Extinguishing foam concentrate

Cool down.
Fire Protection by

MINIMAX

FOAM CONCENTRATE

Fire-extinguishing foam is a highly effective extinguishing media for fires of fire class A and B. The foam concentrates are supplied to the water flow by admixing devices in a proportionally constant quantity. This generated mixture is foamed with air in subsequent foam discharge devices. The foaming characteristics depend on the type of foam concentrate, the respective discharge devices and the supplied air volume.

Wet low expansion foam is produced at a low air induction. More air content make the foam drier to produce medium or high expansion foam.

Foam uses various extinguishing effects: Cooling, suppressing, separating, covering, insulating and displacing – each effect alone or in conjunction with others provides quick success in extinguishing.

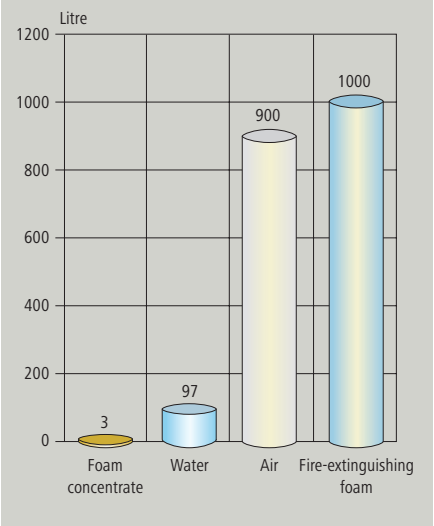
Minimax offers the right foam concentrate for every event of fire: Protein foam concentrates are used to produce low expansion foam, synthetic foam concentrates can be used to produce low expansion, medium expansion and high expansion foam, film-forming AFFF foam concentrates with the additional suitability for extinguishing systems with low expansion rate e.g. sprinkler systems as well as alcohol-resistant foam concentrates.

The selection of the foam concentrate is based on the fire situation and special ambient conditions at the location of the fire. It is decisive for the extinguishing success that the fire is covered quickly and with a sufficiently high and closed foam layer so that the extinguishing effects of the foam can develop in its entirety immediately.

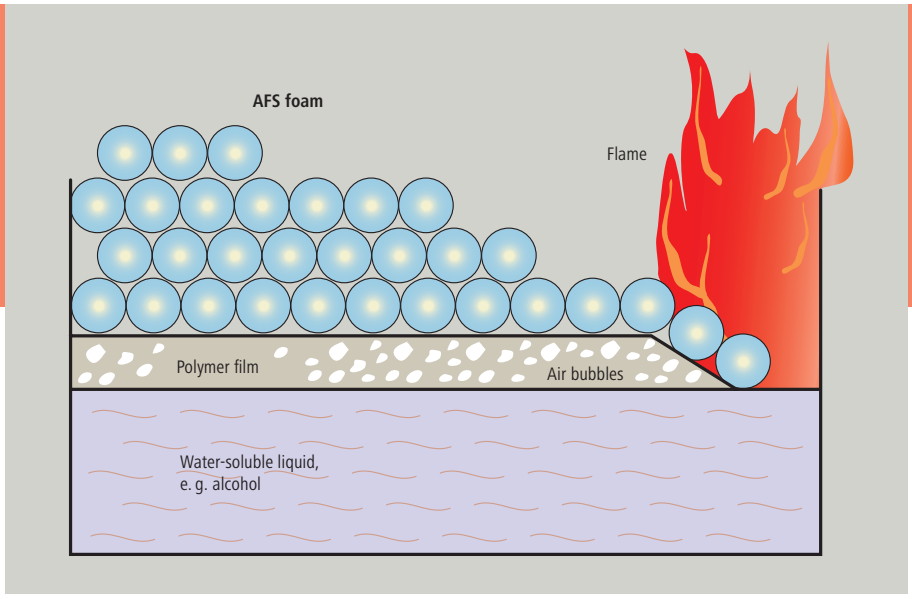
Foam concentrate criteria

Foam expansion rate

The foam expansion rates are listed in the valid standards. It describes the volume of the fire extinguishing foam at a ratio to the volume of the water-foam mixture used. Example: If 10 litres of low expansion foam are produced from 1 litre of water-foam mixture, the foam expansion rate is 10.



Expansion rate 1:10



Principle drawing: polymer film development

CHARACTERISTICS

Sea water resistance
This important requirement for the use on ships, in seaports and offshore areas is fulfilled by most foam concentrates. The resistance also applies for the foam generation with purified industrial water, river and brackish water.

Flowability and adhesive power
A quick foam expansion is guaranteed at an excellent flowability. The excellent adhesive power on also steep projecting objects guarantees that the insulating and cooling effect of the foam can act as long as possible.

Aqueous film formation
A very thin, quick flowing tenside film develops on the burning surface when using aqueous film forming foam concentrates, which serves the fire-extinguishing foam a sliding surface and guarantees an especially quick foam flow. In addition, the tenside film also prevents re-ignition and therefore also protects the surface of a combustible fluid, which is not completely covered by the foam.

Aqueous film forming foam concentrates marked with the addition „AFFF“.

Polymer film formation
Foam concentrates with polymer film forming elements create an insulating protective layer between the foam cover and alcohol-containing, foam-destroying liquids (such as ethanol, isopropanol, methanol).

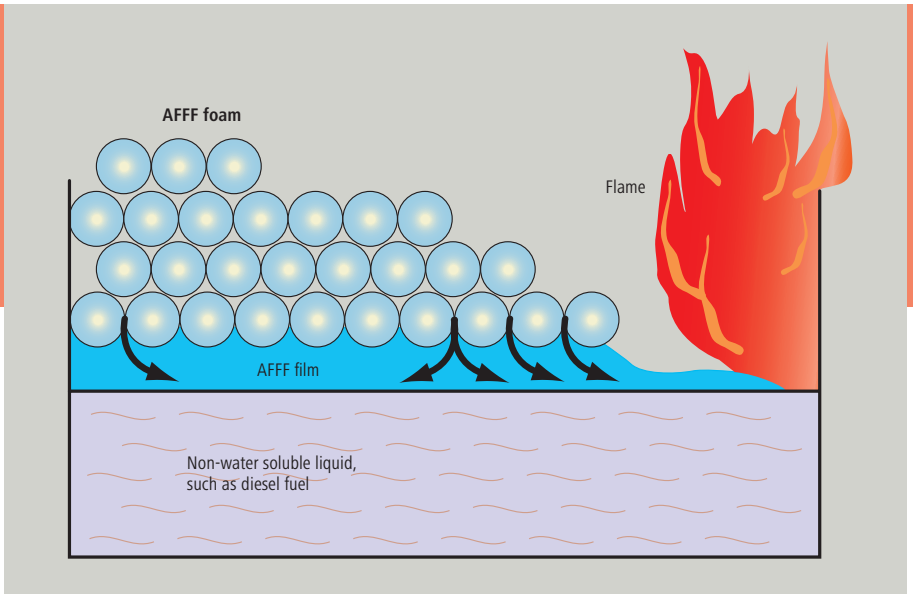
A foaming application which is gently or not directly aimed to the fire is required for the development of a continuous polymer film.

Mixing of foam concentrates
Foam concentrates of various types and origins may never be mixed together.

Compatibility
Fire-extinguishing foams generated from different concentrates can be used simultaneously in the event of a fire. The combined extinguishing use with foam-compatible extinguishing powder is also possible.

Frost resistance
Foam concentrates should only be used within the scope of the specified application temperatures. Temporary freezing and thawing does not have any negative effect on the quality of the foam concentrate.

Storage
Foam concentrates can be stored for many years in suitable containers.
Based on the contents, the concentrates are assigned to Water Hazard Classifications.
The resulting regulations must be observed (e.g. VAWS). Storage equipment for foaming concentrates must be installed and maintained by an authorized company under certain conditions according to the local law.



Principle drawing: Water film development (AFFF effect)

EFFECTS

The various extinguishing effects, which individually or together with others guarantee a quick and sustainable extinguishing success react when using fire-extinguishing foam.

Cooling effect
This effect specifically comes to fruition in fluid and solids fires, which have extremely high temperatures at the burning surface. Based on the heat effect, the water proportion in the foam evaporates very quickly, whereby the combustion energy is removed from the burnt material.

Spreading effect
When using aqueous film forming foam concentrates (AFFF), a very thin and especially slippery tenside film separates. This rushes ahead of the foam and therefore provides it with excellent flowing and extinguishing properties.

Displacement effect
Due to the use of medium and high expansion foam in closed or spatially divided fire sections, oxygen is removed from the fire zone, while existing combustible gases are simultaneously displaced.

Separating effect
The closed foam cover causes the fire zone to separate the surrounding air and shielding it from outside against any further oxygen supply.

Smothering effects
The dense foam cover smothers the fire by preventing the oxygen supply to the burnt material.

Insulating effect
The low heat conductivity of the foam insulates extinguished materials and objects or those that have not been affected by the fire, so that they are secured against heat effects and ignition sources.

Cover effect
The closed foam cover covers the gas emissions of combustible materials so that they cannot reach the fire zone. The burnt material is cooled at the same time and the vapour pressure is reduced, whereby gas breakthroughs and potential re-ignitions are prevented. The risk of a fire outbreak can be clearly reduced and the polluting emissions can be reduced by preventive foaming for liquid, lightly gassing products.

APPLICATION

Low expansion foam

is produced by foaming a water-foam mixture 4 to 20 fold with air. Depending on the application, protein foam concentrate, synthetic foam concentrate or AFFF will be used. Normally, low expansion foam is used 6 to 10 fold foamed.

Extinguishing effects:

- Separating effect
- Cooling effect
- Film forming effect
  (AFFF and AFS concentrates)

Range of application

Low expansion foam is used against burning liquids, such as gasoline, benzol, alcohol, oils, paints, solvents, when storing and manufacturing plastics as well as in recycling facilities.
Great throwing ranges can be achieved with low expansion foam, as required in firefighting on tankers, in fuel storage depots and in aircraft collisions, due to its great specific weight.

Medium expansion foam

is produced by foaming a water-foam mixture 20 to 200 fold with air. Synthetic foam concentrate will be used. Generally, medium expansion foam is applied 40 to 150 fold foamed.

Extinguishing effects:

- Separating effect
- Cooling effect
- Displacement effect

Range of application

Medium expansion foam is especially suited for firefighting at ground level, for example, in catchment areas for combustible fluids.

High expansion foam

Is created by foaming a mixture of water and foam concentrate with air to more than 200 times the original volume. The material used is a synthetic foam concentrate. With the aid of high expansion foam generators can generate foam with a foam volume increased by up to 1000 times.

Extinguishing effects:

- Separating effect
- Insulating effect
- Displacement effect

Range of application

The main application field of high expansion foam is in the flooding of rooms affected or at risk of fire.
Especially production or storage buildings can be effectively protected by this method.

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