

## 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 January 24, 2007.

### **Title: Forming Lubricants**

**Description:** Products designed to provide lubrication during metalworking applications that are performed under extreme pressure. Such metalworking applications include tube bending, stretch forming, press braking, and swaging.

**Manufacturers Identified:** 3 manufacturers producing Forming Lubricants 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 Forming Lubricants:

- Biobased Manufacturers Association
- United Soybean Board
- American Soybean Association
- Precision Metalforming Association
- Tooling & Manufacturing Association
- Society of Manufacturing Engineers
- Ductile Iron Pipe Research Association
- National Association of Manufacturers
- Fabricators and Manufacturers Association International
- Ductile Iron Society
- National Certified Pipe Welding Bureau
- Tube and Pipe Association
- Institute of Industrial Engineers

**Commercially Available Products Identified:** Of the manufacturers identified, 13 Forming Lubricants 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 8 Forming Lubricants.

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

- Environmental Protection Agency #560/6-82-003 Describes methods for performing testing of chemical substances under the Toxic Substances Control Act
- Boeing #BAC 5001-4 Flareless Tube End Fabrication

**Samples Tested for Biobased Content:** 5 samples of Forming Lubricants have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

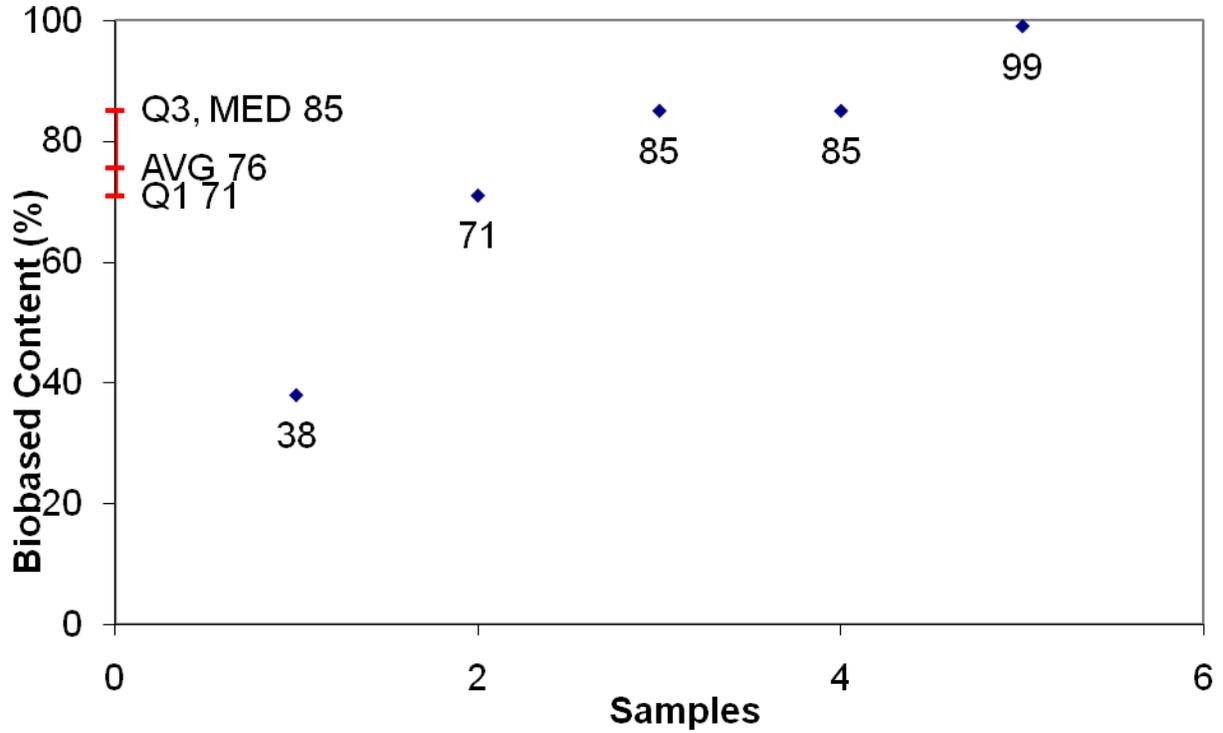
**Biobased Content Data:** Results from biobased content testing of Forming Lubricants indicate a range of content percentages from 38% minimum to 99% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

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

**BEES Analysis:** The life-cycle costs of the submitted Forming Lubricants range from \$18.50 minimum to \$18.50 maximum per usage unit. The environmental scores range from 0.0271 minimum to 0.0271 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Forming Lubricants



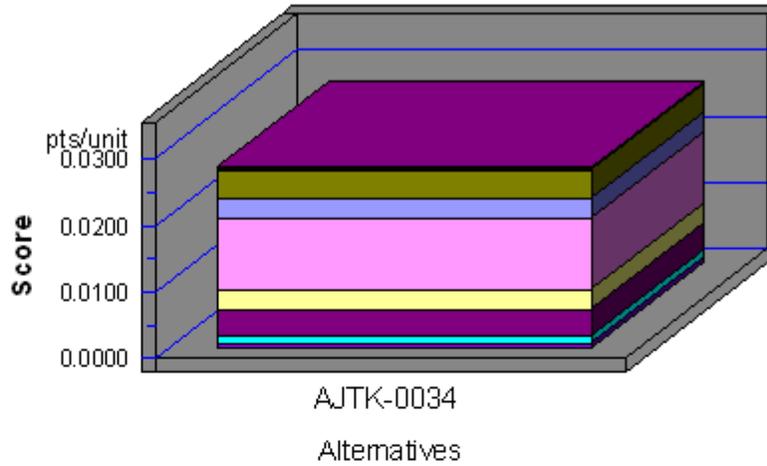
	Companiess Identified	Products Identified	C14	BEES
1	WF5U	WF5U-0016	38	
2	RDO8	RDO8-0058	71	
3	RDO8	RDO8-0004	85	
4	KM73	KM73-0001	85	
5	WF5U	WF5U-0017	99	
6	AJTK	AJTK-0034		yes

## Appendix B - BEES Analysis Results

Units: 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

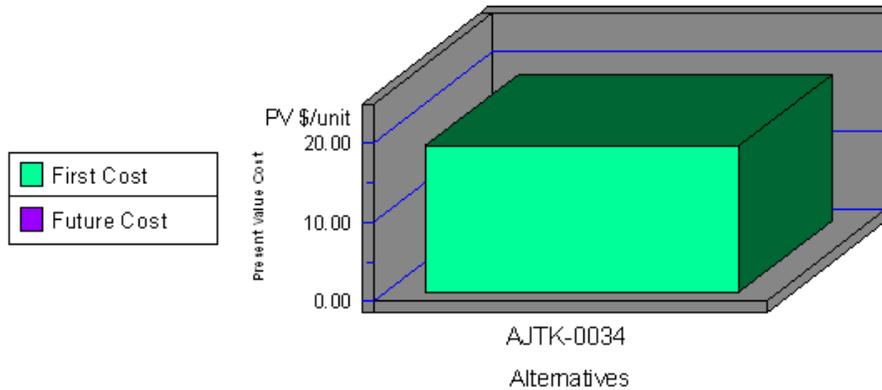


**Note: Lower values are better**

Category	AJTK-0034
Acidification-5%	0.0000
Crit. Air Pollutants-6%	0.0001
Ecolog. Toxicity-11%	0.0044
Eutrophication-5%	0.0029
Fossil Fuel Depl.-5%	0.0108
Global Warming-16%	0.0028
Habitat Alteration-16%	0.0000
Human Health-11%	0.0042
Indoor Air-11%	0.0000
Ozone Depletion-5%	0.0000
Smog-6%	0.0010
Water Intake-3%	0.0009
<b>Sum</b>	<b>0.0271</b>

## Appendix B (continued)

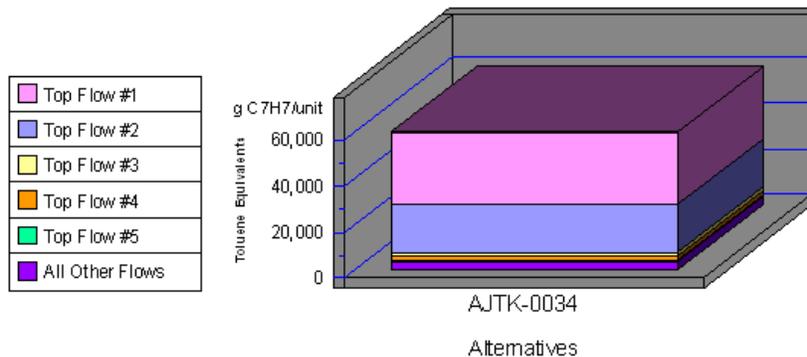
### Economic Performance



Category	AJTK-0034
First Cost	18.50
Future Cost- 3.9%	0.00
<b>Sum</b>	<b>18.50</b>

\*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-0034
Cancer-(w) Arsenic (As3+, As5+)	31,323.01
Cancer-(w) Phenol (C6H5OH)	20,445.90
Cancer-(a) Arsenic (As)	1,797.68
Cancer-(a) Dioxins (unspecific)	1,742.32
Noncancer-(a) Mercury (Hg)	810.64
All Others	3,895.42
<b>Sum</b>	<b>60,014.97</b>

\*Sorted by five topmost flows for worst-scoring product