

## FlowGuard Gold® CTS CPVC Pipe

### Application:

Corrosion resistant hot and cold water plumbing pipe, CTS sizes 1/4" through 2", for use at temperatures up to and including 180° F. All sizes carry a maximum working pressure of 400 psi @ 73° F for cold water service, and a maximum working pressure of 100 psi @ 180° F for hot water service. This product is manufactured to SDR 11 physical dimensions and tolerances per ASTM D 2846 as stated on page 2 of this specification, and as stated in Harvel Plastics, Inc. Copper Tube Size CPVC Pipe Product Bulletin (HPB-117) which shall be referenced for proper handling, joining, and other installation recommendations. This product is intended for use in hot and cold water service lines for domestic plumbing applications and bears the NSF-pw stamp of approval for potable water use. Typical applications include water distribution systems in: apartments, condominiums, hotels/motels, high rises, single and multifamily homes, and various commercial systems. State and local codes must be referenced for proper application and restrictions prior to use.

### Scope:

This specification outlines minimum manufacturing requirements for Chlorinated Polyvinyl Chloride (CPVC) SDR 11 Series copper tube size (CTS) plumbing pipe. This pipe is intended for use in piping systems where the fluid conveyed does not exceed 200° F. This pipe meets and or exceeds the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) and the National Sanitation Foundation (NSF).

### CPVC Materials:

The material used in the manufacture of the pipe shall be a rigid chlorinated polyvinyl chloride (CPVC) compound, Type IV Grade I, with a Cell Classification of 24448 (CPVC4120) as defined in ASTM D1784. This compound shall be tan in color, and shall be approved by the National Sanitation Foundation (NSF) for potable water use.

### Dimensions:

CPVC CTS Series pipe shall be manufactured in strict accordance to the requirements of ASTM D2846 to SDR 11 dimensions and tolerances. Each production run of pipe manufactured in compliance to this standard, shall also meet or exceed the test requirements for materials, workmanship, burst pressure, flattening resistance, and extrusion quality and dimensions as defined in ASTM D2846. This pipe shall be produced in CTS diameters (1/4" through 2" sizes) to SDR 11 specifications.

### Marking:

Product marking shall meet the requirements of ASTM D2846 and shall include: the manufacturers name (or the manufacturers trademark when privately labeled); the nominal pipe size; the outside diameter system; the material designation code; the applicable Standard thermoplastic pipe Dimension Ratio designation code (SDR number) and the corresponding pressure rating in psi for water @ 180° F; the ASTM designation D2846; and the independent laboratory's seal of approval for potable water usage.

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### Sample Specification:

All CPVC SDR 11 Series hot and cold water plumbing pipe shall be manufactured from a Type IV, Grade I Chlorinated Polyvinyl Chloride (CPVC) compound with a Cell Classification of 24448 (CPVC4120) per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM D2846, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to pressure rating, material, workmanship, burst pressure, flattening resistance, and extrusion quality. The pipe shall be manufactured in the USA, by an ISO 9001 certified manufacturer. All pipe shall be packaged on-line immediately after its manufacture and stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All FlowGuard Gold® pipe shall be manufactured by HARVEL PLASTICS, INC.

**CTS CPVC Dimensions & Tolerances**

Pipe Size (in.)	Average O.D.	O.D. TOL	Average I.D.	Min. Wall	Wall TOL	Pressure 73°F	Rating@ 180°F
1/2	0.625	±.003	0.469	0.068	±0.020	400	100
3/4	0.875	±.003	0.695	0.080	±0.020	400	100
1	1.125	±.003	0.901	0.102	±0.020	400	100
1-1/4	1.375	±.003	1.105	0.125	±0.020	400	100
1-1/2	1.625	±.004	1.309	0.148	±0.020	400	100
2	2.125	±.004	1.716	0.193	±0.023	400	100

PIPE SIZES SHOWN ARE MANUFACTURED IN STRICT COMPLIANCE WITH ASTM D2846

ASTM STANDARD D1784 MATERIAL EQUIVALENTS:

Cell Classification 24448 = PVC Type IV Grade I CPVC = CPVC 4120

## General Recommendations

### Code Approvals

State and local codes must be referenced prior to installation for proper application and /or any restrictions applicable to the product prior to use. All CTS CPVC pipe shall be Listed by the National Sanitation Foundation (NSF) for conformance to ASTM D2846 and NSF Standard 14 and 61 requirements, which validate performance characteristics and health affects. These listings are required for, and accepted by, major model building codes.

### Handling and Storage

All CTS CPVC pipe shall be provided boxed by the manufacturer, however, care shall be used when transporting, storing, and installing to prevent physical damage. Damaged sections must be cut out and discarded prior to installation.

### Installation

Installation shall be in accordance with the requirements of the local code having jurisdiction, the solvent cement manufacturer recommendations, and Harvel Plastics, Inc. published installation guidelines (HPB 108).

### Solvent Cement Joining

Use only CPVC solvent cement that conforms to ASTM F493; the use of the wrong cement can result in joint failure. Prior to solvent cementing appropriate safety precautions shall be taken. Two solvent cement joining processes are approved for use with this product. The two-step solvent cement and primer process and one-step process. All solvent cemented joints shall be made up in accordance with the procedures outlined in Harvel Plastics HPB 117 FlowGuard Gold® CTS CPVC Pipe brochure and the solvent cement manufacturers instructions to ensure the highest system integrity.

### Thermal Expansion

Consideration shall be given at the design and installation of the plumbing system to address the effects that thermal expansion/contraction has on the piping system as a result of temperature variations. Refer to Harvel Plastics HPB 117 FlowGuard Gold® CTS CPVC Pipe brochure for additional information.

### Chemical Compatibility

Care shall be taken by the end user to ensure that any substances coming into contact with the piping (thread pastes, sealants, fire stop materials, lubricants etc.) are chemically compatible with CPVC. The manufacturer of the product in question must be contacted for compatibility information.

### System Components

All CTS CPVC fittings used in conjunction with this piping shall comply with the applicable requirements of ASTM D2846 and shall be Listed by the National Sanitation Foundation (NSF) to NSF Standard 14 and Standard 61 requirements, such as those manufactured by Spears Manufacturing Company or approved equal.