

Niobium in Microalloyed Steels

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Abstract

During the past five decades niobium has emerged as the most important microalloying element in high strength steels. Today niobium microalloyed steels are unchallenged for their main applications. Some examples include linepipe for gas transportation, automotive steels used in body-in-white and structural parts, shipbuilding, steel towers, and steel structures in civil construction. Modern technology for steelmaking helped to emphasize the superior overall properties that can be attained with the use of niobium. Cleaner steel with carbon levels below 0.05% manufactured economically is the best example in the case of gas linepipe applications. Modern niobium microalloyed steels present the best balance of strength, toughness, weldability and formability. This paper presents the evolution of the technology associated with niobium in microalloyed steels to achieve the status of efficient solution in solving challenges facing modern life and involving issues such as safety, energy efficiency and environmental concerns.