



June 5, 2000

**VIA FACSIMILE (919-541-0144) and U.S. MAIL DELIVERY**

Dr. C. W. Jameson  
National Toxicology Program  
Report on Carcinogens  
MD EC-14, P.O. Box 12233  
Research Triangle Park, NC 27709

**Re: Call for Public Comments on Substances, Mixtures and Exposure  
Circumstances Proposed for Listing in the Report on Carcinogens, Tenth  
Edition, 65 Fed. Reg. 17889 (April 5, 2000)**

Dear Dr. Jameson:

The following comments are submitted on behalf of the members of the Inter-industry Wood Dust Coordinating Committee (IWDC), in response to the National Toxicology Program's (NTP) announcement of its intent to review additional agents, substances, mixtures and exposure circumstances for possible listing in the Report on Carcinogens (RoC), Tenth Edition. The IWDC comprises more than twenty trade associations having an interest in wood dust health issues. Member associations represent the full spectrum of the wood and wood products industry. The IWDC's comments are directed to the proposed listing of wood dust in the Tenth RoC. For the reasons discussed below and in the attached Comments of Dr. William J. Blot, we submit that the evidence does not support listing of wood dust in the RoC.

It appears from the Federal Register notice that the nomination, put forward by the Occupational Safety and Health Administration (OSHA), is based on the 1995 designation of

wood dust as carcinogenic to humans by the International Agency for Research on Cancer (IARC). 65 Fed. Reg. at 17891. As noted in the attached comments of Dr. William J. Blot (Blot Comments), the IARC classification rested on studies that showed excesses of nasal adenocarcinoma, a rare form of cancer, among woodworkers and furniture makers. Two years after the IARC report, Dr. Blot reviewed the epidemiologic evidence on nasal cancer among wood dust-exposed populations in the U.S. and Europe. The review, which was published in the *Journal of Occupational and Environmental Medicine* (JOEM, citation provided in attachment), examined the studies relied upon by IARC as well as more recent work reported in the literature. Blot et al. found a striking difference between the European and U.S. studies. Unlike the marked excess of nasal adenocarcinoma observed in woodworkers in the European studies, cohort studies of U.S. wood dust-exposed groups do not show excesses of nasal cancer. Further, as pointed out in the attached Comments, wood dust associations from U.S. and Canadian case-control studies of nasal cancer tend not to be strong and are not consistent across studies.

Closer scrutiny of the European studies indicates that the reported excess nasal cancer risk is associated with significantly higher exposure levels, dating primarily from older (pre-1950) European occupational settings, than are representative of the U.S. workplace today. In addition, there is evidence that the presence of compounds besides wood dust may have contributed to the findings.

An examination of work published since the time of the Blot et al. JOEM review raises further questions about the appropriateness of applying IARC's classification to the U.S. workplace. Referencing the one additional American study that has been published since 1997, a study of 45,000 men with wood dust employment or exposure, Dr. Blot notes that, like the

previous U.S. studies, no excess of nasal cancer was observed (Stellman et al., citation in attachment). In fact, the divergence is so striking between the European studies and the body of U.S. literature, that after reviewing the different findings Dr. Blot observed, "if the IARC in 1995, or today, had to evaluate the potential carcinogenicity of wood dust based only on North American data, in my judgment it would not have classified wood dust as a Group 1 human carcinogen."

Nor does there appear to be a credible indication of increased rates of other types of cancer among wood dust-exposed groups. The 1995 IARC monograph found little consistent evidence of such excesses. In a 1998 technical report (citation in attachment), IARC investigators noted an increased number (9 observed compared to 3.8 expected) of nasopharyngeal cancers (NPC), and hypothesized that this increase would be plausible because of the proximity of the nasopharynx to the nasal cavity and sinuses. However, as Dr. Blot has observed, this hypothesis is contradicted by the fact that NPCs are almost entirely squamous cell and transitional cell cancers rather than adenocarcinomas. In view of the findings in the IARC survey that the observed nasal cancer association was specific for adenocarcinoma and that woodworkers had no excess at all of squamous cell cancer, there is no logical bridge to an expectation that wood dust would cause nasopharyngeal squamous cell carcinoma. Interestingly, the report found a substantial deficit of non-NPC pharyngeal cancers, which resulted in an overall observation of 17% fewer pharyngeal cancers than expected. Dr. Blot suggests that in light of the deficit for this region, the excess of NPC may be a statistical aberration, perhaps resulting from the multiple comparisons and subdivisions made in the technical report.

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Dr. Blot's analysis also notes the absence of excess NPC risk reported in a new study of U.S. woodworkers that was published last month (Vaughan et al., citation in attachment). This multi-center case-control study found no excess risk among those occupationally exposed to wood dust, and further, no trends of rising risk with increasing exposure.

The IARC monograph did not find a causal relationship between wood dust and lung cancer. The 1998 Stellman et al. paper reported 14-17% higher rates of lung cancer among wood dust-exposed workers, but the authors attributed this small excess in part to concurrent asbestos exposure and concluded that "no other convincing associations between wood dust exposure or employment in woodworking occupations and the risk of common cancers were observed."

We urge the NTP reviewers to conduct a thorough examination of the literature, particularly considering the U.S. studies, which are more reflective of occupational exposure in this country today than are the predominantly higher-exposure European studies on which the IARC review relied. We submit that a full and fair review will make it clear that the evidence does not indicate that wood dust poses a carcinogenic hazard to North American workers and thus should not be listed by NTP.

Sincerely,



John L. Festa, Ph.D.  
Senior Scientist

Enclosure



INTERNATIONAL EPIDEMIOLOGY INSTITUTE, LTD  
1455 RESEARCH BLVD, SUITE 550  
ROCKVILLE, MARYLAND 20850  
TEL: 301-517-4060  
FAX: 301-517-4063  
WEB: IEILT.D.COM

COMMENTS OF WILLIAM J. BLOT, Ph.D.

on behalf of  
AMERICAN FOREST & PAPER ASSOCIATION

May 31, 2000

COMMENTS OF WILLIAM J. BLOT, Ph.D.  
Prepared on Behalf of the American Forest & Paper Association

The following comments review the epidemiologic literature on rates of cancer among persons exposed to wood dust in the context of the proposed listing of wood dust in National Toxicology Program (NTP) Report 10. I understand that wood dust has been nominated on the basis of the International Agency for Research on Cancer (IARC) classification of wood dust as a recognized human carcinogen in 1995<sup>1</sup>. The IARC designation was based on studies that observed elevated risks of nasal adenocarcinoma, a very rare form of cancer, among woodworkers, mostly hardwood furniture and cabinet makers, in Europe. The NTP likewise cites the reported nasal cancer excess as the reason for the proposed Report 10 listing.

In 1997 my colleagues and I published an article in the Journal of Occupational and Environmental Medicine (JOEM) reviewing the epidemiologic evidence on nasal cancer among wood dust exposed populations<sup>2</sup>. This review surveyed the European and U.S. literature, including the studies relied upon by IARC as well as more recent work. My colleagues and I found that in contrast to the marked excess of nasal adenocarcinoma among groups of woodworkers observed in Europe, cohort studies of American wood dust exposed groups do not reveal excesses of nasal cancer, and wood dust associations from US and Canadian case-control studies of nasal cancer tend not to be strong and differ across studies. Further, although quantitative wood dust exposure data are generally unavailable, general dose information in European studies suggests that the excess risk of nasal cancer is associated with high levels of exposure. There is also evidence that several compounds besides wood dust may have been involved in the clustering of excess cancer in the European studies.

In our JOEM review<sup>2</sup>, we described the strong evidence of increased risk of nasal cancer among European woodworkers, dating initially from the late 1960s from the furniture making center of High Wycombe, England. Ordinarily, this cancer is very rare, with adenocarcinomas of the nasal cavities and sinuses even rarer since the predominant nasal cell type is squamous cell carcinoma. Reports in the 1970s-1990s from the Netherlands, Italy and elsewhere in Europe confirmed the association of elevated risk of nasal cancer among wood dust exposed workers. In each case, the association was specific for adenocarcinoma. In meta-analytic reviews of the totality of available evidence by the 1990s, it was confirmed that woodworkers had no excess at all of squamous cell cancer, but a greater than 10-fold increase in nasal adenocarcinoma<sup>3,4</sup>.

In sharp contrast, we noted that no concomitant excess has been seen in North America. Indeed, among several cohort studies tracking cancer among wood dust exposed groups, the number of nasal cancers observed has been approximately equal that expected based on general population rates. In case-control studies examining the issue, results have been mixed and inconsistent (some negative and some mildly positive), and none of the few positive studies indicated excesses anywhere near what had been observed in Europe. We noted that, although most studies did not have quantitative data on levels of wood dust exposure, the European studies that did tended to show excess risks only at the highest doses (which primarily occurred prior to 1950).

Information arising in the few years since our JOEM report has not changed the conclusion that the situation in the United States is far different from that which existed in Europe and was reflected in the studies on which IARC relied. One additional American cohort study has been published, and it too showed no excess of nasal cancer among 45,000 men with wood dust employment or exposure<sup>5</sup>. If the IARC in 1995, or today, had to evaluate the potential carcinogenicity of wood dust based only on North American data, in my judgment it would not have classified wood dust as a Group 1 human carcinogen.

The intent of a proposed NTP listing of wood dust in Report 10 is presumably to warn of a possible hazard of wood dust exposure. Because of the wide disparity between American and European epidemiologic findings, such a warning is not as simple and uncomplicated as it might appear. Indeed, the warning is not needed for Americans since a nasal cancer hazard has not been demonstrated for wood dust exposures in the United States. Issuing a warning when one, based on the American experience, may not be needed seems unlikely to be a beneficial course of action and could have adverse economic or social effects without any net gain in public safety or health.

The IARC review noted that there was little consistent evidence for increased rates of other types of cancer among wood dust exposed groups<sup>1</sup>. In a technical report subsequent to the 1995 monograph on wood dust, IARC investigators noted an increased number of nasopharyngeal cancers (NPC) among wood working cohorts<sup>6</sup>. In combination, there were 9 observed NPC cases vs 3.8 expected, and it was speculated that an increase in these cancers would be plausible because of the anatomic proximity of the nasopharynx and nasal cavity and sinuses. This hypothesis is not credible, however, since NPCs are almost entirely squamous cell and transitional cell cancers, not adenocarcinomas. If wood dust does not cause squamous cell carcinomas in the sinonasal passage, it would not be expected that wood dust exposure would result in nasopharyngeal squamous cell carcinoma. In addition, there was a deficit of non-NPC pharyngeal cancers, which completely offset the small number of excess NPCs, so that overall there were 17% fewer

pharyngeal cancers observed than expected. The excess may be a statistical aberration, given the deficit for this particular region, and result simply from the multiple comparisons and subdivisions made in the technical report<sup>6</sup>.

In a new report<sup>7</sup> published this month from a multi-center case-control study of nasopharyngeal cancer in the United States, no excess risk was found among those occupationally exposed to wood dust, and there were no trends of rising risks with increasing exposure among the exposed.

IARC also looked at lung cancer and did not conclude there was any causal link between wood dust and this endpoint. In the new American cohort study cited earlier<sup>5</sup>, 14-17% higher rates of lung cancer were observed, but this small excess was attributed in part to concomitant asbestos exposures, and the authors noted that "no other convincing associations between wood dust exposure or employment in woodworking occupations and the risk of common cancers were observed." Overall, the epidemiologic data on lung and other cancers among woodworkers remain consistent with no effect of wood dust.



## References

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