

Fomtec Technical Advices

FTA No. 90

Premixes

General

A premix is the ready-to-use solution of a fire fighting agent that are transported to via piping systems or hoses to the end piece in a foam system where foam is generated. The ready-to-use premix is consisting of foaming agents (surfactants) dissolved in water together with solvents acting as foam boosters. In comparison to a foam concentrate the total amount of active ingredients, such as foaming agents and boosters are very low.

Premixes can be prepared in two different ways:

- Premixes are prepared in-line in the mixing device (e.g. inductor or proportioner) of a foam system, where the foam concentrate is mixed into the water stream and further transported to the discharge device at the end. The injector is calibrated to give the right proportion of foam concentrate into the water. The foam concentrates are normally prepared to be mixed as 1%, 3% or 6% with water, but there are exemptions.

Premixes can also be prepared by the manufacturer to be used as is. Example of such use is hand held fire extinguishers and extinction systems in vehicles, such as buses, trucks, etc., where no access to water is accessible. Premixes are also used to fill up the last part of foam extinction systems, from the mixing device to the discharge device to have full capacity already from start when the system is released and avoid losing valuable time filling up empty pipes and hoses.

Premixes for AFFF-systems

Premixes for AFFF-systems can be prepared in two different ways. One route is to make the premix from the concentrate by blending correct proportions of concentrate with water and addition of corrosion inhibitor. As corrosion inhibitor we recommend sodium benzo triazolidine or sodium tolyl triazole types. We recommend to use about 0,5% based on the final solution. This way of preparing premixes will yield in premixes with limited life time. Depending on conditions they have a predicted life time of 6-24 months.

The other route is to select a ready-made premix especially made for this purpose. Ready-made premixes are especially designed to have long shelf life both in its original packaging as well as in service in pipelines. The ready-made premixes for this purpose are Fomtec Alpha B -30, Fomtec Alpha B -30 NE and Fomtec NXP -35. All of these are also freeze protected to at least -30°C.

Premixes for AR-AFFF systems

Premixes to be used in systems where polar solvent are a part of the risk and where alcohol resistant foams are required demands special attentions. To prepare a premix from a ARC-type foam concentrate will have very limited shelf life. Already after a few days the premix will separate and loose its performance.

The reason for the separation is that the water soluble thickener inside the concentrate precipitates when it is diluted to a premix and forms a sludge. A premix prepared from a foam concentrate will be stable for about 1-3 days, depending on type of foam concentrate and the conditions the premix is stored at.

The water soluble thickener is a part of the system that is responsible for the alcohol resistance performance of the foam. Without the thickener the alcohol resistance will be poor. Moreover, the precipitated thickener sludge may also clog up valves and orifices and hence reduce capacity of the extinction system.

Especially designed for this purpose there are ready-made premixes with alcohol resistance available to use for filling the pipelines. The ready-made premixes are Fomtec Alpha R-10 and Fomtec Alpha R-20. Both are freeze protected to -10°C and -20°C respectively.

Summary

It is highly recommended to fill up foam systems with a ready-to-use premix solution from the injector to the discharge device in order to have a system that gives full capacity already from start of the system. This will save valuable time in the event of a fire. Ready-to-use premixes for such installations are:

For AFFF-systems:

- | | |
|-------------------------|---------------------------|
| - Fomtec Alpha B -30 | Freeze protected to -30°C |
| - Fomtec Alpha B -30 NE | Freeze protected to -30°C |
| - Fomtec NXP -35 | Freeze protected to -35°C |

For ARC-systems:

- | | |
|----------------------|---------------------------|
| - Fomtec Alpha R -10 | Freeze protected to -10°C |
| - Fomtec Alpha R -20 | Freeze protected to -20°C |

Recommendation

Even though the premix is designed for long shelf life, local conditions may cause the premix to deteriorate. Hence, in order to assure that the premix in service is fully operational it is advised to check its functionality annually. This can be done by sending a sample to laboratory capable of performing and assessing such testing. Capable laboratories are for example the foam manufacturer's own labs.