

YIELD TESTING



Scouring process



Yield Components

The determination of yield is carried out in accordance with IWTO-19 (similar in many respects to ASTM D584). This test method entails the determination of woolbase and vegetable matter base, from which various standardised yields may be calculated using the formulae in the IWTO Core Test Regulations ([Info-bulletin 4.1](#)). Woolbase and vegetable matter base are certifiable (for an explanation of this term refer to [Trading Certification Services](#)), but yields are not, since they are standardised calculations for guidance and invoicing purposes only.

Woolbase is the amount of clean wool theoretically available from the greasy wool. It is defined as the oven-dry weight of wool fibre free of all water-solubles, grease, mineral and alkali-insoluble matter (generally vegetable matter). It is determined on a minimum of two subsamples by highly standardised scouring, followed by drying to constant weight. The oven-dry subsamples are then themselves sub-sampled to allow determination of the residual grease (by ethanol extraction, or by Near Infra Red Analysis - NIRA), residual mineral matter (by ashing at 750 °C, or by NIRA), and vegetable matter. In the calculation of woolbase, each of these residuals is deducted from the scoured oven-dry percentage.

Vegetable matter base is determined on subsamples of scoured and dried wool. The wool fibre is dissolved out in a carefully controlled automated process by hot caustic soda, and after rinsing and drying, the residue (Total Alkali Insolubles) is "dissected" to determine the types of material remaining. These may include pieces of skin and other contaminants as well as the vegetable matter types: seed, burr, and hard heads and twigs. Since each of these types reacts slightly differently to the caustic process, they have to be determined individually before calculating the amount of pure vegetable matter present. (IWTO has produced a photographic catalogue to assist in standardised identification of the components. This catalogue also indicates the importance of each type in terms of processing - hard heads and twigs for example tend to fall out in early processing, whereas many seeds may contribute to contamination at the fabric level since they can be difficult to remove in carding and combing.)

One anomaly of the vegetable matter determination is that it is determined on a net greasy basis, and consequently the values actually increase when wool is commercially scoured - the amount of VM doesn't change, simply the amount of material over which it is distributed.

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