Hydrolysis System
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.

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

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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 Bligh & Dyer. The digestion is done with hydrochloric acid followed by a rotation using fold 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 in the sensitive area. There is no mixing handling of hot acids or acid fumes. The side benefit is the fact that HCL can be operated outside a fume cabinet.

State of art control 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.

**HYDROTHERM - One Step Ahead**

Modern Controlling Software

HYDROTHERM is an extremely operated and controlled by the convenient controlling software HYDROTHERM Manager™.

The program offers a lot of comfort and various automatic settings, for example, the possibility of saving methods, collecting the pump and monitoring of the entire analysis process. Error messages are created by the software and should be a problem – the analysis is interrupted if necessary. This feature reduces the presence of human labor and facilitates the daily routine in a lab.

**Convincing Arguments**

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

**Reducing costs**

- High level of automation
  - Saving up to 90 % of the costs per sample in comparison to traditional analysis
  - Bench saving, compact design
  - No 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

**Increasing the safety in the lab**

- The design ensures a high safety standard while handling chemicals
  - Analysis in a closed system
  - No hot water
  - Folded filters are used
  - All parts are cooled down after analysis

**Easy operation**

- Any number of methods can be stored
  - Results can be analyzed 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

**Technical Data**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample</strong></td>
<td>1 to 6 (3 modules with 2 extraction places each)</td>
</tr>
<tr>
<td><strong>Initial sample weight</strong></td>
<td>variable</td>
</tr>
<tr>
<td><strong>Cooling unit</strong></td>
<td>3/4&quot; threat</td>
</tr>
<tr>
<td><strong>Cooling water pressure</strong></td>
<td>0.5 - 10 bar</td>
</tr>
<tr>
<td><strong>Cooling water consumption</strong></td>
<td>370 l/h</td>
</tr>
<tr>
<td><strong>Horizontal voltage</strong></td>
<td>220 VAC, 50/60 Hz</td>
</tr>
<tr>
<td><strong>Horizontal current</strong></td>
<td>10 A</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>(W x D x H) closed 780 x 480 x 880 mm, open 870 x 580 x 960 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>165 kg</td>
</tr>
<tr>
<td><strong>Delivery</strong></td>
<td>HYDROTHERM Hydrolysis unit, complete with set of tubings and HYDROTHERM Manager</td>
</tr>
</tbody>
</table>

**Consumables and Accessories**

More information can be found on the Gerhardt spare parts in order to obtain the best possible results. These parts have been tested thoroughly in the Gerhardt application lab.

**Order information**

**Order-No. | Type | Description**
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>13-0067</td>
<td>H105</td>
<td>HYDROTHERM, Hydrolysis unit, complete with set of tubings and HYDROTHERM Manager</td>
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**Consumables**

**Order-No. | Description**
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</thead>
<tbody>
<tr>
<td>100492</td>
<td>F1240</td>
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<tr>
<td></td>
<td>More accessories and consumables on request</td>
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</table>
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 SOXHERM
Tedious and expensive fat determination is a thing of the past. Using HYDROTHERM prior to the automatic SOXHERM fat extraction system makes the fat determination really easy. The time-consuming hydrolysis procedure is followed by the automated extraction using the SOXHERM 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 SOXHERM Manager or using an external controller MULTISTAT.

Further product information is available in our brochure SOXHERM. Or contact our product specialists at C.Gerhardt or at our dealer in your country.
SOXHERM - Extraction Systems
Based on the experiences of customers and partners worldwide C. Gerhardt has improved the successful SOXHERM range. Depending on the demands and sample throughput of the laboratory, the customer can now choose between a 2, 4, and 6 place, programmable units. The SOXHERM can either be controlled via PC with SOXHERM Manager or using the controller MULTISTAT.

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.

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.

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 and FIBREETHERM - 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.

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.

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