

CHEMI FOAM

FOAMING AGENT FOR CELLULAR LIGHT WEIGHT CONCRETE

DESCRIPTION:

CHEMI FOAM is a clear light yellow free flowing liquid formulated to create foam when introduced into mortar or concrete mixtures to produce light – weight or foamed concrete. It is a ready – to use aqueous solution containing surface – active agent of the aromatic sulphonate type and additives, which impart stability to the foam, produced. The high volume of air incorporated into consists of homogeneous bubbles of cellular structure that is light in weight.

CHEMI FOAM is designed for use in both the “Air - Entraining” and “Prefoaming” methods of producing lightweight screeds and concrete. Depending on the dosage, type of materials, and mix design **CHEMI FOAM** will produce lightweight mixtures with dry density ranging from 240 to 1923 kg/m³, and 28-day compressive strength of 35 to 246 kg/cm².

USES:

CHEMI FOAM is used as a foaming agent in the production of Lightweight Concrete, Insulating Screeds, Cellular Concrete and Pre-cast units.

ADVANTAGES:

Lightweight mixtures using **CHEMI FOAM** offer qualities of moisture resistance, resistance to de-icing salts, freeze / thaw resistance, good insulation, fire resistance and non-corrosion of steel.

Water soluble and high dispensing property.
Easy to handle and dispense, reduce variables in mix designing.

SPECIFICATIONS / COMPLIANCES:

Fully complies with the requirements of ASTM C 796.

TECHNICAL INFORMATION:

Typical engineering Data:

Colour:	Light yellow liquid.
Specific gravity:	1.10 at 20° C.
Chloride Content:	Nil.
Nitrate Content:	Nil.
Freezing Point:	Minus 10° C.
Flash point:	None.

STORAGE LIFE:

Up to 2 years when stored in accordance with manufacturer's instructions.

ADDITION RATE:

0.2 liter to 2 liter per 100 kg cement depending on the density or thermal insulation requirements.

DIRECTIONS FOR USE:

AIR-ENTRAINING METHOD: This method is suitable for mixes of euco cement and sand in proportions ranging from 1:2 to 1:5.

Depending on the composition of the mix, concrete having densities lesser than 1200 kg/m³ can be produced in this method.

Mixing- Paddle – type concrete mixer is suitable for producing lightweight screeds by this method. First, half the quantity of sand is charged into the mixer. It is then followed with water and then with **CHEMI FOAM**.

The above three constituents are mixed thoroughly in the mixer for around 2 minutes, then cement and remainder of the sand are added to the above mix, and mixing is continued for a further period of 5 to 6 minutes. Additional amount of water may be added during the mixing if necessary.

The density of the wet mix is checked at intervals and when the density reaches the desired value, the mix is discharged from the mixer place at the required locations and moist cured for 7 days. For achieving best results and to prevent surface cracking, cure the above concrete with curing compound.

The wet mix density should be 110 – 210 kg/m³ higher than the desired dry density. The density of the wet mix is checked at intervals by the following method: Small amount of the mix from the mixer is taken, filled in a container and the weight is noted down. If this weight is W_m , the weight of container is W , and the weight of the same container completely filled with water is W_w ; the density of the wet mix is calculated using the formula:
$$\frac{[W_m - W]}{[W_w - W]}$$

TYPICAL MIX DESIGN

Cement:	50 Kg
Sand:	200 Kg
CHEM-FOAM MIX:	0.5 liter
Water:	24 liters approximately
Dry Density:	1400 kg/m ³ @ 28 days

(Including 7 days of wet cure).

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While discharging the mix from the mixer, the density of the mix should be around 1550 – 1610 kg/m³.

PRE-FOAMING METHOD:

In this method, foam is generated separately and is then incorporated with the cement or cement / sand slurry.

MIXING:

A mixture of air and 4% solution of **CHEMI FOAM** is forced through a labyrinth so that it emerges as a stem of foam, the above foam is then incorporated into the slurry of cement (or cement – sand) and water, using Paddle type concrete mixer. This method is more economical than the AIR ENTRAINING Method since 4% solution of CHEM-FOAM MIX expands to foam, which is 40 – 50 times its original volume.

Cement:	50 Kg
Sand:	150 Kg
Water:	38 liter
Foam:	30-40 liters @ 50 – 55 seconds
Wet density:	1300 – 1400 kg/m ³
Dry density:	450 – 550 kg/m ³ at 28 days (including 7 days moist cure)

Like any ordinary dense concrete, aerated concrete also requires moist curing for 7 days. For better results, it can be cured with two coats of curing compound such as **CHEM-CURE**. The strength and thermal conductivity of aerated concrete depend on dry density. Both strength and thermal conductivity increase with rises in the density of the aerated concrete. Composition of the mix also accounts for small changes in the strength and thermal conductivity of aerated concrete.

ENGINEER'S SPECIFICATION:

Lightweight screeds and concrete shall incorporate a foaming agent, **CHEMI FOAM** manufactured, or similar approved to the following specification:

Composition Light yellow liquid, surface active aromatic sulphonate agent plus certain additives.

Specific Gravity:	1.10 at 20° C
Chloride Content:	Nil
Nitrate content:	Nil

The foaming agent shall be used strictly in accordance with the manufacturer's specification.

LIMITATIONS:

The final desired properties of the lightweight concrete manufactured using **CHEMI FOAM** are at mixing time. Higher ambient temperature (Exceeding 90° F) may cause workability and / or air loss. Over mixing also tends to reduce air. However, based on previous trails, a mixture mixed in a paddle type mixer for eight minutes showed satisfactory results.