Custom Tfm Microwave Digestion Vessels For Icp-Oes Analysis High Purity Fluoropolymer Sample Preparation Labware

Item Number: PL-CP371

Introduction

High-purity TFM microwave digestion vessels designed for ICP-OES analysis offer superior chemical resistance and thermal stability. These custom-engineered vessels ensure complete sample mineralization while preventing volatile loss and environmental contamination in demanding laboratory trace analysis applications.

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Application	Description	Key Benefit
Environmental Soil Analysis	Digesting soil and sediment samples with concentrated acids to quantify heavy metal concentrations.	Prevents loss of volatile elements like mercury or arsenic during high-pressure heating.
Pharmaceutical Quality Control	Mineralization of active pharmaceutical ingredients (APIs) and excipients for catalyst residue testing.	High-purity TFM ensures no trace metal contamination from the vessel itself.
Metallurgical Testing	Dissolving refractory ores and alloy samples for elemental composition verification via ICP-OES.	Resists aggressive acid mixtures like HF that would degrade glass or lower-grade plastics.
Food Safety Screening	Decomposition of complex food matrices to test for nutrients like calcium, zinc, and iron or toxic contaminants.	Rapid mineralization leads to higher sample throughput and consistent analytical results.
Petrochemical Analysis	Sample preparation of lubricants and crude oil derivatives to detect wear metals and additive concentrations.	Handles the high temperatures needed to break down long-chain hydrocarbon structures safely.
Battery Material Research	Digestion of cathode materials and electrolytes to verify chemical purity and stoichiometric ratios.	Precision customization allows for smaller or larger volumes tailored to specific research needs.

Specification Category	Parameter Details	PL-CP371 Capabilities
Material Composition	Primary Material	High-Purity TFM (Modified PTFE)
Material Composition	Surface Finish	Ra ≤ 0.1 µm (CNC Polished)
Customization Range	Vessel Volumes	Fully Customizable (e.g., 25mL, 50mL, 100mL, or Bespoke)
Customization Range	Pressure Ratings	Custom Engineered per Application Requirements
Customization Range	Dimensions (OD/ID/Height)	Precision CNC Machined to Specific Tolerances
Compatibility	Analytical Compatibility	Optimized for ICP-OES, ICP-MS, and AAS
Compatibility	Instrument Adaptability	Compatible with Leading Microwave Digestion Systems
Performance Metrics	Chemical Resistance	Universal (including HF, HNO3, HCl, H2SO4)
Performance Metrics	Operational Temp Range	Customizable up to 260°C (Material Dependent)
Performance Metrics	Porosity Level	Ultra-Low / Non-Porous Surface