

Application Note

/// Grinding of traditional Chinese medicine with a high sugar content

PRODUCT

Tube Mill 100 control (Ident. no.: 0020007144)

MultiDrive control (Ident. no.: 0025002643)

INDUSTRY

Inspection of Medicines

OVERVIEW

The requirement was to grind traditional Chinese medicine according to the guidelines outlined in the Chinese pharmacopoeia to ensure the accuracy of the test results.

Chinese medicinal materials refer to the raw materials of medicinal plants, animals and minerals, most of which come from plants. There are 2711 kinds of traditional Chinese medicine shown in the Chinese pharmacopoeia (2020 Edition), of which 117 are newly added and 452 are revised. This new edition has further improved the quality control methods and standards. In terms of safety, it has updated the detection methods and limit standards of pesticide residues, heavy metal pollution, mycotoxins, etc. In terms of effectiveness, it has strengthened the research on content determination and characteristic atlas, which provides a strong guarantee for safe and efficient use.

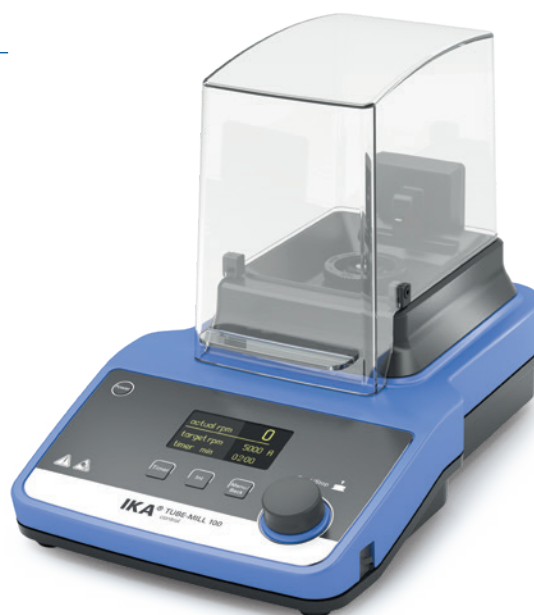
SAMPLE MATERIAL 1

Goji berry

Traditional Chinese medicine with a high sugar content

EXPERIMENTAL SETUP / SETTINGS

Mill	Tube Mill 100 control
Grinding chamber	MT 40.10
Speed	25,000 rpm
Grinding time	Intermittent grinding for 4 times, 15 seconds each time
Sample quantity	10 g



RESULTS

1. The goji berries can be ground without previous freeze drying but the sample will tend to clump.



Before grinding



After grinding

2. The powdered sample can be obtained by grinding with dry ice.



Before grinding



After grinding

Tip: Dry ice can be directly added to the MT 40 / MT 100 disposable grinding chamber and mixed with the sample in order to make it brittle. The grinding can be done without waiting for the dry ice to evaporate.

The MultiDrive control offers a patented temperature measurement and vessel recognition using RFID. A temperature limit can be set for temperature-sensitive materials, or for specific planned reactions to protect against sample overheating.



SAMPLE MATERIAL 2

Root tuber of the Chinese foxglove plant
Traditional Chinese medicine with a high sugar content

EXPERIMENTAL SETUP / SETTINGS

Grinder	MultiDrive control
Grinding Chamber	MI 400 T
Grinding Blade	BL 2000.1
Speed	20,000 rpm
Sample quantity	100 g



PROCEDURE

1. Cut the samples into approximately 1 cm sized pieces
2. Rough grinding for 20 seconds
3. Dry the smaller-sized samples until the sample weight is constant to remove all moisture
4. Samples are ground intermittently for 6 consecutive times, 10 seconds each time



RESULTS

The powdered sample can only be obtained using the procedure listed above. This is to prevent the samples from sticking together after the grinding process and from adhering to the walls of the grinding chamber.



Before grinding



After rough grinding



Grinding after drying

CONCLUSION

In order to achieve a powdered sample at the end of the grinding process for these types of samples with a high sugar content, there are two recommended methods to choose from:

1. Grinding the sample together with dry ice, or
2. Pre-drying the sample to remove all moisture prior to grinding.