

## 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 May 18, 2007.

### **Title: Disposable Tableware**

**Description:** Products used in dining, such as drink ware and dishware, including but not limited to cups, plates, bowls, and serving platters, and that are designed for one-time use. This item does not include disposable cutlery, which is a separate item.

**Manufacturers Identified:** 19 manufacturers producing Disposable Tableware 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 Disposable Tableware:

- Biobased Manufacturers Association
- United Soybean Board
- The National Restaurant Association
- Green Restaurant Association
- National Corn Growers Association
- American Soybean Association
- The National Association of College and University Food Services
- Corn Refiners Association

**Commercially Available Products Identified:** Of the manufacturers identified, 65 Disposable Tableware 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 4 Disposable Tableware.

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

- Biodegradable Products Institute Certified Compostable plastic products will biodegrade and compost satisfactorily in actively managed compost facilities
- Waste Management

**Samples Tested for Biobased Content:** 11 samples of Disposable Tableware have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

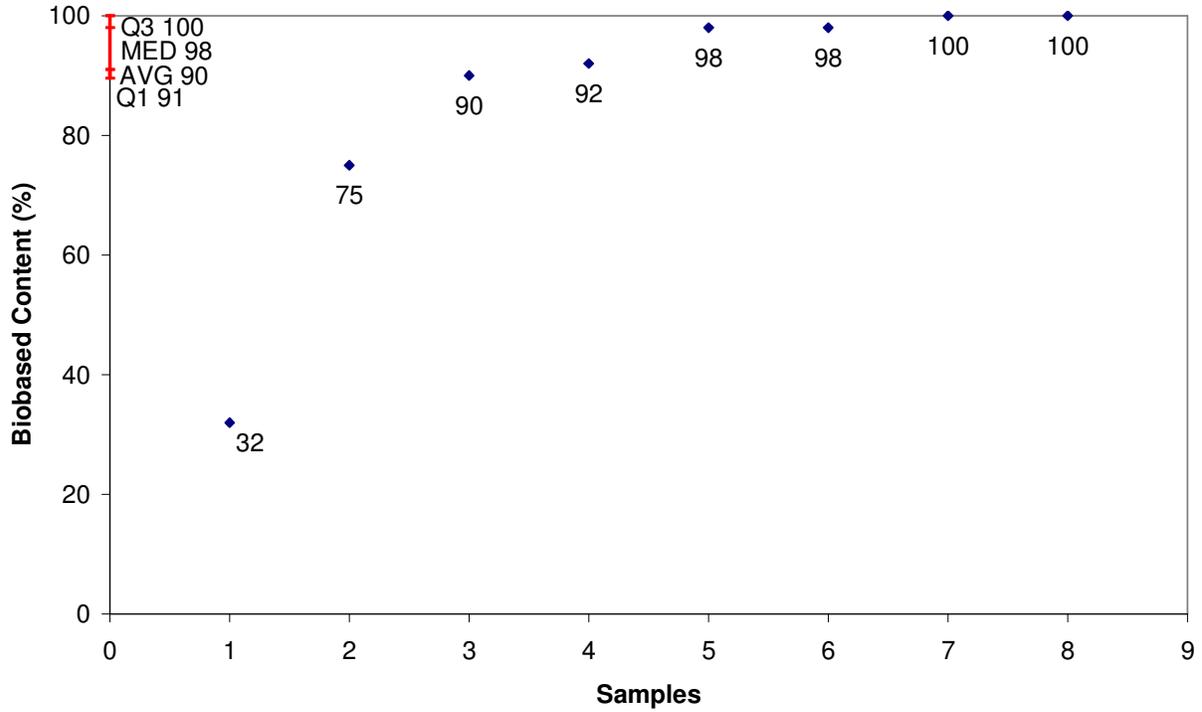
**Biobased Content Data:** Results from biobased content testing of Disposable Tableware indicate a range of content percentages from 32% minimum to 100% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

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

**BEES Analysis:** The life-cycle costs of the submitted Disposable Tableware range from \$0.05 minimum to \$0.05 maximum per usage unit. The environmental scores range from 0.0003 minimum to 0.003 maximum. A detailed summary of the BEES results is included as Appendix B.

## Appendix A - Biobased Content Data

### Disposable Tableware

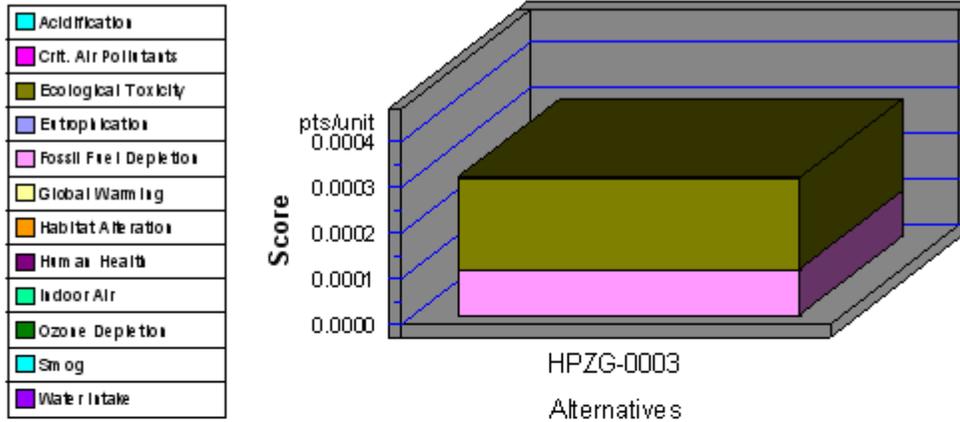


	Manufacturers Identified	Products Identified	C14	BEES
1	OLX2	OLX2-0017	32	
2	HPZG	HPZG-0003	75	Yes
3	PXO9	PXO9-0001	90	
4	PXO9	PXO9-0005	92	
5	OLX2	OLX2-0001	98	
6	IF3W	IF3W-0006	98	
7	XPR6	XPR6-0006	100	
8	D3P3	D3P3-0030	100	
9	D3P3	D3P3-0026	100	
10	V865	V865-0023	100	
11	V865	V865-0022	100	

## Appendix B - BEES Analysis Results

Functional Unit: 1 disposable plate

### Environmental Performance

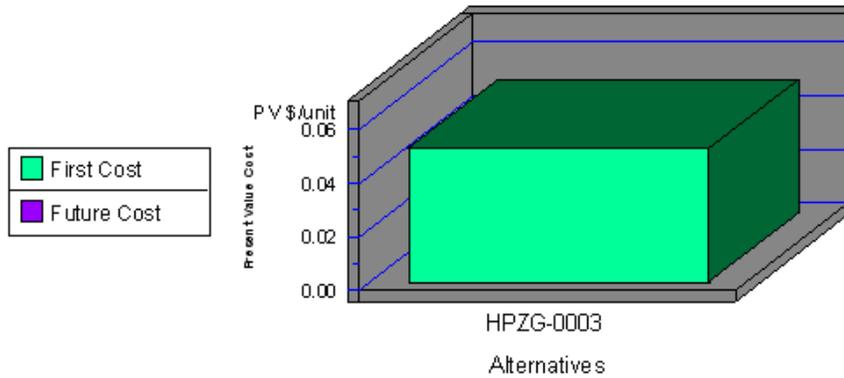


**Note: Lower values are better**

Category	HPZG-0003
Acidification-5%	0.0000
Crit. Air Pollutants-6%	0.0000
Ecolog. Toxicity-11%	0.0002
Eutrophication-5%	0.0000
Fossil Fuel Depl.-5%	0.0001
Global Warming-16%	0.0000
Habitat Alteration-16%	0.0000
Human Health-11%	0.0000
Indocr Air-11%	0.0000
Ozone Depletion-5%	0.0000
Smog-6%	0.0000
Water Intake-3%	0.0000
<b>Sum</b>	<b>0.0003</b>

## Appendix B (continued)

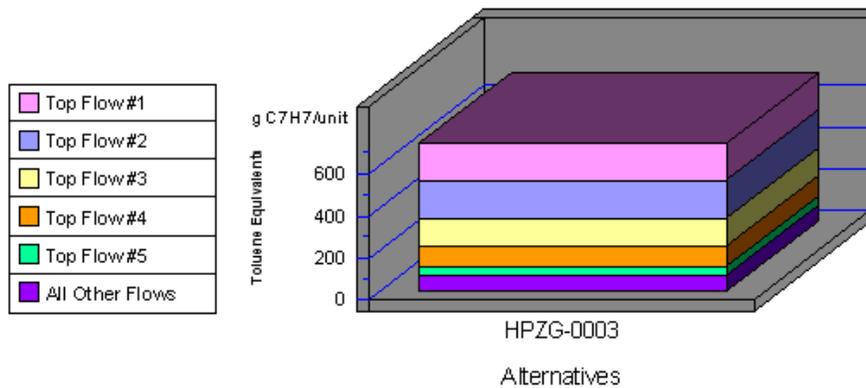
### Economic Performance



Category	HPZG-0003
First Cost	0.05
Future Cost-- 3.9%	0.00
<b>Sum</b>	<b>0.05</b>

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

### Human Health by Sorted Flows\*



**Note: Lower values are better**

Category	HPZG-0003
Cancer-(a) Dioxins (unspecific)	177.68
Cancer-(a) Arsenic (As)	174.87
Cancer-(w) Phenol (C6H5OH)	132.30
Cancer-(w) Arsenic (As3+, As5+)	100.16
Cancer-(a) Atrazine (C8H14ClN5)	42.20
All Others	76.17
<b>Sum</b>	<b>703.38</b>

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

### Appendix B (continued)

<b>Disposable Tableware</b>		
Impacts	Units <sup>1</sup>	HPZG-0003
Acidification	millimoles H <sup>+</sup> equivalents	2.59E+01
Criteria Air Pollutants	microDALYs	7.16E-03
Ecological Toxicity	g 2,4-D equivalents	1.24E+00
Eutrophication	g N equivalents	4.73E-02
Fossil Fuel Depletion	MJ surplus energy	8.07E-01
Global Warming	g CO <sub>2</sub> equivalents	5.31E+01
Habitat Alteration	T&E count	0.00E+00
Human Health	g C <sub>7</sub> H <sub>8</sub> equivalents	7.03E+02
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	1.93E-07
Smog	g NO <sub>x</sub> equivalents	3.17E-01
Water Intake	liters of water	1.84E+00
Functional Unit	-----	1 disposable plate

<sup>1</sup>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.