

Initial Risk-Based Prioritization of High Production Volume Chemicals

Allyl Alcohol (CASRN 107-18-6) (9th CI and CA Index Name: 2-Propen-1-ol)

This document is based on screening-level characterizations done by EPA on the environmental fate, hazard, and exposure of the listed chemical. The information used by EPA includes data submitted under the HPV Challenge Program¹ and the 2006 Inventory Update Reporting (IUR)², and data publicly available through other selected sources³. This screening-level prioritization presents EPA's initial thinking regarding the potential risks presented by this chemical 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 America⁴ through the EPA Chemical Assessment and Management Program (ChAMP)⁵.

Hazard Summary:

- **Human Health:** Studies with experimental animals indicate that this chemical is moderately toxic via the oral route and highly toxic via the inhalation route. It is slightly irritating to the skin and eyes in animals. Oral and inhalation repeated dose studies in rats showed high systemic toxicity. An oral combined reproductive/developmental study in rats showed high reproductive, developmental and maternal toxicity. The genotoxic potential is low.
- **Environment:** Available data indicate that the potential acute hazard of this chemical is high to fish and moderate to aquatic invertebrates and aquatic plants.
- **Persistence and Bioaccumulation:**
 - Available data indicate that this chemical has low persistence.
 - Available data indicate that this chemical has low bioaccumulation potential.

Exposure Summary:

- Both Confidential Business Information (CBI) and non-confidential information from IUR and other sources were used in developing this initial prioritization.
- **Production Volume:** This chemical has an aggregated production and/or import volume in the United States in the range of 100 to 500 million pounds in 2005.
- **Uses:** According to IUR submissions, the primary industrial processing and uses are claimed confidential. Information provided to EPA under the HPV Challenge Program

¹ US EPA, HPV Challenge Program information: <http://epa.gov/hpv/>.

² US EPA, IUR Reporting information: <http://www.epa.gov/oppt/iur/index.htm>.

³ US EPA, Information on additional public databases used: <http://www.epa.gov/hpvis/pubdtsum.htm>.

⁴ US EPA, U.S. Commitments to North American Chemicals Cooperation:
<http://www.epa.gov/hpv/pubs/general/sppframework.htm>.

⁵ US EPA, ChAMP information: <http://www.epa.gov/champ/>.

indicates the chemical is used as an intermediate in the production of 1,4-butanediol and 2-methyl-1, 3-propanediol and in the manufacture of water treatment chemicals, coating resins, and plasticizers. The Hazardous Substances Data Bank indicates the chemical is used to manufacture glycerol, acrolein, military poison gas, water treatment chemicals, allyl compounds, resins, plasticizers, fire retardants, pesticides and herbicides.

- **General Population and Environment:** It is likely that there would be some releases to water and/or air during manufacturing, processing, and use. This chemical is on the Toxics Release Inventory (TRI). Total releases reported in 2006 from all 40 reporting sites is 544,330 pounds, which include air releases of 44,612 pounds from on-site fugitive and point sources in addition to on-site water releases of 19,133 pounds. The remaining volume of release was deep-well injected. EPA identifies a high potential that the chemical may be released to the environment and that the general population and the environment may be exposed.
- **Workers:** EPA identifies a medium relative ranking for potential worker exposure. This relative ranking is based on the chemical's high volatility and the likelihood that workers would wear adequate personal protective equipment (PPE) during exposures to the chemical in concentrated form due to the severe dermal and respiratory irritation that is expected at higher concentrations. The extent of PPE worn by workers who may be exposed at lower concentrations is not known. This chemical has an OSHA Permissible Exposure Limit (PEL) of 2 ppm time weighted average, with a skin notation.
- **Consumers:** EPA identifies a low potential that consumers might be exposed based on information from IUR and public data sources that indicates this chemical is not present in commercial and consumer products.
- **Children:** EPA identifies a low potential that children might be exposed based on information from IUR and public data sources that indicates this chemical is not present in commercial and consumer products.

Risk Characterization Summary:

- **Potential Risk to Aquatic Organisms from Environmental Releases:** *MEDIUM/HIGH CONCERN*. This chemical is reported on the TRI, and there is potential for exposure to aquatic organisms from environmental releases. This chemical has a low persistence and low bioaccumulation. These characteristics in combination with the high toxicity for fish indicate a high concern for potential risk to fish. These characteristics in combination with the moderate toxicity for aquatic invertebrates and plants indicate a medium concern for potential risk to aquatic invertebrates and plants.
- **Potential Risk to the General Population from Environmental Releases:** *HIGH CONCERN*. Based on the available information, EPA identifies a high potential that the general population may be exposed through environmental releases. The potential human health hazard is expected to be high due to specific toxicity to animals. Therefore, there is a high concern for potential risk to the general population from environmental releases.
- **Potential Risk to Workers:** *LOW CONCERN*. Available IUR data indicate that workers may be exposed to this chemical. The potential human health hazard is high. However, worker exposure would be minimized by the OSHA PEL and use of PPE. Therefore, the available information suggests a low concern for potential risks to workers.
- **Potential Risk to Consumers from Known Uses:** *LOW CONCERN*. The potential human health hazard is expected to be high due to specific toxicity to animals. However, EPA

identifies a low potential that consumers might be exposed. This suggests a low concern for potential risks to consumers.

- Potential Risk to Children: *LOW CONCERN*. The potential health hazard for children is high based on animal studies. However, EPA identifies a low potential that children might be exposed. This suggests a low concern for potential risks to children.

Regulatory and Related Information Summary:

- This chemical appears in the following regulatory and related sources:
 - The chemical is on the TSCA Inventory.
 - Release reporting is required under TRI.
 - It is listed under Superfund Amendments and Reauthorization Act (SARA) Section 302(a) as an Extremely Hazardous Substance.
 - It is listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a Hazardous Substance.
 - It is listed under Clean Water Act (CWA) Section 311 as a Hazardous Substance.
 - It is regulated under Clean Air Act (CAA) Section 111 as an emission from new or modified stationary sources of air pollution.
 - It is listed under Clean Air Act (CAA) Section 112(r) as a toxic chemical for which risk management plans are required to prevent and respond to accidents if it occurs at a site in quantities above the regulated threshold.
 - It is listed as a Resource Conservation and Recovery Act (RCRA) Chemical Code P Waste for Acute Toxicity.
- EPA's Integrated Risk Information System (IRIS) Program developed an oral reference dose (RfD) for this chemical in 1989.
(<http://www.epa.gov/ncea/iris/subst/0004.htm#noncar>).
- The National Advisory Committee for Acute Exposure Guideline Levels (NAC-AEGL) has developed an Acute Exposure Guideline Level (AEGL) for this chemical to help national and local authorities, as well as private companies, deal with emergencies involving spills or other catastrophic exposures.
(<http://www.epa.gov/oppt/aegl/pubs/results29.htm>).
- OSHA has designated a PEL of 2 ppm (8-hour time-weighted average). The National Institute of Occupational Safety and Health (NIOSH), an institute of the U.S. Centers for Disease Control and Prevention (CDC), includes safe handling recommendations for this chemical in the NIOSH Pocket Guide to Chemical Hazards (September 2005: <http://www.cdc.gov/niosh/npg/npgd0017.html>) and in an International Chemical Safety Card (April 13, 2000: <http://www.cdc.gov/niosh/ipcsneng/neng0095.html>).
- The hazards of this chemical were assessed in the Organization for Economic Cooperation and Development (OECD) HPV Programme. The OECD recommended that further work be conducted by member countries, specifically inviting exposure assessment and, if necessary, risk assessment for workers, consumers and the environment. The screening-level exposure and risk characterizations that support this RBP represent such further work conducted by the United States on this chemical.

Assumptions and Uncertainties:

- This chemical is highly regulated. EPA assumes that the regulations are being followed.

- The extent of PPE worn by workers who may be exposed at lower concentrations is uncertain.

Rationale Leading To Prioritization Decision:

- The hazards of this chemical are well characterized and understood. It has low environmental persistence and is not bioaccumulative. The established classification of the chemical as hazardous in multiple existing regulations in the U.S. already imposes permitting and other limitations on handling, uses, and releases, and further mandates reporting for both process and accidental releases to the environment.
- Existing regulations in the U.S. accordingly are expected to control the potential risks to all populations.

Prioritization Decision:

- LOW PRIORITY – Follow-up action not suggested at this time.

Supporting Documentation:

Screening-Level Risk Characterization: August 2008

Screening-Level Hazard Characterization: OECD SIDS Initial Assessment Report, 10/18-21/2005. <http://www.inchem.org/documents/sids/sids/107186.pdf>.

Note: OECD SIDS Initial Assessment Profiles (SIAP) and SIDS Initial Assessment Reports (SIAR) are publicly available through the United Nations Environmental Programme website. These documents are presented in an international forum that involves review and endorsement by governmental authorities around the world. The U.S. EPA is an active participant in these meetings and accepts these documents as reliable screening-level hazard assessments for the purpose of the U.S. HPV Challenge qualitative risk characterization process.

Screening-Level Exposure Characterizations: August 2008