TSCA Reform Needed Now

Congress Must Protect People from Toxic Chemicals Known to Cause Harm: **Hexavalent Chromium**

Workers may be exposed to high air concentrations of hex chrome, particularly in the metallurgy and tanning industries. Inhalation of hex chrome is known to cause cancer, primarily in the lungs, as shown by human and animal studies. Tumors in nose and sinus cavities have also been reported with inhalation. Visit **www.takeouttoxics.org**.

When the Toxic Substances Control Act (TSCA) was enacted in 1976, it was intended to ensure that chemicals are safe throughout their lifecycle, from manufacture to use and disposal. But weaknesses in the law have left the Environmental Protection Agency (EPA) unable to act on known health dangers. Other laws, such as those setting air, water, and workplace safety standards, do not adequately regulate exposure to most chemicals, nor do they address the hazards a chemical may pose over its entire lifecycle. New legislation is needed to rapidly reduce exposure to toxic chemicals, such as hexavalent chromium (hex chrome)*, which is used in industries such as metal processing, tanneries, and stainless steel welding where workers are exposed to contaminated air. A legacy pollutant, cancer-causing hex chrome can also contaminate soil and water supplies for decades. NRDC urges Congress to update TSCA to protect people and the environment from toxic chemicals.

For more information, please contact:

Sarah Janssen, M.D., Ph.D., MPH
sjanssen@nrdc.org
(415) 875-6100

Erin Brockovich Campaigned Against the Devastating Health Effects of Hex Chrome

The award-winning film, *Erin Brockovich*, was based on the true story of the community of Hinkley, California, where people suffered illnesses related to chromium contamination of their drinking water. A legacy pollutant that can contaminate soil and water supplies for decades, hexavalent chromium (hex chrome) is a widespread contaminant at hazardous waste sites and in drinking water. The National Institute of Health's National Toxicology Program (NTP), along with the International Agency for Research on Cancer (IARC) and the U.S. Environmental Protection Agency (EPA), all have determined that inhaling hexavalent chromium compounds causes cancers of the upper airways, lung, and stomach. NTP and California's EPA agree that there is sufficient concern that ingestion of hex chrome-contaminated water is also associated with cancer.

Despite Extensive Evidence That Hex Chrome is Dangerous, Regulatory Action Has Been Insufficient

While federal and state standards exist for safe levels in drinking water and residential soils, and workplace standards exist for safe levels of airborne concentrations, none of these standards are strong enough to adequately protect public health, and don't address the full life cycle of the chemical. For example, while the EPA has set a drinking water standard only for total chromium in water, as recently as August 2009, California's EPA proposed a goal for hex chrome in drinking water of 0.06 parts per billion (ppb). There are good substitutes for chromium in many of the industries in which it is used. Consumer and worker protection should not be left to voluntary efforts; Congress must act so that American workers and all people are protected from unsafe chemicals, such as hex chrome.

NRDC
THE EARTH'S BEST DEFENSE

www.nrdc.org

July 2010

* CAS Registry Number 18540-29-94.

Millions of people drink water contaminated with hex chrome. Strong TSCA reform which places restrictions on hex chrome use is essential to preventing further contamination of drinking water sources.

SOURCES

Agency for Toxic Substances and Disease Registry (ATSDR). ToxFAQs™ for Chromium September 2008.

California Environmental Protection Agency (Cal/EPA). Office of Environmental Health Hazard Assessment (OEHHA), Draft Public Health Goal for Hexavalent Chromium in Drinking Water. August, 2009.

California Dept of Public Health (CDPH), Chromium-6 in drinking water: MCL update. Updated August, 2009.

National Toxicology Program Technical Report (NTP TR 546) on the Toxicology and Carcinogenesis Studies of Sodium Dichromate Dihydrate (CAS No. 7789-12-0) in F344/N Rats and B6C3F1 Mice (Drinking Water Studies). July, 2008.

Hexavalent Chromium

Industries Where Hexavalent Chromium Is Found

Hex chrome is the most toxic form of the naturally occurring element chromium. Although trivalent chromium (Cr III) is commonly found in nature and is an essential nutrient for humans, the hexavalent form is a product of industrial activities. Industries including metal processing, tanneries, chromate production, stainless steel welding, and ferrochrome and chrome pigment production are significant sources of chromium releases. And until recently, chromium compounds, including hex chrome, were widely used as wood preservatives in pressure-treated wood. Good substitutes for chromium are available in metal plating applications including coatings based on electrolysis and electroplated nickel, tin-nickel, and molybdenate, among others. In the leather tanning industry, vegetable tanning can be used on certain types of leather. In addition, chromium-free pigments and dyes can be used in the paint and textile industries, respectively.

Exposure and Health Risks

Exposure to hex chrome occurs by eating contaminated food, drinking contaminated water, or breathing contaminated workplace air. Exposure also may occur when contaminated soil particles are inhaled or ingested. Due to its industrial uses, hex chrome is a common pollutant at hazardous waste sites and has been documented at approximately two-thirds of current, or former, Superfund sites. This widespread contamination means people living in communities near these contamination sites or close to industrial releases and waste disposal sites can be highly exposed. Workers may be exposed to high air concentrations, particularly in the metallurgy and tanning industries. Inhalation of hex chrome is known to cause cancer, primarily in the lungs, as shown by human and animal studies. Tumors in nose and sinus cavities have also been reported with inhalation. Ingestion of hex chrome, such as from contaminated water, has been linked to cancers of the oral cavity, stomach and intestinal tract. Additional effects associated with exposure to hex chrome compounds in human and animal studies include: blood disorders, including anemia; male reproductive harm; irritation to the lining of the nose, nose ulcers, runny nose breathing problems, such as asthma, cough, shortness of breath, or wheezing; and ulceration and non-cancerous lesions of the stomach and small intestine. Hex chrome can cross the placenta, exposing the fetus during vulnerable periods of development.

How Hexavalent Chromium is Designated and Regulated Now

IARC has identified hex chrome as a known human carcinogen.

NTP and EPA have designated hex chrome as a known human carcinogen for inhalation and NTP has also linked hex chrome ingestion with cancer.

The Occupational Safety and Hazard Administration (OSHA) has set workplace exposure standards for hex chrome inhalation.

U.S. EPA has a drinking water standard for total chromium but not hex chrome individually.

Congress specifically identified hex chrome as a hazardous air pollutant under the Clean Air Act and it is regulated as such by the EPA.

Hex chrome is listed on California's Prop 65 list of chemicals known to cause cancer. Calfornia's EPA has also concluded that hex chrome ingestion causes cancer.

Hex chrome is listed as a "chemical of high concern" for its carcinogenic effects under Maine's law on Toxic Chemicals in Children's Products.

NRDC
THE EARTH'S BEST DEFENSE

NRDC would like to acknowledge Dr. Caroline Baier-Anderson, formerly of the Environmental Defense Fund, and Julia Quint, formerly with the California Department of Public Health, for their review of this factsheet.