Medullation is when an animal fibre has a hollow or partially-hollow core. In this state it has different physical properties in terms of bending resistance, and often takes up dye in a different manner, thereby accentuating its presence.

Whilst for some uses, such as certain types of carpets, it is helpful to have a degree of medullation in the wool, in many uses, particularly in apparel, medullation is undesirable (see Info-bulletin 5.4). Info-bulletin 5.6 gives some indication of the levels of medullation found in NZ carpet wool consignments. Medullation traditionally has been measured using the projection microscope method (IWTO-8), but more recently a cost effective method has been developed using the OFDA (IWTO-57), in which a dark field image is used to detect opaque fibres which do not focus light.

There are no regulations for sampling wool for the measurement of medullation, and hence the test is not certifiable under IWTO rules (for an explanation of this term, see Trading Certification Services).