



(A Stable vapour suppressing foam to control Spills of Hazardous Materials and Fumes)

DESCRIPTION

USAFE GREEN HAZMAT FOAM is a non-toxic synthetic foam concentrate made of tensides, stabilizers, biopolymers, solvents etc. and can be used in all types of low, medium and high expansion foam generating equipments and also in Compressed-Air Foam System (CAFS).

USAFE GREEN HAZMAT FOAM cools and helps to suppress toxic vapour of chemicals and is suitable for use with fresh as well as brackish/ salt water of varying proportion without altering the efficiency. It is specially formulated for use as a multipurpose vapour suppressing foam. It suppresses the toxic vapours from any kind of hazardous material whether it is acidic, basic or neutral in nature. It is also effective in suppressing the vapours of flammable, toxic, corrosive, and odorous liquids.

USAFE GREEN HAZMAT FOAM is recommended for use on the materials like

Acetic Acid Di methyl chloro silane Nitric acid Acetic Anhydride Hydrochloric acid Organic acids Anhydrous Hydrogen Chloride Methyl chloro acetate Organic anhydrides Bromine HF (70%) Sulphur Mono chloride, Chlorine, Titanium Tetrachloride, Tri chloro silane

Anhydrous Ammonia Ethyl (& Alkyl) Amines Methyl Amines, Ammonia Solution Ethylene Di amine Sodium Hypochlorite, DMA-Dimethyl Amine, Hydrazine, TMA-Tri methyl Amine

Acetaldehyde, Acetone, Acetaldioxime, Acetone Cyanohydrin, acrylonitrile, Chlorobenzene, Dimethyl formamide, Esters, Ethers, Ethyl acetate, Ethyl benzene, Ethyl diamine, Ethylene oxide, Hydrazine monoacetate, Hydrocarbons, Hydroquinoline in Methanol, Hydrquinoline in Vinyl Acetate, Hydrogen peroxide, Ketones, Methyl Methacrylate, Propylene oxide, Styrene, Tetrahydrofuran, Toluene, Vinyl acetate

PROPERTIES

Appearance	Colourless Liquid
pH	6.0 - 8.0
Specific Gravity	1.01 to 1.03 gm/ml
Viscosity	Non Newtonian
Sludge Contents (% V/V)	Nil

APPLICATIONS

USAFE GREEN HAZMAT FOAM Concentrate is useful in suppressing various hazardous/ toxic vapours. It can be applied through High Expansion, Medium Expansion Foam Generator/ Branchpipe and Compressed Air Foam System (CAFS). While using with the Medium Expansion Foam devices Foam expansion is around 40:1 and Drainage Time (50%) is more than 1 hours. With CAFS System the stability of the foam increases enormously which is helpful in suppressing the toxic vapours to come in contact with air.

APPLICATION RATE

The required foam should be applied to the spills as quick as possible to take advantage of effective blanketing. Therefore the application rate is an important factor which is dependent on the spill area and the expansion ratio of the foam.

The application rate is based on foam blanket of 6 inches (150 mm) and a foam expansion ration as 1:20 is as follows:

Rate in gpm = $0.125 \times a / t$, where a = area in ft² and t = time in minutes And

Rate in lpm = $5.00 \times a / t$, where a = area in m² and t = time in minutes.

EXAMPLE

Let a horizontal storage vessel of Vinyl acetate located in a dyke area of 45.7m (150 ft) x 21.3 m (70 ft). The dike is high enough to accommodate the vessel material. Foam blanket should have to be placed within 2 minutes time.

The area for application of foam blanket

$$a = 150 \times 70 \text{ ft}^2 = 10,500 \text{ ft}^2$$
$$t = 2 \text{ min}$$

$$a = 45.72 \times 21.3 \text{ m}^2 = 973.8 \text{ m}^2$$
$$t = 2 \text{ min}$$

$$\text{Application rate}$$
$$= 0.125 \times 10,500 / 2 \text{ gpm}$$
$$= 656 \text{ gpm}$$

$$= 5.00 \times 973.8 / 2 \text{ LPM}$$
$$= 2,434 \text{ LPM}$$

USAFE GREEN HAZMAT FOAM

Therefore two 250 gpm (946 lpm) nozzles and one 150 gpm (568 lpm) nozzle is required.

The foam concentrate requirement for application of 1 hr (60 min) will be

656 gpm x 60 min x 6% = 2361 gallons OR 2434 lpm x 60 min x 6% = 8763 Litres

Periodic applications of foam may be necessary to maintain vapour-suppression until spill can be neutralized and therefore sufficient foam concentrate be kept to operate system for 60 minutes.

LIMITATIONS

Hazmat foams are used for suppressing vapours from static spills of hazardous liquids. Foam blanketing is not effective on running spills. Therefore, spills should be contained by permanent or temporary dikes, low areas or ditches. But the foam will give reasonable measure of protection before containment is achieved or on a slow running spill. There are certain highly reactive chemicals which destroys foam by reacting with water of foam blanket. Hazmat foams are little/ineffective on such chemicals, like Anhydrous Hydrogen Fluoride, Chlorosulfonic Acid, Fluorosulfonic Acid, Sulfur Dioxide, Oxychloride, Phosphorus Trichloride, Sulfur Trioxide, Sulfuryl Chloride, Oleum, Phosgene, Phosphorus, Thionyl Chloride

Hazmat foams have limited fire fighting ability, therefore not as effective as conventional firefighting foam. They may extinguish small fire in some acid or alkaline materials that destroy regular fire-fighting foams.

STORAGE/SHELF LIFE

USAFE GREEN HAZMAT FOAM should be stored in plastic/plastic lined containers. For bulk storage, stainless steel or mild steel tanks with internal epoxy coating is recommended. If stored in original container at below 50°C, an indefinite storage life can be expected. For a short period, maximum storage temperature up to + 65°C should not be harmful. USAFE GREEN HAZMAT FOAM concentrate can be defrozen / thawed without change in quality

COMPATIBILITY

USAFE GREEN HAZMAT FOAM is compatible with soft, hard, brakish or salt water. USAFE GREEN HAZMAT FOAM shall not be mixed with other manufacturers foam concentrate except for use in emergency situations.

ENVIRONMENTAL AND TOXICOLOGICAL INFORMATION

USAFE GREEN HAZMAT FOAM is biodegradable, low toxic. However, as with any substance, care should be taken to prevent discharge from entering ground water, surface water, or storm drains. It can be treated in sewage treatment systems. Since facilities vary widely by location, disposal or discharge of USAFE GREEN HAZMAT FOAM concentrate or foam solution should be made in accordance with local government rules and regulations.

For further details see USAFE GREEN HAZMAT FOAM Material Safety Data Sheet.

STANDARD PACKING SPECIFICATION

Container Shape	Rectangular HM-HDPE	Rectangular HM-HDPE	Cylindrical HM-HDPE
Capacity	20 Ltrs	30 Lts	200 Lts.
Empty Weight	1.2 Kgs	1.8 kgs	9.0 kgs
Nominal Dimensions (mm)	H W B 357 282 278	H W B 495 242 380	H D 915 585

Container capacity and seaworthy packing also complied with customers' requirements