

Experimentation for the Various Modes of Failure for Different Materials under UTM

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Abstract

The properties of the composite material such as high tensile strength, high strength to weight ratio, low thermal expansion is much superior on the pure material. Hence the composite materials are replacing pure material day by day. So that the development of the new composite material is growing up. The composite materials like HSS, EN31, OHNS has become more attractive due to their high specific strength, lightweight and biodegradability. Mixing of natural two or more materials finding increased applications. To characterize the mechanical behaviours of the material the tensile test is an important standard. The variation in geometry of the specimen has to be considered to properly describe the response of the material during the actual loading conditions. Along with the behaviour of the material in elastic limit, knowledge beyond elastic limit is also relevant since plastic effects with large deformation takes place in number of manufacturing processes. The present work describes the behaviour of mild steel, EN31 and OHNS specimens. So we have performed a research on properties of composite material. The object of this experiment is to measure the tensile properties of composite materials at a constant strain rate on the Universal Testing Machine. It helps us to know about the strength, flexibility and many more properties. Due to this test we will be able to study how the material will behave under load, how many strains will be producing when it is stressed, for which construction the same material will be useful, and many more. So, we perform tensile test on the composite material which effectively gives information about how many loads will be sustained by the same material, and how much strain will be produce. The properties of the composite material such as high tensile strength, high strength to weight ratio, low thermal expansion is much superior on the pure material. Hence the composite materials are replacing pure material day by day. So that the development of the new composite material is growing up. The composite materials like

HSS, EN31, OHNS has become more attractive due to their high specific strength, lightweight and biodegradability. Mixing of natural two or more materials finding increased applications. To characterize the mechanical behaviours of the material the tensile test is an important standard. The variation in geometry of the specimen has to be considered to properly describe the response of the material during the actual loading conditions. Along with the behaviour of the material in elastic limit, knowledge beyond elastic limit is also relevant since plastic effects with large deformation takes place in number of manufacturing processes. The present work describes the behaviour of mild steel, EN31 and OHNS specimens. So we have performed a research on properties of composite material. The object of this experiment is to measure the tensile properties of composite materials at a constant strain rate on the Universal Testing Machine. It helps us to know about the strength, flexibility and many more properties. Due to this test we will be able to study how the material will behave under load, how many strains will be producing when it is stressed, for which construction the same material will be useful, and many more. So, we perform tensile test on the composite material which effectively gives information about how many loads will be sustained by the same material, and how much strain will be produce.

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