PROPORTIONING TEST INSTRUMENTS

Data/Specifications

DESCRIPTION

As defined by NFPA 11 (the Standard for Low-, Medium-, and High-Expansion Foam), proportioning is the continuous introduction of foam concentrate at the recommended ratio into a water stream to form a foam solution. If the level of foam concentrate varies widely from that of the design, it can negatively influence the foam's fire fighting performance.

Acceptable ranges of proportioning systems are not less than the rated concentration, and not more than 30% above the rated concentration or one percentage point above the rated concentration, whichever is less. For example, the acceptable proportioning range for a 3% concentrate is from 3.0 to 3.9%. Unless manually pre-mixing a known amount of concentrate with a known amount of water, all foam systems will use some type of proportioning system. Illustrations and descriptions of common systems can be found in ANSUL®'s Foam Systems Design Manual or NFPA 11.

APPLICATION

There are two acceptable methods for measuring foam concentrate percentage in water: the Refractive Index Method or Conductivity Method. Both methods are based on comparing foam solution test samples to premeasured solutions that are plotted on a baseline graph of percent concentration versus instrument reading.

Test procedures for conducting proportioning testing can be found in the supplement manual (Part No. 31274) Field Inspection Manual for Foam Concentrates and Foam Pre-mixed Solutions. This supplement is included with the Foam Systems Design Manual and many other ANSUL Foam System Manuals. These procedures are also outlined in NFPA 11.

PROPORTIONING SYSTEM TEST INTERVAL

NFPA Standards vary on the frequency and method of test relative to the type of hazard application and the requirements of the Authority Having Jurisdiction (AHJ). Most AHJs will require a proportioning test at the commissioning of a system and at some regular interval thereafter in accordance with NFPA Standards such as NFPA 11, 25, 409, or other AHJ specific requirements. In the absence of AHJ direction on this subject, ANSUL would recommend that a proportioning test be conducted at a minimum three year interval after commissioning.

FIELD TEST INSTRUMENT RECOMMENDATIONS

The highest degree of accuracy may be achieved using the Conductivity Meter Model 1500-32 (Part No. 434435), but results can be skewed when water of varying quality such as salty, brackish, or fluctuating temperatures is used for making foam solution. ANSUL recommends the Handheld Refractometer Model 10419 (Part No. 405713) with accuracy approaching that of the conductivity meter (but less prone to problems with varying water qualities) as the best option for most real-world proportioning tests. Some customers prefer the ease of use with the Handheld Digital Refractometer Model PA202 (Part No. 434434). This instrument may be slightly less accurate than the Model 10419 with some foam solutions as a result of digital rounding for displayed values.

FEATURES

Hand-held Refractometer, Model 10419 (Part No. 405713)

- Refractive Index Scale: 1.3330 – 1.3730
- Scale Division: 0.0002 readily estimated to 0.0001
- Accuracy: ± 0.0001
- Salinity Scale: 0 – 160
- Scale Division: 2 ppt.
- Accuracy: ± 1 ppt.

007523

Digital Hand-held Refractometer, Model PA202 (Part No. 434434)

- Refractive Index Scale: 1.3330 – 1.5040
- Scale Division: 0.0001
- Accuracy: ± 0.0001
- Brix Scale: 0 – 85
- Scale Division: 0.1
- Accuracy: ± 0.1
- Power: 2 AAA Batteries

007524

Conductivity Meter, Model 1500-32 (Part No. 434435)

- Range of Instrument: 0 – 20000 uS, Range on Foam Setting (x100): 0 – 2000 uS
- Accuracy: ± 40 uS
- Resolution: 2 uS
- Power: 8 Rechargeable AA NICAD Batteries

007525

ORDERING INFORMATION

Contact ANSUL Customer Service for ordering information.

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