

Food & Beverage Analysis

Perfect Homogenisation of Food Samples with the New Knife Mill GRINDOMIX GM 200

The diversity of foodstuffs with their often very different properties represents a challenge for food testing laboratories. The new Knife Mill GRINDOMIX GM 200 sets standards in food sample preparation. The cutting effect produced by the steel blades results in the perfect homogenisation of samples with high water, oil, sugar or fat content. The GM 200 - which accepts sample volumes up to 700 ml - has been completely revised and upgraded. This mill covers a wide application range from grainy food stuff such as rape seed, rice, soy beans or corn to fibrous or tough samples such as meat, fish, sticky candy or cheese.



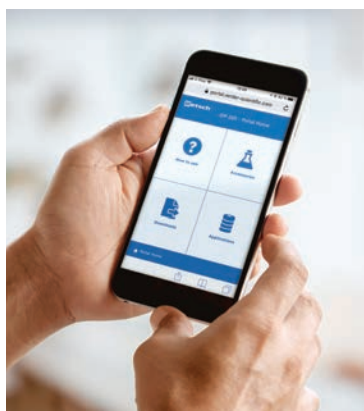
New features improve homogenisation of difficult samples

Thanks to new features like the powerful 1000 W drive, the mill can homogenise even difficult samples like tough meat with skin or fibrous plants very quickly and efficiently without blockages or the need for more than two grinding steps. The innovative Boost function allows for a temporary speed increase to 14.000 min^{-1} , providing extra power for the homogenisation of difficult samples in a very short time. The mill offers three different operation modes to adapt the homogenisation process to the material properties. Up to 8 programs can be stored for routine applications as well as 4 program sequences which is ideal to combine two grinding steps.

A wide selection of accessories allows for individual adaptation to application requirements. The grinding containers are available in steel, glass, polycarbonate, and polypropylene. A patented gravity lid reduces the sample volume during the grinding process, thus permitting thorough homogenisation of the entire sample. For samples with a high liquid content, a gravity lid with overflow channels is available. The so-called reduction lids reduce the container volume to 0.3 l or 0.5 l, thus submitting smaller sample volumes continuously to the grinding process. Beside the standard knife, a knife with serrated blades for tough samples like meat or a knife with pure titanium blades for heavy-metal free homogenisation are available.

MyRETSCH web portal

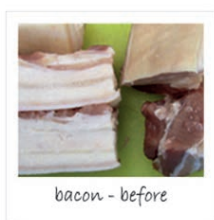
The GM 200 is the first mill to provide direct access to the new MyRETSCH web portal. This portal can be accessed by simply scanning the QR code in the user-friendly 4.3" touch display. It offers a wealth of information on the product itself, like operating manual or available accessories, but also application-specific documents. These include more than 80 grinding protocols as well as handling videos which demonstrate use of the mill step by step or 'tips & tricks' documents. This information helps the user to optimise the grinding process and achieve best possible results.



Application examples

Meat/Bacon/Fish with very tough or thick skin

Meat samples may be very tough, especially, if they contain large fatty parts. 450 g of meat were pre-cut manually to pieces of approximately 50 mm. Until now, complete homogenisation of such meat samples had to be carried out in 4-5 grinding steps with increasing speed to avoid blocking of the blades. In the new GM 200, however, the sample was fully homogenised in only two grinding steps thanks to the improved powerful 1000 W drive. Pre-cutting was performed at a revolution speed of 7000 min^{-1} for 10 seconds. The standard lid was used in this step, so that the large initial sample pieces had enough space to move inside the grinding container. The gravity lid was used in the fine grinding step at a revolution speed of $10,000 \text{ min}^{-1}$ for 20 seconds as the lid automatically reduces the volume of the grinding chamber with decreasing sample volume. The use of the serrated blades knife increased the cutting efficiency. The Boost function with a temporary speed of 14.000 min^{-1} may be useful to homogenise the toughest parts of the sample.



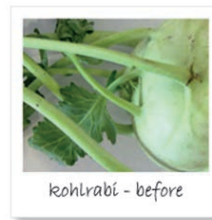
bacon - before



bacon - after

Vegetables with low water content

Vegetables often contain moisture or even consist predominantly of water. In the latter case, complete homogenisation is facilitated, as sample pieces are too wet to stick on the walls of the grinding container where they no longer come into contact with the rotating knives. This is not the case with samples like kohlrabi which have a lower water content. The sample pieces tend to stick on the wall of the grinding container, thus evading contact with the knife blades. A few sample pieces may remain in the mostly homogeneous sample, even if maximum speed was used. Using a specific lid like the gravity lid with overflow channels helps to improve the grinding effect, but full homogenisation is often achieved by adding water to the sample. 280 g kohlrabi was cut manually in four pieces. Grinding was performed in two steps. It is recommended to use a low speed of 2000 min^{-1} for the first 10 seconds. For fine grinding at 5000 min^{-1} , 50 ml water was added to achieve a good homogeneity after 20 seconds. The gravity lid with overflow channels was used to ensure thorough homogenisation. The interval mode during the fine grinding step improves mixing of the sample and thus increases grinding efficiency.



kohlrabi - before



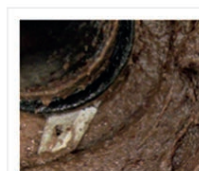
kohlrabi - after

Sticky samples like raisins, sweets, cheese

Sticky samples tend to agglomerate and stick on the knife blades or the walls of the grinding container. Thus, the degree of homogenisation can be rather low. The strong 1000 W power drive of the GM 200 now ensures that the blades do not get blocked even when homogenising e. g. 200 g of raisins at a revolution speed of $10,000 \text{ min}^{-1}$ for 10 seconds in cutting mode. The reduction lid forces the sample against the blades, thus improving the degree of homogenisation.



raisins - before



raisins - after

Conclusion

The new GRINDOMIX GM 200 is the perfect mill to homogenise up to 700 ml of dry, oily, fatty, soft and tough sample materials - for analysis results with minimum standard deviation. Moreover, it is the first Retsch mill offering direct access via QR code to the MyRETSCH web portal with product - and application-specific information.

For larger quantities Retsch offers the GM 300 model with a grinding chamber volume of 5,000 ml.

Individual Solutions for Food Safety Available

Salmonella in your cheese or chocolate, horse meat instead of beef as labelled on the packaging, toxic arsenic in rice or high mercury levels in fish - food scandals and warnings from consumer authorities regularly grab our attention. The quality and safety of food we consume directly affects us all. And food safety covers many different facets of the industry. Not only confirming that food is free from pathogens and toxic substances, but also knowing more about its nutritional value and origin – does the product provide a sufficient supply of macro- and micronutrients and do they really contain what they claim on the packaging. And food safety also takes into consideration the health and welfare of livestock and crops through the quality control of animal feed, soil and fertiliser.

A variety of analytical options are available to ensure quality control standards are maintained during the production of food products and to monitor compliance with regulatory requirements. **Analytik Jena** offers various solutions for a wide range of applications in food safety analysis. This includes a range of Analytical Instrumentation and Molecular Biology Technologies that allow for the determination of nutrients and toxic elements, the detection and identification of harmful pathogens, unethical adulteration and cross-contamination of food products.

For More Info, email: 44748pr@reply-direct.com

Real-Time PCR Assay Suite for STEC Detection Extends AOAC Certification for 25g Flour and Ground Beef

Hygiena, a Warburg Pincus portfolio company that specialises in rapid food safety and environmental sanitation testing, today announced it received extensions to its AOAC-Research Institute validation for the BAX® System Real-Time PCR Assay Suite for STEC for two additional matrices: 25g flour and 25g ground beef. AOAC-RI validated the assay as equivalent to the reference culture method for detecting shiga toxin-producing *E. coli* (STEC), but with faster time to results.

"We are delighted and proud to receive certification from AOAC for these two matrices, which demonstrates to producers and regulators that Hygiena's BAX® System is an approved method by a recognised accreditation body," said Dr Martin Easter, Chief Scientific Officer of Hygiena. "These methods are important tools to help reduce the occurrence of recent and serious outbreaks in these products."

The flour validation was executed to help US and Canadian producers avoid contamination issues that have persisted in flour, cake and pancake mixes and raw dough since 2009. The 25g ground beef validation was completed to support European beef producers needing an accredited method for detection of STEC. These producers now can use the BAX® System with confidence that results are accurate and are certified as reliable and reproducible.

Hygiena's BAX® System Real-Time PCR Assay Suite for STEC validation in 25g ground beef samples was shown to provide reliable and accurate results within a workday, supplying necessary information on pathogen presence. The real-time PCR assay could also accurately, and relatively rapidly, detect STEC in flour samples that, because of their dryness, have defied efforts to detect the bacteria.



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ADVERTORIAL

Biopure™: The Gold Standard in Mycotoxin Testing



High quality reference materials are crucial for accurate and reliable results in any mycotoxin analysis. With over 35 years of experience in this field, Romer Labs offers the most comprehensive portfolio of mycotoxin testing solutions on the market, establishing the Biopure™ range of products as the gold standard in instrumental analytics.

Biopure™ calibrants are high quality mycotoxin reference materials characterised by independent methods, such as HPLC, NMR and LC-MS/MS, which ensure their identity and purity. All

these reference materials are accompanied by certificates, which state the uncertainty of the target analyte and document the traceability of the certified value, all in accordance with ISO Guide 31.

Biopure™ calibrants are available in liquid 'ready-to-use' and crystalline forms, and as single calibrants as well as calibrant mixtures. Customised calibrants are available upon request.

The stars of the Biopure™ product line are the fully labelled ¹³C internal standards for mass spectrometry analysis. These ¹³C standards are proven to be the most effective tool to correct for matrix effects, thereby compensating for overestimations and underestimations. Because they are chemically similar to the analyte of interest, ¹³C analogues behave virtually identically in chromatography but differentiate themselves in MS. Recovery losses from sample preparation and ion suppression or enhancement effects in the MS source can thus be eliminated.

These state-of-the-art calibrants are available for all regulated mycotoxins and rely on a patented technology, proprietary to Romer Labs®.



The GOLD Standard in Mycotoxin Testing

High quality **reference materials** are a must for accurate and reliable results in any analysis.

With **Biopure™**, Romer Labs offers the broadest range of high quality mycotoxin reference materials currently available.



The stars of the Biopure™ product line are the **fully labeled ¹³C internal standards**. Available for all regulated mycotoxins, these calibrants rely on a patented technology, assuring the highest standard of analytical accuracy.

For more information visit www.romerlabs.com

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