

Initial Risk-Based Prioritization of High Production Volume Chemicals

Sponsored Chemical

n-Butyl Glycidyl Ether (CAS No. 2426-08-6)
(9th CI Name: Oxirane, (butoxymethyl)-)

Supporting Chemical

t-Butyl glycidyl ether (CAS No. 7665-72-7)
(9th CI Name: Oxirane, (1,1-dimethoxy)methyl-)

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 and Fate Summary:

- Human Health: Available data indicate that the potential health hazard of this chemical is moderate based on repeated-dose and developmental toxicity. It is an eye, skin, and respiratory irritant, produced positive effects in *in vitro* mutagenicity assays, and is flammable.
- Environment: Available data indicate that the potential acute hazard of this chemical is low for fish, moderate for aquatic invertebrates, and low for 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.

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

² US EPA, IUR 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/>.

- Production Volume: This chemical is an HPV chemical manufactured and/or imported in the U.S. with an aggregated production volume in the range of 1 to 10 million pounds in 2005.
- Uses: Non-confidential IUR information indicates that this chemical is used industrially as a chemical intermediate and is incorporated into adhesives and binding agents, and that it also has consumer and commercial uses in paints, coatings, adhesives, and sealants. Additional uses were claimed as CBI.
- General Population and Environment: It is likely that there would be some releases to water or air during manufacturing, processing, and use. Based on the uses of this chemical and its environmental fate characteristics of low persistence and low bioaccumulation potential, EPA identifies a medium potential that the general population and the environment might be exposed to this chemical.
- Workers: EPA identifies a high relative ranking for potential worker exposure based on the relatively high production volume and the potential for significant dermal exposure and for inhalation of mists and vapors by a large number of workers in commercial settings from spray application of products containing this chemical. This chemical has an OSHA Permissible Exposure Limit (PEL) of 25 ppm (8-hour time-weighted average).
- Consumers: Depending on the consumer product, there may be dermal and/or inhalation exposures to consumers from vapors, mists, or particulates. EPA identifies a high potential that consumers might be exposed based on the use of adhesive, coating, and sealant products containing this chemical.
- Children: No uses in products specifically intended to be used by children were reported in the IUR, nor were any found in other data sources. However, there may be potential exposures to children through the household use of consumer products. EPA identifies a medium potential that children might be exposed.

Risk Characterization Summary:

- Potential Risk to Aquatic Organisms from Environmental Releases: *LOW/MEDIUM CONCERN*. EPA identifies a medium potential that aquatic organisms might be exposed from environmental releases. This chemical has low persistence and low bioaccumulation. These characteristics in combination with the low acute toxicity for fish and aquatic plants suggest a low concern for potential risk to fish and aquatic plants. These characteristics in combination with the moderate acute aquatic hazard for invertebrates suggest a medium concern for potential risk to aquatic invertebrates.
- Potential Risk to the General Population from Environmental Releases: *LOW CONCERN*. EPA identifies a medium potential that the general population might be exposed from environmental releases. The potential human health hazard is expected to be moderate due to toxicity in animals following repeated exposures. However, because this chemical is an irritant, potential exposures to significant concentrations would be self-limiting, and the low persistence and low bioaccumulation potential would make such concentrations unlikely. These factors suggest a low concern for potential risk to the general population.
- Potential Risk to Workers: *LOW CONCERN*. EPA identifies a high potential that workers may be exposed to this chemical. However, adherence to the OSHA PEL would limit worker exposure. Combined with the moderate health risk, this suggests a low concern for potential risks to workers.

- Potential Risk to Consumers from Known Uses: *LOW CONCERN*. EPA identifies a high potential that consumers might be exposed. However, because this chemical is an irritant, potential exposures to significant concentrations would tend to be self-limiting. Combined with the moderate human health hazard, this suggests a low concern for potential risks to consumers.
- Potential Risk to Children: *LOW CONCERN*. EPA identifies a medium potential that children might be exposed. No postnatal data are available to assess the potential toxicity of this chemical specifically to children. However, it is an irritant in adult animal studies and is likely to be an irritant at earlier life stages; therefore exposures to significant concentrations would tend to be self-limiting. This suggests a low concern for potential risks to children.

Regulatory and Related Information Summary:

- This chemical is listed on the TSCA Inventory. From 1982 until 1992, when data submissions closed, it was included in a TSCA section 4 test rule as an example of a glycidol derivative. It is not otherwise regulated under TSCA.
- OSHA has designated a PEL of 25 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/npgd0081.html>) and in an International Chemical Safety Card (October 17, 2005: <http://www.cdc.gov/niosh/ipcsneng/neng0115.html>)

Assumptions and Uncertainties:

- EPA has no information on releases of this chemical, and assumes potential exposures based on reported uses.

Rationale Leading To Prioritization Decision:

- The moderate human health hazard of this chemical is based on repeated dose and developmental effects in animal studies at the dose borderline between low and moderate hazard, but because the chemical is irritating, human exposures to significant concentrations are expected to be self-limiting and the concern for risk is low.
- Occupational exposures are further expected to be controlled through observance of the OSHA PEL and commonly recognized safe handling recommendations.
- Environmental concerns are generally low.

Prioritization Decision:

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

Supporting Documentation:

Screening-Level Risk Characterization: July 2008

Screening-Level Hazard Characterization: July 2008

Screening-Level Exposure Characterization: July 2008