

Crude Oil Foam/Water Worksheet

Calculating Foam and Water Requirements

Area

Area of a Spill: Length X Width = Area (square feet)

Area of a Tank: $A = \pi r^2$ 3.14 X radius squared = area (square feet)

(Radius is the distance halfway across the tank or $\frac{1}{2}$ the diameter of the tank.)

Foam Application Rate

Area X Density Rate = GPM Foam Solution

- Area= surface area of spill or surface area of storage tank
- Density Rate: expressed in gpm/ft² - recommendations for this value may be found in NFPA 11 or in data supplied by foam manufacturer

Foam Concentrate Requirement

GPM foam solution X percent concentrate = GPM foam concentrate

- may be 1%, 3%, or 6% depending on foam type

Total Foam Concentrate Required

GPM foam concentrate X time = gallons of foam concentrate

- Minimum time is 15 mins. for spill fires and 65 mins. for storage tanks; see NFPA 11 for details

Water Requirement

GPM foam solution X percent water = GPM water

- Water percentage will be 99%, 97% or 94% depending on foam concentrate selected

Total Water Required

GPM water X time = gallons of water

- Minimum time is 15 minutes for spill fires and 65 minutes for storage tanks; see NFPA 11 for details
- 30 minute application for rail tank cars

Cooling Water Required

- As necessary to cool exposures; for **rail car emergencies add 200 gpm for each tank car involved or exposed to fire.**