FACT SHEET

Chromic Acid Mist
(Based on Hexavalent Chromium Content)

CAS Number: 7738-94-5

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 air 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 chromic acid mist?

Chromium can occur naturally in the environment and is found in rocks, soil, animals, and plants. The most common forms of chromium are: chromium (0) or the metal chromium, chromium III or trivalent chromium, and chromium VI or hexavalent chromium.

Chromic acid is produced by adding a soluble hexavalent chromium compound (e.g., chromium trioxide) to an aqueous solution to yield H_2CrO_4. Chromium trioxide (CrO_3), in varying percentages by weight, is commonly used to produce chromic acid.

How is chromic acid mist released into ambient air?

Chromium is released into the atmosphere primarily by man-made processes such as industrial, commercial, and residential fuel combustion, and via the combustion of natural gas, oil, and coal. Metal industries, such as chrome plating and steel production, are also important man-made stationary point sources of chromium emissions to air.

More specifically, chromic acid solution has the potential to be emitted as an aqueous mist from chrome-plating processes. However, while occupational exposure may be likely (e.g., electroplating workers), the general public has a limited potential for exposure to chromic acid mist. This fact sheet and the associated DSD are applicable only to chromic acid mist. For other forms of hexavalent chromium (e.g., ammonium dichromate, calcium chromate, sodium chromate, chromium trioxide, sodium dichromate, sodium dichromate dehydrate, lead chromate potassium chromate, potassium dichromate, strontium chromate, zinc chromate), please refer to the hexavalent chromium (particulate compounds) fact sheet and DSD.

How can chromic acid mist affect my health?

Permitted levels of chromic acid mist are not expected to cause short- or long-term adverse health or welfare effects. Some occupational workers exposed to much higher levels of chromic acid mist for longer durations have experienced respiratory tract effects such as irritation of the lining of the nose resulting in nose ulcers and associated symptoms (e.g., running nose, mucosal atrophy, stuffy nose).

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An increase in lung cancer risk has been reported in workers exposed long term to high levels of hexavalent chromium (the form in chromic acid) in the workplace. Animal studies have also indicated that hexavalent chromium can increase the risk of lung cancer.

Although sparingly soluble forms are likely to represent a more significant cancer hazard, there is evidence suggesting that soluble hexavalent chromium (e.g., chromic acid mists in the plating industry) produces an increased risk of lung cancer. The International Agency for Research on Cancer, the United States Environmental Protection Agency, and the TCEQ consider hexavalent chromium compounds as a group, including chromic acid, to cause cancer in humans.

Is chromic acid mist odorous to humans or harmful to plants?

Information on potential odor and adverse vegetative effects due to direct exposure to airborne chromic acid mist is not available.

Why does the TCEQ set Regulatory Guidelines for chromic acid mist?

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 chromic acid mist 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.