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October 9, 2015

OSHA Docket Office
Room N-2625
Occupational Safety and Health Administration
U.S. Department of Labor
200 Constitution Avenue, NW
Washington, DC 20210

RE: Docket Number OSHA-2012-0023: Chemical Management and Permissible Exposure Limits (PELs)

Dear Dr. David Michaels,

I am writing to you on behalf of the North America's Building Trades Unions (NABTU), AFL-CIO, our fourteen affiliated international unions and the millions of workers they represent.

We understand the challenges faced by the agency in updating requirements to control chemical exposures and are pleased to submit the attached comments. Construction workers are at risk for occupational disease, and almost all of the current rules are woefully out of date. We urge OSHA to consider the attached recommendations and develop a plan to protect construction workers as soon as possible.

Thank you for the opportunity to submit these comments. If you have any questions, please do not hesitate to contact me.

Sincerely,

Pete Stafford
Director of Safety and Health

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BCTD COMMENTS ON THE OSHA RFI ON CONTROL OF CHEMICAL EXPOSURES

Chemical hazards in Construction

While construction companies and workers tend to focus most of their safety efforts on preventing injuries and fatalities, illnesses from chemical exposures are likely much more common. About 800 construction workers die each year from on the job injuries, while deaths among construction workers from asbestos exposure alone are much higher than that. A recent paper from The Netherlands describes the range of occupational health hazards that construction workers are exposed to (van Thienen and Spee, 2008). A few of the most common and most toxic exposures have been regulated (lead, asbestos, and soon silica), but many more remain unregulated or under-regulated. With more chemicals being used in construction, such as the advent of construction materials with nano particles, a more comprehensive approach is needed.

Single Substance Rulemaking

It is obvious to all that the single substance approach will never be able to address the vast majority of chemical hazards in the workplace today, let alone in the future. Because of the enormous regulatory difficulties in promulgating single substance PELs, this approach should be reserved for the highest priority chemicals. Priorities should be set based on the toxicity of the chemical (and inadequacy of the current PEL, if one exists), the amount of use, and the estimated amount of worker exposure. Toxicity should be judged not just on inhaled concentrations, but also on other factors such dermal absorption as an example. For highly toxic chemicals, the toxicity of substitutes should also be considered and it may be necessary to regulate them simultaneously.

The chemicals that have been regulated more strictly by various state plans with differing limits (e.g. California) should be considered in setting priorities as they have already undergone reviews of their toxicity by the State rulemaking process. The Advisory Committee approach used in California for the setting of exposure limits seems to be a successful model that OSHA should look at for expediting rulemaking. OSHA has already had some successes with "negotiated rulemaking committees" and standing advisory committees for construction, etc. A standing advisory committee to help OSHA prioritize chemical hazard rulemaking with representatives from the scientific community (e.g. toxicologists, epidemiologists), labor and industry, as well as government (NIOSH, ATSDR, EPA) might serve a useful function. OSHA also held a prioritization effort in the 1990s and the results of that effort should not go to waste.

Limitations of PELs in Construction

Just setting new PELs is an inadequate approach, particularly in construction. The PEL is based on an 8 hour TWA and risk assessment/epidemiological studies are normally based on cumulative exposure. There is evidence though that in some cases peak exposures may be a greater risk (e.g. there may be "dose-rate" effects). A TWA exposure limit alone is problematic

in construction because exposures can vary significantly. OSHA has difficulty enforcing PELs in construction since the day they show up the operation may not be occurring or the weather conditions may have changed. Most OSHA health inspections in construction—which account for about 5% of all construction inspections—are related to the few chemicals that have comprehensive health standards (e.g. lead and asbestos) where ancillary provisions can be enforced in addition to a PEL.

Mixed Exposures

The mixed exposures in construction call for a different approach of controlling health hazards. The recent paper by Dement, et al., documented a complicated mix of exposures in our industry. For the purposes of the study, the exposures were described as vapors, gases, dusts, and fumes (VGDF). There are many things we don't know about COPD. On the one hand, although smoking is the most significant risk factor, only about 15% of smokers develop COPD. On the other hand, many never-smokers develop COPD. Construction workers are known to experience VGDF exposures including asbestos, silica, welding/cutting, cement dusts, solvents, and spray-painting. They also experience some of the highest prevalence of COPD. We know that all of the agents in the VGDF exposure index pose significant occupational risks. To regulate each agent individually is unrealistic. In the past dust that is not specifically regulated has been called "inert" (or nuisance) dust, but the research to date suggests these terms are misleading and that all dusts are potentially harmful. We need a new approach to dusts that is generic, based on the biological response to the inhalation of particulates. This requires a better understanding of the mechanisms that lead to inflammation of the airways. Ultimately though, the take-away from this study is that occupational exposures to any airborne dust should be considered potentially hazardous and should be minimized to the extent feasible.

Task-based approaches

A much better strategy for construction is to 1) identify high exposure tasks, 2) identify effective controls and 3) require the use and maintenance of those controls. Even if the controls are not 100% effective, they will reduce peak exposures significantly (thus reducing the dose-rate effects) and thus overall/total exposure as well. The purpose of the PEL will only be to determine when or if the controls need to be supplemented by respiratory protection. If engineering controls are used to reduce high task exposures, respirators will only be needed for a small percentage of tasks and even then only when that task is being done. Controlling exposures by task also has the added benefit of reducing bystander exposure which is a common problem in construction. A purely PEL approach also ignores the potential for dermal exposure, which can be a significant source of exposure. A task-based approach can require controls for both airborne and dermal exposures.

This task-specific approach is not new to construction companies. Employers routinely evaluate the workplace for safety hazards and mitigate those hazards through the use of Job Safety Analysis (JSAs). JSAs use task-specific analysis of risks posed by a certain operations with control strategies identified. They are commonly used in construction to identify safety hazards and review with workers prior to the start of a task. Expanding it to include chemical hazards is a logical extension, and is already required on some jobs (e.g. Army Corps of Engineer jobs require an "Activity Hazard Analysis").

This approach was proposed by Doug McVittie of the Construction Safety Association of Ontario (CSAO) in 1986 as "control-by-procedure." It was also the basis of the OSHA asbestos standard in the late 1980s, where four different classifications of work were delineated (e.g. abatement of asbestos, maintenance work, etc.) and specific work procedures/controls were required for each. The OSHA Lead standard later adopted a similar approach for construction. OSHA's proposed rule for silica also takes a task-based approach (e.g. Table 1).

European Approaches

Task-based approaches are similar to control banding. There are several control banding approaches that have been developed. The British CCOSH Essentials has a long track record and is worth considering. In 2002, the British Health and Safety Executive (HSE) published a regulation entitled Control of Substances Hazardous to Health (COSHH). It requires a control banding approach to chemical hazards whereby employers must review the Safety Data Sheets for chemicals they are using, identify how those substances will be used and the potential for exposures and the risk, and identify control measures to reduce exposures (based on the hierarchy of control). They must also ensure the competence of anyone assigned to design, install, maintain and test the controls. Workers must be involved in designing controls and must be properly trained in their use, as well as in the hazards of the chemicals.

The European Union published a regulation for the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) in 2007. It requires chemical manufacturers to do risk assessments of their chemicals. Generic exposure assessments have been developed using REACH for classes of chemicals like solvents (Money, et. al. 2011)

In the Netherlands there is a chemical hazard and control database called Stoffenmanager that has been developed specifically for the construction industry. In a recent review paper, researchers tested the Stoffenmanager approach in a variety of industries in Sweden and found that although there was a high variability between users, the model performed well is assessing risk.

Task-Based Control Banding

Sheet metal workers do a lot of welding. Welding is a complex task where exposures can vary based on the type of welding, welding rod used, base metal, and several other variables. The Sheet Metal Workers Union National Training Fund has recently developed a "Welding Health Hazards and Control Measures Assessment" tool as a smart phone app which walks a worker or employer through the task variables and provides recommendations for controls based on expected exposure levels.

ANSI A10.49

The newest approach is embodied in the recently approved ANSI A10.49 standard for the Control of Chemical Hazards in Construction. It requires contractors to look at the toxicity of the chemicals they are using (based on the SDS GHS ratings) and the exposure potential from how they are being used (based on several tables that identify key exposure factors) to determine if and what type of chemical hazard exposure control plan is needed. Low hazard/low toxicity chemicals can be handled with simple precautions (e.g. follow the label). But more toxic and higher exposure chemicals require increasingly sophisticated exposure control plans. Simple plans can be written by the contractor, intermediate plans by a "chemical hazard competent person" and advanced plans by a "qualified person" such as a Certified Industrial Hygienist. A similar scheme and process is in the standard for chemicals found on the job, e.g. chemicals identified in the process of renovation or demolition work that were not brought on the job by the contractor, but the initial assessment process is more difficult (as no SDS exists). After a long development process, the final standard received overwhelming support from both labor and contractors. This standard received final approval by the ANSI Board in April 2015 and is now available from ASSE.

Summary

OSHA should focus future single substance rulemaking for chemical hazards on a small set of high priority chemicals that are highly toxic and present a high risk to workers. Those standards should focus on a task-based approach. All other exposures should be limited by development of a chemical hazard risk assessment and control process similar to A10.49, and control banding approaches that require contractors to identify the hazards and potential for exposures and develop task specific control plans and strategies, just as they now develop JSAs. This is the only logical approach to reducing the huge burden of occupational diseases among construction workers.

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