



FibreBag-Systems

Fibretherm

FibreBag - A new technology for the ADF-, NDF- and Crude Fibre determination

FibreBag – Highly precise Filter Bags

The **FibreBag**-technology developed by C. Gerhardt breaks new ground in the classical Weender crude fibre analysis procedure. The determination of the cell structure substances according to van Soest is also made easy. Bench space, energy and chemical usage are all reduced dramatically compared to the traditional glassware methods. Despite all those savings, the conformity of the method is guaranteed.

FibreBag has many advantages compared to the standard method. Multiple samples can be digested and filtrated simultaneously, which speeds up the analysis dramatically. All these savings are especially significant for labs with a high sample throughput.

The procedure with controlled boiling steps as well as the unique, highly precise filtration mesh of the **FibreBags** ensure highly precise results.

FibreBags and Glass Spacer



Highly precise filtration tissue with defined mesh size ensures optimal results

FibreBag-Method

Prior to the analysis, the samples are each weighted into a Fibre Bag. Just like in the traditional method, the required boiling times and filtration steps have to be done for all samples – but now they are done simultaneously.

When determining the crude fibre content, the non soluble contents in sulphuric acid and caustic solution remain in the Fibre Bag. The residue is dried, weighted and then incinerated. The difference between the ash content and the non-soluble residue in relation to the initial sample weight, is the crude fibre content.

When doing an ADF- or NDF-determination, the sample is treated with the respective detergents, the remaining substances of the cell structure are specified and determined according to this method as well. Also, the calculation is done identically to the crude fibre determination.

Since all analyses are conventional methods, it is very important to observe the respective times for the boiling procedures as well as following the weighing procedures as precisely as possible.

Fibretherm - Easy handling of FibreBags

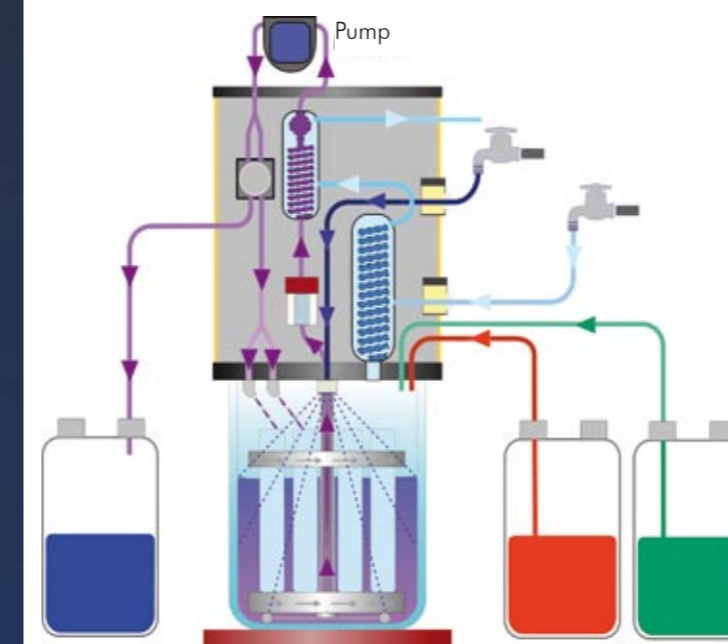


Fibretherm FT 12 - Automatic

Based on the established C. Gerhardt FibreBag method, the new **Fibretherm** offers the fully automated processing of the boiling and filtration steps for the crude fibre-, ADF- and NDF-determination. Furthermore, up to 12 samples can be digested simultaneously.

Principle

The entire process is done in a closed system, so that the user does not come into contact with any dangerous chemicals. The FibreBags containing the samples are put into a 12 place carousel. The carousel is then put into a glass beaker and put into the Fibretherm system. There is the option to choose between 9 methods which can be defined freely. After starting the boiling procedure, the samples are heated up in a controlled manner and the chemicals are added automatically. For crude fibre the samples are digested in acid, rinsed, and boiled in caustic rinsed again and then taken out and dried. After the boiling, rinsing and filtration phases, the residue of chemicals is sucked off automatically.



Rotation without Wear and Tear

The circular motion of the sample carousel is created by recycling the digestion or rinsing solution. The jet of reagent is sufficient to rotate the carousel without a motor, whilst washing through the samples.



Details of Fibretherm

Fibretherm - Advantages

Considerable saving of time

- Working on up to 12 samples simultaneously
- Fast and trouble-free filtration
- Short heating-up time

Saving bench space and ergonomic

- Small footprint
- Easy to clean
- Safe operation
- Option to store up to 9 methods
- Uses inert materials

Reduces costs through

- Automatization of procedure
- Saving chemicals, thus less costs for disposal
- Cooling water- and energy control

Improvement of the quality analysis

- Constant and automatic analysis conditions
- Constant filtration quality of the FibreBags
- Low blank values due to almost complete incineration

More safety in the lab

- No fume hood needed
- The user is not exposed to dangerous chemicals
- Several components in the reliable C. Gerhardt-technology, like e.g. diaphragm pump, level sensor control and temperature sensors

Fibretherm - Analysis

A. Sample preparation and weighing

1. Determination of the dry-matter of sample
 - Sample is dried for 4 h at 105 °
 - 30 minutes in dessicator
2. ca. 1 g of samples are weighed into the FibreBags
3. FibreBags with glass spacers are put into carousel
4. Samples are de-fatted at a fat content of > 10 %
5. Short drying of FibreBags for 2 minutes

B. Fibretherm - automated process

6. Boiling phase I
 - Boil in 350 ml sulphuric acid for 30 min.
 - Remove acid + wash 2 x with water
7. Boiling phase II
 - Boil in 350 ml potassium hydroxide-solution for 30 min (in some methods also allow NaOH)
 - Remove caustic + wash 2 x in water
8. Take FibreBags out of the carousel

C. Incineration and weighing

9. Dry FibreBags at 105 °C till mass is constant + cool off in drying oven and weigh
10. Prepare filter bad for incineration
11. Incinerate for 4 hours at 600 °C
12. Cool off for 30 min. in drying cabinet at 105 °C
13. Cool off in desiccator for 30 more minutes
14. Weigh ash residue
15. Calculate results

Sample Preparation with Fibretherm - Easy, Clean and Fast

The sample is weighed into the FibreBag. Then, a glass spacer is put into the bag to ensure a good flow through of the reagents. Up to 12 bags can be put into a sample carousel. The beaker is then put on the hotplate of the Fibretherm. The analysis is started – that's it.



Order Information - Overview

Fibretherm - Automatic System

All boiling- and filtration steps which are needed for the crude fibre-, ADF- and NDF-determination are done automatically.

Fibretherm 12-place Automatic

Order No.	Type	Description
175000	FT 12	Fibretherm 12-place, complete with reaction vessel, handle, 12 x glass spacers, drip tray and tubing

FibreBags (have to be ordered separately)

1776	RF	100 bags, small mesh size for the determination of crude fibre
1775	ADF	100 bags, small mesh size for the determination of ADF/NDF
1772	SPF	Glass spacer

Set of storage tanks Fibretherm

1757	FTK 3	3 x 20 l with automatic level sensor
1756	FTK 2	2 x 20 l with automatic level sensor
1757/1	FTK 3/1	3 x 10 l with automatic level sensor
1756/1	FTK 2/1	2 x 10 l with automatic level sensor



Technical Data Fibretherm	
Cooling water consump.	ca. 5 l/min
Nominal voltage	230 V AC, 50 Hz
Nominal wattage	1900 W
Weight	42 kg
Dimensions (W x D x H)	340 x 640 x 860 mm
Compressed air pressure	4 - 5 bar
Capacity glass container	1,8 L
Interface	2 x RS 485
Programs	9
Water connection	2 x 1/2 Inch thread
Compressor	(optional) 4 - 5 bar

Fibretherm Configuration	
Ceramic hotplate	Yes
Max. amount of samples	12
Pneumatic Lift	Yes
Addition of acid can be programmed	Yes
Add. of caustic can be programmed	Yes
Add. of rinsing water can be programmed	Yes
Suction can be programmed	Yes
Cooling water control	Yes
Optical and acoustical error messages	Yes
Extensive error control	Yes
Drip tray	Yes

FibreBag - Manual Systems

Gerhardt also offers 3 simple systems, which require the user to do the boiling and filtration steps manually. FibreBags must be ordered separately (see above).

FibreBag System 6-place

Order No.	Type	Description
175006	FBS 6	FibreBag System 6-place, consisting of: 1 x single heater 450 W, 1 x beaker 1000 ml, 1 x carousel 6-place, 1 x handle for carousel, 6 x glass spacer, 1 x support stand with ring, 1 x condenser made of glass with tubes, (W x H x D) 250 x 600 x 230 mm

FibreBag System 24-place

175024	FBS 24	FibreBag System 24-place, consisting of: 1 x serial heater 4-place 1800 W, 4 x beaker 1000 ml, 4 x carousel 6-place, 1 x handle for carousel, 24 x glass spacer, 4 x support stand with ring, 4 x condenser made of glass with tubes, (W x H x D) 600 x 600 x 230 mm
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FibreBag System 36-place

175036	FBS 36	FibreBag System 36-place, consisting of: 1 x serial heater 6-place 2700 W, 6 x beaker 1000 ml, 6 x carousel 6-place, 1 x handle for carousel, 36 x glass spacer, 6 x support stand with ring, 6 x condenser made of glass with tubes, (W x H x D) 900 x 600 x 230 mm
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FibreBag FBS 6

Other Programm

On request we will be happy to supply you with further brochures regarding our other products.

Extraction Systems



Soxtherm - Extraction systems

Based on the experiences of customers and partners worldwide Gerhardt has improved the successful Soxtherm range. Depending on the demands and sample through-put of the laboratory, the customer can now choose between a 2, 4, and 6 place programmable unit. The Soxtherm can either be controlled via PC with Soxtherm Manager or using the controller Multistat.

Digestion Systems



Turbotherm and Kjeldatherm - Digestion systems

The extensive Kjeldatherm digestion program produced by Gerhardt offers many options. Thanks to the infrared heating units the programmable Turbotherm rapid digestion unit has very short and reliable heating up and cooling down periods. The Kjeldatherm block digestion unit makes use of an aluminum block, where the sample tubes are heated up to exactly the temperature needed.

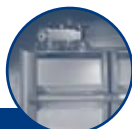
Distillation Systems



Vapodest - Distillation systems

C. Gerhardt has set new standards worldwide with the Vapodest steam distillation systems. Whenever, highly precise analysis results are needed - C. Gerhardt has the answer. The Vapodest product range is available in various levels of automation, from the Vapodest 10s semi-automatic distillation system to the fully automated Vapodest 50s carousel distillation and titration system with autosampler and control via PC.

Dumas Systems



Dumatherm - Nitrogen determination by Dumas

Dumatherm offered by C. Gerhardt is a highly efficient, precise and fast analysis system. For most sample matrices, it is a real alternative to other classical procedures. Dumatherm comprises all advantages of the Dumas method and is entirely controlled and operated using the comfortable controlling software Dumatherm-Manager.

Shaker & Heater



Shakers & Heaters

Programmable shakers for heavy loads, incubator shakers, rotary shaker as well as flask heaters - all on the highest technical level - are standard features in any modern lab. Traditionally, these general products have been part of the C. Gerhardt product range for quite a long time. With various accessories the flask heaters, can be used for the classical digestion, distillation and extraction as well.

Since 1846
over 160 years
C. Gerhardt



EN ISO
9001:2000



All stages from research & development to shipment have undergone a constant quality control under **EN ISO 9001:2000**.

Your dealer

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