

FAT EXTRACTOR SX-6

RELIABLE, PRECISE AND ECONOMIC
SOLVENT EXTRACTION SYSTEM FOR
AN EFFICIENT FAT EXTRACTION
ANALYSIS



Fat extractor

Our fat extractor is specially optimized to determine crude fat or other components soluble in organic solvents according to the universally known **Solvent extraction method**, including both **Randall** and **Twisselmann** methods.

Its flexibility to analyze a wide variety of samples ranging from food to environmental soil analysis makes our extractor suitable for multiple settings and applications.

Our solution is designed to guarantee accurate and precise results according to the international standardized methods such as **AOAC**, **ISO**, **AACC**, **DIN** and **EPA**.



MAIN FIELDS OF APPLICATION



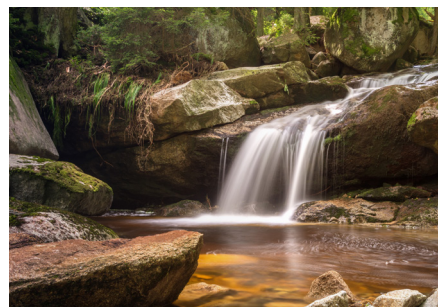
FOOD AND FEED INDUSTRY

Milk and dairy products, Cereals, Meat and derivatives, Fish and seafood, Chocolate and cocoa products, Oil and oil seeds, Dry fruits.



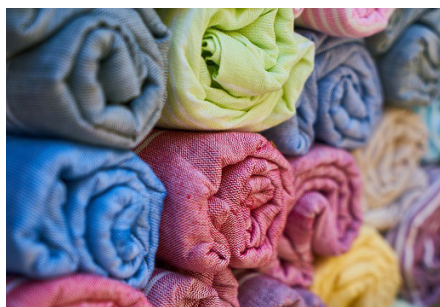
PHARMACEUTICAL INDUSTRY

Material design, Herbal medicine products, polymers R&D.



ENVIRONMENTAL ANALYSIS

Sewage water, Mineral oils, Lubricants, Soils.



TEXTILE ANALYSIS

Impurities detection, Cotton, Coating materials.



CHEMICAL ANALYSIS

Pesticides, Fertilizers, Refined chemicals.



COSMETICS

Lipid-based formulations, Formulas R&D, Vitamins.



FEATURES

FAST EXTRACTIONS

Our **SX-6 TS** fat extractor is designed to follow the Randall method, a standardized method which is much faster than the traditional Soxhlet method.

VERSATILE

The equipment allows independent programming of temperature and extraction times, facilitating the analysis of a wide range of samples.

HIGHLY EFFICIENT

A powerful electric plate with armored resistance homogenously heats samples, allowing simultaneous analysis of six samples with identical conditions.

LOW RESOURCES CONSUMPTION

The cooling water regulation system reduces the amount of cooling water consumption, an external recirculating cooler can also be connected. Smaller extraction cups lower the required quantity of solvents for extraction.

SUPERIOR CONSTRUCTION QUALITY

Easy to clean and corrosion resistant external frame made of stainless steel grade AISI-304 with epoxy coating. A pressure switch protects the condensers from high pressure water. Different gaskets according to solvent used are also available.

LIMITED SUPERVISION

Our **SX-6 TS** fat extractor is a semiautomatic extractor, for each phase change the equipment makes an acoustic signal, warning the user that a change of samples position is required and thus the user does not need to continuously monitor the entire analysis.

BENEFITS



Compatible with different methods and a wide variety of samples.



According to standardized analysis procedures.



Minimal supervision required during each assay.



Constant supervision of flow rate.



Choose from 56 programs, with the ability to personalize the name.



Easy to use.



Equipment components resistant to several organic solvents.



Two distinct sets of gaskets are included for use with different types of solvents.



Alarms and indicators for full analysis control.



The solvent can be recovered for future reuse.



Visual icons and auditory alerts represent the status and transition of each extraction stage.



Excellent safety measures for users.

SOLVENT RECOVERY FOR FUTURE REUSE

After the extraction process is complete, the equipment allows the recovery of most of the solvent. This solvent can be reused in subsequent tests, significantly reducing the cost of the analysis.

TEMPERATURE CONTROL

Control of temperature by PID microprocessor and a Pt100 class A temperature probe, overtemperature safety control by an independent thermocouple.

ACCORDING TO STANDARDIZED METHODS

Fat content analysis are performed in accordance to official methods described by international entities such as AOAC, AACC, ISO, EPA and DIN in order to guarantee accurate results.

Fat extractor

RAYPAnet: A NEW ONLINE PLATFORM



Equipped with Wi-Fi connectivity.



The results of each assay are accessible either directly on the platform or by consulting the assay history log.



Utilize Wi-Fi to effortlessly connect to the online platform RAYPAnet on your PC. Visualize and export assay information in a user-friendly graphical format, and generate comprehensive reports.



All relevant information can be exported in both .CSV and .PDF formats for further review, study and archival purposes.

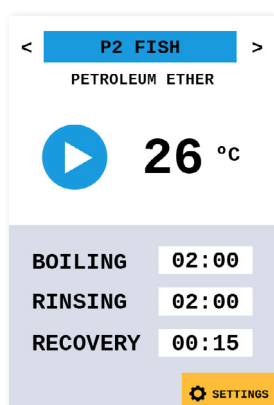


RAYPAnet is compatible with most web browsers.



Multiple devices can be connected and controlled simultaneously.

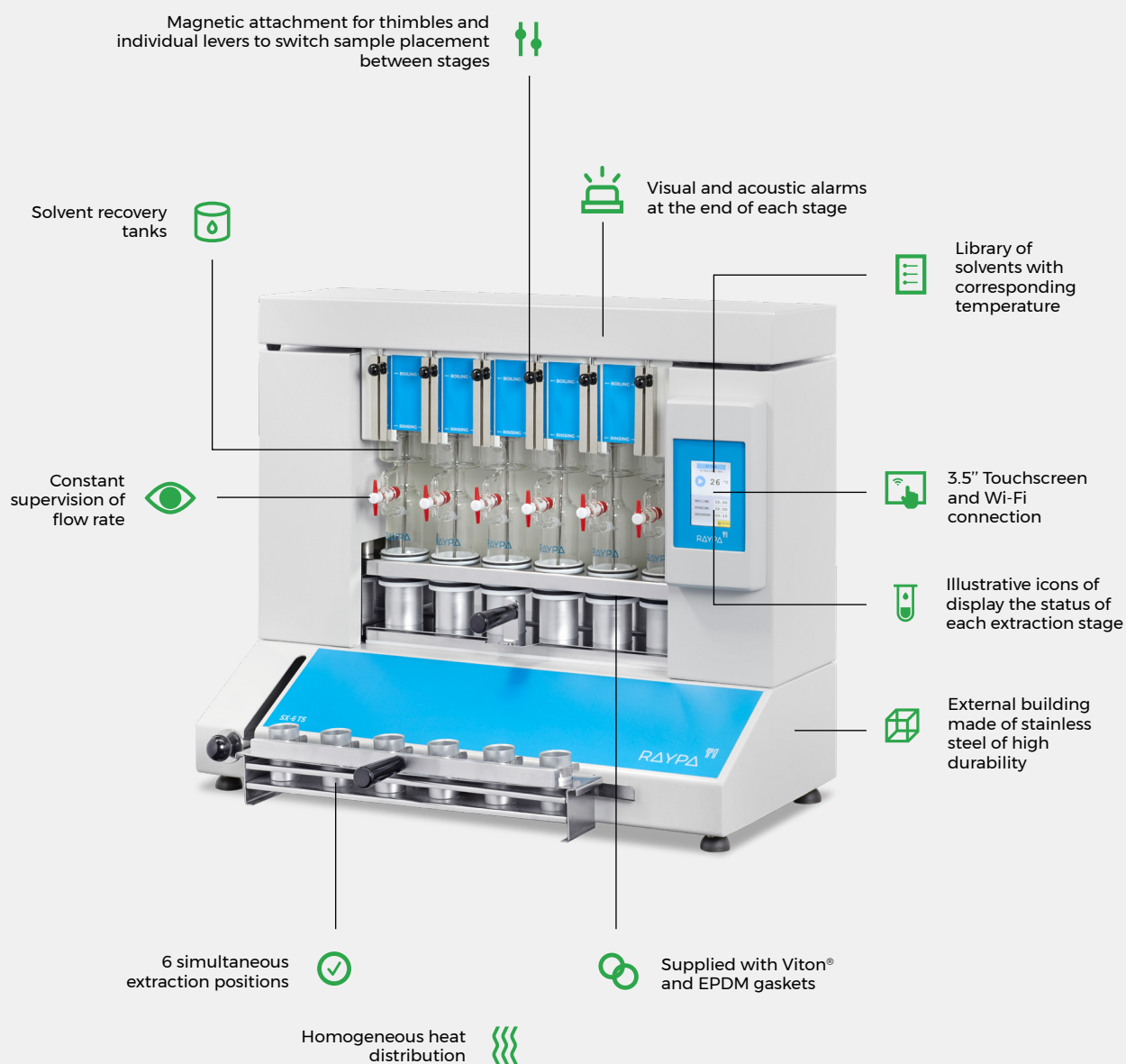
NEW TOUCHSCREEN MICROPROCESSOR



- Intuitive alphanumeric user interface with a colour LCD touchscreen that displays all relevant parameters of each assay in real time.
- Intuitive icons indicate the status and progress of each assay.
- Editable date and time.
- Compatible with Celsius and Fahrenheit scales with a resolution of 0,1°C/°F.
- Language selection: ENG, FR, ESP, CAT. Other languages available on request.
- Audiovisual safety alarms.
- Programs can be stored in the program library.
- An acoustic signal indicates the end of each extraction stage.
- It features a restricted-access section intended for authorized technicians.
- It includes a library of application notes and an editable solvent library with corresponding extraction temperatures.

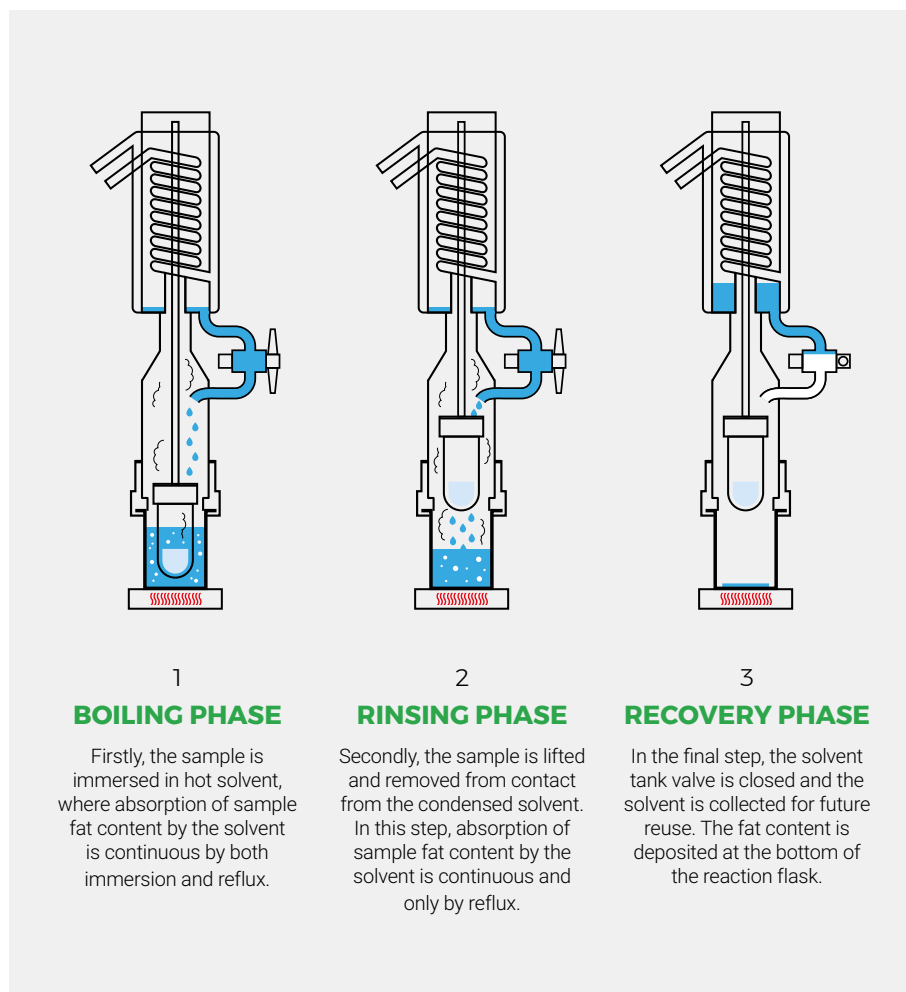


MAIN FEATURES



Fat extractor

OPERATION



The traditional **Soxhlet method**, invented by Franz von Soxhlet in 1879, is the most popular method for fat extraction. It is a standard procedure that provides good analyte recovery, however the extraction procedure is long (it can last 18-24h) and uses a significant amount of solvent.

Soxhlet extraction consists in placing a previously dried sample inside a thimble made of cellulose and then it is loaded into the extractor, which is connected to a flask containing a solvent and a condenser. The solvent is heated and evaporated, the hot solvent vapor then

travels up to the condenser, where it cools and falls onto the sample in the thimble. The chamber containing the sample slowly fills with condensed solvent until, when almost full, it is emptied by a siphoning action back into the solvent flask. During each cycle, a portion of the soluble components in the solvent are extracted. This cycle is repeated several times until all analyte is separated from the sample.









In order to improve effectiveness of Soxhlet extraction, alternative methods that use the same extraction principle

but have some improved features have been developed. The **Randall method**, suggested by Edward Randall in 1974, is an example of this improvement as it typically allows the reaction to be **four times faster and guarantees solvent recovery**. SX-6 TS extractors can be programmed with different extraction steps according to Randall analysis as seen on this page figure.

Twisselmann extraction, also known as continuous economic extraction requires only one extraction position, between boiling and rinsing. The solvent placed in the extraction cup is heated and evaporated, these vapors pass through the sample and reach the condensation chamber, once liquefied, the solvent falls onto sample and is collected again in the extraction cup. Thus, both vapor and liquid forms of solvent simultaneously and continuously extract all lipid content from the sample. After all analyte has been collected, solvent can also be recovered.



TECHNICAL SUMMARY OF SX-6 TS

 General information	Extractor classification	Semiautomatic
	Extraction positions	6
	Standards compliance	AOAC, AACC, DIN, EPA, ISO
	Dimensions L x D x H mm	680 x 330 x 580
	Weight Kg	46
	Power W	1500
	Voltage V	230 V (115 V optional)
	Frequency Hz	50/60
	Electric protection grade	IP 65
	Wi-Fi connection and RAYPAnet access	✓
 Compatible standardized fat extraction methods based on Soxhlet	Fat extraction according to Randall	✓
	Fat extraction according to Twisselmann	✓
 Materials	Gaskets	Viton® & EPDM
	Extraction thimbles	Cellulose
	Condensers flasks	Borosilicate 3.3
	Extraction vessels	Aluminum
	Extraction column support	Teflon®
	Connection tubing	Silicone
	External housing	AISI-304 stainless steel painted with epoxy resin
 Display	Display type and size	3.5" LCD TS
	Displays values of	Temperature plus boiling, rinsing and recovery times
 Adjustable program parameters	Temperature of heating plate °C	Ambient temp. +5 - 220
	Boiling time hours:minutes	00:00 - 99:59
	Rinsing time hours:minutes	00:00 - 99:59
	Recovery time hours:minutes	00:00 - 99:59
 Performance	Extraction speed at 230V drops/sec	3 to 5
	Sample capacity/batch units	6
	Sample capacity/day units	36
	Cooling water consumption L/min	4
	Solvent recovery %	Up to 80
	Sample fat content measuring range %	0,1 - 100
	Temperature precision °C	± 0,5
	Reproducibility %	± 1
 Solvent and sample management	Solvent volume per slot mL	50
	Individual solvent recovery tanks	✓
	Compatible Viton® and EPDM gaskets	✓
 Audiovisual alarms	Alarms for high and low temperature deviations	✓
	Low water pressure alarm	✓
	End-of-phase alarm: rinsing, boiling and extraction	✓

✓: Included

Fat extractor

All items necessary for batch handling are included

25 CELLULOSE EXTRACTION THIMBLES	✓
12 EXTRACTION THIMBLE SUPPORTS	✓
12 ALUMINUM EXTRACTION VESSELS	✓
6 MAGNETIC ADAPTERS	✓
6 EPDM GASKETS	✓
6 VITON® GASKETS	✓
2 RACKS FOR EXTRACTION THIMBLES	✓
2 RACKS FOR EXTRACTION VESSELS	✓
1 ALIGNING RACK FOR EXTRACTION VESSELS	✓
1 TONG FOR AN INDIVIDUAL MANIPULATION OF EXTRACTION VESSELS	✓
1 TONG FOR A SIMULTANEOUS MANIPULATION OF 6 EXTRACTION VESSELS	✓
CONNECTING HOSES	✓



Accessories

EXTRACTION THIMBLES SET

Reference	CD-2526
Dimensions Ø x H mm	Ø 26 x 60
Material	Cellulose
Quantity units	25

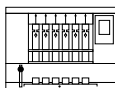


EXTRACTION VESSEL SET

Reference	CEX
Dimensions Ø x H mm	Ø 51 x 59
Material	Aluminum
Quantity units	6



Specifications



Reference	SX-6 TS
External dimensions L x D x H mm	680 x 330 x 580
Power W	1500
Voltage* V	230
Weight Kg	46
Frequency Hz	50/60
Reproducibility %	±1
Solvent recovery %	Up to 80
Temperature precision °C	± 0,5
Maximum number of samples per test	6

*Other voltages and electrical configurations available on request.

Regulations

Our SX-6 TS fat extractor is designed to comply with the strictest international directives and standards, including the following:

- **EN-61010-1** Safety requirements for electrical equipment for measurement, control and laboratory use. **Part 1:** General requirements.
- **EN-61010-2-010 Part 2-010** Particular requirements for laboratory equipment for the heating of materials.
- **EN-61326** Electrical equipment for measurement, control and laboratory use. EMC Requirements.
- **2014/35/UE** Low voltage.
- **2014/30/UE** Electromagnetic compatibility.

International standardized methods

Our SX-6 TS fat extractor is specifically designed to meet numerous international standards like AOAC, AACC, DIN, EPA, and ISO, thus ensuring that assays can be conducted within the quality parameters set by these guidelines.

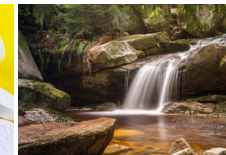
Main fields of application



FOOD AND FEED
INDUSTRY



PHARMACEUTICAL
INDUSTRY



ENVIRONMENTAL
ANALYSIS



TEXTILE ANALYSIS



CHEMICAL ANALYSIS



COSMETICS

Safety

- IP 65 electric protection grade.
- Temperature limiter.
- Pressure regulator to avoid overpressure.
- Error messages for maximum safety.
- Corrosion-resistant easy-to-clean external frame made of stainless steel.

Warning

The equipment should be operated within a fume hood at all times.

CLICK!
ACCESS
THE SX-6
VIDEO

+ info



Find out more about our **SX-6** extractor on our Youtube Channel



Installation guide available for download on our website.

