



PORT PLASTICS

Semiconductor



Selecting Products for STRUCTURAL WET PROCESS APPLICATIONS

In the manufacture of an IC chip from a wafer there are many process tools (equipment) used to perform the critical steps needed. As a plastics specialist, we tend to put those process tools into four major groups depending on the environment the plastic is expected to perform. One such area is the Wet Process Tool. Wet Process Tools include but are not limited to FEOL & BEOL clean tools, wet etch, strip and ECD (Electrochemical Deposition). Given the nature of being wet processes, plastic materials are commonly used to construct much of the infrastructure of the process tool. Materials used to construct Wet Process Tools can usually be categorized into two broad groups, wafer mobility and component level applications or structural & chamber level applications.

Structural applications are defined by the plastic products used to construct the structural portion of the equipment.

Some examples of structural Wet Process applications include:

- Wet Benches
- Chamber machined ceiling and bases
- Tanks and Bezels
- Internal chamber structures
- Liners

For structural applications, the factors that are key to consider for material selection are:

- Purity
- pH of the chemical solution
- Chemical resistance
- FM 4910 compliance
- Flatness and Weldability
- Consistency of Color

FNM 4910 COMPLIANT MATERIAL COMPARISON

	FR Polypropylene	PVC & CPVC	PVDF	ECTFE	PFA
Chemical Restance & pH	poor in high acid @ RT	good for week acid & base	pH good up to 11	bulletproof	bulletproof
Dimensional Stability	low	medium	very good up to 175°C	better up to 240° C	best up to 305° C
Relative Purity	low	moderate	high	ultra pure	ultra pure
Operating Temperatures	~90°C	60-90°C	120°C	150°C	215°C
Relative Cost	\$	\$\$	\$\$\$	\$\$\$+	\$\$\$\$\$

Some common materials used for Wet Process Tools structural applications can be found in the table along with general performance levels. These are general product comparisons and like any product there are various grades of each material designed to meet your unique requirements. To custom fit a material to your application you can contact us your local Port Plastics sales office.

Port Plastics is your source for everything Semiconductor & Electronics!

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