

Proposed Item for Biobased Designation

The following biobased product information has been collected to support item designation by USDA for the Federal Biobased Product Preferred Procurement Program (FB4P). This summary reflects data available as of July 26, 2006.

Title: Greases

Description: Lubricants composed of oil or oils thickened with soaps or thickeners to a semisolid or solid consistency.

Manufacturers Identified: 18 manufacturers producing Greases 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 Greases:

- Biobased Manufacturers Association
- EcoBusinessLinks
- American Petroleum Institute
- Independent Lubricants Manufacturing Association
- National Lubricating Grease Institute

Commercially Available Products Identified: Of the manufacturers identified, 67 Greases 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 27 Greases.

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

- American Society for Testing and Materials #D1264-03e1 Standard Test Method for Determining the Water Washout Characteristics of Lubricating Greases
- American Society for Testing and Materials #D127-05 Standard Test Method for Drop Melting Point of Petroleum Wax, Including Petrolatum
- American Society for Testing and Materials #D130-04 Standard Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- American Society for Testing and Materials #D1742-94(2000)e1 Standard Test Method for Oil Separation from Lubricating Grease During Storage
- American Society for Testing and Materials #D1743-05a Standard Test Method for Determining Corrosion Preventive Properties of Lubricating Greases
- American Society for Testing and Materials #D1748-02 Standard Test Method for Rust Protection by Metal Preservatives in the Humidity Cabinet
- American Society for Testing and Materials #D1831-00e1 Standard Test Method for Roll Stability of Lubricating Grease

- American Society for Testing and Materials #D217-02 Standard Test Methods for Cone Penetration of Lubricating Grease
- American Society for Testing and Materials #D2265-00 Standard Test Method for Dropping Point of Lubricating Grease Over Wide Temperature Range
- American Society for Testing and Materials #D2266-01 Standard Test Method for Wear Preventive Characteristics of Lubricating Grease (Four-Ball Method)
- American Society for Testing and Materials #D2270-04 Standard Practice for Calculating Viscosity Index From Kinematic Viscosity at 40 and 100°C
- American Society for Testing and Materials #D2509-03 Standard Test Method for Measurement of Load-Carrying Capacity of Lubricating Grease (Timken Method)
- American Society for Testing and Materials #D2569-97(2002) Standard Test Method for Distillation of Pitch
- American Society for Testing and Materials #D2596-97(2002)e1 Standard Test Method for Measurement of Extreme-Pressure Properties of Lubricating Grease (Four-Ball Method)
- American Society for Testing and Materials #D445-04e2 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
- American Society for Testing and Materials #D566-02 Standard Test Method for Dropping Point of Lubricating Grease
- American Society for Testing and Materials #D5864-00 Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricants or Their Components
- American Society for Testing and Materials #D6184-98 Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)
- American Society for Testing and Materials #D92-05a Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
- American Society for Testing and Materials #D942-02 Standard Test Method for Oxidation Stability of Lubricating Greases by the Oxygen Bomb Method
- American Society for Testing and Materials #D97-05 Standard Test Method for Pour Point of Petroleum Products
- Co-ordinating European Council #CEC-L-33-A-93 Test to predict the potential biodegradation of mineral oil based lubricants in soil
- National Lubricating Grease Institute #NLGI 2 Greases classified according to their consistency range as measured by the worked penetration at 25°C (77°F): 265 to 295

Samples Tested for Biobased Content: 18 samples of Greases have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

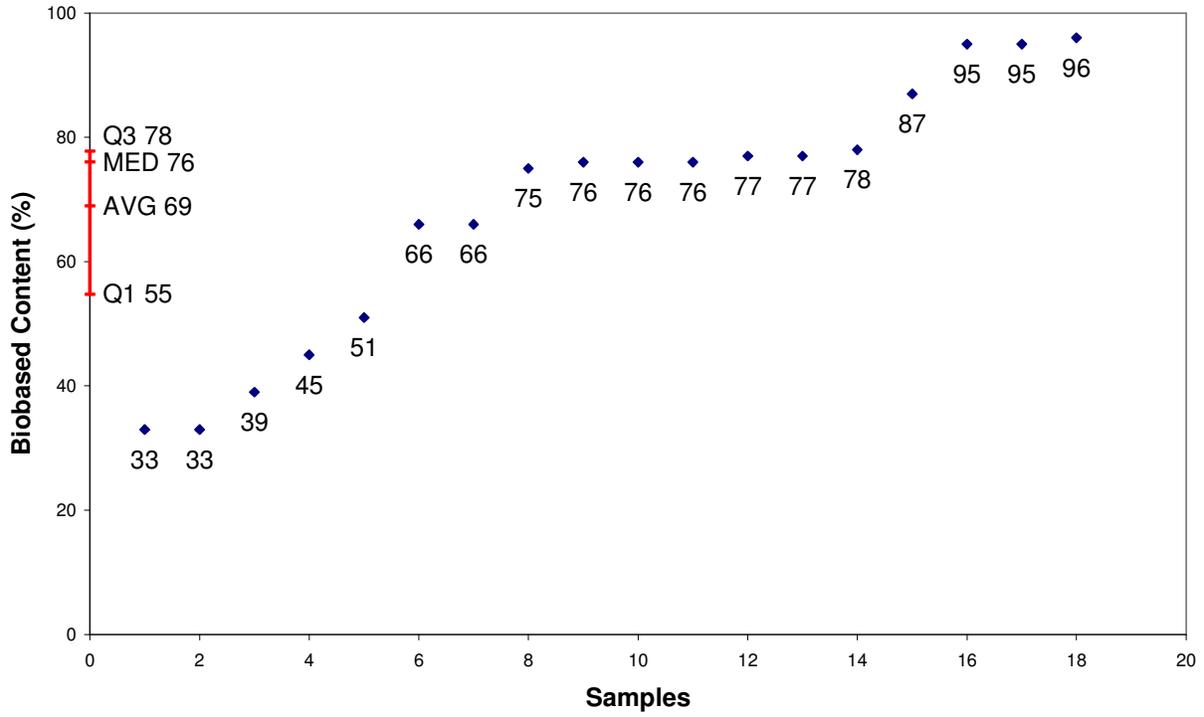
Biobased Content Data: Results from biobased content testing of Greases indicate a range of content percentages from 33% minimum to 96% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 2 Greases have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Greases range from \$14.84 minimum to \$52.03 maximum per usage unit. The environmental scores range from 0.0281 minimum to 0.0451 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Greases

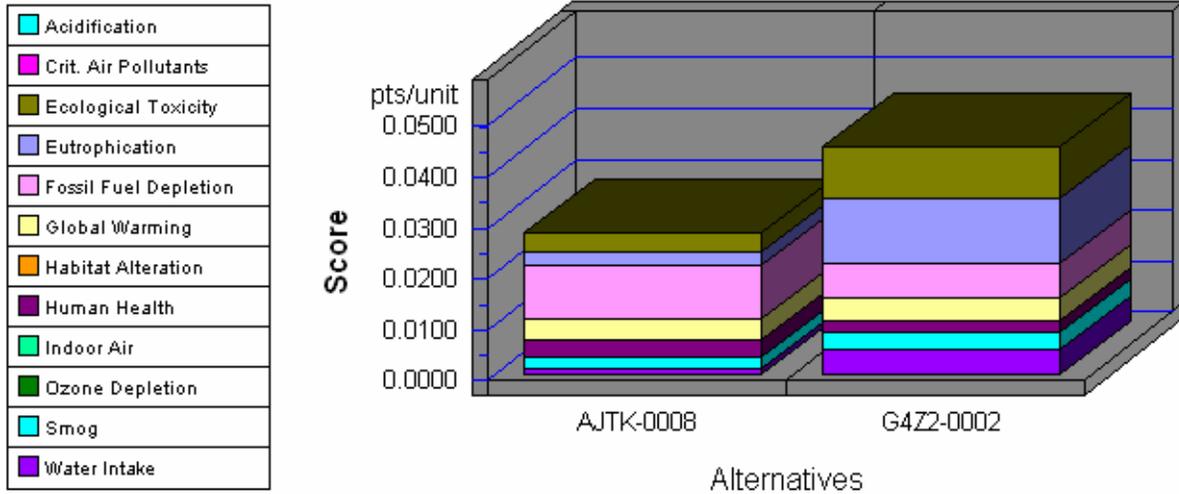


	Manufacturers Identified	Products Identified	C14	BEES
1	AJTK	AJTK-0007	33	
2	AJTK	AJTK-0014	33	
3	AJTK	AJTK-0053	39	
4	RGWJ	RGWJ-0038	45	
5	AJTK	AJTK-0008	51	yes
6	AJTK	AJTK-0009	66	
7	KM73	KM73-0003	66	
8	AJTK	AJTK-0021	75	
9	AJTK	AJTK-0010	76	
10	AJTK	AJTK-0005	76	
11	J3TP	J3TP-0034	76	
12	AJTK	AJTK-0006	77	
13	AJTK	AJTK-0015	77	
14	AJTK	AJTK-0039	78	
15	G4Z2	G4Z2-0001	87	
16	JY3G	JY3G-0053	95	
17	AJTK	AJTK-0004	95	
18	AJTK	AJTK-0002	96	
19	G4Z2	G4Z2-0002		yes

Appendix B - BEES Analysis Results

Functional Unit: 1 Gallon of Grease

Environmental Performance

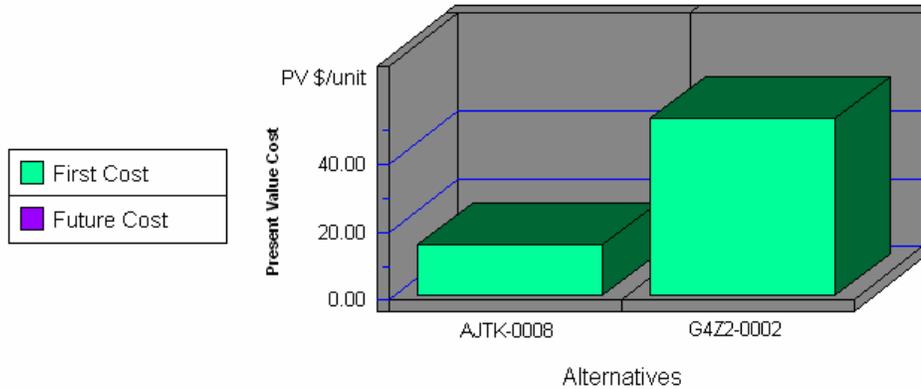


Note: Lower values are better

Category	AJTK-0008	G4Z2-0002
Acidification--5%	0.0000	0.0000
Crit. Air Pollutants--6%	0.0002	0.0002
Ecolog. Toxicity--11%	0.0036	0.0103
Eutrophication--5%	0.0026	0.0126
Fossil Fuel Depl.--5%	0.0105	0.0067
Global Warming--16%	0.0042	0.0046
Habitat Alteration--16%	0.0000	0.0000
Human Health--11%	0.0035	0.0022
Indoor Air--11%	0.0000	0.0000
Ozone Depletion--5%	0.0000	0.0000
Smog--6%	0.0022	0.0034
Water Intake--3%	0.0013	0.0051
Sum	0.0281	0.0451

Appendix B (continued)

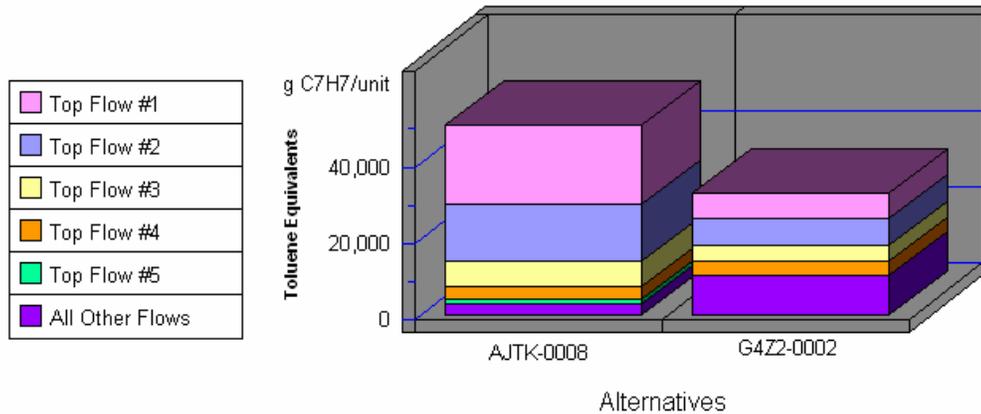
Economic Performance



Category	AJTK-0008	G4Z2-0002
First Cost	14.84	52.03
Future Cost-- 3.9%	0.00	0.00
Sum	14.84	52.03

*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	AJTK-0008	G4Z2-0002
Cancer--(w) Phenol (C6H5OH)	20,686.44	6,807.28
Cancer--(w) Arsenic (As3+, As5+)	15,007.51	6,901.39
Cancer--(a) Dioxins (unspecifc)	6,433.17	4,212.19
Cancer--(a) Arsenic (As)	3,637.33	3,609.35
Cancer--(a) Benzene (C6H6)	1,137.29	157.41
All Others	2,993.85	10,334.06
Sum	49,895.59	32,021.68

*Sorted by five topmost flows for worst-scoring product