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ETHER ENGINEERS
52, Industrial Estate, Ambala Cantt - 133006
Mb : 098963 33447, 098961 33557, 090340 83447
Website: www.etherengineers.com
Email: etherengineers@rediffmail.com, info@etherengineers.com
Manufacturers & Exporters of Engineering, Scientific & Laboratory Equipments

YORK SCHEIBEL'S EXTRACTION COLUMN

DESCRIPTION

The York Scheibel's Column falls in the class of gravity-operated extractors with mechanical agitation. The presence of alternatively agitating and calming sections in a York Scheibel's column yield higher extraction efficiency than the conventional packed column. In the setup a continuous counter current contact between the solvent and solute phases is made which results into extract and raffinate streams. Rotameters are used to measure the flow of solvent and solute respectively. The continuous and dispersed phase streams are metered and derived from separate containers. Each stage consists of a woven wire mesh section and a mixing section. The propeller speed can be controlled to the desired value by a controller. Total set-up is housed in a well-designed rigid structure. The structure also supports tanks, piping, Rotameter, panel and other units.

EXPERIMENTATION

- To determine overall mass transfer co-efficient based on continuous & dispersed phase.
- To determine individual 'Height of Transfer Unit' based on continuous & dispersed phase

UTILITIES REQUIRED

- Electricity Supply: Single Phase, 220 V AC, 50 Hz, 5-15 Amp
- Compressed Air Supply: 0.5 CFM@2 bar
- Water Supply
- Floor Drain.
- Floor Area Required: 1 m x 1 m.
- Required Chemicals & Laboratory Glassware.

TECHNICAL DETAILS

- Extraction Column : Material Borosilicate Glass
  Dia. 45 mm, Height 750 mm (approx).
- Packing : Woven mesh of Stainless Steel
- Agitator : Stainless Steel/Teflon impellers with Stainless Steel shaft coupled to a Variable Speed DC Motor.
- RPM Measurement : Digital RPM Indicator, non contact type with Proximity sensor.
- Feed Tank (2 Nos). : Material Stainless Steel, Capacity 20 Ltrs.
- Extract & Raffinate Tanks : Material Stainless Steel (1 each), Capacity 10 Ltrs.
- Feed Circulation : By Compressed Air
- Pressure Regulator : 0-2 kg/cm².
- Pressure Gauge : Bourdon type, 0-2 kg/cm2.
- Flow Measurement : Rotameters (One each for solvent & solute)
- Arrangement is done for changing height of interface zone.
- Control panel comprising of:
- Standard make on/off switch, Mains Indicator etc.
- An ENGLISH instruction manual consisting of experimental procedures, will be provided along with the Apparatus
- The whole set-up is well designed and arranged on a rigid painted structure.