

Miller, Diane M. (CDC/NIOSH/EID)

From: James Melius [melius@nysliuna.org]
Sent: Tuesday, February 15, 2011 3:44 PM
To: NIOSH Docket Office (CDC)
Subject: Nanotube CIB
Attachments: REVIEW OF NIOSH DRAFT CIB.docx

REVIEW OF NIOSH DRAFT CIB

OCCUPATIONAL EXPOSURE TO CARBON NANOTUBES AND NANOFIBERS

NIOSH DOCKET 161-A

SUBMITTED BY

JAMES MELIUS MD DRPH

ADMINISTRATOR, NYS LABORERS HEALTH AND SAFETY TRUST FUND

February 15, 2011

This draft CIB is a scientifically sound review of the current scientific literature on the potential occupational health hazards from exposures to carbon nanotubes and nanofibers. Consistent with previous NIOSH CIB's and similar documents, the document builds on a strong scientific base to make sound recommendations on evaluating and controlling exposures to these materials and on other aspects of an occupational health program.

Although the currently available scientific studies of carbon nanotubes and nanofibers are limited in both number and scope, the findings of these studies (especially regarding the development of pulmonary fibrosis and mesothelioma in exposed animals) are alarming enough to warrant the recommendations included in the document. I found that the risk assessment included in this document was scientifically sound and was based on an appropriate interpretation and application of the available data. Although I support NIOSH's use of the limit of quantitation of NIOSH Method of 5040 as the exposure metric for this risk assessment, that approach and the use of a mass based exposure metric are not ideal. Hopefully, ongoing research will soon help to address this limitation. I would note that similar uses of the LOQ have proved useful for other toxic exposures including asbestos and PCB's pending the development of other approaches.

Although I support NIOSH's general recommendations in the draft CIB, I have a number of suggested improvements:

1. The document should clarify that these recommendations not only apply to production of these materials but also to employers utilizing these products. In the past, people working in industries where these products were used often suffered the highest exposures and the highest rate of adverse health effects rather than those employed in manufacturing.
2. The CIB needs to include recommendations on labeling and MSDS language for these materials. These are critical elements for making users of these products aware of the potential hazards and the need to take appropriate precautions. Both have been fundamental parts of an overall occupational health program for decades.

3. The training recommendations appear to be triggered only by medical surveillance. Employee and user training are also fundamental parts of any occupational health program, and NIOSH needs to make a stronger recommendation regarding training.
4. The medical surveillance recommendations also need to be improved. As currently written, they appear to recommend only a baseline exam and then periodically on an ad hoc basis driven mostly by the development of symptoms. While there should be appropriate room for a flexible approach based on exposure levels and other factors, NIOSH should be making recommending a more specific time period and criteria for ongoing medical surveillance. There is much uncertainty about whether the proposed REL is protective. Given the severe consequences and often rapid progression of pulmonary fibrosis, periodic screening including pulmonary function testing and chest Xrays should be provided at least every two years to workers with ongoing exposure to these materials.
5. In the section on periodic evaluation of screening data or on research needs, the document should recommend the development of a registry of exposed workers with reporting of adverse medical outcomes among these works. The growing use of these materials in the workplace and the uncertainty about the risk of adverse health effects certainly warrants the development of such a registry.