METEOR Training Foam Concentrate

Description

SKUM Meteor 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% firefighting foam concentrates. 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 SKUM Meteor 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. SKUM Meteor Training Foam contains no fluorochemicals or fluorosurfactants. None of the components are reportable under current European regulation. Please check with local authority regarding use of this product and discharge to the environment.

Typical Physiochemical Properties at 25 °C unless otherwise noted

Appearance	Light Yellow to Amber Liquid
Density	1.015 g/ml ± 0.015
pH	7.0 to 8.5
Viscosity	1.4 [mm^2/s]
Total Dissolved Solids (TDS)	6 - 9% by weight
Refractive Index	1.3433 ± 0.0020
Surface Tension at 6%	27 dynes/cm
Surface Tension at 3%	28 dynes/cm

Features

- Designed to be proportioned at either 3% or 6%
- Economical fire training alternative
- For use during **training** to simulate firefighting foams. It is **not** effective **or** intended for use in actual firefighting response
- Provides expanded foam blanket with air aspirating devices
- Can be used to calibrate proportioning equipment
- Biodegradable; this product is considered to be readily biodegradable. It does not contain any fluorochemicals or polymers that are used in firefighting foam agents.
- Suitable for use with fresh or salt water
- Shelf life of 10 to 15 years
- Temperature range 1.6 to 48.8 °C
- Supplied ready to use in 20 L, 25 L, 200 L, or 1000 L packaging

Application

SKUM Meteor Training Foam is not intended for live fire training or for actual firefighting operations. See your SKUM 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% firefighting foam concentrates. 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 - SKUM Meteor Training **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.

Storage/Shelf Life - SKUM Meteor Training Foam Concentrate should be stored and used within a temperature range of 2 °C to 49 °C. Storage under proper conditions in the original polyethylene shipping containers or other containers approved by Johnson Controls minimize evaporation and should result in a shelf life for more than 10 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 (SKUM Meteor Training Foam is readily biodegradable). If the product is frozen during storage or transportation, thawing will render the product completely usable. 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 Authorized SKUM Distributor for Technical Bulletins: Foam Systems - Acceptable Materials of Construction (T-2016111, latest revision) and Storage of Foam Concentrates (T-2016063, latest revision).

Safe Handling - When handling the concentrate, SKUM recommends the use of chemical goggles or splash proof safety glasses to prevent eye irritation. One should avoid direct contact of the concentrate with exposed skin to prevent possible mild irritation or drying of the skin. Use of rubber or plastic gloves and clean protective clothing is recommended. If exposed to the concentrate, washing and flushing with water should provide immediate relief. Exposure to the end of use working solutions (either 3% or 6%) is not expected to cause any discomfort.

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Environmental Information

Aquatic Toxicity - SKUM Meteor Training Foam has been formulated to minimize the impact of firefighting foam 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 LC_{50} 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 LC_{50} Value for Fingerling Rainbow Trout	1.78 g/L (1,780 ppm)
48 Hour LC_{50} Value for Daphnia magna	1.9 g/L (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 LC_{50} Value for Fingerling Rainbow Trout	58.7 g/L (58,700 ppm)
48 Hour LC_{50} Value for Daphnia magna	62.7 g/L (62,700 ppm)
6% WORKING SOLUTION	
96 Hour LC_{50} Value for Fingerling Rainbow Trout	29.7 g/L (29,700 ppm)
48 Hour LC_{50} Value for Daphnia magna	31.7 g/L (31,700 ppm)

The end result is that the working solutions of SKUM Meteor Training Foam 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). The bacteria and other microorganisms use the chemicals as a 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. SKUM Meteor 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 break down the chemicals and result in higher uses of the dissolved oxygen.

SKUM METEOR TRAINING FOAM CONCENTRATE		
Test	Results	Ratio (BOD/COD)
COD	146,400 ppm	
BOD_5	64,971 ppm	0.444
BOD_{10}	108,039 ppm	0.738
BOD_{20}	155,416 ppm	1.062
6% WORKING SOLUTION		
Test	Results	Ratio (BOD/COD)
COD	8,300 ppm	
BOD_5	4,611 ppm	0.555
BOD_{10}	5,623 ppm	0.677
BOD_{20}	11,756 ppm	1.416
3% WORKING SOLUTION		
Test	Results	Ratio (BOD/COD)
COD	3,900 ppm	
BOD_5	2,507 ppm	0.643
BOD_{10}	2,632 ppm	0.675
BOD_{20}	3,331 ppm	0.854

Nutrient Loading - SKUM Meteor Training Foam contains no nitrogen or phosphorous compounds. As such, it will not contribute to nutriment loading in either an aquatic or terrestrial ecosystem.

Disposal - SKUM Meteor Training Foam 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

SKUM Meteor Training Concentrate is available in pails, drums, totes, or bulk shipment.

Part No.	Description	Approximate shipping weight
F203502C1	25 L Pail	27.45 kg
F203502D1	200 L Drum	218.5 kg
F203502T1	1,000 L Tote	1110 kg

For bulk orders, consult an account representative.

Safety Data Sheets (SDS) are available at www.skum.com.

Note: While NFF (also known as SFFF) agents may be compatible with existing AFFF and/or NFF hardware, system contamination from non-fluorinated agents may exist if hardware and piping is not replaced upon conversion to non-fluorinated agents.

Note: The converted metric values provided are for dimensional reference only and do not reflect an actual measurement.