Foam Lines
Combat Support Products
Division Of Cottrell Associates, Inc.
Jim Cottrell - February 2020
NATIONAL FOAM
Factory Agents Since 1988

Universal Green F3 3% … Haz-Mat Use

* Now Green Screen Certified, PFAS Free

https://www.greenscreenchemicals.org/certified

Managing scene security at transportation crashes consume more than eighty percent of class B foam used by National Foam Fire Department customers.

National Foam's new alcohol resistant, fluorine free (F3) foam technology is a change for the good for those first responders looking at now or soon to be disallowed use of foams containing intentionally added PFAS compounds.

Universal F3 Green 3% is ideal for Fire Department users faced with high threat challenges associated with hazardous material spills. Particularly those common spills involving the gasoline/ethanol blends: E-10, E-15, E-85, ethanol E-98 and for most, in winter, 15% butane.

Engine company: Holding a 500 sq. ft. (25 x 20 ft.) gasoline spill safe for two hours using best in class ¼ life, Universal Gold, firefighters will use four, $238 pails of foam concentrate, making about 620 gallons of PFAS foam solution compound.

*** Fluorine Free F3 - No intentionally added fluorinated compounds (PFAS)**

If using using Universal F3 Green, firefighters would use a little less than a $238 pail of concentrate and about 150 gal of water, making about 155 gallons of * fluorine free solution. Cost and environmental impact are reduced four fold.

5000 gal E-10 gasoline spilled.
Used 150 gal 3% Universal Gold made +/- 14,700 gal. of AR-AFFF (PFAS) solution.

If Universal Green F3 - Use 37.5 gal foam concentrate, making +/- 3,675 gal. of PFAS free solution. No intentionally added PFAS

Foam Trailers, Tankers And Tenders: Using 150 gallons of best in class ¼ life, Universal Gold, members applying 500 gpm every 30 min. can hold a 5000 sq. ft. (50 x 100 ft.) gasoline spill safe for about +/- five hours; making +/- 15,000 gallons of 3% fluorinated (PFAS) solution.

If using Universal F3 Green 3%, time goes to +/- 20 hours applying a * fluorine free free solution.

Total waste contributions: Universal F3 Green 3% can contribute up to four times less waste than the best AR-AFFF and as much as ten times less than the popular fluorine free, NFPA 18 wetting agents.

To calculate water use - multiply 3% foam concentrate used by 97; multiply 6% by 94.

Note: Increased U.L. application rate for spill firefighting compared to AR-AFFF goes from 0.10 gpm per sq.ft. to 0.16 gpm per sq.ft. on gasoline. Appliances must produce foam expansion of 7 to 10:1.

Foam vapor suppression time will vary based on fuel type, its temperature and foam blanket quality. Two hour ¼ life is a very conservative figure and likely closer to three hours. *How to test for yourself, see page three.*

Finally - Unlike unlisted vapor suppression foams, Universal F3 Green have U. L. Type III fire test listings for gasoline/ethanol blends and 100% ethanol using aerating appliances.

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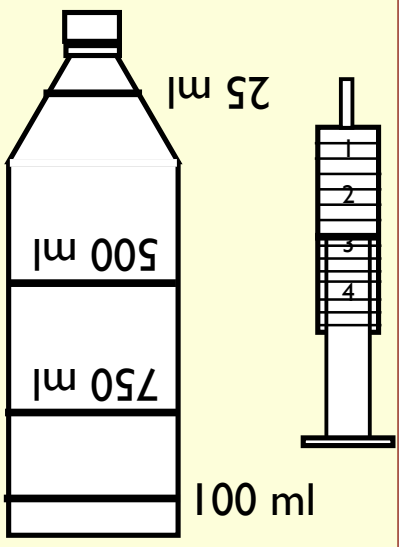
Where possible, monitor vapor conditions electronically. If fuel's odor returns or meter sees flammable explosive levels it's time to reapply foam.

Using water and a lab. graduate, mark a 1000 ml. water bottle at 25, 100, 500 and 750 ml. Using a medication syringe or eyedropper add 3 ml. of foam concentrate, then and add water to the 100 ml. line You have now made a 3% solution. AFFF, wetting agents and class A will disperse instantly. AR foams will not, due to its sirup or gel-like alcohol resistant polymer and will need to be swirled till 3 ml. of concentrate in the bottom has dissolved.

Note: If the eyedropper lifts AR foam, so will a foam eductor. All National Foam products are UL listed for use with foam eductors. NOTE: frothy foam tank samples may test lean.



Once dissolved, shake the bottle vigorously for at least twenty seconds; turn the bottle on its cap and start the clock. Lightly tap the capped end on the table or desk and record the expansion ratio. If the foam sample has filled the bottle, you have achieved a 10:1 expansion ratio. Just about what a good low expansion foam nozzle or nozzle attachment will achieve. If it goes to 750 you are at 7.5:1 expansion and so on. Record the expansion ratio, water source and its temperature, as water temperature and its clarity may have an effect on the test result. Salt water may cut drain time by 40 - 50%.

When 25 ml. of liquid has accumulated at the capped end, stop the clock; the foam has reached its quarter life. At this point the foam has lost 25% of its vapor suppression ability, which means it's about time for reapplication. Airport foam (regular AFFF) will go in less than five minutes. Universal Gold should go 25-30 minutes @ 3% depending the water source and how accurately you measured the foam concentrate sample. At 6% it will go 45 to 50 minutes. The longer the better as this quarter life business is what that determines foam replacement cost and how much waste needs to be cleaned up.

Let the sample continue to drain. When it's all drained you will still have foam in the bottle, which is useless.

Re-shake the bottle for twenty seconds and put a dollop of finished foam on some acetone or 91% rubbing alcohol. If it disappears as fast as you apply it, it's not alcohol resistant.

Test your foam and system: Take concentrate sample from your engine's foam tank and the water from its booster tank. Do the 3% bottle shake and record the time.

Run your foam system for twenty seconds, capture a solution sample from a hose coupling and put 100 ml. into another bottle, shake it and compare the times. If the system sample is faster, it's lean. If it's slower, it's rich. You can be 1% rich, no lean.

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More at www.combatsupportproducts.com