FACT SHEET

Monoethanolamine

CAS Number: 141-43-5

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology Division (TD) for the development of Regulatory Guidelines (ESLs, AMCVs and ReVs) for ambient exposure to this chemical. For more detailed information, please see the DSD or contact the TD by phone (1-877-992-8370) or e-mail (tox@tceq.texas.gov).

What is monoethanolamine (MEA)?

MEA is an amino alcohol that is permitted in articles intended for use in the production, processing, and packaging of food. MEA is also a softening agent for hides, a dispersing agent for agricultural chemicals, and is used in polishes, hair waving solutions, and in the synthesis of surface-active agents. MEA undergoes reactions characteristic of primary amines and alcohols.

Industrially, MEA is used in the removal of carbon dioxide and hydrogen sulfide from natural gas and other gases. Also, MEA is often used industrially as a minor constituent in combination with varying concentrations/percentages of other amino alcohol mixtures, including diethanolamine, and triethanolamine, to modify the properties of compounds. Biologically, MEA is a normal intermediate in human and animal metabolism, having a role in the formation of phospholipids and choline. A certain amount of free MEA is also excreted in the urine of unexposed humans. Other names for MEA are ethanolamine, 2-aminoethanol, aminoethanolamine, 1-amino-2-hydroxyethan, beta-aminoethanol, beta-aminoethyl alcohol, beta-ethanolamine, colamine, glycinol, 2-hydroxyethanmine, and olamine.

How is MEA released into ambient air?

MEA may be released into the ambient air by industries that make or use it. Currently, MEA does not appear on the USEPA's list of hazardous air pollutants. Therefore, it is not measured by the United States Environmental Protection Agency's (USEPA) ambient air quality monitoring program that is implemented by state and local agencies, including the TCEQ, for non-criteria pollutants.

How can MEA affect my health?

Permitted levels of MEA should not cause short- or long-term adverse health or welfare effects. However, MEA can be an irritant to eyes and skin at sufficiently high concentrations, and short-term exposure to significantly elevated inhaled levels for a sufficient duration can also lead to central nervous system effects, nasal irritation, or pulmonary edema. Based on available data, nasal irritation and central nervous system effects are the most sensitive effects of short- and long-term exposure to sufficiently high concentrations of MEA, respectively. Permitted levels protect the public (including potentially sensitive subpopulations) against all adverse health effects of MEA, including the most sensitive effects. There are no animal studies indicating

MEA has the potential to cause cancer in humans when inhaled. MEA has not been classified as causing cancer when inhaled by the International Agency for Research on Cancer (IARC) or the USEPA.

Is MEA odorous to humans or harmful to plants?

MEA has a characteristic ammonia-like odor that may be objectionable at high levels. Adverse effects to plants from MEA in the ambient air have not been documented.

Why does the TCEQ set Regulatory Guidelines for MEA?

The TCEQ has set various air quality guideline levels (ESLs, AMCVs and ReVs) to protect human health and welfare. Please see Definitions of ESLs, ReVs, and AMCVs located on the TCEQ DSD webpage for more information. The air quality guideline levels for MEA have been designed to protect the general public from short-term and long-term adverse health and welfare effects. The general public includes sensitive populations such as children, the elderly, pregnant women and people with preexisting health conditions. If you would like to know more about the specific ESLs, AMCVs and ReVs developed, what the values are and what they are used for, please see the DSD.