DESIGN DATA

MATERIAL AND COATING APPLICATIONS FOR VIKING VALVES AND TRIM FOR FOAM/WATER SYSTEMS

FOAM TECHNICAL BULLETIN

The following 3 pages of information have been developed by The Viking Corporation's R & D Department, regarding material and coating applications for Viking valves and trim for foam/water systems. This information is very important for the proper selection of equipment including trim, piping, and associated materials for a Viking Foam/ Water System.

Please note that this bulletin directly affects the coating of the Viking Model E-1 Deluge Concentrate Control Valve. All Viking Deluge Concentrate Control Valves must be Halar® Coated, for use with any foam concentrate, either AFFF or ATC.

Pay particular attention to the notes at the bottom of the page titled "Recommended Construction for Viking Equipment Handling Foam Solution and Concentrate".

Page 3M8-d is a table which lists "Viking Recommended Materials and Coating used with Foam System Piping and Valve Components", which is self explanatory. Use this table for selecting the materials for your particular foam/water system installation. We trust that you find this bulletin will make it easier for you to choose the proper materials for your Viking Foam/Water System.

March 1, 2001

To: Technical Services
Sales

From: Eldon Jackson
Viking R & D

Date: February 28, 1994

Subject: Material and Coating Application Data of Viking Valves and Trim for Foam/Water systems

Recently completed testing at Viking and review of various corrosion compatibility tests done by 3M has resulted in the chart attached.
Various foam concentrates and typical solutions of water and foam were placed in an air circulating oven at 150°F (65°C). Samples of pipe, fittings, and 3" x 1" x ¼" ductile iron samples with the various coatings designated were placed in partially filled sealed container.

The coated samples were scribed upper and lower similar to ASTM B117 corrosion testing requirement. The upper portion being exposed to vapor and the lower submerged in the liquid solution. Solutions and samples were placed in a cap sealed glass container and placed in the oven for 1000 hours.

The following items were assessed.

- Rusting
- Pitting
- Coating Separation
- Sediment Build-up
- Solution Contamination (Discoloration & Viscosity appearance)
- Solids formed which could plug orifices within the system

As a general overview of results, the following practices must be used as minimum guidelines for application of Viking valves and trim used in foam/water solutions must be given separate attention.

VIKING RECOMMENDED MATERIAL & COATING USED WITH FOAM SYSTEM PIPING AND VALVE COMPONENTS

Base Material	Coating	VF3AFFF-MS / VF3AFFF		VF3ARC		Salt Water Solution & Salt Water
		Concentrate	3% Solution	Concentrate	3% Solution	
Ductile Iron 65-45-12 & Cast Iron SA-278-30	NONE	*D	*B	*D	*B	D
	GALV.	D	*C	*D	*C	D
	JO1	*D	*D - Note 1	*D - Note 2	*D - Note 1	Note 3
	NI1	*D	*D - Note 1	*D - Note 2	*D - Note 1	Note 3
	JO6	*B	*B - Note 1	*B	*B - Note 1	B
	NI2	*C	*C - Note 1	*D	*D - Note 1	Note 3
	QO3	*D	*D - Note 1	*D	*D - Note 1	B
	QO6	A	A - Note 1	A	A - Note 1	A
Bronze/ Brass C83600	NONE	A	*A	A	A	B
	JO1	A	A	A	A	A
Steel Mild 1010	NONE	B	*B	D	B	D
	GALV.	*D	*C	*D	*C	D
Copper C11000	NONE	A	A	B	A	B
Stainless Steel Type 316	NONE	A	A	A	A	A

ACCEPTANCE DESIGNATION

A - No effect during testing. Recommended use.

B - Minor effect of pitting during test. Periodic inspection required.

C - Minor pitting. Sludge build-up due to chemical reaction. Requires annual flushing and inspection.

D - Severe corrosion and foam contamination. UNSATISFACTORY.

Note 1 - Tested with concentrate. Testing in solution not necessary.

Note 2 - Tested with FC600/FC600F

Note 3 - No test data available

COATING DESIGNATION

JO1 - .7-1.0 Mil Electroless Nickel Plate

JO6 - 2-3 Mil Electroless Nickel Plate

NI1 - .7-1.0 Mil Electroless Nickel Plate w/ CU under

NI2 - 2-3 Mil Electroless Nickel Plate w/ CU under

QO3 - 6-8 Mil Epoxy Powder Coat

QO6 - 8-10 Mil Halar Powder Coat

Galv. - Standard Galvanized Pipe and Fittings

* - Actual test performed by Viking at 150°F (65°C), observing physical damage after 1000 hour immersion in liquid and vapor

All other data determined from 3M Data given and Standard ASTM Corrosion Resistance Material Charts

VIKING RECOMMENDED MATERIAL & COATING USED WITH FOAM SYSTEM PIPING AND VALVE COMPONENTS

Base Material	Coating	FC-203CF/FC783F AFFF		FC600/FC600F ATC			FC-603F ATC		Salt Water Solution & Salt Water
		Concentrate	3% Solution	Concentrate	3% Solution	6% Solution	Concentrate	3% Solution	
Ductile Iron 65-45-12 & Cast Iron SA-278-30	NONE	*D	*B	*D	*B	*B	*D	*B	D
	GALV.	D	*C	*D	*C	*C	*D	*C	D
	JO1	*D	*D - Note 1	*D	*D - Note 1	*D - Note 1	*D - Note 2	*D - Note 1	Note 3
	NI1	*D	*D - Note 1	*D	*D - Note 1	*D - Note 1	*D - Note 2	*D - Note 1	Note 3
	JO6	*B	*B - Note 1	*B	*B - Note 1	*B - Note 1	*B	*B - Note 1	B
	NI2	*C	*C - Note 1	*D	*D - Note 1	*D - Note 1	*D	*D - Note 1	Note 3
	QO3	*D	*D - Note 1	*D	*D - Note 1	*D - Note 1	*D	*D - Note 1	B
	QO6	A	A - Note 1	A	A - Note 1	A - Note 1	A	A - Note 1	A
Bronze/ Brass C83600	NONE	A	*A	*A	*A	*A	A	A	B
	JO1	A	A	A	A	A	A	A	A
Steel Mild 1010	NONE	B	*B	*D	*B	*B	D	B	D
	GALV.	*D	*C	*D	*C	*C	*D	*C	D
Copper C11000	NONE	A	A	B	A	A	B	A	B
Stainless Steel Type 316	NONE	A	A	A	A	A	A	A	A

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Replaces Bulletin 101a-d dated February 9, 1998.
Revised page number. (3M Reference sheet only.