FACT SHEET

Chlorine

CAS Registry Number: 7782-50-5

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology Division (TD) 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 chlorine?

Chlorine is a gas with a very irritating odor. It is used in the production of thousands of products (e.g., chlorine bleach). It is also used for water disinfection, although the chlorine itself is quickly transformed into other chemicals (hypochlorous acid and hypochlorite anion) at the beginning of the process (ATSDR 2010).

How is chlorine released into ambient air?

Chlorine may be released into the air in fugitive emissions from industrial facilities where it is produced or used. It may also be released into the air as a result of a liquid chlorine spill, chlorine tank leak, or the improper use of swimming pool chemicals. Chlorine appears to be generated in very low concentrations by the photolysis of seawater aerosols above seawater. Because chlorine is so reactive, it is not normally detected in the environment except for very low levels in the air above seawater (ATSDR 2010).

How can chlorine affect my health?

Permitted levels of chlorine should not cause short- or long-term adverse health or welfare effects. Chlorine is an eye and respiratory tract irritant. Short-term exposure of human volunteers to sufficiently high concentrations of chlorine has produced sensory irritation (e.g., irritation of the respiratory tract and eyes), which is the most sensitive effect of acute chlorine exposure. Similarly, long-term exposure of laboratory animals to significantly elevated levels of chlorine has also produced eye irritation and respiratory tract effects (e.g., mild focal nasal and tracheal mucosal lesions) as the most sensitive effects. Permitted levels protect the public (including potentially sensitive subpopulations) against all adverse health effects of chlorine, including the most sensitive effects.

Is chlorine odorous to humans or harmful to plants?

Chlorine has a pungent, irritating, bleach-like odor. In regard to plants, the most common foliar injury symptoms after exposure to significantly elevated short-term concentrations of chlorine

include chlorosis (bleaching of tissues), necrotic mottling (red and black dark spots on the leaf surface), and necrosis (death of cells and cell tissue).

Why does the TCEQ set Regulatory Guidelines for chlorine?

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 TCEQ DSD webpage for more information. The air quality guideline levels for chlorine 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.