



# FORTRESS® PIPETTE TIP FILTERS

The first certified pure liquid and aerosol pipette tip filter

## Improve Your Scientific Outcomes

### Unparalleled aerosol and cross-contamination protection with pure and complete sample retrieval

FORTRESS pipette tip filters, representing the biggest advancement in liquid handling and pipetting in more than 40 years, offer improved scientific outcomes across a variety of laboratory settings and applications. As a result, analytical, research, pharmaceutical, medicine, diagnostic, and emerging pipetting technologies all benefit from unparalleled protection from sample cross-contamination and carry over that can alter test results and technical outcomes.

Through our CERTIFIED PURE POREX® independent testing program, the additive-free liquid barrier is certified to be free of leachables, extractables, heavy metals, and other contaminants that can interfere with PCR, molecular diagnostics, and other highly sensitive procedures.

### How FORTRESS pipette tip filters work

Before FORTRESS, filtered pipettes relied on additives such as carboxymethyl cellulose (CMC) that can contaminate samples and cause sample lock-up and non sample retrieval.

FORTRESS pipette tip filters are manufactured with a proprietary PE matrix with optimized airflow that is 100% inert, hydrophobic and pure. This protects against aerosol bypass and sample carry over, eliminates the threat of leachables and extractables, and delivers maximum sample recovery.



### Designed & certified for purity

- 99.9998% BFE aerosol resistance
- Inert, hydrophobic filter
- 3rd party certified test data\*
  - Free of leachables, extractables and heavy metals
  - Non-cytotoxic
  - Non-hemolytic
  - Compatible with clinical methodologies up to 7 days

### Seals out aerosol & liquid contaminants

- Provides the highest bacterial filtration efficiency available (BFE)
- Prevents liquid contamination and also in over-pipetting scenarios
- Improves precision, accuracy and reproducibility
- Protects sample integrity, recovery, and inadvertent viral replication



View additional resources, including our demo video, CLP article and whitepaper by visiting: [www.porex.com/fortress](http://www.porex.com/fortress)

*\*Data on file and available upon request.*



FORTRESS® pipette tip filters are rigorously tested by third-party analytical, clinical and life science laboratories for media purity. This certification helps ensure performance, accuracy and reproducibility in the most demanding scientific applications.\*

- **No** sealing additives
- **No** heavy metals
- **No** inorganic elements
- 7-day clinical laboratory methodology compatibility
- **No** molecular, polymerase chain reaction (PCR) or carboxymethyl cellulose (CMC) interference
- **No** cellulose gum contamination
- **No** leachables
- **No** extractables

\*Data on file and available upon request.

### Hemocompatibility

The FORTRESS pipette tip filter was tested by an independent in vivo, in vitro, and analytical testing services laboratory using ASTM F756 “Standard Practice for Assessment of Hemolytic Properties of Materials.” The FORTRESS filter was shown to meet the requirements of the test and is considered non-hemolytic with a 0.25 mg/ml concentration of Plasma Free Hemoglobin (PFH) which

is less than the maximum of 2 mg/ml allowed by the ASTM F756 Guideline.

### Cytotoxicity

The FORTRESS pipette tip filter was tested by an independent in vivo, in vitro, and analytical testing services laboratory. FORTRESS pipette tip filter was extracted in minimum essential medium (MEM) with 10% fetal bovine serum (complete MEM) under the auspices of L929 MEM Elution Test - ISO. There was no biological reaction to cells exposed to FORTRESS pipette tip filter. The cytotoxicity grade is 0 and is not considered to have a cytotoxic effect.

### Bacterial Aerosol Filtration Efficiency

The FORTRESS pipette tip filter was tested by an independent life cycle microbiology laboratory to determine the Bacterial Filtration Efficiency (BFE) using ASTM F2101 but employing a more severe challenge than would be experienced in normal use. The test design is specific for a pipette tip filter. No single colony was detected at the downstream of the FORTRESS filter at a challenge level of  $4.6 \times 10^5$  CFU with MPS of  $\sim 3.1 \mu\text{m}$ , which is a reduction over >99.99978%.

### Leachables and Extractables

The FORTRESS pipette tip filter was tested by an independent polymer and analytical laboratory using ICP-MS (Inductively Coupled Plasma - Mass Spectrometry) for 77 elemental concentrations to determine FORTRESS filter media purity, heavy metal interference(s) and inorganic element Interference(s). No patterns of Interference were found.

### FORTRESS LIQUID AND AEROSOL BARRIER FILTER

The only pipette tip filter to deliver complete aerosol and liquid protection AND pure sample retrieval.

Sample can be retrieved.



### SELF-SEALING

Self-Sealing filter prevents sample bypass but can cause contamination from additives.

Sample CANNOT be retrieved.



### AEROSOL ONLY BARRIER

Aerosol filters do not prevent sample bypass due to over-pipetting and can consist of materials known to contain heavy metals, leachables, and extractables.



### UNFILTERED

Unfiltered tips offer no protection against over-pipetting, aerosol creation and contamination, sample carry over, and PCR interference.



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Due to the difference in applications and operating conditions, Porex recommends that customers undertake their own appropriate tests to determine the performance of CERTIFIED PURE POREX materials and filters specific to their application and test condition.



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