



ONE SEVEN FOAMING AGENTS

ALWAYS FIRST CLASS:

ONE SEVEN FOAMING AGENTS

FIRE CLASS A AND

FIRE CLASS B



FLUORINE-FREE FOAMING AGENTS. PRESERVE THE ENVIRONMENT.



When procuring foaming agents today, the environmental compatibility of the extinguishing agent made from them is a decisive criterion. Both the procuring department and the fire department managers are responsible for environmental damage that may occur when certain extinguishing agents are used. When using extinguishing foam made from One Seven foaming agents, there is no need to worry about this. Protecting our environment has always been a fundamental factor in the development of One Seven foaming agents. Therefore, both class A and class B foaming agents do not contain environmentally harmful fluorine. In addition, One Seven foaming agents contain no noxious chemical stabilizers and are polymer and protein free.

Ecotoxicological tests by independent institutes have certified that the fluorine-free One Seven extinguishing foams have excellent values. Thus, the extinguishing foams produced with One Seven foaming agents for class A and class B fires are completely biodegradable and only slightly hazardous to water. According to the guidelines of the Bavarian State Ministry for the Environment and Consumer Protection, the fluorine-free One Seven foam is even considered "unrestrictedly compatible with the environment and water". Of course we can prove this level of environmental compatibility with independent test results, approval certificates and safety data sheets.



Safety data sheet
foaming agent
class A 0.3 %



Safety data sheet
application solution
class A 0.3 %



Safety data sheet
foaming agent
class B(FFF) 0.5 %



Safety data sheet
foaming agent
class B(FFF)-AR 3.0 %

ADVANTAGES ONE SEVEN FOAMING AGENT

BEST ENVIRONMENTAL COMPATIBILITY

- GUARANTEED FLUORINE-FREE
- WITHOUT CHEMICAL STABILIZERS
- ONLY SLIGHTLY HAZARDOUS TO WATER
- COMPLETELY BIODEGRADABLE

HIGHEST EFFICIENCY

- LOW CONSUMPTION
- LONGER SELF-SUFFICIENT OPERATING TIMES
- LESS LOGISTIC EFFORT
- LOWER COSTS

EXCELLENT INGREDIENTS

- HIGH CONCENTRATION OF EFFECTIVE INGREDIENTS
- VERY GOOD VISCOSITY, EVEN AT LOW TEMPERATURES
- STORAGE TIME UP TO 25 YEARS WITHOUT LOSS OF QUALITY
- EXTINGUISHING AGENT NEITHER IRRITATING TO SKIN NOR EYES

PERFORMANCE LEVEL OF FOAMING AGENTS

Foaming agents can be divided into three performance categories. The decisive criterion is the percentage of effective components in the total quantity of liquid. This concentration in turn determines the proportioning rate, the consumption costs and the possible operating times of firefighting vehicles. One Seven foaming agents are modern high-performance foaming agents. They are highly concentrated, at the same time environmentally friendly and particularly efficient in use.

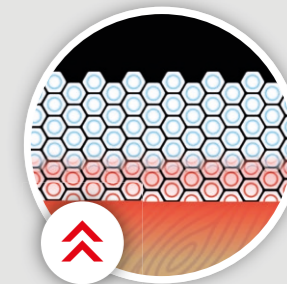
HIGH-PERFORMANCE-FOAMING AGENTS	MEDIUM-PERFORMANCE-FOAMING AGENTS	LOW-PERFORMANCE-FOAMING AGENTS
<p>Active ingredients: > 70 % Water content: < 30 %</p> <p>Proportioning rate: 0.3% 0.5%</p>	<p>Active ingredients: > 50 % Water content: < 50 %</p> <p>Proportioning rate: 1.0% 1.0%</p>	<p>Active ingredients: > 20 % Water content: < 80 %</p> <p>Proportioning rate: 3.0% 3.0%</p>
<p>Liter</p> <p>1000 9 8 7 6 5 4 3 2 1 0</p> <p>1000 l 3 l</p> <p>€</p>	<p>Liter</p> <p>1000 9 8 7 6 5 4 3 2 1 0</p> <p>1000 l 10 l</p> <p>€ € €</p>	<p>Liter</p> <p>1000 9 8 7 6 5 4 3 2 1 0</p> <p>1000 l 30 l</p> <p>€ € € € € €</p>
<p>Foaming agent tank: 200 l Water volume flow: 1,600 l/min</p> <p>Proportioning rate: 0.3 % Admixing volume: 4.8 l/min</p> <p>Operating time with one foaming agent tank: 42 Min.</p>	<p>Foaming agent tank: 200 l Water volume flow: 1,600 l/min</p> <p>Proportioning rate: 1.0 % Admixing volume: 16 l/min</p> <p>Operating time with one foaming agent tank: 12 Min.</p>	<p>Foaming agent tank: 200 l Water volume flow: 1,600 l/min</p> <p>Proportioning rate: 3.0 % Admixing volume: 48 l/min</p> <p>Operating time with one foaming agent tank: 4 Min.</p>

MODE OF ACTION CLASS A FOAM

Class A foaming agents are currently not subject to any standard in Europe and therefore have no official approval. Therefore there are a large number of products on the market with completely different modes of action, which makes the choice considerably more difficult for the customer. In order to select the product with the highest extinguishing power, the modes of action of class A foam should always be taken into account and, if necessary, tested in practical trials.

ADHESION

Class A extinguishing foam is applied via simple hollow jet nozzles in most firefighting scenarios. Foaming (i.e., mixing of the water-foam concentrate mixture with air) occurs only during the flight phase of the extinguishing agent and upon impact with the burnt material. The foam has much better adhesion than the water-foam concentrate mixture alone. Due to the adhesion, the water contained in the foam can absorb and dissipate heat energy from the fire material for a longer period of time.



Dissipation of thermal energy due to adhesion of the foam

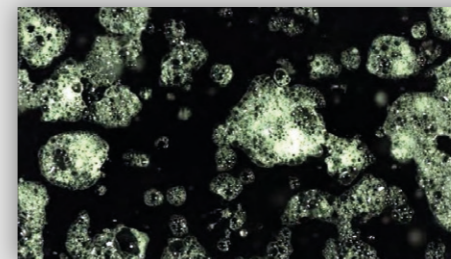


AERIUS – WATER VS. FOAM

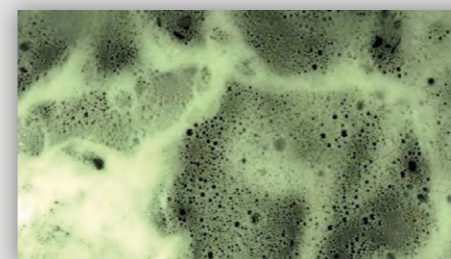
In the scientific research project AERIUS (2018/2019), the effectiveness of different extinguishing agents was investigated. Among others, water, extinguishing foam class A and compressed air foam class A were compared and evaluated.



This high-speed image shows extinguishing with water. When the water hits a hot surface, most of the extinguishing water immediately rebounds. Only a very small portion of the water adheres and provides a cooling effect by absorbing thermal energy.



When using a Class A extinguishing foam produced with a hollow jet pipe, the adhesion is improved. A significantly larger amount of extinguishing agent remains on the surface, which improves the dissipation of heat energy.



The compressed air foam produced under predefined, always constant conditions shows the best adhesion. Virtually no extinguishing agent is lost through run-off. The compressed air foam dissipates thermal energy in the long term and achieves the best extinguishing effect.

WATER

FOAM

CAF

PENETRATION POWER

Class A extinguishing foam has a particularly high penetration power. This allows the water contained in the foam to moisten the burnt material quickly and deeply. There, the water absorbs heat energy and dissipates it through evaporation. In this way, the fire material is cooled not only on the surface but also on the inside, and deep-seated pockets of embers can be successfully extinguished.

A good penetration power is achieved, among other things, by reducing the surface tension of the water. The One Seven foaming agent class A contains special surfactants in high concentration, with which an optimal wetting is already achieved at 0.3% admixing rate.

There is no EU standard and no official performance classes for the penetration power of a water-foam concentrate mixture. It must be carried out and assessed by the users themselves for different foaming agents.



Wetting and cooling of the burnt material



COMPARISON OF THE PENETRATION POWER OF DIFFERENT FOAMING AGENTS BY MEANS OF THE DRAVES-TEST



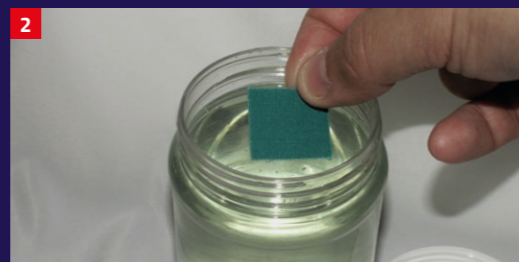
A dry swatch is placed on the surface of pure water.



The pure water does not soak the swatch, the top of the swatch remains dry.



Class A foaming agent is added to the water at the proportioning rate recommended by the manufacturer.



A new dry swatch is placed on the surface of the water-foam concentrate mixture.



The water-foam concentrate mixture immediately penetrates and soaks the material.



The soaked swatch eventually sinks into the glass.

ONE SEVEN CLASS A 0.3 % - FLUORINE-FREE

One Seven foaming agent class A is a high-performance foaming agent specially developed for extinguishing ember-forming solids. However, it is also approved for use on liquid fires in accordance with EN 1568-3 (low expansion foam, performance class III-C) and EN 1568-1 (medium expansion foam). It is ideally suited for use in compressed air foam systems, where it can be used to generate both wet foam and dry foam at a proportioning rate of only 0.3 %.



ADVANTAGES ONE SEVEN CLASS A 0.3 %

- **OPTIMUM FOAMING AND PENETRATION PROPERTIES**
with only 0.3 % proportioning rate
- **SIGNIFICANT COST SAVINGS**
due to very low foaming agent consumption
- **EXTINGUISHING AGENT COMPLETELY BIODEGRADABLE**
already 99 % after 7 days acc. to EN ISO 9888 (OECD 302B)
- Application solution officially classified as only **"SLIGHTLY HAZARDOUS TO WATER"**
- Application solution officially classified as **"NOT IRRITATING TO SKIN AND EYES"**
- **SUITABLE FOR FRESH AND SEA WATER**
- **USABLE IN A VERY WIDE TEMPERATURE RANGE**
(-15 °C up to +50 °C)
- **STORAGE TIME UP TO 25 YEARS WITHOUT LOSS OF QUALITY**
- **NO DANGER OF SLIPPING,**
since no polymers are used



ONE SEVEN CLASS B(FFF) 0.5 % - FLUORINE-FREE

This One Seven Class B(FFF) foaming agent has been specially developed for the environmentally friendly extinguishing of liquid fires. It is the only fluorine- and polymer-free class B foaming agent on the market that has European approval for direct and indirect application (according to EN 1568-3, performance class I-B). The proportioning rate of this high-performance foaming agent is a consumption-friendly 0.5 %. One Seven class B(FFF) 0.5 % is also ideally suited for use in compressed air foam systems.



ADVANTAGES ONE SEVEN CLASS B(FFF) 0.5 %

-  **OPTIMUM FOAMING AND PENETRATION PROPERTIES**
with only 0.5 % proportioning rate
-  **SIGNIFICANT COST SAVINGS**
due to very low foaming agent consumption
-  **EXTINGUISHING AGENT COMPLETELY BIODEGRADABLE**
already 99 % after 7 days
-  Application solution officially classified as **„NOT HAZARDOUS TO WATER“**
-  Application solution officially classified as **„NOT IRRITATING TO SKIN AND EYES“**
-  **SUITABLE FOR FRESH AND SEA WATER**
-  **USABLE IN A VERY WIDE TEMPERATURE RANGE**
(-15 °C up to +50 °C)
-  **STORAGE TIME UP TO 25 YEARS WITHOUT LOSS OF QUALITY**
-  **NO DANGER OF SLIPPING,**
since no polymers are used







ONE SEVEN CLASS B(FFF)-AR 3.0 % - FLUORINE-FREE

This One Seven foaming agent class B(FFF)-AR is used for extinguishing burning, water-miscible (polar) liquids and hydrocarbon compounds. It provides a particularly dense and long-lasting foam blanket. Of course it complies with the current EN 1568-3 and EN 1568-4 standards. The proportioning rate is 3 % for extinguishing hydrocarbon fires as well as polar liquids. The fluorine-free One Seven B(FFF)-AR is an adequate, environmentally friendly alternative to conventional AFFF-AR products from other manufacturers.



ADVANTAGES ONE SEVEN CLASS B(FFF)-AR 3.0 %

-  **LOWEST POSSIBLE PROPORTIONING RATE**
for fluorine-free B-AR foaming agents
-  **FLUORINE-FREE**
without persistent organic substances
-  **CONTAINS NO NITRATE OR PHOSPHATE SOURCES**
-  **EXTINGUISHING AGENT COMPLETELY BIODEGRADABLE**
-  **APPLICATION SOLUTION NOT IRRITATING TO SKIN OR EYES**
-  **SUITABLE FOR FRESH AND SEA WATER**
-  **USABLE IN WIDE TEMPERATURE RANGE**
(-2 °C up to +50 °C)
-  **STORAGE TIME UP TO 10 YEARS WITHOUT LOSS OF QUALITY**

ONE SEVEN PROPORTIONING TECHNOLOGY

Precise and constant proportioning of foaming agents is essential to produce an effective extinguishing agent. Traditional proportioners cannot achieve this. The use of modern positive pressure proportioning systems (PPPS) is therefore not only sensible, but now essential. One Seven offers positive pressure proportioning systems in all performance classes, both for fixed installation in vehicles and for mobile, flexible use. They can be used to dose modern high-performance foaming agents with the lowest proportioning rates in a highly accurate, economical and environmentally friendly way. All One Seven proportioners comply with the standard EN 16327.



Brochure One Seven
positive pressure
proportioners

ADVANTAGES ONE SEVEN PROPORTIONER

- **HIGH-PRECISION METERING** – for the use of modern high-performance foaming agents with low proportioning rates
- **EASY OPERATION** – via touch screen with self-explanatory standard symbols and logical menu selection
- **OPTIMUM MIXING RATIO AT ALL TIMES** – automatic control of the delivery rate of water and foaming agent
- **NO LIMITATION OF HOSE LENGTHS** – proportioning is independent of pressure and back pressure
- **HIGHEST RELIABILITY** – permanent monitoring of relevant parameters, emergency programs as backup

ELECTRICALLY DRIVEN PROPORTIONING SYSTEMS



The electrically driven One Seven positive pressure proportioning systems provide an admixture volume of foaming agent between 0.2 l/min and 48 l/min. They are primarily used in municipal fire engines.

PORTABLE PROPORTIONING SYSTEM



The portable One Seven positive pressure proportioning system is particularly suitable for the low-cost upgrade of existing firefighting vehicles. It can be used locally in a very flexible way and supplies up to six jet pipes with water-foam concentrate mixture.

HYDRAULICALLY DRIVEN PROPORTIONING SYSTEMS



The hydraulically driven positive pressure proportioning systems deliver very large quantities of foaming agents, between 10 l/min and 600 l/min. Accordingly, they are used in powerful industrial fire engines or in fixed firefighting systems.

THE EXTINGUISHING SUCCESS ALWAYS IN VIEW

One Seven proportioning systems are equipped with a 5" color touchscreen as standard. The operating menu has been kept as simple as possible to prevent operating errors in stressful situations. The most important functions are marked with clear standard symbols. Control displays for various parameters such as level indicators for the water and foam concentrate tanks are available.





one seven®

Schmitz One Seven GmbH

Am Honigberg 31 | 14943 Luckenwalde | Germany

Phone: +49 3371 6913-0

Fax: +49 3371 6913-99

E-mail: foam@oneseven.com

www.oneseven.com

