

 Gerhardt



SOX THERM
RAPID EXTRACTION

SOXTHERM - RAPID EXTRACTION



SOXTHERM - MODERN LABORATORY MANAGEMENT

For decades the rapid extraction units made by Gerhardt, has been a reliable partner for any kind of laboratory. With the newly revised Soxtherm product range a new standard is set for the demanding tasks of a modern laboratory: the latest technology is used but at the same time the way is prepared for a laboratory management in the future. Thanks to the new controlling software 'Soxtherm Manager' you even have vast data documentation and management possibilities.

Controlling of up to 4 extraction units simultaneously via PC or Multistat- controller

The Soxtherm can be either controlled using the newly developed controlling software Soxtherm-Manager or using the external controller Multistat. Both controlling instruments can control and monitor up to 4 Soxtherm units –any size – independently from each other. The fully automated process ensures highest precision for minimum input.



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 control of all services ensures additional safety
- › Double temperature control using a special software and a 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.
- › The control for the amount of cooling water ensured a low consumption of cooling water.
- › Compact design saves precious bench space in the laboratory
- › Up to 4 units can be controlled by only one controller

2, 4 OR 6 PLACE UNIT

Gerhardt offers a solution for any size of laboratory regardless of the sample throughput. 6 models are available, either as a stand-alone option or they may be combined.

When taking advantage of the maximum capacity, four 6-place units, allow the analysis of 24 samples simultaneously. Each extraction unit can be used independently, thus different types of samples can be extracted with various solvents at the same time.



EXTRACTION UNIT



ONE STEP AHEAD

- ▶ 2-, 4- and 6-place units available in Micro and Macro form giving the widest range of options for all laboratories
- ▶ 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
- ▶ Low solvent usage reduces running costs
- ▶ 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

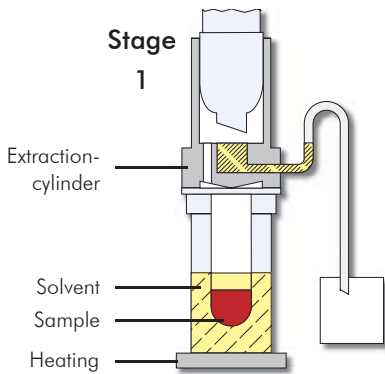
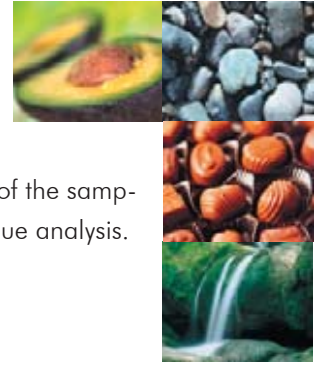
SAFETY FEATURES

- ▶ 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 overflowing
- ▶ Acoustic and visual warnings inform operator of system problems
- ▶ Illuminated glass beakers allow easy visual inspection of extraction progress

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.

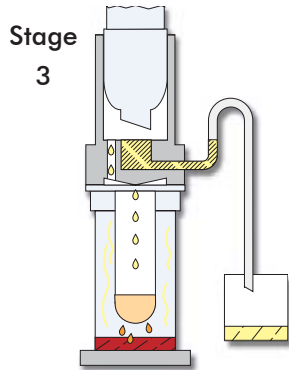


Stage 1

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

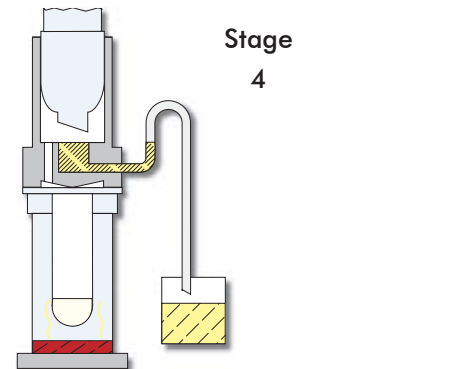
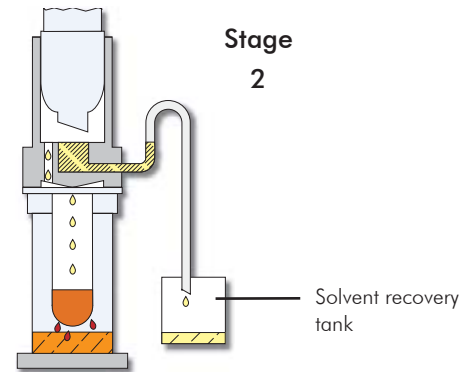
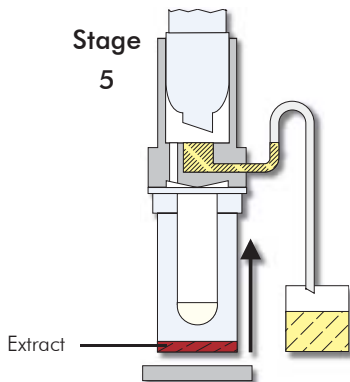
The material is extracted by the refluxed, condensed solvent and is collected in the solvent, below in the extraction beaker.

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 hotplate automatically. Some of the residual solvent may be removed via convection heating.



IMPROVED MONITORING OF EXTRACTION

The visual control of the glass extraction beakers is further enhanced by illumination..

The built-in solvent recovery tank has an electronic level sensor control. As soon as the maximum level is reached, a warning message is displayed in the controller.

OPERATION

CONTROLLING WITH MULTISTAT OR WITH PC: SOXTERM MANAGER

To operate the Soxtherm extraction units comfortably and reliably, the user has the choice between the small and compact controller Multistat or the convenient controlling software Soxtherm-Manager, which can be operated by any Pc in the lab using Microsoft Windows 98, 2000, or XP.



THE ADVANTAGES

Control of up to 4 units simultaneously

Both controlling instruments are the optimal tool for the management of the Soxtherm extraction units. They can monitor and control up to 4 units simultaneously.

Furthermore, the Soxtherm Manager offers additional comfort and a better overview of the operation. Up to 4 extraction units can be displayed simultaneously on one screen. In addition to this feature, all functions and analytical procedures can be observed easily in an additional status window..

Stand Alone Operation

Multistat and Soxtherm Manager send a program, which has been defined once, directly to the selected extraction unit. This program is stored in the extraction unit until it is overwritten by a new program. Thus, whenever the extraction units are in the stand-alone mode, they can be started by simply pressing the 'Run' button.

Monitoring/Safety

All functions are continuously checked by the Multistat or Soxtherm Manager. Whenever an error occurs, the extraction process is interrupted immediately and the glasses are lifted off the hotplate automatically. This way, safety is also ensured during unattended operation.

Program Library

Make sure to start your own program library. Multistat can store up to 20 programs which you can call up whenever needed. The Soxtherm Manager offers nearly unlimited storing options.





MULTISTAT

- › Different programs for various extractions can be stored and recalled
- › One Multistat controls up to 4 units which gives lower cost upgrades
- › The alphanumerical multifunctional display with 32 characters guides the user through the program steps
- › The compact design saves precious bench space in the laboratory
- › The maintenance free, chemical resistant keypad is conveniently designed and can be easily cleaned
- › Program start time can be programmed for unattended operation
- › Different languages at your disposal: German, English, French

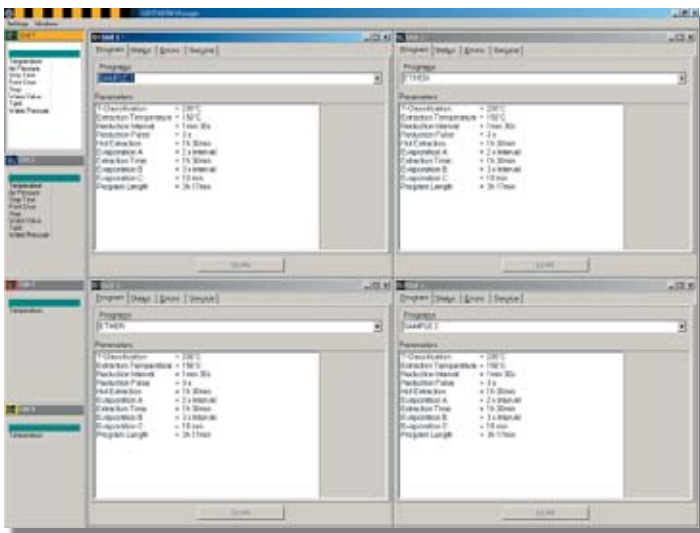


SOXTERM MANAGER

With the introduction of the Soxtherm-Manager, Gerhardt now offers an efficient software, which meets all the demands of a modern laboratory management. The software offers multiple documentation and recording possibilities.

EVERYTHING UNDER CONTROL

- Each Soxtherm unit has a program window and a status window



- At any given time, the user has a perfect overview of all functions and programs in use
- Diagnosis function for an ideal extraction process
- Up to 4 Soxtherm units are displayed at one screen
- and many more

START IMMEDIATELY

You are working with a windows user interface, so that the program looks familiar right away. This saves time-consuming familiarization periods.

INDIVIDUAL SETTINGS

It is up to you to determine, which functions should be displayed permanently in the status window. These windows can be displayed side by side, or one after the other, can be shown or hidden.

PROGRAMMING

The program window offers a quick view of all extraction steps. Gerhardt can provide you with application notes for general samples.

DOCUMENTATION

Thanks to vast logging functions, the Soxtherm-Manager offers a vast variety of possibilities for documentations, like e.g. starting time, operator name, entire running time, error messages, comments and many more.



VERSATILITY



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

APPLICATIONS

Soxtherm can be used for all analytical areas. Application notes for various determinations are available on request.



ORDERING INFORMATION



SOXTHERM 2-PLACE

Order No. Type

840 250 SOX 412

Description

Basic unit **2-place**

Delivery of the basic unit includes: 4 x Extraction beakers, 2 x Holders for extraction thimbles, 25 x Extraction thimbles 33 x 80 mm, 1 x Pair of tongs, 1 x Box of boiling stones 250 g, 1 x Insert rack for extraction beakers, 1 x Set of connecting pipes



SOXTHERM 4-PLACE

Order No. Type

840 450 SOX 414

Description

Basic unit **4-place**

Delivery of the basic unit includes: 8 x Extraction beakers, 4 x Holders for extraction thimbles, 25 x Extraction thimbles 33 x 80 mm, 1 x Pair of tongs, 1 x Box of boiling stones 250 g, 1 x Insert rack for extraction beakers, 1 x Set of connecting pipes



SOXTHERM 6-PLACE

Order No. Type

840 650 SOX 416

Description

Basic unit **6-place**

Delivery of the basic unit includes: 12 x Extraction beakers, 6 x Holders for extraction thimbles, 25 x Extraction thimbles 33 x 80 mm, 1 x Pair of tongs, 1 x Box of boiling stones 250 g, 1 x Insert rack for extraction beakers, 1 x Set of connecting pipes



MULTISTAT

Order No. Type

8500 MS

Description

Programmable control unit for the control and monitoring of up to 4 Soxtherm basic units.



SOXTHERM-MANAGER

Order No. Type

8510 SX PC

Description

Software for the monitoring and controlling of 1 – 4 Soxtherm basic units. Soxtherm Manager CD in German and English language, short user manual and GerBus adapter.

COMPRESSOR

Order No. Type

8125 KOM

Description

For the compressed air supply of the basic units Soxtherm.

TECHNICAL DATA

Type	SOX 412	SOX 414	SOX 416
Order-No.:	840250	840450	840650
Nominal voltage:	230 VAC* - 50/60 Hz	230 VAC* - 50/60 Hz	230 VAC* - 50/60 Hz
Nominal wattage:	400 W	800 W	1200 W
Weight:	28 kg	36,5 kg	43 kg
Dimensions (W x D x H):	250 x 410 x 580 mm	405 x 410 x 580 mm	565 x 410 x 580 mm
Temperature :	max. 300 °C	max. 300 °C	max. 300 °C
Water consumption:	ca. 3 l/min	ca. 3 l/min	ca. 3 l/min
Water pressure:	min. 0,3 bar	min. 0,3 bar	min. 0,3 bar
RS 485 Interface:	2	2	2

Type	Multistat	Comment
Order-No.:	8500	Controller Multistat has to be ordered separately.
Nominal voltage:	230 VAC* - 50/60 Hz	Alternative option: controlling software 'Soxtherm Manager'
Nominal wattage:	6 W	
Weight:	2,5 kg	
Dimensions (W x D x H):	180 x 260 x 125 mm	
RS 485 Interface:	2	
RS 232 Interface:	1	

Type	Kompressor	Comment
Order-No.:	8125	Soxtherm can also be connected to an in-house compressed air supply. However, this air has to be dried and filtered (5 μ). In such a case, no compressor is needed.
Nominal voltage:	230 VAC* - 50/60 Hz	
Nominal wattage:	Motor 130 W	
Weight:	14 kg	
Dimensions (W x D x H):	340 x 220 x 390 mm	
Max. pressure:	8 bar	

* also available in 115 VAC – 60 Hz, other voltages on request

HYDROLYSIS / CRUDE FIBRE

HYDROLYSIS

For the determination of the total fat content according to the official methods. Comprises of a heating unit which can be used for different purposes. Each of the 6 positions can be controlled individually. With 2-pole power cord and excess current switch off for each position. Includes filter support with 6 funnels DIN 12445 (100 ml) 1 narrow mouth bottle of soft polyethylene, 100 folded filters, 250 g boiling stones, special supports, glass condensers, ring shaped rests, silicone rubber tubing, beakers and power cord.

Further information available on request!



Order No.	Type	Description
176600	HY 16/6	Hydrolysis unit (6-place)
176400	HY 16/4	Hydrolysis unit (4-place)



ACCESSORIES

ORIGINAL FROM GERHARDT

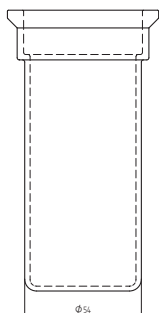
Make sure to use only original Gerhardt spare parts in order to obtain the best possible results. These parts have been tested thoroughly in the Gerhardt application lab..

The glass extraction beakers are produced by a highly specialized glass blower with whom Gerhardt has been cooperating for many years.

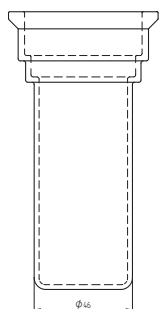
Thus, only these original Gerhardt extraction beakers guarantee a trouble free automatic extraction process without any loss of solvent.

Extraction beakers glass

Order No.	Type	Description
8400	SEB MA	Beaker 54 x 130 mm Version Macro Standard model, to be used for Soxtherm models 412, 414, and 416



Order No.	Type	Description
8402	SEB MIMA	Beaker 46 x 130 mm Version Micro Model with smaller diameter of cylinder to be used for Soxtherm models 412, 414, and 416. Only to be used for small sample sizes to save solvent.



Extraction thimbles (25 per box)

Order No.	Type	Description
8310	SE33A	Extraction thimbles 33x80mm
8317	SE33B	Extraction thimbles 33x94mm
8315	SE25	Extraction thimbles 25x75mm
8316	SE40	Extraction thimbles 40x85mm

Insert rack for extraction beaker

Order No.	Type	Description
8466	SEGMa	for 6 extraction beakers

Holder for extraction thimbles Type SE

Order No.	Type	Description
8323	SH K2	For thimbles 33 mm to be used with extraction beaker 8400 and 8402
8322	SHK1	For thimbles 25 mm to be used with extraction beaker 8400 and 8402
8324	SHK3	For thimbles 40 mm to be used with extraction beaker 8400

O-Rings

The standard delivery for Soxtherm includes Viton O-rings which can be used e.g. petrol ether and hexane. When working with other solvents or solvent mixtures, Gerhardt offers paraffluor or silicone o-rings.

Boiling stones

Order No.	Type	Description
18310	SIE	Box of boiling stones 250 g

Extraction thimble glass

Order No.	Type	Description
8318	EHG	34 x 95 mm, e.g. for fibres and foams



OTHER PRODUCTS

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

HOTPLATES Hotplates, single and serial hotplates as well as sand baths, are standard requirements in any laboratory. They have always been an important part of the product range at Gerhardt. The thermo program also includes classic distillation systems, digestion instruments, and extraction units.

HOTPLATES HC
SERIAL HEATING UNITS
SERIAL FLASK HEATERS



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

VAPODEST



DIGESTION UNITS 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.

KJELDATHERM
TURBOTHERM
TRACE METALL SMA



SHAKER Gerhardt shakers LS 500 and RO 500 can be programmed with 9 different shaking programs each with 9 different program steps for time and speed. Laboshake meets the highest demands of the chemical, biological, and microbiological research.

LABOSHAKE
THERMOSHAKE
ROTOSHAKE



All stages from research & development to shipment have undergone a constant quality control under EN ISO 9001:2000, which C. Gerhardt has recently achieved.

EN ISO 9001:2000 

FRONTCOVER Gouache „Soxtherm“, Douglas Swan 1997
Douglas Swan, born in the USA, raised in Scotland, had his studio at C. Gerhardt in Bonn from 1980 until his death in the year 2000. Winner of the August Macke Award, Bonn 1997.



 **Gerhardt**

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Later modifications possible.