Soxtherm - Automatic Rapid Extraction Systems

Modern Laboratory Management
C. Gerhardt has been known for decades for manufacturing state-of-the-art rapid extraction units for all kinds of laboratories round the globe. The current range of Soxtherm models, are an asset for any lab and prepare the user for the future.

Soxtherm meets the requirements of efficient quality control and opens the way for modern laboratory management.

The new controlling software ‘Soxtherm-Manager’ has further improved work flow, offering a vast variety of documentation tools.

Comfortable Operation
The operation can either be done using the controlling software Soxtherm-Manager or using the external controller Multistat. Both can operate and control up to 4 Soxtherm units independently, no matter how many places they have. The fully automated process ensures highest precision with lowest effort.

2-, 4- or 6 Place Unit
Gerhardt offers a solution for any size of laboratory regardless of the sample throughput. 3 models are available, with 2, 4 or 6 places. They can be operated as either stand-alone units or combined. When taking advantage of the maximum capacity of four 6-place units, 24 samples may be run simultaneously. When combined each extraction unit can be used independently, thus different types of sample can be extracted with various solvents at the same time.

Safety First
- The construction ensures a high standard of security when handling solvents
- Front door made of safety glass opens and closes automatically upon start or end of program
- Continuous monitoring of all services ensures additional safety
- Temperature is controlled twice: by the software and by the safety temperature plug for 135 °C, 200 °C and 300 °C

Versatile
- A serial group of Soxtherms can be set up handling up to 24 samples for various types which can be analyzed simultaneously
- Fat determination of food and feeds
- Extraction for sample preparation
- Various solvents can be used

Economic
- Automatic and efficient solvent recovery, thus solvents may be re-used
- Control of the amount of cooling water ensures low water consumption
- Compact design saves precious bench space in the laboratory
- Up to 4 units can be controlled by only one controller, allowing cheaper upgrades.
The Extraction Unit - One Step Ahead

Convincing Arguments
- 2-, 4- and 6-place units give the widest range of options
- Solvent recovery reduces running costs
- Water and compressed air control gives unattended operation and saves water making the system environmentally friendly
- Fast and accurate, allowing increased sample throughput compared to the traditional Soxhlet
- Capable of being used with all solvents giving flexibility of applications
- Fully programmable with automatic start-up and shut down for unattended operation
- Only 3 moving parts and no internal seals mean no routine maintenance is required
- 4 different sizes of thimbles can be used
- Single button operation for easy use

Safety Features
- Cooling water and air monitoring (shuts down the system in the event of a service failure)
- Safety front window protects the operator from hot surfaces
- Over temperature cut-off prevents flash point of the solvent being exceeded
- Optical sensor on solvent recovery tank prevents overfilling
- Acoustic and visual warnings inform operator of system problems
- Illuminated glass beakers allow easy visual inspection of extraction progress

Improved Monitoring of Extraction
The extraction beakers are illuminated during the extraction thus providing an excellent visual check as well.

Stand-Alone-Operation
The program which has been used last is stored in the extraction unit till it is overwritten by a new program. Thus, an extraction is started immediately by pushing the key "run".

Safety Features
- Cooling water and air monitoring (shuts down the system in the event of a service failure)
- Safety front window protects the operator from hot surfaces
- Over temperature cut-off prevents flash point of the solvent being exceeded
- Optical sensor on solvent recovery tank prevents overfilling
- Acoustic and visual warnings inform operator of system problems
- Illuminated glass beakers allow easy visual inspection of extraction progress

Improved Monitoring of Extraction
The extraction beakers are illuminated during the extraction thus providing an excellent visual check as well.

Stand-Alone-Operation
The program which has been used last is stored in the extraction unit till it is overwritten by a new program. Thus, an extraction is started immediately by pushing the key "run".

Principle

Gentle Treatment of Sample - Fully Automatic
The extraction process is performed in 5 programmable steps which ensures complete extraction of the samples. The patented process is fully automatic and especially suitable for fat determination and residue analysis.

Stage 1
The sample is immersed in boiling solvent and the extractable material is liberated from the sample.

Stage 2
The level of the solvent is lowered below the extraction thimble. The excess solvent is collected in the rear solvent recovery tank.

Stage 3
The material is extracted by the refluxed, condensed solvent and is collected in the solvent, below in the extraction beaker.

Stage 4
The bulk of the solvent is distilled over into the rear storage tank for later recovery.

Stage 5
The extraction beakers are lifted from the hot-plate automatically. Some of the residual solvent may be removed via convection heating.

Cooling water and heating are switched off when the extraction is finished after the fifth stage.
Everything under control

Each Soxtherm unit possesses a position window and a status window. If at any given time, the user has a perfect overview of all functions and programs in use.

Insert rack for 6 extraction beakers

The compact design saves precious bench space in the laboratory

The alphanumerical multifunction display with 32 characters guides the user through the program steps for the Soxtherm-Manager offers a wide variety of possibilities for quality documentation as well as diagnosing faults. The program looks familiar right away. This saves time, error messages, comments and notes for general samples.

The holder for extraction thimbles type SE is fixed to the extraction beaker glass macro. The holder for extraction thimbles type SE is fixed to the extraction beaker glass macro.

The holder for extraction thimbles type SE is fixed to the extraction beaker glass macro.

The holder for extraction thimbles type SE is fixed to the extraction beaker glass macro.

Consumables

Boiling Stones

Drying and filtering (5µ).

Which can be used e.g. petrol ether and hexane. When dried and filtered (5µ), they can be used for analytical purposes.

Dried and filtered (5µ). In such a case, no compressor is needed.

Compressors

Plug for safety temperature 300 °C

Plug for safety temperature 200 °C

Plug for safety temperature 135 °C

Data cable RS-485

Data cable RS-232

RS-422 interface

RS-232 commuter

Plug for safety temperature 300 °C

Level control for solvent tanks

Acoustic and visual error messages

Program start time can be programmed for unattended operation

Everything under control

You are working with a window user interface, so you can print your Soxtherm models 412, 414, and 416.

Insert rack for 6 extraction beakers

Bottling Stones

Order Information | Consumables | Accessories

Contacting with Multistat or via PC with Southern Manager to operate the Soxtherm extraction units conveniently and safely. The user has the choice between the small and compact Multistat controller or the Southern Manager for controlling PC software. Both Multistat controller or Southern Manager can monitor and control up to 4 units simultaneously. The controlling units are not included in the delivery of the Southern basic units, but have to be ordered separately.

Multistat

Multifunctional display with 20 characters guides the user through the program steps

The compact design ensures precise bench space in the laboratory

Cleaning and maintenance

The maintenance have, chemical resistant keystone is conveniently designed and can be easily cleaned.

Program start time can be programmed for unattended operation

Different languages at your disposal: English, German, French

Everything under control

Each Soxtherm unit possesses a position window and a status window. If at any given time, the user has a perfect overview of all functions and programs in use.

Easy Operation

Everyone can be operated by the sophisticated controlling software Soxtherm-Manager. In addition, the program is easy to handle and offers more options than the Multistat. Error messages are provided by the software and indicate the extraction is done properly. This reduces the time of a human operator tremendously and facilitates the daily routine. Furthermore, the software contains powerful diagnostic as well as document functions, which allow the handling of all parameters of the instrument and extraction may be operated by any PC in the lab using Windows 98, 2000, or XP.
Versatility
Soxtherm observes international and national norms and extraction standards and thus, meets the requested analysis qualities. Soxtherm can be used for nearly all analytical areas. Application notes for various extractions are available on request.

Fat Determination
Almost all food contains fat. When working with the Gerhardt Soxtherm, the determination of the fat content in food and feeds is simple, fast, and reliable.

- Milk and dairy products
- Cereals and cereal products
- Meat and meat products
- Chocolate and cacao products
- Oil and oil seeds
- Fruits
- Fat in feeds
- Lipids in eggs and egg products
- Fat in dietary products and many more...

Sample Preparation
Soxtherm can be used for the determination of pollutants in environmental samples. The data obtained can then be used to make fast environmental decisions.

- Mineral oil in rocks
- Oil and lubricants
- Pesticides
- Phenols
- PCB
- Dioxins
- Softeners and additives in plastic and rubber
- Colorant on textile fibers
- Explosives
- Coatings of fertilizers
- PAH - Poly aromatic hydrocarbons
- EOX - Extractable organic halides according to EPA method 3541 and many more

Area of Usage | Extraction and Hydrolysis

Extraction and Hydrolysis coming from one single source

SOXHERM AND HYDROTHERM
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. HYDROTHERM is the only system worldwide to do an automated acid hydrolysis for the traditional fat determination acc. to Weibull-Stoldt. The operation is done using a PC with the convenient controlling software HYDROTHERM Manager.

Further product information is available in our brochure HYDROTHERM. Or contact our product specialists at C.Gerhardt or at our dealer in your country.
Other Programme
On request we will be happy to supply you with further brochures regarding our other products.

HYDROTHERM - Hydrolysis Systems
HYDROTHERM is a unique system for the automated acid hydrolysis prior to the classic fat determination acc. to Weibull-Stoldt. There are a total of 6 positions which are divided into 3 modules with 2 digestion positions. Each module can be started individually. The control software HYDROTHERM-Manager is used to develop methods as well as for the documentation of the procedure.

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 FIBREtherm - 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.

Since 1846
over 160 years
C. Gerhardt

Member of

Gafra

Technical details correct as from 01/2011
Later modifications possible.