

PRODUCT STEWARDSHIP SUMMARY

DRIVELINE - DISPERSANTS

Introduction

Afton Chemical Corporation offers a range of performance additive solutions designed to extend equipment life and enhance their performance. Additive technology is comprised of several components in finely balanced ratios to deliver exacting performance; typical components are EP/anti-wear, friction modifiers, antioxidants and dispersants.

Dispersants are used in applications where cleanliness, filtration and oxidation are critical performance requirements.

Dispersants form micelles that maintain insoluble particles suspended in the finished oil and are considered a core building block for lubricant additives due to their performance and solubility in a broad range of base oils.

Uses and Advantages

Afton's dispersants are polyisobutylene succinimides which can be further modified with capping or post-treating to target performance criteria in a variety of applications. Ashless dispersants work by inhibiting sludge and soot formed during the oxidation or degradation of hydrocarbons and by dispersing particles to prevent further agglomeration or precipitation. Ashless indicates the dispersant does not contain metallic ash-forming compounds that could contribute to wear. Capped ashless dispersants can provide additional performance benefits including corrosion, wear and friction.

Advantages of using this additive chemistry include the following:

- Clean gears – inhibits carbon and varnish formation extending equipment life
- Seal compatibility – prevents deposit formation that leads to seal leakage
- Prevents wear and scuffing – extending critical part life
- Friction control – increasing coefficient of friction of the fluid

Health Effects

Based on both internal data as well as data generated under the United States Environmental Protection High Production Volume (US EPA HPV) program for the category Succinimide Dispersants, Afton's dispersants are generally of low toxicity with the majority not classified as hazardous under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The dispersants are of low acute oral and dermal toxicity and are not expected to cause eye irritation or skin sensitization. Due to their relatively high molecular weight and low vapor pressure, they are not expected to present a risk by inhalation. They are not expected to be carcinogenic, mutagenic or to cause organ effects following long-term exposure. A small number of dispersants may cause mild skin irritation or may cause developmental effects following exposure to high doses or for extended periods of time.

Environmental Effects

Succinimide dispersants were assessed as a category by the U.S. EPA under the HPV (High Production Volume) Challenge Program. Category members are expected to be quite stable in the environment due to the lack of biotic or abiotic degradation potential. Succinimide dispersants are unlikely to bioaccumulate in the environment and exhibit low toxicity to aquatic organisms at the limits of solubility.

Exposure

For industrial workers, the most common route of exposure is via skin contact during manufacturing and processing. The extent of exposure can depend on the type of manufacturing system (open or enclosed), adequacy of engineering controls, material handling practices, and use of personal protective equipment. Handling at elevated temperatures or generating vapors or mists can increase inhalation exposure which is otherwise not considered a significant route of exposure.

For professional and consumer use, the primary route of exposure is via skin contact with finished lubricants, which can occur during fluid changes or when adding lubricants to vehicles. Inhalation is not generally a concern for professional or consumer use. Exposure to the dispersants is less in the finished lubricant due to their reduced concentration. Many lubricants are either not classified as hazardous according to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) or have relatively low hazard classifications compared to the additive package.

Risk Management

Afton lubricant additive packages containing succinimide dispersants are formulated to meet various performance requirements. The health and environmental risks of these products can vary depending on the product as well as the conditions encountered during their use. Information on the safe handling of these products is provided to users through the safety data sheets. Appropriate engineering, administrative controls (work practices), and personal protective equipment are recommended to control exposures during manufacture and use.

Conclusion

Succinimide dispersant chemistry at Afton includes a large family of products, many highly tailored to specific applications or customer needs. Afton's additives deliver superior performance across driveline applications by reducing end-user costs, enhancing reliability, and increasing durability of their additives. Afton is committed to providing its customers with the information they need to responsibly manage any safety, health, and environmental risks associated with the intended use of Afton products.

For additional information, contact us at:

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