

January 3, 2005

Chris Tampio

Director Employment Policy

Human Resources Policy

OSHA Docket Office  
Docket No. H054A, Room N-2625  
U.S. Department of Labor  
200 Constitution Ave, N.W.  
Washington, DC 20210  
*Submitted via electronic mail*

Re: Comments to Proposed Rule on Occupational Exposure to Hexavalent Chromium, 69 Fed. Reg. 59305 (Oct. 4, 2004) – OSHA Docket No. H054A

To Whom It May Concern:

The National Association of Manufacturers (NAM) respectfully submits these comments on the proposed rule, "Occupational Exposure to Hexavalent Chromium," 69 Fed. Reg. 59305 (October 4, 2004) – OSHA Docket No. H054A. This proposed rulemaking addresses lowering its permissible exposure limit (PEL) for hexavalent chromium and for all hexavalent chromium compounds in construction, shipyards and general industry from 52 to 1 microgram of hexavalent chromium per cubic meter of air as an 8-hour time weighted average.

The NAM is the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. Headquartered in Washington, D.C., the NAM has 10 additional offices across the country. The NAM's mission is to enhance the competitiveness of manufacturers by shaping a legislative and regulatory environment conducive to U.S. economic growth and to increase understanding among policymakers, the media and the general public about the vital role of manufacturing to America's economic future and living standards.

The U.S. manufacturing sector, which has spent the better part of two decades remaking itself into the envy of the world, now finds itself in a slow recovery from the recent economic downturn. Cost pressures outside manufacturers' direct control have conspired to threaten U.S. manufacturing leadership. This proposed OSHA rule is the type of regulation that is featured in *How Structural Costs Imposed on U.S. Manufacturers Harm Workers and Threaten Competitiveness*, a report authored by economist Jeremy A. Leonard. One of the report's main findings is that while the current global environment poses many challenges to manufacturers, it is the domestically imposed costs — by omission or commission of federal, state and local governments — that are damaging U.S. manufacturing competitiveness more than any foreign company. These costs add at least 22.4 percent to U.S. manufacturers' unit labor costs relative to our major foreign competitors. The report, to the extent that data permit, identifies one of the most critical obstacles: escalating compliance costs for regulatory mandates, particularly those related to workplace safety, pollution abatement and corporate governance. We have included a copy of this report and request it be added to the public record.

The Commerce Department's report, [Manufacturing in America: A Comprehensive Strategy to Address the Challenges to U.S. Manufacturers](#), recommends that the federal government must "Reduce the Costs of Regulation and Legislation." The report observes that the cost of regulation on the U.S. economy has been the subject of ongoing reviews since the late 1970s. OMB reviews of proposed regulations and statutes such as the Paperwork Reduction Act have contributed to that effort. Nonetheless, the overall cost of regulatory

***Manufacturing Makes America Strong***

compliance has risen significantly over time. We hope that the Department of Labor (DOL) and OSHA will work with other agencies to heed the report's advice and *Conduct a Regulatory Impact Analysis of New Rules*. OMB should rigorously apply its recently developed guidance on regulatory impact analysis to any proposed rules that would influence the costs imposed on the manufacturing sector, particularly as they affect small and medium-sized businesses. As a part of this effort, the newly established assistant secretary for manufacturing and services should task the new Office of Industry Analysis to work with OMB and other agencies to refine the analytical tools needed to assess the impact of proposed rules and regulations on economic growth and job creation in the manufacturing sector.

The NAM believes, along with this Administration, that reducing overly burdensome and excessive costs which erode competitiveness is a gigantic step towards helping manufacturers create rewarding jobs in America. Manufacturers want to work with government to reduce those costs and create an economic environment that enhances their ability to compete effectively in a global marketplace.

#### *Health Effects and Risk Assessments*

The NAM and its members are committed to protecting the health and safety of our employees, and many NAM members work safely with hexavalent chromium and have very few, if any, of the major health effects associated with exposure to hexavalent. We do acknowledge that hexavalent chromium is a carcinogen and at very high levels of exposure has detrimental health effects. OSHA is relying on 30- to 50-year-old exposure profiles and outdated cancer case estimates that are not reflective of today's modern workplace conditions. The proposed rule includes health effects that were demonstrated only at workplace exposures significantly higher than the existing standard of 52  $\mu\text{g}/\text{m}^3$  to significantly lower the PEL. OSHA also assumes that health effects will occur at 1  $\mu\text{g}/\text{m}^3$  in direct proportion with those found previously to occur at greater than 52  $\mu\text{g}/\text{m}^3$ . Credible health experts assessing the same data as OSHA have concluded that 23  $\mu\text{g}/\text{m}^3$  is a protective workplace standard. (See comments submitted by the Office of Advocacy, U.S. Small Business Administration.)

OSHA primarily uses data from the Luippold cohort study, gathered from Painesville, Ohio and the Gibb cohort study in Baltimore, MD. The Gibb cohort results were based on workers employed between 1950 and 1974. The Luippold cohort study was based on workers employed between 1940 and 1972. While there is some minor value in these studies, they are based on worker populations that had much higher exposure levels than today's workers and on processing forms of calcium chromate no longer used in today's facilities. The hexavalent chromium exposure levels differ substantially. As a result, it is very likely that the risk of cancer would be much greater among the Gibb and Luippold populations than today's modern-day manufacturing workforce. We have serious concerns that the predictive value of these studies is not as precise as OSHA presents, and we encourage OSHA to look at the differences in exposure levels between the studies' population and present-day manufacturing.

We believe even OSHA has questions about the relationship of hexavalent chromium and lung cancer along with other adverse health effects in workers that do not have heavy exposure limits. These issues have not been adequately identified and quantified. OSHA relies heavily on only two outdated studies of chrome production workers to estimate the lung cancer risk to all workers exposed to hexavalent chromium. The preliminary quantitative risk assessment conducted by OSHA relies on these two studies and OSHA extrapolates exposure assumptions from these studies. In fact, OSHA finds, "...this assumed equivalency to represent an uncertainty in the risk...", but they do not fully discount the data or provide a complete explanation on the adequacy or the predictive value of the data.

For example, the available studies cited in the proposed rule do not adequately or fully account for other causes of lung cancer in welders, such as asbestos or the synergistic effect of tobacco smoke including second-hand tobacco smoke. The International Institute of Welding (IIW), an international group of medical and scientific experts, believes that exposures to asbestos and tobacco smoke appear to be the main causes of lung cancer among welders, not exposures to hexavalent chromium or other chemicals in the welding process. The effects of smoking and exposure to other carcinogens must be considered and quantified in order to present true lung cancer risks.

*OSHA Needs To Re-examine is the Interaction Between Smoking and Hexavalent Chromium.*

OSHA discusses the confounding effect of smoking as well as the combined effects of smoking and hexavalent chromium exposure on the two studied populations. OSHA also indicates that the combination of smoking and hexavalent chromium exposure have a multiplicative relationship. But the data clearly states that OSHA's standardized mortality ratios (SMRs) were not adjusted for smoking. "Of the 122 lung cancer cases, 116 were smokers and four were nonsmokers at the time of hire. Smoking status was unknown for two lung cancer cases. SMR's were not adjusted for smoking." (See, e.g., 69 Fed. Reg. 5932). Since there is a lack of data on the interactive effects of smoking and hexavalent chromium, we are especially concerned that the calculated cancer risk is improperly increased.

*Questions Regarding OSHA's Use of the Linear Relative Risk Model.*

To predict cancer risk from exposure to hexavalent chromium, OSHA uses a linear relative risk model. In its explanation for use of this model, OSHA stated that this model is an accepted and extensively used approach for assessing carcinogen risk. Industry recognizes that the linear relative risk model is sometimes an acceptable approach. However, we also believe that there are concerns surrounding use of this model to determine cancer risk at the OSHA recommended PEL. This is because there is some evidence that suggests a linear risk model may greatly overpredict lung cancer risk at low exposure levels and that it improperly discounts the potential existence of a threshold effect. As stated earlier in our comments, manufacturers have seen very few, if any, of the major health effects associated with exposure to hexavalent chromium at levels below the current PEL, but much higher than the new proposed OSHA PEL. Given these uncertainties, we question whether OSHA has established that there is significant risk of lung cancer due to exposure to hexavalent chromium at or above the PEL OSHA proposes. OSHA should more fully address the concerns raised regarding the problems associated with use of the linear relative risk model.

*No Major Industrialized Nation Has an Occupational Exposure Limit as Stringent as OSHA's Proposed Standard of 1 µg/m<sup>3</sup>.*

Most major U.S. trading partners have set an exposure limit of 50 µg/m<sup>3</sup>, including Japan, Argentina, Singapore, Korea, India and South Africa. European Union member states such as Germany, France, the United Kingdom and Finland have set limits at 50 µg/m<sup>3</sup>. Sweden has a limit of 20 µg/m<sup>3</sup>. OSHA proposal would impose the additional regulatory costs and burdens and would put U.S. companies and their workers at a severe competitive disadvantage in global markets.

*OSHA's Proposed Rule Will Have a Significantly Broader and Deeper Impact on U.S. Manufacturing than OSHA Considered.*

Lowering the current standard to the level OSHA has proposed will impact a wide range of industrial operations and major manufacturing supply chains (e.g., steel, aerospace/defense, automotive, industrial/medical equipment, shipbuilding and welding), some of which are not even included in OSHA's analysis. These operations are not traditionally viewed as chromium-based processes and involve relatively small amounts of chromium.

Specifically, these operations would incur large costs for engineering controls and implementation of the standard's new requirements, with few, if any, additional health benefits. For example, the impact of the proposed rule on chromate conversion coatings in zinc and cadmium plating, chromate conversion on aluminum, plating on plastics, passivation and welding activities at metal finishing operations in small family-owned jobs shops as well as larger, integrated or "captive" facilities should be appropriately identified and evaluated by OSHA.

There are other industries that do use chromium extensively (e.g., chrome plating, welding, aerospace, shipbuilding and stainless steel); this exceedingly low standard will unnecessarily bring under regulation large numbers of employees who are not directly involved in chromium operations (supervisors, maintenance and shipping personnel, etc.). OSHA has failed to consider the expansive coverage of the proposed rule and the broad impact on a large number of industrial applications within the metal finishing industry itself and in key manufacturing supply chains.

*State-of-the-Art Engineering Controls Cannot Ensure Compliance for Manufacturers that work with Hexavalent Chromium in Large or Small Quantities.*

Manufacturers that handle significant amounts of hexavalent chromium generally have engineering controls and workplace practices in place to reduce the occupational exposure levels to protect their employees. The proposed workplace exposure level of  $1 \mu\text{g}/\text{m}^3$  and action level of  $0.5 \mu\text{g}/\text{m}^3$  are so low that even these facilities with the most advanced engineering controls cannot ensure consistent compliance with the new standard. We have heard from large manufacturing companies that have invested hundreds of thousands of dollars on engineering controls that cannot operate at the levels OSHA is requesting in this rule. For manufacturers small, medium and large, the proposed workplace PEL is not technically feasible. For manufactures that handle smaller amounts of hexavalent chromium and/or have smaller facilities, their options are not only technically infeasible, but economically infeasible.

*Additional Compliance Methods Are Impractical.*

OSHA suggests that one method of compliance in the technology arena is to reduce welding fume generation by the use of “pulsed arc” welding versus conventional, short arc welding processes. This suggestion is impractical due to the limited application on all welding tasks (e.g., varying types and content of base metals) and the extensive costs associated with updating and buying new equipment, retraining and recertification of welders, changing welding methods including the downtime to revert to new processes and procedures, and other costs associated with evaluating, implementing and assessing new welding tasks and processes. OSHA does not provide any reasonable cost estimates associated with this infeasible suggestion.

The general idea of “substitution” as a means of compliance is, for the most part, infeasible for most welding operations. OSHA appears to agree with this, because in the preamble of the proposed standard, they anticipate little decline in exposures “...due to the low potential for substitution in the immediate future.” Anticipating the numerous types of welding processes, base metals, welding rods, etc., required for the numerous types of welding jobs and tasks make substitution difficult, if not impossible. In this type of work, substitution of the product is not an option, as it is often specified by the customer and dictated by weld quality control requirements.

Another compliance method suggested by OSHA is “ventilation” including ducted general ventilation, and point-of-operation ventilation using flexible ducts and hoses, or welding fume extractor guns. Most welding operations in the sheet metal or other welding industries already utilize ventilation as an engineering control that provides more than adequate worker protection. These fabrication shops typically use general ventilation for the entire shop and flex-hose, point-of-operation ventilation in the welding area. While all ventilation methods have value, the applications suggested by OSHA for a specific task are often very difficult to administer.

*OSHA Has Substantially Underestimated the Costs Required To Comply with the Proposed Standard.*

Without sufficient foundation, OSHA asserts that to meet the proposed PEL of  $1 \mu\text{g}/\text{m}^3$  and action level of  $0.5 \mu\text{g}/\text{m}^3$  manufacturers will simply need to “tweak” existing controls or could achieve the new limit with minimal additional costs. To illustrate, OSHA estimates the new limit will cost small metal finishing operations only \$14,000 annually to meet the proposed level. Preliminary engineering studies estimate that annual costs of implementation are at least an order of magnitude higher than this level, and as high as \$300,000 annually.

Furthermore, OSHA does not acknowledge cost impacts to operations associated with air permit modifications, increased energy costs, higher insurance premiums, and the loss of productivity associated with this unprecedented requirement. These costs amount to over 20 percent of annual sales for small family-owned metal finishing firms, many of which would be unable to absorb such costs and would likely be forced to close under the proposed PEL. Under SBREFA, OSHA is required to examine the impacts of the regulation on small business and to promulgate a rule that is protective for workers and minimizes the impact on small business. However, OSHA has essentially ignored the information on compliance cost impacts submitted to the SBA during the SBREFA review process.

The welding industry also did a preliminary review of the estimated costs associated with compliance and it

indicates that OSHA has again underestimated the “hard costs” items such as personal protective equipment (PPE) including respiratory protective equipment, and did not fully account for other “soft costs” such as lost productivity. Small and medium manufacturers have much at stake with this proposed standard and the costs related to financial issues such as lost productivity and implementing new technology often have a harsh effect on these companies due to limited profit margins and excessive costs to borrow money for required improvements.

Another example of OSHA’s miscalculation of the costs is the line-item costs, and therefore total costs, associated with respirator use. OSHA admits that most industries would very likely be forced to provide respirators to workers (at a minimum) in order to meet the aggressive permissible exposure limit (PEL) of  $1 \mu\text{g}/\text{m}^3$ . OSHA provides and formulates costs based on workers using a “typical” half-face respirator (MSA Comfo Classic) or full face respirator (MSA Ultra Twin) with appropriate replacement cartridges when exposure levels are over the PEL. Although these types of respirators are applicable in some affected industries, they are not approved or feasible for use with a standard welder’s helmet. These specialized, “tools of the trade” welder respirators are considerably more expensive to purchase and maintain than the more common types available. OSHA does not provide any costs for these more expensive types of welder’s helmet respirators, which would be the only suitable respirators available for welders.

*Economic Impact of Proposed Rule Will Be Severe, Including Facility Closures, Job Losses and Supply-Chain Disruptions.*

OSHA has concluded that the proposed standard would have no significant economic impact on the affected industry sectors. We strongly disagree with this conclusion. For example, in a recent EPA regulatory action with potential effects on the metal finishing industry, the EPA estimated that annual compliance costs of approximately \$80,000 would close 55 percent of the industry. This rule may cost \$300,000 per facility per year, yielding even more severe impacts than the EPA predicted.

U.S. manufacturers are challenged as never before. They are on the front lines of an intense global marketplace where it is virtually impossible to raise prices. Yet, costs do rise, often because of what government does or does not do.

Intense global competition and continuing downward pressure on prices for domestic manufactured goods suggest that the most effected operations (such as metal finishing operations) affected by the rule will be unable to absorb or pass through these costs to survive in today’s markets. This severe economic impact would be devastating not only to America’s most-affected industries, but also to the key industry sectors that these operations serve, such as automotive, aerospace and defense, medical and industrial equipment, hardware and others.

*OSHA’s Estimate of Health Benefits from the Rule Are Vastly Exaggerated.*

OSHA asserts the proposed rule has benefits exceeding its costs, yet relies on flawed methodologies and inaccurate data to draw this conclusion. For example, OSHA estimates that the benefits associated with the PEL option of  $1 \mu\text{g}/\text{m}^3$  could range anywhere from \$25 million to \$700 million annually, an astonishingly wide range reflecting considerable uncertainty and speculation with respect to health protection. To demonstrate that the rule has positive net benefits, OSHA inappropriately selects the midpoint of this overly broad and uncertain range and compares it with an unreasonably low compliance cost estimate, which we have already highlighted above. This exercise yields an artificially high “net benefit” from the rule.

*Economic and Regulatory Flexibility Analysis*

The NAM is concerned that OSHA has underestimated the costs of controls and recordkeeping related to the proposed rule. OSHA has also not addressed the problem of business failures and businesses which will discontinue working with substances containing hexavalent chromium. OSHA does acknowledge that some businesses will no longer do this work, but they give no indication if that work will be replaced or what the economic impact will be.

OSHA has clearly underestimated the costs of hygiene requirements that the rule proposes. For example, there is no estimation of costs associated with handling wastewater, either by commercial laundries which

launder hexavalent chromium-contaminated clothing, or by facilities that currently have or will need to construct their own washing and shower facilities.

There is no cost estimate associated with training of internal or commercial laundry employees. Laundry employees unfamiliar with the health effects and proper handling of hexavalent chromium will need training, even if their exposure is limited.

OSHA's figures for the cost of construction and maintenance of changing rooms and washing facilities are too low. The Small Business Administration's SBREFA Panel members discussed this, but OSHA has not yet adjusted its figures.

OSHA has also underestimated the time required for changing, hand washing and showering. The agency's estimates appear to be based on multiplying the number of affected employees by OSHA's estimates of the time required for each of those tasks. That assumes, however, that all employees can wash, change or shower simultaneously. More likely, there will be waiting time. Facilities could conceivably schedule break times and stagger the ends of shifts to avoid long waiting periods, but this may have an impact on productivity. These are basic production questions that OSHA has failed to address.

The NAM is also concerned that OSHA has not limited its requirement for regulated areas to industries and processes in which regulated areas would likely reduce exposures. In some industries, as pointed out by the SBA, the requirement of regulated areas will have the effect of requiring respirators or other controls for more employees than necessary.

We also are concerned that OSHA has failed to evaluate the impact of this rule on many additional industry operations that will be substantially affected by the proposed PEL. For example, zinc plating operations have a hexavalent chromate conversion bath process as a final step to provide additional corrosion protection. The amount of hexavalent chromium involved is very low and until now these operations have not been affected by OSHA's PEL for hexavalent chromium or the EPA's Chrome Maximum Achievable Control Technology air emissions standard. However, as proposed the PEL will cause manufacturers with these operations to incur all costs associated with implementation of controls required by both standards. The NAM is obviously concerned that other industries and operations are similarly situated and OSHA has failed to evaluate the compliance costs and economic impact that the proposed PEL will have on similar manufacturing industries.

### ***Conclusion***

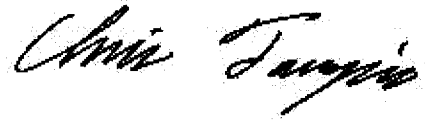
The NAM thanks OSHA for seeking public input on this very important issue. It is encouraging that the agency is questioning the proposed rule and will hopefully make substantial changes.

The NAM believes that OSHA has lowered the PEL to an infeasible and incorrectly justified level of 1 microgram of hexavalent chromium. A more reasonable level must be considered that is safe for employees and feasible for manufacturers to work with.

OSHA should continue to study the effect of hexavalent chromium exposures at lower levels and we urge OSHA to reconsider its estimates of costs and impacts on manufacturers consistent with the comments it receives and new information as it becomes available.

The NAM appreciates this opportunity to comment on the proposed standard.

Sincerely,

A handwritten signature in black ink, reading "Chris Tampo". The signature is written in a cursive style with a large, sweeping "C" and "T".

Chris Tampo  
Director of Employment Policy  
Human Resources Policy

