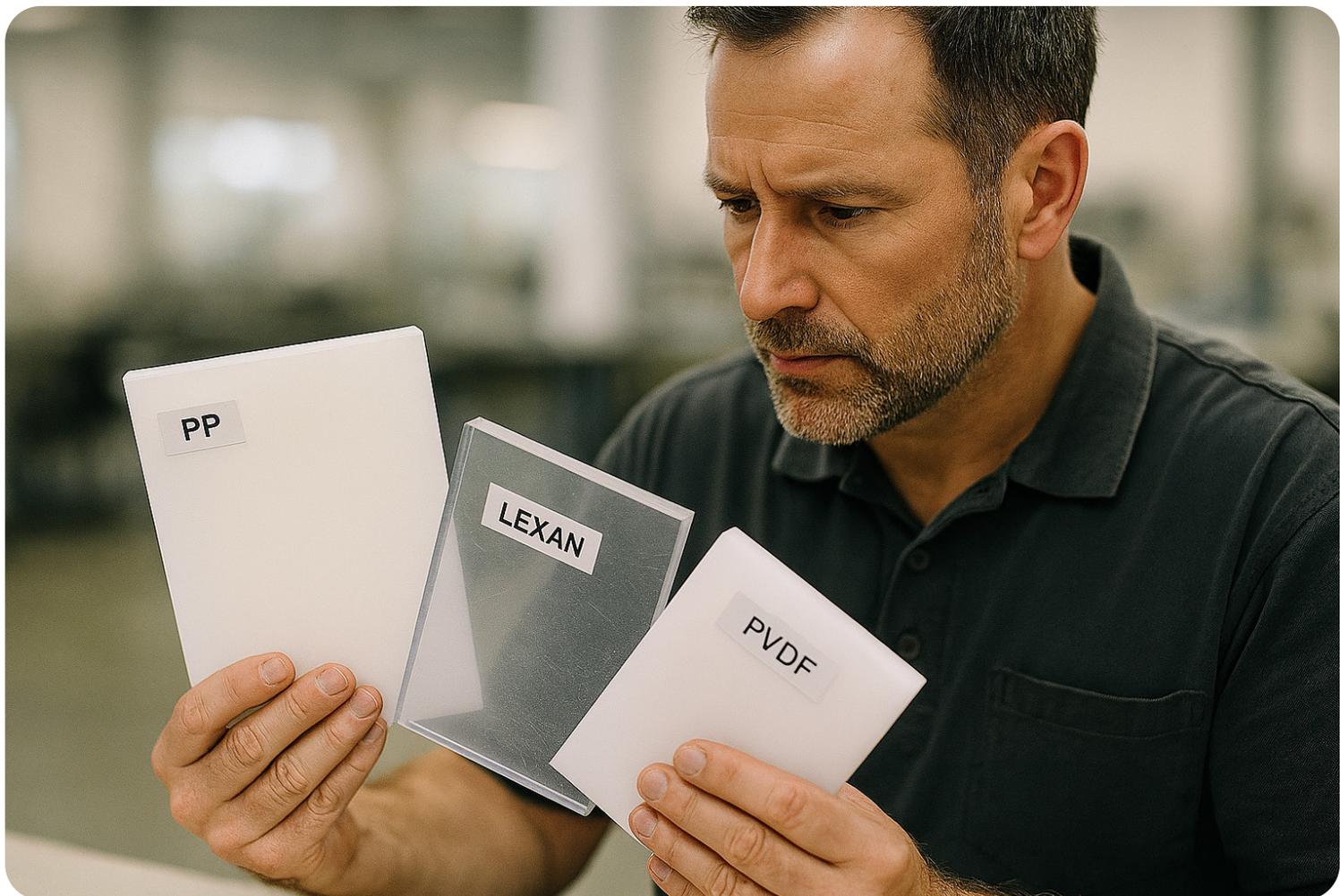


The Overlooked Hero of Plastic Fabrication:



Material Selection

You can have the best design and the most advanced equipment — but if the material isn't right, the product longevity is in question:

When selecting process equipment material matters though many are led to believe the only option is metal or stainless steel leaving many to purchase equipment only to see corrosion severely compromise the integrity and longevity of the product. In some instances, such as in cleanrooms corrosion can impact the cleanliness or sterility, leaving the company in panic mode looking for a replacement, which will lead to shutdowns and decontamination practices.

Why Material Selection Matters:

Choosing the right material is a critical process in your decision when selecting any piece of process laboratory equipment especially those that are introduced continuously to corrosive elements, such as Bag Totes, Mixing Tanks, Soak Tanks, Fume Hoods, and Equipment Enclosures. Using material such as Polypropylene (PP), Polycarbonate (PC), or Polyvinylidene Fluoride (PVDF) improves durability and have high resistivity to chemicals as well as high temperature tolerances. With some materials adhering to FM 4910 for fire resistance and suitable for use in cleanroom, semiconductor and pharmaceutical industries. For high purity equipment and totes, choosing a material that meets USP Class VI material is also very important to ensure compliance with industry standards.

Common Pitfalls When Material Is an Afterthought:

Warping, cracking, discoloration, pilling and worse complete permanent equipment failure. Most of these occurrences are due to chemical incompatibility due to the demanding environment the equipment is placed in. We see many of these issues in demanding environments such as thought that require continuous cleaning with a Spor Klenz, Chlorine base or H₂O₂ as well as heavy acid use labs where digestions and etchings are performed.

How Plastic Concepts Gets It Right: Deep knowledge of plastics like polypropylene, PVC, PVDF, and acrylic and where and when to apply them based on the application specifics

- Matching materials to use cases: e.g., **PVDF for high-purity tanks, polypropylene for chemical resistance**, etc.
- Collaborative approach with clients to balance performance and budget

Real-World Example: As with all projects, PCI first listens to understand the application and then provides recommendations of the proper materials making every project we been involved with a great case story of how we establish a plan to ensure complete compatibility within the unique environments and handling applications.