FACT SHEET

Hexamethylenediamine

CAS #: 124-09-4

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 hexamethylenediamine (HMDA)?

HMDA is a white crystalline solid. It is very soluble in water and has a low vapor pressure, so the likelihood of significant vapor exposure is limited unless HMDA is heated. HMDA belongs to the diamines chemical class. Generally, diamines are used industrially as corrosion inhibitors; as curing agents for epoxide resins and plastic articles; as chemical intermediates in the manufacture of resins (polyamide and nylon); and for printing inks, paints and textiles. Synonyms for hexamethylenediamine include 1,6-diamino-n-hexane, 1,6-diaminohexane, 1,6-hexanediamine, 1,6-hexylenediamine.

How is hexamethylenediamine released into ambient air?

Release into the environment through different waste streams may occur due to HMDA's production and use as a chemical intermediate in the production of nylon-type polyimide resins.

How can hexamethylenediamine affect my health?

Permitted levels of HMDA should not cause adverse health and welfare effects. HMDA is highly basic and extremely caustic. Workers exposed to HMDA report eye and respiratory tract irritation. Well-conducted animal studies demonstrate that HMDA acts as an upper respiratory irritant, and tissue damage, inflammation, and irritation may occur at the site of contact after both short- and long-term exposure. There is no definitive evidence that HMDA causes cancer so a chronic cancer value was not developed. The National Toxicology Program has not classified HMDA as causing cancer. The TCEQ has classified HMDA as "*not likely to be carcinogenic to humans via inhalation exposure*".

Is hexamethylenediamine odorous to humans or harmful to plants?

HMDA has a pungent odor that has been described as ammonia-like or as a weak fishy odor at moderate levels. HMDA has not been shown to adversely affect vegetation.

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Why does the TCEQ set Regulatory Guidelines for Hexamethylenediamine?

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 hexamethylenediamine 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 on the TCEQ website.