Dilatometric Measurements of Austenitic Stainless Steel as a Function of Temperature

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Many solid materials are subjected to structural changes, e.g. phase transformations within temperature change. These phase transformations are usually accompanied by a significant change in particular volume. The change in volume of a solid material is measured by the corresponding change in length of a specimen of the material. The experimental method which is based on measurement of volume/ length change during linear heating or cooling is dilatometry. Dilatometry is characterised by the linear thermal expansion coefficient which can be described as the relative length- change divided by the corresponding temperature interval. The basis of the thermal expansion of crystalline material is related with the function between interatomic forces in crystal lattice. This paper investigates the effect of temperature on structural changes within austenitic stainless steel that underwent different heat treatment before the measurement.

Keywords: Austenitic stainless steel, Dilatometry, Temperature dependance, Thermal expansion coefficient

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