

Report of the  
International Association  
of Fire Chiefs

Ad Hoc Committee on  
Fire-Safe Cigarettes

03524672

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**REPORT OF THE INTERNATIONAL ASSOCIATION OF FIRE CHIEFS**

**AD HOC COMMITTEE ON**

**FIRE-SAFE CIGARETTES**

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Chief, Milwaukee Fire Department

**JOHN J. HART, Chief**  
New York Fire Department

**DR. DIETRICH HOFFMAN, Associate Director,**  
Naylor Dana Institute for Disease Prevention,  
American Health Foundation

**DR. RICHARD D. STEWART, Corporate Medical**  
Director, S.C. Johnson & Son, Inc.

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Director, Center for Fire Safety Studies,  
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AD HOC COMMITTEE ON FIRE-SAFE CIGARETTES

Background

At the International Association of Fire Chief's annual meeting in Atlanta on August 28-31, 1983, the chiefs decided that they needed better technical information to make an informed decision on whether to support resolutions regarding fire-safe cigarettes. And if there are to be resolutions, what they should be. There had been many opinions expressed in the past, but few documented facts had been made available to the chiefs either from proponents of self-extinguishing cigarettes or those who thought they were not such a good idea.

Chief William Stamm of Milwaukee was asked to select and chair an Ad Hoc Committee to find out what was really known and what was not. The Committee was to review documented research, expert testimony, the ideas and data from various chiefs, and the positions of the various sides to the discussion. The Committee was then to recommend a course of action for the IAFC.

Ad Hoc Committee

The Committee selected, after many suggested names were researched and considered to assure that no one had a special interest and would be 100% impartial, consisted of two IAFC Metropolitan Fire Chiefs, one a smoker and the other not; two medical scientists with background relevant to the toxicology of smoke; and two scientists with fire-related backgrounds. The following individuals were selected; all agreed to serve totally at their own expense:

Chairman - William Stamm, Chief, Milwaukee Fire Department

John J. Hart, Chief, New York City Fire Department

Dr. Dietrich Hoffmann, Associate Director, Naylor Dana  
Institute for Disease Prevention, American Health Foundation

Dr. Richard D. Stewart, Corporate Medical Director,  
S.C. Johnson & Son, Inc.

Professor Richard L. P. Custer, Associate Director, Center  
for Fire Safety Studies, Worcester Polytechnic Institute

Dr. Edward Clougherty, Chemist, Boston Fire Department  
(subsequently declined)

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Dr. Clougherty had to drop out of participation because of funding problems in his city.

The Chairman feels he was fortunate in getting such a distinguished group on relatively short notice. Resumes of the remaining five active members are contained in Attachment 1.

### Information Gathering

Prior to the first meeting of the Committee, the Chairman circulated articles, congressional testimony, and other materials relevant to the issue to the Committee members and to representatives of the different sides of the issues so that everyone had the same information and could comment on any of the various submissions from other parties. The idea was to put all of the information on the table, so all could review it.

The Chairman also met with various chiefs so he could better represent their collective opinion. He also sent a tentative agenda of issues to be discussed at the meeting to the Committee members and to numerous Metropolitan Chiefs. Many of the chiefs provided him with written or verbal comments on the issues. The tentative agenda of issues is attached (see Attachment 2). It was meant to be only a starting point for discussion and not a limitation.

The Chairman also sent letters requesting information on the issues to the U.S. Fire Administration, Consumer Product Safety Commission, the tobacco industry, leading proponents of self-extinguishing cigarettes, and others (see Attachment 3).

To provide technical information to the Committee on the nature of cigarette-related fires, the research on self-extinguishment, and other aspects of cigarette technology and to give it a chance to ask in-depth questions, several experts were invited to make presentations at the Committee meeting and also totally at their own expense.

The four experts selected from four different fields were:

Dr. John F. Krasny, Center for Fire Research, National Bureau of Standards -- to summarize the Center's research on the ignition propensity of cigarettes.

Dr. Alexander W. Spears, Executive Vice President, Operations and Research, Lorillard -- to summarize relevant aspects of cigarette technology and the tobacco industry's fire test experience.

Philip S. Schaenman, President, TriData Corporation, and former Associate Administrator of the U.S. Fire Administration -- to summarize national data on cigarette-related fires.

Arthur C. Delibert, President, Citizens Committee for Fire Safety -- to summarize information backing the views of the proponents of fire-safe cigarette standards.

Resumes of the four technical experts are contained in Attachment 1.

These experts also were sent copies of the issues and available data, so they could be prepared to comment on the various information collected by the Committee, as well as their own.

The Chairman directed all parties connected with this Committee to be prepared to back up their comments with facts that were or could be documented.

### The Meeting

The Committee met on November 16, 1983, in New York City at the offices of the American Health Foundation, courtesy of Dr. Hoffman. Klaus Brunneman, a research colleague of Dr. Hoffmann at the American Health Foundation, also attended and assisted Dr. Hoffmann.

The Committee met in private at the start of the meeting, then listened to the four invited experts, asked many detailed questions, and finally met in private again to close the meeting.

At the meeting, a large volume of technical papers was given to the Committee by Dr. Spears. These were the references in support of his previous Congressional testimony on behalf of the tobacco industry and on his presentation to the Committee. A listing of the references can be found in Attachment 4; most are from the open literature and are available to anyone who wants them. (The entire volume was too bulky to attach here, but the references are available from the Chairman if they cannot be obtained elsewhere.)

Dr. Krasny presented physical samples of the cigarette burn tests he performed and described his test procedures and their scope. Copies of his graphs are contained in Attachment 5.

Mr. Schaenman presented U.S. Fire Administration estimates for 1976-1981, plus the 1982 estimates he made for the Committee based on U.S. Fire Administration and NFPA data of the magnitude of smoking-related fire losses, trends, the materials involved in ignition, and other relevant statistics. His paper is Attachment 6.

Mr. Delibert presented remarks mostly on the political, legal, and administrative aspects of proposed legislation. His paper is Attachment 7.

At the end of the meeting, the Committee decided that each Committee member would submit an independent summary of his conclusions and recommendations in writing to the Chairman, who then would put together a draft report. These letters are Attachment 8. You will note the Chairman did not submit a summary to assure that the other members would not be swayed in their thinking; however, his thoughts are incorporated in the final report. The draft was then considered by each member. Comments received were incorporated into this final report.

\* \* \* \* \*

The conclusions and recommendations of the IAFC Ad Hoc Committee on Fire-Safe Cigarettes are summarized as follows:

#### Conclusions

**Leading Fire Problem** 1. National data continue to indicate that cigarettes are the leading source of ignition in fire deaths. The typical scenario in 1982 continues to be a cigarette dropped on upholstered furniture (2/3) or bedding (1/3). A working smoke detector was not present in the vast majority of the deaths.

## Trend

2. The national data also show that cigarette-related fire deaths and cigarette-related fires have been dropping over the last six years. Fire deaths dropped 20% according to the U.S. Fire Administration/Schaenman estimates, and 29% according to CPSC. Smoking-related fires dropped 33% according to USFA/Schaenman and 40% according to CPSC. (See Attachment 9 for the CPSC data.)

## Causes of Trend

3. There is no definitive study of reasons for this decline but there must be something that is having a beneficial effect. It is not the cigarettes themselves. They have not been modified during this period in respect to self-extinguishing properties, and cigarette sales have not followed the pattern of deaths.

One thing that is clear is that smoke detector usage has increased dramatically. It went from 20% of households in 1977 to 67% of households in 1982. It is highly likely that this is having an effect on the number of fires and deaths. The safety effect could be further increased if smoke detectors are properly maintained and if the use of smoke detectors can be further spread among low income families, of whom only one-third now have detectors.

Other possible reasons for the decline in smoking-related fires and fire deaths are increased public education and increased usage of safer mattresses and upholstered furniture, but this is speculative at this point.

## Medical Side Effects a Major Concern

4. There is considerable reason to believe that the proposed methods of making cigarettes self-extinguishing will substantially increase tar, nicotine, and carbon monoxide levels. Also, the amount and composition of the smoke may change. The medical experts on the Committee warned that self-extinguishing cigarettes might cause far more deaths and illnesses than the number of people who might be saved from fires, even if all fire deaths involving cigarettes were eliminated. The potential for doing more harm than good is very large and must be considered.

Cigarette  
Testing Not  
Adequate  
To Date

5. Some tests indicate that a few brands of cigarettes "self-extinguish" in some circumstances; that is, they go out if not being puffed. Some brands of cigarettes may burn a smaller hole than others when placed on a simulated furniture substrate in the laboratory. However, the data are inconclusive as to whether there is a significant difference in ignition potentials among existing brands for real world situations. The laboratory tests have not been correlated with real world performance. In particular, no attempt has even been made to correlate with real world experience the tests proposed by Dr. Krasny at NBS for rank ordering the propensity of cigarettes to start fires. And his test did not consider crevices or "hot end down" positions. Doctor Krasny's initiative should be applauded, but he agrees, it was just the start of the testing that is needed. Unless a test can be linked to the real world, there can be no meaningful standard. Based on the available information, we conclude that this is an area that requires additional, thorough, third party testing.

Burn  
Temperature

6. The temperature at which all brands burn is far above that needed to ignite virtually all existing mattresses or upholstered furniture materials. It has been shown that the burning temperature (about 800° C) can be varied somewhat (+ 50°) by altering various parameters of the cigarette, but not enough to make a significant difference in ignition propensity.

Ignition  
Propensity of  
Existing  
Brands

7. All tested brands can ignite any of the easy-to-ignite materials such as cottons. (The tobacco industry says their tests show this is true for Sherman, Carlton, and More as well as other brands; no data were presented to either support or refute this.) Unfortunately, the low income groups that have the most fire deaths are also likely to have the cheaper, easier to ignite materials such as cotton. About 50% of all furniture in use today contains cotton batting.

All tested brands can ignite furniture if they land hot end down or land in a crevice in the furniture. You can get ignitions even with the "low propensity" cigarettes.



Unfortunately, there has not been adequate testing of cigarettes in these situations -- only scattered anecdotes. There is also no solid information as to whether these are the situations leading to fire deaths or whether the "landing flat" scenario is equally a problem in serious fires.

None of the existing brands of cigarettes are likely to ignite some types of material such as man-made upholstery materials if they fall flat on them.

As mentioned above, we repeat and emphasize that testing to date is inadequate to support either the claims that a satisfactory fire-safe cigarette can be made or that it cannot be made.

Potential  
for Improve-  
ment Exists

8. All parties believe that it may be possible to develop a more fire-safe cigarette without bad side effects, although no one has yet put evidence on the table that it can be done. Research by the industry (including research with varying diameters and packing density) has not yet found a solution. Additives are a possibility, but the ones proposed in patents for this are likely to prove toxic.

Neither the tobacco industry nor NBS researchers nor anyone on the Committee believes the situation is hopeless. All of us believe it is important to continue to search for a solution.

Additives

9. The tobacco industry maintains that it does not add salt-peter or anything else to tobacco to make it burn faster. They say that there is no additive that, if removed, would make cigarettes self-extinguishing. They do report that there are additives to cigarette paper to make it burn even with the tobacco; however, the deletion of these additives would not make cigarettes self-extinguishing but rather would create cigarettes with looser fire cones or irregular burning. Humectants are added to retain enough moisture to keep the tobacco from drying out and burning too fast, but removing them would not have the desired fire-safety effect.

There are nitrates in fertilizer used to grow tobacco. But the tobacco plants themselves contain nitrates, too, according to the industry. The Sherman cigarette, which claims to have no additives, was found to have the highest level of nitrates of any cigarettes tested by the industry. The Sherman cigarette uses tobacco that is more similar to pipe tobacco than to cigarette tobacco, which is why it burns slowly and usually self-extinguishes.

Some  
Improvement  
Would  
Suffice

10. A "safer cigarette" does not have to eliminate all smoking-related fire deaths to be an improvement. If a way is found to make cigarettes that do not ignite fires in some situations where they now do, that would be a worthy goal -- so long as they do not cause more harm than good. On the other hand, a cigarette that does not affect most of the fires that now start or could start should not be labeled fire-safe. If people think cigarettes are truly "fire-safe," they may be more careless with them and that may lead to more fires than we have now.

#### Recommendations

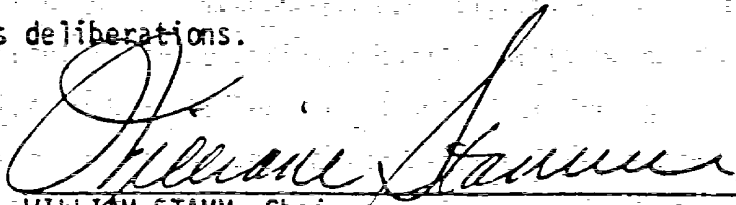
1. The IAFC should change the resolution it has passed regarding self-extinguishing cigarettes. The IAFC should not recommend to the federal government or state legislatures to pass legislation to set standards for cigarettes at this time. The IAFC should not support the Moakley bill or the Heinz bill as they were originally introduced. No one seems to know how to set standards with present knowledge. If a federal study finds a way to develop cigarettes that are more fire-safe, then standards should be set at that time. If no one can find a satisfactory way to make cigarettes safer, we would look foolish to be requiring standards, and might cause harm through health effects.
2. Instead the IAFC should support legislation that would require a comprehensive scientific federal study to be undertaken as soon as possible to see if there is a way to make cigarettes more fire-safe without side effects that are worse than the cure. The study should include testing of existing

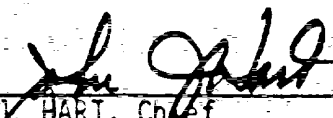
brands for relative fire safety and should look at new ways to make a cigarette. The study should have no strings attached for any interested parties.


3. The study should include research to establish a methodology to measure the self-extinguishing characteristics of cigarettes. To be valid, the tests should cover the range of furniture substrates commonly found in the real world.
4. To be valid, any standard must be based on real world, full scale fire tests, or show that lab test results can be extrapolated to the real world. It is not enough to show differences using lab tests alone that have not been correlated with real world conditions.
5. Any proposal for a cigarette considered to be fire safe must be tested to ensure that it does not produce greater amounts of potentially harmful substances than are in the smoke of current cigarettes. If it does produce a greater quantity of potentially harmful substances, the cigarette should be tested further at least with animal toxicology studies before any legislation is considered for setting fire-safety-related standards. (An outline of such testing is included in Doctor Hoffmann's attached letter.)
6. The federal study should conduct all phases of research under the supervision of a panel of experts who have skills in fire science, medicine, tobacco science, and consumer interests. These should include people from federal government health, fire consumer safety, and standards agencies; the tobacco industry; the fire service; other relevant industry; and consumer advocacy groups or fire-related foundations. Specific federal agencies must include the Consumer Product Safety Commission, National Bureau of Standards, the Federal Management Agency, and the Department of Health and Human Services. Fire organizations to consider include the NFPA and the IAFC.


7. The federal study should include a risk analysis that considers all the ramifications of changing today's cigarettes -- not just in potential health impacts but also behavioral changes (e.g., more or less attention to care with cigarettes, relighting of cigarettes, changes in the usage of cigarettes, potential impact on number of smokers, etc.)
8. No state or political subdivision thereof shall establish, maintain or enforce any fire-safety standard for cigarette products until after the conclusion of the federal study. This should not keep them from doing their own research on the subject during the time of the federal study. Once the federal study is completed, individual states may or may not conclude that the facts warrant the enactment of state standards. The IAFC should reserve comment on state legislation until that time.


The Chairman greatly appreciates the thoughtful contribution and time of the Committee members. The Committee also wishes to thank the many people who contributed to its deliberations.

  
WILLIAM STAMM, Chairman  
Chief, Milwaukee Fire Department

  
JOHN J. HART, Chief  
New York Fire Department

  
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Naylor Dana Institute for Disease Prevention,  
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## ATTACHMENTS

- Attachment 1. Resumes of Committee Members (5)  
Resumes of Technical Experts (4)
- Attachment 2. Preliminary Agenda of Issues  
Original Charge to Committee  
Points To Be Cleared Up
- Attachment 3. Chairman's Letter Requesting Information from  
Government and Industry
- Attachment 4. List of Papers Supporting the Tobacco Industry's  
Research (Dr. Spear's testimony)
- Attachment 5. Graphs on NBS Cigarette Burn Tests (which  
accompanied Dr. Krasny's testimony)
- Attachment 6. Statistics on Smoking-Related Fires  
(Mr. Schaenman's testimony)
- Attachment 7. Citizens Committee for Fire Protection  
(Mr. Delibert's testimony)
- Attachment 8. Letters from Committee Members on Their Individual  
Conclusions and Recommendations
- Attachment 9. CPSC Fire and Fire Death Data