The lower real density of real alpaca wool compared with sheep's wool confirms this.

Knowledge of the real density of the fibres - ρ in g/cm$^3$ and their diameter - $d$ in μm makes it possible to determine the fibre linear density $T_t$ in tex:

$$T_t = \pi/4 \cdot d^2 \cdot \rho \cdot 10^{-3} = 0.7854 \cdot 10^{-3} \cdot d^2 \cdot \rho$$

## Summing up

The results of studies of the external and internal structure of alpaca fibre allow to state that the structure of alpaca fibre differs a lot from that of sheep wool fibres: The external surface of alpaca fibres is more delicate with smaller and less pronounced scales. Moreover the cross sections are mostly oval in shape with a clearly defined channel of core structure.

The real density of the fibres of alpaca wool is lower than that of sheep wool fibres.

The physical and mechanical properties, linear density, strength, tenacity, elongation at break, length and diameter of alpaca fibre are varied in particular samples, the reason for which is uncontrolled herd breeding.

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