

Proposed Product Category for Biobased Designation

The following biobased product information has been collected to support product category designation by USDA for the BioPreferred Program. This summary reflects data available as of January 30, 2008.

Title: Electronic Components Cleaners

Description: Products designed to wash or remove dirt or extraneous matter from electronic parts, devices, circuits, or systems.

Companies Supplying Product Category: 7 companies supplying Electronic Components Cleaners 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 Electronic Components Cleaners:

- United Soybean Board
- Semiconductor Industry Association
- Association Connecting Electronics Industries
- Institute of Electrical and Electronics Engineers

Commercially Available Products Identified: Of the companies identified, 8 Electronic Components Cleaners 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 6 Electronic Components Cleaners.

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

- ASTM International D86 Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure

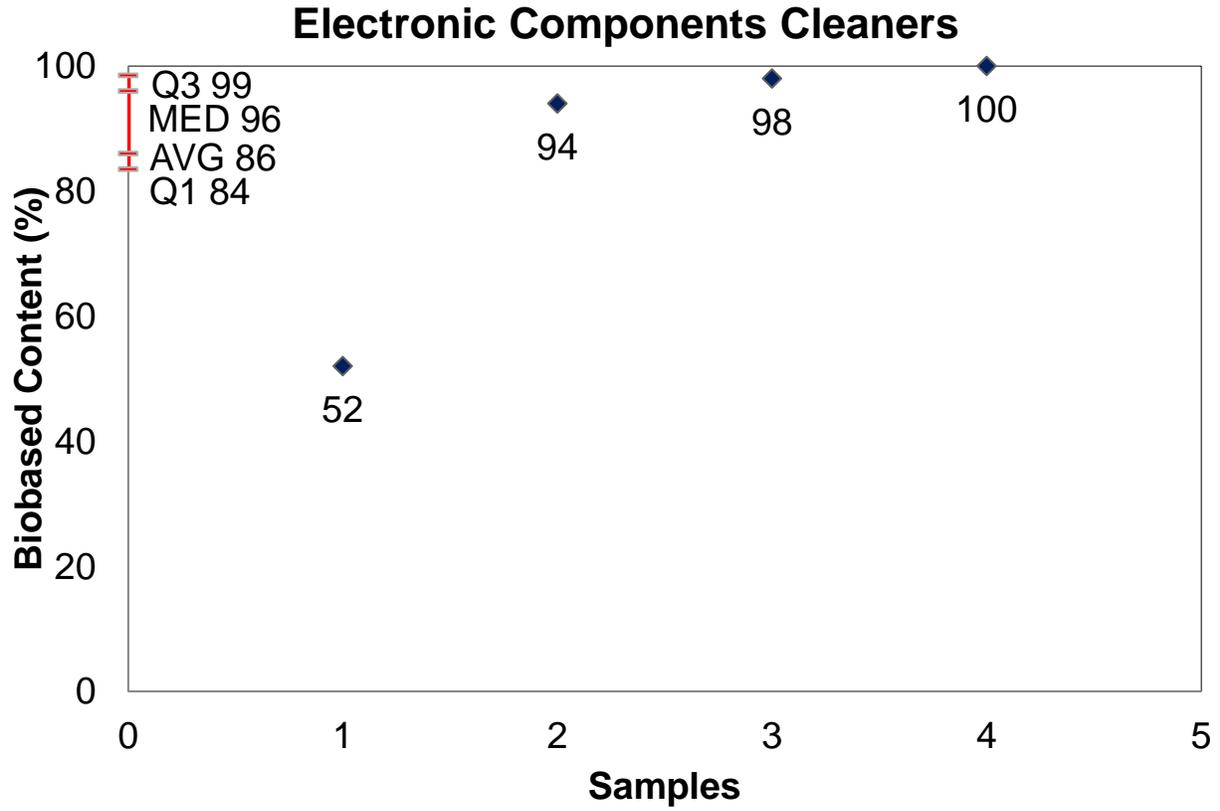
Samples Tested for Biobased Content: 4 samples of Electronic Components Cleaners have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

Biobased Content Data: Results from biobased content testing of Electronic Components Cleaners indicate a range of content percentages from 52% 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 2 Electronic Components Cleaners have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Electronic Components Cleaners range from \$25.00 minimum to \$150.00 maximum per usage unit. The environmental scores range from 0.1196 minimum to 0.1309 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

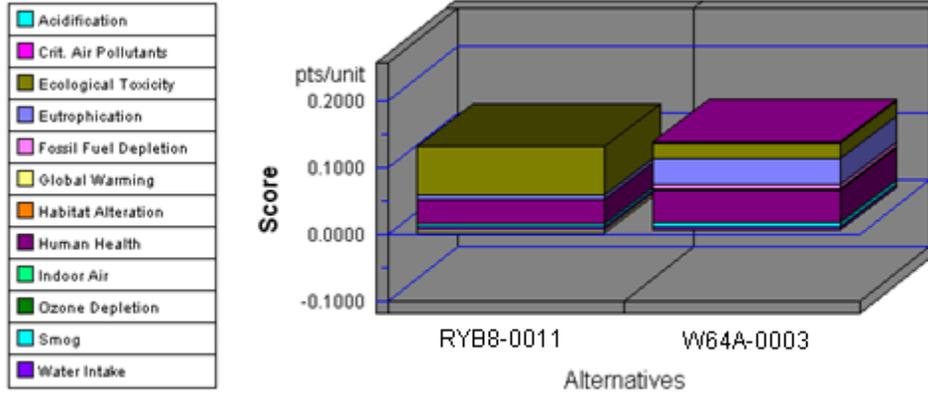


	Company	Product	C14	BEES
1	RYB8	RYB8-0009	52	
2	YC25	YC25-0004	94	
3	RYB8	RYB8-0011	98	Yes
4	W64A	W64A-0003	100	Yes

Appendix B - BEES Analysis Results

Functional Unit: 1 gallon

Environmental Performance



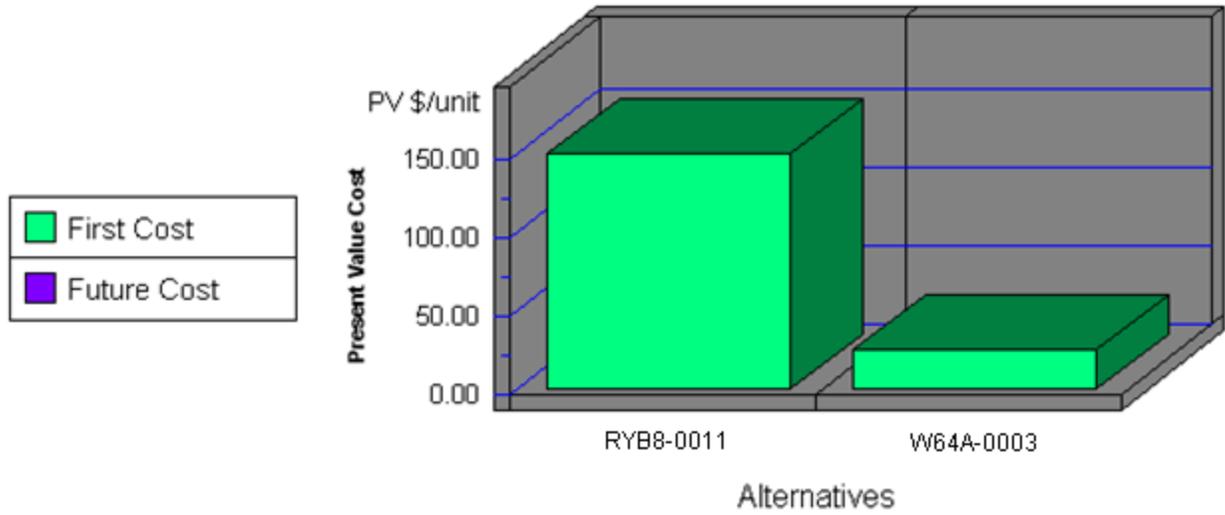
Note: Lower values are better

Category	RYB8-0011	W64A-0003
Acidification--3%	0.0000	0.0000
Crit. Air Pollutants--9%	0.0001	0.0011
Ecolog. Toxicity--7%	0.0716	0.0242
Eutrophication--6%	0.0053	0.0377
Fossil Fuel Depl.--10%	0.0012	0.0058
Global Warming--29%	-0.0039	0.0035
Habitat Alteration--6%	0.0000	0.0000
Human Health--13%	0.0360	0.0464
Indoor Air--3%	0.0000	0.0000
Ozone Depletion--2%	0.0000	0.0000
Smog--4%	0.0040	0.0065
Water Intake--8%	0.0053	0.0057
Sum	0.1196	0.1309

Electronic Components Cleaners			
Impacts	Units	RYP8-0011	W64A-003
Acidification	millimoles H ⁺ equivalents	9.65E+02	8.35E+03
Criteria Air Pollutants	microDALYs	2.21E-01	2.38E+00
Ecotoxicity	g 2,4-D equivalents	8.35E+02	2.83E+02
Eutrophication	g N equivalents	1.71E+01	1.21E+02
Fossil Fuel Depletion	MJ surplus energy	4.23E+00	2.06E+01
Global Warming	g CO ₂ equivalents	-3.44E+03	3.09E+03
Habitat Alteration	T&E count	0.00E+00	0.00E+00
Human Health--Cancer	g C ₆ H ₆ equivalents	2.29E+01	2.95E+01
Human Health--NonCancer	g C ₇ H ₈ equivalents	2.87E+04	4.23E+04
Indoor Air Quality	g TVOCs	0.00E+00	0.00E+00
Ozone Depletion	g CFC-11 equivalents	8.25E-07	4.74E-05
Smog	g NO _x equivalents	1.50E+02	2.45E+02
Water Intake	liters of water	3.51E+02	3.79E+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.

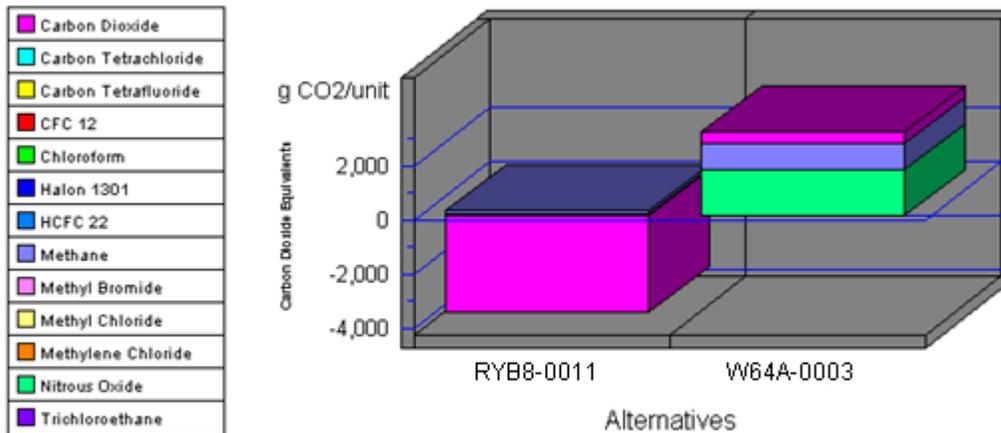
Economic Performance



Category	RYB8-0011	W64A-0003
First Cost	150.00	25.00
Future Cost-- 3.0%	0.00	0.00
Sum	150.00	25.00

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

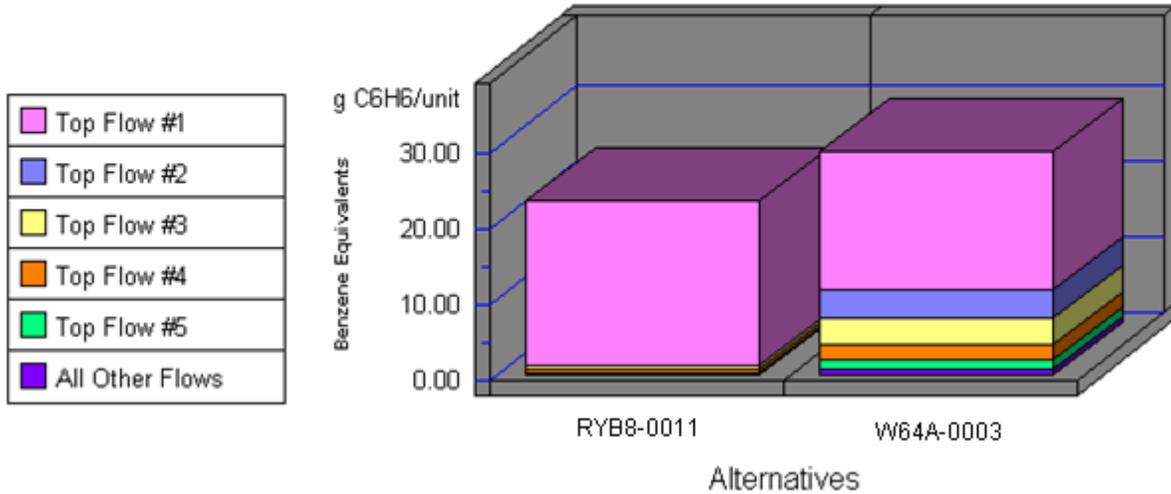
Global Warming by Flow



Note: Lower values are better
Category

Category	RYB8-0011	W64A-0003
(a) Carbon Dioxide (CO ₂ , net)	-3601	466
(a) Carbon Tetrachloride (CCl ₄)	0	0
(a) Carbon Tetrafluoride (CF ₄)	0	0
(a) CFC 12 (CCl ₂ F ₂)	0	0
(a) Chloroform (CHCl ₃ , HC-20)	0	0
(a) Halon 1301 (CF ₃ Br)	0	0
(a) HCFC 22 (CHF ₂ Cl)	0	0
(a) Methane (CH ₄)	106	940
(a) Methyl Bromide (CH ₃ Br)	0	0
(a) Methyl Chloride (CH ₃ Cl)	0	0
(a) Methylene Chloride (CH ₂ Cl ₂)	0	0
(a) Nitrous Oxide (N ₂ O)	54	1683
(a) Trichloroethane (1,1,1-CH ₃ Cl ₃)	0	0
Sum	-3441	3090

Human Health Cancer by Sorted Flows*

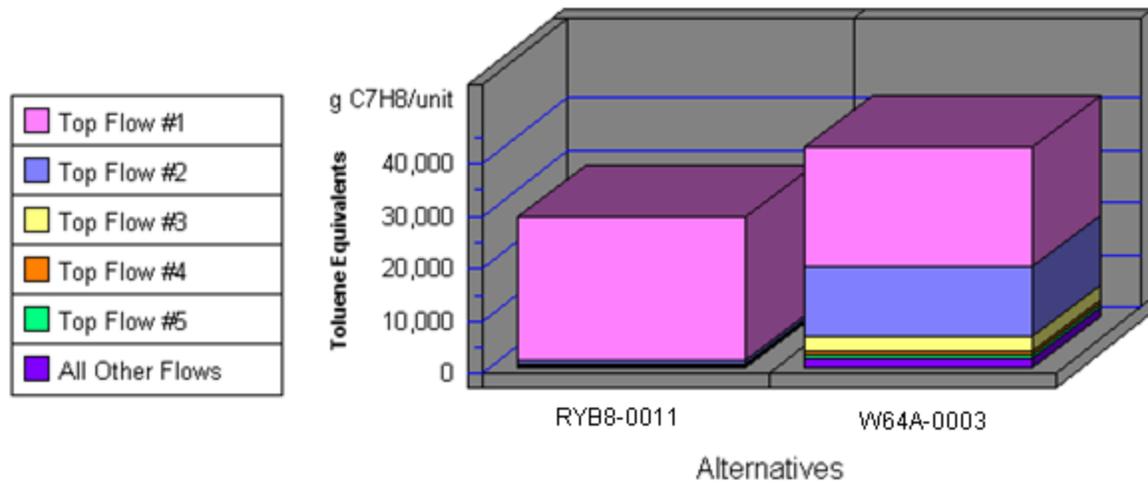


Note: Lower values are better

Category	RYB8-0011	W64A-0003
Cancer--(a) Dioxins (unspecifie	21.48	18.05
Cancer--(a) Atrazine (C8H14ClN5	0.00	3.91
Cancer--(w) Arsenic (As3+, As5+	0.61	3.50
Cancer--(w) Phenol (C6H5OH)	0.39	1.97
Cancer--(a) Arsenic (As)	0.13	1.23
All Others	0.30	0.79
Sum	22.92	29.45

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	RYB8-0011	W64A-0003
Noncancer--(a) Dioxins (unspeci	27,066.25	22,742.72
Noncancer--(a) Mercury (Hg)	659.17	13,422.62
Noncancer--(a) Lead (Pb)	103.86	2,952.80
Noncancer--(a) Cadmium (Cd)	49.03	606.10
Noncancer--(w) Barium (Ba++)	243.00	598.19
All Others	581.07	1,976.23
Sum	28,702.38	42,298.66

*Sorted by five topmost flows for worst-scoring product