PRODUCT STEWARDSHIP SUMMARY

INDUSTRIAL - 9-OCTADECENOIC ACID(Z)-, REACTION PRODUCTS WITH 3-(DODECENYL) DIHYDRO-, 2,5-FURANDIONE AND TRIETHYLENETETRAMINE

Introduction

9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine is a carboxy-imidazoline mixture that functions as a versatile ashless rust inhibitor for use in R&O, hydraulic oils, turbine oils, circulating oils and a wide range of other industrial lubricants and greases.

Uses and Advantages

9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine has several key performance benefits:

- Excellent rust protection
- Water separation
- Enhanced oxidation stability
- Multifunctional – useful in many different lubricants and grease applications

Health Effects

9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine has undergone extensive testing to determine the health and environmental effects. It is of low concern for acute oral, dermal or inhalation toxicity. The substance is mildly irritating to skin and eyes (not GHS classified as a skin or eye irritant). It is not a skin sensitizer and is not expected to cause mutagenic effects. The substance may cause reproductive and developmental effects following exposure to high doses (GHS classified as Reproductive Toxicant Category 2).

Environmental Effects

In short-term aquatic toxicity testing, 9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine was found to be non-toxic to fish, daphnia or algae, up to the limit of solubility. It was found to be not toxic to activated sludge bacteria in an OECD 209 test. It is not readily biodegradable based on testing. Due to its low water solubility, it is expected to partition into the organic fractions of soil, sediment or sludge, in case of an environmental release. It is not expected to be bioaccumulative in fish based on SAR estimates. Due to its low water solubility, lack of ready biodegradability, it is classified as Aquatic Chronic Category 4 (may cause long lasting harmful effects to aquatic life). Precautions should be taken to ensure that this substance, alone or in a mixture, is not released into the sewer or into the aquatic environment.

Exposure

Typically, worker exposure is managed with the following:

Industrial Use Exposure:

- Exhaust ventilation or other engineering controls to keep airborne concentrations of fumes, mists and vapors below their respective threshold
- Safety glasses with side shields, chemical resistant gloves, appropriate respiratory protection
- Good industrial hygiene practices and management

Commercial Use Exposure:

9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine should only be sold to chemical companies as a component in mixtures or as an intermediate in the production of other substances.

Risk Management

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Information on the safety data sheet (SDS) should be followed in the event of a spill.

Conclusion

9-Octadecenoic acid(z)-, reaction products with 3-(dodecenyl) dihydro-, 2,5-furandione and triethylenetetramine performs as a versatile ashless rust inhibitor in petroleum-based additives and fluids. Under normal conditions, and with proper PPE, it is unlikely to present a risk to human health. Releases to the environment should be avoided. Afton is committed to providing its customers with the information they need to responsibly manage any health and environmental risks associated with the intended use of Afton products.

For additional information, contact us at:

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