ENVIRONMENTAL PROTECTION AGENCY

[OPTS-211027; FRL 3739-8]

Carpet Response to Citizens' Petition

AGENCY: Environmental Protection Agency (EPA).

ACTION: Response to Citizens' Petition.

SUMMARY: On January 11, 1990, the National Federation of Federal Employees (NFFE), Local 2050, petitioned EPA under section 21 of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2620, to initiate rulemaking proceedings, under sections 4, 6 and 8 of TSCA, 15 U.S.C. 2603, 2605, and 2607, to reduce emissions from new carpets. EPA has decided not to initiate the specific rulemaking proceedings requested by NFFE because the Agency disagrees with the specific assertions regarding the health risk posed by carpeting and with the remedies sought.

However, EPA is concerned that volatile compounds from installation of new carpeting may significantly increase indoor air exposures to such compounds. Therefore, this notice describes the Agency's decision to initiate a series of actions designed to assess and, if necessary, reduce the public's exposure to compounds which may off-gas from carpeting.

FOR FURTHER INFORMATION CONTACT: Michael M. Stahl, Director, Environmental Assistance Division (TS-799), Office of Toxic Substances, Rm. E-543B, 401 M St., SW., Washington, DC 20460, (202) 554-1404.

SUPPLEMENTARY INFORMATION:

I. Summary of Response

EPA has found that there are insufficient data to support the conclusions and remedies requested by NFFE. The Agency, however, believes that an absence of scientific certainty does not necessarily mean an absence of risk and that efforts to better characterize carpet emissions, and potential health effects which may be associated with carpeting, as well as other indoor exposure sources, should be continued and expanded.

In addition, the Agency recognizes that new carpet may be a significant source of human exposure to low levels of volatile organic compounds (VOCs). As a matter of policy, the Agency believes it is prudent to minimize indoor human exposure to these chemicals where reasonable and that efforts on the part of manufacturers to reduce product emissions should be strongly encouraged.

In light of these findings, the Agency is taking three major initiatives. First, the Agency is formally requesting that the carpeting industry undertake a voluntary program to conduct periodic total VOC analyses on a company-by-company and product-by-product basis to provide the interested public with comparative information on total VOC emissions. Second, the Agency is inviting all interested parties to participate in a 1-year dialogue process designed to work out the details of the voluntary testing program mentioned above and to explore and, where possible, reach agreement on a variety of issues including: the sampling and analytical methods for the voluntary testing, any additional information needed, and cost-effective process changes to reduce emissions. Further, details on the dialogue process are discussed in Unit IV of this notice. Thirdly, the Agency will continue its on-going exposure reduction and research activities on indoor air quality issues generally and on the potential health effects of exposure to low level VOC mixtures, in particular.

A concurrent effort will be initiated to assess the feasibility of prospective epidemiology studies to determine the response characteristics of individuals exposed to carpet emissions.

II. Background

A. Statutory Requirements

1. *TSCA in general.* Section 21 of TSCA provides that any person may petition EPA to initiate proceedings for the issuance of rules under sections 4, 6 and 8 of TSCA.

Under section 4 EPA may issue rules to require chemical manufacturers and processors to test their chemicals. To issue a section 4 rule on a chemical, EPA must find either that activities involving the chemical may present an unreasonable risk of injury to health or the environment, or that the chemical will be produced in amounts that may cause significant or substantial human exposure or substantial environmental release. In addition, EPA must find that existing data are insufficient to determine or predict the effects of the chemical and that testing is necessary to develop that data.

Under section 6 EPA may promulgate rules to control a chemical if the Agency finds there is a reasonable basis to conclude that activities involving the chemical present or will present an unreasonable risk of injury to health or the environment.

Under section 8 EPA may issue rules to require chemical manufacturers and processors to gather, retain and report existing information, as may be reasonably required. This information includes production and use information, health and safety studies, and allegations of adverse reactions.

2. *TSCA section 21.* A section 21 petition must set forth the facts which establish the need for the rules requested. EPA is required to grant or deny the petition within 90 days. If EPA grants the petition, the Agency must promptly commence an appropriate proceeding. If EPA denies the petition, the Agency must publish its reasons in the Federal Register.

Within 60 days of denial, the petitioner may commence a civil action in a U.S. district court to compel the initiation of the rulemaking requested in its petition. The court must, for a petition for a new rule, provide the opportunity for the petition to be considered *de novo*.

After hearing the evidence, the court can order EPA to initiate the action requested if the petitioner has demonstrated, by a preponderance of the evidence, support for particular conclusions described in section 21. The petitioner must support different conclusions for section 4 petitions than for section 6 or 8 petitions.

In the case of a section 21 petition for a section 4 rule, the petitioner must demonstrate support for the conclusion that (1) information is insufficient to permit a reasoned evaluation of the effects of a chemical and (2) the chemical either may present an unreasonable risk or will be produced in substantial amounts and may result in significant or substantial human exposure or substantial environmental release.

In the case of a section 21 petition for a section 6 or 8 rule, the petitioner must demonstrate support for the conclusion that there is a reasonable basis that rules are "necessary" to protect against "unreasonable risk."

B. Assertions of Petitioner

NFFE petitioned EPA to initiate proceedings for a number of immediately effective rules to control exposure to the chemical substance 4-phenylcyclohexene (4-PC), an inadvertent byproduct of the manufacture of styrene-butadiene latex (SB latex) used in carpet manufacturing, as well as other chemicals emitted by new carpeting.

NFFE asserts that immediately effective rules are needed to protect against alleged adverse health effects described by NFFE as "multiple chemical sensitivity" (MCS) and "acute irritancy response" (AIR). NFFE claims

that MCS and AIR result from exposure to 4-PC emitted from SB latex in "bad" batches of carpets. The chemical 4-PC is likely produced at the initial polymerization stage of SB latex.

NFFE supports this contention by citing a surge in illness complaints among EPA employees following carpet installation in 1987–88 at the EPA headquarters building in Washington, D.C. NFFE claims that 4-PC is the single common emission product from these carpets and that similar complaints have been made by persons exposed to SB latex and not carpets. In addition, NFFE asserts that animal studies link 4-PC with adverse health effects.

NFFE maintains that this evidence provides a reasonable basis for the initiation of action under TSCA, arguing that it is not necessary to show 4-PC is the only cause of injury or to know the precise mechanism by which the adverse health effects occur.

NFFE further asserts that it might be inexpensive to reduce 4-PC levels in the initial production of SB latex or its subsequent processing. NFFE concludes that this remedy is justified on the basis of its probable low economic consequence compared to the severity of the life-altering human health effects asserted in the petition.

C. Remedies Sought

EPA is requested to initiate the following specific regulatory actions:

1. *Section 4.* NFFE requests that EPA promulgate rules to generate information elucidating the mechanism of action for 4-PC and other chemicals emitted from certain carpeting through specific testing including: (1) A case-control epidemiology study, (2) *in vitro* studies of the reactivity of 4-PC and its epoxide derivative with cellular proteins and DNA and like studies of the ability of 4-PC to affect certain enzyme levels in living cells, and (3) whole animal studies related to the *in vitro* studies on 4-PC and carpet off-gassing chemicals (effects on enzyme levels, immune system marker chemicals and neurotransmitter substances).

2. *Section 6.* NFFE requests that EPA promulgate immediately effective rules under section 6 to establish 4-PC indoor air level standards of 5 parts per trillion (ppt) to protect against MCS and 17 ppt to protect against AIR, and to require manufacturers to buy back carpets which would cause these levels to be exceeded. NFFE also requests EPA to issue an immediately effective order under section 6(b) to require manufacturers to remedy quality control procedures, notify the public of the health risks, and require the carpet buy-backs discussed above.

NFFE requests that testing be conducted to determine what levels of 4-PC in carpets would cause these indoor air level standards to be exceeded. Although NFFE characterizes this testing requirement as a rule under TSCA section 6, EPA believes that such requirement is more appropriately characterized as a rule under TSCA section 4.

3. *Section 8.* NFFE requests that EPA promulgate immediately effective rules: (1) Under section 8(a) to require manufacturers, processors and distributors to report amounts of SB latex manufactured and its uses; (2) under section 8(c) to require manufacturers to maintain and present for inspection records of allegations of adverse health effects related to exposure to 4-PC or mixtures containing 4-PC; and (3) under section 8(d) to require manufacturers to submit lists of health and safety studies on 4-PC or mixtures containing 4-PC and to submit health and safety studies on 4-PC in their possession.

4. *Other remedy requested.* NFFE requests that EPA develop and issue a "Chemical Advisory" directed to building managers regarding exposure to volatile chemicals in carpeting, particularly 4-PC, and the hazard to those persons apparently experiencing MCS. This remedy is not petitionable under TSCA.

III. Evaluation of the Petition

A. Legal Standards

Section 21, itself, does not specifically state the criteria under which EPA should decide whether to grant or deny a citizens' petition. Section 21 merely states that EPA must grant or deny within 90 days.

However, there are standards under sections 4, 6 and 8 for issuing regulations, and there are standards imposed on the court for deciding whether to order EPA to initiate rulemaking in the event of a lawsuit filed by the petitioner after denial of a section 21 petition. EPA has examined these standards, summarized in Unit II.A. of this notice, as the basis for evaluating NFFE's petition. Following is a discussion of how these standards apply to evaluation of the NFFE petition.

1. *Legal standards regarding testing rules.* With respect to NFFE's request for initiating testing rules under section 4, EPA considered the legal standards found in both section 4 and section 21. Some standards contained in these sections are essentially the same. For example, under section 4, EPA may issue a rule to require testing if it finds that data on a chemical are insufficient to evaluate its effects, and that the chemical may present an unreasonable risk of injury or is produced in substantial quantities, and either may result in significant or substantial human exposure, or may result in substantial environmental release. Section 21 allows a court to order EPA to initiate rulemaking if it makes, essentially, the same determination after a *de novo* review of the petition.

Three criteria are relevant to evaluating these standards for this petition: (1) Sufficiency of data, (2) unreasonable risk and (3) significant or substantial exposure. Decisionmaking under each of these criteria depends on the particular facts involved in any particular case and involves significant judgment on the part of the decisionmaker—EPA or a court. The unreasonable risk criterion, however, requires elaboration because it is a general standard that applies to both section 4 and section 6. This elaboration appears later in this Unit.

EPA applied another standard to its evaluation of NFFE's request for testing rules not found in section 21, but only found in section 4. Under section 4, EPA must find that testing is necessary to develop the data needed for evaluating a chemical before it may issue a testing rule. Under this requirement, EPA needs to consider such issues as whether there is a testing method that can be expected to develop useful data or whether there are other means of obtaining data without resorting to testing.

2. *Legal standards regarding control rules.* In evaluating NFFE's request for rules under section 6 to control chemicals, EPA assessed whether such rules are necessary to protect against unreasonable risk. This is the same test the court would apply under section 21. The test has two aspects. First, there must be an "unreasonable risk" of injury against which protection is needed. Second, TSCA rules must be "necessary" to protect against that risk.

EPA interprets the standard that rules are "necessary" to require consideration of whether TSCA rules are the appropriate remedy to protect against the risk described. For example, regulations under other Federal statutes, whether administered by EPA or other agencies, may be more appropriate than TSCA rules. Another consideration may be whether State or local initiatives constitute the appropriate remedy instead of Federal rules.

3. *Unreasonable risk.* Unreasonable risk is the basic regulatory standard under TSCA. It applies to rules under both section 4 and section 6, and to judicial decisions on section 21

petitions. The importance of the unreasonable risk standard to TSCA decisionmaking requires that the standard be given special explanation.

The finding of unreasonable risk is a judgment under which the decisionmaker determines that the risk of health or environmental injury from a chemical outweighs the burden to society of potential regulations. The section 4 requirement that EPA must find that a chemical "may" present an unreasonable risk requires less information on risk than the section 6 requirement to find that a chemical "will" present an unreasonable risk.

This concept is discussed in the legislative history of TSCA. The House Report notes that risk is measured by elements of probability of harm and severity of harm that may vary in relation to each other, and that the regulatory effect will be of greater significance in making an unreasonable risk determination if greater restrictions are imposed by regulation (H.R. Rep. 94-1341, 94th Cong., 2d Sess., pages 14 and 15). Thus, to impose regulations banning a chemical, for example, and thereby imposing a significant burden on society, the decisionmaker would need considerable information on toxicity and exposure. On the other hand, the decisionmaker would need less information on risk if the regulation were only a testing requirement that would not, by itself, result in the loss of benefits of the chemical to society.

In practical application, an unreasonable risk decision cannot be made considering risk alone. Rather, the probability of harm must be considered against the impacts of regulation. Thus, if exposure to a chemical is low and extremely high burdens would be incurred to achieve small incremental risk reduction, a decisionmaker might not find the risk unreasonable. On the other hand, an unreasonable risk may be found if the evidence on the risk asserted is marginal but the impact of regulation is low. Thus, the identified risk may justify the minimal costs of a testing rule or a labelling requirement, but would not justify the costs of more restrictive measures.

These considerations are especially relevant in the case of the NFFE petition.

B. Evaluation of NFFE's Assertions

EPA disagrees with NFFE that the health problems cited in the petition are likely caused by 4-PC exposure, or even that the petition identifies human disease conditions (MCS) that the medical community generally recognizes or for which there are evaluation techniques. Instead, NFFE's risk case is entirely based on the presence of 4-PC at the site of complaints about non-specific health effects.

EPA recognizes that certain individuals may have adverse reactions from exposure to indoor air contaminants. However, EPA's evaluation of 4-PC shows no evidence of such toxicity and, indeed, shows that it is an unremarkable chemical. There are no clinical studies or epidemiology data for 4-PC. Animal studies at dose levels well above those measured or expected at the EPA Headquarters do not indicate acute toxicity or skin sensitization. In addition, no credible physiological or biochemical causal mechanism has been identified to link 4-PC to the effects alleged in the petition. This evidence does not, however, entirely rule out a causal relation of 4-PC to effects on hypersensitive individuals.

NFFE has shown no definitive evidence that persons exposed to SB latex but not to carpet suffer the same complaints as people exposed only to carpet. Furthermore, 4-PC is not the only chemical found at the carpet complaint sites at EPA. Other chemicals, such as toluene, have been found at the same sites. A number of the chemicals found at these sites could produce the same non-specific symptoms that the petitioner attributes to 4-PC. It appears that some persons, NFFE included, may have alleged 4-PC as a cause of adverse effects partly because the odor of the chemical is so readily detectable. It has an extremely low odor threshold, approximately 0.5 parts per billion (ppb).

EPA does not rule out that complaints associated with the installation of carpets could be the result of the complex mixture of off-gassing chemicals, including the VOCs in carpets, padding and installation materials. The composition and concentrations of off-gassing chemicals vary between carpets. The large surface area of carpet compared to the surface areas of other room components might also be responsible for capturing and emitting of contaminants from many other sources.

C. Evaluation of NFFE's Remedies

EPA has determined that NFFE's assertions concerning 4-PC do not support its proposed remedies. The Agency's analysis follows.

1. *Section 4.* EPA has determined that the toxicity testing requested by NFFE is not justified under the legal standards of TSCA and the existing scientific evidence. There are insufficient data to reasonably determine or predict the effects of low levels of 4-PC and other chemicals that may be emitted from carpets. However, the other determinations under sections 4 and 21 cannot be made at this time.

First, EPA is not able to determine that, in the absence of sufficient data, 4-PC either may present an unreasonable risk or is emitted at levels that may cause significant exposure. EPA's evaluation of the available toxicity data, as summarized in Unit III.B. of this notice and as described in more detail in the administrative file prepared for this petition response, shows no particular concern for 4-PC. There is not even an apparent theoretical basis (structure-activity relationship or causal mechanism) that would lead to a significant concern for 4-PC. Thus, exposure to 4-PC off-gassing from carpeting does not appear to be unreasonable or significant, since it is present at such low levels. The low odor threshold of 4-PC is the only apparent reason for indicting the chemical. EPA believes this is not an appropriate reason to require special testing of this chemical.

Second, different considerations apply to the evaluation of exposure to total VOCs emitted from carpeting. The large amounts of new carpet distributed in the U.S. and the large surface area in the indoor environment lead to a concern that there may be substantial exposure to off-gassed chemicals. Thus, EPA believes that it is appropriate that companies test in order to characterize VOC emissions from carpeting products, and will require such testing under section 4 if it cannot be accomplished voluntarily. This testing will help determine if any exposure reduction measures are necessary, as more fully explained below.

Testing might be done either by carpet manufacturers or by raw material suppliers. For example, the Styrene Butadiene Latex Manufacturers Council (SBLMC), a trade association of companies that manufacture SB latex, has told EPA that its member companies have attempted 4-PC reduction over the last 2 years. The SBLMC, however, has not provided data on attempted manufacturing process changes or on levels of 4-PC in individual products. The SBLMC has told EPA that the present average level of 4-PC in SB latex is 123 parts per million (ppm). In a related matter, no information has been collected regarding the 4-PC levels in a related product, styrene-butadiene rubber latex, which is sometimes used to glue down carpets. Also, the Carpet and Rug Institute (CRI), a trade association of carpet manufacturers, has informed EPA of ongoing studies of carpet emissions. Results are expected in the next few months.

Finally, with respect to the potential adverse health effects of total carpet emissions, the studies requested by NFFE are not likely to develop the data needed. Accordingly, EPA has decided to consider whether other studies can be developed to evaluate the potential effects. The mechanistic case-control epidemiological studies requested by NFFE are not appropriate. Case-control studies look at subjects with a well defined disease compared to subjects without the disease to examine the possible similarities in exposures. If the disease is not well-defined, as with the conditions that the petitioner describes as MCS or AIR, epidemiologic studies will not clarify a disease mechanism or etiology. Studies done after the fact of disease cannot assign the presence or levels of enzymes (as the petitioner requested) to particular chemical exposures. EPA believes that it would be more useful to consider a prospective study of several populations, such as those who appear most sensitive to carpets and those who work with carpets directly.

EPA concludes that the animal studies suggested by NFFE would not be useful. NFFE claims that there may be a breakdown in the immune system, and perhaps other systems, of certain sensitive persons caused by exposure to 4-PC and other off-gassing chemicals. However, there is no adequately defined connection between the symptoms reported in humans by NFFE and its requested measurements of: (1) The binding of a chemical to cellular proteins and DNA, (2) enzyme levels, (3) immune system marker chemicals, or (4) neurotransmitter substances.

Changes in the immune system have historically not been shown to be a reliable predictor of the symptoms of concern presented in NFFE's petition. Exploratory research on broad classes of indoor air pollutants is needed to develop such predictive capability. Thus, it is appropriate for the research cost to be borne by a broader segment of society rather than by the carpet industry alone.

2. *Section 6.* Under unreasonable risk standards, EPA does not believe that the health effects evidence on 4-PC justifies immediately effective rules, requirements for indoor air levels in the low part per trillion range (well below current detection limits) or requiring buying back of carpet already installed. Such types of rules are too restrictive, given the paucity of evidence on 4-PC. EPA believes that by focusing on these types of rules for 4-PC, resources would be diverted from potentially more fruitful efforts to address indoor air pollution generally, including carpet emissions. A major problem with NFFE's requested remedies is that resources would be spent on addressing chemicals that may in fact cause no problem. In addition, NFFE's remedies may unfairly indict particular chemicals or a particular industry and could lead to undue public concern.

EPA is willing to consider, however, whether it is possible under unreasonable risk standards to develop cost-effective control steps to reduce levels of all VOCs that may be emitted from carpet, including 4-PC. A good understanding of the effects of complex mixtures, particularly in the case of sensitive individuals, may not be available for a long time. Thus, at least for the near term, further study of the health effects of complex mixtures in indoor air, should not delay efforts to address immediate concerns. EPA, therefore, believes that, until more definitive information is available, the Agency should promote reductions of chemicals emitted from carpets.

3. *Section 8.* The principal issue regarding NFFE's section 8 request is whether to institute rulemaking or obtain the information on a voluntary basis. Much of the information requested by NFFE (i.e. health and safety studies) has already been obtained from industry; industry has also informed EPA of ongoing animal studies. In addition, production data and use information on SB latex have been provided by industry.

The NFFE requested section 8(c) remedy for records retention for SB latex is already established at 40 CFR part 717. The SB latex industry has agreed to provide by May 1990 their existing records regarding adverse reactions allegations associated with SB latex as well as existing health and safety studies on SB latex. There may be little incremental benefit to issuing rules to gather information that industry will provide voluntarily and more quickly than through rulemaking. EPA will consider rules as necessary to obtain information about processing which can help identify appropriate exposure reduction measures.

4. *Chemical advisory.* EPA believes that its present and proposed information dissemination and technical assistance activities already provide an effective means to reach the public regarding health effects information. Furthermore, issuance of a Chemical Advisory is not a petitionable item under section 21.

IV. EPA's Response

The NFFE petition requested that EPA publish a number of immediately effective rules to protect the public from exposure to the compound 4-PC and mixtures containing 4-PC. EPA, however, denies this Section 21 petition because the evidence on the risk from 4-PC and other VOCs does not support the remedies requested.

The Agency, however, recognizes NFFE's concerns and would certainly agree that an absence of scientific certainty does not necessarily mean an absence of risk. In addition, the Agency recognizes that new carpeting can be a source of widespread human exposure to low levels of VOCs. As a matter of policy, the Agency believes it is prudent to minimize indoor human exposure to VOCs and other indoor air contaminants where reasonable and that efforts on the part of manufacturers to reduce product emissions should be strongly encouraged.

In light of these findings, the Agency is taking several steps. First, the Agency is formally requesting that the carpeting industry undertake a voluntary program to conduct periodic total VOC analyses on a company-by-company and product-by-product basis to provide the interested public with comparative information on total VOC emissions. Such a program, which may include labeling of carpet products for total VOC emission, would help to stimulate efforts to lower overall VOC emissions. Second, the Agency is inviting all interested parties to participate in a 1-year public dialogue process (discussed below) to initiate this program. Third, the Agency will also continue its risk management activities and research to identify possible health effects associated with complex air mixtures emitted by carpets and low level VOC exposures. These ongoing activities and planned research under the indoor air program are summarized in Unit V of this notice.

EPA's public dialogue process will continue for approximately 1 year. The Agency will invite interested members of the public to participate. EPA will seek participation by NFFE, the carpeting products industry, consumer/public interest groups, other Federal agencies, and other interested parties. The goal of this dialogue will be to characterize emissions and identify low-impact, feasible VOC controls that could be implemented in the near term, not to further characterize the health effects of chemicals emitted from carpeting.

The specific charges to the participants in the dialogue will be to:

1. Develop standard methodologies for testing carpet emissions and obtain commitments to test carpeting. The Agency will be requesting the carpet

industry to voluntarily commence appropriate periodic testing (probably on a company-by-company, product-by product basis) to quantify the total emissions of VOCs from their products to provide the interested public with comparative information on total VOC emissions from new carpets. Should an acceptable voluntary agreement not be obtained within a reasonable time, the Agency intends to propose a test rule under section 4 of TSCA to compel such testing.

2. Identify information needs for assessment of emission control feasibility, including data on carpet manufacture and installation technology and commercial activities associated with carpet installation. This data development and/or collection could be accomplished either by issuance of rules under TSCA sections 4 or 8, or by voluntary submissions.

3. Evaluate potential controls for reducing emissions, including product and/or emission standards, and labeling of carpet for VOC emissions. These could be accomplished either voluntarily or through low impact TSCA rules. Other appropriate statutes administered by either EPA or other Federal agencies will be considered, as required by section 9 of TSCA. If EPA pursues mandatory control options under TSCA, EPA will be required to make an unreasonable risk finding under section 6.

4. Identify VOC exposures which are associated with carpet installation but not necessarily from a carpet source (adhesives, floor preparation, etc.) and recommend any appropriate actions to reduce them.

A simultaneous effort will be made to assess whether prospective epidemiologic studies can be developed to determine the response characteristics of individuals exposed to carpet emissions and assess whether other health effects studies (e.g. human chamber, *in vitro*, or animal studies) should be performed as methodologies are developed and become available. A prospective epidemiology study would require identification and definition of symptoms of concern, with selection criteria including expressions of symptoms within a specified time after an exposure event. Workable test methods to measure the relevant symptoms would need to be identified. It may take as long as 1 year to determine whether appropriate epidemiology protocols can be developed. If a determination is made that protocols are feasible, EPA will require industry to develop specific test protocols and carry them out.

The administrative actions to establish the dialogue—including meetings, reports, and other pertinent information—will be described in a separate Federal Register notice to be issued by June 1, 1990.

V. EPA Indoor Air Program

The issue of carpet emissions and their contribution to adverse health effects has been treated by the Agency as part of the overall indoor air pollution problem. Prior to and independently of the petition, EPA has undertaken a risk management and research program for indoor air pollution as part of its responsibilities under Title IV of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Title IV of SARA mandates a comprehensive indoor air quality research and development program by EPA to identify, characterize, and monitor sources and levels of indoor air pollutants, to develop instruments for indoor air quality data collection, and to identify high risk building types.

This program has two major elements, risk management and research, which are discussed below.

A. Risk Management

The indoor air pollution risk management program undertaken by EPA emphasizes nonregulatory programs of information dissemination, technical assistance, guidance and training to build State and local government and private sector capabilities to address indoor air quality problems. However, the Agency also believes that for identified high priority problems, regulation under available statutes, including the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Safe Drinking Water Act may also be appropriate.

In an effort to disseminate available information on indoor air quality, EPA has published a number of documents on indoor air pollution and its mitigation, including a major "Report to Congress on Indoor Air Quality" (August 1989), a series of fact sheets on indoor air issues, including "Sick Buildings" and "Ventilation and Air Quality in Offices," a "Survey of Private Sector Indoor Air Quality Diagnostic and Mitigation Firms," and several publications dealing with residential indoor air issues.

EPA is currently developing guidance documents directed to specific audiences, such as architects and engineers, building owners and managers, and new home builders and buyers, on the prevention, diagnosis and mitigation of indoor air quality problems in commercial and residential structures. As an example, the guidance document for building owners and managers is designed to be used in assessment programs to identify and correct potential problems, and to manage related indoor air quality problems, through building investigations, employee relations, contracting and mitigation techniques. EPA is also exploring, through a public dialogue process, whether a consensus based credentialing system for private sector indoor air quality diagnosis and mitigation firms is feasible and desirable. In addition, a manual for physicians on the recognition, diagnosis and treatment of illnesses related to indoor air quality will be developed.

EPA is developing a general indoor air quality training program for State and local governments to help them to identify and mitigate indoor air quality problems. In addition, EPA will be developing model State programs for indoor air quality assessment and response.

B. Research

The objective of EPA's indoor air pollution research program is to gain information to reduce exposure to indoor air pollutants known to cause health risks. The first step in achieving this objective is the identification and characterization of the health risks posed by indoor exposures. Once the risks have been adequately characterized, exposure reduction techniques can then be evaluated on the basis of their practicality, cost, and effectiveness.

To characterize pollutants from off-gassing or volatilization that might occur from carpets, wall coverings, paints, and other products, EPA is conducting small chamber testing of the indoor air contribution of construction products. Levels of chemicals that would be expected indoors can then be estimated based on such emissions data, using indoor air models developed by EPA.

EPA is encouraging emissions testing by industry using consensus, verified methods. The American Society for Testing and Materials (ASTM) is currently reviewing an EPA-developed standard small-chamber test method to characterize the complex emissions from products used indoors, such as carpeting. EPA is conducting monitoring and analytical methods research that includes the development and evaluation of personal and micro-environmental monitors to measure pollutants in indoor air, including monitors for semiVOCs and polar organic compounds. This research

includes compiling these methods into a compendium of monitoring and analytical techniques for indoor pollutants, including methods for semi-VOCs and polar organic compounds. EPA is developing exposure assessment techniques for application to large buildings.

EPA is conducting research on the effects of VOC mixtures on neurobehavioral and physiologic effects on humans. EPA is developing a risk assessment methodology to evaluate the human health risks from exposure to indoor air pollution for both cancer and non-cancer endpoints.

To understand the national scope of the indoor air problem, EPA is developing baseline data. EPA is also resolving specific indoor air pollution inquiries and complaints from within EPA. As part of this effort, EPA has been developing and implementing a national Indoor Air Quality and Work Environment Study to be implemented at the EPA's Headquarters facilities, where EPA staff have expressed concerns about indoor air quality. Actions to improve indoor air quality at EPA's facilities are being taken in response to the survey results, and other information.

In addition, EPA is engaging independent experts to assist the Agency in the development of a long-range research strategy relative to MCS with the goal of producing the information necessary for establishing Federal policy on this issue.

EPA is continuing development of risk assessment information and methods for evaluating risks associated with specific sources of indoor air contamination. As part of this process, EPA is co-sponsoring a 3-day technical workshop scheduled for April 17-19, 1990, to address risk assessment methods for indoor air complex chemical mixtures, including carpeting.

VI. Administrative Record

EPA has established a public record of those documents the Agency considered in denying NFFE's petition. The record consists of documents located in the file designated by Docket Control Number, OPTS-211027, located at the TSCA Public Docket Office. This Docket is available for reviewing and copying from 8 a.m. to 4 p.m., Monday through Friday, excluding legal holidays, at the following address: Environmental Protection Agency, Rm. NE-G004, 401 M St., SW., Washington, DC 20460. The public record consists of all documents in the OPTS-211027 file and all documents cited in the documents in that file.

Dated: April 17, 1990.

William K. Reilly,

Administrator.

[FR Doc. 90-9464 Filed 4-23-90; 8:45 am]

BILLING CODE 6560-50-D