

Material Information



PVC Type 1

Introduction

PVC Type 1 is a rigid Polyvinyl Chloride material known for its high rigidity, good strength, low moisture absorption, and excellent resistance to chemicals and corrosion. It is also readily machinable, making it suitable for CNC-machined components used in industrial, chemical processing, electrical, and laboratory applications.

Advantages

Excellent chemical and corrosion resistance, high rigidity, low moisture absorption, good weather resistance, and good machinability. PVC Type 1 also provides good electrical insulation and can maintain useful mechanical properties in a wide range of industrial and laboratory environments.

Disadvantages

PVC Type 1 has lower heat resistance than many high-performance engineering plastics and can become less suitable for applications involving prolonged exposure to elevated temperatures. It is also less suitable for heavily loaded structural applications than stronger engineering plastics and metals.

Tolerance

3DSPRO can manufacture and inspect to tight tolerances, including sub +/- 0.001" tolerances, per your drawing specifications and GD&T callouts.

Recommendation

The combination of chemical resistance, rigidity, low moisture absorption, electrical insulation, and machinability makes PVC Type 1 suitable for CNC-machined tanks, fittings, housings, brackets, fixtures, and laboratory components. It is particularly appropriate for applications exposed to chemicals, moisture, or corrosive environments where cost-effective corrosion resistance is important.

Material Specifications (For reference only.)	
Tensile strength	46MPa
Elongation at Break	110%
Hardness	80 HD

Heat deflection temperature	73°C
Flammability rating (UL 94 (1.5 mm))	HB-5VA

Attention

PVC Type 1 should be machined with appropriate cutting conditions and effective chip evacuation to control heat buildup and maintain surface quality. Excessive heat should be avoided during machining because PVC can degrade at elevated temperatures. For close-tolerance parts, workholding and machining stresses should also be considered because thermoplastic materials can respond differently to machining forces than metals.

Applications

3DSPRO finds people using PVC Type 1 to make functional parts and prototypes in the following industries and applications.

Chemical processing equipment:

Chemical tanks, fittings, valves, manifolds, pump components, and other parts requiring strong resistance to acids, alkalis, and corrosive chemicals.

Industrial equipment:

Machine components, housings, covers, brackets, fixtures, and other CNC-machined parts requiring rigidity and corrosion resistance.

Electrical and laboratory equipment:

Electrical insulation components, equipment housings, laboratory fixtures, protective covers, and other parts requiring chemical resistance and electrical insulation.

Water and fluid-handling systems:

Fluid fittings, reservoirs, piping components, pump parts, guides, and other components exposed to moisture or corrosive fluids.