



PVC/CPVC physical properties and ASTM specifications for piping

Physical Properties of PVC and CPVC

Poly(Vinyl Chloride) PVC

This thermoplastic material is the largest volume member of the vinyl family. It is the most widely used material for plastic pipe, valves, and fittings. PVC has many advantages over conventional piping materials. Just a few are:

- Corrosion Resistance** -outstanding chemical resistance to nearly all acids, alkalis, alcohols, halogens and many other corrosive materials,
- Fluid Friction**-less friction loss as compared to metallics. Lower pressure drop smaller pumps = less electricity.
- Thermal**- lower thermal conductivity than for metallics. Less moisture condensation, reduced heat loss, and more uniform fluid temperature. (Insulation is usually not required.)
- Electrical**-a nonconductor of electricity. Eliminates galvanic or electrolytic corrosion that causes expensive repairs.
- Other**-weather resistant, high strength-to-weight ratio, dent resistant, non-toxic, maintains properties over long periods of time, easy to install, maintenance-free.

Chlorinated Poly(Vinyl Chloride) CPVC

An industrial thermoplastic piping material which can be used for higher temperature applications. It is polyvinyl chloride with additional chlorine added to reduce reaction to heat, which means advantages over regular PVC pipe and things while retaining the excellent chemical of PVC. CPVC retains its mechanical strength at higher temperatures.

- CPVC** = 180° F Max.
- PVC** = 140° F Max.

Eselon PVC and CPVC pipe and fittings compounds are blended according to strict industry guidelines. Specifications and requirements are set forth by agencies such as the American Society for Testing and Materials (ASTM) and the National Sanitation Foundation (NSF). Compliance with these standards assures the customer that they are receiving products manufactured from materials that will perform the tasks for which they are designed.

BASIC MATERIAL DATA	PVC	CPVC
Base Resin	Poly(vinyl chloride) Homopolymer	Chlorinated Poly(vinyl chloride)
Commercial Classification of Rigid Compound *	Type 1, Grade 1 PVC 1120	Type IV, Grade 1 CPVC 4120
Class Designation	12454-B	23447-A

*Rigid Material is also known as Un Plasticized (U-PVC)

Type Pipe	Standard Specifications	
	Material	Dimensions
PVC SDR(Plain End)	ASTM D-1784	ASTM D-2241
PVC SDR(Belled End)	ASTM D-1784	ASTM D-2672
PVC Schedule 40	ASTM D-1784	ASTM D-1785
PVC Schedule 40 (DWV)	ASTM D-1784	ASTM D-2665
PVC Schedule 40 (Belled End)	ASTM D-1784	ASTM D-2672
PVC Schedule 80	ASTM D-1784	ASTM D-1785
CPVC Schedule 40 and 80	ASTM D-1784	ASTM F-441