BlazeMaster® Fire Protection Systems
Sample Specifications – United States*
PART 1 – GENERAL

1.0 PRODUCT DESCRIPTION
BlazeMaster® CPVC fire sprinkler pipe and fittings are extruded/molded from CPVC compounds manufactured by Lubrizol Advanced Materials. The pipe and fitting compounds shall meet cell class 23547 and 24447, respectively, as defined by ASTM D1784, and shall be certified by NSF International for use with potable water. Both pipe and fitting compounds shall be pressure rated by Plastics Pipe Institute (PPI).

1.1 PIPE AND FITTINGS
A. Pipe shall meet or exceed the requirements of ASTM F442 material designation CPVC 4120-06 in standard dimension ratio (SDR) 13.5. Additionally, the pipe must be marked with the following pressure ratings: "320 PSI @ 73° F", "175 PSI @ 150° F" and "100 PSI @ 180° F".
B. Fittings shall meet or exceed the requirements of ASTM F437 (schedule 80 threaded), ASTM F438 (schedule 40 socket) and ASTM F439 (schedule 80 socket).
C. Both pipe and fittings shall be Listed by Underwriters Laboratories for use in wet automatic fire sprinkler systems and shall bear the logo of the Listing Agency. See UL Fire Protection Equipment Directory, categories VIWT and HFYH.
D. Ancillary products coming into contact with pipe and fittings must be chemically compatible as determined by CPVC pipe and fittings manufacturer or compound manufacturer, and thus Listed on pipe, fittings or compound manufacturer's chemical compatibility program (i.e. FGG/BM/CZ™ System Compatible Program).

1.2 SOLVENT CEMENT
A. All socket type joints shall be made up employing solvent cements that meet or exceed the requirements of ASTM F493. The standard practice for safe handling of solvent cements shall be in accordance with ASTM F402. Solvent cement shall be certified by NSF International for use with potable water, and approved by the manufacturers. The solvent cements shall be compatible with their CPVC pipe and fittings.
B. Follow manufacturer's instructions for set and cure times for solvent cement joints. Avoid significant stresses during set and cure times. Do not apply any stress that will disturb an un-dried joint. Sprinkler fittings shall be allowed to cure in accordance with the manufacturer's guidelines and the contractor shall assure the outlets are clear of any excess cement prior to installing sprinklers.

1.3 BASIC USE
CPVC pipe and fittings shall be listed by UL and also either ULC or C-UL for use in:
A. Light Hazard Occupancies as defined by NFPA 13.
B. Ordinary hazard rooms of otherwise light hazard occupancies where the room does not exceed 400 square feet (i.e.Laundry room) as defined in NFPA 13.
C. Residential Occupancies up to four stories in height as defined by NFPA 13R.
D. One and two family dwellings and manufactured homes as defined by NFPA 13D.
E. Air handling (plenum) spaces as defined by NFPA 90A.
F. Underground water pressure service as defined by NFPA 24.

G. Maximum design temperature/pressure rating shall not be less than175 psi at 150°F.
H. Refer to UL and FM** (if applicable).
I. Refer to CPVC pipe and fitting manufacturers' installation instructions.

1.4 QUALITY ASSURANCE
Installer Qualifications:
Contractor Training Certificates for Chlorinated Polyvinyl Chloride (CPVC) Fire Sprinkler Systems. Fire Sprinkler Contractor must submit to the Contracting Officer documentation that lists personnel assigned to this project prior to beginning construction who have successfully completed formal CPVC fire sprinkler systems training conducted by an authorized CPVC manufacturer's representative. The Contractor Training Certificates shall be specific to the manufacturer of the pipe and fittings. Personnel's training certificates must be current and have been updated within the past two (2) years. (Note: this training does not imply compliance with any local or state contractor certification or licensing laws.)

PART 2 – PRODUCTS

2.0 MATERIAL
The piping systems (pipe and fittings) shall be constructed from materials extruded/molded by manufacturers using the same compound manufacturer (i.e. BlazeMaster® CPVC compound).

2.1 MANUFACTURERS
 Georg Fischer Harvel, Kuebler Rd., PO Box 757 Easton, PA 18044.
Phone (610) 252-7355. FAX (610) 253-4436.
 NIBCO INC. 1516 Middlebury Street Elkhart, IN 46516.
Phone (574) 295-3000. FAX (574) 295-3307.
 Tyco Fire Suppression & Building Products 451 N. Cannon Avenue Lansdale, PA 19446.
Phone (215) 362-0700. FAX (215) 362-5385.
 The Viking Corporation 210 N. Industrial Park Drive Hastings, MI 49058.
Phone (269) 945-9501. FAX (269) 945-4495.

PART 3 – EXECUTION

3.0 SYSTEM DESIGN
A. System design shall be in accordance with standard industry practice for fire sprinkler 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, joining methods, and thermal expansion and contraction.
B. The fire sprinkler piping system shall be hydraulically calculated using a Hazen-Williams C Factor of 150, and designed in accordance with the Standard for Installation of Sprinkler Systems, NFPA 13.
C. The maximum design temperature/pressure rating shall not exceed 175 psi at 150°F.

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 the UL Listing which includes installation limitations.

3.2 LIMITATIONS
BlazeMaster® CPVC pipe and fittings are intended for use at a maximum working pressure of 175 psi at 150°F in accordance with the manufacturer's instructions and appropriate listing agencies.

3.3 TECHNICAL DATA

A. APPLICABLE STANDARDS

a. ANSI/NSF Standard 14 Plastic Piping Components and Related Materials

b. ANSI/NSF Standard 61 Drinking Water System Components – Health Effects

c. ASTM D1784 Specification for Rigid Poly(Vinyl Chloride)(PVC) Compounds and Chlorinated Poly(Vinyl Chloride)(CPVC) Compounds

d. ASTM F402 Practice for Safe Handling of Solvent Cements, Primers and Cleaners Used for Joining Thermoplastics Pipe and Fittings

e. ASTM F437 Specification for Threaded Chlorinated Poly(Vinyl Chloride) CPVC Plastic Pipe Fittings, Schedule 80

f. ASTM F438 Specification Socket-Type Chlorinated Poly(Vinyl Chloride) CPVC Plastic Pipe Fittings, Schedule 40

g. ASTM F439 Specification Socket-Type Chlorinated Poly(Vinyl Chloride) CPVC Plastic Pipe Fittings, Schedule 80

h. ASTM F442 Specification Chlorinated Poly (Vinyl Chloride) CPVC Plastic Pipe (SDRPR)

i. ASTM F493 Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) CPVC Plastic Pipe and Fittings

j. NFPA 13 Standard for Installation of Sprinkler Systems

k. NFPA 24 Installation of Private Fire Service Mains and Their Appurtenances

l. NFPA 25 Standard for the Inspection, Testing and Maintenance of Water Based Extinguishing Systems

m. NFPA 13R Standard for Installation of Sprinklers in Residential Occupancies up to Four Stories in Height

n. NFPA 13D Standard for Installation of Sprinkler Systems in One and Two Family Dwellings

o. NFPA 90A Standard for Installation of Air Conditioning and Ventilating Systems

p. UL 1887 Fire Test of Plastic Sprinkler Pipe for Flame and Smoke Characterization

q. UL 1821 Outline of Proposed Investigation for Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service

r. Piping compound has a 180ºF Hydrostatic Design Basis (HDB) of 1250 psi as listed by the Plastic Pipe Institute

s. Fitting compound has a 180ºF Hydrostatic Design Basis (HDB) of 1000 psi as listed by the Plastic Pipe Institute

B. APPLICABLE CODES

a. ICC, International Building, Mechanical and Plumbing Codes

b. IAPMO, Uniform Mechanical and Plumbing Codes

c. NBC, National Building Code of Canada

3.4 TESTING

After the system is installed and any solvent cement is cured per the manufacturer's installation instructions, the systems shall be hydrostatically tested per the requirements of the applicable NFPA Standard (NFPA 13, 13R or 13D).

3.5 MAINTENANCE

Maintenance shall be in accordance with the Standard for Inspection, Testing and Maintenance of Water Based Extinguishing Systems as defined by NFPA 25.

3.6 WARRANTY

Consult the manufacturer for specific warranty information.

* Not intended to be a stand alone specification. The above specifications are to be added within your

company's standard fire sprinkler systems specifications to specify the use of BlazeMaster® CPVC pipe and fittings.
** As manufactured by Georg Fischer Harvel, NIBCO, Tyco Fire Suppression & Building Products, and The Viking Corporation

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