SER 148
SOLVENT EXTRACTOR

FAT EXTRACTION USING SOLVENTS

Solvent extraction is used to determine the quantity of various components contained in agricultural, industrial or environmental samples. Soxhlet extraction is one of the most widely used analytical techniques. Adaptations of the technique have been introduced over time in order to reduce lengthy extraction times, for example by increasing the temperature of the solvent used. The modifications introduced by the American chemist Edward L. Randall are some of the most effective for this purpose. VELP Scientifica solvent extractors operate according to the **Randall technique**.

The **SER 148/3** and **SER 148/6** can be used to separate a substance or a group of elements (e.g. fat) from solid and semi-solid samples according to the **Randall technique** (consisting of immersion, washing and solvent recovery). This technique has three great benefits over the traditional Soxhlet technique:

- **up to 5 times faster than Soxhlet** (hot solvent vs. cold solvent)
- **low solvent consumption** (solvent recovery)
- **limited cost per analysis**

In addition, the SER 148 offers **full operator safety** in compliance with IP55. The main field of application is the determination of the content of soluble products such as fats, detergents, plasticizers and pesticides in food, animal feeds, detergents, rubber and plastic formulas, pharmaceutical products, soil, etc.

GLP **Good** Laboratory Practice

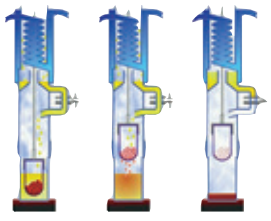
AOAC • TAPPI • UNI • EPA
ASTM • APHA • AWWA • WEF

SER 148/6

SER 148/3

SOXHLET TECHNIQUE
The solubilization of extractable components is performed by a cold solvent dropping from a reflux condenser. Consequently a complete extraction lasts many hours.

RANDALL TECHNIQUE
The first phase of extraction is performed by immersing a sample - containing thimble in boiling solvent followed by a washing with cold refluxing solvent. The fast solubilization achived by the hot solvent results in a sharp reduction of extraction time.



CONSUMABLES	CODE No
Extraction thimbles 33x80 mm, 25 pcs/box	CM0111148

SUPPLIED WITH	CODE No
SER 148/3 Extraction cup, 3 pcs/box	A00001141
SER 148/3 Heat shield	40000210
SER 148/6 Extraction cup, 6 pcs/box	A00000142
SER 148/6 Heat shield	40000220
Extraction thimbles 33x80 mm, 25 pcs/box	CM0111148
Extraction thimbles holder	A00001142
Inlet tube	10000280
Viton seal	10000008
Butyl seal	10000009

OPTIONAL ACCESSORIES	CODE No
Printer	A00001009
Serial cable	A00000011
Thimbles weighing cup	A00001146
Thimbles stand	A00001149 *
Handling device for extraction cups	A00001145 *
Pincer for weighing cups	A00001147 *
Extraction cup, 6 pcs/box	A00000142
Vaflon seal	A00000061
IQ/OQ/PQ Manual for SER 148	A00000073

* only for SER 148/6

HU 6
HYDROLYSIS UNIT

INSTRUMENT	POWER SUPPLY	CODE No
SER 148/3	230 V / 50-60 Hz	F30300240
SER 148/3	115 V / 50-60 Hz	F30310240
SER 148/6	230 V / 50-60 Hz	F30300242
SER 148/6	115 V / 50-60 Hz	F30310242

GENERAL FEATURES AND PERFORMANCE

CONSTRUCTION MATERIAL	Epoxy painted stainless steel structure
NUMBER OF SAMPLES	3 (SER 148/3) or 6 (SER 148/6)
MAX VOLUME EXTRACTION CUP	150 ml
DISPLAY	Working temperature / settable parameters
WORKING TEMPERATURE	From 100 to 260 °C
IMMERSION TIME	From 0 to 999 minutes
WASHING TIME	From 0 to 999 minutes
RECOVERY TIME	From 0 to 999 minutes
SAMPLE QUANTITY	From 0.5 to 15 g (generally 2-3 g)
SOLVENT RECOVERY	From 50 to 75%
REPRODUCIBILITY (RSD)	≤ 1%
INTERFACE	RS232
POWER	500 W (SER 148/3) or 950 W (SER 148/6)
DIMENSIONS (WxHxD)	480x620x390 mm (18.9x24.4x15.4 in) (SER 148/3) 700x620x390 mm (27.6x24.4x15.4 in) (SER 148/6)
WEIGHT	30 Kg (66 lb) (SER 148/3) 40 Kg (88 lb) (SER 148/6)

The **HU 6** offers the optimum solution for the acid hydrolysis of food and feed samples prior to solvent extraction for total fat analysis. Very often the samples to be analyzed have a high fat content and need to be prepared for fat extraction. The HU 6 is a 6-position hydrolysis unit that combines **safety** with **performance**, **reducing manual handling** to the minimum. Hydrolysis is carried out with hydrochloric acid for approximately one hour at a temperature of 170 °C. The hydrolyzed sample is then filtered in a glass crucible and washed with warm de-ionized water in order to eliminate the residues of hydrochloric acid. The sample is now ready to be processed using the SER 148. The HU 6 is suitable for both acid and basic hydrolysis.

INSTRUMENT	POWER SUPPLY	CODE No
HU 6	230 V / 50-60 Hz	F30300110
HU 6	115 V / 50-60 Hz	F30310110

GENERAL FEATURES AND PERFORMANCE

CONSTRUCTION MATERIAL	Epoxy painted stainless steel structure
NUMBER OF SAMPLES	6 samples
SET TEMPERATURE AND COUNTDOWN	Digital readout
DISPLAY	LCD
PROGRAM LIBRARY	20 programs
LANGUAGES	I, F, UK, E, D, T
TEMPERATURE RANGE	Ambient to 200 °C
TEMPERATURE PRECISION, STABILITY AND HOMOGENEITY	± 0.5 °C
POWER	1350 W
DIMENSIONS (WxHxD)	355x590x450 mm (14.0x23.2x17.7 in)
WEIGHT	14.5 Kg (32.0 lb)

SUPPLIED WITH	CODE No
Celite, 1 Kg	A00000097
Glass sand, 2 Kg	A00000089
EDPM tube Ø 6.4x11.2 mm	10002412

OPERATING ACCESSORIES	CODE No
Glassware kit 3 positions for HU 6	A00000085

OPTIONAL ACCESSORIES	CODE No
Celite, 1 Kg	A00000097
Glass sand, 2 Kg	A00000089
Glass crucibles P1, 6 pcs/box	A00000086
Glass crucibles P3, 6 pcs/box	A00000087
Glass bottle for waste collection	A00000088
Test tubes Ø 42x300 mm, 250 ml, 3 pcs/box	A00000144