

APPLICATION OF THE LEAST SQUARES METHOD IN THE CONSTRUCTION OF DIAGRAMS STRESS X NUMBER OF CYCLES AND STRAIN X NUMBER OF CYCLES

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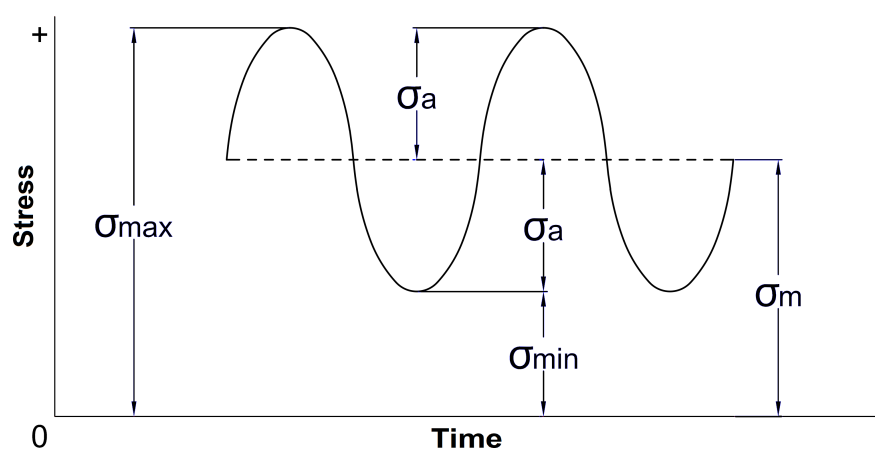
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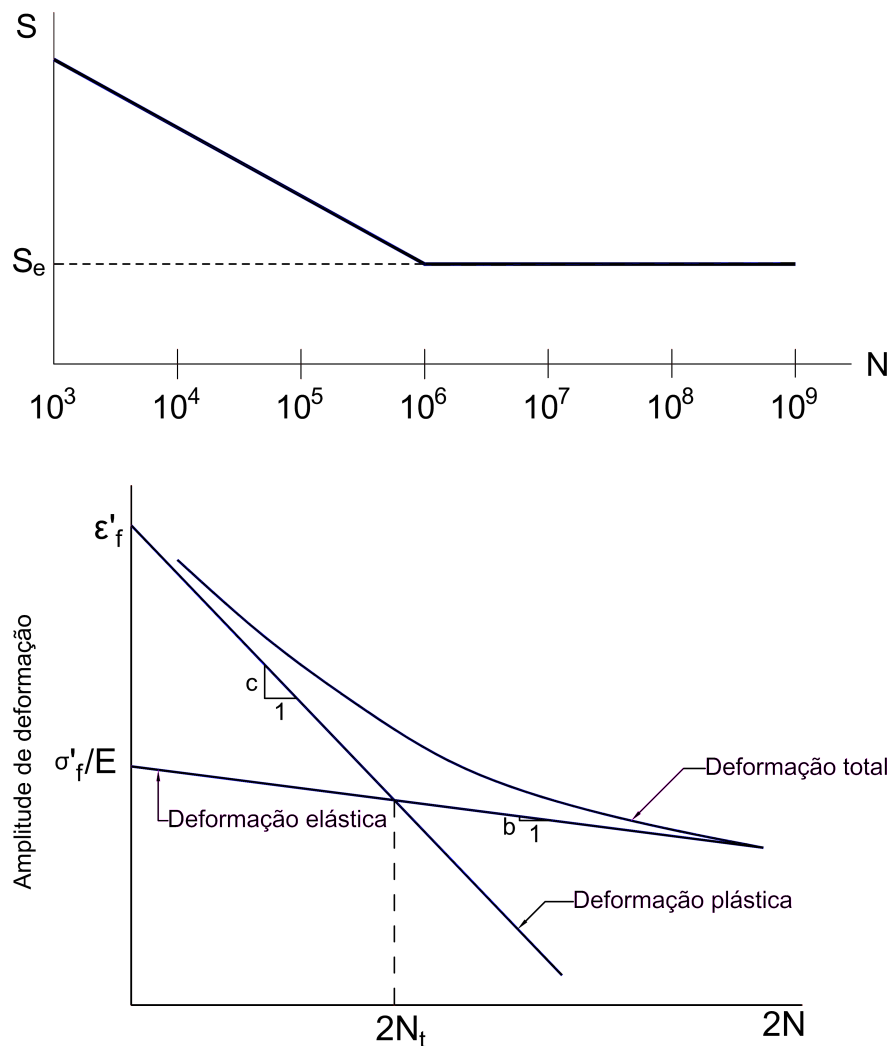
Abstract

This article contemplates the construction of diagrams: stress x number of cycles and strain x number of cycles from the least squares method, which can be used when you have a set of data and you want to fit a mathematical function to them, so that the final result is as representative as possible. The referred diagrams result from the accomplishment of fatigue tests, which consist of applying cyclic loads or deformations, generally of a sinusoidal nature, in standardized specimens in order to determine the life or fatigue resistance of a given material. A fatigue test requires the following information: part geometry, type of applied load and material properties. With this information and an adequate methodology, it becomes possible to obtain the life expectancy or durability of the component. At the end, a simplified code developed in Matlab is also available, which allows performing all the partial calculations involved, as well as providing the desired equation.

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