

INDUSTRY BULLETIN

Cesa™ Non-PFAS Low Retention Additives

Delivering Hydrophobic Performance in Polypropylene Without PFAS

As many countries tighten regulations around the use of per- and polyfluoroalkyl substances (PFAS), industries relying on hydrophobic materials—such as medical, laboratory, and personal care sectors—face a critical challenge: achieving high-performance water repellency without using fluorinated additives.

Our Cesa™ Non-PFAS Low Retention Additives can help address this challenge. Available as concentrates or pre-compounds in polypropylene (PP) resin, they deliver durable hydrophobicity with low extractables and excellent processability, making them useful for applications such as labware and pipette tips. These non-PFAS additives in a PP carrier can be tailored to fine-tune physical properties of the final parts, yield robust hydrophobicity in varied processing conditions, and provide a PP solution suitable for radiation sterilization.

KEY CHARACTERISTICS

- Formulated without intentionally added fluorinated substances
- Free of slip agents, plasticizers, and biocides, avoiding those types of ingredients that may cause interference with protein or DNA assays
- Based on high-quality virgin PP resin suitable for labware applications
- Achieves high water contact angles[1] contributing to durable hydrophobicity
- Delivers hydrophobic performance after long-term storage or heat aging[2]
- Eliminates the need for a secondary low-retention coating
- Demonstrates low leachability, critical for pipette tips and diagnostic devices
- Compatible with standard PP injection molding temperatures (210°C–250°C) with a wide range of injection fill speeds
- Withstands typical electron-beam and Gamma radiation sterilization doses with minimal yellowing and fast recovery of hydrophobicity post-radiation
- Achieves low optical haze and good clarity in molded parts
- Non-animal derived versions available

REFERENCES

1 https://www.nanoscience.com/techniques/tensiometry/contact-angle-measurements-and-wettability/
2 https://westpak.com/industry-solutions/medical-device/accelerated-aging/

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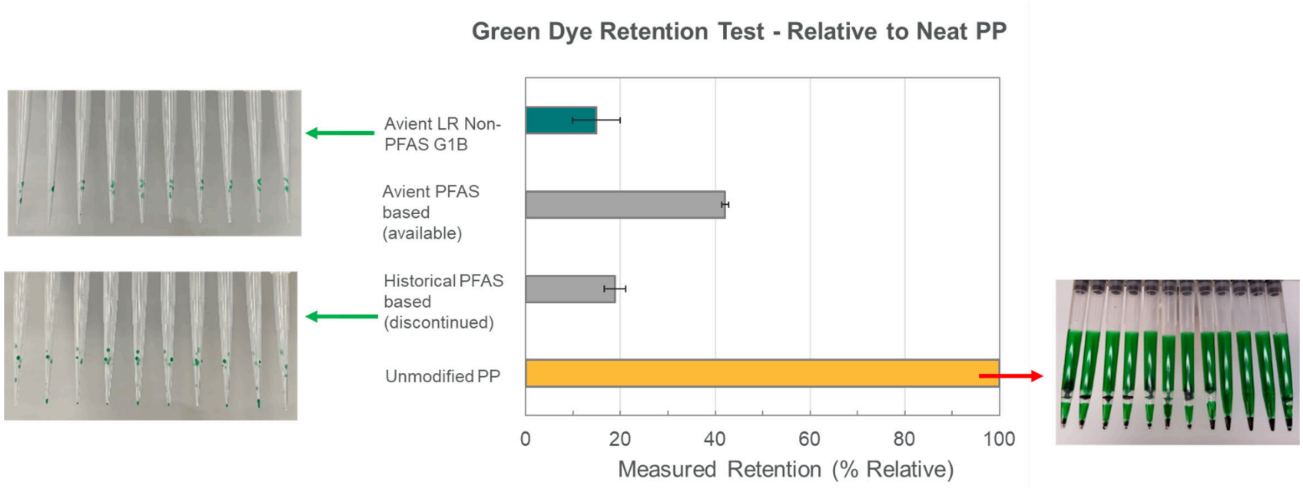
PERFORMANCE PROPERTIES

PROPERTY	RESULT
Water Contact Angle (ASTM D5946)	~ 108°
Residual liquid in a low-retention test (green or blue dyed water is used as test fluid)	~ 20% (in weight) vs. that of an unmodified PP control
Transmittance (ASTM D1003*)	≥ 85%
Optical Haze (ASTM D1003*)	≤ 60%
Processing Temperature Range	210°C–250 °C

* Measurements based on 0.8 mm thick flat chips molded of Cesa Non-PFAS Low Retention G1-BP compounds

LOW RETENTION PERFORMANCE FOR PIPETTE TIPS (Green/Blue Dye Water Test)



TARGET APPLICATIONS

Cesa Non-PFAS Low Retention Additives are available as ready-to-use compounds or as additive masterbatches and can be used for:

- Pipette tips and labware requiring low retention, low extractables, and optical clarity
- Single-use catheters or tubing, disposable diagnostic devices, and fluid handling components
- Medical gowns, drapes, and nonwovens needing durable water repellency
- Other products seeking non-PFAS labeling and hydrophobicity

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