

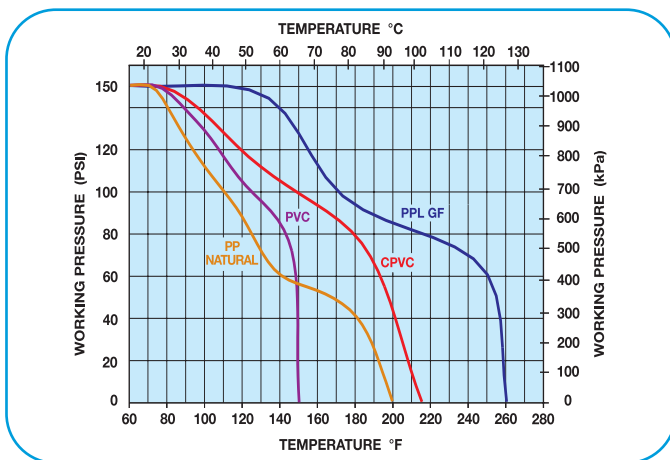


## Typical Minimum Physical Properties

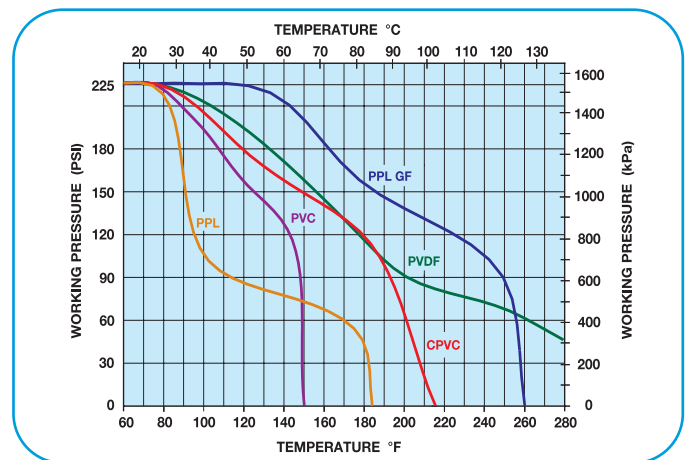
| Properties                             | ASTM Test Method | Polyvinyl Chloride     | Chlorinated Polyvinylchloride | Polypropylene Unfilled (Natural) | Polypropylene 30% Glass Filled | PVC 30% Glass Filled   | Polyetherimide 40% Glass Filled |
|--|------------------|------------------------|-------------------------------|----------------------------------|--------------------------------|------------------------|---------------------------------|
| <b>Mechanical at 73°F</b>              |                  |                        |                               |                                  |                                |                        |                                 |
| Specific Gravity                       | D792             | 1.41                   | 1.52                          | 1.33                             | 1.13                           | 1.53                   | 1.61                            |
| Tensile Strength, PSI                  | D638             | 7000                   | 8230                          | 3650                             | 12500                          | 11500                  | 27000                           |
| Modulus Elasticity, PSI                | D638             | 450000                 | 400000                        | 170000                           | 170000                         | 970000                 | 1700000                         |
| Compressive Strength, PSI              |                  | 9000                   | 9000                          | 5500                             | 9500                           | 9500                   | 31800                           |
| Flexural Strength, PSI                 | D790             | 12930                  | 14990                         | 7000                             | 18200                          | 17900                  | 36000                           |
| Izod Notch Impact, ft lb/in            | D256             | 1.5                    | 1.6                           | 1.3                              | 2.0                            | 1.3                    | 2.1                             |
| Hardness, Rockwell R                   | D785             | 112                    | 117                           | 95                               | M57                            | 110                    | M114                            |
| <b>Thermal</b>                         |                  |                        |                               |                                  |                                |                        |                                 |
| Heat Distortion Temperature:<br>66 PSI |                  | 165                    | 243                           | 225                              | 325                            | 169                    | 420                             |
| 264 PSI                                |                  | 164                    | 214                           | 185                              | 300                            | 167                    | 415                             |
| Coefficient of Expansion, in/in/°F     |                  | 3.1 x 10 <sup>-5</sup> | 3.8 x 10 <sup>-5</sup>        | 3.0 x 10 <sup>-5</sup>           | 2.1 x 10 <sup>-5</sup>         | 1.4 x 10 <sup>-5</sup> | 0.8 x 10 <sup>-5</sup>          |
| <b>Other Properties</b>                |                  |                        |                               |                                  |                                |                        |                                 |
| Water Absorption, % 24 hr              | D570             | 0.05                   | 0.07                          | 0.03                             | 0.02                           | 0.05                   | 0.13                            |
| Light Transmission                     | E308             | Opaque                 | Opaque                        | Translucent                      | Opaque                         | Opaque                 | Opaque                          |
| Light Stability                        |                  | Excellent              | Excellent                     | Excellent                        | Excellent                      | Excellent              | Excellent                       |
| Effect of Sunlight                     |                  | Slight Darkening       | Very Slight                   | Slight                           | Slight                         | Slight                 | Slight                          |
| Color                                  |                  | Dark Gray              | Medium Gray                   | Clear                            | Black                          | Light Gray             | Black                           |
| NSF Approved                           |                  | Yes                    | Yes                           | Yes                              |                                |                        |                                 |

### Operating Temperatures/Pressures

For 150 PSI Maximum Rated Products



For 225 PSI Maximum Rated Products



**Notes:**

1. Working pressure (non-shock) figures are the maximum recommended for the indicated temperatures.
2. It is recommended that the minimum process temperature for Hayward products not fall below 34°F (1°C).



## Material Description

### **PVC (Polyvinyl Chloride)**

Type 1, Grade 1 PVC is the most frequently specified of all plastic valve materials. It has been successfully used for over 30 years in such areas as chemical processing, industrial plating, chilled water, deionized water lines, chemical drainage, DWV piping and irrigation systems. PVC is generally inert to most mineral acids, bases, salts and paraffinic hydrocarbon solutions. PVC is not recommended for use with chlorinated or aromatic hydrocarbons, esters, or ketones. PVC possesses excellent fire performance properties. In particular, it will not burn once the source of heat or flame is removed. PVC has excellent weatherability. **The PVC used in Hayward products conforms to ASTM D-1784.** The maximum recommended working temperature of PVC is 140°F. PVC products can be installed using solvent cement, threaded or flanged end connections.

### **Corzan® CPVC (Chlorinated Polyvinyl Chloride)**

Corzan CPVC is generally inert to most mineral acids, bases, salts and paraffinic hydrocarbon solutions. Corzan CPVC is not recommended for use with chlorinated or aromatic hydrocarbons, esters or ketones. **The Corzan CPVC used in Hayward products conforms to ASTM D-1784-23447B.** The maximum working temperature for Hayward products made of Corzan CPVC is 190°F at 60 PSI. It has been proven an excellent material for hot corrosive liquids and hot and cold water distribution. Corzan CPVC products can be installed using solvent cement, threaded or flanged end connections.

### **Glass Fiber-Reinforced PP (Polypropylene)**

Polypropylene (PP) is a lightweight material with generally high resistance to chemical attack. The glass fiber-reinforced PP has the highest long-term temperature resistance of any material furnished by Hayward Industrial Products. It has been used successfully for years in such areas as chemical processing, industrial plating, chilled water, deionized water

lines, chemical drainage, DWV piping and irrigation systems. PP is generally inert to most mineral acids, bases, salts and hydrocarbon solutions. **The PP used in Hayward products conforms to ASTM D-4101.** The maximum recommended working temperature of PP is 250°F. PP products can be installed using threaded or flanged end connections.

### **EPDM**

Ethylene Propylene Diene Monomer rubber is an elastomer prepared from ethylene and propylene compounds. EPDM has been used continuously to a temperature of 300°F. EPDM is recommended for water, steam, dilute acids, dilute alkalis and alcohols. EPDM is not recommended for petroleum oils or di-ester lubricants.

### **FPM or FKM (Fluorocarbon Rubber)**

The fluorocarbon elastomers have a maximum service temperature of 400°F. Fluorocarbon materials are recommended for petroleum oils, di-ester base lubricants, silicate fluids and greases, halogenated hydrocarbons, acids and vacuum environments. Fluorocarbon materials are not recommended for ketones, amines, anhydrous ammonia, hot hydrofluoric or chlorosulfonic acids.

### **Nitrile or Buna N**

Nitrile, chemically, is a copolymer of butadiene and acrylonitrile. Nitrile maximum service temperature is 275°F. Nitrile is recommended for petroleum oils and fluids, cold water, silicone greases and oils, di-ester base lubricants and ethylene glycol base fluids. Nitrile is not recommended for halogenated hydrocarbons, nitro hydrocarbons, phosphate ester hydraulic fluids, ketones, strong acids, ozone and automotive brake fluid.

### **Teflon®**

Polytetrafluoroethylene (PTFE) is chemically stable and virtually unaffected by chemicals, acids, bases and solvents. PTFE has a maximum service temperature of 500°F. PTFE is used as a seat material in several lines of Hayward valves

due to its low coefficient of friction and chemical stability.

### **EASTAR®**

Eastar is a clear polyester thermoplastic compound having excellent impact strength, chemical resistance, and high clarity. It is used in a variety of applications such as chemical processing and ultra-pure industries.

### **PVDF**

Polyvinylidene Fluoride is a thermoplastic polymer with excellent corrosion, chemical, and abrasion resistance. It has a good mechanical and thermal stability with a maximum operating temperature of 300°F. PVDF has a high impact resistance and excellent UV resistance. It is used in applications of high purity, and chemical processing.

### **ETFE**

Ethylene Tetrafluoroethylene is a fluorocarbon based polymer. It has a very good resistance to solvents and chemicals as well as outdoor weathering. ETFE has a maximum service temperature of 300°F. It is widely used in the electronics, chemical processing, and laboratory testing equipment industries.

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