

SPOTLIGHT

on HSLA steels

by G. PIENAAR*

The South African Institute of Mining and Metallurgy held a Colloquium on High-strength Low-alloy Steels on 27th October, 1983, at the Vaal Triangle Technikon, Vanderbijlpark. The Colloquium was attended by some 170 delegates.

Opening

In his opening address, the President, Professor R. P. King, indicated that this was the first intensive colloquium on physical metallurgy to have been organized by The Institute. He stressed that similar events would be organized on a regular basis in the future, and that they would serve an excellent purpose in bringing together researchers, producers, and practical end-users in the field of physical metallurgy to discuss their common problems.

Technical Sessions

The three sessions were chaired by Mr J. Hall of Highveld Steel, Professor G. G. Garrett of the University of the Witwatersrand, and Professor G. T. van Rooyen of the University of Pretoria.

In his paper 'The Development of HSLA Steels', Dr J. V. Bee presented an overview of the metallurgy and development of these steels over the past decade. He indicated that these materials had become very popular as structural steel during recent years because they possess a unique combination of properties, namely high strength, low ductile-to-brittle transition temperature, excellent weldability and toughness, and low cost.

Dr A. M. Sage, Director of the Vanadium Market Development Division, gave a paper on 'Vanadium in Structural Steels'. He reviewed the metallurgical functions of vanadium in HSLA steels and discussed potential developments to meet new engineering requirements.

Two papers, those by Messrs. E. H. van Niekerk and

B. J. Parry, both from Iscor Vanderbijlpark, discussed the local production and applications of HSLA steels. The properties of various locally produced grades were outlined. It was indicated that substantial weight saving can be achieved by the use of these steels instead of conventional mild steels. Especially in the motor and general-transport industry, where low fuel consumption and stringent safety specifications are becoming increasingly important, HSLA steels will find wide application in the future.

In his paper on 'The Interaction between Design Requirements and Materials Selection for Railway Goods Wagons', Mr R. D. van der Meulen indicated that the traditionally poor load-to-tare ratio of railway goods wagons had evoked concern in recent years. He showed that HSLA steels are applicable to wagons in intermediate intensity service, while copper-bearing steel is adequate for low-intensity service and aluminium offers competition in high-intensity service.

The Colloquium concluded with two research papers: Mr J. A. Peters presented a paper on 'Improved Corrosion-Abrasion Resistance Steels for Mining Applications', while Mr R. J. Mostert's paper was entitled 'The Use of Super-hardenable Treatment for the Production of HSLA Hot-rolled Plate'.

Visit

The finishing touch to the Colloquium took the form of a visit in the late afternoon to Iscor Works Vanderbijlpark. The excursion fitted in extremely well with the proceedings of the day, specific attention being given to the production lines in which HSLA steel grades are produced.

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