

SPECIFICATION OF FULLY AUTOMATIC SOXHLET FAT EXTRACTION SYSTEM

- ❖ Fully programmable 6 positions solvent extraction system for Oil/ Fat extraction with 4 stage extraction viz., Boiling, Rinsing, Solvent recovery and auto shut down steps.
- ❖ System should be upgradable to 12 positions in future with the same control unit.
- ❖ Instrument should have remotely controlled electric heating.
- ❖ Can set and store temperature and times for various steps. Storage for upto 9 programs.
- ❖ Instrument should have Official approvals like AOAC 2003.05 & 2003.06, AOAC 991.36 Fat (Crude), ISO 1444:1996, EN ISO 11085:2008 – Determination of Crude and Total Fat content by the Randall extraction method
- ❖ EN ISO 6492:1999
- ❖ SCAN-CM 49:93, EPA method 3541 amongst others.
- ❖ Instrument should have built-in safety features like over temperature protection, Closed solvent addition, etc.
- ❖ Should be able to use both, high boiling point solvents, such as Toluene and Xylene or low boiling points solvents such as Petroleum fractions.
- ❖ Minimum quantity of solvent required per extraction is 40 ml. Can be increased up to over 140 ml depending on application.
- ❖ Up to 80% of solvent is recoverable at the end of the cycle.
- ❖ Thimble diameter should be more than 30 mm to ensure representative sample quantity.
- ❖ Supported sample size of over 60 ml.
- ❖ There should be a closed secure system using a smart solvent dispensing selector that aligns the solvent addition tubes to individual sample positions to avoid exposure to fumes and manual handling.
- ❖ Measuring Range: 0.1-99.9 % Fat.
- ❖ Typical time taken for extracting a batch should be approximately 1 hour depending on the sample.
- ❖ Temp. Range: 0-285 °C
- ❖ Heating up time should be less than 6 minutes for reaching 280 Deg C.
- ❖ To ensure fast extraction, the thimbles are to be lifted up by mechanical spring arrangement and not by compressed air.
- ❖ Instrument should capable of Analyzing up to 84 samples (14 batches) per day depending on sample nature.
- ❖ Batch handling tools for loading of solvent cups and thimbles is provided with the instrument.
- ❖ System should be IP 41 protected.
- ❖ System should be CE labelled and comply with following directives:
 - a) ElectroMagnetic Compatibility (EMC) Directive 2004/108/EC

- b) Low Voltage Directive (LVD) 2006/95/EC
 - c) Machinery Directive (MD) 2006/42/EC
 - d) Packaging and packaging waste Directive 94/62/EC
 - e) WEEE Directive 2002/96/EC
- ❖ Temperature Range Over temperature protection should be given at different levels of 145, 210 and 330 deg. C which can be selected depending on the solvent used.
 - ❖ Power consumption should be less than 2000 W
 - ❖ Accuracy; +/- 1% relative.
 - ❖ Extraction cups should be of metal (Aluminum) to ensure faster and controlled heat transfer and extraction.
 - ❖ Total Fat Determination: (Optional)
The system should support and have integrated procedure for total fat determination.
This should consists of the extraction unit, a hydrolysis unit and a HydroCap single filter system that works across both units.
The system should allow to perform Acid Hydrolysis and Solvent Extraction with an integrated procedure.
No Sample transfer should be required between Hydrolysis and Extraction steps.