

## Initial Risk-Based Prioritization of High Production Volume Chemicals

### Chemical/Category: Alkyl Acetates C6 – C13 Category<sup>1</sup>

CAS No. 88230-35-7	Hexanol, acetate, branched and linear
CAS No. 90438-79-2	Acetic acid, C6-8 branched alkyl esters
CAS No. 108419-32-5*	Acetic acid, C7-9 branched alkyl esters
CAS No. 108419-33-6*	Acetic acid, C8-10 branched alkyl esters
CAS No. 108419-34-7*	Acetic acid, C9-11 branched alkyl esters
CAS No. 108419-35-8	Acetic acid, C11-14 branched alkyl esters

(\*Chemicals that were not HPV chemicals in 1990/1994)

This document is based on screening-level characterizations done by EPA on the environmental fate, hazard, and exposure of the listed chemicals. The information used by EPA includes data submitted under the HPV Challenge Program<sup>2</sup> and the 2006 Inventory Update Reporting (IUR)<sup>3</sup>, and data publicly available through other selected sources<sup>4</sup>. This screening-level prioritization presents EPA's initial thinking regarding the potential risks presented by these chemicals and future possible actions that may be needed. These initial characterization and prioritization documents do not constitute a final Agency determination as to risk, nor do they determine whether sufficient data are available to characterize risk. Rather, they are interim evaluations. Recommended actions may be considered by EPA in the future based on a relative judgment regarding this chemical in comparison with others evaluated under this program, and in light of the uncertainties presented by gaps in the available data that may be determined to exist. These evaluations contribute to meeting U.S. commitments under the chemicals cooperation work being done in North America<sup>5</sup>.

### Human Health and Environmental Hazard Summary:

- Available health effects studies indicate generally low toxicity for all category members.
- Available environmental effects studies indicate that the potential acute aquatic hazard of the C11-14 member is moderate, while all the other category members are low.

### Persistence and Bioaccumulation Summary:

- The persistence and bioaccumulative ranking potential for this category is low for five of the category members (C6 to the C9-11).
- Available data indicate that the potential for the highest alkyl member (acetic acid, C11 – C14 branched alkyl esters) is ranked low for persistence and high for bioaccumulation and that it may biodegrade to moderately persistent and moderately bioaccumulative branched alcohols.

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<sup>1</sup> Some of the chemicals in this category were not HPV chemicals in 1990/1994 – the reporting years used to establish the HPV Challenge Program – and not all of the chemicals in this category were HPV chemicals in the 2006 IUR reporting cycle. See the production volume section in the exposure summary for additional details.

<sup>2</sup> US EPA, HPV Challenge Program information: <http://www.epa.gov/hpv/>.

<sup>3</sup> US EPA, IUR Reporting information: <http://www.epa.gov/oppt/iur/index.htm>.

<sup>4</sup> US EPA, Information on additional public databases used: <http://www.epa.gov/hpvis/pubdtsum.htm>.

<sup>5</sup> US EPA, U.S. Commitments to North American Chemicals Cooperation: <http://www.epa.gov/hpv/pubs/general/sppframework.htm>.

### Exposure Summary:

- Both IUR Confidential Business Information (CBI) and non-CBI information from IUR and other sources were used in developing this overall ranking. IUR information for 2005 was submitted for five of the six category members; the exception being acetic acid, C8 – C10 branched alkyl esters. The available IUR submissions for one of the five members (hexanol, acetate, branched and linear) reported a volume of less than 500,000 pounds with no industrial, commercial, or consumer use information. Therefore, Exposure Characterizations are available for only four category members.
- Production volume: Only the C6-C8 category member is currently considered an HPV chemical (manufactured or imported in excess of 1 million pounds per year). The C7-C9 and C9-C11 category members are produced and/or imported in the range of 500,000 to 1,000,000 pounds per year for each of the category members, and the C11-C14 chemicals are produced and/or imported in the range of 10,000 to 500,000 pounds. The C6 (hexanol, acetate, branched and linear) reported a volume of less than 500,000 pounds
- Uses: Alkyl acetates are mainly used as solvents in lacquers, janitorial cleaning products, and agricultural products.
- General Population and Environment: None of the members are listed on the Toxics Release Inventory. Based on use information, EPA assumes for the purpose of this risk prioritization that there is potential for exposures to the general population and the environment.
- Workers: Based on the vapor pressure of all category members, there could be significant exposures to vapors if workers are near the liquid. Known uses of these chemicals indicate a potential for worker inhalation. For the C7-C9, the C9-C11, and the C11-C14 category members, the IUR-based ranking for worker exposure is high, based on uncertainty associated with the data. For the C6-C8 category member, the IUR-based ranking for worker exposure is low. None of the category members have an OSHA Permissible Exposure Limit. Based on IUR reporting, the maximum total number of workers likely to be exposed to this chemical during manufacturing and industrial processing and use is less than 100.
- Commercial Workers and Consumers: Based on the vapor pressure of all category members, there could be significant exposures to vapors if commercial workers/consumers are near products containing the chemical. Based on IUR data, the C6-C8 and C7-C9 category members do not appear to be used in commercial/consumer products. The C9-C11 and C11-C14 category members appear to be used in commercial/consumer products.
- Children: No information was provided on the IUR for exposure to children through using products that contain these chemicals. EPA assumes that all members of this category are used in products to which children may be exposed.

### Assumptions and Uncertainties:

- Minor uses are not reported under the IUR, and are thus unknown.
- There is uncertainty as to the extent of possible exposure to the environment and the general population from environmental releases
- Little data was provided regarding the specific composition of the category members other than the carbon number range and the descriptor “branched”.

**Risk Characterization Summary:**

- Potential Risk to Aquatic Organisms from Environmental Releases
  - MEDIUM CONCERN for acetic acid, C11-14 branched alkyl esters: EPA assumes there is potential for exposure to aquatic organisms from environmental releases. This category member, which was an HPV in the 1990's but was reported at less than a million pounds in the 2006 IUR, has the potential to be both persistent in the environment and bioaccumulative in aquatic organisms. There is a data gap for potential chronic hazard to those organisms, leading to a concern for potential risk to aquatic organisms from environmental releases.
  - LOW CONCERN for the remaining category members: EPA assumes there is potential for exposure to aquatic organisms from environmental releases. The low acute aquatic hazard and the overall fate characteristics (not persistent or bioaccumulative) of these category members suggest a low concern for potential risk to aquatic organisms from environmental releases.
- Potential Risk to General Population from Environmental Releases (LOW CONCERN – all category members): EPA assumes there is potential for exposure to the general population from environmental releases. The potential human health hazard is expected to be low due to minimal toxicity observed only at high doses in animal studies. Thus, although one category member (acetic acid, C11-14 branched alkyl esters) may be persistent/bioaccumulative in the environment, the low human health hazard suggests a low concern for potential risk to the general population from environmental releases for all the category members.
- Potential Risk to Workers (LOW CONCERN – all category members): There is a potential for exposure in the workplace for most of the category members; however, the low hazard profile for all six category members suggests a low concern for potential risk to workers
- Potential Risk to Commercial Workers and Consumers from Known Uses (LOW CONCERN – all category members): There is potential for commercial workers/consumer exposures resulting from the stated uses of the category members; however, the low hazard profile for all six category members suggests a low concern for potential risk to both groups.
- Potential Risk to Children (LOW CONCERN – all category members): The available exposure/use information suggests there is a potential for exposure to children. There is uncertainty regarding the identity of the category members in products available to children; however, the low hazard profile for all six category members suggests a low concern for the potential risk to children.

**Rationale Leading To Prioritization Decision:**

- Available data suggest a concern for potential risk to aquatic organisms from only one of the six category members (acetic acid, C11-14 branched alkyl esters) because of the persistent and bioaccumulative properties of these chemicals, the potential for environmental releases from known uses, and the lack of data for potential hazard to aquatic organisms under chronic exposure scenarios.
- The human health hazard profile is low for all six members of the category.

**Prioritization Decision:**

- **MEDIUM PRIORITY, POTENTIAL CONCERN:** In order to further evaluate the medium concern for potential risk to aquatic organisms from only the acetic acid, C11-14 branched alkyl esters, a non-HPV member of this category, companies are encouraged to provide available information on a voluntary and non-confidential basis. Examples of information that would assist EPA in its analysis include, but are not limited to:
  - Available information on environmental releases of this chemical; and
  - Other information pertinent to environmental exposures to this chemical.
- **LOW PRIORITY:** Follow-up action not suggested at this time on the remaining members of the category.

**Supporting Documentation:**

**Screening-Level Risk Characterization: 3/14/2008**

**Screening-Level Hazard Characterization: 2/21/2008**

**Screening-Level Exposure Characterization: 3/14/2008**