

Tubular Furnaces for Primary Oil Refining Using a Digital Twin

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One of the promising areas of digitalization is the optimization of the operation of the most labor-intensive sections of technological installations using digital twins — virtual models of the technological process or equipment, which contain the main characteristics of state of the real object. Such a model allows you to analyze the efficiency of the process under different operating conditions and obtain information about critical parameters in advance. The most challenging aspect of operating technological installations is the tubular furnaces, which are designed to heat the working medium using the combustion products of hydrocarbon gas. This article describes the problems of using tubular furnaces in primary oil refining plants and their impact on operating costs and product quality, and proposes a method for optimizing costs and maintaining quality based on a virtual model in a computer software package.

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