

**THE TOBACCO INSTITUTE RESPONSE
TO THE ENVIRONMENTAL PROTECTION AGENCY'S**

"INDOOR AIR FACTS: ENVIRONMENTAL TOBACCO SMOKE"

The one-sided Environmental Protection Agency (EPA) "Fact Sheet" calls into question the neutrality, integrity and credibility of the Agency. Instead of a balanced and accurate "Fact Sheet" on environmental tobacco smoke (ETS), the EPA has produced a scientifically deficient document containing inappropriate and unsupportable language and claims.

The "Fact Sheet" is deficient in two primary areas:

1) The "Fact Sheet" Misstates the Health Effects of ETS

The potential adverse health effects of ETS have been extensively studied, and there is a large body of relevant scientific literature. The "Fact Sheet" contains an incomplete and inadequate summary of the available evidence.

- o The "Fact Sheet" incorrectly claims that exposure to ETS is linked to heart disease.

In fact, both the Surgeon General and the National Academy of Sciences (NAS) have found that the available studies preclude any firm conclusion about the relationship between ETS and cardiovascular disease. (Surgeon General's Report, 1986, p. 14; NAS Report, p. 11).

- o The claim that ETS has been linked to respiratory disease also is incorrect.

The NAS concluded that pulmonary effects in normal adults are likely to reflect the cumulative burden of many environmental and occupational exposures and other insults to the lung and that it is difficult to attribute any portion of the effect solely to ETS. (NAS Report, p. 10). The Surgeon General has concluded that "a previously healthy individual would not develop chronic lung disease solely on the basis of involuntary tobacco smoke exposure in adult life." (Surgeon General's Report, 1986, p. 62).

- o The "Fact Sheet" contains a selective and inadequate treatment of the complex issue of ETS and lung cancer. While the "Fact Sheet" states that there is a consensus among three government committees, and contains a single quote from the Surgeon General's Report attributing to ETS a substantial number of lung cancer deaths among nonsmokers, there is no recognition of, or reference to, other pertinent scientific publications -- including important qualifying statements in the 1986 reports of the Surgeon General and NAS and different conclusions contained in reviews by other scientists.

For example, viewing the same evidence considered by the NAS and the Surgeon General, the International Agency for Research on Cancer of the World Health Organization concluded, also late in 1986, that the available epidemiological evidence is equally consistent with a finding of an increase in risk or an absence of risk. (IARC Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans: Tobacco Smoking 38, p. 308 (1986)).

Moreover, there are a number of other studies and reviews, published since 1986, that contradict the findings of the Surgeon General's and NAS Reports with respect to the purported relationship between ETS and lung cancer. (Adlkofer, F., Scherer, G., Wenzel-Hartung, R., Brune, H. and Thomas, C., "Exposure of Hamsters and Rats to Sidestream Smoke of Cigarettes: Preliminary Results of a 90-Day Inhalation Study," Proc. Indoor Amb. Air Qual. Conf., London, pp. 252-258 (1988); Arundel, A., Sterling, T. and Weinkam, J., "Exposure and Risk-based Estimates of Never Smoke Lung Cancer Deaths in the U.S. in 1980 from Exposure to ETS," Proc. Indoor Amb. Air Qual. Conf., London, pp. 242-250 (1988); Vanderbroucke, J.P., "Passive Smoking and Lung Cancer: A Publication Bias?" Br. Med. J., 296 p. 391 (1988)).

- o The "Fact Sheet" contains references to nonsmoker exposure to nicotine, a constituent unique to tobacco. However, it presents none of the published evidence indicating low levels of cotinine, the nicotine derivative, measured in nonsmokers.

The Surgeon General has estimated (1986 Report, p. 216) levels of cotinine in nonsmokers to be 1/200 the levels found in smokers. More recent research has indicated that nonsmoker cotinine levels range from 3/1000 (for men) and 1/1000 (for women) of the levels found in smokers. (P. Lee, "Lung Cancer and Passive Smoking: Association or Artefact Due to Misclassification of Smoking Habits?" Toxicology Letters 35 (1), pp. 157-162, (1987)).

There is no substantial evidence that nicotine or its derivatives at these levels are linked in any way to adverse health effects. (Schievelbein, H. and Richter, F., "The Influence of Passive Smoking on the Cardiovascular System," Prev Med 13 (6), pp. 626-644 (1984); Hugod, C., "Passive Smoking," Ugeskr Laeger 143 (34), pp. 2181-2184 (1981); Foliart, D. et al., "Passive Absorption of Nicotine in Airline Flight Attendants," New Engl J Med 308 (18), p. 1105 (1983)).

- o The "Fact Sheet" contends that tobacco smoke contains over 4,700 compounds. In fact, most of the compounds that have been measured in mainstream tobacco smoke have not been documented to exist in ETS, and the vast majority of substances found in ETS are produced by many other sources as well, including space heaters, gas stoves, insulation, carpets, cleaning fluids, and paints.

Moreover, many studies that have attempted to measure specific components of ETS in the air have found trivial or nondetectable levels.

- o While the "Fact Sheet" states that "[t]obacco smoke is a mutagen," it is important to note that most mutagenicity tests on tobacco smoke have been performed on mainstream or sidestream smoke -- not on ETS.

This fact led the NAS to conclude that "[s]ufficient data are not available to assess the relative genotoxicity and toxicity of whole ETS." (NAS Report, p. 59)

2) The "Fact Sheet" Exaggerates the Place of ETS in Indoor Air Pollution and Incorrectly Evaluates the Effectiveness of Ventilation in Removing ETS

The "Fact Sheet" is inaccurate in discussing the contribution of ETS to indoor air pollution. The overemphasis on ETS as a contributor to indoor air pollution, coupled with the underestimation of the effectiveness of ventilation in removing ETS, results in a misleading presentation of indoor air pollution issues. This could lead people to ignore the more significant contribution of poorly designed and maintained ventilation systems.

- o The "Fact Sheet" is inaccurate in claiming that ETS is one of the largest indoor air pollutants. This claim does not take into account EPA's own specific findings or those of other government agencies.

There are a large number of studies showing that poor ventilation is by far the single most important cause of indoor air pollution, including studies by the National Institute for Occupational Safety and Health (NIOSH). One such study by NIOSH of 203 buildings found that inadequate ventilation was the problem in 48.3 percent of NIOSH investigations, while cigarette smoking was the problem in only 2 percent of the investigations. (Melius, J., *et. al.*, "Indoor Air Quality -- the NIOSH Experience," 10 Ann. Am. Conf. Gov. Ind. Hyg. 3, p. 4 (1984)).

A more recent report by Wallingford, K., "NIOSH Indoor Air Quality Investigations: 1971-1985" supports this conclusion. See also, Robertson, G., "Source, Nature and Symptomology of Indoor Air Pollutants," Proc. Indoor Air Qual. Conf., London, pp. 311-319 (1988).

- o Perhaps the most significant omission in this area is the failure to take account of the substantial work conducted by EPA in connection with its preparation of the "EPA Indoor Air Quality Implementation Plan" submitted to Congress. Part of this document describes a number of studies undertaken by numerous federal agencies relating to various sources of indoor air pollution, including a Consumer Product Safety Commission study of unvented space heaters, studies of pollutants emitted by gas stoves, and studies of pollutants emitted from wood burning stoves and fireplaces.

In fact, EPA's own "Exposure Profile by Source Prevalence and Use Patterns for Selected Pollutants in the U.S." gives a far more accurate picture of the relative importance of various pollutant sources. There, EPA found that the number of people potentially exposed to ETS (both smokers and nonsmokers) was substantially lower than the number exposed to the same basic pollutants from gas stoves, hot water heaters and furnaces.

- o The "Fact Sheet" understates the effectiveness of ventilation in removing ETS. Here, the "Fact Sheet" stands in stark contrast to EPA's own conclusions in the "Information Assessment" document, where the EPA states:

The use of high-efficiency filters or electrostatic devices, either installed in the ductwork of central air handling systems or as portable units, strategically placed, can be effective in removing the PM (particulate matter) of ETS . . .

Filtration and ventilation have been found sufficient to remove constituents of the gas-phase of ETS, as they have in connection with CO₂ generated by building occupants. (See Appendix D to Proposed ASHRAE Standard 62-1981R; Sterling, T.D., et al., "Environmental Tobacco Smoke and Indoor Air Quality in Modern Office Work Environments," 29 J of Occ Med 57 (January 1987)).

Other government reports as well as independent studies by private experts further support the effectiveness of ventilation to remove ETS. The National Research Council recently confirmed the ability of ventilation to reduce pollutants from all sources and further observed that NIOSH investigations most frequently recommend increased ventilation to address indoor air problems. ("Policies and Procedures for Control of Indoor Air Quality," Committee on Indoor Air Quality, at p. 70).