



**ATLANTA INDUSTRIES, INC.**  
est. 1978



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[www.atlanta.ph](http://www.atlanta.ph)

# BlazeMaster<sup>®</sup>

## FIRE PROTECTION SYSTEMS



**BlazeMaster<sup>®</sup>**  
FIRE PROTECTION SYSTEMS  
★ 1984-2014 ★

**30 YEARS STRONG**

**THE SCIENCE OF SAFETY**



**NOW LISTED AND APPROVED**



Blazemaster<sup>®</sup> is the registered trademark of The Lubrizol Corp. The Lubrizol Corporation is a Berkshire Hathaway Company.  
Atlanta Industries, Inc. is a Exclusive Distributor of Blazemaster<sup>®</sup>



**Blazemaster®** pipe and fittings are designed specifically for fire sprinkler systems. They are made from a specialty thermoplastic known chemically as post-chlorinated polyvinyl chloride (CPVC). **Blazemaster®** pipe and fittings provide unique advantages in sprinkler installations including superior hydraulics in comparison to traditional metal systems, ease of joining, increased hanger spacing in comparison to other thermoplastics and ease of assembly. They also are based on a technology with a continuous and proven service history of more than 30 years.

## BLAZEMASTER® CPVC FIRE SPRINKLER SYSTEM SPECIFICATION



### Pipe

**Blazemaster®** CPVC Sprinkler pipe in SDR 13.5 conforms to the requirements of ASTM F442.

### Fittings

**Blazemaster®** CPVC Sprinkler fittings conform to the requirement of ASTM F438 (Schedule 40) & ASTM F439 (Schedule 80). Female threaded adapters for sprinkler head connections with brass inserts.

### Solvent Cement

**Blazemaster®** CPVC socket connections should be joined with Weld-On® Blazemaster® Cement which meets ASTM F493. No other cements are recommended for use with Blazemaster® products and use of such non-proved welding agents will invalidate the manufacturers warranty.

## WHERE TO USE BLAZEMASTER CPVC FIRE SPRINKLER PIPING SYSTEM

Listed and Approved by:



### Applications

- **NFPA 13** - Light Hazard occupancies as defined in the Standard for Installation of Sprinkler Systems, such as Churches, Schools, Hotels, Condominiums, Hospital, Offices & High Rises.
- **NFPA 13D** - Residential occupancies as defined in the Standard for Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes.
- **NFPA 13R** - Residential, Multi-story and Multi-family.
- **NFPA 90** - Air plenums, as defined by the Installation of Air Conditioning and Ventilating Systems
- **NFPA 24** - Underground water pressure service.



## ADVANTAGES + PROVEN PERFORMANCE



Resistant to corrosion and scaling and foreign contaminant build even in salt air environments.



Greater resistance to seismic activity than copper or steel systems



Reduced installation time



Easily repaired or modified on site



Safe. Eliminates need for torches or complicated heat-fusion techniques.



Designed to 50 year Life expectancy



Simple joining method.



Lightweight. Allows greater ease of installation.



Ensure optimal flow rate and excellent hydraulic capabilities (C-Factor of 150) that will not diminish over time. Allows for pipe downsizing & Pump rate reduction.



Little to no maintenance required

## FLAME AND SMOKE RESISTANT

### Flammability

**Blazemaster®** is suitable for wet, automatic, fire sprinkler system because of its excellent balance of properties such as lightweight, excellent corrosion resistance, low friction loss, and easy installation. It is unique in that it offers outstanding resistance to fire and low smoke generation qualities.

### Burning Resistance

CPVC will not sustain burning. It must be forced to burn due to its very high Limiting Oxygen Index (LOI) of 60. LOI is the percentage of oxygen needed in an atmosphere to support combustion. Since earth's atmosphere is only 21% oxygen, CPVC will not burn unless a flame is constantly applied and stops burning when the ignition source is removed.

### Smoke Generation

The smoke toxicity of plastic pipe is low compared with that of common building and finish materials present in homes.

## FRICTION LOSS IN PIPE

A great advantage that **Blazemaster®** pipe enjoys over its metallic competitors is a smooth inner surface which is resistant to scaling and fouling. This means that friction pressure losses in the beginning and do not significantly increase as the systems ages, as can be the case with metal pipes subject to scaling. The Hazen-Williams formula is the generally accepted method of calculating friction head losses in piping systems. The values in the following fluid flow tables are based on this formula and a surface roughness constant of C=150 for **Blazemaster®** Pipe.



Surface roughness constant for other piping material are given below:

$$f = 0.2083 \left( \frac{100}{C} \right)^{1.85} \frac{g^{1.852}}{d^{4.8655}}$$

Where f = friction head in feet of water per 100 feet of pipe  
 d = inside diameter of pipe in inches  
 g = flow rate in gallons per minute  
 c = pipe surface roughness constant

**Constant (C) Type of Pipe**

- 150 CPVC Pipe, new-40 Years
- 130-140 Steel/Cast Iron Pipe, New
- 125 Steel Pipe, old
- 120 Cast Iron, 4-12 years old
- 110 Galvanized Steel/Cast Iron 13-20 Years
- 60-80 Cast Iron, Worn/Pitted



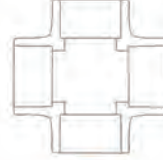



**BLAZEMASTER® CPVC PIPE & FITTING RANGE**

Blazemaster® Pipe Dimensions (SDR 13.5) - Inches (Millimeters)



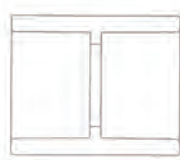





Nominal Size		Outside Diameter (OD)				Wall Thickness (T)				Allowable Water Pressure Rating at 73°F / 22.7°C
		Average		Tolerance		Minimum		Tolerance		
in	mm	mm	mm	mm	mm	in	mm	in	mm	
1/2"	15	0.840	21.3	±0.004	0.10	0.062	1.57	+0.02	0.51	315 PSI (22.22 kg/cm <sup>2</sup> )
3/4"	20	1.050	26.7	±0.004	0.10	0.078	1.98	+0.02	0.51	
1"	25	1.315	33.4	±0.005	0.13	0.097	2.46	+0.02	0.51	
1-1/4"	32	1.660	42.2	±0.005	0.13	0.123	3.12	+0.02	0.51	
1-1/2"	40	1.900	48.2	±0.006	0.15	0.141	3.58	+0.02	0.51	
2"	50	2.375	60.3	±0.006	0.15	0.176	4.47	+0.021	0.53	
2-1/2"	65	2.875	73.0	±0.007	0.18	0.213	5.41	+0.026	0.66	
3"	80	3.500	88.9	±0.008	0.20	0.259	6.58	+0.031	0.79	
4"	100	4.500	114.3	±0.009	0.23	0.333	8.46	+0.04	1.02	



Note: SDR 13.5 (Standard Dimensional Ratio 13.5) means the ratio of outside diameter to wall thickness (ASTM F442)







ELBOW 90°	in	mm	ELBOW 45°	in	mm	CROSS TEE	in	mm
	1/2	15		1/2	15		1/2	15
	3/4	20		3/4	20		3/4	20
	1	25		1	25		1	25
	1-1/4	32		1-1/4	32		1-1/4	32
	1-1/2	40		1-1/2	40		1-1/2	40
	2	50		2	50		2	50
	2-1/2	65		2-1/2	65		2-1/2	65
	3	80		3	80		3	80
	4	100		4	100		4	100

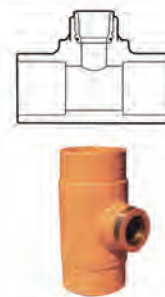
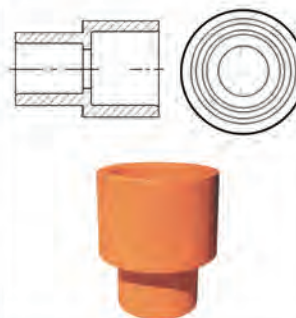
  


TEE	in	mm	END CAP	in	mm	COUPLING	in	mm
	1/2"	15		1/2"	15		1/2"	15
	3/4"	20		3/4"	20		3/4"	20
	1"	25		1"	25		1"	25
	1-1/4"	32		1-1/4"	32		1-1/4"	32
	1-1/2"	40		1-1/2"	40		1-1/2"	40
	2"	50		2"	50		2"	50
	2-1/2"	65		2-1/2"	65		2-1/2"	65
	3"	80		3"	80		3"	80
	4"	100		4"	100		4"	100




FLANGE	in	mm	<b>NEW</b> FLANGE RUBBER PAD	in	mm	MALE ADAPTER PLASTIC THREADED	in	mm
	1/2	15				1/2	15	
	3/4	20				3/4	20	
	1	25				1	25	
	1-1/4	32				1-1/4	32	
	1-1/2	40				1-1/2	40	
	2	50				2	50	
	2-1/2	65				2-1/2	65	
	3	80				3	80	
4	100	4	100					

<b>NEW</b> MALE ADAPTER WITH BRASS	in	mm	FEMALE ADAPTER WITH BRASS	in	mm	FEMALE SPRINKLER HEAD ADAPTER	in	mm	SPRINKLER ELBOW	in	mm		
	1	15		1	25					1/2	15 x 15		
	1-1/4	32		1-1/4	32					3/4 x 1/2	20 x 15	3/4 x 1/2	20 x 15
	1-1/2	40		1-1/2	40					1 x 1/2	25 x 15	1 x 1/2	25 x 15
	2	50		2	50					1 x 3/4	25 x 20	1 x 3/4	25 x 20

SPRINKLER HEAD TEE WITH BRASS	in	mm	COUPLING REDUCER	in	mm	in	mm
	1/2 x 1/2	15 x 15		3/4 x 1/2	20 x 15	1-1/2 x 1-1/4	40 x 32
	3/4 x 1/2	20 x 15		1 x 1/2	25 x 15	2 x 1/2	50 x 15
	1 x 1/2	25 x 15		1 x 3/4	25 x 20	2 x 3/4	50 x 20
	1-1/4 x 1/2	32 x 15		1-1/4 x 1/2	32 x 15	2 x 1	50 x 25
	1-1/4 x 3/4	32 x 20		1-1/4 x 3/4	32 x 20	2 x 1-1/4	50 x 32
	1-1/4 x 1	32 x 25		1-1/4 x 1	32 x 25	2 x 1-1/2	50 x 40
	1-1/2 x 1/2	40 x 15		1-1/2 x 1/2	40 x 15	<b>NEW</b> 2-1/2 x 2	65 x 50
2 x 1/2	50 x 15	1-1/2 x 3/4	40 x 20	<b>NEW</b> 3 x 2	80 x 50		
		1-1/2 x 1	40 x 25	<b>NEW</b> 3 x 2-1/2	80 x 65		

REDUCER TEE	in	mm	in	mm	in	mm
	3/4 x 1/2	20 x 15	1-1/2 x 1-1/4	40 x 32	3 x 1	80 x 25
	1 x 1/2	25 x 15	2 x 1/2	50 x 15	3 x 1-1/2	80 x 40
	1 x 3/4	25 x 20	2 x 3/4	50 x 20	3 x 2	80 x 50
	1-1/4 x 1/2	32 x 15	2 x 1	50 x 25	3 x 2-1/2	80 x 65
	1-1/4 x 3/4	32 x 20	2 x 1-1/4	50 x 32	4 x 1	100 x 25
	1-1/4 x 1	32 x 25	2 x 1-1/2	50 x 40	4 x 1-1/2	100 x 40
	1-1/2 x 1/2	40 x 15	2-1/2 x 1	65 x 25	4 x 2	100 x 50
	1-1/2 x 3/4	40 x 20	2-1/2 x 1-1/2	65 x 40	4 x 2-1/2	100 x 65
	1-1/2 x 1	40 x 25	2-1/2 x 2	65 x 50	4 x 3	100 x 80

BUSHING REDUCER	in	mm	in	mm	in	mm
	3/4 x 1/2	20 x 15	1-1/2 x 1	40 x 25	2-1/2 x 2	65 x 40
	1 x 1/2	25 x 15	1-1/2 x 1-1/4	40 x 32	3 x 1-1/2	80 x 40
	1 x 3/4	25 x 20	<b>NEW</b> 2 x 1/2	50 x 15	3 x 2	80 x 50
	1-1/4 x 1/2	32 x 15	2 x 3/4	50 x 20	3 x 2-1/2	80 x 65
	1-1/4 x 3/4	32 x 20	2 x 1	50 x 25	4 x 2	100 x 50
	1-1/4 x 1	32 x 25	2 x 1-1/4	50 x 32	4 x 2-1/2	100 x 65
	<b>NEW</b> 1-1/2 x 1/2	40 x 15	2 x 1-1/2	50 x 40	4 x 3	100 x 80
	1-1/2 x 3/4	40 x 20	2-1/2 x 1-1/2	65 x 25		



**ACCESSORIES**

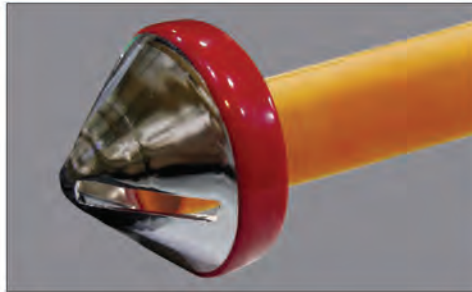
NEW PIPE CUTTER		NEW DEBURRING TOOL		NEW WELD-ON® BLAZEMASTER® CEMENT	
	Size		Size		Size
	1/2" - 1-1/4"		1/2" - 2"		1 Pint (16 oz.)

**JOINING BLAZEMASTER CPVC FIRE SPRINKLER SYSTEM**



**1.) Cutting**

Cut pipe squarely using a ratchet cutter, a wheel-type plastic tubing cutter, a power saw, or a fine toothed saw.



**2.) Deburring**

Use a chamfering tool or other tool to remove burrs and fittings from the inside and outside of the pipe.



**3.) Fitting Preparation**

Using a clean, dry rag, wipe loose dirt and moisture from the fitting socket and pipe end.



**4.) Application of Cement**

Apply solvent cement to Spigot of pipe using a brush or dauber.



Apply solvent cement to the fitting socket. Do not puddle the cement in fitting.



**5.) Assembling**

Immediately insert the pipe into the fitting socket while rotating the pipe 1/4 turn and hold for 30 seconds.



**6.) Completed Assembly**

A bead of solvent cement should be evident around the pipe and fitting juncture





**PROJECTS : LOCAL**

**I. Residential**



**Century Commonwealth**  
Quezon City - 22 Storeys



**The Royalton**  
Pasig City - 64 Storeys



**Viridian**  
San Juan City - 53 Storeys



**Oceanaire**  
Pasay City - 17 Storeys



**D University Place**  
Manila City - 33 Storeys



**iPacific Residences**  
Manila City - 23 Storeys



**The Imperium**  
Pasig City - 62 Storeys



**Solano Hills**  
Parañaque City - 5 Storeys



**Avila Tower**  
Quezon City  
23 Storeys & 41 Storeys



**Crescent Park**  
The Fort, BGC - 28 Storeys



**Blue Sapphire Residence**  
The Fort, BGC - 27 Storeys



**The Grand Hamptons II**  
Taguig City - 20 Storeys

**III. Commercial & Hospital**



**Bohol Henna Resort**  
Panglao, Bohol



**Tambuli Beach Club**  
Mactan Island, Cebu



**Grand Imperial Hotel**  
Iloilo City



**Mandarin Plaza Hotel**  
Cebu City



**Manila Doctor's Hospital**  
Manila City



**UST General Hospital**  
Manila City

**PROJECTS : ABROAD**

**I. Residential**



**Brickell View West**  
13 Storeys



**Circle On Cavill**  
69 Storeys



**Solimar Condo**  
12 Storeys



**5th and Madison**  
24 Storeys



**1800 Club**  
42 Storeys



**Marina Bay Club**  
12 Storeys

**II. Hotel**



**Classic Residence**  
by Hyatt



**Shangri-La Hotel**  
Vancouver



**Holiday Inn Express**  
West Buckhead



**Waterfront Marriott**  
Seattle



**Renaissance Hotel**



**Springhill Suites**

**III. Office and School**



**State Capitol Building**  
Boise



**University of Chicago**



**Slippery Rock University**

**IV. Hospital**



**Ketchikan**  
General Hospital




**Santa Fe Hospital**



**Baptist Memorial**  
Hospital



# OUR LATEST BUREAU OF FIRE PROTECTION MEMORANDUM



Republic of the Philippines  
Department of the Interior and Local Government  
Bureau of Fire Protection  
NATIONAL HEADQUARTERS  
Agham Road, Brgy. Bagong Pag-asa, Quezon City

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**MEMORANDUM**

**TO :** Regional Directors, BFP Regions 1-12, ARMM, CAR, GARAGA and NCR; Director, FNTI; and Heads of Offices, BFP-National Headquarters

**SUBJECT :** Use of Chlorinated Polyvinyl Chloride (CPVC) Pipes and Fittings for Fire Sprinkler Systems

**DATE :** 21 March 2012

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A number of queries have reached this Office regarding the applicability of Chlorinated Polyvinyl Chloride (CPVC) Pipes and Fittings, and its Sealant for fire sprinkler systems.

The BFP acknowledges that new pipe materials and the development of new methods for installing and joining pipes for fire sprinkler system have emerged in the country.

However, any product, technology, system and/or device intended to be used for fire safety measures in buildings, specifically for fire sprinkler systems, is permitted provided that it complies with appropriate provisions of National Fire Protection Association (NFPA), Listing Agencies such as but not limited to Underwriters Laboratories (UL), Factory Mutual (FM) Global and Loss Prevention Certification Board (LPCB), and other internationally-accepted standards, as well as supplementary and/or complimentary standards cited therein.

For CPVC Pipes and Fittings, and its Sealant, NFPA 13 series permits its use, provided that they are installed in accordance with their listing limitations, including installation instructions. On the other hand, the BFP may refer to NFPA 25 on the CPVC Water-based Fire Sprinkler System inspection, testing and maintenance.

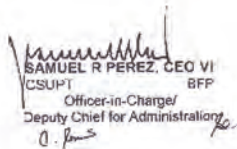
As per NFPA 13 (Standard for the Installation of Sprinkler Systems), light hazard occupancies include occupancies having uses and conditions similar to animal shelters, churches, clubs, educational, hospitals (including animal hospitals and veterinary facilities), institutional, kennels, libraries (except large stack rooms), museums, nursing or convalescent homes, offices (including data processing), residential, restaurant seating areas, theaters and auditoriums (excluding stages and prosceniums), and unused attics. All high-rise building/structure applications are allowable subject to NFPA 13 light hazard occupancy limitations.

As per NFPA 1 (Fire Prevention Code), light hazard occupancies may include some buildings or rooms occupied as offices, classrooms, churches, assembly halls, guest room areas of hotels/motels, etc. This classification anticipates that the majority of content items are either noncombustible or so arranged that a fire is not likely to spread rapidly.

In this regard and considering the above, advise your Officers and Personnel that basically, UL-listed Chlorinated Polyvinyl Chloride (CPVC) Pipes and Fittings, and its Sealant for Fire Sprinkler Systems are applicable for light hazard occupancies as defined in NFPA 13.


Additional applications, including, but not limited to air plenum, system risers, underground, attic and garage installations, shall be referred to the CPVC manufacturer and/or design engineer as prescribed/allowed by NFPA or other internationally-accepted standards and/or listings, together with its supplementary and/or complimentary standards.

For widest dissemination and compliance.



**SAMUEL R. PEREZ, CEC VI**  
CSUPT BFP  
Officer-in-Charge  
Deputy Chief for Administration

cc : Secretary, DILG



Republic of the Philippines  
Department of the Interior and Local Government  
Bureau of Fire Protection  
NATIONAL HEADQUARTERS  
Agham Road Brgy. Bagong Pag-asa, Quezon City

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**MEMORANDUM**

**TO :** All BFP Regional Directors  
BFP Director  
Provincial/District Fire Marshals/City/Municipal Fire Marshals

**SUBJECT :** Limitations and Applicability of Chlorinated Polyvinyl Chloride (CPVC) Pipes and Fittings for Sprinkler System

**DATE :** 08 June 2012

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1. The introduction of new methods and technologically-advanced equipments/gadgets in the prevention and suppression of fires have led the agency in fulfilling its mandate effectively and efficiently. Nonetheless, any product, technology, system and/or device intended to be used for the safety measures in buildings, specifically for fire sprinkler system, still have limitations in its applications and must be regulated to ensure that safety will not be compromised and the provisions of the Fire Code will still be strictly followed.

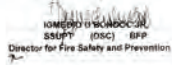
2. Relatively, a memorandum dated 21 March 2012 was issued, to give the field units a clear and categorical guidance on the use of CPVC Pipes and Fittings for Sprinkler System, however, it seems that its provisions and/or contents have been overlooked, if not totally unaware, by the field units. Hence, the following conditions enumerated on the addressed memorandum are hereby reiterated and must be considered first by the local BFP officers prior to approval of applications submitted to their office:

- a. Any product, technology, system and/or device, specifically for Fire Sprinkler System can be permitted provided that it complies with appropriate provisions of National Fire Protection Association (NFPA), Listing Agencies, such as but not limited to Underwriters Laboratories (UL), Factory Mutual (FM), Global Loss Prevention Certification Board (LPCB), and other internationally-accepted standards, as well as supplementary and/or complimentary standards cited therein.
- b. For CPVC Pipes and Fittings, and its Sealant, NFPA 13 series permits its use provided that they are installed in accordance with their listing limitations, including installation instructions. On the other hand, the BFP may refer to NFPA 25 on the CPVC Water-based Fire Sprinkler System inspection, testing and maintenance.
- c. As per NFPA 13 (Standard for the Installation of Sprinkler Systems), light hazard occupancies include occupancies having uses and conditions similar to animal shelters, churches, clubs, educational, hospitals (including animal hospitals and veterinary facilities), institutional, kennels (except large stock rooms), museums, nursing or convalescent homes, offices (including data processing), residential, restaurant seating areas, theaters and auditoriums (including stages and prosceniums), and unused attics. All high-rise building/structure applications are allowable subject to NFPA 13 light hazard occupancy limitations.
- d. As per NFPA 1 (Fire Prevention Code), light hazard occupancies may include some buildings or rooms occupied as offices, classrooms, churches, assembly halls, guest room areas of hotels/motels, etc. This classification anticipates that the majority of content items are either noncombustible or so arranged that a fire is not likely to spread rapidly.

3. Considering the above, it is worthy to note that UL-listed CPVC Pipes and Fittings, and its Sealants for Fire Sprinkler Systems are applicable for light hazard occupancies as defined in NFPA 13. Additional applications, including, but not limited to air plenum, system risers, underground attic and garage installations, shall be referred to the CPVC manufacturer and/or design engineer as prescribed/allowed by NFPA or other internationally-accepted standards and/or listings, together with supplementary and/or complimentary standards.

4. For widest dissemination and compliance.

**BY AUTHORITY OF THE CHIEF, BFP,**



**SAMUEL R. PEREZ, CEC VI**  
CSUPT (DSC) BFP  
Director for Fire Safety and Prevention

Other Brands:

**FLOWGUARD®**  
PIPE & FITTINGS

**CORZAN®**  
INDUSTRIAL SYSTEMS



Unit 35th Atlanta Centre, #31 Annapolis St.,  
Greenhills, San Juan City  
Tel. nos.: 723.0781 to 96 | 744.4700  
Fax no.: 722.8705 | 723.9576  
Website: <http://www.atlanta.ph>  
Email: [marketing@atlanta.ph](mailto:marketing@atlanta.ph)  
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