

ORSE-06 Accelerated Solvent Extractor

AE-ORSE-06 Accelerated solvent extractor is an automated pre-treatment device mainly used for rapid extraction and purification of organic matter in solid or semi-solid samples. The efficiency of the extraction process can be improved by selecting a suitable solvent and increasing the solvent temperature (40°C -200°C) and pressure. The whole extraction process is completely closed treatment, effectively reduce the volatilization of organic solvents and laboratory personnel contact with organic vapor time, environmental friendly, health and safety. Using the six-channel parallel sample processing mode, the system can automatically detect whether the sample rack, collection rack and lifting tank are installed in place, and the lifting process, preheating, loading solvent, heating and pressurizing, extraction, collection and cleaning are all automatically completed.



Method Comparison:

Extraction method	Sample handling capacity (g)	Solvent consumption (mL)	Solvent/Sample ratio(mL/g)	Mean extraction time
Soxhlet Extraction	10-30	300-500	16-30	4-48h
Ultrasound Extraction	30	300-400	10-13	0.5-1h
Microwave Extraction	5	30	6	0.5-1h
Automated Soxhlet Extraction	10	50	5	1-4h
ORSE-06	10-100	15-150	1.5	15min

Technical Characteristics :

- ◆ Extraction mode:six-channel parallel extraction mode, which can process six samples in batches under the same conditions with high processing efficiency, or any channel can be used separately for sample extraction.
- ◆ Heating furnace body: fully surrounded by six channels at the same time heating, heating faster and more uniform.
- ◆ Control panel: entity button + display control mode, with method editing, method saving, preheating and other functions.
- ◆ Extraction pool: 8 different volume sample extraction pools are available,10, 20,34, 40, 60,80,100 and 120mL, and the volume of Cuichi pool can be customized according to customer requirements.
- ◆ High pressure infusion pump: Pump speed:0-100mL/min,0-260bar. According to the number of channels can automatically adjust the pump speed, according to the pressure automatic change of liquid, can effectively prevent the overpressure in the process of pressure, improve the stability of the system.
- ◆ Solvent controller: It has a four-element solvent mixing device, which can connect four different solvents at the same time, and can automatically mix extraction reagents according to the ratio set by the method.
- ◆ Solvent flow path: with chemical passivation technology treatment, can use a certain proportion of acetic acid, phosphoric acid and other non-strong acid extractants.
- ◆ Extraction liquid collection: Support 60-250mL collection bottles, collection bottle specifications can be customized according to customer requirements.
- ◆ Pressure protection: The total flow path and each channel are equipped with pressure detection, the equipment can automatically carry out pressure protection, effectively monitoring leakage.
- ◆ Automatic cleaning function: automatic nitrogen washing and solvent washing function.
- ◆ Operating temperature range: room -220 °C; Heating temperature control precision soil 1C;
- ◆ Working pressure range: 0- 200bar.
- ◆ Channel is equipped with pressure detection, equipment temperature detection and alarm to ensure the safe and reliable operation of the instrument.
- ◆ Full Chinese operation interface, graphic design, real-time graphic display of extraction process.
- ◆ Intelligent fault alarm function, convenient to remind users to operate.

Application area:

Environment

Extraction of toxic and harmful substances such as polyaminobiphenyls, polycyclic aromatic hydrocarbons, organic insecticides, organic insecticides, Yang compounds, pesticides, phenoxy herbicide, sandi herbicides, diesel oil, total petroleum hydrocarbons, dimoying, methanan, and explosives in soil, solid waste, sediment and air.

Food and agricultural products

Processed food or agricultural and sideline products in fat, additives, pigments, agricultural residues, veterinary residues, herbicides, fungicides, solvent residues, benzo-flower, phthalic acid, metal form extraction [such as seafood feed arsenic form (arsenic trivalent, arsenic pentavalent, methyl-arsenic dimethyl-arsenic, arsenic beet broken, etc.), mercury form "bivalent show, methylmercury, ethyl mercury, etc.), selenium form (quadrivalent, hexavalent language The extraction of dibutyltin, tributyltin, triphenyltin, etc.



Criminal investigation

Extraction analysis of drug, poison, explosive residue, fire site residue, etc.

Polymer

Additives, plasticizers (polychloro-ethyl end), monomer extraction, flame retardants, including free toluene diisocyanic acid (TDI) in plastics.

Electronic products

Polycyclic aromatic hydrocarbons, flame retardants such as polybrominated biphenyl (ether), etc.

Medical field

Chinese herbal medicine active ingredients, natural products, pesticide residues detection.


Meet the criteria:

- ◆ EPA Method 3545A-19960 cp.OPPBNATPHPCDD Herbicides and semi-volatile substances
- ◆ Determination of residues of 372 pesticides and related chemicals in grain -liquid chromatography-tandem mass spectrometry.
- ◆ GB23200.9-2016 Determination of 475 pesticide and related chemical residues in grain by gas chromatography-mass spectrometry.
- ◆ SL391 4-2007 Methods for pretreatment of samples for organic analysis -Part 4: Rapid solvent extraction method.
- ◆ Determination of various ginsenosides in ginseng - liquid chromatography-Ultraviolet detection method.
- ◆ GB/T23376-2009 Determination of pesticide polyresidues in tea -- Gas chromatography/mass spectrometry.
- ◆ SN/ T25931-2010 Determination of polycyclic aromatic hydrocarbons in electronic and electrical products - Part 1.
- ◆ HJ647-2013 Determination of polycyclic aromatic hydrocarbons in ambient air and exhaust gas phases and particulate matter -- High performance liquid chromatography.
- ◆ HJ703-2014 Soil and sediment - Determination of phenolic compounds - Gas chromatography.
- ◆ HJ782-2016 Solid waste organic matter extraction pressure fluid extraction method.
- ◆ HJ783-2016 Extraction of organic matter from soils and sediments by pressurized fluid extraction.
- ◆ HJ784-2016 Soil and sediment - Determination of polycyclic aromatic compounds-High performance liquid chromatography.
- ◆ HJ805-2016 Soil and sediment -- Determination of polycyclic aromatic compounds --Gas chromatography-mass spectrometry.
- ◆ HJ834-2017 Determination of semi-volatile organic compounds in soils and sediments "Gas Chromatography-Mass spectrometry.
- ◆ Determination of organochlorine pesticides in sediments of HJ835-2017 King soil by gas chromatography-Mass spectrometry.
- ◆ NB/T12005-2016 Rapid solvent extraction method for component analysis of coal direct liquefaction residue.

HJ 703-2014 DETERMINATION OF PHENOLIC COMPOUNDS IN SOILS AND SEDIMENTS	
Carrier gas pressure	0.8MPa
Static extraction time	5 min
Extraction Number of cycles	2
Extraction temperature	100°C
Washing volume	60% pool volume
Extraction pressure	1500 psi
Nitrogen purge time	60s

HJ 783-2016 EXTRACTION OF ORGANIC MATTER FROM SOILS AND SEDIMENTS	
Carrier gas pressure	0.8MPa
Pre- heating balance	5min
Static extraction time	5min
Static extraction times	1 ~2 times
Heating temperature	100°C(80 °C for organophosphorus pesticides, 120°C for PCBS)
Extraction tank pressure	1200psi~ 2000psi(about 8.3MPa~13.8MPa)
Solvent leaching volume	60% pool volume
Nitrogen purge time	60s (The purge time can be appropriately increased according to the extraction pool volume to thoroughly wash the sample)

ASE EXTRACTION OF SEMI-VOLATILE ORGANIC POLLUTANTS FROM SOIL		
ASE condition:	Extraction solvent	n-ethane/acetone (1:1)
	Static extraction time	5min
	Purge time	60s
	Ext raction tem perature	100°C
	Number of cycles	2
	Time consumed	20 minutes
	Preheating time	5min
	Purge volume	60%
	Solvent consumption	60ml

Mean relative standard Deviation of BNA in three soil Types (%)		
Substrate	ASE	Automatic soxhlet extraction
Clay	9.1	9.6
Clayey soil	16.1	15.2
Sand	13.4	17.1

Technical Parameters:

Number of channels	six channels
Flow accuracy	soil 2%
Pressure range	3- 150bar; 0.3-15mpa Independent pressure measurement for each channel
Collection bottle size	60, 150,200, 250ml; customizable
Temperature control accuracy	soil 2°C
Mixing accuracy of proportional valve	soil 2%
Size (length * width * height)	690*535*715mm
Voltage	220VAC
Maximum power	1800W 10A
Operating temperature	5-45°C
Liquid phase pump	1-100ml/min
Extraction pool specifications :	10□ 20 □ 34□40□60□66□ 80□100□1 20□;customizable
Pressure accuracy	soil 5bar; 0.5 mpa
Temperature range	Room temperature -220°C
Proportional valve channel	four channels
Nitrogen inlet pressure	6- 10bar;0.6-1.0 mpa
Weight	85kg
Frequency	50/60Hz
Environmental conditions	indoor use