

FORMAT FOR SYNOPSIS OF INDIAN STANDARDS

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Number and Title of the Indian Standard:

IS 17311:2019 **Carbon fibre – Determination of the tensile properties of single**
/ISO 11566:1996 **filament specimens**

Doc TXD 40 (14030)

Scope:

This International Standard specifies a method of test for the determination of the tensile properties of a single-filament specimen.

The method is applicable to single filaments of carbon fibres, taken from multifilament yarns, strands, tows, staple fibres, staple yarns, woven fabrics, braids and knits.

Salient features of content:

A single-filament specimen is loaded in tension at a constant speed by a suitable mechanical testing machine until failure and the force-extension curve recorded.

The tensile strength and tensile modulus of elasticity are calculated from the force-extension relationship and the specimen cross-sectional area.

The tensile modulus of elasticity is calculated by dividing the difference in stress at two defined points by the corresponding difference in strain at these points, which may be two stress levels (method A) or two strain levels (method B). The difference in strain is corrected for the system compliance. The cross-sectional area is determined independently.

The relationship between stress and strain may not be linear, hence a chord modulus has to be defined. The two methods (A and B) represent two distinct methods of defining the position of the chord and may not give identical results.

Types/Grades/Classes, if any covered in the standard:

Not applicable.