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Strength of shs aluminium cast iron from dispersed mechanical engineering waste

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Abstract

© 2018 Trans Tech Publications, Switzerland. The article presents an alternative method of obtaining aluminium cast iron in the process of self-propagating high-temperature synthesis from disperse waste of machine-building enterprises. The deficiencies of the traditional methods for obtaining structural iron castings with aluminum are established. The analysis of the factors influencing the strength of the SHS aluminium cast iron, the planned experiment for obtaining the maximum strength of SHS aluminium cast iron for two input factors varying at three levels and three parallel observations were carried out. The statistical processing of experimental results is performed. The mathematical model is obtained for the dependence of operational factors on the composition of the charge of the SHS process. The significance of the regression coefficients of the equation is determined. The adequacy of the obtained equation is checked for the results of observations. The analysis of the conditions for the formation of the microstructure of aluminium cast iron in the process of SHS-casting is presented.

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Keywords

Aluminium cast iron, Disperse waste, Scale, Shavings, SHS process, Strength, The planned experiment, The regression equation

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