



FACT SHEET

HYDROGEN CHLORIDE

CAS #: 7647-01-0

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

What is hydrogen chloride?

Hydrogen chloride (HCl) is a colorless to slightly yellow gas with an irritating, pungent odor. HCl is available commercially as an anhydrous gas or as an aqueous solution (hydrochloric acid/muriatic acid). Anhydrous HCl is used in making alkyl chlorides, in hydrochlorination, polymerization, alkylation, and nitration reactions. The acid is used where strong acids are needed (e.g., in activating oil wells, ore reduction, metallic pickling, electroplating metals, and food processing). Aqueous HCl is commonly called muriatic acid and is a component of commercial chemicals used to clean and disinfect swimming pools.

How is hydrogen chloride released into ambient air?

HCL is released into ambient air from a variety of sources. Anthropogenic sources of HCL in air include fossil fuel burning (mainly coal), incineration of domestic and industrial waste, iron-steel manufacturing, the chemical and ceramic industries, glass manufacturing, cement production, and rocket firing. Natural sources of HCL in air include sea salt and emissions from volcanoes.

How can hydrogen chloride affect my health?

Permitted levels of HCL should not cause adverse health and welfare effects. Both human and laboratory animal studies indicate that respiratory tract irritation and damage (eyes, nose, upper respiratory tract) can occur after exposure to high levels of HCL for a short period of time. Long-term inhalation exposure to lower levels can cause effects in the respiratory tract.

There is insufficient information to assess human carcinogenicity following inhalation exposure at this time. As a result, HCL has not been evaluated for its potential to be a human carcinogen by the TCEQ, the United States Environmental Protection Agency, and the International Agency for Research on Cancer.

Is hydrogen chloride odorous or harmful to plants?

HCL has an irritating, pungent odor. HCl is known to cause plant injury but only at high concentrations.



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Why does the TCEQ set Regulatory Guidelines for hydrogen chloride?

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 HCL 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.