



BULLETIN #1024-1

# TECHNICAL BULLETIN

## Foam Compatibility — ARCTIC 1x3% ATC & NATIONAL FOAM 1x3% AR-AFFF


### *Introduction*

This study was undertaken to determine if SOLBERG® ARCTIC™ 1x3% ATC™ Foam Concentrate is compatible in admixture with NATIONAL FOAM® UNIVERSAL GOLD® 1x3% AR-AFFF Foam Concentrate. Since neither Underwriters Laboratories Inc. (UL) nor Factory Mutual (FM) possess any compatibility testing protocol, the compatibility test protocol for the U.S. Military specification for AFFF, Mil-F-24385F, was followed. In this specification, admixtures of the two concentrates are prepared at various mix ratios. These admixtures are tested at a 1% proportioning ratio for foam quality immediately after being prepared and then again after being subjected to storage at 50 °C in tightly closed containers for a period of 10 days. In addition to the foam quality testing, the samples are visually inspected for any signs of incompatibility such as precipitation, haziness, gelling, layering, etc.

### *Sample Preparation*

Admixtures of the SOLBERG and NATIONAL FOAM foam concentrates were prepared as follows:

SOLBERG % BY WEIGHT	NATIONAL FOAM % BY WEIGHT
0	100
25	75
50	50
75	25
100	0



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FOAM COMPATIBILITY ARCTIC 1X3% ATC AR-AFFF | 2  
& NATIONAL FOAM 1X3% AR-AFFF

**Analytic Data** (NF = NATIONAL FOAM UNIVERSAL GOLD AND SO = SOLBERG ARCTIC)

**Foam quality before temperature conditioning:**

(EXP = Expansion value & 50% Drain = Drain time Min:Sec)

100% NF / 0% SO	75% NF / 25% SO	50% NF / 50% SO	25% NF / 75% SO	0% NF / 100% SO
EXP = 4.8 50% Drain = 8:02 Viscosity = 3900	EXP = 4.0 50% Drain = 6:40 Viscosity = 3840	EXP = 4.6 50% Drain = 9:20 Viscosity = 3620	EXP = 4.4 50% Drain = 8:00 Viscosity = 3460	EXP = 4.5 50% Drain = 8:45 Viscosity = 3200

**Foam quality after temperature conditioning:**

(EXP = Expansion value & 50% Drain = Drain time Min:Sec)

100% NF / 0% SO	75% NF / 25% SO	50% NF / 50% SO	25% NF / 75% SO	0% NF / 100% SO
EXP = 4.7 50% Drain = 6:43 Viscosity = 4160	EXP = 4.5 50% Drain = 8:04 Viscosity = 4120	EXP = 4.5 50% Drain = 8:00 Viscosity = 3780	EXP = 4.5 50% Drain = 8:13 Viscosity = 4080	EXP = 4.4 50% Drain = 7:18 Viscosity = 3120

Note: viscosity units (cP) measured utilizing Brookfield Viscometer, Spindle #4 at 30 rpm

**Discussion of Results**

Both before and after temperature conditioning, all of samples were opaque and slightly yellow with no signs of precipitation, gelling layering or any other notable condition. The foam quality values showed no signs of deterioration after the temperature conditioning.

**Conclusion**

**SOLBERG ARCTIC 1X3% ATC AR-AFFF Class B foam concentrate and NATIONAL FOAM UNIVERSAL GOLD 1X3% AR-AFFF Class B foam concentrate are completely compatible in all admixture ratios.**



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