UPTOSPEED Express Updates

SCIENTIQUIPP

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Optimizing Black Mass Clarification And Solvent Extraction With The Scientiquipp ROTA 6R (Refrigerated) Centrifuge.

Executive Summary

In lithium - ion battery (LIB) recycling hydrometallurgical refining relies on acidic leaching (H2SO4), HNO3, HCl) and multi-stage solvent extraction (SX) using organic reagents (e.g.,Cyanex 272, D2EHPA).

Maintaining tight temperature control during centrifugation is critical.

- **Organic Volatility Control: Solvents such as kerosene diluents evaporate rapidly at ambient temperatures elevated by high speed rotor friction, altering organic to aqueous (O/A) ratios.**
- **Precipitation Kinetics: Temperature fluctuations alter solubility limits during precursor cathod active material (pCAM) and lithium carbonate (Li2CO3) crystallization testing.**

Scientiquipp's ROTA 6R (Refrigerated Centrifuge) delivers active temperature regulation (-20°C to +40°C) combined with aerosol tight containment to protect analytical sample integrity and laboratory personnel.

For Laboratory Use. It is the customer's responsibility to ensure that the performance of the product is suitable for customers' specific uses or applications.
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Experimental Method and Parameters

Protocol A: Solid Liquid Clarification of Pregnant Leach Liquor (PLS)

To prepare acid-leached black mass samples for ICP-OES / ICP-MS analysis without particle induced nebulizer clogging.

Parameter	*Recommended Setting*
Rotor Type	**FA 6.x 50ml**
Speed	**12,100RPM or 20,133xg (RCF)**
Temperature Set point	**+15°C ±1°C (Prevents salt premature crystallization)**
Run Time	**5 minutes**
	Resistant to concentrated Acids

Protocol B: Solid Liquid Clarification of Pregnant Leach Liquor (PLS)

To achieve sharp interface resolution between organic extractants and heavy metal aqueous phases.

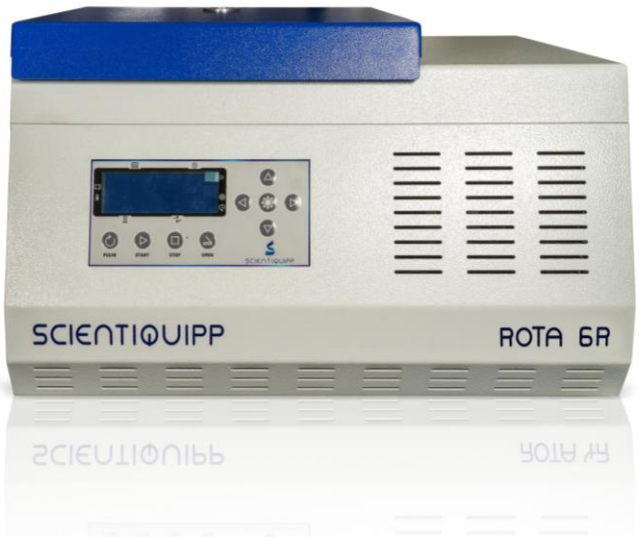
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Results and Analytical Performance

1. **20,133 x g undissolved graphite micro particles and insoluble fluoro-polymer binders (PVDF) settle out in under 4 minutes, reducing filtrate turbidity ,1.0NTU.**
2. **Temperature Stability: The active refrigeration loop prevents chamber heat buildup, holding set temperatures within ±0.8°C during continuous high RCF runs.**

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Recommended System Package



PRODUCT – ROTA 6R	
SYSTEM	ROTA 6R
FIXED ANGLE ROTOR	6x50ml
SWING-OUT ROTOR	4x250ml

About Scientiquipp. Pvt.Ltd.

Since the 1980's Scientiquipp (formerly known as Plasto Crafts) has been synonymous with customer-oriented processes and innovative products, such as laboratory devices. Today, we serve as experts and advisors, using our unique knowledge and experience to support laboratories and research institutions around India. The foundation of the company's expertise is its focus on its customers. Scientiquipp's exchange of ideas with its customers results in comprehensive solutions that in turn become industry standards. Scientiquipp will continue this path in the future, to the standard set by the company's founders: that of *enabling the future of medicine.*

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