

Initial Risk-Based Prioritization of High Production Volume Chemicals

Petroleum Additive Alkaryl Sulfonate Category

Sponsored Chemicals

Sulfonic acids, petroleum, calcium salts	(CASRN 61789-86-4)
Sulfonic acids, petroleum, barium salts	(CASRN 61790-48-5)
Sulfonic acids, petroleum, sodium salts	(CASRN 68608-26-4)
Sulfonic acids, petroleum, calcium salts, overbased	(CASRN 68783-96-0)
Benzenesulfonic acid, mono-C16-24-alkyl derivs., calcium salts	(CASRN 70024-69-0)
Benzenesulfonic acid, mono-C15-30-branched alkyl and di-C11-13-branched and linear alkyl derivs., calcium salts, overbased	(CASRN 71486-79-8)
Benzenesulfonic acid, mono-C15-30-branched alkyl and di-C11-13-branched and linear alkyl derivs.	(CASRN 71549-79-6)
Benzenesulfonic acid, mono- and dialkyl derivs., magnesium salts	(CASRN 71786-47-5)
Benzenesulfonic acid, mono- and di-C15-30-alkyl derivs., sodium salts	(CASRN 78330-12-8)
Benzenesulfonic acid, C14-24-branched and linear alkyl derivs., calcium salts	(CASRN 115733-09-0)
Benzenesulfonic acid, C14-24-branched and linear alkyl derivs., calcium salts, overbased	(CASRN 115733-10-3)
Benzenesulfonic acid, C14-24-branched and linear alkyl derivs.	(CASRN 115829-36-2)

Supporting Chemicals

Magnesium long chain alkaryl sulfonate (no CASRN)
C20-24-Alkaryl calcium salt derivative (no CASRN)
C15-21-Alkaryl calcium salt derivative (no CASRN)

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 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 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

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>.

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:** Acute oral toxicity for the members of this category is low. Members of the category and supporting chemicals caused irritation and point of entry effects with repeated exposures via the oral, dermal, and inhalation routes. Systemic toxicity is low in the oral and dermal repeat-dose studies of rats with several category chemicals and a supporting chemical. One inhalation repeat-dose rat study of one category member showed moderate respiratory tract irritation and inflammation. No reproductive or developmental effects were seen in a study on one category member.
- **Environment:** Available studies indicate that no acute effects are expected at saturation and therefore, acute toxicity to aquatic organisms is low.
- **Persistence and Bioaccumulation:**
 - Category members are expected to have moderate persistence.
 - Category members are estimated to have 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:** The ranges reported below are based on 2006 IUR submissions.
 - Nine category members are HPV chemicals:
 - CASRNs 68608-26-4, 115829-36-2, 115733-10-3: ≥ 10 million and < 50 million lbs.
 - CASRNs 61789-86-4, 68783-96-0, 115733-09-0, 78330-12-8, 71786-47-5, 61790-48-5: ≥ 1 million and < 10 million lbs.
 - Two category members are moderate production volume (MPV) chemicals:
 - CASRNs 71549-79-6, 71486-79-8: $\geq 10,000$ lbs and $< 500,000$ lbs.
 - One category member did not have IUR submissions in 2006:
 - CASRN 70024-69-0.
- **Uses:** Non-confidential IUR information for many of the chemicals in the alkaryl sulfonate category indicates that these chemicals are used as lubricants in the manufacturing and preparation of other chemical products. Nine of the 12 chemicals in this category have IUR submissions that indicate uses in commercial settings or consumer uses. According to the HPV Challenge Program submission, alkaryl sulfonates are used as petroleum additives in petroleum base stocks to formulate finished lubricating oils, including all types of automotive and diesel engine crankcase oils, air and water-cooled two-cycle engine oils, industrial oils, hydraulic fluids, gear oils and metal working lubricating oils. They are used as high temperature detergents to reduce deposits on pistons, engine crankcases, and hydraulic equipment parts, and as rust inhibitors during industrial oil use.

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/>.

- General Population and Environment: Based on use information, EPA identifies a medium potential that the general population and the environment may be exposed through releases to water and land.
- Workers: EPA identifies a high relative ranking for potential worker exposure based on uses that may result in significant inhalation exposure and widespread dermal exposures. These include use in engine oils, metal working, and applications claimed to be confidential under IUR. Alkaryl sulfonate chemicals do not have OSHA Permissible Exposure Limits (PELs).
- Consumers: EPA identifies a high potential that consumers may be exposed from using products containing these chemicals. Nine of the 12 chemicals have IUR submissions that indicate commercial or consumer uses. Based on non-confidential IUR data, the commercial and consumer uses are lubricants, greases, and fuel additives.
- Children: EPA identifies a medium potential that children might be exposed. No uses in products intended for children were reported in the IUR, nor were any found in other data sources. Incidental exposures to children, however, may occur through the household use of some consumer products.

Risk Characterization Summary:

- Potential Risk to Aquatic Organisms from Environmental Releases: *LOW CONCERN*. EPA identifies a medium potential for exposure to aquatic organisms from environmental releases. A low acute aquatic hazard considered in combination with the environmental fate characteristics of moderate persistence and low bioaccumulation suggest a low concern for potential acute risk to aquatic organisms from environmental releases.
- 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 low due to the lack of specific toxicity to animals following exposure to high doses. The low hazard and the environmental fate characteristics of moderate persistence and low bioaccumulation suggest a low concern for potential risk to the general population from environmental releases.
- Potential Risk to Workers: *LOW CONCERN*. EPA identifies a high relative ranking for potential worker exposure. Overall, the potential health hazard of the alkaryl sulfonate category members is low. The moderate respiratory tract irritation and inflammation seen in one rat study on one category member presents a potential concern for workers exposed to aerosols using metal working lubricating oils. There is also the potential for skin irritation at high concentrations. There is no OSHA PEL for the chemicals in this category. Therefore, the available information suggests a low overall concern for potential risk to workers with a moderate concern for irritation to workers exposed to aerosols via inhalation.
- Potential Risk to Consumers from Known Uses: *LOW CONCERN*. EPA identifies a high potential that consumers might be exposed by using products containing these chemicals. The potential human health hazard is expected to be low. Therefore, the available information suggests a low concern for potential risk to consumers.
- Potential Risk to Children: *LOW CONCERN*. EPA identifies a medium potential that children might be exposed through the household use of consumer products. The potential human health hazard is expected to be low due to the lack of specific toxicity to

young animals following exposure to high doses. Therefore, the available information suggests a low concern for potential risk to children.

Regulatory and Related Information Summary:

- The alkaryl sulfonates category chemicals are listed on the TSCA Inventory. They are not otherwise regulated under TSCA.
- CASRN 61789-86-4 is regulated under section 111 of the Clean Air Act as an air pollutant from new stationary sources.
- CASRNs 61789-86-4 and 68608-26-4 are considered inert ingredients permitted for use in non-food pesticide products under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Assumptions and Uncertainties:

- EPA has no information on releases of these chemicals, and assumes potential exposures based on reported uses.
- Although the weight of evidence indicates the acute toxicity of these chemicals is low, their potential dispersibility and persistence suggest that there may be potential for toxicity to occur to aquatic organisms under chronic exposure conditions.

Rationale Leading To Prioritization Decision:

- The alkaryl sulfonate category chemicals present a generally low hazard profile and a correspondingly low risk concern for all potentially exposed populations. There is a moderate potential concern for respiratory tract irritation and inflammation from aerosol exposure for workers exposed to aerosols while using metal working lubricating oils. There is uncertainty regarding the potential for chronic aquatic toxicity.

Prioritization Decision:

- LOW PRIORITY – Follow-up action not suggested at this time.
- Although EPA has identified these chemicals as a low priority for follow-up action, EPA notes that information on environmental releases and data on the actual dispersibility of these chemicals could indicate whether additional testing might be warranted to resolve the uncertainty concerning their potential for chronic toxicity to aquatic organisms. Accordingly, companies that manufacture, process, or use these chemicals are encouraged to provide such available information on a voluntary and non-confidential basis.

Supporting Documentation:

Screening-Level Risk Characterization: August 2008

Screening-Level Hazard Characterization: August 2008

Screening-Level Exposure Characterization: August 2008