

Proposed Item for Biobased Designation

The following biobased product information has been collected to support item designation by USDA for the BioPreferred Program. This summary reflects data available as of July 24, 2007.

Title: Expanded Polystyrene Foam Recycling Products

Description: Products formulated to dissolve EPS foam to reduce the volume of recycled or discarded EPS items.

Manufacturers Identified: 3 manufacturers producing Expanded Polystyrene Foam Recycling Products 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 Expanded Polystyrene Foam Recycling Products:

- Biobased Manufacturers Association
- United Soybean Board
- Alliance of Foam Packaging Recyclers
- Association of Foam Packaging Recyclers
- American Chemistry Council
- Association of PostConsumer Plastic Recyclers
- EPS Molders Association
- Institute of Scrap Recycling Industries, Inc.
- Plastic Molders and Manufacturers Association
- The Society of the Plastics Industry, Inc.

Commercially Available Products Identified: Of the manufacturers identified, 3 Expanded Polystyrene Foam Recycling 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 2 Expanded Polystyrene Foam Recycling Products.

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

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Samples Tested for Biobased Content: 1 samples of Expanded Polystyrene Foam Recycling Products have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

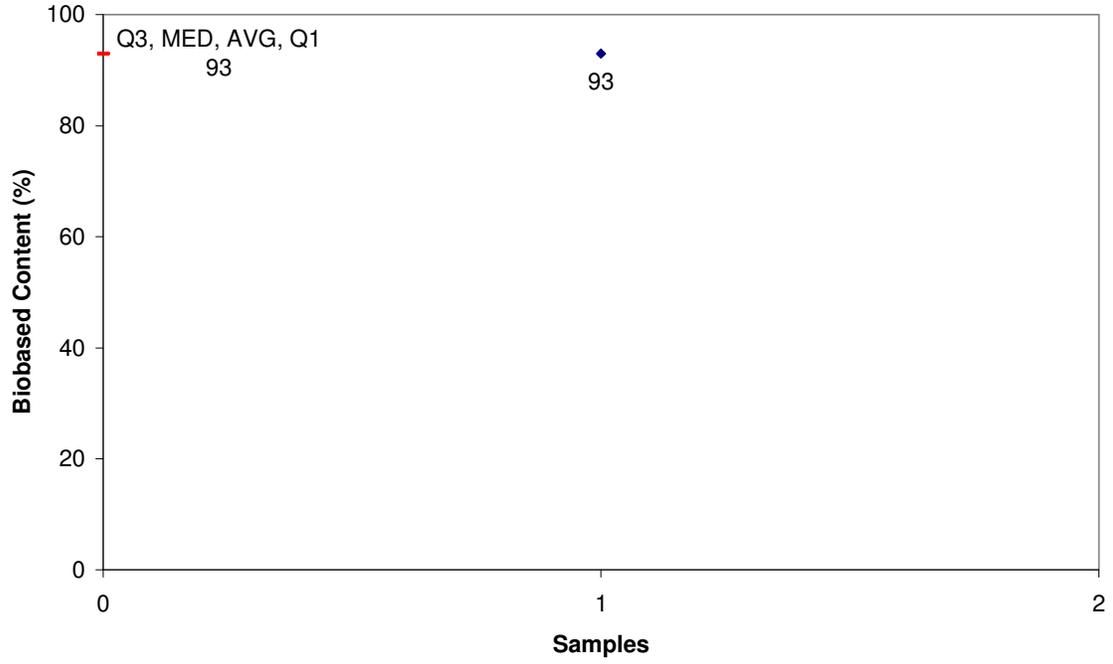
Biobased Content Data: Results from biobased content testing of Expanded Polystyrene Foam Recycling Products indicate a range of content percentages from 93% minimum to 93% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 1 Expanded Polystyrene Foam Recycling Products have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Expanded Polystyrene Foam Recycling Products range from \$53.13 minimum to \$53.13 maximum per usage unit. The environmental scores range from 0.1400 minimum to 0.1400 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Expanded Polystyrene Foam Recycling Products

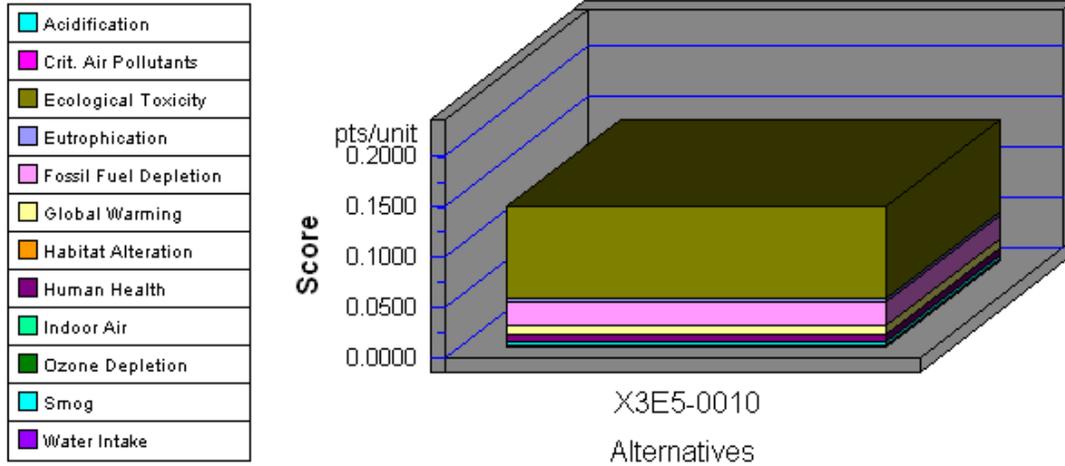


	Manufacturers Identified	Products Identified	C14	BEES
1	X3E5	X3E5-0010	93	yes

Appendix B - BEES Analysis Results

Functional Unit: Transforming 10 cubic yards of polystyrene foam waste into feedstock for new product

Environmental Performance

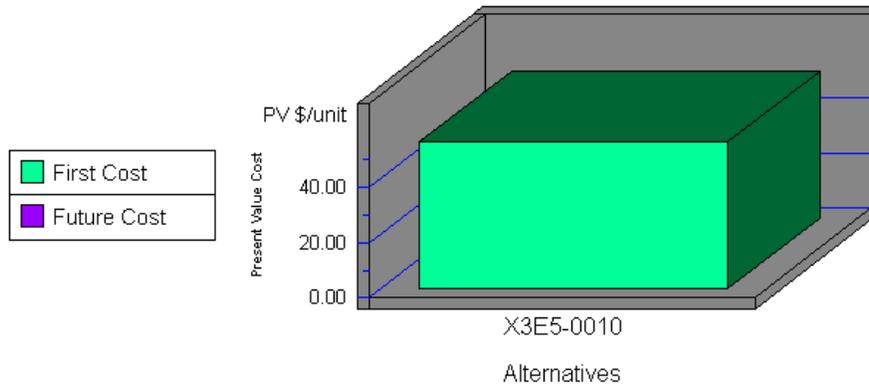


Note: Lower values are better

Category	X3E5-0010
Acidification--5%	0.0000
Crit. Air Pollutants--6%	0.0004
Ecolog. Toxicity--11%	0.0908
Eutrophication--5%	0.0027
Fossil Fuel Depl.--5%	0.0246
Global Warming--16%	0.0083
Habitat Alteration--16%	0.0000
Human Health--11%	0.0075
Indoor Air--11%	0.0000
Ozone Depletion--5%	0.0000
Smog--6%	0.0033
Water Intake--3%	0.0024
Sum	0.1400

Appendix B (continued)

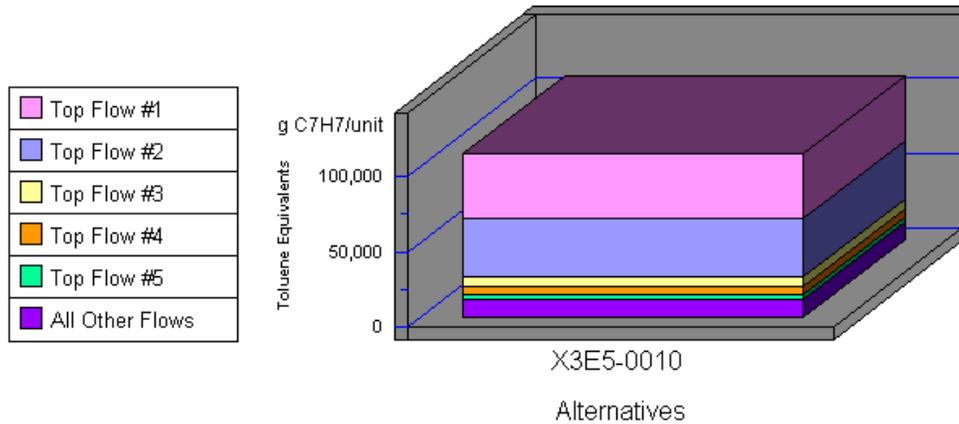
Economic Performance



Category	X3E5-0010
First Cost	53.13
Future Cost-- 3.9%	0.00
Sum	53.13

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

Human Health by Sorted Flows*



Note: Lower values are better

Category	X3E5-0010
Cancer--(w) Arsenic (As3+, As5+	43,198.22
Cancer--(w) Phenol (C6H5OH)	38,165.68
Cancer--(a) Dioxins (unspecifie	6,816.09
Cancer--(a) Arsenic (As)	4,686.56
Cancer--(a) Simazine	3,924.60
All Others	12,005.11
Sum	108,796.27

*Sorted by five topmost flows for worst-scoring product

Appendix B (continued)

Expanded Polystyrene Foam Recycling Products		
Impacts	Units	X3E5-0010
Acidification	millimoles H ⁺ equivalents	3.93E+03
Criteria Air Pollutants	microDALYs	1.24E+00
Ecological Toxicity	g 2,4-D equivalents	6.74E+02
Eutrophication	g N equivalents	1.03E+01
Fossil Fuel Depletion	MJ surplus energy	1.74E+02
Global Warming	g CO ₂ equivalents	1.32E+04
Habitat Alteration	T&E count	0.00E+00
Human Health	g C ₇ H ₈ equivalents	1.09E+05
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	2.52E-04
Smog	g NO _x equivalents	8.36E+01
Water Intake	liters of water	4.18E+02
Functional Unit	-----	Transforming 10 cubic yards of polystyrene foam waste into feedstock for new product

1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and endangered species count; Human Health: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflourocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.