



Corzan HP
Piping Systems



SAMPLE SPECIFICATION*

Corzan® HP Schedule 80 Iron Pipe Size (IPS 1/2" to 8") Pipe, Valves & Fittings

PART 1 – GENERAL

1.0 PRODUCT DESCRIPTION

Corzan® HP Schedule 80 IPS pipe and fittings (1/2" to 8") are extruded/molded from Lubrizol Advanced Materials HP CPVC compounds. The pipe compounds shall meet cell class 24448 for high impact/high heat deflection temperature pipe through 8" nominal size as defined by ASTM D1784. The pipe shall be certified by NSF International for use with potable water.

Corzan HP (1/2" to 8") Schedule 80 IPS fittings compound shall meet cell class 23447 and carry a pressure rating listed by PPI (Plastics Pipe Institute). This Corzan® HP Schedule 80 IPS compound shall be pressure rated in accordance with ASTM D-2837 and PPI TR-3 and have hydrostatic design bases of 4000 psi at 72°F and 1000 psi at 180°F as listed in PPI publication TR-4.

The Corzan HP system (both pipe and fittings) shall be pressure rated to the requirements of NSF SE 8459 – CPVC Schedule 40 & 80 Pipe and Fittings with High HDB at 180°F.

1.1 PIPE AND FITTINGS

A. Pipe shall meet or exceed the requirements of ASTM F441 in Schedule 80. Pipe, 1/2" to 8", shall meet the requirements of NSF SE 8459.

B. Fittings shall meet or exceed the requirements of ASTM F437 (Schedule 80 threaded), and ASTM F439 (Schedule 80 socket). Fittings, 1/2" to 8", shall meet the requirements of NSF SE 8459.

C. To ensure that a complete system is installed, the CPVC compounds used to manufacture pipe and fittings shall be produced by the same compound manufacturer.

D. The CPVC compound manufacturer shall conduct a program that lists those ancillary building products (including, but not limited to: fire stops, thread sealants, and leak detectors) that are chemically compatible with its CPVC compounds. This compatibility program shall be administered by an independent third party testing agency.

E. CPVC compound shall be produced by an ISO certified manufacturer.

1.2 SOLVENT CEMENT

All socket type joints shall be assembled employing solvent cements that meet or exceed the requirements of ASTM F493 and primers that meet or exceed the requirements of ASTM F656. The standard practice for safe handling of solvent cements shall be in accordance with ASTM F402. Solvent cement and primer shall be listed by NSF International for use with potable water and approved by the pipe and fittings manufacturers.

1.3 BASIC USE

A. Corzan® HP (1/2" to 8") Schedule 80 IPS pipe and fittings are intended for use in pressure applications in hot and cold potable water distribution systems, fresh water, seawater, drains, sanitary, vents, and brine marine applications. Additional applications include but are not limited to general chemical plants, pulp and paper mills, water treatment plants, metal treating/electroplating plants, water purification plants and food processing plants.

B. Water filled Corzan® HP CPVC Schedule 80 IPS pipe and fittings (1/2" through 6") tested in general accordance with UL 723/ASTM E 84 (NFPA 255 and UBC 8-1) shall meet the 25/50 flame and smoke requirement and shall be permitted to be installed in return air plenums. Test reports from a third party testing laboratory shall be obtained and made available upon request.

PART 2- PRODUCTS

2.0 MATERIALS

The piping systems shall be constructed from materials extruded/molded by manufacturers using the same CPVC compound manufacturer.

2.1 MANUFACTURERS

A. PIPE AND/OR FITTINGS

| | |
|--|---|
| Harvel Plastics, Inc. P.O. Box 757 Easton, PA 18044-0757 Phone (610) 252-7355 FAX (610) 253-4436 | NIBCO, Inc. 1516 Middlebury Street Elkhart, IN 46515-1167 Phone (800) 234-0227 FAX (800) 234-0557 |
| IPEX, Inc. (US) 10100 Rodney Street Pineville, NC 28134 Phone(800)463-9572 FAX (905) 403-9195 | IPEX, Inc. (Canada) 6810 Invader Crescent Mississauga, ON L5T 2B6 Canada Phone(866)473-9472 FAX (905) 670-5295 |

B. VALVES

| | | |
|--|---|--|
| CEPEX USA, Inc. 13291-106 Vantage Way Jacksonville, FL 32218 Phone: (904) 695-1441 Fax: (904) 695-1442 | Hayward Industrial Products One Hayward Industrial Dr. Clemmons, NC 27012-5100 Phone: (888) 429-4635 Fax: (888) 778-8410 Toll Free- Pomona, CA: (800) 548-7665 Fax - Pomona, CA. (909) 594-7951 | NIBCO, Inc. 1516 Middlebury Street Elkhart, IN 46515-1167 Phone (800) 234-0227 FAX (800) 234-0557 |
| IPEX, Inc. (US) 10100 Rodney Street Pineville, NC 28134 Phone: (800)463-9572 Fax: (905) 403-9195 | IPEX, Inc. (Canada) 6810 Invader Crescent Mississauga, ON L5T 2B6 Canada Phone: (866) 473-9472 Fax:(905)670-5295 | Plast-O-Matic Valves, Inc. 1384 Pompton Avenue Cedar Grove, NJ 07009 Phone: (973) 256-3000 Fax: (973) 256-4745 |

C. SOLVENT CEMENT

IPS Corporation
455 West Victoria Street
Compton, CA 90220
Phone (800) 421-2677
FAX (310) 898-3392

PART 3- EXECUTION

3.0 SYSTEM DESIGN

A. System design shall be in accordance with standard industry practice piping systems and the manufacturer's instructions. The design shall take into consideration such factors as pressure and flow requirements, friction loss, operating temperatures, support spacing, anchoring, bracing and thrust blocking, joining methods, and thermal expansion and contraction.

B. A Hazen-Williams C Factor of 150 shall be used in all hydraulic calculations.

C. Maximum design temperature/pressure ratings shall not exceed the following:

Maximum Design Temperature (°F)/Pressure Ratings (psi): Corzan® HP ½" through 8") Schedule 80 IPS pipe and fittings

| Pipe Size | 70°F | 100°F | 120°F | 140°F | 160°F | 180°F | 200°F |
|-----------|------|-------|-------|-------|-------|-------|-------|
| ½" | 850 | 706 | 595 | 485 | 383 | 264 | 170 |
| ¾" | 690 | 573 | 483 | 393 | 311 | 214 | 138 |
| 1" | 630 | 523 | 441 | 359 | 284 | 195 | 126 |
| 1 ¼" | 520 | 432 | 364 | 296 | 234 | 161 | 104 |
| 1 ½" | 470 | 390 | 329 | 268 | 212 | 146 | 94 |
| 2" | 400 | 332 | 280 | 228 | 180 | 124 | 80 |
| 2 ½" | 420 | 349 | 294 | 239 | 189 | 130 | 84 |
| 3" | 370 | 307 | 259 | 211 | 167 | 115 | 74 |
| 4" | 320 | 266 | 224 | 182 | 144 | 100 | 64 |
| 6" | 280 | 232 | 196 | 160 | 126 | 87 | 56 |
| 8" | 250 | 208 | 175 | 143 | 113 | 78 | 50 |

D. Pressure Rating for Flanged Systems: Flanged systems of any size shall not exceed 150 psi working pressure unless assembled in a way that meets requirements of ASTM F1970 and has been verified by the manufacturer. Lubrizol backer ring kits are required to be used in applications where working pressure greater than 150 psi is required.

E. Pressure Rating for Threaded Systems: Threaded pipe shall be derated to 50% of the pressure rating for the pipe at the system operating temperature. Corzan® HP Schedule 80 pipe 6" or larger shall not be threaded. Corzan® HP Schedule 80 pipe operating above 130°F shall not be threaded.

F. Joining Systems

1. Integrating of pipe and fittings shall be done by solvent cementing, threading or flanging. Mechanical joints are allowed if approved by pipe manufacturer.
2. Solvent cement that meets or exceed the requirements of ASTM F493 shall be used in conjunction with a primer/cleaner as manufactured by companies listed in Section 2.1 C.
3. Flanges shall be installed on pipe ends with CPVC primer/cleaner and CPVC solvent cement and then bolted together per the manufacturer's instructions and torque ratings.
4. Threading may be performed on Corzan® HP CPVC Schedule 80 pipe 4" and smaller, per the manufacturer's instructions. Threads shall be in accordance with ANSI B1.20.1 Taper Pipe Thread.

3.1 INSTALLATION PROCEDURES

Installation practices such as pipe support spacing, bracing, allowance for thermal expansion/contraction, solvent cementing and handling and storage shall be in accordance with the manufacturer's instructions and this specification.

3.2 LIMITATIONS

The system maximum operating temperature/pressure shall not exceed the ratings defined in section 3.0 C.

3.3 TECHNICAL DATA

A. APPLICABLE STANDARDS

1. ANSI/NSF Standard 14 Plastic Piping Components and Related Materials
2. ANSI/NSF Standard 61 Drinking Water System Components-Health Effects
3. ASTM D1 784 Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
4. ASTM D2855 Standard Practice for Making Solvent Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
5. ASTM F402 Standard Practice for Safe Handling of Solvent Cements, Primers and Cleaners Used for Joining Thermoplastic Pipe and Fittings
6. ASTM F437 Standard Specification for Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
7. ASTM F439 Standard Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80
8. ASTM F441 Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
9. ASTM F493 Standard Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe and Fittings
10. ASTM F656 Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
11. ASTM D2837 Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
12. NSF International Special Engineered Specification NSF SE 8459-CPVC Schedule 40 & 80 Pipe and Fittings with High HDB at 180°F

B. APPLICABLE CODES

1. BOCA, Basic Building, Mechanical and Plumbing Codes
2. IAPMO, Uniform Plumbing Code
3. ICC, International Building, Mechanical and Plumbing Codes
4. ICBO, Uniform Building and Mechanical Codes
5. SBCCI, Standard Building, Mechanical and Plumbing Codes

3.4 TESTING

After the system is installed and solvent cement is cured, the system shall be hydrostatically tested per the requirements of the applicable code or as specified by the engineer of record.

3.5 WARRANTY

Consult the manufacturer for specific warranty information.

*Not intended to be a stand alone specification. The above specification is intended to be added within your company's standard piping specifications to specify the use of Corzan® HP CPVC Schedule 80 IPS pipe and fittings.