IMPLEMENTATION AND PRACTICAL USE OF NEURAL NETWORKS MODELS FOR HOT ROLLED STEEL PRODUCTS ADAPTATION AND DEVELOPMENT IN USIMINAS CUBATAO

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Abstract

The constant technological development in the steel consuming sectors increased the competition that forces steel makers to narrow dimensional tolerances and mechanical properties range of their products. In this way, the Technical Assistance and Integrated Control Divisions are studying and analyzing microstructural and mechanical characteristics from steel products of USIMINAS Cubatao in order to create phenomenological models to describe their properties. In the present work, basic process data (chemical composition, rolling temperatures, product dimensions) have been used in order to build models based on computational intelligence, Artificial Neural Networks (ANN's) to describe yield strength, tensile strength and elongation of hot rolled materials, in the form of steel coils and sheets, to increase product project and control quality. Products applied to petrochemical and automobilist industry have been improved by the use of these tools as well product control quality internal activities in Usiminas Cubatao.

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