

## Training Foam 3 or 6%

### Description

PLUREX TF3 TRAINING Foam has been carefully formulated to allow firefighters the ability to conduct training with their own foam proportioning and generating equipment, while minimizing the effects of such training on the environment. It has foam expansion and drainage characteristics very similar to conventional 3% or 6% AFFF products. This is in contrast to other training foams on the market that simulate the expansion but have drain times far quicker than real firefighting foam. Using SABO Training Foam allows the user to determine both how much foam will be generated and how long the foam blanket will likely remain.

The product has been formulated with surfactants and other chemicals commonly found in household products such as shampoo and dish washing detergents. It is safe to handle, is readily biodegradable and has low orders of aquatic toxicity. PLUREX TF3 Training Foam contains no fluorochemicals or fluorosurfactants. None of the components are reportable under current European regulations. Please check with local authority regarding use of this product and discharge to the environment.

### Application

PLUREX TF3 Training Foam is not intended for live fire training or for actual firefighting operations. See your SABO FOAM professional if you require live fire training. It may be used with all conventional proportioning and discharge devices as well as specialized products such as Compressed Air Foam generating equipment or systems (CAFS). As stated earlier, the foam characteristics, in terms of expansion ratio and foam drainage rates, will be very similar to conventional 3% or 6% AFFF products. This allows users to conduct operational training with regard to equipment set up, application techniques, and foam containment. It also allows users to determine the foam quality and range of different types of discharge devices at different operating pressures.

### Compatibility

PLUREX TF3 Training Foam SHOULD NOT be mixed, stored, or used with any other type of foam concentrate. Proportioning and application equipment should be flushed clean after use and before using different foam concentrate types.



### Typical Properties

PLUREX TF3	Training Foam
Shape and color	Light yellow to Amber liq
Density (25°C)	1.015 ±0.015 [g/ml]
pH (concentrate, 25°C)	7.0 - 8.5
Viscosity 20°C	1.4 [mm²/s]
Refractive index	1.3433 ±0.0020
Admixing ratio	3 or 6 [% Vol.]
Surface tension @6%	27 [dynes/cm]
Surface tension @3%	28 [dynes/cm]
Recommended storage/Usage temperature	2 to +50 [°C]

### Storage and Shelf Life

PLUREX TF3 Concentrate should be stored and used within a temperature range 2°C to 50 °C. Storage in the original polyethylene shipping containers or other containers approved by SABO FOAM that minimize evaporation should result in a shelf life of 10 or more years. Containers should be kept tightly closed until use to both prevent evaporation and to minimize any contamination that might promote natural biodegradation of the product (PLUREX TF3 is readily biodegradable). If the product is frozen during storage or transportation, thawing will render the product completely useable. Mixing after freeze/thaw cycling is recommended.

For more information on shelf life and materials of construction when using or storing training foam concentrate, ask your SABO FOAM supplier for related technical bulletins.

### Quality assurance

PLUREX TF3 – as with all SABO Products – is subject to a very stringent quality controls throughout all stages of production, from incoming raw to the complete product and is manufactured in an ISO 9001:2008 controlled facility. Quality assurance is therefore guaranteed.

### Environmental Information

**Aquatic Toxicity** – PLUREX TF3 Training Foam has been formulated to minimize the impact of AFFF discharges to an aquatic ecosystem. The levels of toxicity to both fish and lower organisms on the aquatic food chain are very low. Evaluations were conducted on the concentrate on both fingerling Rainbow Trout (a very sensitive fish species) and Daphnia magna (a water flea low on the aquatic food chain). Results of these tests are given as LC50 values (lethal concentration to 50% of the test population over a given time frame). It is common practice to conduct fish toxicity tests over a 96 hour exposure period and to conduct Daphnia tests over a 48 hour exposure period. The results of the testing are given below:

- 96 Hour LC50 Value for 1.78 g/L  
Fingerling Rainbow Trout (1,780 ppm)
- 48 Hour LC50 Value for 1.9 g/L  
Daphnia magna (1,900 ppm)

The above data are for the concentrate. Since it is rare for the concentrate to be released directly to the environment, we can estimate the aquatic toxicity of the three percent or six percent working solution by using a dilution factor of 33 for 3% and 16.7 for 6%.

#### 3% WORKING SOLUTION

96 Hour LC50 Value for 58.7 g/L  
Fingerling Rainbow Trout (58,700 ppm)

48 Hour LC50 Value 62.7 g/L  
for Daphnia magna (62,700 ppm)

#### 6% WORKING SOLUTION

96 Hour LC50 Value for 29.7 g/L  
Fingerling Rainbow Trout (29,700 ppm)

48 Hour LC50 Value for 31.7 g/L  
Daphnia magna (31,700 ppm)

The end result is that the working solutions of PLUREX TF3 can be considered practically non-toxic in aquatic ecosystems.

**Biodegradability** – Biodegradability of a chemical is a measure of how readily that chemical is broken down in the environment (typically by bacteria and fungi) into carbon dioxide and water or other components that are "generally regarded as safe" (GRAS). In determining the biodegradability potential of a chemical or mixture of chemicals, industries often times look at and compare two related analytical tests.

The first test, Chemical Oxygen Demand (COD), is a measure of how much oxygen would be required to convert the chemicals to their most oxidized state. The second test, Biochemical Oxygen Demand (BOD), is a measure of how much oxygen will be used up by bacteria and other microorganisms over a given time period (usually 5 to 30 days).

food source, which also consumes dissolved oxygen in the water as part of their metabolic process.

The ratio of BOD to COD determines the theoretical biodegradability of a chemical or chemical mixture. If the BOD/COD ratio is greater than 0.50 (50%), the chemical or chemical mixture is considered to be readily biodegradable. PLUREX TF3 Training Foam has BOD/COD ratios well above the 50% value. BOD and COD values for the concentrate and 3% and 6% working solutions are listed below. The subscript after the BOD represents the time frame in number of days over which the test was conducted. Longer times give the bacteria and other microorganisms more time to breakdown the chemicals and result in higher uses of the dissolved oxygen.

#### **PLUREX TF3 TRAINING FOAM CONCENTRATE**

Test	Results	Ratio (BOD/COD)
COD	146,400 ppm	
BOD <sub>5</sub>	64,971 ppm	0.444
BOD <sub>10</sub>	108,039 ppm	0.738
BOD <sub>20</sub>	155,416 ppm	1.062

#### **6% WORKING SOLUTION**

Test	Results	Ratio (BOD/COD)
COD	8,300 ppm	
BOD <sub>5</sub>	4,611 ppm	0.555
BOD <sub>10</sub>	5,623 ppm	0.677
BOD <sub>20</sub>	11,756 ppm	0.416

#### **3% WORKING SOLUTION**

Test	Results	Ratio (BOD/COD)
COD	3,900 ppm	
BOD <sub>5</sub>	2,507 ppm	0.643
BOD <sub>10</sub>	2,632 ppm	0.675
BOD <sub>20</sub>	3,331 ppm	0.854

**Nutrient Loading** – PLUREX TF3 Training Foam contains no nitrogen or phosphorous compounds. As such, it will not contribute to nutrient loading in either an aquatic or terrestrial ecosystem.

**Disposal** – PLUREX TF3 contains no ingredients that are reportable under European regulations. Care should be taken to prevent discharges of foam solutions or the concentrate into waterways wherever possible. After checking with the proper authorities at the treatment plant, it is often permissible to discharge to a waste treatment works. It may be necessary to meter the discharge at a rate that is acceptable to the plant operators in order to prevent excessive foaming that could upset the normal operation of the plant.

### Ordering Information

PLUREX TF3 Training Foam can be supplied in cans, drums or totes.

Part No. F203368C1	25 Liter can
Part No. F203368D1	200 Liter drum
Part No. F203368T1	1000 Liter tote