastics
- German Institute for Standardization - DIN CERTCO#54900 Biodegradability and
- AIB Vinçotte Inter OK COMPOST test of biodegradability
- Building Performance Institute, Inc.
- Biodegradable Plastics Society Test Methods for Biodegradability Building
- American Society for Testing and Materials ASTM D3359 - Standard Test Methods for Measuring Adhesion by Tape Test.

**Samples Tested for Biobased Content:** 1 samples of Durable Plastic Films have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

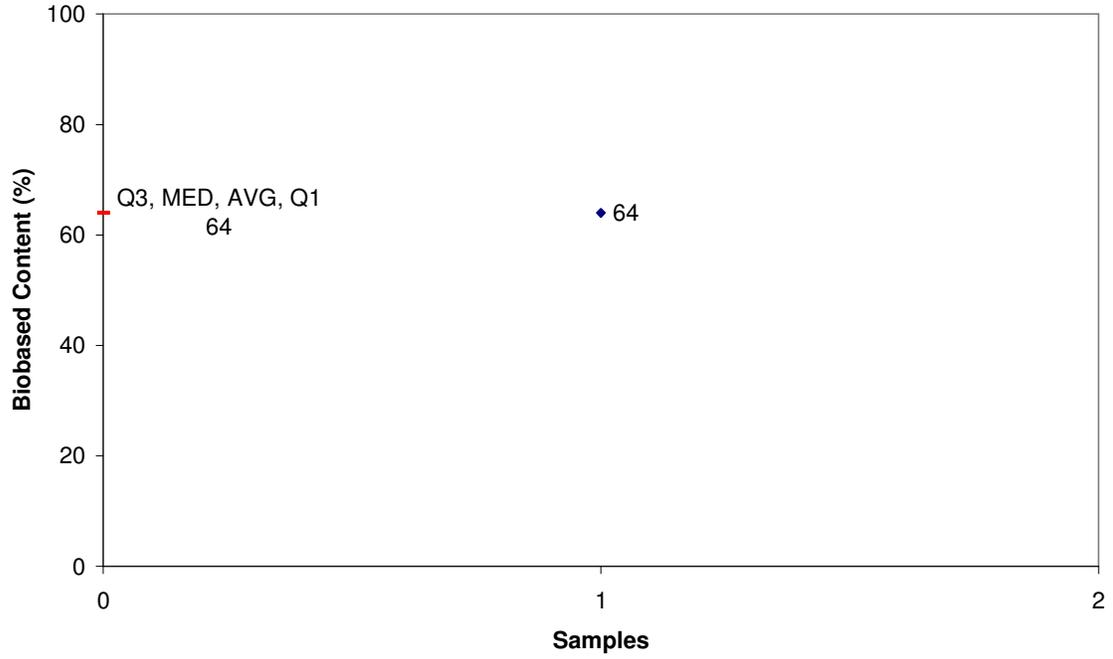
**Biobased Content Data:** Results from biobased content testing of Durable Plastic Films indicate a range of content percentages from 64% minimum to 64% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

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

**BEES Analysis:** The life-cycle costs of the submitted Durable Plastic Films range from \$2.32 minimum to \$2.32 maximum per usage unit. The environmental scores range from 0.0125 minimum to 0.0125 maximum. A detailed summary of the BEES results is included as Appendix B.

# Appendix A - Biobased Content Data

## Durable Plastic Films



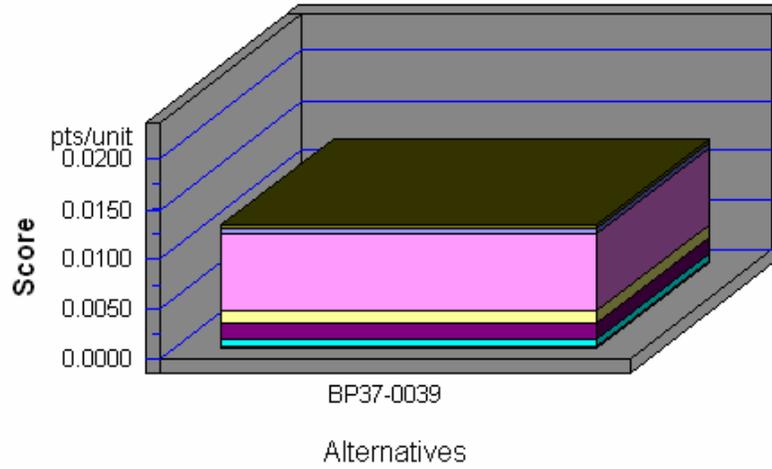
	Manufacturers Identified	Products Identified	C14	BEES
1	BP37	BP37-0039	64	yes

## Appendix B - BEES Analysis Results

Functional Unit: 1 kilogram of durable film

### 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

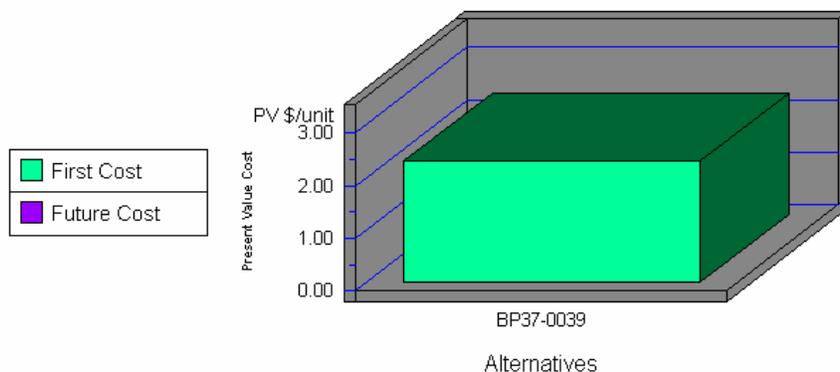


**Note: Lower values are better**

Category	BP37-0039
Acidification--5%	0.0000
Crit. Air Pollutants--6%	0.0001
Ecolog. Toxicity--11%	0.0004
Eutrophication--5%	0.0004
Fossil Fuel Depl.--5%	0.0077
Global Warming--16%	0.0013
Habitat Alteration--16%	0.0000
Human Health--11%	0.0016
Indoor Air--11%	0.0000
Ozone Depletion--5%	0.0000
Smog--6%	0.0008
Water Intake--3%	0.0002
<b>Sum</b>	<b>0.0125</b>

## Appendix B (continued)

### Economic Performance



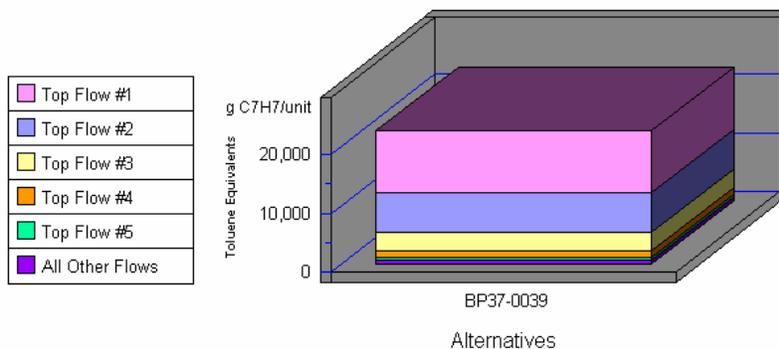
Category	BP37-0039
First Cost	2.32
Future Cost-- 3.9%	0.00
<b>Sum</b>	<b>2.32</b>

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

Note: While this durable film product's first cost is reported on a mass basis (\$/kilogram), the product is designed to be sold in a wide range of sizes and uses, such as trash bags and retention films, with a wide range of associated costs. The first cost reported here is only a rough average across all applications and may not be representative of the cost for any particular application

## Appendix B (continued)

### Human Health by Sorted Flows\*



**Note: Lower values are better**

Category	BP37-0039
Cancer--(w) Phenol (C6H5OH)	10,503.58
Cancer--(w) Arsenic (As3+, As5+	6,763.71
Cancer--(a) Dioxins (unspecifie	3,128.51
Cancer--(a) Arsenic (As)	1,063.22
Cancer--(a) Benzene (C6H6)	379.80
All Others	874.71
<b>Sum</b>	<b>22,713.53</b>

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