



FACT SHEET

FORMALDEHYDE

CAS #: 50-00-0

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

What is formaldehyde?

Formaldehyde is a colorless, flammable gas at room temperature with a distinct, pungent smell. While formaldehyde is naturally produced in small amounts in our bodies, it is also produced commercially for use in the production of fertilizer, paper, plywood, and urea-formaldehyde resins. It is also used as a preservative in some foods and in many products used around the house, such as antiseptics, medicines, and cosmetics.

How is formaldehyde released into ambient air?

Combustion processes account directly or indirectly for most of the formaldehyde entering the environment. Direct combustion sources include power plants, incinerators, refineries, wood stoves and fireplaces, kerosene heaters, gas cookers, and cigarettes. Other man-made sources of formaldehyde in the environment include vent gas from formaldehyde production, exhaust from diesel and gasoline-powered motor vehicles, emissions from resins in particle board, plywood, etc. Natural sources of formaldehyde include forest fires, animal wastes, microbial products of biological systems, and plant volatiles. The United States Environmental Protection Agency has indicated that formaldehyde emissions from mobile sources (automobiles, construction equipment, lawnmowers, etc.) account for a little more than half of the total formaldehyde emissions in Texas, with major facility sources and area/other sources comprising the remainder.

How can formaldehyde affect my health?

Permitted levels of formaldehyde should not cause adverse health and welfare effects. Both human and laboratory animal studies indicate that sensory irritation (eyes, nose, upper respiratory tract) is the most sensitive effect of exposure to high levels of formaldehyde.

In workers exposed to long-term, high concentrations of formaldehyde in the air, there is inconsistent evidence of a higher occurrence of nasal cancer, and perhaps other cancers. In contrast to humans, high formaldehyde levels are known to cause nasal cancer in laboratory animals. Several agencies (e.g., United States Environmental Protection Agency, National Toxicology Program) have treated formaldehyde as a probable human carcinogen based on limited evidence in humans and sufficient evidence in laboratory animals. TCEQ and other



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agencies (e.g., Health Canada) consider exposure to formaldehyde at levels which induce cell death and sustained reparative cell division in the respiratory tract to represent a carcinogenic hazard to humans.

Is formaldehyde odorous or harmful to plants?

Formaldehyde has a distinct, pungent odor at high concentrations. Formaldehyde has been shown to harm some plants at relatively high concentrations. Based on these plant studies, protecting humans from the irritant effects of formaldehyde is also expected to protect plants from harm.

Why does the TCEQ set Regulatory Guidelines for formaldehyde?

The TCEQ has set various air quality guideline levels (ESLs 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 ESLs and ReVs for formaldehyde have been designed to protect the general public from short-term and long-term adverse health and welfare effects. The general public includes children, the elderly, pregnant women, and people with pre-existing health conditions. If you would like to know more about the specific ESLs and ReVs developed, what the values are and what they are used for, please see the DSD.