**JOINT SYMPOSIUM
ORGANIZED BY AMERICAN CONCRETE INSTITUTE-RILEM
ON "TECHNOLOGY OF CONCRETE WHEN POZZOLANS,
SLAGS AND CHEMICAL ADMIXTURES ARE USED"**

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The Symposium was co-sponsored by six other organizations and was organized by Professor Raymundo Rivera Villarreal, director, Instituto de Ingenieria Civil, Universidad Autonoma de Nuevo Leon. Forty-six papers were presented at 18 sessions. Attended by about 150, the Symposium was represented by participants from 19 countries. Arrangements were made for simultaneous translation of English to Spanish and Spanish to English.

The main purpose of the Symposium was to bring together representatives from universities, industries and government agencies to present the latest information on the theme of the Symposium and to discuss areas of future research.

The Symposium was inaugurated on March 11, 1985, with introductory remarks by Professor Raymundo Rivera, Chairman of the Symposium Organizing Committee, Mr. R. Shutz, representative of ACI, Dr. Alfredo Pineyro, Rector, Universidad Autonoma de Nuevo Leon, St. Alfonso Martinez Dominguez, State Governor of Nuevo Leon, and Dr. V. S. Ramachandran, representative of RILEM. In his introductory remarks, Dr. Ramachandran stated that one of the main objectives of RILEM was to sponsor and co-sponsor symposia of relevance to research and testing on building materials and structures. He also expressed his gratification that the Symposium was held in Mexico, because of the importance of the Latin American group within RILEM. He also stressed the importance of admixtures from practical and economic considerations and was confident that the two new Committees on Admixtures created by RILEM would derive considerable benefit from the Symposium.

The papers covered very broad fields of activity. The properties of cement paste, mortar and concrete both in the fresh and hardened state were discussed. Most presentations dealt with concrete containing slag, fly ash or silica fume to which different types of admixtures such as superplasticizers, accelerators, water reducers, latexes, retarders, and combination-admixtures were added. Studies included the

effect of temperature and other variables such as water/solid ratios, dosage of admixtures, and mix proportions on the physical and mechanical properties.

Because of the variability in the physical and chemical compositions of the pozzolans, it is not easy to predict their behavior. Four papers dealt with this topic and discussed how the analysis of the solution phase by high pressure squeezing technique, or the analysis of the solid phases by techniques such as thermal analysis, NMR or viscometer could be used to study the effect of admixtures on the properties of the pastes.

A few papers dealt with the test methods such as the applicability of foam test for assessing the air-entraining agent requirements, and accelerated strength evaluation.

The effect of various admixtures on the properties of fresh concrete including workability, setting, air entrainment and slump loss formed the subject matter of some presentations.

If a pozzolan has to be used in concrete it is important that the required mechanical strengths are achieved. Several papers dealt with the investigations of the development of mechanical properties, particularly compressive strength development. Very few papers dealt with the relationship between the properties of the initial materials and their effect on strength development.

One of the important use of pozzolans in concrete is that they impart better durability characteristics. A substantial number of papers dealt with the durability of concrete with respect to alkali-aggregate expansion, sulfate attack, freeze-thaw resistance, marine environment, and chloride penetration. These studies provided useful data from the viewpoint of development of new tests.

An informal session dealt with general questions relating to the use of pozzolanic materials in concrete technology. The subjects that evinced interest were: relation of admixtures and durability, future developments in pozzolanic specifications and infrastructure research needs.

Several members of the RILEM technical committees who attended the Symposium took this opportunity to meet together. The three technical committees that met were: TC-84, "Application of Chemical Admixtures for Concrete", TC-85, "Test Methods for Chemical Admixtures for Concrete", and TC-73, "Use of Siliceous By-products in Cement and Concrete".

The highlight of the Symposium was the Awards lunch at which five scientists were presented awards (in recognition of their outstanding contributions to concrete technology) by the University of Nuevo Leon. Dr. M. Mariotti, Dr. G. Idorn, Dr. K. Wesche, Dr. P. Aitcin and Dr. V. S. Ramachandran received awards for their contributions in fields of natural pozzolans, blast-furnace slag, fly ash, silica fume and chemical admixtures, respectively.

The papers have been published in one volume containing 664 pages by the Facultad de Ingenieria Civil, Universidad Autonoma de Nuevo Leon, P.O. Box 17, San Nicolas de Los Garza, Nuevo Leon, Mexico 64000.

The fact that this Symposium evinced substantial interest by scientists and engineers from different parts of the world indicated the sustained interest in the use of waste and by-products in concrete. It is clear that much needs to be done to predict the behavior of pozzolans of different physical and chemical characteristics, to formulate better standards, find new applications, and find methods to improve their reactivity. The Symposium provided an opportunity for the participants to discuss these problems. Although some of the papers were not of high standard, the overall quality of the papers, presentation and discussions were excellent. The organizers ensured presentation of good slides through the appointment of a slide reviewing committee.

The Organizing Committee, chaired by Professor Raymundo Rivera Villarreal, should be congratulated for the excellent arrangements and making the Symposium a great success.