Task:

Application field: Agriculture

Material: Wheat straw

Feed size: length: 100 mm (before pre-grinding)
30 mm (before fine grinding)

Feed quantity: 50 g (pre-grinding), 15 g (fine grinding)

Material specification(s): fibrous

Customer requirement(s): 100 % < 200 µm

Subsequent analysis: Digestion in pilot plant

Solution:

Selected instrument(s): Cutting Mill SM 100
Ultra Centrifugal Mill ZM 200

Configuration(s): SM 100: Bottom sieve square holes 4 mm, stainless steel;
ZM 200: Push-fit rotor, 12 teeth, stainless steel;
Ring sieve trapezoid holes 0.2 mm, stainless steel

Parameter(s): SM 100: revolution speed 1400 rpm
ZM 200: revolution speed 18000 rpm

Time: 30 s (pre-grinding), 10 s (fine grinding)

Achieved result(s): 100 % < 200 µm
(the length of some particles can be > 200 µm)

Remark(s): For grinding of larger quantities a cyclone can be used.

Recommendation: For pre-grinding the Cutting Mill SM 100 and for fine
grinding the Ultra Centrifugal Mill ZM 200 are suitable
under the above mentioned conditions.
Pictures of the sample

Fig. 1: after pre-grinding in SM 100 with 4 mm bottom sieve

Fig. 2: after fine grinding in ZM 200 with 0.2 mm ring sieve