



FACT SHEET

Crotonaldehyde (Cis and Trans)

CAS Registry Number: 4170-30-3

Trans-Crotonaldehyde CAS Registry Number: 123-73-9

Cis-Crotonaldehyde CAS Registry Number: 15798-64-8

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ 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 crotonaldehyde?

Crotonaldehyde is a very flammable liquid and is used primarily for the production of sorbic acid. It is also used for the synthesis of butyl alcohol, butyraldehyde, quinaldine, thiophenes, pyridenes, dyes, pesticides, pharmaceuticals, rubber antioxidants, and chemical warfare agents and as a warning agent in locating breaks and leaks in pipes. It is produced in the body from lipid peroxidation, a process involving the oxidation of polyunsaturated fatty acids, basic components of biological membranes. Other names are 2-butenal, crotonal, crotonic aldehyde, and β -methylacrolein.

How is crotonaldehyde released into ambient air?

Human exposure to crotonaldehyde occurs from both man-made and natural sources. Crotonaldehyde has been identified in exhaust from jet, gasoline, and diesel engines; from tobacco smoke; and from the combustion of polymers and wood. Crotonaldehyde occurs naturally in meat, fish, many fruits (apples, grapes, strawberries, tomatoes) and vegetables (cabbage, cauliflower, Brussels sprouts, carrots), bread, cheese, milk, beer, wine, and liquors. It is emitted from volcanoes, from the Chinese arbor vitae plant, and from pine and deciduous forests.

How can crotonaldehyde affect my health?

Permitted levels of crotonaldehyde should not cause adverse health and welfare effects. A human study indicates crotonaldehyde is an eye, nose, and upper respiratory tract irritant after short-term exposure. Well conducted animal studies demonstrate that crotonaldehyde acts as an upper respiratory irritant, and tissue damage, inflammation, and irritation may occur at the site of absorption/contact. Long-term human or animal studies are not available. There are no animal studies indicating crotonaldehyde has the potential to cause cancer in humans when inhaled. Crotonaldehyde has not been classified as causing cancer when inhaled by the International Agency for Research on Cancer (IARC) or the USEPA.



FACT SHEET

Crotonaldehyde (Cis and Trans)

CAS Registry Number: 4170-30-3

Trans-Crotonaldehyde CAS Registry Number: 123-73-9

Cis-Crotonaldehyde CAS Registry Number: 15798-64-8

Is crotonaldehyde odorous to humans or harmful to plants?

Crotonaldehyde has a strong, suffocating odor at low concentrations. Crotonaldehyde has not been shown to have an adverse effect on plants.

Why does the TCEQ set Regulatory Guidelines for crotonaldehyde?

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 DSD webpage for more information. The air quality guideline levels for crotonaldehyde 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.