



CHEMGUARD S-152B

CHEMGUARD S-152B is a highly concentrated, proprietary mixture of fluoro- and hydrocarbon surfactants. This "superconcentrate" has been designed to be used primarily for the formulation of high efficiency AFFF liquid concentrates that meet the requirements of U.S. Military specifications, such as Mil-F-24385F. It can be diluted directly with fresh (tap) water and appropriate amounts of solvents to manufacture either 3% or 6% proportioning AFFF concentrates, both standard and freeze protected. With a proper adjustment of the dilution ratio to prepare the concentrate, one can formulate AFFF products which meet other specifications.

Typical Properties¹:

Appearance	Clear, colorless to yellow liquid
Composition	41.1% Actives, 10.2% other solvents, 48.7% water
Density	1.103 g/ml at 25°C
Flash Point	32°C (89°F) Pensky-Martens, closed cup
pH	6.5 - 7.5
Refractive Index	1.405 at 25°C
Freezing Point	-11°C (DSC 5°C/min heating rate)
Viscosity	55 – 75 cP @ 25°C (Brookfield, spindle #18 at 30 rpm)
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.

¹ Not for specification purposes.

Typical AFFF properties of 3% premixes^a:

Property	Premix in	
	salt water ^e	fresh water
Visual seal speed (second) ^b :		
cyclohexane (w/ 3drops)	3	4
heptane (w/ 5 drops)	10 - 25	5 – 15
gasoline ^c (w/ 5 drops)	4 - 6	5 – 7
Foam Expansion Ratio ^d	7.0 - 7.5	7.0 - 7.5
Quarter Drain Time (min) ^d	4.0 - 4.5	4.0 - 4.5

^a Of typical U.S. Mil-spec (Mil-F-24385F) concentrates containing 15% CHEMGUARD S-152B and from 17% solvents.

^b This seal test is based on the following procedure:

Fifteen ml of fuel is placed in a glass petri dish (50 mm diameter by 15 mm height). In the center of the dish a 3/4 inch, No. 10 flat-head wood screw is placed on its head. Using a straight medicine dropper, specified **number of drops** of the test solution are carefully applied to the tip of the screw from a height of about 1/4 inch above the screw. The fully formed droplets are applied at a rate of approximately one per second. The spreading of the aqueous solution film over the surface of the cyclohexane is observed, and the time of 95-100% coverage (essentially complete coverage) is recorded as the "visual seal speed".

^c Mobil Unleaded gasoline (87 octane).

^d Based on UL's "twenty-five percent drain time test" using the "foam slider design No. 1" (UL-162) and NRL 2 GPM nozzle.

^e ASTM D1141-86

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