

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 November 30, 2007.

Title: Dishwashing Products

Description: Soaps and detergents used for cleaning and clean rinsing of tableware in either hand washing or dishwashing.

Companies Supplying Item: 39 companies supplying Dishwashing 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 supplying Dishwashing Products:

- United Soybean Board
- International Association for Soaps, Detergents and Maintenance Products
- American Institute for Cleaning Sciences
- The Soap and Detergent Association
- National Restaurant Association
- Green Hotels Association
- Green Products Alliance

Commercially Available Products Identified: Of the companies identified, 64 Dishwashing 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 28 Dishwashing Products.

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

- Anthrax
- Bacteria Inhibitory
- Chlorine Equal
- Boeing D6-7127: "Cleaning interiors of commercial transport aircraft"
- Federal Test Method Standard 536A: Soap and soap products (including synthetic detergents) sampling and testing
- South Coast Air Quality Management District, Clean Air: The South Coast Air Quality Management District hereby certifies the above product as a "Clean Air Solvent".
- U.S. Navy, Navsea 6840 U.S. Navy surface ship (non-submarine) authorized chemical cleaning products and dispensing systems

Samples Tested for Biobased Content: 6 samples of Dishwashing Products have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

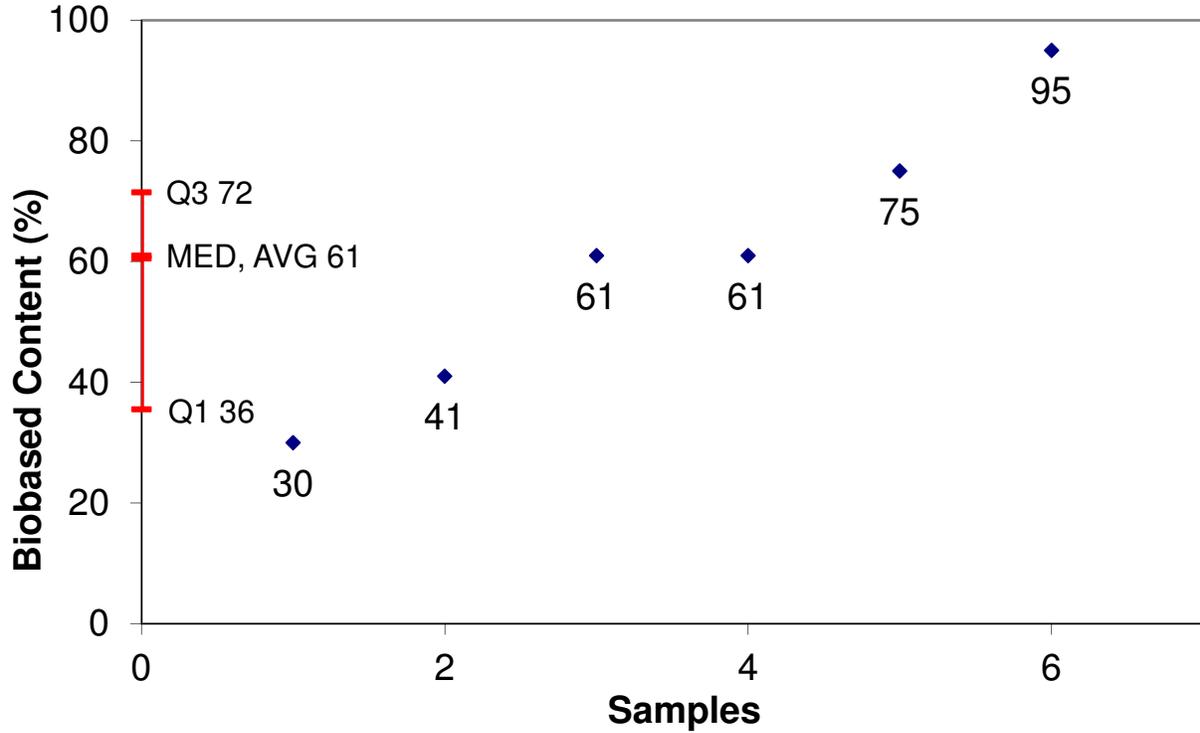
Biobased Content Data: Results from biobased content testing of Dishwashing Products indicate a range of content percentages from 30% minimum to 95% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

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

BEES Analysis: The life-cycle costs of the submitted Dishwashing Products range from \$20.14 minimum to \$20.14 maximum per usage unit. The environmental scores range from 0.0198 minimum to 0.0198 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Dishwashing Products



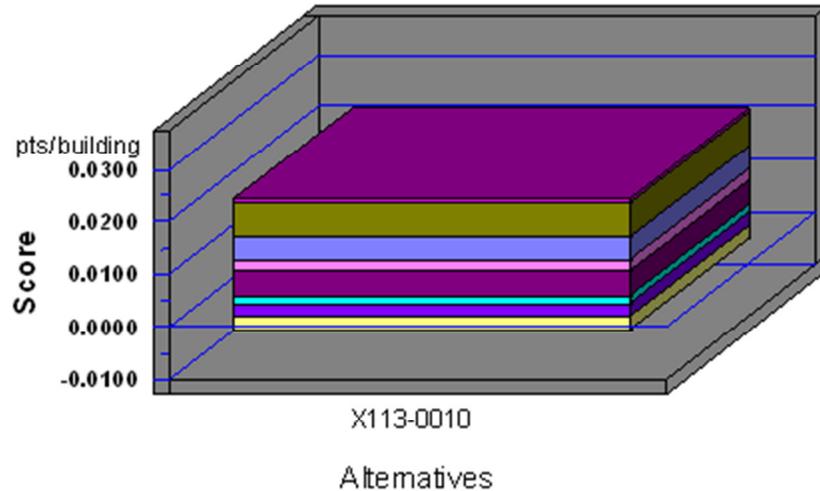
	Company	Product	C14	BEES
1	C9PX	C9PX-0008	30	
2	YJ3R	YJ3R-0006	41	
3	RDO8	RDO8-0031	61	
4	WF5U	WF5U-0031	61	
5	FCM9	FCM9-0002	75	
6	X113	X113-0010	95	Yes

Appendix B - BEES Analysis Results

Functional Unit: 1 gallon

Environmental Performance

Acidification
Crit. Air Pollutants
Ecological Toxicity
Eutrophication
Fossil Fuel Depletion
Global Warming
Habitat Alteration
Human Health
Indoor Air
Ozone Depletion
Smog
Water Intake



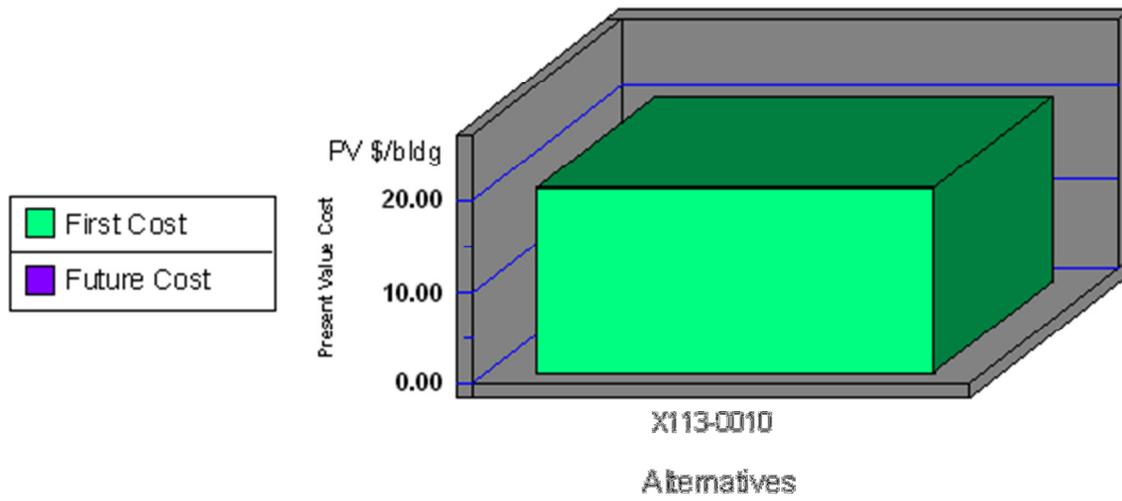
Note: Lower values are better

Category	X113-0010
Acidification-3%	0.0000
Crit. Air Pollutants-8%	0.0005
Ecolog. Toxicity-7%	0.0067
Eutrophication-6%	0.0042
Fossil Fuel Depl.-10%	0.0018
Global Warming-29%	-0.0024
Habitat Alteration-6%	0.0000
Human Health-13%	0.0048
Indoor Air-3%	0.0000
Ozone Depletion-2%	0.0000
Smog-4%	0.0014
Water Intake-8%	0.0027
Sum	0.0198

Dishwashing Products		
Impacts	Units	X113-0010
Acidification	millimoles H ⁺ equivalents	2.93E+03
Criteria Air Polutants	microDALYs	9.75E-01
Ecotoxicity	g 2,4-D equivalents	7.78E+01
Eutrophication	g N equivalents	1.35E+01
Fossil Fuel Depletion	MJ surplus energy	6.88E+00
Global Warming	g CO ₂ equivalents	-2.10E+03
Habitat Alteration	T&E count	0.00E+00
Human Health--Cancer	g C ₆ H ₆ equivalents	3.10E+00
Human Health--NonCancer	g C ₇ H ₈ equivalents	3.17E+03
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	1.39E-04
Smog	g NO _x equivalents	5.43E+01
Water Intake	liters of water	1.82E+02
Functional Unit	-----	1 gallon

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-Cancer: grams of benzene equivalents; Human Health-NonCancer: 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.

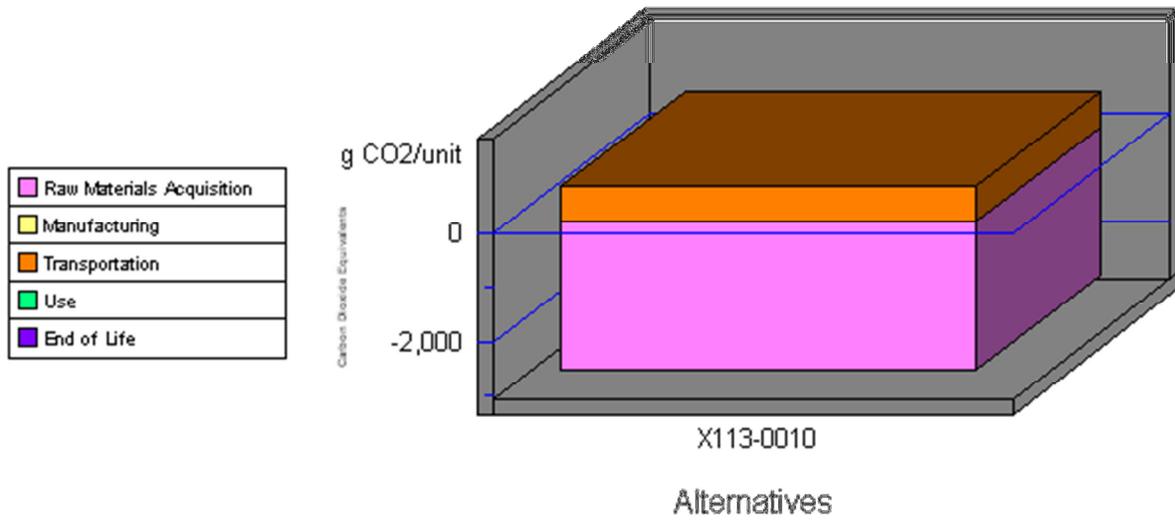
Economic Performance



Category	X113-0010
First Cost	20.14
Future Cost- 3.0%	0.00
Sum	20.14

*This is a consumable product. Therefore, future costs are not calculated.

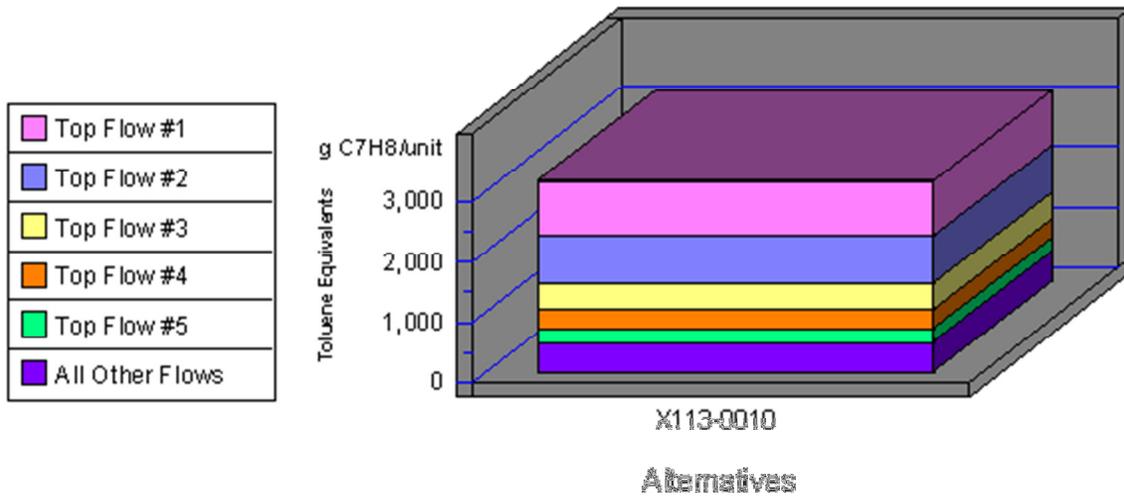
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	X113-0010
1. Raw Materials	-2746
2. Manufacturing	0
3. Transportation	851
4. Use	0
5. End of Life	0
Sum	-2095

Human Health Noncancer by Sorted Flows*

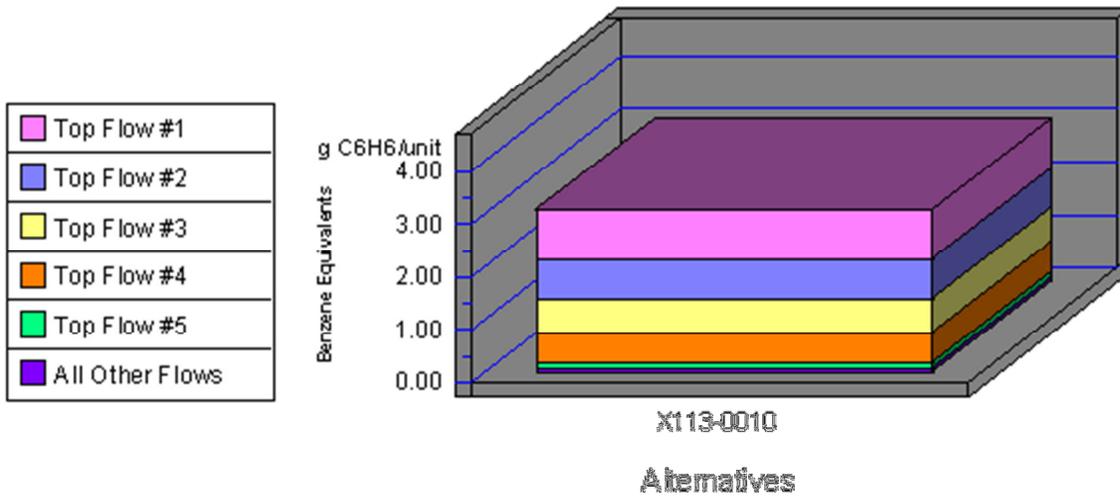


Note: Lower values are better

Category	X113-0010
Noncancer-(u) Mercury (Hg)	914.78
Noncancer-(s) Dioxins (unspec)	775.59
Noncancer-(w) Barium (Ba++)	434.39
Noncancer-(a) Lead (Pb)	314.55
Noncancer-(w) Lead (Pb++, Pb4+)	211.32
All Others	522.60
Sum	3,173.22

*Sorted by five topmost flows for worst-scoring product

Human Health Cancer by Sorted Flows*



Note: Lower values are better

Category	X113-0010
Cancer-(M) Arsenic (As3+, As5+)	0.92
Cancer-(M) Phenol (C6H5OH)	0.79
Cancer-(a) Dioxins (unspecific)	0.62
Cancer-(a) Arsenic (As)	0.58
Cancer-(a) Bromoxynil (C7H3Br2)	0.11
All Others	0.09
Sum	3.10

*Sorted by five topmost flows for worst-scoring product