UREA-FORMALDEHYDE FOAM INSULATION: HEALTH EFFECTS AND REGULATION

MINI BRIEF NUMBER MB82228

AUTHOR:

Michael M. Simpson

Science Policy Research Division

THE LIBRARY OF CONGRESS

CONGRESSIONAL RESEARCH SERVICE

MAJOR ISSUES SYSTEM

DATE ORIGINATED 04/27/82
DATE UPDATED 12/12/83

FOR ADDITIONAL INFORMATION CALL 287-5700

1215

ISSUE DEFINITION

Urea-formaldehyde foam insulation (UFFI), a synthetic substance which when new is an excellent thermal insulator, has been installed in hundreds of thousands of commercial and residential buildings as a means of reducing heating and cooling costs. At the present time, however, some residents of these buildings are complaining of a variety of health-related discomforts; research indicates that exposure to UFFI may have serious health effects.

Four U.S. Federal agencies and several foreign governments have taken different actions in relation to controlling potential human health effects resultant from exposure to UFFI; these actions range from use bans and compensation programs to refusal to regulate in the absence of evidence of significant risk to humans. Public policymakers' concerns currently focus on compensatory relief programs and congressional reviews of UFFI regulations and regulators.

BACKGROUND

General Information

Rising energy prices, shortages of other insulating materials, and the low cost and ease of installation of UFFI encouraged a dramatic increase in the second half of the 1970s in the number of buildings insulated with UF foam. As a way to reduce energy consumption and dependence upon foreign suppliers of energy, the U.S. Government extended thousands of tax credits to encourage the insulation of buildings; UFFI qualified as a tax creditable way to insulate a building. (Please see MB83210 -- The Residential Energy Tax Credits; also, IP0033 -- Energy Conservation.)

Building codes in the United States rate UFFI as a combustible material; as a result, when installed inside buildings, a thermal barrier of fire-resistant material was required. Installation involved mixing and injecting under pressure, behind the thermal barrier, partially polymerized UF resin with a foaming agent and an acid catalyst. The foam hardened in minutes and cured within days. But a number of factors in this process could allow excessive formaldehyde gas from the UFFI to be emitted into the building:

excessive formaldehyde in the initial resin solution,
excessive acid catalyst in the foaming agent,
excessive foaming agent,
installation in high heat or humidity,
installation with chemicals at sub-optimal temperatures,
improper use of vapor barriers, and
installation in ceilings or other improper places.

Even when properly installed, UFFI will emit formaldehyde in decreasing quantities over time (one monitoring study found 10 to 100 times greater emission levels with newly installed UFFI relative to UFFI installed 3 to 5 years before measurement). And UFFI tends to shrink with age, reducing its value as a thermal insulator.

While formaldehyde gas in measurable amounts has been detected in homes with UFFI, gaseous formaldehyde can also be emitted by plywood, particleboard, carpeting, draperies, gas stoves, tobacco smoke, paper products such as grocery bags and tissues, wrinkle-resistant and/or water-repellent materials and clothing, and other products held together by UF resins.

Health Effects

Several studies using young, healthy adults exposed for short durations in clean and controlled atmospheres to formaldehyde gas in concentrations as small as 0.2 parts per million (ppm) have shown irritant effects of the eye, nose, and throat. Many occupational and residential studies have shown formaldehyde gas levels of 0.03 to 4.15 ppm to be associated with eye, nose, and throat irritation, nausea, vomiting, diarrhea, headaches, irritability, and skin rashes. The Committee on Toxicology of the National Academy of Sciences has reported that it found no population threshold for the acute effects of formaldehyde gas. Studies indicate that formaldehyde

can react readily with other chemicals in humans and animals;
is mutagenic in bacteria, viruses, fungi, insects, and mouse lymphoma cells with or without metabolic activitation;
induces chromosomal recombination in yeast, insects, cultured mammalian cells and rats;
induces cellular transformation in certain mouse cells;
induces cancer in rat nasal tissue; and
may be carcinogenic in other species and other tissues.

(For further information on health effects of indoor air, please see IB83074 -- Indoor Air Quality and Health Impacts of Energy Conservation: Some Congressional Options.)

CONSUMER PRODUCT SAFETY COMMISSION

On Mar. 2, 1982, the U.S. Consumer Product Safety Commission (CPSC) proposed a regulation to ban the future installation of UFFI in non-mobile residences and schools. The proposed regulation was based upon the unreasonable risks to consumers from the irritation, sensitization, and possible carcinogenic effects of formaldehyde potentially emitted by UFFI, the availability of alternative insulating materials for nearly all applications, and the lack of alternative approaches to eliminate or adequately reduce the risks. The proposed ban was thus deemed necessary and in the public interest. It was not to apply to mobile homes (see "Department of Housing and Urban Development" hereafter) nor to offices, warehouses, stores, or similar commercial buildings (see "Occupational Safety and Health Administration" hereafter). It was also to have no effect upon UFFI already installed in buildings. The proposal included a provision for granting exemptions to any company which could demonstrate that it could consistently manufacture a UFFI product which does not pose an unreasonable risk to consumers. The CPSC published the regulation in the Federal Register (47 FR 14366) on Apr. 2, 1982. Following 10 days of judicial review, the regulation was sent on for congressional review. Congress had 90 days in which to veto or otherwise modify the rule. CPSC planned to enforce the regulation, using the authority in sections 19 to 21 of the Consumer Product Safety Act. CPSC

plans to react to consumer complaints of illegal installations by inspecting UF manufacturers' and UFFI installers' sales records, then assigning civil or criminal penalties against violators. By Apr. 23, 1982, court cases in several jurisdictions had been filed, challenging the validity of the ban, its wording, its proposed effective date, and its inapplicability to commercial building installations. Despite these, the ban became effective on Aug. 10, 1982. (The ban was lifted on Aug. 24, 1983). Under provisions of the ban, any installer of formaldehyde-emitting UFFI was subject to a civil fine ranging from $2,000 to $500,000 per installation. Any installer knowingly and willfully continuing to install UFFI after being notified by the CPSC that he was in noncompliance with the law was to be subject to criminal penalties of up to one year in jail and/or fines up to $50,000.

CPSC found that approximately 500,000 non-mobile homes in the United States are presently insulated with UFFI, or 0.59% of the total number of non-mobile homes in the United States today. Approximately 1,750,000 people presently reside in UFF-insulated homes. This is 0.80% of the U.S. population. On average then, 3.5 persons live in each UFF-insulated non-mobile home.

As of 1980, the CPSC received from residents of UFF-insulated homes one complaint of physical effects for every 200 installations -- the physical health-effects complaint rate was 0.5%. Today, with 500,000 installations, assuming the health-effects complaint rate is unchanged, there could be 2,500 UFFI-installation complaints. And with 3.5 persons per installation, this means there could be 8,750 persons nationwide potentially being exposed to UFFI in their homes to the point of complaining to the CPSC. And the CPSC has not been alone in handling UFFI-related complaints. A university-based environmental health department in the Pacific Northwest monitored 244 homes and found 409 residents (158 adult males, 122 adult females, and 139 children) exhibiting at least one symptom of formaldehyde exposure. The same department handled 2080 telephone complaints in the past year. These data suggest that CPSC may have underestimated the number of people exposed to formaldehyde at a level sufficient to evoke a complaint.

According to CPSC, the average cost of a UFFI installation was $1,500. The average cost of removing the UFFI is from $6,000 to $20,000. This may include replacement of the UFFI with another type of insulation depending on the preferences of the consumer as to who performs the service. Nationally, the cost of UFFI removal could cost as much as $3-10 billion.

The effect of UFFI in residential walls on non-mobile home resale value is inconsistent: the resale value may be increased (due to improved thermal insulative properties), may be reduced (due to negative value of UFFI publicity and potential health effects), or may be unchanged. The Commission has estimated the possible property value reductions at $6,000 to $20,000 per house, i.e., the cost of removal of the UFFI. There does not now appear to be solid evidence from which to assess the consistent direction or magnitude of effect upon house prices due to UFFI. There are currently no national laws requiring sellers to disclose whether their houses have UFFI. But the National Association of Realtors has issued a directive to all realtor boards nationwide suggesting that: (a) the seller complete a form stating the "Yes," "No," or "Maybe" presence of UFFI, and; (b) the purchaser complete a second form acknowledging receipt of this information prior to tendering an offer to buy. Of crucial legal concern are the adherence to the real estate agents' Code of Ethics, and the implied warranty of habitability (wherein an agent must disclose information of any known health hazard).

The CPSC stated that complaints of health effects from UFFI exposure occur with installations of any age, from recent to several years prior; 1977 was a notable year for the dramatic increase in the number of UFFI installations.

CPSC estimates the following number of residential UFFI installations:

YEAR	CPSC-ESTIMATED NUMBER OF RESIDENTIAL INSTALLATIONS
1975	20,000 - 30,000
1976	41,000 - 75,000
1977	146,000 - 221,000
1978	68,000 - 125,000
1979	60,000 - 150,000
1980	25,000 - 30,000
1981	8,000 - 10,000

While the number of installations has been steadily declining, the number of health-effects complaints has been proportionately increasing.

The CPSC also stated its position that formaldehyde concentrations found in homes are sufficient, in its opinion, to cause harmful health effects. The Commission's upper value of risk was estimated to be 89 malignant cancers developing among the estimated population of 1,750,000 persons currently exposed in 500,000 UFFI homes, using the data from actual measurements in residences. The 89 cancers represent 0.005% of the 1,750,000 persons currently exposed to UFFI in their homes, and 0.00004% of the U.S. population. The CPSC estimates the cost of avoiding one UFFI-caused malignant cancer to be $164,000 to $292,000. The Commission pointed out that these ratios considered only the reduced risk of malignant cancer, and did not include other health benefits, reduced medical and related costs, and benign tumors.

Under certain conditions, certain States will take formaldehyde measurements in homes on request. Using the National Institute for Occupational Safety and Health (NIOSH) procedure are Iowa, Kentucky, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, and Washington. Using the Drager system are Connecticut and Texas. The two procedures are chemically slightly different but yield similar results with comparable accuracy; some scientists maintain that the Drager system is less reliable.

Formaldehyde can be filtered out of the air, extracted onto a chemically treated wick-bottle or gel, sealed in the walls, or vented. Costs and effectiveness of these methods were not presented in the CPSC regulation (see "The Canadian Situation" hereafter).

On Jan. 12, 1983, the CPSC announced that it is collecting information on formaldehyde released from pressed-wood products. One possible result of this investigation could be a product standard requiring that pressed-wood products emit no more than a specified amount of formaldehyde. Such a standard may be met through carefully controlled and monitored manufacturing and curing techniques. (The CPSC concluded that such a standard could not be met by UFFI owing to the excessive number and magnitude of uncontrollable variables involved in the installation and curing of UFFI.) A ban on pressed-wood products is another possible, but less likely, outcome of the CPSC investigation. The CPSC investigation was prompted by consumer complaints involving 3700 people. In August 1982, the Consumers Federation

of America requested the CPSC to limit formaldehyde emissions from pressed-wood products to 0.05 ppm. The CPSC plans to make an announcement about the findings of its investigation in the third quarter of FY83.

On Apr. 8, 1983, a three-judge panel of the 5th Circuit Court in New Orleans ruled that the CPSC ban of UFFI is illegal; the decision was based upon their finding that the Commission did not present sufficient evidence to support the ban action. On May 5, 1983, the CPSC filed for a rehearing.

On Apr. 20, 1983, 23 Members of Congress sent a letter to CPSC Chairman Nancy Steorts stating that "Formaldehyde insulation is a dangerous substance that must be kept out of homes." The letter urged the chairman to "Please do all you can to prevent this ban from being lifted."

The Insulation Contractors Association of America's Executive Director, R. Hartly Edes, commented on the Fifth Circuit court's decision by saying "I don't see that there's going to be any new effect on the industry by its (the CPSC ban on future UFFI installations) being overturned." Edes added that members of the association "questioned (UFFI's) efficacy as insulating material because of its shrinkage (after installation). When you leave up to a 4% void in insulation, you can have heat loss of up to 50%."

Ed Stana of the Formaldehyde Institute commented that the UFFI industry "is down to just about zero," but that "it's too early to tell" if the New Orleans ruling would likely revive the business.

On May 9, CPSC released a draft discussion paper ranking 17 known carcinogens. Formaldehyde was the seventh most potent carcinogen. The paper discussed the major disadvantages and limitations of potency comparisons, including nonconsideration of human exposure information, and reduction of risk assessment ranges to single values. The paper is receiving peer review.

By mid-June 1983, the CPSC petition for a re-hearing had been denied. In a letter dated Aug. 24, 1983, the Solicitor General notified the CPSC that he would not issue a writ of certiorari to send the case to the Supreme Court. Also, the ban was lifted on that date.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

The U.S. Department of Housing and Urban Development (HUD) has prohibited the installation of rigid formaldehyde insulation in mobile homes since 1976 (based upon common knowledge of the fire hazard of the insulation), and it is currently considering whether a rule is needed to regulate formaldehyde in particleboard, draperies, carpeting, and other products in mobile homes (Aug. 28, 1981 Federal Register).

On Mar. 22, 1983, HUD disapproved further use of UFFI in its mortgage insurance and low-income Public Housing program pursuant to the CPSC ban.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

In 29 CFR 1910.1000 Table Z-2, the Federal Occupational Safety and Health Administration (OSHA) states that employees may be exposed to formaldehyde at a level of 3 ppm as an 8-hour time-weighted average (this is the Permissible

Exposure Limit, or PEL), with an acceptable ceiling concentration of 5 ppm, and that the acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift is 10 ppm for less than 30 minutes; this applies only to States administered by Federal OSHA. State-administered programs have a PEL of 2 ppm.

Some labor unions have petitioned OSHA to reduce its allowable exposure concentration, and the National Institute of Occupational Safety and Health (the research arm of OSHA) has proposed the PEL be reduced to 1 ppm, but OSHA has responded that it does not recognize sufficient evidence to warrant a tightening of the standard. Currently, an employee can file a health complaint and an OSHA inspector can respond by equipping the employee with a personal dosimeter to measure the worker's exposure to formaldehyde. OSHA has received reports of rare nasal cancers in workers exposed to formaldehyde; these reports are being investigated.

ENVIRONMENTAL PROTECTION AGENCY

On Feb. 12, 1982, John A. Todhunter -- then the U.S. Environmental Protection Agency's (EPA) assistant administrator for pesticides and toxic substances -- announced the agency's official position on formaldehyde, saying that the chemical should not be regulated under section 4(f) of the Toxic Substances Control Act because it does not cause "significant risks of serious or widespread harm of cancer," and that the EPA"s tentative decisions in 1980 to regulate formaldehyde were "incomplete and flawed." Despite the agency's conclusion not to regulate formaldehyde under section 4(f) of TSCA, the EPA continued in its 5-step workplan for evaluating formaldehyde. The workplan schedule began Jan. 4, 1982, and was planned to take 8 months to complete. The first step was almost complete as of Feb. 12, 1982. The entire study was to include evaluations of the applicability of animal data to potential human carcinogenicity, human exposure levels and resultant risks, coordinated interagency and outside group data-gathering, and outside peer review of hazard, exposure, and risk data. On Apr. 30, 1982, EPA Pesticides and Toxics Assessment Division Director Joseph Merenda said that a major revision of the schedule was to be announced when ready; a date was not given at that time.

On May 18-19, 1982, the House Subcommittee on Commerce, Consumer and Monetary Affairs of the House Government Operations Committee held hearings on the effects of exposure to formaldehyde, with emphasis on formaldehyde emissions from UFFI. On May 20, 1982, the House Subcommittee on Investigations and Oversight of the House Committee on Science and Technology held a hearing on the specific topic of EPA's position to not regulate formaldehyde under section 4(f) of TSCA, and on the more general topic of EPA's current position on the level of risk and scientific certainty necessary to trigger regulatory action. In connection with these hearings, the EPA announced its negotiation with the National Center for Toxicological Research (NCTR) for further formaldehyde research using project-specific funds from EPA; the EPA signed the agreement in July 1982. EPA said NCTR will:

> Establish expert review panels in the areas of formaldehyde, toxicology, epidemiology, exposure, and risk.

Establish a clearinghouse to identify ongoing studies and to coordinate the exchange of scientific data on formaldehyde exposure and health effects studies.

Develop coordinated data bases of reviewed and validated scientific knowledge in the areas of each of the panels listed above, to be supplemented by new data as they are developed through various ongoing studies.

Hold an international consensus building workshop in which the panels and other scientists will discuss the available data, reach conclusions as to their interpretation, and identify any remaining gaps requiring further research.

Complete and submit for publication a peer-reviewed report of the workshop's conclusions concerning formaldehyde health risks.

EPA said the NCTR program will be "supplemented by a limited number of additional Office of Toxic Substances projects aimed at supporting the efforts of the expert review panels or at filling certain data gaps; the specific nature of those activities will be defined as the panels are established and begin reviewing the available data bases." EPA at that time did not say if discussions to be held in connection with the NCTR project would be open to the public or other scientists. Coordinating the EPA-NCTR project is an Executive Panel composed of 2 representatives each from industry, academe, government, and public interest groups. The first meeting of the Panel was held on Oct. 29-30, 1982; discussion topics included the desirability and workability of opening meetings to the public. The Panel concluded that public input is needed and will be sought via announcements in the Federal Register (the first of which appeared Dec. 7, 1982), and in relevant journals (one advertisement appeared in the Dec. 17, 1982, issue of Science magazine). The Panel also planned to hold consensus workshops, focusing entirely upon the scientific (and not the policy) issues relating to formaldehyde from approximately June through October 1983.

On Jan. 7, 1983, the Natural Resources Defense Council (NRDC) sent a letter to the EPA Administrator (then Anne Gorsuch Burford) notifying the Agency that the NRDC intends to sue the government for failing to list formaldehyde under section 4(f) of TSCA; the suit will be filed after the required 60-day period following receipt of the notification letter.

On July 12, 1983 President Reagan signed the HUD and Independent Agencies Appropriations Act of 1984 which included $2 million for a multi-agency task force on indoor air quality; the task force is co-chaired by the EPA, CPSC, and the Department of Energy.

THE CANADIAN SITUATION

The use of UFFI in residences was banned in Canada in December 1980, as the result of tremendous public pressure in response to media coverage of the

potential health effects of UFFI. The Canadian Mortgage and Housing Corporation (CMHC) instituted a response program which has undergone modification over time.

The first step of the program was an information campaign, to notify the citizenry of the UFFI response program.

Originally, homeowners had to demonstrate that they had experienced medical problems due to UFFI and/or had homes with indoor formaldehyde levels exceeding 0.1 ppm in order to be eligible under the UFFI response program. The homeowners had to perform preliminary testing to determine if full-scale testing was required. Full-scale testing cost $100, reimbursed through the program. Now, preliminary testing is optional and full-scale testing, if required, is free.

Further, homeowners originally had to implement corrective measures recommended by CMHC to be eligible for financial assistance. Now, the kind of corrective measures undertaken is the choice of the homeowner, with CMHC providing technical information and estimates for all possible corrective measures, and a current list of registered contractors who have successfully followed the government training course on corrective measures.

Homeowners originally had to pay $100 to attend a training course on corrective measures, with no choice of location of study. Now, the course is free, is available in more areas more often (including evening and weekend courses), and even includes a home study program. This is the same training course required of registered contractors. Upon successful completion of the course, a homeowner may perform his own corrective measures and be eligible for assistance through the UFFI program. Topics covered in the course include the relative advantages and disadvantages of different remedial measures in different circumstances; the remedial measures are: caulking compounds and vapor barriers; ventilation; chemical absorption filters; ammonia gas; removal; and treatment of contaminated material remaining after removal and prior to rebuilding.

Advance payments up to $2,500 are presently available if needed to undertake corrective work. Up to $5,000 per dwelling will be given, tax-free, to registered homeowners for expenses incurred in the course of corrective measures, including removal. There is a maximum of 3 dwellings per homeowner. Eligible houses must be located in Canada, and may be detached, link, semi-detached or part of a row, duplex or triplex, or prefabricated, or a condominium, or a mobile home on a permanent foundation.

Homeowners must apply for assistance by Sept. 30, 1983, although corrective work can begin later.

The CMHC will test for formaldehyde levels after corrective measures are completed, and a Statement of Test Results will be issued to the homeowner.

As of June 1, 1983, more than 43,000 homeowners were registered with the Program.

In the autumn of 1981 the CMHC tested 2,400 homes for formaldehyde levels; 2,000 of those homes had UFFI, and 400 lacked UFFI. Of the 400 without UFFI, 11 (around 3%) had formaldehyde levels exceeding 0.1 ppm, the highest level deemed acceptable for homes by Health & Welfare Canada. Of the 2,000 with UFFI, 198 (9.9%) had levels exceeding the 0.1 ppm standard. From these data, the CMHC estimated that about 8,000 houses (10% of the housing stock) in

Canada will require some remedial work.

Canada is presently spending about $1 million for medical research into UFFI health effects, and for further research on UFFI, its reaction with other materials, the characteristics of gases and particles associated with UFFI, corrective measures to reduce or eliminate effects of UFFI in living spaces, and testing methods for formaldehyde and other potential emissions.

There is also the Canadian Home Insulation Program (CHIP) intended to assist homeowners to improve the insulation of their homes. A special retroactive CHIP grant has been made available to homeowners whose eligible costs under the UFFI program exceed $5,000. The program may reimburse 60% of eligible costs of re-insulation, up to a maximum of: $500 for a detached, semi-detached, row, or mobile home; $285 for a unit in an apartment building of three stories or less, and of six units or less (includes duplexies); $215 for a unit in an apartment building of three stories or less, having more than six units (these are not eligible for assistance under the UFFI program).

THE INTERNATIONAL SITUATION

Australia

Approximately 45,000 structures in Australia have been insulated with UFFI since 1971. Some adverse health effects have been reported where the foam was not properly installed; these health effects were considered minimal. The concentration of formaldehyde deemed acceptable in private housing is 0.1 ppm.

Austria

UFFI was first marketed in Austria about fifteen years ago but is seldom used today in either the industrial or the private sector. Where it is used, owing to slow construction, possible health problems from formaldehyde emissions are minimized because most residential buildings are not occupied until a year after the insulation has been installed.

Belgium

Common use of UFFI began in 1975 in the industrial and private sectors. UFFI is used only to insulate conventional buildings with hollow walls, although tests are in progress examining prefabricated structures. There have been reports in Belgium of medical problems attributed to UFFI. The Belgian government has not yet decided whether to ban UFFI or to impose standards and controls.

Denmark

UFFI has been used in Denmark since the early 1950s. It has been used in very reduced quantities since 1981. From 1976 to 1981, between 1,300 and 1,800 residences and commercial buildings were insulated each year with UFFI. About 100 buildings a year are currently insulated with UF foam. Medical problems have been reported. Some homeowners have removed the UFFI from

their homes. The Danish government is currently preparing rules and regulations regarding UFFI, specifying that the concentration of formaldehyde in room air must not exceed 0.12 ppm.

Finland

Although available for the last ten years, UFFI has seen only limited use in Finland. Only old houses built of wood and a few schools have been insulated with UFFI. Very few medical problems have been reported.

France

Though in common use in France since the 1970s, UFFI appears to have caused few complaints. The installation of UFFI in houses is regulated by the "Centre scientifique et technique des batiments"; performance of the insulation has been reported as satisfactory when the guidelines are followed.

Germany

UFFI was first used in industry in the 1950s and later in the private sector. There is a government standard for emission levels and the standard is well enforced, although it is reported that the installers have a great deal of difficulty in meeting the emission standard. The public appears to have been informed of the problems with UFFI emissions. The German government is drafting UFFI product and installation standards (Canada did the same in 1978).

The Netherlands

The Netherlands has an acceptable formaldehyde concentration standard of 0.1 ppm. The government will test any house claimed to exceed the standard. If the air inside the house exceeds the standard, the UFFI installers are required to remove the insulation at their own expense. UFFI has been widely installed in the Netherlands. There has been very little basic research on UFFI conducted by government researchers; they are enthusiastic about forming a cooperative research program with Canada. In the Netherlands, formaldehyde emissions from particleboard receive much more attention than those from UFFI.

Norway

UFFI was first marketed in Norway in the 1960s yet has hardly been used since 1975 because of its ineffectiveness as a thermal insulator.

Sweden

UFFI was first used on a limited basis in the 1950s in Sweden but was banned in some regions in 1974 because of its strong odor and the damage that it can cause to construction materials. The use of UFFI is presently subject to very strict standards. The recommended formaldehyde level in UFF-insulated housing ranges from 0.1 to 0.7 ppm depending upon the type of

building.

United Kingdom

While UFFI was introduced twenty years ago to the United Kingdom, wider use of the product has occurred only in the last ten years. More than a million homes are currently UFF-insulated. A few complaints have been reported in recent years concerning formaldehyde emissions from UFFI. It is recommended that UFFI be installed only in masonry buildings in accordance with established standards.

Italy, Japan, Spain, Switzerland

UFFI has been in limited use in these countries for about fifteen years. These countries appear to have no restrictions on the installation of UFFI, and few significant problems resulting from it. It should be noted that the UFFI used in Spain and Switzerland are improved products, though still capable of emitting formaldehyde.

POINTS FOR FURTHER CONSIDERATION

Public policymakers' concerns currently focus on 1) the question of need for and the mechanics in establishing Federal programs to compensate those persons suffering adverse health effects from exposure to UFFI in their homes; 2) the question of need for and the mechanics in establishing Federal programs to compensate those homeowners whose property values may be adversely affected by having UFFI; and 3) legislative oversight of those Federal agencies whose responsibilities include the assessing of risk, setting of standards, and enforcement of regulations relating to UFFI. It is presently a matter of controversy as to whether the actions taken by the various Federal agencies are premature, inadequate, unnecessarily restrictive or intrusive, or scientifically defensible.

H.R. 3819 in the 98th Congress seeks to assist homeowners in taking corrective measures to reduce the indoor concentration of formaldehyde in dwellings with UFFI exceeding 0.1 ppm by authorizing the Secretary of Housing and Urban Development to grant up to $10,000 per dwelling to homeowners, for no more than three dwellings, for corrective measures taken. The bill has been referred to the House Committee on Banking, Finance and Urban Affairs.

H.R. 2533 in the 98th Congress seeks to amend the Internal Revenue Code to allow a refundable income tax credit to individuals for expenditures to remove UFFI from their homes. The bill also provides for testing formaldehyde levels in homes, and surveying the extent of UFFI in public schools. The bill has been referred to the House Committee on Banking, Finance and Urban Affairs, and to the House Committee on Ways and Means.

The House Small Business Committee in the 97th Congress held hearings on the topic of UFFI on Aug. 4, 1982. H.R. 6389, 6390, 6391, 6437 and 6524 and S. 2763 were bills in the 97th Congress aimed at providing financial assistance to homeowners for removal of the UFFI.