



## TECHNICAL DATA

### ULTRAGUARD CUG 3% AR-AFFF FOAM CONCENTRATE

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

#### 1. DESCRIPTION

Chemguard Ultraguard CUG 3% AR-AFFF is a specially formulated, aqueous film forming free flowing viscous foam concentrates. It forms a vapor suppressing aqueous film on hydrocarbon type fuels or a polymeric membrane on polar solvent/water miscible type fuels. Ultraguard CUG is intended for use at a proportioning rate of 3% (3 parts CUG concentrate to 97 parts water) on hydrocarbon fuels such as gasoline, kerosene, diesel, etc., and on polar solvent/water miscible fuels such as alcohols, ketones, esters, etc.

##### Features

- Type Approval: GB15308-94
- Used at a 3% proportioning rate on both hydrocarbon and polar solvent fuels
- Suitable for use with either fresh or salt water
- Excellent wetting characteristics when used in combating Class "A" fuel fires
- Suitable for use with deluge and closed head foam water sprinkler systems
- Suitable for use with fiberglass, polyethylene or stainless steel. Ultraguard CUG is not compatible with galvanized pipe or fittings in an undiluted form.
- Suitable for use with dry chemical extinguishing agents.
- Suitable for use with both air-aspirating foam and standard water fog nozzles



#### 2. LISTINGS AND APPROVALS

UL Listed

FM Approved

#### 3. TECHNICAL DATA

##### A. Typical Properties

(Not for specification purposes)

Specific gravity @ 77 °F (25 °C):	1.020
Viscosity @ 77 °F (25 °C):	3000 - 3200 cps
Minimum storage temperature:	35 °F (2 °C)
Maximum storage temperature:	120 °F (49 °C)
pH @ 77°F (25 °C):	7.4
Appearance:	Off white gel-like liquid

Viking Technical Data may be found on The Viking Corporation's Web site at <http://www.vikinggroupinc.com>. The Web site may include a more recent edition of this Technical Data Page.

Aspirating type discharge devices typically generate expansion ratios between 6-10 to 1 when Ultraguard CUG is mixed with water at the correct ratio. Non- aspirating type devices will typically generate expansion ratios of between 2-4 to 1. Expansion ratios are dictated by the type of discharge device, flow rate and discharge pressure.

##### B. Ordering Information

5-Gallon Pails (19 liters)	45 lb. (20.4 kg)	Part No. F14972/5
55-Gallon Drums (208 liters)	495 lb. (224.5 kg)	Part No. F14972/55
275-Gallon Tote (1249 liters)	3000 lb. (1360.7 kg)	Part No. F14972/275

#### 4. STORAGE, ENVIRONMENTAL, PROPORTIONING AND DISCHARGE DEVICES

##### A. Storage And Shelf Life

If kept in the original unopened and airtight Chemguard supplied container and stored within the temperature range of 35 °F-120 °F (2 °C-49 °C), a shelf life of between 20-25 years can be expected. If the AR-AFFF is to be stored in an atmospheric type foam concentrate storage tank whether on mobile apparatus or stationary, limit the airspace above the surface of the concentrate whenever possible and place a thin layer of quality mineral oil on the surface of the foam concentrate to minimize any effect from evaporation.

The shelf life of any foam concentrate is maximized by proper storage conditions and maintenance. Factors affecting shelf life



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are wide temperature changes, extreme high or low temperatures, evaporation, dilution, and contamination by foreign materials. Properly stored AR-AFFF foam concentrates have been tested and shown no significant loss of fire fighting performance, even after 15 years. Annual testing of all fire fighting foam is recommended by the National Fire Protection Association (NFPA).

#### B. Environmental And Toxicological Information

Ultraguard CUG is biodegradable. However, as with any substance, care should be taken to prevent discharge from entering ground water, surface water, or storm drains. With advance notice, Ultraguard CUG can be treated by local biological sewage treatment systems. Since facilities vary widely by location, disposal or discharge of Ultraguard CUG concentrate or foam solution should be made in accordance with federal, state and local regulations.

Ultraguard CUG is a primary skin irritant. Repeated skin contact will remove oils from the skin and cause dryness. Ultraguard CUG is a primary eye irritant, and contact with the eyes should be avoided. Users are advised to wear protective equipment. If Ultraguard CUG enters the eyes, flush them well with water and seek immediate medical attention. For further details, see the Ultraguard CUG Material Safety Data Sheet.

#### C. Proportioning Devices

- Fixed or portable in-line eductors
- In-line balanced pressure and pump pressure proportioning skid
- Bladder tank balanced pressure proportioning systems
- Around the pump proportioners
- Handline, air-aspirating nozzles with fixed eductor pickup tube

#### D. Discharge Devices

- Foam Chambers - Models FC2.5, FC3 & FC4 are UL/FM Approved
- Standard water fog nozzles for handlines and monitors
- Air-aspirating foam nozzles
- Foam makers for use with either Floating Roof storage tanks or Dike/Bund protection systems

**NOTICE - ULTRAGUARD CUG CAN NOT BE USED FOR SUBSURFACE INJECTION!!**

### 5. INSPECTIONS, TESTS AND MAINTENANCE

**NOTICE:** The owner is responsible for maintaining the fire protection system and devices in proper operating condition. For minimum maintenance and inspection requirements, refer to recognized standards such as those produced by NFPA, LPC, and VdS, which describe care and maintenance of sprinkler systems. In addition, the "Authority Having Jurisdiction" may have additional maintenance, testing and inspection requirements which must be followed.

**WARNING:** Any system maintenance or testing which involves placing a control valve or detection system out of service may eliminate the Fire Protection of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a Fire Patrol in the affected area.

### 6. AVAILABILITY

Ultraguard CUG is available through a network of domestic and international distributors. See the Viking Corp. web site for closest distributor or contact The Viking Corporation.

### 7. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

<b>Table 1: Application Rates</b>		
Recommended top side application rate is .10 gpm/ft <sup>2</sup> or .15 gpm/ft <sup>2</sup> The following application rates are recommended for the specific fuel group listed.		
Fuel	Minimum Application Rates	
Hydrocarbon Fuels	0.10 gpm/ft. <sup>2</sup>	
Polar Solvent Fuels	IPA	0.15 gpm/ft. <sup>2</sup>
	Methanol	0.10 gpm/ft. <sup>2</sup>
	Ethanol	0.10 gpm/ft. <sup>2</sup>
	Methyl Ethyl Ketone	0.13 gpm/ft. <sup>2</sup>
	Ethyl Acetate	0.15 gpm/ft. <sup>2</sup>
	MTBE	0.15 gpm/ft. <sup>2</sup>

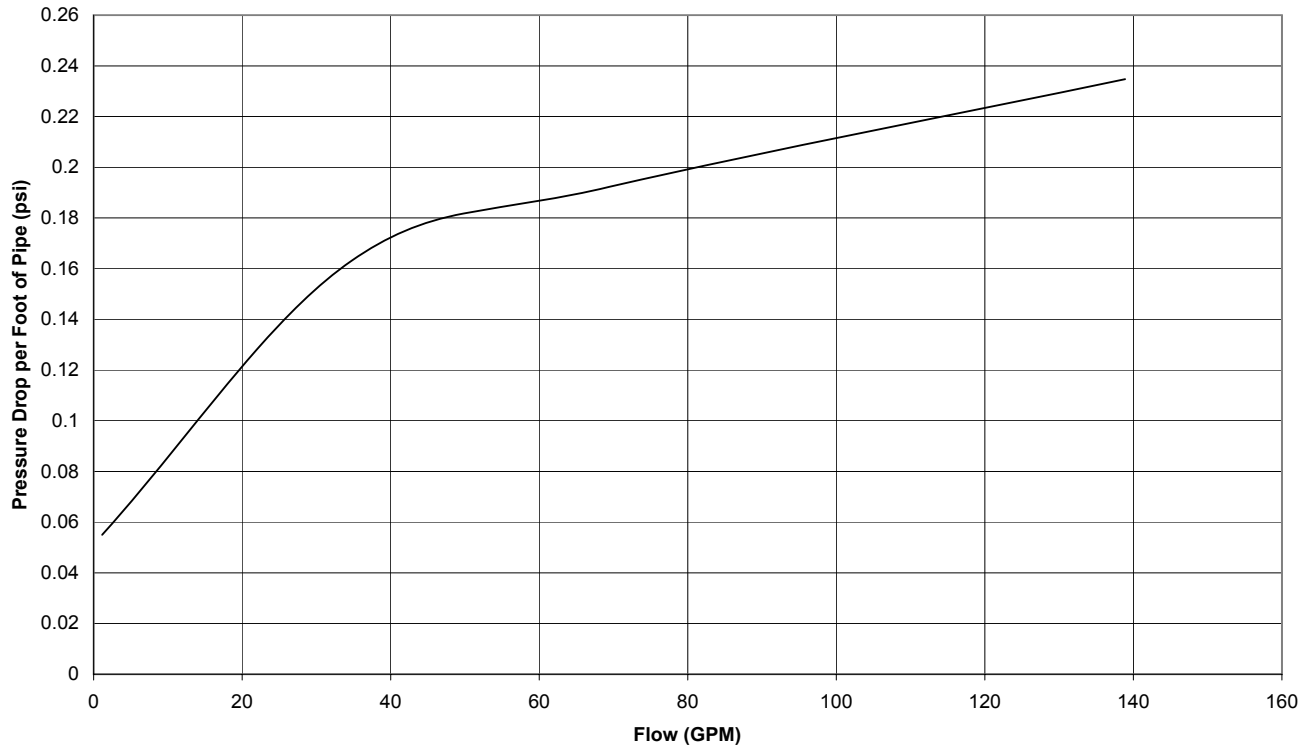


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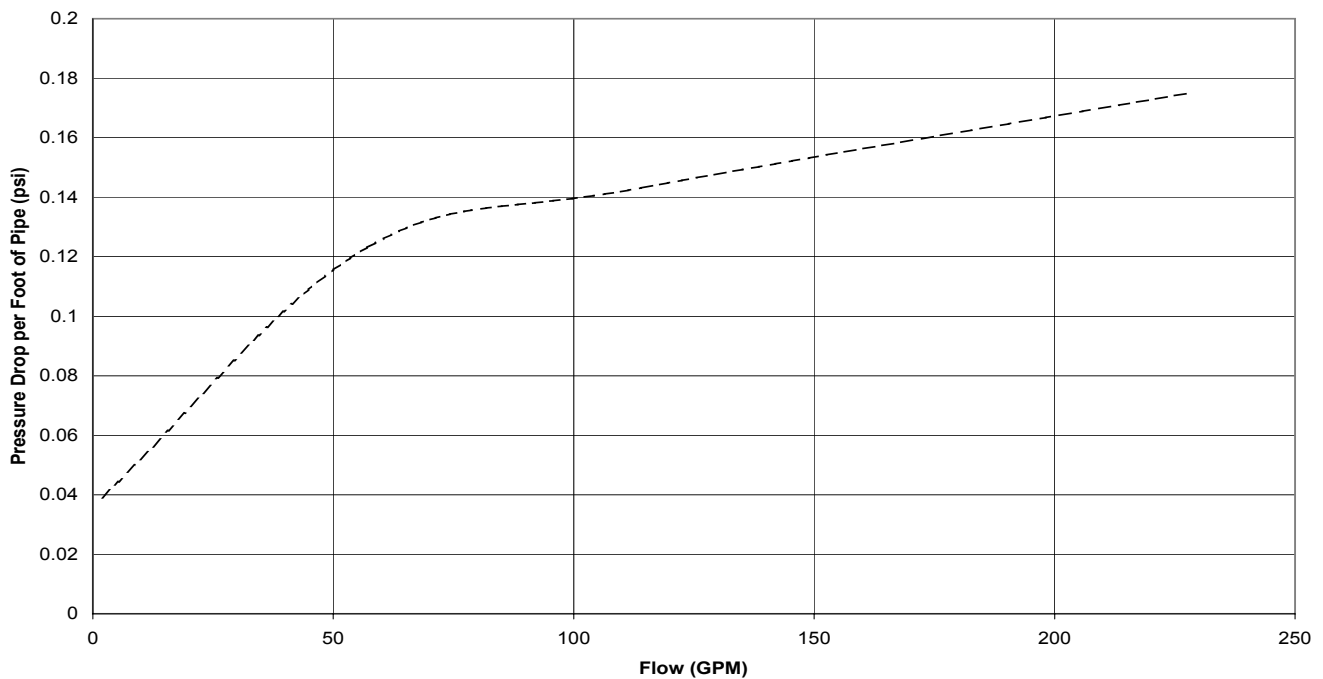
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FOAM CONCENTRATE**

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**Pressure Drop Vs. Flow for Sch. 40 Stainless Steel or Bronze Pipe  
1-1/2" Pipe**



**Pressure Drop Vs. Flow for Sch. 40 Stainless Steel or Bronze Pipe  
2" Pipe**





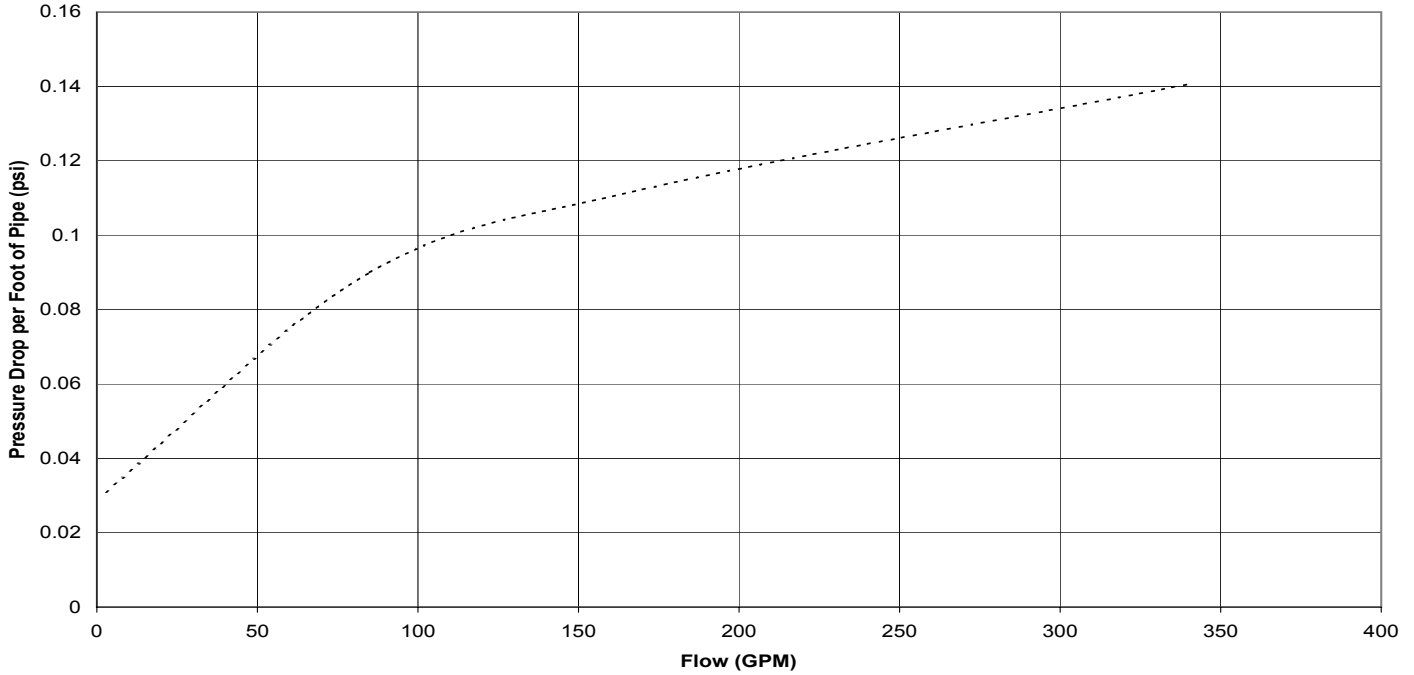
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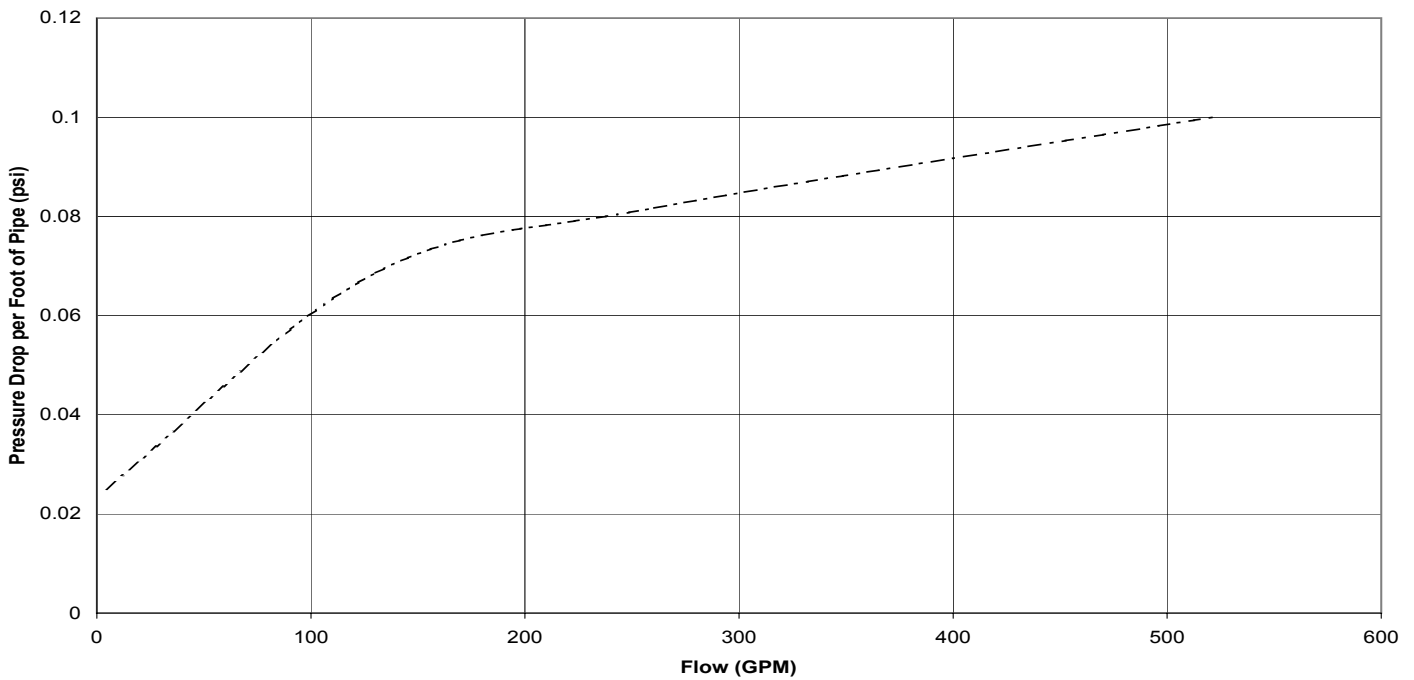
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### Pressure Drop Vs. Flow for Sch. 40 Stainless Steel or Bronze Pipe 2-1/2" Pipe



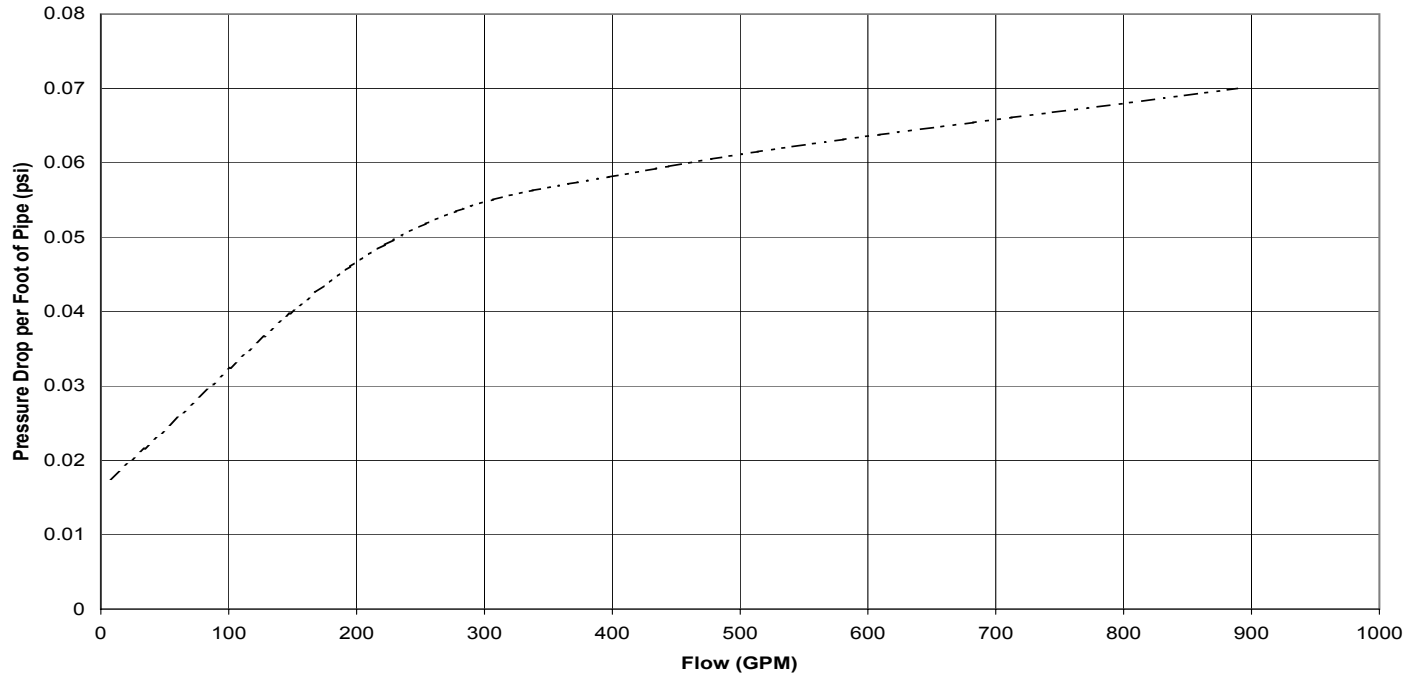
### Pressure Drop Vs. Flow for Sch. 40 Stainless Steel or Bronze Pipe 3" Pipe



<b>VIKING<sup>®</sup></b>	<b>TECHNICAL DATA</b>	<b>ULTRAGUARD CUG 3% AR-AFFF FOAM CONCENTRATE</b>
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**Pressure Drop Vs. Flow for Sch. 40 Stainless Steel or Bronze Pipe  
4" Pipe**



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