FACT SHEET

Octane, All Isomers

CAS Numbers: n-Octane: 111-65-9;
2,2,4-Trimethylpentane (Isooctane): 540-84-1
Other 16 Isomers

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology Division 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 Toxicology Division by phone (1-877-992-8370) or e-mail (tox@tceq.texas.gov).

What is octane?

There are 18 isomers of octane including octane and isooctane. The isomers of octane are colorless, flammable liquids with a characteristic gasoline-like odor. Octane**s** are natural constituents in the paraffin fraction of crude oil and natural gas. The octane component in gasoline is a mixture of various octane isomers. Octane is used as a solvent and thinner, and in organic synthesis. Isooctane has been used to add "high octane" or antiknock qualities to gasoline and aviation fuel.

How is octane released into ambient air?

Octane can be released into the air from its production and use in many products associated with the petroleum and natural gas industries. In addition, the combustion of gasoline is a major mechanism for the release of octanes into the atmosphere. Octane released to the environment is expected to volatilize to the atmosphere, where it will undergo photochemical oxidation reactions.

How can octane affect my health?

Octane has a low order of short- or long-term toxicity. Permitted levels of octane should not cause adverse health and welfare effects. Octane produces minor lung irritation. Inhalation of high concentrations of octane can cause depression of the central nervous system, mucous membrane and sensory irritation, and neurobehavioral impairment. There are no studies indicating octane has a potential to be a human carcinogen.

Is octane odorous or harmful to plants?

Octane has a gasoline-like odor at moderate levels. Octane has not been shown to have an adverse effect on plants.

Why does the TCEQ set Regulatory Guidelines for octane?

The TCEQ has set various air quality guideline levels (ESLs, AMCVs and ReVs) to protect human health and welfare. Please refer to Definitions of ESLs, ReVs, and AMCVs located on the TCEQ DSD webpage for more information. The air quality guideline levels for octane 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.