Multiplelabs
Turnkey Laboratories Solutions

Analytical®
Technologies Limited

FNT-3910

Falling Number Tester

EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

Introduction:

Our company is a professional manufacturer of grain and oil testing instruments of the State Grain Administration. we have been committed to the development and production of grain and oil quality inspection equipment and equipment.

Our company mainly manufacture physical testing equipment, such as gluten tester, hammer cyclone mill, powder inspection sieve, filter, etc.; the second is mainly chemical testing equipment, such as various nitrogen analyzers, crude fat determination Instrument, crude fiber tester, aflatoxin tester, etc. The products are suitable for grain and oil inspection, food and feed inspection, technical supervision, inspection and quarantine, agricultural scientific research, medicine and health, scientific research in colleges and universities. In order to gradually develop grain and oil testing equipment in the direction of international standardization and automation, our company will continue to develop new products and produce various testing instruments. Serving grain and oil quality inspection work.

Our company will provide high-quality products and excellent services to customers based on honesty.

Principle overview:

● Falling Number Tester is a special instrument for measuring amylase activity. It can accurately determine the degree of damage to the germination of grains. It is suitable for the dete mination of grains, especially wheat and wheat flour. It is a must for quality testing in the fields of grain storage and flour processing. instrument.

● The seeds of cereal crops are mainly composed of carbohydrates, of which starch accounts for the highest proportion. Starch is the main energy source for human beings, and the edible quality and baking quality of products have a certain relationship with amylase activity. Fermented foods such as bread and steamed bread are made from germinated wheat flour. The heart is sticky, the volume is reduced, and the taste is not good. This is due to the sharp increase in the α-amylase activity in the wheat grain during the wheat germination. If wheat flour that has been stored for many years is used to make bread, its volume becomes smaller and the bread core becomes hard, which is caused by insufficient amylase activity in the wheat grains.

● Alpha-amylase is a starch hydrolyzing enzyme, also known as a liquefaction enzyme. It can hydrolyze starch into dextrin and sugar, and make starch paste viscosity drop rapidly. Its activity is related to factors such as pH, temperature, starch grain damage, starch gelatinization, etc. Under suitable pH and temperature conditions, the α-amylase activity is large, and the α-amylase is easy to hydrolyze the gelatinized starch and damaged starch grains, while the hydrolysis effect on the ungelatinized starch and the intact and undamaged starch is very low. . When the temperature rises to the enzyme inactivation temperature, the amylase will lose its activity. Different sources of α-amylase (cereals, fungi, bacteria) lose their activity at different temperatures.

● After the wheat flour is added with water and shaken, a water suspension is formed. In the boiling water bath, the temperature gradually rises, the water absorption volume of the starch grains increases, and the α-amylase activity gradually increases, which can hydrolyze the starch in the damaged starch grains. When the liquid reaches the gelatinization temperature of wheat starch (55°C), the starch grains rupture, and the starch molecules are released from the starch grains to form a gelatinized liquid. At this time, the hydrolysis effect of α-amylase on the gelatinized starch molecules is obviously intensified. Part of starch is hydrolyzed into dextrin and sugar to reduce the viscosity of starch paste. In wheat flour samples, the greater the concentration of α-amylase, the more obvious the viscosity of the starch paste decreased. Therefore, the change in viscosity can reflect the activity of α-amylase.
Domestic and foreign grain trade, milling and baking departments have used grain alpha-amylase activity as a quality indicator of grains, especially wheat and flour, and have used various methods to adjust the alpha-amylase activity in flour.

● The falling number tester is used to determine the alpha-amylase activity index in cereals according to the Berghag-Pettanen falling number method.

● The suspension of grain flour (such as wheat flour) can be gelatinized quickly in a boiling water bath, and the starch of the paste is liquefied to different degrees due to the different α-amylase activity, and the degree of liquefaction is different. The agitator is in the paste The descending speed is different, and the descending value also indicates the corresponding difference in α-amylase activity. The lower the falling value, the higher the activity of α-amylase.

● The falling value is expressed as the number of seconds required for the viscosity stirrer to freely drop a certain height in the gelatinized liquid.

Application of falling number tester:

● There are two main applications for the determination of wheat falling values. That is, the determination of wheat germination damage and the reasonable adjustment and addition of α-amylase in flour. From the perspective of the applied industries, it involves the grain trade department, the grain storage department, the flour processing department, the food processing department, the agricultural department and the commodity inspection department.

● The measurement of the falling number of wheat can accurately evaluate the degree of water sprouting caused by various reasons. Normally mature wheat α-amylase activity is low, and the falling value is about 350-400 seconds. If the wheat germinates or germinates in rain (that is, the wheat germinates for two or three days, and the wheat germ has not yet protruded from the seed coat), the falling value will be obvious Decline, the magnitude of decrease is proportional to the

length of germination time and the proportion of germination. When the germination is serious, the fall value will be reduced to less than 80 seconds. If only a few grain wheat germinate, even if the germination time is longer, the fall value will not be Significantly down. Using the falling number meter can accurately evaluate the germination degree of wheat and avoid the error of the artificial naked eye method.

●Use the wheat falling value to determine the wheat purchase price. Many countries in the world determine their own wheat falling value acquisition standards based on their own climate, rainfall, etc. For example, Sweden divides wheat into three categories according to the falling value, one is the usable wheat, and the falling value is more than 190 seconds; The second type can only be used after being mixed with high falling value wheat for 90-190 seconds; the third type can only be used as feed grains under 90 seconds. When the wheat landing value is higher than 190 seconds, the price increases, and when the wheat falls below 190 seconds, the price decreases.

●The grain purchasing department can classify and store the wheat in different warehouses according to the falling value of the incoming wheat, so as to avoid the mixing of germinated wheat and good wheat, which reduces the quality of wheat and causes unnecessary economic losses. It can also be reasonably matched according to the falling value of the incoming wheat tomeet the wheat demand of the flour mill.

● Flour processing plants can correctly assess the quality of wheat according to the falling value of wheat, and produce flour with different falling values according to the indicators of special flour. Flour mills have two methods to adjust the falling value of flour. One method is to match wheat with high and low falling values, or to match with high and low flours, and the other method is to add flour with high falling value. Cereal alpha-amylase (barley malt powder) or fungal alpha-amylase.

▸▸ Technical Parameter :

Stirring rod quality: 25±0.05g
Heater power: 600W
Viscosity tube specifications:
Inner diameter: 21±0.02mm
Outer diameter: 23.8±0.25mm
Inner wall height: 220±0.3mm
Repeatability: The difference between the two determination results shall not exceed 10% of the average
Power supply: AC220±10V 50Hz
Dimensions: 180mm×440mm×515mm
Whole machine weight: 22.5kg

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HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenace to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.

About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

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UV/VIS Spectro 2080+ Double Beam

Infra FTIR

Optima Gas Chromatograph 3007

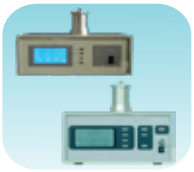
Optima Gas Chromatograph 2979 Plus

Flash Chromatograph

Atomic Absorption Spectrophotometer

Liquid Partical Counter

Optical Emission Spectrophotometer



DSC/TGA

Semi Auto Bio Chemistry Analyzer

HEMA 2062 Hematology Analyzer

Micro Plate Reader/Washer

URINOVA 2800 Urine Analyzer

Total Organic Carbon 3800

Fully Automated CLIA

NOVA-2100 Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

TOC Analyzer

Laser Particle Size Analyzer

Ion Chromatograph

Water purification system

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @

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