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Attention: Docket ID No. EPA–HQ–OPPT–2009–0757

Document Control Office (7407M)
Office of Pollution Prevention and Toxics (OPPT)
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460–0001

To whom it may concern:

The National Association of College and University Business Officers (NACUBO) and the undersigned organizations are pleased to submit the following comments on the Environmental Protection Agency's Advance Notice of Proposed Rulemaking (ANPRM) regarding the reassessment of PCB use authorizations, which was published in the April 7, 2010, *Federal Register* (75 FR 17645). NACUBO represents more than 2,100 public and independent colleges and universities across the country.

As set forth in greater detail below, we believe that EPA should establish a use authorization for any PCB-containing caulk that was in use in college and university buildings prior to July 2, 1979, under 40 C.F.R. §761.30 in order to address the unique characteristics of this application. The authorization should allow for the continued use of intact caulk (and any substrate material impacted thereby) for the useful life of the building. The removal of such material can be achieved only with great difficulty and at enormous expense. Moreover, the conditions for continued authorized use of this material within this sector (proposed below) would ensure that the material will not present an unreasonable risk of injury to health or the environment. EPA has the authority to create such a use authorization under 15 U.S.C. §2605(e)(2)(B).

Scope and Impact of PCB-Containing Caulk in Buildings

According to the 2003 Commercial Buildings Energy Consumption Survey,[1] forty-six percent of the commercial buildings in the United States (1,957,000 of 4,258,000 buildings), having total floor

[1] The Commercial Buildings Energy Consumption Survey (CBECS) is a national sample survey conducted by the U.S. Energy Information Administration that collects information on the stock of U.S. commercial buildings, their energy-related building characteristics, and their energy consumption and expenditures. Commercial buildings include all buildings in which at least half of the floor space is used for a purpose that is not residential, industrial, or agricultural, so they include building types that traditionally might not be considered "commercial," such as schools, correctional institutions, and buildings used for religious worship. The CBECS was first conducted in 1979; the

space of over 28 billion square feet, were constructed from 1947 to 1979 when PCBs were added to caulk, reportedly to improve its elasticity. *See* www.eia.doe.gov/emeu/cbecs.

Based on the results of an anonymous nationwide survey administered by the Campus Consortium for Environmental Excellence (C2E2), we estimate conservatively that between twenty and thirty percent of our members' buildings were constructed or renovated from 1950 through 1979. This translates to approximately 82,000 buildings, with an approximate floor space in excess of five billion square feet. Sampling data, albeit limited, indicates that roughly thirty percent of these buildings contain caulking with PCB concentrations exceeding 50 ppm. In addition, in approximately eighty percent of the buildings with confirmed PCB concentrations above 50 ppm the PCBs had migrated into the adjacent substrate. If these percentages are representative of the state of PCB containing caulk in the United States, then tens of thousands of college and university buildings, both publicly and privately owned, are likely to have caulking that contains PCBs in excess of 50 ppm. Moreover, hundreds of thousands of commercial buildings are likely to be similarly affected.

To add to the complexity of the issue, PCB concentrations in caulk used in buildings during this period of time are highly variable, ranging from non-detectable levels to tens of thousands parts per million. Additionally, as recognized by EPA in the various "fact sheets" posted at www.epa.gov/pcbsincaulk, PCBs in caulking material can migrate into adjacent substrate material, particularly into porous materials such as concrete, brick, and mortar. Under the current regulatory framework, there is no requirement to test caulk in situ for PCBs; however, if testing confirms the presence of PCBs at a concentration of ≥ 50 ppm, EPA considers the continued use of the material (and any impacted substrate material) to be unauthorized and therefore requires the immediate removal of the material, including any impacted substrate. Significantly, EPA considers any impacted substrate material to be PCB Remediation Waste, the remediation of which often requires the physical removal of all substrate material impacted above 1 ppm PCB (cf., ≥ 50 ppm PCBs for the caulk itself). *See 40 CFR §761.61*. The removal of such material is not only extremely difficult (often compromising the structural and architectural integrity of the impacted building), but, in most cases, can be achieved only at enormous expense.[2]

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eighth, and most recent survey, was conducted in 2003. CBECS is currently conducted on a quadrennial basis. The 2007 CBECS data are currently being processed. A release date has yet to be determined.

[2] Abating PCB-containing caulk is an emerging issue about which there is limited field experience. Protective measures similar to those associated with asbestos and lead paint abatement have been used to isolate work zones and to protect workers, and both physical and chemical methods have been used to remove caulk and PCB-containing residues. Depending on the adjacent substrate to which caulking was applied and the composition of the caulk, PCBs often migrate into adjacent building materials. Stone, brick, concrete, mortar and other masonry materials, as well as wood, appear to be most susceptible to such contamination. Determining if contamination has occurred (and its extent) requires destructive testing of the adjacent building materials. Field experience suggests that contamination can occur up to several inches into some substrates, making for more disruptive work, temporary relocation of building occupants, higher project abatement costs, higher restoration costs, and the potential permanent loss of or damage to historic building features.

Use Authorization versus Reconsideration of 50ppm Level for Excluded PCB Products

Through the ANPRM, EPA solicits comments on, among other issues, whether it should authorize the continued use of PCB-containing caulk under 40 CFR §761.30 or whether it should reconsider the use of the 50 ppm level for Excluded PCB Products, in particular for PCBs in caulk, under 40 CFR §761.3. For the following reasons, NACUBO believes that the creation of an authorization for the continued use of caulk in college and university buildings is the more appropriate regulatory approach.

First, as noted above, PCB concentrations in caulk are highly variable, ranging from non-detectable levels to tens of thousands parts per million. In addition, as acknowledged by EPA in the ANPRM (and as confirmed by the C2E2 survey referenced above), the use of PCBs in caulk appears to be geographically widespread, extending well beyond Regions 1 and 2 where it has thus far received the most attention. Therefore, as the scope of the problem becomes better known, the confirmed range of PCB levels in caulk may well expand. Given the known variability and the uncertainty as to possible concentration range, it is simply not practical to attempt to establish a maximum PCB concentration for reassessment of the Excluded Products definition that would provide a workable solution to the problem.

Second, a use authorization under 40 CFR §761.30 may be conditioned (as discussed below) to ensure that the continued use of the caulking material (and impacted substrate) will not present an unreasonable risk of injury to health or the environment. For example, such use in the college and university sector may be conditioned by requiring removal or encapsulation upon evidence of deterioration, or by requiring the implementation of an inspection and monitoring protocol.

In the absence of a use authorization, there is simply no efficient regulatory mechanism by which the existing use of PCB-containing caulk that was installed in buildings prior to the July 2, 1979 ban may be continued and the premature removal of such material at enormous cost and disruption to academic programs and campus operations avoided.

Reassessment of the Possible Authorization of the Use of PCB-Containing Caulking

In Sections V.J. and XIV.Z of the ANPRM, EPA requests specific comments on whether the use of PCBs in caulk should be authorized, and what data or other information is available on which to evaluate the risks and benefits of the use of PCB-containing caulk. NACUBO strongly believes that EPA should establish a continued use authorization for any PCB caulk that was in use in buildings within the college and university sector prior to July 2, 1979, under 40 C.F.R. §761.30. The authorization should allow for the continued use of intact caulk (and any substrate material impacted thereby) at any PCB concentration for the useful life of the building, subject to compliance with conditions (proposed below) that would ensure that the material will not present an unreasonable risk of injury to health or the environment.

NACUBO acknowledges that the epidemiological data on the potential health effects of PCBs, although limited, is inconsistent. We agree that EPA should carefully examine all relevant information on the potential effects associated with exposure to PCB-containing caulking. While

several studies that have focused on construction workers who had installed and/or removed PCB-containing caulk concluded that uncontrolled exposure to the material was related to elevated PCB levels in blood serum,[3] a recent study of the occupants of residential buildings that were constructed with PCB-containing caulking concluded that "[t]here were no statistically significant differences between the blood PCB levels of the inhabitants of the PCB-building and those of the control group."[4] Significantly, in the more recent of the two referenced studies on construction workers (Selden et al. 2008), the study concluded that worker protective measures, such as disposable gloves and coveralls, self-contained respirators, and hand-held cutting and grinding tools connected to portable dust extractors equipped with microfilters, effectively mitigated PCB exposure. ("Prospectively. . . no evidence of additional PCB intake was observed on a group level over 10 months of additional exposure for abatement workers [who had adopted] an efficient worker's protection programme and good personal hygiene.") The study also concluded that, using clinical standard tests, thyroid metabolism was not affected at the low levels of internal PCB load observed; nor was there evidence of PCB-associated immunosuppression in a set of cytokine analyses.[5]

In addition, at least one public health organization has directly addressed the issue of exposure and potential health impacts associated with the presence of PCB-containing caulking. In the December 2009 *Information Booklet Addressing PCB-containing Materials in the Indoor Environment of Schools and Other Public Buildings*, the Massachusetts Department of Public Health (Bureau of Environmental Health) drew the following conclusions and provided the following guidance:

> Question 5. If PCBs are present in caulking material, does that mean exposure and health impacts are likely?
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> Response. No. MDPH/BEH's review of available data suggests that if caulking is intact, no appreciable exposures to PCBs are likely and hence health effects would not be expected. MDPH has conducted indoor tests and reviewed available data generated through the efforts of many others in forming this opinion.
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> Question 11. Does MDPH recommend testing of caulking in buildings built during the 1950s - 1980?

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[3] *See* Wingfors, H., Selden, A.I., Nilsson, C., Haglund, P. Identification of Markers for PCB Exposure in Plasma from Swedish Construction Workers Removing Old Elastic Sealants. Ann. Occup. Hyg. 50(no.1):65-73 (2006); *see also* Selden, A.I, Lundholm, C., Johansson, N., Wingfors, H. Polychlorinated Biphenyls (PCB), Thyroid Hormones and Cytokines in Construction Workers Removing Old Elastic Sealants. Int. Arch. Occup. Environ. Health. 82:99-106 (2008).

[4] Priha, E., Hellman, S., Sorvari, J.: PCB Contamination from Polysulphide Sealants in Residential Areas – Exposure and Risk Assessment. Chemosphere 59:537-543 (2005).

[5] Selden, A.I, Lundholm, C., Johansson, N., Wingfors, H. Polychlorinated Biphenyls (PCB), Thyroid Hormones and Cytokines in Construction Workers Removing Old Elastic Sealants. Int. Arch. Occup. Environ. Health. 82:99-106, at 104, 105 (2008).

Response. Caulking that is intact should not be disturbed. If caulking is deteriorating or damaged, conducting air and surface wipe testing in close proximity to the deteriorating caulking will help to determine if indoor air levels of PCBs are a concern as well as determining the need for more aggressive cleaning. Results should be compared with similar testing done in an area without deteriorating caulking. In this way, a determination can be made regarding the relative contribution of caulking materials to PCBs in the general indoor environment.

Question 12. What if we determine that caulking in our building is intact and not deteriorating?

Response. Based on a review of available data collected by MDPH and others, the MDPH does not believe that intact caulking presents appreciable exposure opportunities and hence should not be disturbed for testing. As with any building, regular operations and maintenance should include a routine evaluation of the integrity of caulking material. If its condition deteriorates then the steps noted above should be followed. Consistent with EPA advice, if buildings may have materials that contain PCB's, facility operators should ensure thorough cleaning is routinely conducted.

Finally, colleges and universities with experience in managing caulk or other building materials containing PCBs have found that removal costs can be staggering, particularly when substrate materials are impacted. Expenditures for renovations involving PCB-impacted building materials typically include those associated with sampling and testing, abatement practices, replacement or repair of adjacent substrate material (e.g., concrete, brick, stone, mortar), and disposal. Costs for sampling and testing, and removal of caulk, are generally well-understood. Expenses can escalate quickly, however, due to the following factors:

- The potential for the caulk removal to expand from a discrete renovation project to an entire building once PCBs have been identified;
- Rising disposal costs for PCB bulk product waste or PCB remediation waste;
- Remediation of adjacent materials, which may involve extensive additional sampling, analysis, removal, encapsulation, monitoring, etc.

Based on preliminary data, the average cost, per linear foot, for PCB-containing caulk removal and disposal is between of $10 - $50, while the estimated fully-loaded costs, for projects involving PCB-impacted substrate may be ten times this amount, up to $480 per linear foot. Based on a number of completed remediation projects, as well as pending projects, abatement costs involving PCB-impacted substrate materials can range from $0.5 million to $6 million per building. Considering the number of all college and university buildings in the U.S. that are likely to have caulking that contains PCBs in excess of 50 ppm, this translates to a financial impact of more than ten billion dollars for our member institutions and costs for the universe of commercial buildings may be several orders of magnitude higher.[6]

[6] Not only are the costs of the actual abatement potentially astronomical, but the abatement process itself is extremely disruptive. For example, fully-populated buildings, for which swing space may be

In the absence of data that establish a clear correlation between PCB levels in caulk and an increase in risk from exposure thereto, NACUBO does not believe that it is either appropriate or reasonable for EPA to mandate the premature removal of this material from college and university buildings.

Recommended Use Conditions for PCB-Containing Caulk

As noted above, NACUBO recommends that EPA establish a continued use authorization for PCB caulk that was in use in college and university buildings prior to July 2, 1979, under 40 C.F.R. §761.30. The authorization should allow for the continued use of intact caulk (and any substrate material impacted thereby) at any PCB concentration for the useful life of the building. To ensure that the material will not present an unreasonable risk of injury to health or the environment, NACUBO proposes that EPA adopt the following use conditions:

1. Caulk installed prior to July 2, 1979, must be intact.

2. Under this authorized use, the college/university must develop and implement a Caulking Management Plan. Caulk installed from 1950 – 1979 may be tested for PCB concentration or may be assumed to contain PCBs at a concentration of greater than 50 ppm. The Management Plan should include the following best management practices as elements:

    a) Adhere to an inspection schedule to visually monitor the condition of caulk;
    b) Apply maintenance protocols to ensure that any structurally compromised caulk would be replaced, or encapsulated, as appropriate;
    c) If testing reveals the presence of PCBs in caulking or substrate materials above 50 ppm (or, alternatively, for all caulk that is assumed to contain PCBs above 50 ppm based on the time of installation), implement additional measures as described in the Caulking Management Plan to ensure that the material does not present an unreasonable risk of injury to health or the environment. Such measures may include indoor air monitoring, wipe testing, or encapsulation or removal.
    d) Manage planned disturbances of PCB-containing caulk (i.e., replacement, encapsulation) under a worker health and safety program appropriate to the work that also incorporates measures intended to prevent environmental release and/or exposure to building occupants. This kind of program emphasizes work practices and controls that reduce dust generation, precautions on dermal contact and inhalation through the use of appropriate personal protective equipment, and good site hygiene practices..

As noted above, NACUBO is not aware of any data that establish a clear correlation between PCB levels in caulk and an increase in risk from exposure thereto. We believe that the foregoing use conditions are prudent, given the current state of knowledge, and will ensure the material will not present an unreasonable risk of injury to health or the environment.

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unavailable, may have to be taken out of service during the abatement process. This will be virtually impossible for many of our member organizations. In addition, the premature removal of caulk and building substrate will necessarily supplant other environmental initiatives, such as those to enhance energy efficiency or to reduce the production of greenhouse gases.

Other Non-Liquid Materials

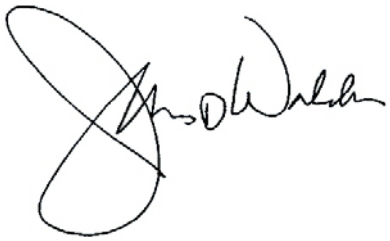
Although this letter focuses on a potential use authorization for PCB-containing caulk, our member institutions have also reported finding PCBs in adhesives, mastics, and glazing compounds. Removal and remediation of these materials can be extremely difficult, and sometimes risks the buildings' structural integrity. As with PCB-containing caulk, regulatory options are limited. This often results in outcomes that are enormously expensive and inconsistent with currently authorized uses. We encourage EPA to be flexible in allowing remediation alternatives for affected substrate. EPA should gather more data on the prevalence of and potential risks associated with these other materials. Following its evaluation, EPA should create a use authorization that, to the extent appropriate, is analogous to the one that we propose for PCB-containing caulk.

Conclusion

NACUBO strongly recommends that EPA establish a continued use authorization for PCB caulk that was in use in college and university buildings prior to July 2, 1979, under 40 C.F.R. §761.30. The authorization should allow for the continued use of intact caulk and any impacted substrate material, regardless of the PCB concentration, for the useful life of the building. We believe that the premature removal of such caulking (and any adjacent substrate material into which PCBs have migrated) will impose an enormous financial burden on the college and university sector without a correlative benefit to public health. In addition, the conditions for continued use of this material within this sector pursuant to such authorization as proposed above would ensure that the material will not present an unreasonable risk of injury to health or the environment.

We very much appreciate this opportunity to express our views on this topic of significant import to our member institutions throughout the country. We would welcome an opportunity for collaborative research and to participate in the process of developing guidance, interim measures and regulatory alternatives to address the concerns we discuss here.

Sincerely,



John Walda
President and CEO

The associations listed below join NACUBO in these comments:

American Association of State Colleges and Universities
American Council on Education

APPA: Leadership in Educational Facilities
Campus Consortium for Environmental Excellence
Campus Safety Health and Environmental Management Association