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 May 14, 2009.

Title: Asphalt Restorers

Description: Products designed to seal, protect, or restore poured asphalt and concrete surfaces.

Companies Supplying Product Category: 5 companies supplying Asphalt Restorers 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 Asphalt Restorers:

- United Soybean board Association
- National Corn Growers Association
- National Asphalt Pavement Alliance
- Asphalt Pavement Alliance
- The Asphalt Institute

Commercially Available Products Identified: Of the companies identified, 7 Asphalt Restorers 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 5 Asphalt Restorers.

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

- ASTM D2170

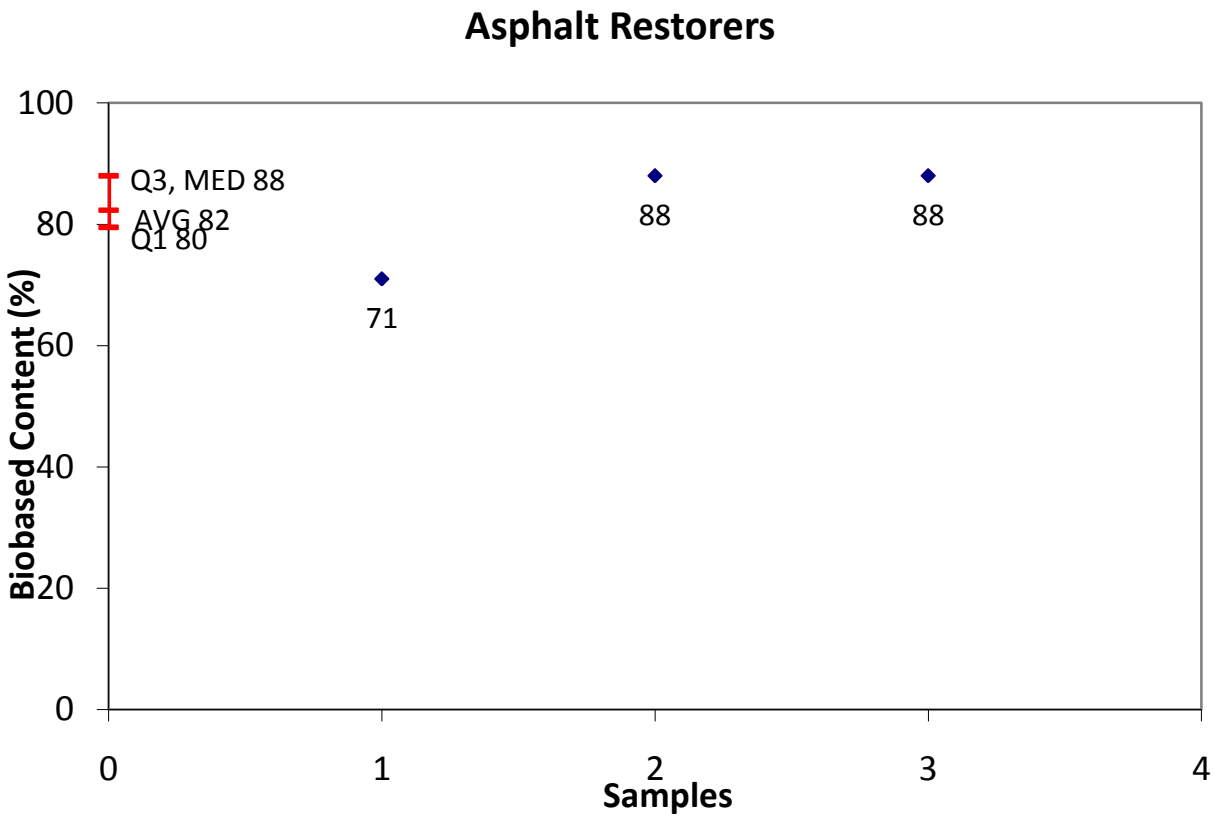
Samples Tested for Biobased Content: 3 samples of Asphalt Restorers have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866.

Biobased Content Data: Results from biobased content testing of Asphalt Restorers indicate a range of content percentages from 71% minimum to 88% maximum biobased content as defined by ASTM D6866. 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 Asphalt Restorers have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle cost of the submitted Asphalt Restorers is $5,228.08 per usage unit. The environmental score is 5.9211. A detailed summary of the BEES results is included as Appendix B.

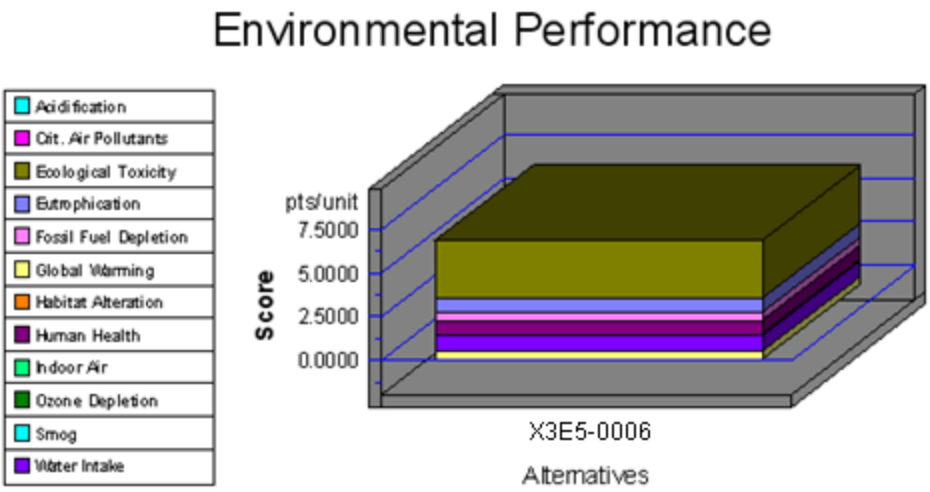
Appendix A - Biobased Content Data



	Company	Product	C14	BEES
1	X3E5	X3E5-0007	71	
2	X3E5	X3E5-0006	88	Yes
3	TRHZ	TRHZ-0001	88	

Appendix B - BEES Analysis Results

Functional Unit: Cover one 1-mile long lane for 10 years



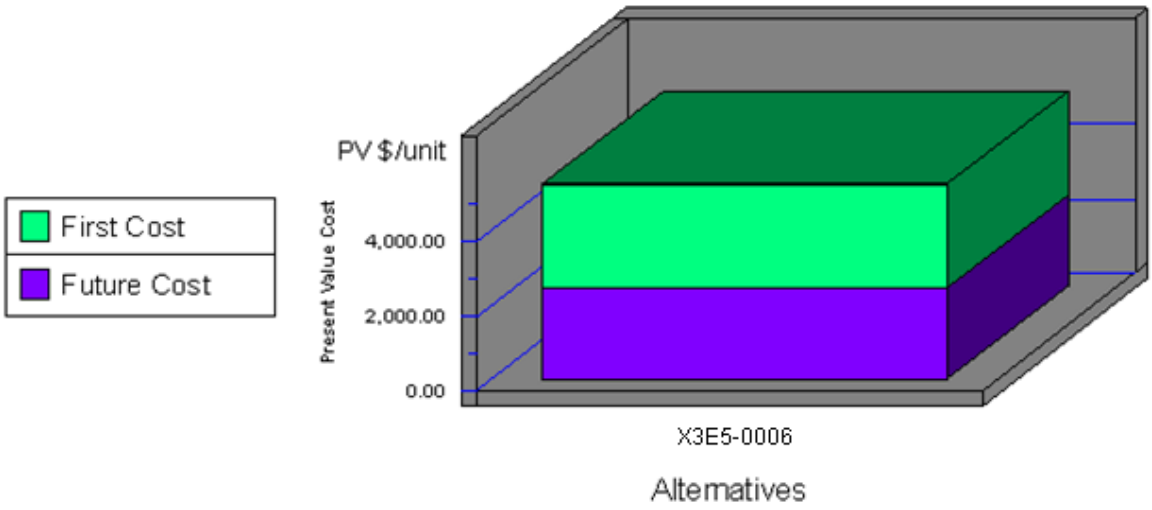
Note: Lower values are better

Category	X3E5-0006
Acidification--3%	0.0001
Crit. Air Pollutants--9%	0.0359
Ecolog. Toxicity--7%	3.3137
Eutrophication--6%	0.7557
Fossil Fuel Depl.--10%	0.4480
Global Warming--29%	-0.4369
Habitat Alteration--6%	0.0000
Human Health--13%	0.7957
Indoor Air--3%	0.0000
Ozone Depletion--2%	0.0000
Smog--4%	0.1398
Water Intake--8%	0.8691
Sum	5.9211

Asphalt Restorers		
Impacts	Units	X3E5-0006
Acidification	millimoles H^+ equivalents	3.27E+05
Criteria Air Polutants	microDALYs	7.66E+01
Ecotoxicity	g 2,4-D equivalents	3.87E+04
Eutrophication	g N equivalents	2.42E+03
Fossil Fuel Depletion	MJ surplus energy	1.58E+03
Global Warming	g CO_2 equivalents	-3.85E+05
Habitat Alteration	T&E count	0.00E+00
Human Health--Cancer	g C_6H_6 equivalents	4.99E+02
Human Health--NonCancer	g C_7H_8 equivalents	1.01E+06
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	4.65E-04
Smog	g NO_x equivalents	5.30E+03
Water Intake	liters of water	5.76E+04
Functional Unit	----------	Cover one 1-mile long lane for 10 years

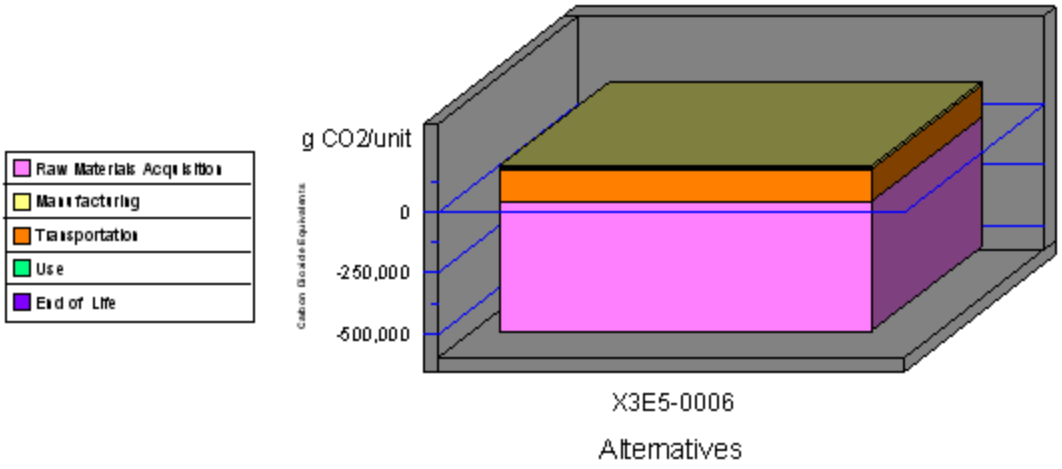
1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel 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	X3E5-0006
First Cost	2806.86
Future Cost-- 3.0%	2421.22
Sum	5228.08

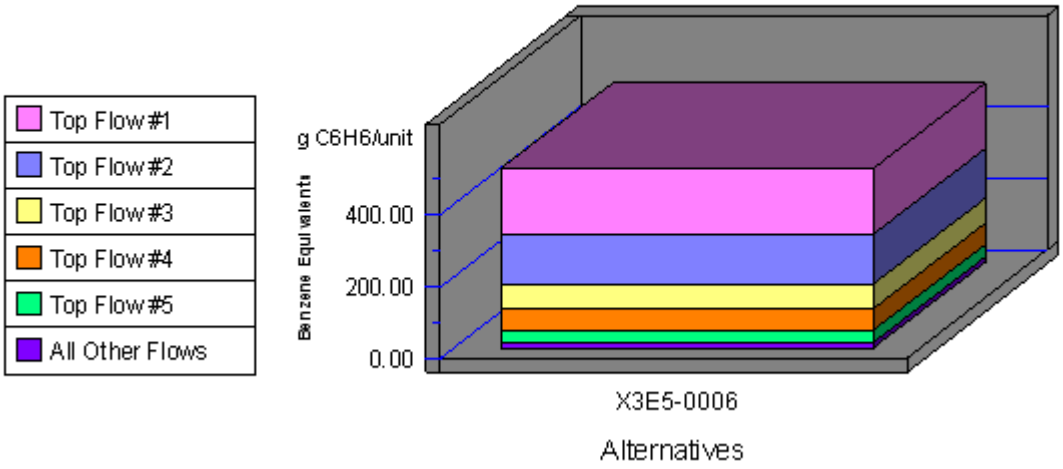
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	X3E5-0006
1. Raw Materials	-529818
2. Manufacturing	16150
3. Transportation	127023
4. Use	1272
5. End of Life	0
Sum	-385373

Human Health Cancer by Sorted Flows*

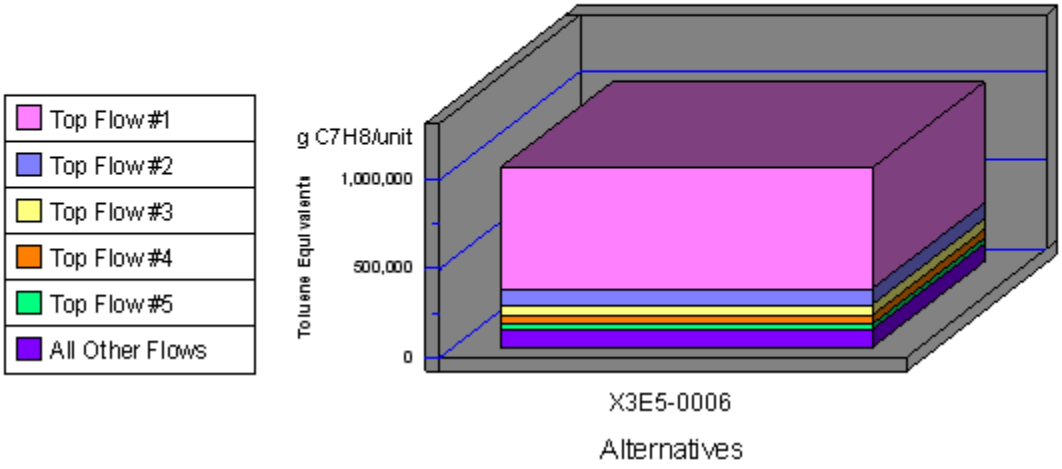


Note: Lower values are better

Category	X3E5-0006
Cancer--(w) Arsenic (As3+,	182.83
Cancer--(w) Phenol (C6H5OH)	135.58
Cancer--(a) Dioxins (unspecifie	69.94
Cancer--(a) Arsenic (As)	59.94
Cancer--(a) Simazine	34.06
All Others	16.78
Sum	499.13

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	X3E5-0006
Noncancer–(a) Mercury (Hg)	677,358.59
Noncancer--(a) Dioxins (unspeci	88,111.88
Noncancer--(w) Barium (Ba++)	61,179.86
Noncancer--(a) Lead (Pb)	50,775.56
Noncancer–(w) Lead (Pb++,	35,882.05
All Others	100,626.29
Sum	1,013,934.23

*Sorted by five topmost flows for worst-scoring product