



# CHEMGUARD FS-220B

CHEMGUARD FS-220B is a highly efficient, nonionic fluorosurfactant at 40% actives. This fluorosurfactant is soluble in tap and sea water. It has been used in combination with other fluorosurfactants (ie. CHEMGUARD S-103A, CHEMGUARD S-103B 40%, CHEMGUARD FS-818-11, CHEMGUARD S-106A, LODYNE® S-103A, LODYNE® K81'84, and LODYNE® S-106A) to formulate premium AFFF agents meeting the US Military specification (Mil-F-24385F). It provides excellent performance in FP, AFFF, FFFP, and polar formulations. CHEMGUARD FS-220B is highly compatible with anionic, cationic, amphoteric and nonionic surfactants. It is especially useful in providing improved burnback resistance and deluge resistance from sprinklers. Excellent hot edge sealing is obtained with as little as 0.5% of CHEMGUARD FS-220B in a 3% AFFF or FP concentrate.

## Typical Properties<sup>1</sup>:

Appearance	Clear, pale green to yellow liquid
Composition	40% Actives, 15% t-butyl alcohol, 45% water
Density	1.02 g/ml at 25°C
Flash Point	27°C (81°F) Pensky-Martens, closed cup
pH	4.5 – 6.5
Boiling Point	79°C (174°F)
Stability	Store between 10° and 50°C. Some solids will separate out at temperatures below 10°C over time. If frozen or solids separate out of the product, bring it to room temperature to return product to a clear liquid. Freezing and thawing will not affect the properties or performance.

<sup>1</sup> Not for specification purposes.

## Typical surfactant properties of CHEMGUARD FS-220B:

Distilled Water Solution	0.1% Actives	0.01% Actives	0.001% Actives
Clarity	Clear		
Equilibrium Surface Tension <sup>a</sup>	20.5 dynes/cm	22.6 dynes/cm	38.0 dynes/cm
Interfacial Tension <sup>b</sup>	10.8 dynes/cm	14.2 dynes/cm	22.2 dynes/cm
Draves Wetting <sup>c</sup>	300 <sup>+</sup> sec		
Ross Miles Foam Test <sup>d</sup> , initial	105 mm		
Ross Miles Foam Test, 5 min.	99 mm		

<sup>a</sup> Wilhelmy plate technique, Kruss K-10 tensiometer

<sup>b</sup> ASTM method D-1331-56

<sup>c</sup> ASTM method D-2281-68, sinking time in minutes

<sup>d</sup> ASTM method D-1173-53 at 49° C; Initial foam height and after 5 minutes.

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