Epoxies

Tomamine® ether amine products

Chemical identity
Tomamine PA-series, DA-series, E-series, Q-series, AO-series and amphoterics.

Air Products is a major producer of ether amines and ether amine derivatives that are used in surfactant end uses. These applications include hard surface cleaning, detergent boosters, foaming agents, corrosion inhibitors, antistatic agents, as well as additives to fuels, lubricants, and agricultural products. Because of their similar chemical characteristics, the products are discussed collectively in this health, safety and environmental information summary unless otherwise expressly noted.

Uses and benefits
The Tomamine PA-series ether amines and DA-series ether diamines can be used as additives or building blocks for many other surfactants. Ether amines have excellent low temperature liquidity. Typical end uses include as corrosion inhibitors, lubrication additives, fuel additives, and for selective removal of silica during ore flotation.

Tomamine E-series ether amines are derived from the Tomamine PA-series to modify emulsification, surface tension, solubility and cationic strength properties. E-series ether amines can be used as acid thickeners, microemulsifiers, detergent boosters and as textile processing aids.

Tomamine Q-series can be used as corrosion inhibitors, antistatic agents, for emulsification and to boost detergent performance.

Tomamine AO-series are derived from E-series ether amines. The AO-series products are designed to be excellent foam boosters and stabilizers. They are used in detergent formulations to provide grease emulsification and soil suspension.

Tomamine Amphoteric surfactants are derived from the Tomamine PA-series. These products are designed for use in hand and laundry soaps, shampoos and personal care products. The majority of the Tomamine Amphoteric product line has detergency properties, making these products dual-benefit hydrotropes. Tomamine Amphoteric 12, 14 and 16 meet the criteria of the U.S. EPA Design for the Environment Surfactant Screen and are listed on CleanGredients®.
Physical and chemical properties
Tomamine ether amines are alkaline liquids. They have moderate to high water solubility and have low to moderate volatility.

Health effects
The Tomamine PA and DA series ether amines are corrosive. The E-series and Q-series amines are corrosive to the eye and vary from moderately irritating to corrosive to skin. Tomamine Q-14-2 and Q-17-2 are more volatile. These materials are flammable, and their vapors may cause dizziness or drowsiness.

The AO-series amines are corrosive and severely irritating to the eye and moderately irritating on skin contact. Tomamine AO-14-2 and AO-728 are more volatile. These materials are flammable, and their vapors may cause dizziness or drowsiness.

The amphoterics are severe to moderately irritating to eyes and moderately to mildly irritating to skin.

Environmental effects
Tomamine ether amine surfactants can be manufactured, used and disposed of safely. Emissions should be minimized during manufacture and use. The Tomamine PA and DA-series ether amines are not readily biodegradable and have high toxicity to aquatic organisms. Most of the Tomamine E and Q-series amines show inherent primary biodegradability and have moderate to high toxicity to aquatic organisms. Most of the AO-series amines show inherent primary biodegradability, and most have low to moderate toxicity to aquatic organisms. The amphoterics range from minimally biodegradable to readily biodegradable. Most have low toxicity to aquatic organisms.

Exposure potential and risk management measures

Industrial use
If there is a possibility of exposure to ether amines, users should use eye and skin protection, including chemical-resistant goggles and face shield, gloves, long-sleeved coveralls, and safety shoes or rubber boots. Good ventilation is critical when working with chemicals. Local exhaust ventilation should be designed to draw vapors away from the user’s breathing zone and to reduce vapor concentrations to acceptable concentrations at all workstations.

Consumer use
As discussed under Uses and benefits, Tomamine ether amine surfactants are used as ingredients to formulate consumer products. Final formulators provide instructions on the safe handling of their product to address consumer safety matters.

Regulatory information
Several regulations govern the manufacture, sale, transportation, use and disposal of Tomamine products. These laws vary by country and geographic region. You can find general regulatory information in the Material Safety Data Sheet.

Information resources
We developed this Product Stewardship Summary to provide a general overview of the chemical. This summary is not meant to provide emergency response or medical treatment information. You can find in-depth safety and health information on the Material Safety Data Sheet.

Review our Tomamine Ether Amines Product Guide for more information on applications for industrial and institutional cleaning and mining industry.

Conclusion
Tomamine ether amine products are widely used in surfactant end uses, and users can handle them safely with minimal safety, health and environmental effects when they follow the referenced industry and company guidelines.

For more information, please contact us at:

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