

OPSIS LiquidLINE SoxROC Extraction Unit

Automatic, Flexible and Safe
For solvent extractions



THE SOXROC EXTRACTION UNIT

OP SIS LiquidLINE brings, once again, innovation to the wet chemistry market.

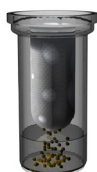
- Innovative batch handling reduces operator time
- Unique sealing system improves recovery of solvents
- Unique control of solvent removal adds flexibility

By tradition Soxhlet is associated with solvent extraction. However, during all the years since the Soxhlet method was described several improvements have been made. Maybe the most important was when hot extraction was launched. This drastically reduced the extraction time needed. The OP SIS LiquidLINE SoxROC Extraction Unit is based on Randall and Twisselmann techniques, using hot solvent and a closed system for optimal analytical conditions, still giving the same results as the classical and well accepted Soxhlet.

The SoxROC is designed to be flexible and is therefore also capable of extractions using other solvents and samples.



Stage 1 - Boiling
Boiling solvent is covering the sample so that extractable material can be liberated.



Stage 2 - Rinsing
The material is extracted by the refluxed, condensed, solvent.



Stage 3 - Drying
The cups are automatically separated from the hotplate and the cooling phase begins.

REDUCING TIME AND ERRORS

- With SoxROC, you can extract as many as 42 samples per day with no loss in precision or accuracy* - up to five times faster than the classical Soxhlet technique
- Automation of all extraction steps and an innovative batch handling reduces risk for errors
- OPSIS LiquidLINE LabConnect** software simplifies registration and handling of results

REDUCING COSTS AND USE OF SOLVENTS

- Unique sealing system with more than 90% recovery reduces cost for solvents and low water consumption saves water
- One single compact system without wires or computers reduces costs for installation and operation
- The OPSIS LiquidLINE BlackLINE coating*** provides unique corrosion protection

ADDING FLEXIBILITY AND SAFETY

- Prepared for different applications - Viton seals for most solvents but also resel for highly specialized solvents
- Security with high standard against dust, liquids and explosives. All valves close to solvents are ATEX classified.
- Operator safety is important and the SoxROC is equipped with protection shield, closed addition of solvents, and easy removal of recovered solvents

* The SoxROC follows officially approved methods for fat extraction

** Included with SoxROC Extraction Unit 6 position

*** OPSIS LiquidLINE BlackLINE coating is taken from latest development in Swedish corrosion technology. Similar coating is used in trucks and cars from Volvo and Scania.

BENEFITS

After more than 25 years of experience within analysis, and with the introduction of the world's first wireless Kjeldahl system, we are now reinventing solvent extraction. The SoxROC can be used for all common applications on the market, and meets the requirements for an automatic system including boiling, rinsing and drying.

The SoxROC is also prepared for the future with several unique benefits.

HIGHER LEVELS OF EFFICIENCY AND AUTOMATION

The SoxROC is designed to allow fully automatic extraction of up to 6 samples simultaneously.

The SoxROC will perform the complete process of boiling, rinsing and recovery after inserting the samples. The pivoting hotplate will ensure rapid cooling afterwards.

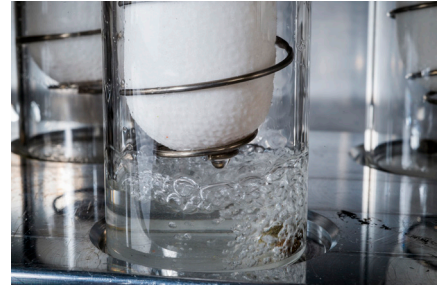
- Innovative batch handling saves time and reduces risk for errors. Easy to insert and manage 6 samples simultaneously. A practical tray carrier makes it easy to inspect samples before and after extraction. Same sample tray can be used both in the balance room and when inserting cups into the SoxROC.
- A high throughput of 42 samples per day can be achieved. Up to 6 samples can be extracted simultaneously.
- Fully automatic system with boiling, rinsing, and recovery. The pivoting hotplate separates from the cups for rapid cooling.
- Several times faster than the classical Soxhlet method with no loss of accuracy or precision.



SAVING COSTS

OP SIS LiquidLINE engineers have spent considerable time to create a closed system which gives high efficiency on heating and high recovery of solvents. This makes the SoxROC a very cost efficient solution.

- More than 90% recovery of solvents reduces costs.
- Efficient cooling saves water costs.
- OP SIS LiquidLINE designed sealing rings.
- Unique two-fold sealing system with firstly manual closing and secondly pivoting hotplate. Flexible sealing with adaptive springs on all 6 positions.
- All material in contact with solvents are in PTFE.



CONNECT YOUR LABORATORY

Connect the SoxROC Extraction Unit to your Laboratory information flow. The LabConnect software is delivered together with all SoxROC SX-360, 6-position units.

- Complete solution to register your weights and analyse your results, including direct import from connected balance and/or barcode scanner.
- Export your data to other LIMS systems or save in Excel, .CSV or PDF format
- Trusted IT security. No data is exchanged on the internet (no external cloud servers)

LabConnect software can also be upgraded with the LabConnect LIMS license

- Sample registration and Report modules
- One software for all your Protein, Moisture, Ash, Fiber and Fat analyses. The LabConnect LIMS will even work with instruments from other brands.
- User Management and Traceability of your data. Compliant with FDA Title 21 CFR Part 11



THE LabCONNECT SOFTWARE ALLOWS FOR EASY CONNECTIVITY TO YOUR LABORATORY

OPERATOR SAFETY

Every care has been taken to ensure that the SoxROC is safe and can be used in a safe way by the operator. To avoid contact with solvents it is possible to add solvents inside the instrument. It is also easy to remove solvents with the flexible recovery tank.

- Protection shield to cover cups during extraction makes it safe for the operator. Automatic sensors will stop extraction in case the protection shield is opened.
- Closed addition of solvents by opening the top cover of the instrument. Possible to add solvent before and during extraction. Separate recovery tank with easy access on the front panel.
- Samples and cups are removed in one step so there is no risk that solvent will drip from thimbles onto the hotplate. It also saves time when operating the instrument.
- Main electronics are mounted in a pressurised box, ensuring that no solvent can enter and cause electric sparks. All valves close to solvents are ATEX classified. The SoxROC follows IP55 for protection against dust and liquids.
- Overheat temperature level is automatically adjusted to selected program temperature. Monitoring is done via two separate safety systems.



ONE INTEGRATED SYSTEM

The SoxROC is easy to install in your lab. The system is small and compact with no need for additional computers, wires, or compressors.

- One instrument with no additional requirement for computers, compressors or complex wires to be installed.
- Recovery solvent tank inside the instrument, easy to remove when emptying solvents.

CUSTOMISE

The SoxROC is built with the laboratory in mind, which means that it can be customised towards your specific applications. The OPSIS LiquidLINE range is already prepared for a variety of methods, solvents, filters and samples.

The following accessories might be added to your SoxROC system.



CUPS

The better thermal conductivity in aluminium makes it ideal for applications or scenarios when it is desirable to run the extraction at low temperatures. Aluminium cups are more durable than glass. Glass cups in Borosilicate makes visual inspection easy during the extraction.

The SoxROC has two sizes of cups, 160 ml and 200 ml in both aluminium and glass. The 200 ml is ideal for Large Sample Volumes (LSV) and the small cups improve the usage of solvents - saving costs.

THIMBLES

You can use the most common thimbles on the market with the SoxROC. Cellulose thimbles 33x80 mm, 33x94 mm as well as 25x80 mm, 26x60 mm and 25x75 mm will all work well with the instrument.



PREPARED FOR DEMANDING SOLVENTS

The SoxROC instrument is built to withstand most solvents

- Viton seals can be used for fat extractions with solvents such as Petroleum-Ether and Hexane
- Butyl seals are recommended for solvents such as Acetone, Ethyl Acetate and Acetonitrile.
- Resel seals are recommended for very demanding environmental applications using specific solvents such as Hexane-Acetone mixtures

Please consult OPSIS LiquidLINE to confirm the best configuration for your specific applications.

SoxROC EXTRACTION UNIT, SX-320-C/SX-360-C

Ordering Information	
SX-320-C1/2/3/4	SoxROC Extraction Unit 2 position including: 2 pcs cups, 2 filter holders, seals, sample tray, thimbles, boiling stones, Recovery Flask and User Guide
SX-360-C1/2/3/4/5/6	SoxROC Extraction Unit 6 position including: 6 cups, 6 filter holders, seals, sample tray, thimbles, boiling stones, cup stand, Labconnect software, Recovery Flask and User Guide
Cups	Ø48 160 ml Aluminium and Borosilicate cups Ø54 200 ml Aluminium and Borosilicate cups
Thimbles	Recommended 25x80 mm, 33x80 mm and 40x80 mm. Compatible with standard filters
Holders and Seals	Viton, Butyl and Resel seals. Stainless Steel Filter Holders and PTFE Holders
Features and Performance	
Sample Positions	6 (SX-360-C), 2 (SX-320-C)
Capacity Samples per day	42 (SX-360-C)
Measuring Range	Method 0.1-100% Fat (actual measurement on balance)
Accuracy	According to official approvals
Solvent Recovery	>90%
Typical Extraction Time	Typically 40 to 70 minutes, depending on application
Batch Handling	Yes. OPSIS LiquidLINE Innovative Batch System
Fully Automated/Programmable	Yes. Automated Hot Solvent Extraction. 6 fully customised programs
Temperature Control	Yes. 30-300°C
Manage Removal of Solvent	Yes. Adjustable emptying solvent levels, including leaving solvent at end of extraction
Adding Solvent during Extraction	Yes. Closed solvent addition also during extraction
Removable Recovery Tank	Yes. Easy to remove recovery flask located at front of the instrument.
Extraction and Rinsing Time	0-999 minutes, programmable for both steps
Included Software SX-360-C	OPIS Labconnect Standard software (can later be upgraded to LabConnect LIMS)
Safety Systems	
User Protection	Protection door monitoring. Automatic door lock and sealing during extraction.
Temperature Protection	Two separate safety systems with independent CPU's, sensors, and heating control. Automatic setting of over-temperature.
EX Protection	ATEX components for internal exposed valves, IP65 for other internal electronics, Pressurized electronics cabinet. IP55 for liquid and dust protection
Technical Data	
Operating Temperature	For indoor use only, 5°C - 40°C, max 80 % relative humidity
Power Supply	190-240 VAC, 50-60 Hz, 10A
Power Consumption	max 600W (SX-320-C), max 1300W (SX-360-C)
Water Consumption	1 l/min at 20°C
Dimensions (WxHxD)	630 x 520 x 540 mm (SX-360-C), 440 x 520 x 540 mm (SX-320-C)
Weight	63 kg (SX-360-C), 57 kg (SX-320-C)

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