

Product Name :
Solid Liquid Extraction Unit

Product Code :
ALABS-A104-293

ALTEC™

Description :

Solid Liquid Extraction Unit

- A continuous three stage solid/liquid extraction system using the rotary extraction cell design. The rotacell rotation speed is variable (0-4 revs/hour).
- Delivery of feed material is automated and feed rate is variable (0-3 L/hr).
- Operation modes are batch, or continuous with 1, 2 or 3 stages. Independant temperature control is provided at each stage. Flow of all three solvent stages is variable (0-13.5 L/hr).
- Conductivity of the fluid stream is measured at the input, and at the output of each of the three stages.
- Experimental capabilities include:
 - Demonstration of batch and continuous multiple stage liquid/solid extraction processes.
 - Investigation into the effect of solvent temperatures and flow rates of solvent and solids.

- Mass balancing.
- Process economics.

Features:

- Self contained floor standing unit with integral control and instrumentation console
- Three stage extraction process, can also be configured as 1 or 2 stages
- Independent vessel for closed loop batch extraction
- Temperature control at each stage
- Individual control of solvent feed pumps at each stage, of cell rotation rate and of feed rate
- Probes at each stage allow full monitoring of the process
- With the data logger, the product concentrations can be directly displayed in real time (for the recommended material)

Description:

The heart of the solid/liquid extraction system is a continuously rotating extraction cell divided into compartments. The raw material is fed into these compartments from the input hopper using a screw feeder mechanism. The material is then passed under three solvent sprinkler bars, one for each stage of the process, and the dissolved product captured in three drainage compartments. Pumps are provided at each stage to pump the product from the drainage compartment of one stage to the sprinkler of the next stage. At the end of the process the spent carrier material is dropped into a collection vessel, assisted by water sprayed from above.

The system is configured as a three stage, counter current flow process, but may also be configured as a one or two stage process for teaching purposes. Full temperature control is provided at each stage of the process using the three integrated PID controllers and related heating elements. Direct control is also provided over the product feed rate, the cell rotation speed and the inter-stage pump speeds.

Technical Details:

Solvent Temperatures: Ambient to 50°C, individually controllable

Pump Rate: 0-13.5l/hr

Feed Rate: 0-3l/hr

Rotation Speed: 1 rev/15min (4revs/hr)

Cell Compartment Capacity: 0.16l



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