Handy Type Fibre Bundle Strength Tester

Background:

Bundle strength of the fibres is an important property of jute fibre as a raw material for yarn and fabric preparation. Strength of fiber refers to its ability to resist rupture under stress.3 Strength is calculated by dividing the breaking load of the sample by the linear density of the restrained fibre. The breaking strength is called tenacity. This is expressed in g/tex. Traditionally, it is measured by taking 10–15 fibres from the middle of the reed, gripping the reed between the thumb and forefinger of both hands, and breaking longitudinally without jerking. A fiber that produces audible sound is a very good fibre, while a fibre that does not produce sound is a weak fibre. This is a simple, easy method that requires less time. It has a drawback like method is subjective and assessment depends on the grader to grader. There are different instruments available for measuring bundle strength viz., Mechanical bundle strength tester and Electronic bundle strength tester. Mechanical bundle strength tester takes a lot of time for sample preparation and manual calculation. Electronic bundle strength tester provides rapid reading of the strength. It has disadvantages that require regular power supply and regular calibration of the instruments. There may be a solution to the problems of the above instruments in the form of a handheld fibre bundle tester:

Technology Details:

It assesses the fibre qualitatively by grading it poor, average, good, and excellent. The specimen length and weight must be the same as the recommendations in IS: 7032 (1986). The unit consists of handle, fibre holder with clamp, analog indicator with pointer, body and chain. Scale has degrees starting from 01 to 90 °. The 0 to 15 °, 15 to 50 °, 50 to 70 °, 70 to 90 ° indicates Red, Yellow, Blue and Green colour, respectively. Red, yellow, blue and green colour indicates poor, average, good and excellent fibre, respectively. Chain is provided to return back to the pointer at initial positioning.

Inventor and Team:

Dr S.C. Saha
Dr Biplab Saha
Mr Amitava Sarkar
Mr Gunasindhu Sardar
Mr Jayanta Mandal