FACT SHEET

ISOBUTENE

CAS #: 115-11-7

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 isobutene?

Isobutene is a flammable, colorless gas with a "gas-house" odor. Isobutene is a component of natural gas and crude oil and is used as a chemical intermediate. It used as a monomer or copolymer for the production of synthetic rubber and various plastics and in the production of antioxidants for food, food packaging, and supplements. Isobutene is also known as isobutylene, 2-methyl-1-propene or 2-methyl-1-propylene, and 1,1-dimethylethene or 1,1-dimethylethylene.

How is isobutene released into ambient air?

Isobutene is released into ambient air from a variety of sources. Isobutene can be released from natural sources such as petrogenic sources resulting from offgassing or venting. It can also be released from combustion of fossil fuels and losses from gas plants and refineries.

How can isobutene affect my health?

Permitted levels of isobutene should not cause adverse health and welfare effects. Laboratory animal studies indicate the main effects isobutene produces are narcosis, anesthesia, respiratory arrest, and/or asphyxiation. These effects occur at concentrations above the lower explosive limit. Isobutene is relatively nontoxic. One long-term study has been conducted in laboratory animals. Long-term inhalation exposure to isobutene at high concentrations mainly caused mild changes in the lining of the nose and lung and minor weight loss. These effects were not considered adverse. There was an increased occurrence of thyroid cancer in male rats. The National Toxicology Program states there is some evidence of carcinogenicity in male rats but no evidence in female rats or in male and female mice. The TS determined that the data are inadequate for an assessment of human carcinogenic potential. The United States Environmental Protection Agency and the International Agency for Research on Cancer have not evaluated the potential for isobutene to be a human carcinogen.

Is isobutene odorous or harmful to plants?

Isobutene has a "gas-house" odor at moderate concentrations. The TS did not find any studies that describe any potential harmful effects in plants.

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Why does the TCEQ set Regulatory Guidelines for isobutene?

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 for isobutene are set 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 preexisting 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