



C. Gerhardt - Analytical Systems



Hydrolysis System

HYDROTHERM

HYDROTHERM

Automated Hydrolysis System

UNIQUE

HYDROTHERM is the only system worldwide for the automated acid hydrolysis for the classic fat determination acc. to Weibull-Stoldt.

SAFE

HYDROTHERM - safe and efficient workflow. All liquids are put into a closed system and then disposed of.

STATE OF THE ART

HYDROTHERM combines high functionality and demanding technology in a modern, elegant product design.



HYDROTHERM - Overview

Design and Functionality

During the development of the HYDROTHERM, R & D had their emphasis on solid and innovative technology as well as on achieving a high functionality. These efforts culminated in a compact and bench saving design. C. Gerhardt managed to put all these demanding specifications in a modern design. With the combination of innovative technology, know-how and modern product design, HYDROTHERM will set a new level of quality in the lab.



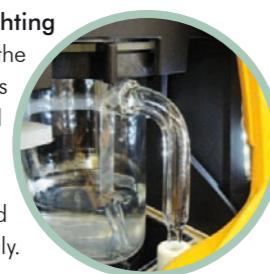
Big Windows

Big windows for monitoring the analysis. Extra large windows let the user monitor the entire hydrolysis. The windows can be taken out for easy cleaning.



Interior Lighting

Since there is light inside the unit, all digestion glasses are constantly illuminated during the entire hydrolysis procedure. Thus the samples can be monitored easily.



Monitoring of the Levels in the Filters

The level in the funnels is permanently monitored via level sensors to avoid spilling of the filters.



Hatch

After opening the hatch on the front, the folded filters can be easily inserted. When it is closed again, the funnels are pressed towards the lid – thus avoiding that no chemical fumes can escape.



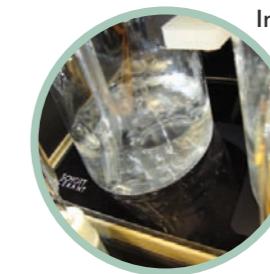
Quick Clamping Device

Thanks to the quick clamping device, the digestion glasses can be easily taken out to be cleaned and then inserted again.



Infra-red-Hotplate

Extremely short heating up times are the asset of the infra-red hotplate and at the same time the distribution of the temperature is even and constant.



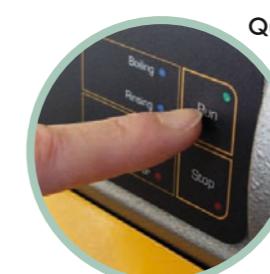
Status Display

The various steps of the analysis are monitored and displayed directly at the unit. Thus, the spatial separation of the controlling-PC and the HYDROTHERM unit is possible without any loss of control.



Quick Start

The Hydrolysis unit stores the programme which was used last. Thus, a hydrolysis process can be initiated directly by pushing the button 'Run'. The PC controlling the unit does not necessarily have to be started.



Controlling via PC

HYDROTHERM is entirely operated and monitored using the easy to handle controlling software HYDROTHERM Manager.



HYDROTHERM - Principle

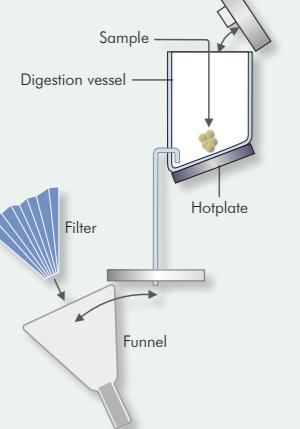
Automated Hydrolysis

HYDROTHERM is the only system worldwide to do an automated acid hydrolysis for the traditional fat determination acc. to Weibull-Stoldt. Based on the classic method, the digestion is done with hydrochloric acid followed by a filtration using folded filters. The automated procedure is patented and revolutionary concept for the fat analysis.

All aspects of operational safety have been taken into consideration while designing the unit. Especially helpful are all the sensors used. There is no more handling of hot acids or acid fumes. The side benefit is the fact that the Hydrotherm can be operated outside a fume cabinet.

State-of-the-art controlling procedures ensure the reproducibility of the analysis. The presence of a lab technician is reduced to a minimum. Up to 6 samples (3 modules with 2 extraction places each) can be digested and filtered simultaneously or independently of each other in a closed and monitored process.

Phase 1 Insert filter and sample



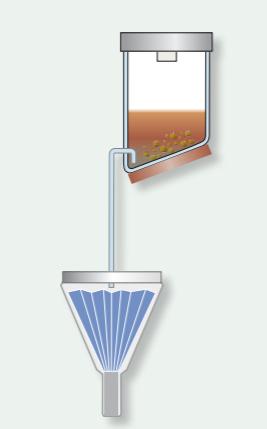
After putting the sample in the digestion tube, the filter is inserted into the funnel and the unit is closed. Funnel as well as the digestion tube are closed completely.

Phase 2 Addition of hydrochloric acid



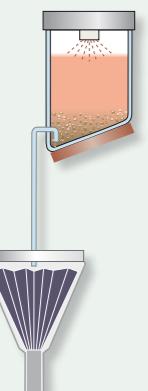
The process is initiated and a well defined amount of hydrochloric acid is added automatically. The entire process is run in a closed system.

Phase 3 Hydrolysis



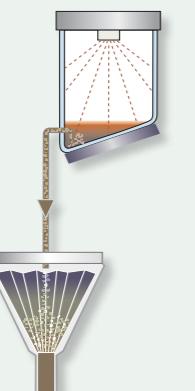
The sample is hydrolysed in boiling hydrochloric acid. The digestion of the matrix is done in an ideally dimensioned digestion vessel.

Phase 4 Dilution and rinsing



When digestion is finished, the sample is heavily diluted with hot water. Prior to the filtration, the filter is moistened with hot water as well.

Phase 5 Filtration



The diluted sample is quantitatively filtered through the humid filter. The digestion tube is rinsed with hot water till all fat particles are carried over and the filter is ph-neutral.

Phase 6 Taking out of filter



At the end the filter is taken out, dried and put into an extraction thimble for the fat extraction.

HYDROTHERM - One Step Ahead

Modern Controlling Software

HYDROTHERM is entirely operated and controlled by the convenient controlling software HYDROTHERM Manager*. The program offers a lot of comfort and various optional settings, like e.g. the possibility of creating methods, calibrating the pumps and monitoring of the entire analysis process. Error messages are created by the software and – should a problem occur – the analysis is interrupted if necessary. This feature reduces the presence of human labour and facilitates the daily routine in a lab.



* PC is not included in the delivery



- Overview about all functions and processes, easy to operate
- For various sample types, unlimited methods can be created
- Programming of sample sizes, heating phases and cooling down periods
- Clear overview of all three modules on only one screen
- Manual intervention during the extraction process is possible
- Data table for the documentation of e.g. methods, users, comments, results, etc
- Display of status
- Selection of languages

Convincing Arguments

HYDROTHERM is leading the way to a highly efficient Quality Control in the lab - while reducing the costs at the same time.

Reducing costs

- High level of automation
 - saving up to 80 % of the costs per sample in comparison to traditional analysis
- Bench saving, compact design
 - does not need to be placed in fume hood
- Cooling water control and energy control help to reduce the cooling water consumption
- Connection to a recirculating cooler is possible
- Simultaneous analysis of up to six samples

Automatization of the hydrolysis process

- Dosing of the acid
- Temperature / energy control
- Filtering of the sample
- Diluting with hot water
- Preparation of hot water
 - internal hot water generator
 - warm water connection not necessary
- Neutral rinsing of the filter
- Cleaning of the digestion vessel
- Physical presence of operator is not necessary between the various procedures

Increasing the safety in the lab

- The design ensures a high safety standard while handling chemicals
- Analysis in a closed system
 - no fume hood necessary
 - the user does not get into contact with chemicals
- Numerous monitoring functions
 - of temperature, cooling water, filter, tank etc.
- Optical and acoustical error messages

Easy operation

- Any number of methods can be stored
- Analysis can be started directly at the instrument
 - controlling software does not have to be started separately
- Folded filters are used:
 - compatible with traditional methods
 - preparation and cleaning is not necessary
- 3 modules with 2 hotplates each can be operated individually
 - digestion of up to 3 different samples are possible simultaneously

Hydrolysis System

Technical Data | Consumables and Accessories

Technical data HYDROTHERM

Hotplates 6 (3 modules with 2 hotplates each)

Initial sample weight variable

Cooling water connection 3/4" thread

Cooling water pressure 0,5 - 10 bar

Cooling water consumption ca. 5 l/min

Nominal voltage 230 VAC¹⁾, 50-60 Hz

Nominal consumption 2200 W

Current consumption max. 9,6 Ampere

Interfaces 2 x RS 485

1 x CAN-Bus

Dimensions (W x D x H) closed 870 x 480 x 880 mm, open 870 x 600 x 960 mm

Weight ca. 85 kg

Delivery - Hydrolysis unit HYDROTHERM

- Set of tubings contains all in- and outlet tubings required

- Set of filters

- CD-ROM with HYDROTHERM-Manager²⁾

1) other voltages on request

2) PC is not included in the delivery

System requirements for using HYDROTHERM-Manager

■ Operating system Microsoft Windows 98, XP, Vista, Win7

■ Serial or USB-interface for connection HYDROTHERM to PC

Order informations

Order No. Type Description

13-0027 HT6 HYDROTHERM, Hydrolysis unit, complete with set of tubings and HYDROTHERM Manager

Consumables and Accessories

Make sure to use only **original C. Gerhardt spare parts** in order to obtain the best possible results. These parts have been tested thoroughly in the Gerhardt application lab.

Consumables

Order No. Type Description

1004092 FF240 Folded Filters Ø 240 mm, package with 100 pc.

More accessories and consumables on request.



Hydrolysis System

Area of Usage | Hydrolysis and Extraction

Area of Usage

HYDROTHERM is working according to a variety of national and international regulations regarding the extraction process and observes all those required methods. HYDROTHERM can be used for many analytical procedures. Please contact us for applications according to your needs.

Sample preparation for Soxhlet, Soxtherm as well as other extraction systems for fat determination in

- Milk and dairy products, e.g. L01.00-20 §64 LFGB
- Cereal and cereal products
- Meat and meat products, e.g. L06.00-6 oder L07.00-6 §64 LFGB
- Chocolate and cocoa products
- Oil and oil seeds
- Bread and bakery products e.g. L17.00-4 §64 LFGB
- Fruits
- Fat in feed
- Lipids in eggs and egg products
- Fat in dietary products
- and many more



Hydrolysis and Extraction coming from one single source

HYDROTHERM and SOXTERM

Tedious and expensive fat determination is a thing of the past. Using HYDROTHERM prior to the automatic SOXTERM fat extraction system makes the fat determination really easy. The time-consuming hydrolysis procedure is followed by the automated extraction using the SOXTERM rapid extraction system which has been used successfully for decades. The user has the option of a 2-, 4- or 6-place extraction system. The operation is done using a PC with SOXTERM Manager or using an external controller MULTISTAT.

Further product information is available in our brochure SOXTERM. Or contact our product specialists at C.Gerhardt or at our dealer in your country.



SOXTERM 412 + SOXTERM Manager + SOXTERM 416

Other Programme

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

Extraction Systems



SOXOTHERM - Extraction Systems

Based on the experiences of customers and partners worldwide C. Gerhardt has improved the successful SOXOTHERM 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 units. The SOXOTHERM can either be controlled via PC with SOXOTHERM Manager or using the controller MULTISTAT.

Digestion Systems



TURBOTHERM and KJELDATHERM - Digestion Systems

The extensive KJELDATHERM digestion program produced by C. Gerhardt offers many options. The TURBOTHERM programmable infrared heating 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 - Dumas Systems

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.

FibreBag-Systems



FIBREBAG and FIBREATHERM - Crude fibre-, ADF- and NDF-determination

The FIBREBAG method developed by C. Gerhardt revolutionized the classical determination acc. to Weender, van Soest and others and reduces the handling to a minimum. The boiling process is controlled and the unique, highly precise filtration tissue of the FIBREBAGS ensures optimal results. C. Gerhardt offers automatic and manual systems.

Shakers & Heaters



LABOSHAKE and THERMO - Shakers and Laboratory Heaters

Programmable shakers for heavy loads, incubator shakers, rotary shakers 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 many years. 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

Member of

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

Your dealer

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