Dr. STHAMER
FOAM FIGHTS FIRE

Fluorine-free foams for the future

Recommendations for a safe and environment-compatible operation with foam

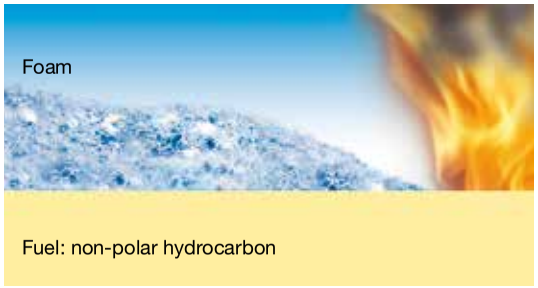
All firewater additives used by municipal fire services should be fluorine-free. The vast majority of fire incidents involve class A fires and containment of contaminated firewater is not always possible.

- Smaller fires of e.g. passenger cars or waste skips can be extinguished economically with wetting water from **UltraWet®**, **STHAMEX®-class A** or **STHAMEX®** multi-purpose foam concentrate using a venturi nozzle. The proportioning rates are between 0.1 % and 0.3 %, i.e. significantly below 1 %. Due to the low extinguishing agent requirement, less contaminated firewater is produced. Alternatively, targeted use of **STHAMEX®-Performance** compressed air foam can save water and prove very efficient.
- **STHAMEX®-class A, STHAMEX®-Performance** and **STHAMEX®** are EN1568 certified for class A (solids) and B (liquids) fires. For class A fires they can be used as wetting agents or low-, medium- and high-expansion foams. For class B fires we recommend low- or medium-expansion foam.
- Our new fluorine-free, low viscosity **vaPUREx® LV** is designed for direct application on fires of petroleum products including E10 petrol. It replaces fluorinated AFFF concentrates previously used by fire services and contributes to protecting the environment.
- The fluorine-free, alcohol resistant foam agents **MOUSSOL-FF®** and **vaPUREx AR 3/3 F-5 (F3-AR)** replace fluorine containing AFFF-AR products previously used by fire services. Due to their viscosity, pressure proportioning equipment may be required at low temperatures. **vaPUREx AR 3/3 F-5** can be used with AWG Z4-FD or TFT venturi proportioners in combination with a 38 mm diameter suction pipe even at cold temperatures.
- Fluorosurfactants are not fully biodegradable and are regulated by European legislation: Since June 2010 the threshold for PFOS has been 10 mg/kg. As of July 2020 the legal threshold for PFOA is 25 µg/kg. The transition period for use without firewater containment ends on 1 January 2023.
- Foam concentrate tanks on vehicles which previously contained fluorinated AFFF or AFFF-AR products must be cleaned by a specialist company.
- Foams containing fluorine (e.g. AFFF or AFFF-AR) must not be released into the environment or be used for training exercise. Their use is restricted to class B fires where a firewater retention concept is in place.
- **STHAMEX®-class A, STHAMEX®-Performance** and **STHAMEX®** can be used for training with foam. Discharge into sewage systems by prior agreement with waste water treatment plants. Degradation data can be obtained from the material safety data sheets.
- When filling vehicle foam tanks from bulk containers the tanks should be labelled accordingly and the batch numbers documented. Please contact your local dealer for additional labels.

Synthetic fire fighting foam concentrates

S (S & class-A) · **S-AR** · **F3** · **F3-AR**

Foam on Class B fires



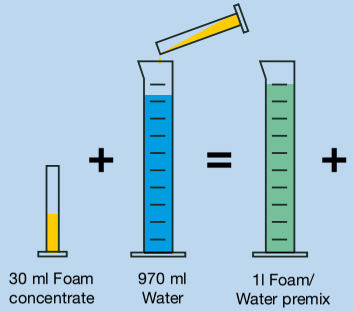
Polymer film formation

The proportioning rate specifies the percentage of foam concentrate added to water. If two figures are provided, the first stands for the proportioning rate for non-polar hydrocarbons (diesel/petrol). The second figure is the proportioning rate for polar solvents (alcohol/acetone), e.g. MOUSSOL®-FF 3/6 (S-AR to be used at 3% on petrol and 6% on alcohol).

S = synthetic (low-, medium- and high expansion foam and class A) · **class-A** = foam agent for class A fires · **S-AR** = synthetic and alcohol resistant foam
F3 = fluorine free foams for forceful application with low expansion foam on non-polar liquids, · **F3-AR** = alcohol resistant high-performance foam agent as replacement of AFFF and AFFF/AR for industrial applications

Proportioning

3 % foam solution / premix

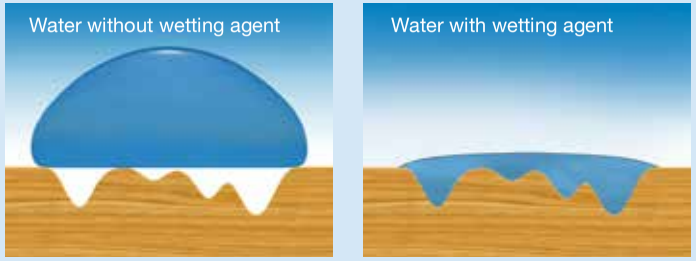


Expansion

Air	Foam types
9 l	= 10 l **10 l Low expansion foam,** ER[1] = 10:1
199 l	= 200 l **200 l Medium expansion foam,** ER[1] = 200:1
999 l	= 200 l 200 l 200 l 200 l 200 l **1000 l High expansion foam,** ER[1] = 1000:1

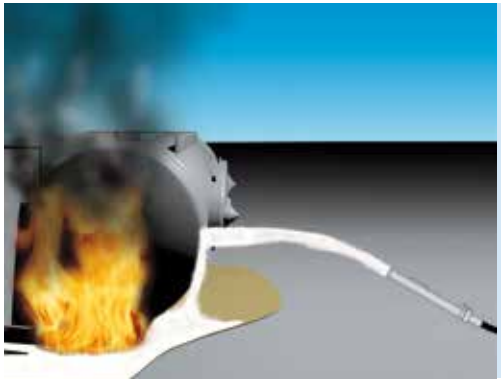
[1]ER = Expansion rate

Class A fire



Wetting agents such as UltraWet® and STHAMEX®-class A significantly lower the surface tension of firewater and provide excellent wetting of class A fuels (deep seated fires). The heat energy of the fire is rapidly reduced by the larger contact area, resulting in quick fire extinction.

Class B fire



Indirect foam application using the tank as a back board
(Non-polar fuels: S/S-AR,
polar fuels: S-AR/F3-AR)
Note: For polar fuels, always use air-aspirated foam!

Direct foam application on non-polar liquids
(only F3/F3-AR)

Fabrik chemischer Präparate von Dr. Richard Sthamer GmbH & Co.KG · Liebigstraße 5 · 22113 Hamburg · www.sthamer.com · www.linkedin.com/company/sthamer · www.facebook.com/Dr.Sthamer