

PRODUCT STEWARDSHIP SUMMARY

INDUSTRIAL - 2, 6-DI-TERT-BUTYLPHENOL

Introduction

2, 6-di-tert-butylphenol is an organic compound with the chemical formula C₁₄H₂₂O. It is white to pale yellow solid or viscous liquid at room temperature and used mainly as an anti-oxidant for hydrocarbon-based products, including Industrial, Engine Oil, Driveline and Fuel applications. It is produced by reacting phenol with isobutylene with an aluminum phenoxide catalyst.

Uses and Advantages

2, 6-di-tert-butylphenol mainly functions as a very effective anti-oxidant in petroleum based additives and fluids. Other uses include:

- UV stabilizer in rubber and plastics
- Intermediate for the synthesis of other anti-oxidants
- Preventing gumming in aviation fuels

Health Effects

2,6-di-tert-butylphenol has been extensively tested through the United States Environmental Protection Agency High Production Volume (US EPA HPV) program in the category of Alkylphenols to determine health and environmental effects. The substance is of low concern for acute oral or dermal toxicity. The substance is irritating to skin (GHS classified as Skin Irritant Category 2), and weakly irritating to eye (not GHS classified as an eye irritant). The substance may be harmful after prolonged exposure to high doses, with the primary effects occurring to the liver, blood, and kidneys in animals. . It is not expected to cause reproductive, developmental, mutagenic, or carcinogenic effects.

Environmental Effects

2, 6-di-tert butylphenol is very toxic to aquatic life with long lasting effects. Precautions should be taken to ensure that this substance, or mixtures containing it, is not released into the aquatic environment. It is not readily biodegradable and is expected to partition into the soil. It is not considered to be bioaccumulative based on international guidelines.

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:

2, 6-Di-tert butylphenol 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

2,6-Di-tert butylphenol performs as an efficient anti-oxidant in petroleum based additives and fluids. Under normal conditions and with proper PPE, it is unlikely to present a risk to human health. 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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