

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 14, 2009.

Title: Wastewater Systems Coatings

Description: Coatings that protect wastewater containment tanks, liners, roofing, flooring, joint caulking, manholes and related structures from corrosion. Protective coatings may cover the entire system or be used to fill cracks in systems.

Companies Supplying Item: 3 companies supplying Wastewater Systems Coatings 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 Wastewater Systems Coatings:

- Air and Waste Management Association
- National Corn Growers Association
- Northeast Rural Water Association
- United Soybean Board Association

Commercially Available Products Identified: Of the companies identified, 3 Wastewater Systems Coatings 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 1 Wastewater Systems Coating.

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

- ASTM D2240: Standard Test Method for Rubber Property—Durometer Hardness
- ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- ASTM D624: Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- ASTM D4060: Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- ASTM D638: Standard Test Method for Tensile Properties of Plastics
- ASTM D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials

Samples Tested for Biobased Content: 2 samples of Wastewater Systems Coatings have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866.

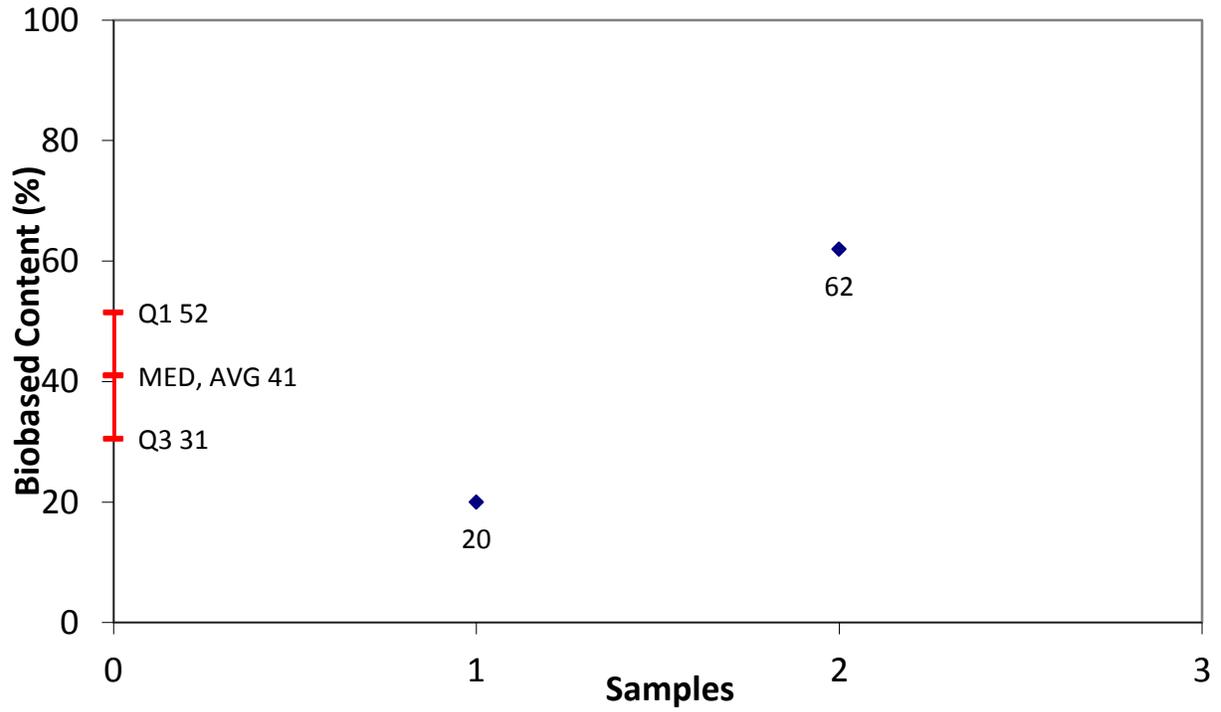
Biobased Content Data: Results from biobased content testing of Wastewater Systems Coatings indicate a range of content percentages from 20% minimum to 62% maximum biobased content as defined by ASTM D6866. A detailed distribution of biobased content levels is included as Appendix A.

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

BEES Analysis: The life-cycle cost of the submitted Wastewater Systems Coatings is \$3.40 per usage unit. The environmental score is 0.0049. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Wastewater Systems Coatings

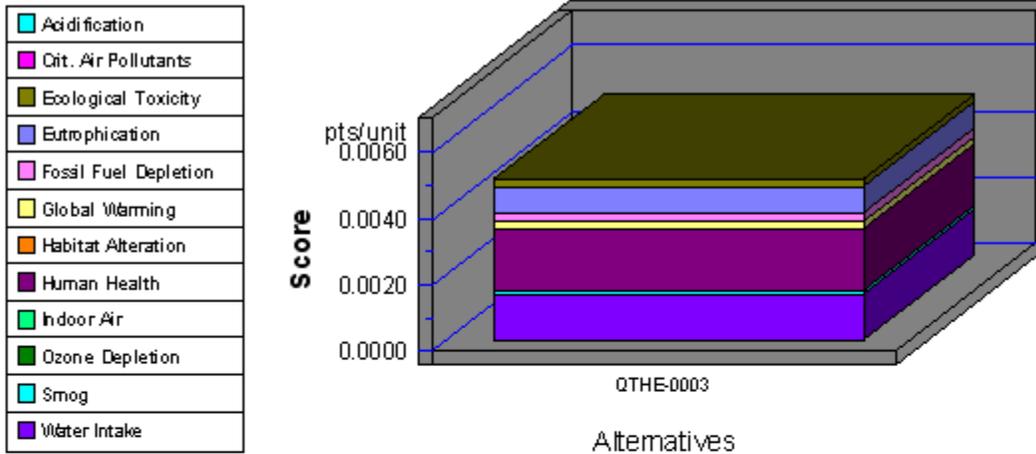


	Company	Product	C14	BEES
1	X03Z	X03Z-0001	20	
2	QTHE	QTHE-0003	62	Yes

Appendix B - BEES Analysis Results

Functional Unit: 1 sq. ft. coverage

Environmental Performance



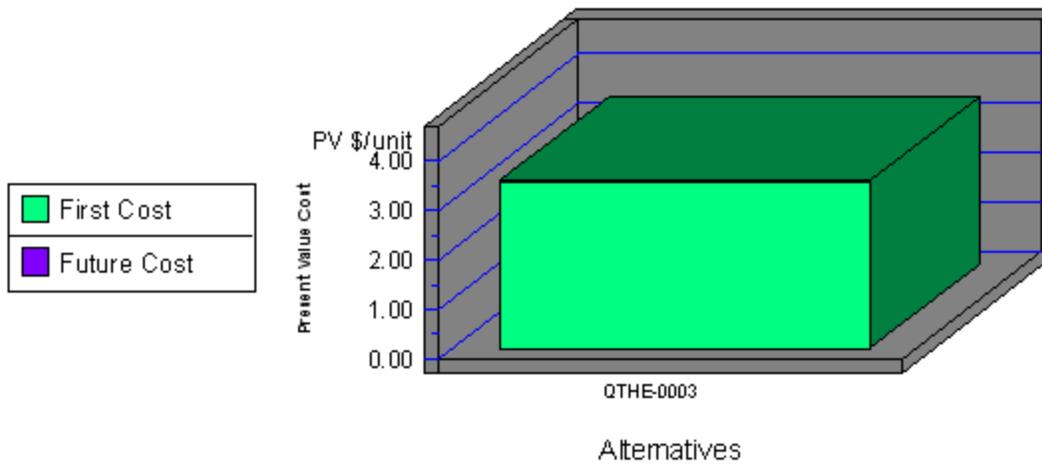
Note: Lower values are better

Category	QTHE-0003
Acidification--3%	0.0000
Crit. Air Pollutants--9%	0.0000
Ecolog. Toxicity--7%	0.0002
Eutrophication--6%	0.0008
Fossil Fuel Depl.--10%	0.0003
Global Warming--29%	0.0002
Habitat Alteration--6%	0.0000
Human Health--13%	0.0019
Indoor Air--3%	0.0000
Ozone Depletion--2%	0.0000
Smog--4%	0.0001
Water Intake--8%	0.0014
Sum	0.0049

Wastewater Systems Coatings		
Impacts	Units	QTHE-0003
Acidification	millimoles H ⁺ equivalents	2.58E+02
Criteria Air Polutants	microDALYs	5.72E-02
Ecotoxicity	g 2,4-D equivalents	2.33E+00
Eutrophication	g N equivalents	2.71E+00
Fossil Fuel Depletion	MJ surplus energy	9.16E-01
Global Warming	g CO ₂ equivalents	1.32E+02
Habitat Alteration	T&E count	1.71E-12
Human Health--Cancer	g C ₆ H ₆ equivalents	1.21E+00
Human Health--NonCancer	g C ₇ H ₈ equivalents	1.56E+03
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	9.15E-08
Smog	g NO _x equivalents	2.04E+00
Water Intake	liters of water	9.03E+01
Functional Unit	-----	1 sq. ft. coverage

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

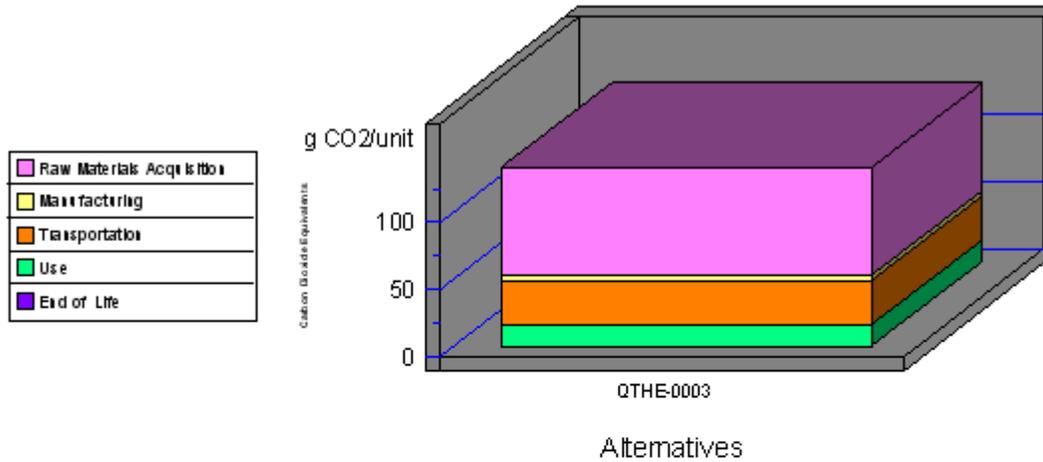


Category	QTHE-0003
First Cost	3.40
Future Cost- 3.0%	0.00
Sum	3.40

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

Appendix B (continued)

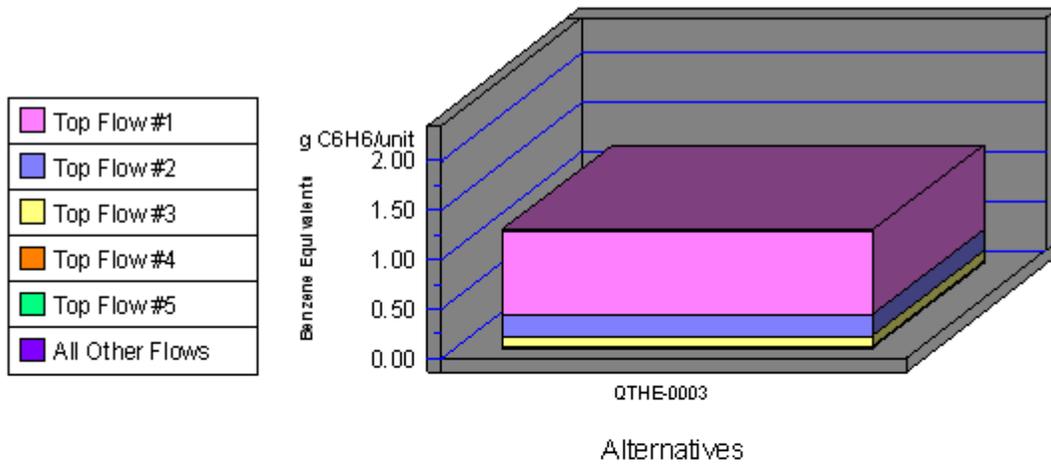
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	QTHE-0003
1. Raw Materials	79
2. Manufacturing	4
3. Transportation	32
4. Use	17
5. End of Life	0
Sum	132

Human Health Cancer by Sorted Flows*

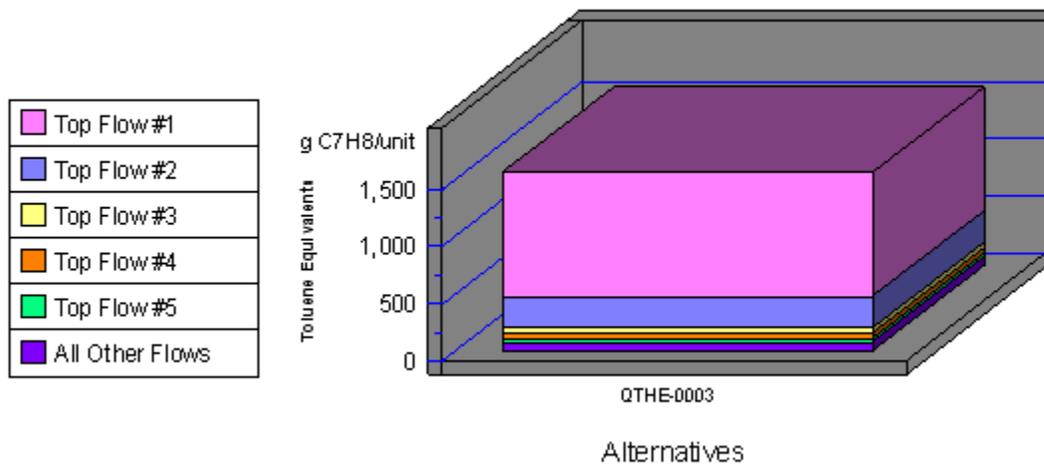


Note: Lower values are better

Category	QTHE-0003
Cancer--(a) Diox ins (unspecif	0.85
Cancer--(w) Arsenic (As3+,	0.22
Cancer--(w) Phenol (C6H5OH)	0.10
Cancer--(a) Arsenic (As)	0.02
Cancer--(a) Benz ene (C6H6)	0.00
All Others	0.00
Sum	1.21

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	QTHE-0003
Noncancer-(a) Dioxins (unspeci	1,076.86
Noncancer-(a) Mercury (Hg)	277.41
Noncancer-(w) Mercury (Hg+,	49.63
Noncancer-(w) Barium (Ba++)	41.97
Noncancer-(w) Lead (Pb++,	33.11
All Others	83.18
Sum	1,562.17

*Sorted by five topmost flows for worst-scoring product