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OPSIS®
LIQUIDLINE®

OPSIS LiquidLINE SoxROC Extraction Unit

Automatic, Flexible and Safe
For solvent extractions

The SoxROC Extraction Unit

OPSIS 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 OPSIS 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 beings.

Reducing Time and Errors

— With SoxROC, you can extract as many as 42 samples per day with no loss in precision or accuracy.
— Automation of all extraction steps and an innovative batch handling reduces risk for errors.
— Typically up to five times faster than the classical Soxhlet technique.

Reducing Costs and Use of Solvents

— Unique sealing system with more than 90% recovery reduces cost for solvents and low water consumption saves water.
— A large selection of seals, cups and standard thimbles reduces costs when changing between applications and solvents.
— One single compact system without wires or computers reduces costs for installation and operation.

Adding Flexibility and Safety

— Unique control of solvent reduction adds flexibility for different applications.
— 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.

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

OPSIS 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.

— OPSIS 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.

Added Flexibility and Solvent Control

The SoxROC can store up to six different extraction applications which at any time easily can be reprogrammed. To ensure flexibility, a solvent control and a large selection of accessories are available.

— Unique control of solvent removal makes it possible to adjust solvent volumes at the different extraction steps. It also makes it easy to achieve a consistent solvent level at rinsing and drying. Possible to program the valves with the amount of opening times, intervall and opening time.

— A large selection of cups makes it easy to adjust the SoxROC to your applications. Glass and aluminium cups in two different sizes. Smaller cups for more efficient solvent use and aluminium cups for more efficient boiling.

— Different seals and thimble holders for different applications.

— Different lengths of standard cellulose thimbles, based on 25 and 33 mm diameter, can be used.

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.

Demanding Solvents

The SoxROC instrument is built to withstand most solvents. However, seals and cup holders might require specific configuration for certain solvents.

Viton seals are standard but specific Butyl seals are recommended for certain solvents such as Acetone, Ethyl Acetate and Acetonitrile. The SoxROC filter holder is made of stainless steel which works well in most applications. However, for the above solvents, it is instead recommended to use SoxROC PTFE holders.

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

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