

PRODUCTS FIRST IGNITED IN U.S. HOME FIRES

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We are also grateful to the U.S. Fire Administration for its work in developing, coordinating, and maintaining NFIRS.

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Executive Summary

Homes averaged 372,400 fires, 2,948 civilian deaths, 15,333 civilian injuries, and \$5.4 billion in direct property damage per year between 1999 and 2002. Home fires per year have declined by 215,300 since the first five-year time period (1983-1987) this report examined. Civilian deaths and injuries have also been on a slight downward trend, but direct property damage has shown a steady increase which is attributable to inflation. The figures for all available years, 1980-2002, are provided for each product for comparison purposes.

There are many that can be done to prevent home fires. Consumers have some control over the size, characteristics, and arrangement of the fuel load in our homes and how potential heat sources interact with these fuel loads. Mandatory and voluntary product standards also have an impact.

This report focuses on the roles of combustible products in a home as initial fuels in fires. Differences in how products burn - intensity of heat when fully involved (peak rate of heat release), rate of production of smoke or products of combustion (mass loss rate), quality of gases when produced (toxic potency), corrosiveness of smoke, and so forth - are beyond the scope of our data bases but may be important to a full hazard or risk analysis. Testing and fire modeling, rather than simple data analysis, are needed to address these subjects.

Discussions in this report will be limited to only those items that are considered products. Trash, for example, has a considerable share of home fires but is clearly not a home product. Building materials such as structural members and exterior coverings are also excluded. Of the products discussed in this report, mattresses and bedding, which are treated together, account for roughly one-and-a-half times as many fires as interior wall covering, the next leading product.

Upholstered furniture fires were associated with the most civilian deaths involving products in homes. Mattress and bedding fires resulted in the most product-related fire injuries and property damage.

The following table shows the various forms of materials first ignited in home fires. The materials that qualify as **products are listed in bold italics**. The purpose of this table is to compare the fire experience of products versus other forms of materials that are commonly ignited in home fires.

Although cooking materials, structural member, and electrical distribution are the top three items initially involved in home **fires**, the three combined were associated with a total number of home fire **deaths** that is slightly more than the death toll for the number five leading item first ignited, which was mattresses or bedding. Upholstered furniture, which ranked tenth in terms of fires, was the leading item (product and non-product) involved in home fire deaths. Appendix C at the end of this report provides an overview of the forms and types of materials first ignited in homes for 1994-1998 for comparison purposes.

Flammable or combustible liquids or gases in or from a pipe or container, and atomized or vaporized liquid are not addressed under item first ignited, because they are better addressed under types of material first ignited in another separate report.

Since products in the home play a greater role in home fire deaths than in home fires, products within each section of this report are discussed in order of the most civilian deaths to the least.

Finally, there are a items that have not been classified as products used in homes for this report but might be in future reports such as:

- Electrical wire or cable insulation (not a product but part of a product) – 23,000 fires, 87 civilian deaths, 475 civilian injuries, and \$297.0 million in direct property damage per year.

Introduction

This is one of three reports that examine the fire experience of products in homes* in the U.S. This report looks at the various items that serve as initial fuels for fires in homes, while the second report deals with equipment and appliances. A third report examines flammable and combustible liquids and gases involved in ignition.

This report is broken down into six sub-sections, which provide additional information for specific products. Mattress and bedding fires, for instance, are broken down by reporting year for homes, major cause, factor contributing to ignition, leading equipment involved, and also by heat source. Safety tips are also given. Similar breakdowns are given for all products in this report. When a product has a relatively small share of the fire experience, no tables are provided because the breakdowns are so small that individual cause factors would round to zero. Please refer to the methodology section for more detail on what is included in this report.

A companion report from NFPA is organized in terms of the appliances and equipment first involved in fire and provides tables on ignition factors and form of material first ignited in ignition. Statistics in the two reports may not match for some combinations of equipment and items first ignited, because the sequence of analysis of unknowns can affect the results. For more information on this or any other statistical report, contact the One-Stop-Data Shop at 1-617-984-7450, or by e-mail at osds@nfpa.org.

For information regarding specific makes and models of products please contact the U.S. Consumer Product Safety Commission at 1-301-504-0470, or by e-mail at www.cpsc.gov. For further information regarding safety tips, refer to applicable NFPA codes and standards and related information (1-800-344-3555) and the NFPA Public Education Division (1-617-984-7285), or visit our web site at www.nfpa.org.

The statistics in this report are national estimates derived from the U. S. Fire Administration (USFA's) National Fire Incident Reporting System (NFIRS) in combination with NFPA's annual fire department survey. State agencies and local fire departments began implementing NFIRS Version 5.0 in 1999. Data that was collected in an earlier version was converted to Version 5.0. Some conversions were straightforward and many data elements stayed fairly stable. In other sections, logic and definitions changed significantly, making it harder to track trends.

Detailed information about NFIRS, including Version 4.1 and 5.0 codes and conversion tables, can be obtained from <http://www.usfa.fema.gov/>. A detailed explanation of how national estimates are calculated can be found in the Appendices.

* "Homes" include one- & two-family dwellings, duplexes, manufactured homes, apartments, tenements, flats, townhouses, and condominiums. The home category does not include rooming, boarding, or lodging houses; hotels or motels; dormitories or fraternity or sorority houses; barracks or bunk houses; or any institutional property providing lodging.

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