



Pacific Maritime Association

Accident Prevention Department

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SAFETY BULLETIN # 01-06

February 28, 2006, 2006

Occupational Exposure to Hexavalent Chromium

FEDERAL REGISTER RULE Vol. 71, No. 39 pp. 10100-10385

OVERVIEW: FINAL RULE

SUMMARY: The Occupational Safety and Health Administration (OSHA) is amending the existing standard which limits occupational exposure to Hexavalent chromium (Cr(VI)). OSHA has determined based upon the best evidence currently available that at the current permissible exposure limit (PEL) for Cr(VI), workers face a significant risk to material impairment of their health. The evidence in the record for this rulemaking indicates that workers exposed to Cr(VI) are at an increased risk of developing lung cancer. The record also indicates that occupational exposure to Cr(VI) may result in asthma, and damage to the nasal epithelia and skin.

The final rule establishes an 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 Mg/m^3). This is a considerable reduction from the previous PEL of 1 milligram per 10 cubic meters of air ($1 \text{ mg}/10 \text{ m}^3$, or 100 Mg/m^3) reported as CrO_3 , which is equivalent to a limit of 52 Mg/m^3 as Cr(VI). The final rule also contains ancillary provisions for worker protection such as requirements for exposure determination, preferred exposure control methods, including a compliance alternative for a small sector for which the new PEL is infeasible, respiratory protection, protective clothing and equipment, hygiene areas and practices, medical surveillance, recordkeeping, and start-up dates that include four years for the implementation of engineering controls to meet the PEL.

The final standard separately regulates general industry, construction, and shipyards in order to tailor requirements to the unique circumstances found in each of these sectors.

The PEL established by this rule reduces the significant risk posed to workers by occupational exposure to Cr(VI) to the maximum extent that is technologically and economically feasible.

DATES: This final rule becomes effective on May 30, 2006. Start-up dates for specific provisions are set in § 1910.1026(n) for general industry; § 1915.1026(l) for shipyards; and § 1926.1126(l) for construction. However, affected parties do not have to comply with the information collection requirements in the final rule until the Department of Labor publishes in the Federal Register the control numbers assigned by the Office of Management and Budget (OMB). Publication of the control numbers notifies the public that OMB has approved these information collection requirements under the Paperwork Reduction Act of 1995.

ADDRESSES: In compliance with 28 U.S.C. 2112(a), the Agency designates the Associate Solicitor for Occupational Safety and Health, Office of the Solicitor, Room S-4004, U.S. Department of

Labor, 200 Constitution Avenue, NW., Washington, DC 20210, as the recipient of petitions for review of these standards.

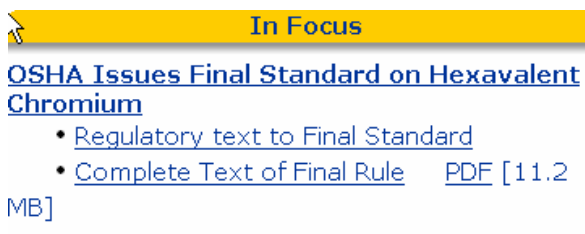
FOR FURTHER INFORMATION CONTACT: Mr. Kevin Ropp, Director, OSHA Office of Communications, Room N-3647, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210; telephone (202) 693-1999

ACTION: Please take note: **Section V. Health Effects - B. Carcinogenic Effects - 4. Evidence from Stainless Steel Welders (Excerpt Summary below)**

4. Evidence from Stainless Steel Welders

Welding is a term used to describe the process for joining any materials by fusion. The fumes and gases associated with the welding process can cause a wide range of respiratory exposures which may lead to an increased risk of lung cancer. The major classes of metals most often welded include mild steel, stainless and high alloy steels and aluminum. The fumes from stainless steel, unlike fumes from mild steel, contain nickel and Cr(VI). There are several cohort and case-control studies as well as two Meta analyses of welders potentially exposed to Cr(VI). In general, the studies found an excess number of lung cancer deaths among stainless steel welders. However, few of the studies found clear trends with Cr(VI) exposure duration or cumulative Cr(VI). In most studies, the reported excess lung cancer mortality among stainless steel welders was no greater than mild steel welders, even though Cr(VI) exposure is much greater during stainless steel welding. This weak association between lung cancer and indices of exposure limits the evidence provided by these studies. Other limitations include the co-exposures to other potential lung carcinogens, such as nickel, asbestos, and cigarette smoke, as well as possible healthy worker effects and exposure misclassification in some studies, which may obscure a relationship between Cr(VI) and lung cancer risk. These limitations are discussed further in sections VI.B.5, VI.E.3, and VI.G.4. ‡Nevertheless, these studies add some further support to the much stronger link between Cr(VI) and lung cancer found in soluble chromate production workers, chromate pigment production workers, and chrome platers.

For additional information of the above regulation and key studies concerning the health effects of hexavalent chromium on workers, go <http://www.osha.gov/>. On OSHA's home page you will see the "In Focus Box", highlighted for you review are the Regulatory & Complete text of the regulation.



In Focus

OSHA Issues Final Standard on Hexavalent Chromium

- [Regulatory text to Final Standard](#)
- [Complete Text of Final Rule](#) PDF [11.2 MB]