

# User Manual



Please read the manual before installation and operation.

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## SXT-02 Soxhlet Extractor

### Operation Manual

SXT-02 Soxhlet Extractor generally consists of 3 modules, heating-up, extraction, solvent recovery & cooling. It features close and compact structure, easy operation and fast extraction, by which analysing time is remarkably shortened.

This apparatus's temperature control is automatic and takes water bath to heat, 2 samples per batch, and it seals well, with no leakage of the three wastes and safe to operate; when operating, heating temperature is even and can be adjusted in line with reagent's boiling point and ambient temperature, realizing fast determination. Reagents is recoverable, thus lowering analysis cost, infusion, extraction and recovery can be finished at one time. Test results all meet with GB/T5512..GB/T6433, this apparatus is an ideal choice for oil refinery, research institutes, universities and colleges, food and feed industry to measure fat content.

#### *1. Working Principle*

SXT-02 Soxhlet extractor takes use of Soxhlet extraction and weight determination method to analyze fat content, that is, dissolve fat with organic solvent, then extract fat from the solvent, dry it and weigh, finally calculate the fat content.

#### *2. Technical Parameters*

1. Measurement range: cereal, feed, oil seeds and various oil products with more than 0.5% oil
2. Sample number: 2/batch, also individually
3. Power: 220V, 50Hz
4. Power rating: water bath, 800W
5. Heating duration: about 10 min
6. Solvent recovery:  $\geq 80\%$
7. Temperature: ambient~100°C (adjustable)
8. Weight: 20kg

#### *3. Using Instruction*

1. lab qualifications
  - 1.1 Soxhlet extractor
  - 1.2 analytical balance: sensitivity 0.0001g
  - 1.3 drying box (electrothermostat)
  - 1.4 crusher and mortar for laboratory use
  - 1.5 absorbent cotton, wide neck flask, absorbent yarn, absorbent thread
  - 1.6 filter-paper barrel: fold circular filter paper of diameter 125mm into filter-paper barrel of external diameter 24mm, 50mm in length, the filter paper is favorably of two layers and degreased.
2. reagents
  - absolute ether, standard AR(HG3-1002-76)

### 3. preparation before operation

3.1 sample preparation: (sample must be clean and dry, use the quartation method to evenly take sample.)

3.1.1 grains and cereals:foodstuff and beans(except peanut), take 30~50g clean and dry sample with no impurity, grind it and sieve with round-hole mesh of diameter 1mm, keep it in a wide neck bottle for later use.

3.1.2 small oil seeds:such as sesamine, rapeseed, take about 20g clean and dry sample with no impurity, place it in a wide neck bottle for later use.

3.1.3 big oil seeds:like peanut, castor seed, sunflower seed, weigh 30~50g net and dry sample, rind it one by one, weigh kernel and shell separately, then calculate the kernels' percentage, slice and store them in a wide neck bottle.

3.2 clean extraction cylinder with distilled water until no impurity left, place it in a drying box(at 105°C) to dry for 1hour, then fetch out to number and weigh it, put it back to the dryer for cooling and storage.

3.3 place cylinder-shaped filter-paper barrels in a container for them.(the upper end of filter paper shouldn't be above inner tank of the container.)

3.4 check if the power cable is unbroken and the connection with water source is fast.

3.5 turn on power, set up temperature controller and temperature-adjustment knob, preheat for 15 min.

### 4. Operation

#### 4.1 Sample

1. For samples with low oil and fat content like cereal and feed, weigh ground sample with accuracy of 0.0002g. Lay a layer of absorbent cotton on the bottom of filter-paper barrel, then shift the sample to the barrel, cover the sample with another layer of absorbent cotton;

2. For oil seeds with high oil and fat content, weigh sample and pour it into a baking box then put the box inside a drying cabinet to bake 30min at 105°C, later quickly pour the sample into a mortar, grind it when it's hot, add proper absorbent yarn(about 2 g) when the sample is crushed, keep grinding until the sample is oily(attention: the sample should be oily but not sticky, a little porous), shift it to the filter-paper barrel with a layer of absorbent cotton at the bottom; dip little ether with absorbent cotton to wipe sample and fat inside the mortar (better clean the mortar with little ether) , add them to the filter-paper barrel, also cover the sample with absorbent cotton, put them inside the extractor.

4.2 Infuse 340 ml absolute ether into extraction bottle, then ring extractor with the bottle and place them on water bath, adjust to keep good touch, the cock handle should be turned vertically.

4.3 Switch on the apparatus, adjust heating temperature according to needs, the display panel will show the value.

4.4 When recovering the solvents, just turn the cock handle horizontally.

4.5 After recovering ether, raise the condensation tube to separate extraction bottle and water bath, place the bottle within a thermostat, dry it then move into drying cylinder for cooling, weigh the analyte and calculate oil content.

4.6 After operating, turn off the power, rub all necessary parts and keep clean.

### 5. Precautions (common malfunctions)

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5.1 Take two groups of water hoses for cooling is a must, to prevent ether from volatilization.

5.2 Set up extraction and heating temperatures in accordance with room temperature.

5.3 If use water bath to heat, distilled water must be poured into in advance, to protect heating tube from being broken, also for this reason, please notice water level when extracting, add distilled water in time when water level is low.

5.4 Under conditions of complying with regulations for transportation, storage, installation and usage, if the apparatus malfunctions for sake of manufacturing reasons within one year from the day of receiving, or when opening packing box, there are shortage, broken places because of bad package, accessories not in compliance with packing list, please contact with our quality inspection dept..

5.5 The apparatus enjoys lifetime warranty, if there is any problem, users can contact our quality inspection dept. directly.