PRODUCT STEWARDSHIP SUMMARY

ENGINE OILS – PASSENGER CAR MOTOR OIL (PCMO) ADDITIVES

[INCLUDING DISPERSANTS, DETERGENTS, AND VISCOSITY INDEX IMPROVERS]

Introduction

Afton aims to deliver a technology platform that allows its customers to achieve a competitive, cost-effective finished oil formulation that is compatible with any future OEM specifications and offers a wide range of base oil coverage, competitive viscosity improvement, pour point depressants, and performance differentiation. Our engine oils will enable efficient engine operation under the continuing industry and consumer trends of increased operational stress, longer application life, and reduced emissions, as well as aiding in more efficient fuel economy.

Uses and Advantages

Engine oil formulations aspire to achieve reduced emissions, efficient fuel economy, and longer-lasting engines. Afton can meet these expectations and continue to be passionate about finding solutions for our customers. The advantages of using these additives include the following:

- Higher Fuel Economy
- Emissions reduction
- Wear protection/Antiwear Additives
- Sludge reduction
- Prevents deposit and contaminant build-up
- Reduce friction
- Prevent rust and corrosion

Health Effects

Engine Oil additive packages can cause adverse health effects through skin contact or inhalation. Health effects vary depending on the specific components in the Engine Oil additive package. Engine Oil additive packages may cause skin or eye irritation. Most packages contain components that cause reproductive effects following exposure to high doses or for extended periods of time. Several packages are classified as carcinogenic due to the impurities present in certain components. These additive packages are not expected to be mutagenic or cause organ effects following long term exposure.

Environmental Effects

Engine Oil additive packages are typically classified as harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. Some of Afton's engine oil additives may contain components that may be persistent in the environment; however, they are not expected to be PBT (Persistent, Bioaccumulative, and Toxic) or vPvB (very Persistent, very Bioaccumulative).

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 engine oils, which can occur during fluid changes or when adding oil to vehicles. Inhalation is not generally a concern for professional and consumer use. Exposure to the additives is less in the finished engine oil due to their reduced concentration. Many engine oils 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

Engine Oil Additives are formulated to meet a wide range of 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

The life of your engine depends in no small part on the quality of the oil you put in it. Your engine oil performs many functions. It stops metal surfaces in your engine from grinding together and tearing themselves apart from friction, and it transfers heat away from the combustion cycle. Engine oil must also be able to hold all the negative by-products of combustion in suspension, such as silica and acids. Engine oil minimizes exposure to oxygen and, thus, oxidation at higher temperatures, which can all happen under the tremendous heat and pressure in today's engines. 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:

Afton Chemical Corporation • 500 Spring Street • Richmond VA 23219 • 804-788-5800

Afton CHEMICAL
Passion for Solutions®