

INDOOR AIR QUALITY ISSUES

- I. The Anderson Lab draft proposal of modifications to the existing ASTM E 98-84 Test method for Estimating Sensory Irritancy of Airborne Chemicals which was first introduced in 1991 has yet to be adopted. At the most recent ASTM D 2205 Subcommittee meeting on IAQ held in Albuquerque, New Mexico October 27, 1993, it was disclosed that a new draft version from Anderson Lab is awaiting results of ongoing research and interlaboratory studies (Borden Chemical has representation on the D2205 Subcommittee and will continue to monitor these activities).

You may recall that in the fall of 1992, the Anderson Labs disclosed the finding of massive nine (9) fatalities after being exposed to emissions from carpet samples. Notwithstanding the ambiguities in the Anderson Lab results (use of carpet samples of unknown history, cleaning material used, etc. and that newly-purchased samples did not result in mice fatalities, etc.) The Anderson results received frenzied media coverage on CBS as well as a hurried Senate hearing on October 1, 1992 to examine new research on potential risks posed by carpet emissions. The suspected culprit was 4 PCH (4 phenyl cyclohexene) used in the carpet backing.

It is interesting to note that the EPA has been unable to replicate through their testing (3/93) the Anderson Lab findings. The EPA convened an open meeting of scientists including 4 independent scientific peer reviewers to help the agency gain a better understanding of existing and new data that pertain to the use of a lab procedure for testing the effects of carpet emissions on laboratory mice. The heat associated with this issue has somewhat receded at this time, but stay tuned.

At the most recent ASTM D2205 meeting, the Chairman of the IAQ Subcommittee, Hal Laver introduced a "Draft Practice for Screening and Selecting Building Materials and Products Based on VOCs". The purpose is to obtain data that will assist design professionals, facility managers and consumers in making determinations based on comparison of relative material/product emissions. The test results will be useful to determine the identification and magnitude of emissions of VOCs. Head space analysis followed by dynamic environmental chamber tests (to obtain rate of decay data) will be the procedures employed. (Next ASTM meeting, April 12-13 in Montreal, Canada).

An increasing number of papers have issued over the last several years which attempted to quantify VOC emissions and decay rate data from a large number of commercial products.

This is a developing issue - no standardized methodology exists as to sampling procedures, effect of aging/treatment of

the material, the quality of data obtained by state head space analysis, environmental test chamber conditions, air flow, humidity, temp controls, the quality of GC/Mass spec analytical test procedures, etc. All of this is literally in its infancy. Hence, the importance of finalized ASTM-approved procedures.

- II. EPA Activities - EPA's office of Pollution Prevention and Toxics has begun a multi-year effort to identify and characterize the sources of Indoor Air Contaminants. The program will examine building materials, consumer products, furnishings etc. and will characterize these emissions by product classes. EPA held IAQ workshops in March and September 1993 to discuss possible areas of concern requiring additional research in source control and reduction of indoor air pollutants. Vinyl and fabric wall covering, interior panels and ceiling tile were among the building materials selected for future study.

In October 1992, the EPA inaugurated a new hotline to provide info to individuals with questions concerning IAQ via an IAQ Information Clearinghouse. I contacted the Info Clearing House on October 29, 1993 and have received sparse information e.g. papers on high levels of TXI B emissions from vinyl flooring, measurements of 32 VOC from 31 building materials. Vinyl acetate emissions from "hardback" carpets etc and 2 papers issued by the EPA in 1988 on Indoor Air Quality in public buildings (4 and 6 respectively). Large number of aromatic, aliphatic HC and chlorinated HCs identified with materials emitting these chemicals as the highest rates were surface coatings such as adhesives, caulking and paints, floor covering (carpet, moldings, linoleum tile) wall covering, etc.

- III. Federal Legislative Activities - The Senate on October 29, 1993, passed S 656 (the so-called Mitchell bill) unanimously. This version is similar to that passed by the Senate in November 1991. S 656 would require the EPA to research the causes and sources of indoor air contamination and identify ways to improve indoor air quality (development of a materials response plan to reduce indoor air pollution. It also requires EPA to develop health advisories (within 18 months of the enactment) based on peer-reviewed scientific data on individual contaminants. Such advisories must cover at a minimum, benzene, biological contaminants, carbon monoxide, formaldehyde, lead, methylene chloride, nitrogen oxide, particulate matter, asbestos, polycyclic aromatic hydrocarbons and radon.

Further, the advisory materials shall at a minimum describe -

- The physical, chemical, biological and radiological properties of the contaminants.

- The adverse human health effects of the contaminants in various indoor environments and in various concentrations.
- The extent to which the contaminant or a mixture of contaminants is associated with emissions from a particular material.

It also authorizes NIOSH (National Institute for Occupational Safety and Health) in consultation with EPA to implement a building assessment demonstration program to support the developments of methods, techniques and protocol for the assessment of indoor air quality in non-residential, non-industrial buildings and to provide assistance and guidance to building owners and occupants on measures to improve air quality.

House of Representatives legislation HR 2919 was introduced by Rep. J. Kennedy on August 6, 1993 with hearings held by the Health and Environmental Subcommittee of the House Energy, and Commerce Committee on November 1, 1993. The House version would authorize EPA to establish a National Public Awareness Campaign, which would increase public awareness concerning the health risks of indoor air pollutants. The legislation would also direct the EPA to publish guidelines for identifying, eliminating and preventing indoor air hazards.

Activities on the State Legislative level are also accelerating with a number of IAW bills introduced in May, MI, NY, TX, MO and WA legislatures.

- IV. AIA Issues - The American Institute of Architects issued an advisory on March 4, 1993 termed "Low Toxic Building Material". This encompassed numerous categories such as insulation, flooring, sealants, plumbing, siding, windows, interior walls, cabinetry, etc. Vinyl was classified "generally highly toxic" throughout the various categories.

On October 1993 the AIA Environmental Resource Guide critiqued vinyl products per LCA indicating that further studies are underway to identify and quantify the energy and wastes associated with vinyl flooring. Results of this study will be added to this report when they become available.

Franklin Associates was contacted in the summer of 1993 to prepare an "LCA" document on vinyl construction products for submission to the AIA Environmental Resource Guide. F. Krause following this issue.