

16th Annual Conference on Recent Advances in Flame Retardancy of Polymeric Materials 2005

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Menachem Lewin

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PREFACE TO VOLUME XVI

The present volume contains the papers presented at the 16th Annual BCC Conference on Recent Advances in Flame Retardancy of Polymeric Materials held in Stamford CT on May 23-25, 2005. This 16th Conference, which is the fifth in the new millennium, confirmed the continuity and maturity of this annual event. This conference took place in the sixth year of the second decade of these memorable conferences and enables another opportunity to look back, review, assess, and re-evaluate the developments in the last few years and to view plans for the future. The Conferences were initiated in 1990 by Menachem Lewin and Gerald Kirshenbaum, who noticed the renewed and growing interest in the polymer community, both in academia and in industry, in the thermal stability and flame retardancy of polymers. They believed in the need to provide a new forum for presenting and discussing pertinent problems and new developments from a broad perspective. They believed that this forum should include—in addition to the scientific and technical outlook—the viewpoints and needs of the consumers, marketing experts, and public regulatory agencies.

The field of flame retardancy has witnessed in the last decade a vigorous development of new technologies and new products and materials to meet the challenge of the needs of new industries—such as the computer, electronics and telecommunication industries. An additional challenge was presented by the growing awareness of environmental issues and by the stiffening demands of consumer safety, which have been put forward by governments and public agencies. It became clear that new flame retardant systems are needed to meet the new product and market demands. New regulations, standards and testing methods, as well as instruments, are essential for assessing and defining these needs. Such new regulations are indeed being introduced, particularly in recent years in the European community. More regulations are being planned and prepared for the flame retardancy of specific products. These new regulations and standards are becoming increasingly detailed, and require new, improved flame retardancy systems to meet the challenge of the more exacting tests. It is not surprising therefore, that the number of scientists and technologists engaged in this field, as well as the number of universities and companies dealing in flame retardancy, is steadily growing.

Several important new avenues for flame retarding polymers were developed since the beginning of these conferences. They are fully reflected in the Proceedings of our conferences, For example: intumescence, synergism, catalysis, the advent of nanocomposite barriers, application of silicone formulations, catalyzed endothermic flame retardants, introduction of low melting glasses and frits, diversification of testing methods, the introduction of cone calorimetry, fully computerized testing instruments, development of non-halogen flame retardants, to mention a few. The *ca.* 5400 pages of the proceedings of our conferences, with over 450 papers constitute at

present the most important, continuous, and concentrated literature source on flame retardancy of polymers. The proceedings appearing under the name *Recent Advances in Flame Retardancy of Polymeric Materials* are today an indispensable tool for all engaged in research, production of polymers and flame retardants, and in marketing and testing.

The success of the sixteen conferences held in the years 1990-2005, which were ably administered by the Business Communications Company of Norwalk, CT, under the devoted management of Louis Naturman and coordinated by Mrs. Sharon Faust, is spectacular. Their impact on the polymer and plastics community in industry and academia, and among consumers and regulators, provided solid evidence to the validity of the basic approaches to the problems of flame retardancy, which govern the programs of the conferences. These approaches call for a broad interdisciplinary treatment of flame retardancy, so as to achieve a balanced view embracing most aspects of the field.

The conferences aim at providing answers to the needs of various groups of experts in several areas. Experts working in a particular area of flame retardancy are given valuable up-to-date information on the state of the art and on new developments, which may be important to them in the future. Those with experience in other fields of polymer science and technology are exposed to, and initiated into, the field of flame retardancy in an authoritative and balanced manner. For executive personnel, a chance is presented to obtain a clear overview of the field by recognized experts and to identify opportunities for new ventures.

In the past sixteen conferences it has happened several times that new concepts, discoveries, and technologies were disclosed and reviewed for the first time. They were exposed to in-depth discussions of their validity, ramifications, and applicability. These discussions led to the broadening of the new approaches and to formulation of new research and development programs.

The BCC Flame Retardancy Conferences are virtually international. The Sixteenth Conference was attended by delegates from 14 countries, providing ample opportunities for exchange and transfers of technology.

The Program of our Conference has been recently changed. Section two of the program now embraces both halogen and non-halogen containing flame-retardants. A new section three: "Nanocomposites in Flame Retardancy," has been added taking into consideration the very pronounced interest in nanocomposites and the considerable number of papers that are currently being published on the application of nanocomposites in flame retardancy. This change reflects a major development in the field of polymers in general, and in the field of flame retardancy in particular—namely the hybridization of organic and inorganic compounds in polymeric compositions. This

development is still in its initial stages and we trust that our conferences will enhance this trend even further. The sections of the Sixteenth Conference were as follows:

- Selected FR Topics and Reviews
- Halogen and Non-Halogen Flame Retardancy
- Nanocomposites in Flame Retardancy
- Consumer Focus Industrial Applications
- Standards and Testing

The sixteen successful annual Conferences on Recent Advances in Flame Retardancy of Polymeric Materials testify to a continuous strong activity in the various aspects of this field. It shows that not only the technical and commercial interest in flame retardancy is sustained but also indicates great vitality, as evidenced by the new and sometimes striking developments in the science and technology, and by the innovative applications, testing methods, and standards, presented and discussed at the Conferences.

The conferences presently appear to be well established internationally. Speakers and participants from 20 countries and five continents took part in the conferences. The conferences became a widely recognized forum of international scientific and technical exchange in the field of polymers. They are also considered the best and most important flame retardancy conferences in the United States. Most internationally famous scientists and technologists of flame retardancy attend the conferences regularly.

Finally, it is a pleasant duty to express my thanks to all attendees, chairpersons of the sessions, speakers, presenters of posters, and all participants in the discussions that took place throughout the conference. Above all, my deep appreciation goes to Mr. L. Naturman, President of BCC, and Mrs. Sharon Faust, the Coordinator of the conferences as well as to all the other able and devoted BCC staff for the excellent and meticulous preparation and organization of the conferences.

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