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Bibliographies on Fabric Flammability

Interior Furnishings

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

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Bibliographies on Fabric Flammability

Part 4. Interior Furnishings

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Fabric Flammability Bibliographies

Preface

The Secretary of Commerce, under the 1967 amendment to the Flammable Fabrics Act, was authorized to conduct research into the flammability of products, fabrics and materials, conduct feasibility studies on reduction of flammability, develop flammability test methods and offer appropriate training in the use of flammability test methods. These responsibilities were delegated to the National Bureau of Standards.

In order to facilitate these four areas of investigation, it is necessary to have a thorough knowledge of what has been accomplished and what is being done by others in the field. Therefore, as part of the program of the Office of Flammable Fabrics, a series of bibliographies is being developed in cooperation with the staff of the Library of the National Bureau of Standards.

Each bibliography deals with a specific facet of the fabric flammability problem, such as flammability of wearing apparel, flammability of carpets and rugs, smoke and noxious products of combustion, *etc.* These bibliographies are working documents and will be updated and reissued as warranted. All the items listed will be on file at an Information Center at the National Bureau of Standards and available for inspection by those interested. However, copyright restrictions prevent the distribution of copies of these documents.

Citations for these bibliographies have been collected through a review of abstracting and indexing journals, such as *World Textile Abstracts*, *Chemical Abstracts*, *Applied Science and Technology Index*, *Engineering Index*, and *Business Periodicals Index* for the period 1960 through 1969, as well as from various footnotes and bibliographies. The elements of each citation will vary with the type of publication cited. Initially, they will include: author or issuing agency; title of article or paper; title of journal; title of book, chapter and chapter number; volume number; issue number; edition other than first; publisher, place and date of publication, inclusive pages; and number of references given. Later versions will include abstracts.

Arrangement is alphabetical by surname of the first author or by title if there is no author. When readily available the AD, PB, NASA or STAR numbers are supplied. Author and key word indexes are provided.

The following symbols signify certain types of citations:

* — a publication that has not been seen by the compilers of this bibliography.

** — a short item such as a news note, or subsection of an article.

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The literature on the flammability of fabrics is highly fragmented and difficult to cover completely; consequently, some items in the literature may have been omitted. It would be greatly appreciated if those using the bibliographies would inform the Office of Flammable Fabrics, National Bureau of Standards, Washington, D.C. 20234 of any items that are not included of which they have knowledge.

Acknowledgement

The authors wish to express their appreciation for the assistance provided by many people at the National Bureau of Standards in the preparation of these bibliographies. Special thanks are extended to Mrs. Mary E. Roger, for typing the many citations on magnetic tape, and to Mr. Rubin Wagner and Mrs. Sharon F. Holdridge, Computer-Assisted Printing Section, for preparing the material for computer printing.

Abstract

As recognition of the urgency of the flammable fabrics problem, the Flammable Fabrics Act of 1953 was amended in 1967 to include all items of wearing apparel and interior furnishings. In order to facilitate research and assist in the development of new standards and test methods in these areas, a series of bibliographies is being prepared by the NBS Office of Flammable Fabrics in cooperation with the NBS Library. The first three bibliographies, on wearing apparel, fabrics used on beds, and carpets and rugs, were published in NBS Technical Note 498. This one is on interior furnishings. It includes all of the references on bed fabrics and carpets and rugs that appeared in TN 498, along with those on upholstered furniture, draperies, curtains, and materials that are used in interior furnishings.

Key words: Bedding; beds; blankets; carpets; curtains; drapes; fabrics; fibers; fire; flames; flammability; flammable; floor coverings; furnishings; furniture; interior furnishings; mattresses; pads; pillow cases; pillows; plastics; rugs; sheets; springs; upholstered furniture; upholstery.

Part 4. Interior Furnishings

Introduction

The December 1967 amendment to the Flammable Fabrics Act extended the coverage of that Act to include interior furnishings containing fabrics and related materials. This extension served to recognize the fact that interior furnishings may be involved in a significantly large number of fires each year that lead to death, injury or significant property loss. The Secretary of Commerce has chosen to examine various items of interior furnishings separately, rather than collectively, because of the large variations in their involvement in fires. He has found that unreasonable fire risks are involved in the use of carpets and rugs and may be involved in the use of bedding. Separate bibliographies for these two categories have been published in NBS Technical Note 498.

However, there is a large interest in the entire field of flammability of interior furnishings and, consequently, this bibliography is being published. It contains over 245 citations relating to interior furnishings. Separate bibliographies will appear later on test methods, smoke and other combustion products, fire and flame retardants and other specific areas currently within the coverage of the 1967 amendment to the Flammable Fabrics Act.

ABERNETHY, N. W., **Rovana; Dow's New Saran Micro-Tape,** *Modern Textiles Magazine* 41, No. 5 (May 1960), 99-102.

About Mattresses, *Fire Journal* 59, No. 2 (Mar. 1965), 85.

Act to Amend the Flammable Fabrics Act, to Increase the Protection Afforded Consumers Against Injurious Flammable Fabrics, *U.S. Statutes at Large,* 81 (1967); *U.S. Code* (1964) Supplement 4, January 4, 1965-January 2, 1969, Title 15, Sections 1191-1204.

American Society for Testing and Materials, **D777 – 46 (Reapproved 1965),** *Standard Method of Test for Flammability of Treated Paper and Paperboard,* in Part 15, *Book of ASTM Standards 1969,* 211-212 (ASTM, Philadelphia, Pa., 1969).

Are Flame Retardant Fabrics Acceptable?, *Textile Industries* 132, No. 4 (Apr. 1968), 159, 162, 171-172, 175.

ARLEDTER, H. F., KNOWLES, S. E., AND DRUCK, J. U., **Flame-Retardant Papers and Laminates,** *Tappi* 47, No. 8 (Aug. 1964), 48A, 52A, 59A, 62A, 68A, 72A.

ARTHUR, J. B., **Polyester in Carpets,** *Textile Industries* 131 (Sept. 1967), 88-B, 88-C, 94-95.

BABCOCK, C. I., **A Place for Old Folks to Live,** National Fire Protection Association. *Quarterly* 51, No. 1 (July 1957), 35-49.

Baby Blankets: A Minority Report, *Consumer Reports* 29 (May 1964), 215-216.

BARBER, R. P., **A Study of Fire Retardancy of Polyester/Cotton Sheeting,** *American Dyestuff Reporter* 57, No. 10 (May 6, 1968), 373-377, 4 refs.

BEST-GORDON, H. W., **Modifications in Viscose-Type Fibres and Fabrics,** *Textile Institute and Industry* 7, No. 6 (June 1969), 162-164.

Big Picture in Home Furnishing Fabrics 1961, *Modern Textiles Magazine* 42, No. 1 (Jan. 1961), 22, 47-50.

Blankets,** *Consumer Bulletin—Annual 1968,* 42 (Sept. 1967), 214.

Blankets,** *Consumer Bulletin—Annual 1969,* 43 (Sept. 1968), 47-48.

Blankets, *Consumer Bulletin—Annual 1970,* 44 (Sept. 1969), 138-139.

Blankets, *Consumer Reports* 19, No. 11 (Nov. 1954), 533-535.

Blankets, *Consumer Reports* 29, No. 10 (Oct. 1964), 472-475.

Blankets, *Consumer Reports* 31, No. 12 (Dec. 1966), 28-29.

Blankets: Special Fibers *vs.* **Wool,** *Consumer Reports* 23, No. 2 (Feb. 1958), 68-73.

Blankets and Other Nonclothing Fabrics. Includes correspondence from: SEGAL, L., *Fire Journal* 62, No. 3 (May 1968), 109.

BRISSETTE, R. S., **The Use of Synthetic Modacrylic Fibers,** based on a paper presented at the Conference on Burns and Flame-Retardant Fabrics, held at the New York Academy of Medicine, December 2-3, 1966, New York Academy of Medicine. *Bulletin* 43, No. 8 (Aug. 1967), 694-698.

British Standards Institution, **B.S. 2963:1958,** *Tests for the Flammability of Fabrics,* includes Amendment No. 1, PD3563 (Nov. 1959), and Amendment Slip No. 2, AMD 128 (Nov. 1968), 13 pages.

British Standards Institution, **B.S. 3424: 1961,** *Methods of Test for Coated Fabrics,* 60 pages.

British Standards Institution, **B.S. 3424: 1961,** *Methods of Test for Coated Fabrics,* Addendum No. 1, PD6227, 6 pages (Aug. 1967).

British Standards Institution, **B.S. 3456: Section A4: 1963,** *Electrically-Heated Blankets,* 37 pages.

British Standards Institution, **B.S. 3456: Section A4: 1963,** *Electrically-Heated Blankets,* Amendment No. 1, PD5162, 2 pages (20 Feb. 1964).

British Standards Institution, **B.S. 3456: Section A4: 1963,** *Electrically-Heated Blankets,* Amendment No. 2, PD5545, 6 pages (21 June 1965).

British Standards Institution, **B.S. 3456: Section A4: 1963,** *Electrically-Heated Blankets,* Amendment No. 3, PD6348, 10 pages (11 Mar. 1968).

British Vita's Fabrics and Fibres, *Rubber and Plastics Age* 50, No. 9 (Sept. 1969), 645.

BROWN, C. E., **Effects of Bonding and Construction of Fabric Flammability,** *Textile Chemist and Colorist* 1, No. 24 (Nov. 19, 1969), 530-533, 5 refs.

BUCK, G. S., **Potential For Cotton Batting Products,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 7-8 (Oct. 1969).

BURNETT, R., **Manmade Fibers,** *Modern Textiles* 50, No. 12 (Dec. 1969), 43-44.

Burns and Flame Retardant Fabrics, Conference on, held at the New York Academy of Medicine,

Dec. 2-3, 1966. Selected papers presented at the conference are listed under the authors: R. S. BRISSETTE; J. F. FERGER; AND H. A. FREEDMAN.

BYERS, D. J., **Flameproofing Adds to Linen Launderability,** *Modern Hospital* **100**, No. 5 (May 1963), 154, 156.

CAMPBELL, J., **Eastman's Progress From Acetate to Polyester,** *Modern Textiles Magazine* **42**, No. 10 (Oct. 1961), 21-22, 64, 75.

CAMPBELL, J., **Nylon's Younger Sisters,** *Modern Textiles Magazine* 45, No. 1 (Jan. 1964), 56-58, 60-62, 127.

CAROSELLI, R. F., **Applications of Glass Textile Products,** in *Man-Made Fibers: Science and Technology,* edited by H. F. Mark, S. M. Atlas, E. Cernia, 3, 440-442 (Interscience, New York, 1968).

Carpet Backing**, *Textile Industries* **131** (Nov. 1967), 150.

Carpet Flammability, *Consumer Reports 25*, No. 10 (Oct. 1960), 538-540.

Carpet Flammability: Improvements Afoot, *Consumer Reports* 34, No. 8 (Aug. 1969), 427.

Carpeting; Have Man-Made Fibres Replaced Wool?, *Consumers Digest* 4, No. 1 (Jan./Feb. 1965), 9-14.

Carpets and Rugs, *Consumer Bulletin—Annual 1970*, 44 (Sept. 1969), 141-142.

CHRISTENSEN, G., LOHSE, U., AND MALMSTEDT, K., **Full Scale Fire Tests,** Copenhagen. Statens Byggeforskningsinstitut, *SBI-Rapport* 59, 56 pages (Teknisk Forlag, Copenhagen, 1967).

CHURCH, J., **Flammability Hazards of Fabrics,** *Chemical & Engineering News* **31**, No. 4 (Jan. 26, 1953), 325-329, 5 refs.

CHYNOWETH, G., **Reactive Fire Retardant Textile Finish,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 58-59 (Oct. 1969).

Conference on Burns and Flame Retardant Fabrics, held at the New York Academy of Medicine, Dec. 2-3, 1966. Selected papers presented at the conference are listed under the authors: R. S. BRISSETTE; J. F. FERGER; AND H. A. FREEDMAN.

Curtains and Draperies, *Consumer Bulletin—Annual 1968*, 42 (Sept. 1967), 216.

Curtains and Draperies, *Consumer Bulletin—Annual 1969*, 43 (Sept. 1968), 44-45.

Curtains and Draperies, *Consumer Bulletin—Annual 1970*, 44 (Sept. 1969), 137.

Cushion Vinyl Floor Coverings, *Consumer Bulletin* 52 (Feb. 1969), 7-9.

DIAMOND, D., **The Use of Textiles in Aircraft Interiors,** *Textile Weekly* 69 (1), No. 2130 (7 Feb. 1969), 154-158.

DRAKE, G. L., **Theories of Flame Retardancy and Flame-Retardant Upholstery Fabrics and Mattress Ticking,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 25-28 (Oct. 1969), 22 refs.

Du Pont Introduces Modified Neoprene Foam, *Chemical & Engineering News* 46, No. 20 (May 6, 1968), 46-48.

Duplex Fire Trap, *Fire Journal* 59, No. 1 (Jan. 1965), 48-49.

Eastman Chemical Products, Inc., *Evaluation of Flame Resistant Products Made With Eastman Verel Modacrylic Fiber,* 19 pages (Eastman Chemical Products, Inc., Kingsport, Tennessee, no date).

EGERTON, G., **Markets and End Uses,** Part Three of **A New Growth Area in Textiles: Paper Yarns and Fabrics,** *Modern Textiles Magazine* 43, No. 8 (Aug. 1962), 36-38, 40.

Electric Blanket Fires are Investigated**, *Fire* 55, No. 693 (Mar. 1963), 562.

Electric Blankets, *Consumer Bulletin—Annual 1970*, 44 (Sept. 1969), 139-140.

Electric Blankets, *Consumer Bulletin* 52, No. 1 (Jan. 1969), 19-24.

Electric Blankets**, *Consumer Reports* (Buying Guide Issue) 33, No. 12 (Dec. 1968), 93.

Electric Blankets and Bedwarmers**, Fire Research Board (Gt. Brit.), *Report,* (1961), 6-7.

"Explosive" Fabrics Create Fire Bombs for Millions of Sleeping Americans, *Trial* 2, No. 1 (Dec./Jan. 1965/66), 53.

FALLOW, D. C., AND KELAART, K. I. M., **Carpet as a Floor Covering,** Parts 1 and 2, *Textile Journal of Australia* 43, No. 8 (Aug. 1968), 81-90; No. 9 (Sept. 1968), 51-54, 57-58.

FERGER, J. F., **Fiberglas: A True Fire-Safety Fabric,** based on a paper presented at the Conference on Burns and Flame-Retardant Fabrics, held at the New York Academy of Medicine, December 2-3, 1966, *New York Academy of Medicine. Bulletin* 43, No. 8 (Aug. 1967), 685-693.

Fibrolane in Carpets, *Skinner's Silk and Rayon Record* 35, No. 12 (Dec. 1961), 1251.

Fire Hazard Tests of Jute, National Bureau of Standards (U.S.), *Technical News Bulletin* 148, 79-80 (Aug. 1929).

Fire Hazards of Polyurethane Foam, *Rubber and Plastics Age* 50, No. 5 (May 1969) 346.

Fire in Acrylic Carpeting, comments, *Fire Journal* 62, No. 4 (July 1968), 85.

Fire in Acrylic Carpeting, *Fire Journal* 62, No. 2 (Mar. 1968), 13-14, 18.

Fire Spread by Polypropylene Carpeting, *Fire Journal* 62, No. 6 (Nov. 1968), 24-25.

Fire-Safe Fabric for Apollo, *Safety Maintenance* 136, No. 6 (Dec. 1968), 41-44.

Flame Free Cotton Mattresses**, *Textile Industries* 132, No. 7 (July 1968), 22.

Flame Resistant Fabrics, *International Dyer* 133, No. 9 (May 7, 1965), 675-676.

Flame Retardant Cotton Batting Workshop, Proceedings, held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 77 pages (Oct. 1969). Selected papers from the workshop are listed under the authors: G. S. BUCK, G. CHYNOWETH, G. L. DRAKE, A. H. GAEDE, L. L. HEFFNER, N. B. KNOEPFLER, P. A. KOENIG, J. V. RYAN, AND S. L. SUTCLIFFE.

Flame Retardant Fabrics for Hospital Use**, *Textile Bulletin* 94, No. 8 (Aug. 1968), 36-37.

Flame Retardant Polyether Foam**, *Rubber and Plastics Age* 41, No. 8 (Aug. 1960), 936.

Flame Retardant Polypropylene**, *Textile Industries* 131, No. 8 (Aug. 1967), 26.

Flammability Hazard in All-Acrylic Carpeting, *Consumer Reports* 33, No. 7 (July 1968), 348.

Flammability of Synthetic-Fibered Bed Blankets, *American Society of Safety Engineers. Journal* 13, No. 4 (Apr. 1968), 19-20.

Flammability of Textiles, a symposium held in New York City, Jan. 18, 1963. A paper presented at the symposium is listed under the author: A. SPIEGELMAN.

Flammability Standards Cause Concern, *Chemical & Engineering News* 47, No. 25 (June 16, 1969), 44.

Flammable Carpets, *Consumer Reports* 34, No. 2 (Feb. 1969), 72-73.

Flammable Fabrics: A Possibility of Safer Textiles—Some Day, *Consumer Reports* 33, No. 2 (Feb. 1968), 81-82.

Foam Rubber in Consumer Products, National Fire Protection Association. *Quarterly* 46, No. 2 (Oct. 1952), 134-135.

Foamed Polyurethane Fire Proves Difficult to Control, Atomic Energy Commission (U.S.) *Health and Safety Information*, No. 170, 2 pages (Sept. 10, 1963).

FREEDLAND, V. D., **Carpets**, in *Review of Textile Progress* 16 (1964), 179-199 (Butterworths, London, 1965).

FREEDMAN, E., **Thermal Transmission of Fabrics**, *Melliand* 2, No. 5 (Aug. 1930), 701-708.

FREEDMAN, H. A., **Pile Fabrics and Their Flammability**, based on a paper presented at the Conference on Burns and Flame-Retardant Fabrics, held at the New York Academy of Medicine, December 2-3, 1966, *New York Academy of Medicine. Bulletin* 43, No. 8 (Aug. 1967), 663-668.

FREEMAN, J. R., **On the Safeguarding of Life in Theaters**, *American Society of Mechanical Engineers. Transactions* 27 (1905), 71-170.

FUCHS, O., HECKELT, F., AND HERZ, A., **Herstellung, Eigenschaften und Anwendung des Weich-PVC-Schaumstoffes Trovipor (The Manufacture, Properties and Uses of Trovipor Flexible PVC Foam)**, *Kunststoffe* 55, No. 9 (Sept. 1965), 717-723, 18 refs.

GAEDE, A. H., **A Fire Retardant for Cotton Batting**, in *Flame Retardant Cotton Batting Workshop, Proceedings*, held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 54-56 (Oct. 1969).

General Standards of Construction and Equipment for Hospital and Medical Facilities, U.S. Public Health Service, *P.H.S. Publication* No. 930-A-7, Revised, 50 pages (Feb. 1969).

Glass Fiber Mattress Ticking**, *Textile Industries* 129, No. 12 (Dec. 1965), 27.

GORD, L., **Polyvinyl Chloride Fibers**, in *Man-Made Fibers: Science and Technology*, edited by H. F. Mark, S. M. Atlas, E. Cernia, 3, 327-355 (Interscience, New York, 1968).

Gottlieb Duttweiler Institute for Economic and Social Studies, *Textile Flammability and Consumer Safety*, edited proceedings of an international conference, held in Rueschlikon-Zuerich on Jan. 23-24, 1969, 206 pages (Gottlieb Duttweiler Institute for Economic and Social Studies, Reuschlikon-Zuerich, 1969). (GDI Occasional Publications, No. 45.) Selected papers are listed under the authors: S. E. KEMP AND W. M. SEGALL.

Greater Safety From Death by Fire!, *Textile Journal of Australia* 41, No. 10 (Oct. 1966), 8-9, 20.

GROSS, D., LOFTUS, J. J., LEE, T. G., AND GRAY, V. E., **Smoke and Gases Produced by Burning Aircraft Interior Materials,** National Bureau of Standards (U.S.), *Building Science Series* 18, 27 pages (Feb. 1969).

GROVE-PALMER, F., **Fire Resisting Rayon Goods,** *American Dyestuff Reporter* 19, No. 19 (Nov. 10, 1930), 715-716.

GRUBBS, O. G., **Recent Trends in the Blanket-Industry,** in Information Council on Fabric Flammability. *Proceedings of the First Annual Meeting, New York City, December 14, 1967,* 92-95 (ICFF, New York, no date).

HAMMACK, J. M., **Los Angeles Fire Department Tests—Cigarette Ignition of Bedding,** *Fire Journal* 59, No. 3 (May 1959), 9-11.

Heat Resistant Sewing Threads, *Textile Weekly* 69(1), No. 2136 (21 Mar. 1969), 349.

HEFFNER, L. L., **Flame Retardant Cotton—State of the Art,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 16-24 (Oct. 1969), 16 refs.

HILADO, C. J., **Flame Retardant Urethane Foams,** *Journal of Cellular Plastics* 4, No. 9 (Sept. 1968), 339-344, 73 refs.

HINTON, J. E. L., **The Fire Hazard of the Domestic Carpet***,** Fire Research Board (Gt. Brit.), *F.M.* 320, 2 pages (July 1957).

HOCHSTAEDTER, L., **Rhovyl—Polyvinyl Chloride Fibers,** *Textile Research Journal* 28, No. 1 (Jan. 1958), 78-85, 6 refs.

Hospital Bed Pad,** *Textile Industries* 131, No. 3 (Mar. 1967), 33.

Hotbed of Trouble,** *Fire Protection Review* 25, No. 260 (June 1962), 397-398.

Hotel Damaged by Fire,** *Fire* 55, No. 693 (Mar. 1963), 561.

How Glass-Fibres Are Solving Apollo's Problems, *Safety Maintenance* 134, No. 2 (Aug. 1967), 23-25.

HOWARD, R. E., **Flame Resistant Drapery Fabrics,** *Textile Industries* 131, No. 7 (July 1967), 104, 106.

HOWRY, K. A., **We Don't Know Much—About Fabric Flammability?,** *Modern Textiles Magazine* 50, No. 8 (Aug. 1969), 56-61.

Indoor-Outdoor Carpeting, *Consumer Reports* 33, No. 6 (June 1968), 302-305.

Information Council on Fabric Flammability, *Proceedings of the 1st Annual Meeting, Hotel Commodore, New York City, Dec. 14, 1967,* 143 pages (ICFF, New York, N.Y., no date). A paper presented at the meeting is listed under the author, O. G. GRUBBS.

Information Council on Fabric Flammability, *Proceedings of the 2nd Annual Meeting, Hotel Commodore, New York City, Dec. 3, 1968,* 245 pages (ICFF, New York, N.Y., no date). Selected papers presented at the meeting are listed under the authors: M. J. KOROSKYS; B. B. MCGUIRE; J. F. MARCY; K. SUMI AND G. WILLIAMS-LEIR.

INGBERG, S. H., DUNHAM, J. W., AND THOMPSON, J. P., **Combustible Contents in Buildings,** National Bureau of Standards (U.S.), *Building Materials and Structures Report* 149, 16 pages (July 1957), 6 refs.

Institutional Research Council, *Carpet Underlays: Performance Characteristics,* prepared by Foster D. Snell, Inc., 30 pages (Institutional Research Council, N.Y., 1967).

Interesting Fire in a Spring Mattress, *Fire International,* No. 1 (July 1963), 60-63.

It's Paper . . . Sheet . . . Fabric . . . It's Spunbonded, *Modern Plastics* 45, No. 8 (April 1968), 93-96.

It's Time for Facts About Carpeting, *Family Safety,* Winter (1968), 22-24.

JACOBS, E. A., AND RIETH, B. G., **Testing Flame-Retardant Linen for Hospital Use***,** *Hospitals* (May 1968), 65-67, 144, 6 refs.

JUILLARD, P., **Etude de la Combustibilite des Tapis*** (Combustibility of Carpets),** *Teintex* 32, No. 2 (1967), 102, 105, 107, 108, 111, 113, 114, 117, 119, 3 refs.

JUILLERAT, E. E., AND GAUDET, R. E., **Three Hotel Fires,** *Fire Journal* 60, No. 3 (May 1966), 35-43.

KAY, B. W., **Spraying on Safety,** *Skinner's Record* 37, No. 1 (Jan. 1963), 39, 41.

KEARNEY, P., **Common Fire Hazards of the Modern House,** *Home Safety Review* 19, No. 4 (Winter 1960), 16-19.

KEMP, S. E., **Textile Flammability Regulations in Great Britain,** paper presented at the conference, Textile Flammability and Consumer Safety, held in Rueschlikon-Zuerich on Jan. 23-24, 1969, in *Textile Flammability and Consumer Safety,* 65-73 (Gottlieb Duttweiler Institute for Economic and Social Studies, Rueschlikon-Zuerich, 1969).

KENNEDY, R. K., **Modacrylic Fibers,** in *Man-Made Fibers: Science and Technology,* edited by H. F. Mark, S. M. Atlas, E. Cernia, 3, 199-243 (Interscience, New York, 1968), 187 refs.

KIRK, P. L., *Fire Investigation; Including Fire-Re-*

lated Phenomena: Arson, Explosion, Asphyxiation, 255 pages (Wiley, New York, 1969).

KNOEPFLER, N. B., **Latest Research at SURDD to Develop Flame Retardant Conventional Cotton Batting,** in *Flame Retardant Cotton Batting Workshop, Proceedings*, held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 40-49 (Oct. 1969).

KOENIG, P. A., AND KNOEPFLER, N. B., **Flame Retardant Cotton Batting Products,** *American Dyestuff Reporter* 58, No. 17 (Aug. 25, 1969), 30-34, 36, 5 refs.

KOENIG, P. A., **Flame Retardant Cotton Flote,** in *Flame Retardant Cotton Batting Workshop, Proceedings*, held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 29-39 (Oct. 1969).

KOROSKYS, M. J., **Flammability of Textiles,** in Information Council on Fabric Flammability. *Proceedings of the Second Annual Meeting, New York City, December 3, 1968*, 182-193 (ICFF, New York, no date); also in *American Dyestuff Reporter* 58, No. 6 (Mar. 24, 1969), 15-20.

LANGSTAFF, W., **A Flame-Resistant Synthetic Fiber,** summary of a paper presented at the Textile Flammability Conference, Boston, Oct. 2-3, 1962, in *Textile Flammability Conference*, 35-40 (National Fire Protection Association, Boston, 1962).

Latex for Use in Fire-Retardant Coatings, *American Dyestuff Reporter* 56, No. 6 (Mar. 13, 1967), 193.

LE BLANC, R. B., **Fire-Retardant Finishes for Cotton,** *Textile Month* (Mar. 1969), 88-89.

Lees Carpets Introduces "Wallscaping," *American Dyestuff Reporter* 58, No. 18 (Sept. 8, 1969), 32-33.

LONG, P., **"Bukflex" Simulated Leather,** *Rubber and Plastics Age* 49, No. 8 (Aug. 1968), 695.

LONG, P., **Non-Woven Fabrics,** *Rubber and Plastics Age* 49, No. 2 (Feb. 1968), 127-128.

Man Made Fibres, *Textile Weekly*, 69(1), No. 2135 (14 Mar. 1969), 340.

MANDELL, M., **Fire Retardant Plastics,** *Electronic Products* 11, No. 5 (Feb. 1969), 18-32.

Manmade Fibers Used in Carpet Manufacturing, chart, *Modern Textiles Magazine* 50, No. 1 (Jan. 1969), 62.

MARCY, J. F., **Airplane Cabin Interior Materials Fire Tests and Requirements,** in Information Council on Fabric Flammability. *Proceedings of the Second Annual Meeting, New York City, Dec. 3, 1968*, 137-142 (ICFF, New York, no date).

MARCY, J. F., **Interior Material Finishes,** *Fire Technology* 2, No. 4 (Nov. 1966), 263-273, 7 refs.

MARCY, J. F., NICHOLAS, E. B., AND DEMAREE, J. E., **Flammability and Smoke Characteristics of Aircraft Interior Materials,** U.S. Federal Aviation Agency, Washington D.C., *Technical Report* ADS-3, 104 pages (Jan. 1964); AD 600 387.

Mattresses**, *Consumer Bulletin—Annual 1966*, 40 (Sept. 1965), 175-176.

Mattresses**, *Consumer Bulletin—Annual 1967*, 41 (Sept. 1966), 42-43.

Mattresses**, *Consumer Bulletin—Annual 1968*, 42 (Sept. 1967), 203.

Mattresses**, *Consumer Bulletin—Annual 1970*, 44 (Sept. 1969), 145.

Mattresses and Box Springs, *Consumer Reports* 33, No. 9 (Sept. 1968), 486-491.

Mattresses Can Be Flame-Resistant**, *Consumer Reports* 34, No. 2 (Feb. 1969), 56.

MCGUIRE, B. B., AND OGLESBAY, F. B., **An Assessment of the Use of Flame-Retardant Fabrics in a Public Health Service Hospital,** in Information Council on Fabric Flammability. *Proceedings of the Second Annual Meeting, New York City, December 3, 1968*, 147-157 (ICFF, New York, no date).

MCGUIRE, J. H., **The Spread of Fire in Corridors,** *Fire Technology* 4, No. 2 (May 1968), 103-108.

Measurement of Flammability, a Symposium on the, sponsored by the National Bureau of Standards, held in Washington, D.C., June 5-6, 1969. Proceedings to be published.

MEAZEY, A. E., AND FARMER, D. W. A., **Latices of Vinyl Chloride Polymers,** *British Plastics* 38, No. 2 (Feb. 1965), 98-105, 4 refs.

MECKEL, L., **Beitrag zur Pruefung der Entflammbarkeit von textilen Bodenbelaegen (Testing of the Flame Resistance of Textile Floor Coverings),** *Zeitschrift fuer die gesamte Textilindustrie* 71, No. 6 (June 1969), 404-407, 12 refs.

Men, the Money, the 360,000 Beds, *Modern Hospital* 107, No. 2 (Aug. 1966), 95-99, 164, 167, 168.

MENNERICH, F. A., **New Textile Uses for Glass Fiber Yarns,** *Modern Textiles Magazine* 43, No. 12 (Dec. 1962), 43-45, 67.

Merry Christmas, National Bureau of Standards (U.S.) *Accident and Fire Prevention Information*, No. 39, 1 (Dec. 1969).

MERVIN, G. A., **Testing a New Flame-Retardant, High-Density Foam Backing for Carpets,** *American Dyestuff Reporter* 58, No. 12 (June 16, 1969), 44-45.

MEZIERES, F. A., **Les Papiers pour Usages Textiles**

(Papers for Textile Use), *Papeterie* 89, No. 7 (July 1967), 700-707, 5 refs.

MITCHELL, N. D., **The Safety of Theatre Proscenium Curtains,** *Safety Engineering* 49, No. 2 (Feb. 1925), 63-68.

MITCHELL, N. D., **Theatre Safety Curtains,** National Fire Protection Association. *Quarterly* 18, No. 4 (Apr. 1925), 366-372.

MOULTON, R. S., **NFPA Building Exits Code and Standard for Flameproofed Textiles,** summary of a paper presented at the Textile Flammability Conference held in Boston, Oct. 2-3, 1962, in *Textile Flammability Conference*, 25-26 (National Fire Protection Association, Boston, 1962).

National Bureau of Standards (U.S.) **Commercial Standard CS 192-53,** *General Purpose Vinyl Plastic Film*, 13 pages, (1953), including Amendment No. 1 (Apr. 22, 1954), Amendment No. 2 (Dec. 1, 1954).

National Fire Protection Association, **NFPA Standard No. 701—1968,** *Fire Tests—Flame-Resistant Textiles, Films*, 28 pages (1968).

National Fire Protection Association, *Textile Flammability Conference*, edited transcript of a conference held in Boston, Oct. 2-3, 1962, 46 pages (NFPA, Boston, 1962.) Papers presented at the conference are listed under the authors: W. LANGSTAFF; R. S. MOULTON; L. SEGAL; AND R. WILSON.

Neue Anwendung fuer Spezialfasern (New Use for Special Fibers), *Chemiefasern* 19, No. 2 (Feb. 1969), 107-108.

New and Promising Indoor-Outdoor Carpets Stand Weather Exposure Well, *Consumer Bulletin* 49, No. 8 (Aug. 1966), 22-23.

New ASTM Flammability Section Draws Many to Discuss Tests, *Modern Textiles Magazine* 50, No. 4 (Apr. 1969), 24-25.

New Flame Resistant Finish for Cotton Batting*,** *Textile Manufacturer* 94 (Apr. 1968), 171.

New York (State) Legislature. Assembly. Committee on Rules, **An Act to Amend the General Business Law, in Relation to the Manufacture, Sale, Introduction or Movement in Commerce of Wearing Apparel, Related Material and Interior Furnishings Which Are So Highly Flammable as To Be Dangerous When Worn or Used by Individuals,** introduced April 17, 1969, No. 7074, 12 pages.

News in Domestics, *Modern Textiles Magazine* 42, No. 2 (Feb. 1961), 36.

Nineteen Sixty-Two HF Fabrics: More Colors, Textures, Quality, Upgrading, *Modern Textiles Magazine* 43, No. 2 (Feb. 1962), 42, 45-47, 57, 59.

Non-Flammable Carpet,** *Textile Industries* 133, No. 2 (Feb. 1969), 33.

Non-Flammable Carpet Backing,** *Textile Industries* 132, No. 4 (Apr. 1968), 28.

OBOLD, W. L., HOFFHEINS, F. M., INGBERG, S. H., AND JAMES, L. H., *Heating and Ignition Tests With Jute*, 47 pages (National Fire Protection Association, Boston, Mass., 1934), 12 refs.

Outbreak Is a Warning to Physiotherapists, *Fire* 55, No. 692 (Feb. 1963), 502-503.

Performance Tests for Carpets, *International Dyer* 136, No. 7 (Oct 7, 1966), 495-496.

Perrotts of London, *A Short Guide to the Law and Standards for Flameproofing of Furnishing and Curtain Fabrics in the United Kingdom*, 18 pages (John Bluff, London, no date).

Pillows,** *Consumer Bulletin—Annual 1967* 41 (Sept. 1966), 43.

Pillows,** *Consumer Bulletin—Annual 1968*, 42 (Sept. 1967), 203.

Pillows,** *Consumer Bulletin—Annual 1970*, 44 (Sept. 1969), 145.

Polychlal Synthetic Fibre, *Rubber and Plastics Age* 50, No. 5 (May 1969), 345.

POWERS, D. H., **Applied Research in the Textile Industry,** *Chemical & Engineering News* 26, No. 20 (May 17, 1948), 1442, 1451.

Problem of Flammability, Retail Trading-Standards Association, London. *Trade Information Service Bulletin* 197, 3 (Feb. 1964).

Problem of Flammable Fabrics, *Textile Industries* 131, No. 2 (Feb. 1967), 86-89, 96.

Rapid Build-Up in Sack Blaze,** *Fire Protection Review* 25, No. 264 (Oct. 1962), 650.

RILEY, M. W., **What's New in Foam Plastics,** *Materials in Design Engineering* 53, No. 3 (Mar. 1961), 119-134, 4 refs.

ROCKEY, K. W., **The Fire Hazards of Plastics Materials,** *Plastics (London)* 26, No. 283 (May 1961), 103-106.

Rugs and Carpets,** *Consumer Bulletin—Annual 1966*, 40 (Sept. 1965), 178-179.

Rugs and Carpets,** *Consumer Bulletin—Annual 1968*, 42 (Sept. 1967), 199.

Rugs and Carpets,** *Consumer Bulletin—Annual 1969*, 43 (Sept. 1968), 39-40.

RYAN, J., **Flammable Fabrics Act and Its Implementation,** *Modern Textiles Magazine* **50,** No. 3 (Mar. 1969), 67-70, 8 refs.

RYAN, J. V., **Implementation of the Flammable Fabrics Act,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 12-15 (Oct. 1969).

Safe From Fire Risk, *Rubber and Plastics Age* 38, No. 10 (Oct. 1957), 877.

SALE, P. D., AND HEDRICK, A. F., **Measurement of Heat Insulation and Related Properties of Blankets,** National Bureau of Standards (U.S.), *Technologic Papers* 18, No. 266, 529-546 (Dec. 5, 1924).

SAYERS, L. W., **The Flammability of Fibres, Fabrics and Garments,** *Textile Institute and Industry* 3, No. 7 (July 1965), 168-171.

SCHUMM, R. W., AND CRUZ, C. J., **Dyeing and Finishing Nomex Nylon,** *Textile Chemist and Colorist* 1, No. 18 (Aug. 27, 1969), 388-391, 2 refs.

SEGAL, L., **Foam Rubber and Cotton Mattresses,** National Fire Protection Association. *Quarterly* 48, No. 2 (Oct. 1954), 119-122.

SEGAL, L., **The Flammable Fabrics Problem,** summary of a paper presented at the Textile Flammability Conference, Boston, Oct. 2-3, 1962, in *Textile Flammability Conference,* 119-122 (National Fire Protection Association, Boston, 1962).

SEGALL, W. M., **A Fire in Our Bosom,** *Textile Chemist and Colorist* 1, No. 3 (Jan. 29, 1969), 67-69, 7 refs.

SEGALL, W. M., **The U.S. Flammable Fabrics Act,** paper presented at the conference, Textile Flammability and Consumer Safety, held in Rueschlikon-Zuerich on Jan. 23-24, 1969, in *Textile Flammability and Consumer Safety,* 74-80 (Gottlieb Duttweiler Institute for Economic and Social Studies, Rueschlikon-Zuerich, 1969), 8 refs.

SEGGIE, D., **Developments With Polypropylene in Primary Backing Fabrics for Tufted Carpets—Part II*****, *Textile Recorder* 85, No. 1011 (June 1967), 50-52, 64.

SHERWOOD, P. W., **Synthetic Fibres for Carpets,** *Canadian Textile Journal* 81 (Mar. 27, 1964), 67-68.

Short Wave Therapy Caused Fire: Unusual Discovery, *Fire Protection Review* **26,** No. 268 (Feb. 1963), 113-114.

Single Fatality Fire, *Fire Journal* **63,** No. 1 (Jan. 1969), 34-35.

Small Fires That Kill, *Fire Protection Association Journal,* No. 80 (Dec. 1968), 120-125.

Society of Automotive Engineers, **SAE J369,** *Flammability of Automotive Interior Trim Materials—Horizontal Test Method,* 2 pages (1969).

Some Possibilities in Carpet Fiber Development Projected, *Modern Textiles Magazine* **50,** No. 5 (May 1969), 52.

Space Stadium Blanket, *Consumer Bulletin* **50,** No. 11 (Nov. 1967), 16-17.

Spangle Affair, *Consumer Reports* 35, No. 1 (Jan. 1970), 30-31.

SPIEGELMAN, A., **Some Basic Problems Affecting the Flammability of Textiles,** a paper presented at the symposium, Flammability of Textiles, held in New York City, Jan. 18, 1963, in *American Dyestuff Reporter* 52, No. 12 (June 10, 1963), 452-454.

Stair Carpets***, *Which,* Consumers' Association, London (Mar. 1967), 68-73.

STEPHENSON, R. M., AND STEPHENSON, L. F., **The Effects of Thermal Radiation on Drapery and Upholstery Fabrics,** *American Dyestuff Reporter* 57, No. 17 (Aug. 12, 1968), 623-631, 21 refs.

SUMI, K., AND WILLIAMS-LEIR, G., **Lethal Effects of Mattress Fires,** in Information Council on Fabric Flammability, *Proceedings of the Second Annual Meeting, New York City, December 3, 1968,* 204-229 (ICFF, New York, no date), 5 refs.

Sun Rays on Mirror**, *Fire Journal* **62,** No. 2 (Mar. 1968), 44.

SUTCLIFFE, S. L., **The Flammable Fabrics Act,** in *Flame Retardant Cotton Batting Workshop, Proceedings,* held at New Orleans, Nov. 15, 1968, U.S. Agricultural Research Service, ARS 72-72, 9-11 (Oct. 1969).

SWANSON, A. L., AND ADOLPH, G. A., **Comparing Mattresses for Flammability Potentials,** *Hospitals* 37 (Sept. 1, 1963), 37-40.

Symposium on the Measurement of Flammability, sponsored by the National Bureau of Standards, held in Washington, D. C., June 5-6, 1969. Proceedings to be published.

Technical Association of the Pulp and Paper Industry, **T461m—48,** *Standard Method of Test for Flammability of Treated Paper and Paperboard,* the counterpart to ASTM D777-46 (Reapproved 1965), in Part 15, *Book of ASTM Standards 1969,* 211-212 (American Society for Testing and Materials, Philadelphia, Pa., 1969).

Teklan—The Fire-Safe Fabric From Courtaulds,

International Dyer 141, No. 7 (Apr. 4, 1969), 446-448.

'Teviron' PVC Fibre, *Rubber and Plastics Age* 50, No. 4 (Apr. 1969), 267.

Textile Finishing Processes in the United States, *Textile Weekly* 69(2), No. 2156 (8 Aug. 1969), 164-165, 171.

Textile Flammability and Consumer Safety, edited proceedings of an international conference held in Rueschlikon-Zuerich on Jan. 23-24, 1969, 206 pages (Gottlieb Duttweiler Institute for Economic and Social Studies, Rueschlikon-Zuerich, 1969). (GDI Occasional Publications, No. 45.) Selected papers are listed under the authors: S. E. KEMP AND W. M. SEGALL.

Textile Flammability Conference, edited transcript of a conference held in Boston, Oct. 2-3, 1962, 46 pages (National Fire Protection Association, Boston, 1962.) Papers presented at the conference are listed under the authors: W. LANGSTAFF; R. S. MOULTON; L. SEGAL; AND R. WILSON.

Textured Modacrylic Introduced,** *Modern Textiles Magazine* 42, No. 8 (Aug. 1961), 30.

That New Indoor/Outdoor Carpeting,** *Consumer Bulletin* 52, No. 3 (Mar. 1969), 5.

Tracked-In Dirt on the Floor? Try a Rug at the Door, *Consumer Bulletin* 51, No. 8 (Aug. 1968), 9-10.

TRUSLOW, N. A., **Carpet Characteristics,** Part 3 of **A New Piece Dyeable Polypropylene Carpet Fiber,** *Modern Textiles Magazine* 44, No. 9 (Sept. 1963), 93-96.

U.S. Department of Commerce, **Carpets and Rugs; Notice of Finding That Flammability Standard or Other Regulation May Be Needed and Institution of Proceedings,** *Federal Register* 33, No. 234 (Dec. 3, 1968), 17921.

U.S. Department of Commerce, **Carpets and Rugs; Notice of Proposed Flammability Standard,** *Federal Register* 34, No. 242 (Dec. 18, 1969), 19812-19814.

U.S. General Services Administration, **Interim Amendment to Federal Specification DDD-C-95, Int. Amendment—1 (GSA-FSS),** *Carpets and Rugs, Wool, Nylon, Acrylic, Modacrylic,* 4 pages (Mar. 1969).

U.S. General Services Administration, **Interim Federal Specification DDD-C-001173 (GSA-FSS),** *Carpet, Nonwoven, Polypropylene, Outdoor-Indoor Type,* 8 pages (July 1966).

U.S. General Services Administration, **Management of Buildings and Grounds; Firesafety,** *Federal Register* 34, No. 65 (Apr. 5, 1969), 6192-6193.

U.S. General Services Administration, **Federal Specification DDD-C-95,** *Carpets and Rugs, Wool, Nylon, Acrylic, Modacrylic,* 18 pages (Apr. 1965).

USASI Ad Hoc Unit Sends Seven Tests to Govt., *Modern Textiles Magazine* 50, No. 8 (Aug. 1969), 61.

USDA Goal: Fire-Retardant Cotton Batting, *American Dyestuff Reporter* 58, No. 2 (Jan. 27, 1969), 50.

What You Need to Know About Flammable Fabrics, *Consumer Bulletin* 50, No. 3 (Mar. 1967), 16-17.

WILLIAMS-LEIR, G., **Deaths From Clothing and Bedding Fires,** *Canadian Journal of Public Health* 58, No. 10 (Oct. 1967), 444-453, 2 refs.

WILSON, R., **Fires Involving Nonclothing Fabrics,** summary of a paper presented at the Textile Flammability Conference, Boston, Oct. 2-3, 1962, in *Textile Flammability Conference* 11-13 (National Fire Protection Association, Boston, 1962).

WOOD, S., **Facing the Problems of Fire,** *Modern Plastics* 45, No. 10 (June 1968), 82-86.

Wool Comes Out Top in Flame Tests, *Textile Weekly* 68, No. 2089 (19 Apr. 1968), 456.

Woven Upholstery Fabrics in Demand, *Skinner's Record* 40, No. 4 (Apr. 1966), 253.

YERKESS, W. G., **Flammability of Textile Fabrics,** *Textile Weekly* 65(1), No. 1931 (Mar. 19, 1965), 514-515.

YUILL, C. H., **Floor Coverings: What is the Hazard?,** *Fire Journal* 61, No. 1 (Jan. 1967), 11-19.

ZIMMERMAN, R. F., **Flame-Resistant Cotton Textiles; A Progress Report on Performance Specs,** *Textile Industries* 126, No. 6 (June 1962), 112, 114, 130.

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