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International Rubber Conference Rubber-94, Moscow

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The International Rubber Conference (IRC'94) was held on 27 September–01 October 1994 in Moscow in the Moscow International Trading Center. The Exhibition on new materials and technology in rubber industry (Rubber-94) was also held in the same period with many firms and companies taking part in the Exhibition. The Conference and Exhibition were organized by Russian Committee on and Petrochemical Industry, Russian Federation Ministry of Science and some applied Institutes (Tire Research Institute, Scientific-Research Institute of Elastomer Materials and Goods, Scientific-Research Institute of Rubber and Latex Goods, etc.). Many higher technical institutes of Russia contributed in this Conference too (the first to be named is M. V. Lomonosov Moscow State Academy of Fine Chemical Technology, Moscow). The Conference was sponsored by Neftekhimbank and some companies such as "Sintezkautchuk," "Shinomontazh," etc.

General guidance of the series of these Conferences was realized by International Committee on Rubber (International Rubber Conference Organization).

There was the International Rubber conference in the USSR, in Moscow, in 1984, where the 10-year plan of annual Rubber Conferences under the aegis of International Committee of Rubber was accepted.

About 600 scientists from 30 countries participated in the IRC'94. More than 450 reports were made including 150 posters (500 reports were planned initially, but some scientists could not arrive). Among the plenary and invited lectures were: Prof. T. Akasaka (Chuo University, Japan), Prof. J. B. Donnet (Ecole Nationale Supérieure de Chimie, France), Dr. K. Hanhi (Helsinki University of Technology, Finland), Dr. C. J. Jankowski (International Institute of Synthetic Rubber Producers, USA), Dr. E. E. Lavendel (Technical University, Riga, Latvia), Prof. T. C. P. Lee (Morton Polymer Systems, England), Dr. T. D. Pendle (The Malaysian Rubber Producers Research Association), Dr. R. A. Ridha (Goodyear Technical Center, USA), Prof. H. Rothert (Universität Hannover, Germany), Dr. R. H. Schuster (Deutsches Institut für Kautschuktechnologie, Germany), Dr. B. S. Sekhat (Malaysia), Dr. A. Stewenson (Material Engineering Research Laboratory,

England), Dr. A. J. Tinker (Tun Razak Laboratory, London, England), Dr. S. Yamashita (Kyoto, Japan).

Well known Russian scientists and scientific managers were the members of Organizing Committee of IRC-94. Mr. V. V. Rabotnov, Vice-Chairman of Russian Committee on Chemical and Petrochemical Industry, was the Chairman of IRC'94 Organizing Committee, Prof. V. A. Berestnev—General Secretary of IRC'94 Organizing Committee, Professors Yu. P. Bass, B. L. Bukhin, M. F. Bukhina, B. S. Grishin, S. M. Kavun, I. D. Khidzhaeva, V. M. Kuleznev, V. F. Larionov, V. V. Moisseev, Yu. L. Morozov, E. Y. Piatakov, L. S. Priss, D. P. Trofimovitch, being the brightest representatives of Russian rubber science—the members of Organizing Committee.

The Conference was opened at the plenary meeting with the opening remarks being made by IRC'94 Organizing Committee Chairman Mr. V. V. Rabotnov. The Chairman emphasized the historical aspects of this conferences and actuality of the problems connected with theory and practice of knowledge in the field of rubber science.

Then the President of International Conference IRC'93 (Orlando, Florida, USA) Prof. D. V. Gorman and the Chairman of the next Conference IRC'95 in Kobe (Japan) Dr. S. Yamashita made a speech of welcome at the address of the current Conference IRC'94. The plenary lectures were given after the welcome speeches.

The Vice-Minister of Russian Federation Ministry of Economics (Moscow, Russia) Mr. V. S. Yevisiukov made the lecture: "Evolution of the Russian rubber industry and the prospects of its integration into the global economy." The lecture of Dr. C. J. Jankowsky (International Institute of Synthetic Rubber Production, Houston, USA) "Synthetic rubber—present and future" was accepted with the great interest.

The Conference was held in the frame of 13 Sumposia included lectures, discussion and poster session:

- Latest Developments in Compounding (39 reports)
- Automation and Simulation of Production Processes. Processing of Polymers (24 reports)
- Mechanical Properties of Rubbers and Rubber-Cord Composites. Test Methods (29 reports)
- New Elastomers (31 reports)
- Polymer Mixes (29 reports)
- Oligomers and Oligomer Rubbers (30 reports)
- Calculation Methods, Prediction of Durability, Engineering and Testing of Tires (40 reports)
- Structure and Properties of Elastomeric Networks (13 reports)
- Destruction and Stabilization of Elastomers (13 reports)
- Adhesive Properties of Polymers. Adhesive Compositions (14 reports)
- Reuse of Scrap Rubber Goods. Environmental Protection (19 reports)
- Calculation Methods, Prediction of Durability and Designing of Mechanical Rubber Goods (18 reports)
- Latices. Medical Polymers (15 reports).

The Great interest was caused by the Symposia "Latest Developments in Compounding." This topic was presented by 39 reports including posters. The main problems discussed were creating of new vulcanizing and modifying compositions improving the rubber compounds, investigation of a role and mechanism of action for individual ingredients such as bismaleimides, polyhalogenated compounds, aryl zinc salts, etc. Several communications dealt with quality and quality control of rubber chemicals. The development of the employment of polyfunctioning constituents and their chemical action was taken up too. It should be especially mentioned the harnessing of epoxy resins, stable free radicals and oligomers with reactive groups as components of rubber compositions.

About 40 communications were presented at the section "Calculation Methods, Prediction of Durability, Engineering and Testing of Tires." Dr. R. Ridha in his plenary lecture "Advances in Tire Mechanics," Prof. T. Akasaka and Prof. H. Rothert in their section reports reviewed the current state and perspectives of the tire science and technology: tire durability, treadwear, tire noise, energy consumption, contact problem, utilisation of the methods of computational mechanics to solve practically all kinds of problems. Dr. Hong's communication was devoted to predicting tire performance using dynamic viscoelastic properties. Many reports dealt with the computational and experimental investigation of mechanical properties, durability and other characteristics of track tires.

Symposia on "New Elastomers" and "Mechanical properties of Rubbers and Rubber-Cord Composites" have been popular too: 31 and 29 reports respectively. The reports on new elastomers presented on the Conference may be divided into three groups. The first is concerned to the chemical modification of rubbers that (makes possible) permits broadening the assortment of rubbers with the predicted characteristics and properties. The line of investigation in the second group of reports is the solving of ecological problems in the manufacture and exploitation of rubber goods. The third group of reports discussed the questions of the functioning of the rubber articles under extreme conditions.

As for symposia on mechanical properties of rubbers and rubber-cord composites the description of complex of elastomer mechanical properties depending on the exploitation conditions was made. This field was presented in the invited lectures by Dr. K. Hanhi (Finland) "Low temperature properties of thermoplastic elastomers and rubber" and Dr. A. Stevenson (England) "Fracture mechanics properties of elastomers in crystal application for oil and gas exploration and production."

The development of investigation in the field of dynamic properties of rubbers (especially filled rubber compounds), adhesion of elastomers and methods (techniques) of elastomers testing was discussed too in the frame of the Symposia.

Many communications dealt as in the preceding IRC with the problems of oligomer rubbers and oligomers. This Symposia was very interesting reflecting the current state of this branch of rubber science: oligomers as the plasticizers and vulcanizing agents, oligosulfides, oligosiloxanes and urethane elastomers. The communications on polyurethanes and liquid hydrocarbon rubbers should be especially mentioned.

Environmental protection has been the center of attention in the special Symposia. The lecture of Rumanian scientists for example was focused on the utilisation

of waste rubber in new rubber compounds. Some new methods and modifications for utilization and reuse of rubber technology wastes were proposed and discussed in the course of Symposia.

Very important information was presented by Prof. V. N. Kouleznev (M. V. Lomonosov Moscow State Akademy of Fine Chemical Technology) on "Polymer Blends" Sumposium, Prof. V. N. Kouleznev being the organizer of this Sumposium. The main goals of reports on this sumposium were investigation of blends properties and preparation of mixture of unmisiable polymers.

Symposium with the title "Degradation and Stabilization of polymers" was organized by Dr. Semen M. Kavoun (Tire Research Institute). We should emphasize the high level of the fundamental research in the area of aging and stabilisation of polymers (rubbers as well as plastics and fibers) which was demonstrated at the conference. The most part of speakers on this symposium were members of the stuff of Institute of Chemical Physics of Russian Academy of Sciences.

Symposium "Latex and Medical polymers" was organized by Prof. D. P. Trofimovich (Research institute of Rubber and Latex Goods) and Prof. I. D. Khodjaeva (M. V. Lomonosov Moscow State Akademy of Fine Chemical Technology). The most important part of reports submitted to the symposium were dedicated to the problems of blood proteins precipitation on the surface of polymers (problems of trombformation).

The IRC'94 Conference showed that in spite of some economical problems (especially in East Europe and in the countries of former USSR) the scientists continue to develop their researches and many of them will give good development and production in near future.