Ternary Liquid-Liquid Equilibrium Educational Pilot Plant

Item Number: LPK-SLLT

Introduction

An integrated laboratory training system for engineering students to determine ternary liquid-liquid equilibrium data, construct phase diagrams, and gain hands-on experience with industrial instrumentation, including Abbe refractometer and magnetic stirrers, for precise data acquisition and curriculum-aligned experiments.

Learn More

Parameter / Component	Specification / Description	Associated Curricular Knowledge Point
Frame Material	High-strength industrial aluminum alloy with mobile casters	Laboratory safety, pilot plant layout, and unit mobility
Maximum Dimensions	$\le$ 1480 mm × 580 mm × 1780 mm (L × W × H)	Space planning and laboratory footprint optimization
Equilibrium Chamber	Double-jacketed glass liquid-liquid equilibrium cells	Constant temperature maintenance, phase contact, and separation
Temperature Control	Constant temperature bath and circulation system	Isothermal phase behavior and thermodynamic consistency
Analytical Instrumentation	Integrated Abbe refractometer and magnetic stirrers	Refractive index calibration, concentration determination, and phase mixing
Primary Experiments	Determination of ternary LLE data; plotting triangular phase diagrams; calculating distribution coefficients and selectivity	Phase rule application, tie-line construction, and extraction stage calculations