

ABSTRACT

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Topic: "The removal of non-metallic inclusions in steel . "

In the course work are considered : the theoretical foundations and the current state of technological processes of production of high-strength structural steels for oil and gas pipelines ; the current level of quality of structural and mechanical properties of the pipe steel and the tendency of their increase. Considered analysis of formation and transformation of non-metallic inclusions in steel and hydrodynamic and surface processes in the ladle at APC by blowing the metal inert gas.

Spend the research methodology. The physical modeling of wave processes in the ladle while metal inert gas purge.

The basis of the development of a technique of research of wave processes were based on the following representation:

1. Under inert gas injection through a submerged lance casting ladle formed on the surface of the melt zone and the wave processes localized increase in metal level.

2. The bubble zone on its geometric shape is close to spherical segment and the area bursts - to the ring with a triangular cross-section with an outer diameter of casting ladles .

Calculates a square bubble zone in a metal ladle , the diameter of the bubble zone without regard to its convexity .

The developed technique of "physical" melt flow modeling , which allows you to explore the wave processes , and optimize the process of blending with an inert gas purge began after secondary treatment cored wire.

To draw the appropriate conclusions about the methods of removing non-metallic inclusions in steel.

The work contains 5 tables, 3 figures and 54 references.