

Large Corrosion Resistant PTFE Reaction Tank Integrated Digestion Barrel Leak Proof Vessel

Item Number: PL-CP173



Introduction

Discover high-performance PTFE reaction tanks designed for superior chemical resistance and leak-proof digestion. These integrated large-scale barrels withstand pressures up to 0.06 MPa, providing ultra-pure environments for demanding industrial chemical processing and complex laboratory acid digestion applications.

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Application	Description	Key Benefit
Graphene Oxide Synthesis	Handling concentrated sulfuric acid and strong oxidants like potassium permanganate during the Hummers' method.	Complete resistance to oxidative degradation and zero impurity introduction.
Semiconductor Etching	Containing and processing high-purity hydrofluoric acid used in wafer cleaning and etching stages.	Prevents metallic contamination and withstands the most aggressive etching chemistries.
Large-Scale Acid Digestion	Breaking down complex mineral or biological samples in concentrated nitric or hydrochloric acid for trace metal analysis.	Integrated molding prevents hazardous leaks of hot acid vapors and ensures sample recovery.
Pharmaceutical Intermediate Prep	Synthesis of high-purity active pharmaceutical ingredients (APIs) involving corrosive catalysts.	Non-stick surface facilitates complete recovery of expensive reactants and prevents cross-contamination.
Petrochemical Wastewater Analysis	Processing complex refinery effluents that contain a mixture of hydrocarbons and corrosive inorganic salts.	Reliable containment of mixed-phase samples without container degradation or leaching.
Battery Material Research	Synthesis and testing of electrolyte components and cathode materials in controlled chemical environments.	Chemical stability across wide electrochemical windows and resistance to reactive battery salts.
Rare Earth Element Extraction	Managing the intensive acid leaching processes required to separate rare earth metals from ores.	Durable construction reduces the frequency of vessel replacement in high-throughput environments.

Feature	Specification Details (Model: PL-CP173)
Primary Material	High-Purity Polytetrafluoroethylene (PTFE)
Manufacturing Process	Integrated One-Piece Molding (Seamless)
Maximum Internal Pressure	0.06 MPa
Leakage Rate	0% (Tested for zero permeation and zero seam failure)
Chemical Resistance	Universal (Except molten alkali metals and high-temp fluorine gas)
Temperature Range	Customizable based on specific PTFE grade selection
Volumetric Capacity	Customizable (Small scale to large industrial volumes)
Wall Thickness	Tailored to volume and pressure requirements
Port Configurations	Custom CNC-machined inlets, outlets, and sensor ports available
Surface Finish	Smooth, non-porous fluoropolymer surface