FACT SHEET
1,3-Butadiene
CAS #: 106-99-0

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 1,3-butadiene?

1,3-Butadiene (butadiene) is a highly volatile, colorless gas, used as an intermediate in the production of polymers, elastomers, and other chemicals. Its major uses are in the manufacture of styrene-butadiene rubber (synthetic rubber) and thermoplastic resins. Elastomers of butadiene are used in the manufacture of tires, footwear, sponges, hoses and piping, luggage, packaging, and a variety of other molded products. It is also called vinylethylene, erythrene, bivinyl, divinyl, biethylene, pyrrolylene, and a,g-butadiene.

How is butadiene released into ambient air?

Butadiene is released into the air from a variety of sources. The primary way that butadiene is released into the environment is via emissions from gasoline- and diesel-powered vehicles and equipment. Lesser releases occur from the combustion of other fossil fuels and biomass. Minor releases occur in production processes, tobacco smoke, gasoline vapors, and vapors from the burning of plastics as well as rubber. The United States Environmental Protection Agency has indicated that butadiene emissions from mobile sources (automobiles, construction equipment, lawnmowers, etc.) account for about 54% of the total butadiene emissions in Texas, with major facility sources and area/other sources (e.g. smaller facilities) comprising the remainder.

How can butadiene affect my health?

Permitted levels of butadiene should not cause adverse health or welfare effects. Laboratory animal studies indicate that reproductive/developmental effects are the most sensitive effect of breathing high levels of butadiene. Short-term studies in laboratory animals exposed to high butadiene air concentrations indicate that decreases in body weight of pregnant laboratory animals and their offspring are the main concern. Long-term studies in mice exposed to high butadiene air concentrations indicate that decreases in ovarian function producing early menopause are the main concern.

Workers exposed to long-term, high concentrations of butadiene in the air have shown a higher occurrence of a blood cancer known as leukemia. As a result, several agencies, such as the

TCEQ, the United States Environmental Protection Agency, and the International Agency for Research on Cancer, have designated butadiene as a human carcinogen.

Is butadiene odorous or harmful to plants?

Butadiene has a mildly aromatic odor at moderate concentrations. Butadiene does not cause adverse effects on plants even at relatively high concentrations.

Why does the TCEQ set Regulatory Guidelines for butadiene?

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 butadiene 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.