NDIA Environmental & Energy Symposium

New laws governing biobased, environmentally preferable lubricants and fuels

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Terresolve - The Company

- Leader in environmentally safe fluid technology
- Leading supplier of biodegradable products to underwater contractors
- Exclusive supplier to the Naval Diving and Salvage Training Center (NDSTC)
- Key supplier to offshore drilling and exploration
- Major supplier to the deep foundation industry
- Key supplier to federal, state and municipal agencies
- Supplying key OEM’s and major oil marketers
- Developing new products for United Soybean Board, USDA, DOE, and the Army Corps of Engineers
Bio Truths

• The Coast Guard does not approve, recommend or endorse any fluids
• Inherently biodegradable products damage the environment
• Food grade (white oil) lubricants are NOT for industrial usage
• NOT all biodegradable products are the same
• Some biodegradable products are better for your equipment
How important is the protection of
Environment First*

- Protect the Environment: 52%
- Development of Energy Supply: 36%
- Neither: 6%
- No Opinion: 4%
- Equally Important: 2%

*Source: Gallup Poll 1060 Adults March 3-5, 2001
Oil Lost To The Ecosystem
706 Million Gallons Per Year*

*Source: NOAA
# Loss From Oil Leaks

<table>
<thead>
<tr>
<th>Leakage</th>
<th>Loss in 1 Day (gallons)</th>
<th>Loss in 1 Month (gallons)</th>
<th>Loss in 1 Year (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 drop/10 sec</td>
<td>0.1</td>
<td>304.0</td>
<td>40.3</td>
</tr>
<tr>
<td>1 drop/sec</td>
<td>1.1</td>
<td>33.8</td>
<td>405.0</td>
</tr>
<tr>
<td>3 drops/sec</td>
<td>3.7</td>
<td>112.5</td>
<td>1,350.0</td>
</tr>
<tr>
<td>Stream of drops</td>
<td>24.0</td>
<td>720.0</td>
<td>8,640.0</td>
</tr>
</tbody>
</table>
Why Environmentally Saf Fluids?

- The law.
- Reduced clean-up costs.
- Reduced fines.
- Improved performance.
- Community relations.
- Protects environment.
Farm Security and Rural Investment Act of Title IX Energy

• Creates new set of programs
• Appropriates action required to implement provisions
• New opportunities for biobased products, power, fuels
Farm Security and Rural Investment Act of Title IX Energy

- Promotes technology transfer of public investment in R&D to address environmental and agricultural issues
  - New emphasis on agricultural research
  - Create market pull
- Addresses obstacles to new products entering the marketplace
  - Market acceptance/awareness biobased products list
  - Cost competitiveness – procurement preference
  - Validate performance
Title IX Energy

• Section 9002 – federal procurement of biobased products
• Section 9003 – bio-refinery grants competitive grant program to convert biomass into multiple products
• Section 9004 – energy audit and renewable energy program competitive grant program
Title IX Energy

• Section 9006 – renewable energy systems and energy efficiency improvements
• Section 9007 – hydrogen and fuel cell technology
• Section 9008 – biomass research and development
• Section 9009 – cooperative research - greenhouse gases from agriculture
Title IX Energy

- Section 9010 - continuation of bio-energy program
Biobased Industrial Products

• Comprehensive approach to technical
  – Value-added
  – Life cycle costing
  – Marketing
  – Environmental attributes
Federal Procurement

Federal agencies will:

• Give preference to highest biobased content
• Ensure “biobased” is incorporated as procurement specification
• Develop a procurement preference program that will ensure biobased products are purchased to the maximum extent possible
• Develop an agency promotion program
• Annually review and monitor effectiveness
Section 9002 - Federal Procurement of Biobased Products

- To stimulate production of new biobased products and to energize markets for those products
- USDA will designate items
- Provide information about availability, price, performance, environmental health benefits
- USDA will develop criteria for “USDA certified biobased product” label
Criteria for Biobased Content

- Biobased content
  - Must be manufactured with raw material or wastes from domestic agricultural production
  - Minimum content
    - By category
    - Verified by ASTM C14 dating
- Performance and manufacturing specifications
- Environmental performance/life cycle
  - National institute of standards and technology “building for environmental and economic Sustainability (BEES)
Biobased Products List

- Inks
- Sorbents
- Adhesives
- Construction material
- Fuel additives
- Lubricants and functional fluids
- Fibers, paper, packaging
- Solvent, cleaners
- Plastics
- Landscaping material
- Paints, coatings
Section 9006

- Loan guarantee and grant program
- Assist purchasing renewable system
- Guidelines being developed
Section 9008
Biomass R&D

• Conversion of biomass into industrial products and bio-energy benefits the national interest
  – Improve strategic security
  – Healthier rural economics
  – Improved environment quality
  – Near zero greenhouse emissions
  – Technology export
  – Sustainable resource supply
Executive Order 13101 (10/98)

- Environmentally Preferable means products or services that have *reduced effect on human health and the environment* when compared with competing products or services. The comparison may consider any or *all phases of the products life cycle*.

- Specifically calls out the use of “*biobased products*”
In developing … product descriptions, agencies shall consider, as appropriate, a broad range of factors including:
• elimination of virgin material requirements
• use of biobased products
• use of recovered materials
• reuse of product
• life cycle cost
• Recyclability
• use of environmentally preferable products
• waste prevention (including toxicity reduction or elimination)
• and ultimate disposal.

These factors should be considered in acquisition planning for all procurement and in the evaluation and award of contracts, as appropriate. Program and acquisition managers should take an active role in these activities.
Executive Order # 13101
Sec. 402

Affirmative Procurement Programs
• The head of each executive agency shall develop and implement affirmative procurement programs in accordance with section 6002 of RCRA (42 U.S.C. 6962) and this order and consider use of the procurement tools and methods.
• Agencies shall establish affirmative procurement programs for all EPA-designated guideline items purchased by their agency.
Life Cycle Assessment - Quantitative determination of a lubricants environment impact from cradle to grave.

* Research and Development
* Manufacturing
* Blending, storage and distribution
* Packaging

* Safety and Handling Issues
* Impacts During Use
* Collection of Used Oil and Packaging
* Recycling or Disposal

* Comprehensive LCA for complex products like lubricants are not yet available so government and industry are focusing attention on the environmental impact of the “use” phase of a lubricants life cycle.
Public Law 104-55 (11/95)

Edible Oil Regulatory Reform Act

To require the head of any Federal Agency to differentiate between fats, oils and greases of animal, marine or vegetable origin, and other oils and greases in issuing certain regulations and for other purposes.
Executive Order 12852 (6/93)

*Sustainable Development*

Is broadly defined as *economic growth* that will benefit present and future generations *without detrimentally affecting the resources* or biological systems of the planet.
Oth

• Clean Water Initiative (2/98)
  • Restoring and protecting America’s water
  Great Lakes Water Quality Initiative
• (GLWQI)
  • Minimum water quality standard
  • Applied consistently throughout the Great Lakes Basin
  • Will maintain, protect and restore the unique Great Lakes Resource
Terresolve Biodegradable Products
“Do The Right Thing”