From: "John Heinze" <JHeinze@JohnAdams.com>
To: <fb4p@oce.usda.gov>
Date: Mon, Dec 11, 2006 4:44 PM
Subject: RIN 0503-AA32 "Proposed Designation of Items"

Please confirm receipt of the attached comments on RIN 0503-AA32 "Proposed Designation of Items."

Sincerely,

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December 11, 2006

Marvin Duncan
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RE: RIN # 0503-AA32: Proposed Designation of Items

Dear Dr. Duncan:

The Council for LAB/LAS Environmental Research (CLER) appreciates the opportunity to comment on USDA's notice on Designation of Biobased Items for Federal Procurement published in the October 11, 2006 *Federal Register*.

Following please find a summary of our comments, followed by the detailed comments.

Summary of CLER Comments

1. Cradle-to-grave assessments for petrochemical and oleochemical based (biobased) surfactants (cleaning agents) used in Bath and Tile Cleaners and Laundry Detergents have been conducted using life-cycle inventory and risk assessment methodologies. These assessments find no environmental advantage for biobased versus non-biobased feedstock sources.

2. Major sources of biobased materials for surfactants are palm and palm kernel oil made in Malaysia and The Philippines. Neither country is on the Federal Acquisition Regulation (FAR) list of "designated countries." USDA should not assume that feedstocks for biobased products are produced in the US or in FAR designated countries.

3. The test (ASTM D6866) used to distinguish between carbon from fossil resources (non-biobased) and carbon from renewable sources (biobased) is incapable of determining the feedstock or the country of origin of the biobased material. Feedstock manufacturers will need to certify that the biobased material is produced in the US or in FAR designated countries, and thus is a "qualifying feedstock," and USDA will have to develop a monitoring process to ensure the accuracy of this self-certification.

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4. The proposed rule will not provide the benefits of increasing domestic production of biobased products or enhancing US energy security. Qualifying biobased products made in countries such as Malaysia and The Philippines that are not FAR designated countries will not increase domestic demand for biobased products and almost certainly will compete with domestic production. Because certain non-biobased materials have lower total energy requirements than some biobased materials, substitution of non-biobased surfactants for biobased surfactants may not result in lower energy requirements and thus does not necessarily enhance US energy security.

Detailed CLER Comments

The CLER is an organization of scientists and technical specialists representing manufacturers of linear alkylbenzene (LAB) in the US and the Americas. CLER's mission is to conduct research and distribute scientific information on the environmental safety of the world's number one cleaning ingredient, linear alkylbenzene sulfonate (LAS), and the material from which it is produced, LAB.

In these activities, CLER works closely with ECOSOL, a sector group of the European Chemical Industry Council (CEFIC) which represents the European producers of LAB. ECOSOL was created in 1985 with the objectives of covering issues affecting the LAB and LAS industry, particularly from the scientific, technical, environmental, economic and documentary angles.

LAS was introduced in the mid 1960s as a voluntary industry initiative to replace branched tetrapropylene benzene sulfonate, which was associated with excessive foaming in sewage treatment plants and receiving waters due to its poor biodegradability. Since that time, LAS has been the major surfactant used in laundry detergents and cleaning products, including household, industrial, institutional and commercial products.

The extensive environmental and health data on LAS was recently compiled by industry, reviewed by the US Environmental Protection Agency (as the country sponsor) and approved by the Organizational for Economic Cooperation and Development (OECD). OECD concluded that LAS was of low priority for further work and thus of low regulatory concern (http://www.chem.unep.ch/irptc/sids/OECDSIDS/LAS.pdf). An up-to-date, peer reviewed health and environmental risk assessment of LAS is also available at http://www.heraproject.com/RiskAssessment.cfm.

According to a peer reviewed and published life-cycle inventory (LCI) study (C.A. Pittinger et al., Environmental Life-Cycle Inventory of Detergent-Grade Surfactant Sourcing and Production, *Journal of the American Oil Chemists Society*, vol. 70, issue 1, pages 1-15, 1993), in addition to LAS, the other major surfactants used in laundry detergents are alcohol sulfates (AS), alcohol ethoxylates (AE), alcohol ethoxylate sulfates (AES) and methyl ester sulfonates (MES).

In the context of this extensive database on LAS and other surfactants used in detergent and cleaning products, including Laundry Detergents and Bath and Tile Cleaners as defined in the proposed rule, we have the following comments:

1. In section IV.B.1 (p. 59867) the proposed rule states: "Federal agencies must compare the "cradle-to-grave" impacts of the manufacture, use and disposal of both biobased and non-biobased products." USDA should be aware that the LCI study cited above (Pittinger et al., 1993) provides data that may be useful for such an assessment. LCI studies provide data on raw material and energy resources required for manufacturing as well as air, water and solid waste emissions from manufacturing of surfactant products, standardized to a common unit of use, such as weight, e.g. kilograms.

The LCI study cited above (Pittinger et al., 1993) notes that among the major surfactants used in detergent and cleaning products, LAS is made from petrochemical feedstock sources (petroleum), AS, AE and AES are made from either oleochemical (palm and palm kernel oil or tallow) or petrochemical (petroleum or natural gas) feedstock sources and MES is made with oleochemical feedstock sources. The study concludes:

> The inventories do not support fundamental shifts in surfactant usage or feedstock sourcing on the basis of environmental concerns as no single surfactant or feedstock was identified as superior across all resources and emissions criteria examined."

An even more comprehensive LCI study has been conducted in Europe (Stalmans et al., European Life-Cycle Inventory for Detergent surfactants Production, *Tenside Surfactants Detergents*, vol. 32, issue 2, pages 84-109, 1995), which examined additional surfactants (alkyl polyglucosides (APG), secondary alkane sulfonates (SAS), and soap) and feedstock sources (coconut oil (AS, AE, AES, APG and soap), corn (APG) and grass/cattle (used as source of tallow for soap)). Interesting, this LCI documents that natural gas is used as a feedstock for methanol production, used to make oleochemical alcohols for AS, AE, AES and APG. This finding demonstrates that even surfactants based primarily on oleochemical feedstocks uses petrochemical feedstocks for some of their raw material sources.

This LCI concludes:

> "The study shows that he production of each surfactant has an impact on the environment via the consumption of a broad variety of resources such as crude oil, natural gas, agricultural products and minerals for material feedstock, energy generation and transport purposes. Also, environmental emission occur during the production and transport of all surfactants. Based on the findings of this study, no technical or scientific basis exists to support a general environmental superiority claim, either for an individual surfactant or for the various options for sourcing from petrochemical, oleochemical or agricultural feedstocks and minerals."

Furthermore, comprehensive health and environmental risk assessment have been conducted (http://www.heraproject.com/RiskAssessment.cfm) for many of the largest production volume detergent ingredients including the surfactants AS, AES, LAS, SAS and soap (fatty acid salts). These risk assessments cover the use, disposal and environmental fate of detergent and cleaning product ingredients, and thus can be considered to complete the cradle-to-grave assessment by focusing on product stages after manufacturing. These risk assessment conclude that, because laundry detergents and cleaning products are disposed primarily down the drain, the most important properties for cleaning product ingredients including surfactants are biodegradation and removal in sewage treatment and toxicity to aquatic organisms found in receiving waters (ecotoxicity).

Regarding surfactants, the extensive data available prove that biodegradability and ecotoxicity very strongly depend on the chemical structure of the molecule and not on its feedstock source. The biodegradation of petrochemical and oleochemical surfactants is indistinguishable because both are based on predominantly linear molecules (for AE, see P. B. Dorn et al., *Environmental Toxicology and Chemistry*, vol. 12, pp. 1751-62, 1993 and references therein; for AS and AES, see the health and environmental risk assessments at: http://www.heraproject.com/RiskAssessment.cfm).

In short, cradle-to-grave assessments for petrochemical and oleochemical based surfactants have been conducted using LCI and risk assessment methodologies. These assessments find no advantage for oleochemical versus petrochemical feedstock sources. LCI studies find no consistent advantage for oleochemical feedstocks because all surfactants consume energy and raw materials in production and transportation and all release environmental emissions. Risk assessments find no advantage to oleochemical feedstocks because these risk assessment demonstrate low environmental and health risk for the major surfactants and no major differences in the structures of the surfactants that can be produced with either oleochemical or petrochemical feedstocks, and thus no difference in biodegradation, ecotoxicity or environmental safety.

2. Regarding the minimal biobased content, the proposed rule states (section IV.C, p. 59877):

> "As contained in the Guidelines, the FB4P program will consider qualifying feedstock for biobased products as originating from "designated countries" (as that term is defined in the Federal Acquisition Regulation (FAR) Section 25.003) as well as from the United States."

As noted in the Pittinger et al. (1993) LCI study of US detergent and cleaning products, major surfactants for these products include petrochemical (natural gas or petroleum) or oleochemical (palm and palm kernel oil or tallow) feedstocks. It may be reasonable to assume that for surfactants made in the US or in designated countries from tallow, the tallow originates from domestic sources or from the designated countries. However, USDA has yet to provide documentation supporting this assumption.

Furthermore, this assumption cannot be made for surfactants made from palm or palm kernel oil. The major sources of palm and palm kernel oil are Malaysia and the Philippines (c.f. http://www.da.gov.ph/agribiz/palm_oil.html). Neither country is on the FAR list of designated countries. To our knowledge there is no production of palm or palm kernel oil in the US or designated countries. Consequently, USDA should not assume that feedstocks for biobased products are produced in the US or in FAR designated countries.

3. Regarding the test for measuring biobased content, the proposed rule states (section IV.9, p. 59877-9) that Bath and Tile Cleaners and Laundry Products were tested for biobased content using ASTM D6866. As noted in the footnote on page 59877, ASTM D6866 "is used to distinguish between carbon from fossil resources (non-biobased) and carbon from renewable sources." Such a test method is incapable of determining the feedstock or the country of origin of the biobased material. Consequently the data produced by ASTM D6866 on Bath and Tile Cleaners and Laundry Products does not provide any data to support the assumption that the biobased components of these products originated in the US or FAR designated countries.

Further on p. 59877, the proposed rule states: "USDA will develop a monitoring process for these self-certifications to ensure manufacturers are using qualifying feedstocks." Based on the fact that a major source of biobased feedstocks, namely palm and palm kernel oil, are produced in countries such as Malaysia and the Philippines that are not FAR designated countries, feedstock manufacturers will need to certify that the biobased material is produced in the US or in FAR designated countries, and thus is a "qualifying feedstock," and USDA will have to develop a monitoring process to ensure the accuracy of this self-certification.

4. The benefits of the proposed rule are described as follows (VI.2., p. 59880):

> "To increase domestic demand for biobased products and, thus, for the many agricultural commodities that can serve as feedstocks for production of biobased products; to spur development of the industrial based through value-added agricultural processing and manufacturing in rural communities; and to enhance the Nation's energy security by substituting biobased products for products derived from imported oil and natural gas."

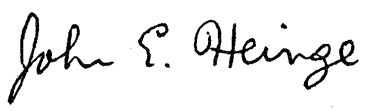
Qualifying palm and palm kernel oil produced in countries such as Malaysia and the Philippines that are not FAR designated countries as biobased feedstocks clearly will not increase domestic demand for biobased products, but instead will give preferred Federal procurement to products that compete with biobased products made in the US or designated countries.

Furthermore, qualifying palm and palm kernel oil or other feedstocks not produced in the US or designated countries will not enhance the National's energy security because the energy requirements for feedstocks depend not just on the raw materials, but on the

energy requirements for the manufacturing process and transportation of the feedstock to the US (Pittinger et al., 1993). As documented in the life cycle inventory for detergent-grade surfactants (Pittinger et al., 1993, Table 5,), total energy requirements for LAS (66 gigajoule (GJ) per 1000 kilograms (kg) of surfactant) were lower than for AE or AES based on tallow (74 and 70 GJ per 1000 kg, respectively) and lower or equivalent to those for AE and AES based on palm oil (66-68 GJ per 1000 kg). Consequently, substitution of petrochemical-based surfactants such as LAS for biobased surfactants does not necessarily results in lower energy requirements and thus does not enhance US energy security.

In short, the proposed rule will not provide the benefits of increasing domestic production of biobased products or enhancing US energy security.

Sincerely,



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