

FOAMED MINERALS

Scope and multiple applications

Foaming minerals is a relatively new technology. It became more popular with the development of cellular or foamed concrete, still the most applied technology in foamed minerals. Newcomers introduced by Neopor are the following technologies :

- **High insulation, foamed mineral board offering the same thermal insulation properties as p.e. styrofoam.**
- **Man-Made Aggregate (MMA), a lightweight aggregate based on powdery material, such as fly-ash, kiln dust, silt and others.**
- **Foamed Ceramic as building component or lightweight aggregate.**

Cellular Concrete (CLC)

Almost all industrial scale production of foamed minerals is been dedicated for the past 30 years to cellular concrete in the following major applications : -

- **void filling (geofills, landscaping, insulation etc.)**
- **floor screeds**
- **roof insulations**
- **block production**
- **non-load bearing building components**
- **load-bearing building elements (prefab)**
- **Cast in-situ (complete houses)**

Insulation Board

Neopor developed this technology with the largest privately owned building material manufacturer in Germany. More than 10 Mio. Deutschmark were invested in a fully automatic plant to produce initially close to 18.000 ft³ of this insulation material, that replaces polystyrene.

This insulation Board is produced in a density of only about 100 kg/m³, offering identical thermal insulation properties as styrofoam, however without the known hazardous behavior as the latter (to health, environment and fire-rating). It is absolutely inert and if disposed, reduces to only 3 % (!) of its foamed volume.

Different from styrofoam and other oil-derivates, fire-endangered insulation materials, insulation with Insulboard may be used to any height of buildings and is not restricted to only two floors as the former.

Insulboard has been approved by the German authorities and it is applied in the same manner as styrofoam.

Man-Made Aggregate (MMA)

MMA is the only man-made aggregate, where density, shape, size, grading and strength is given by the process. MMA is also the only man-made aggregate which does not require any primary energy. MMA hardens by hydration of the binder used (cement, flyash).

MMA is very simple to be produced and requires little capital investment. Under circumstances it could even be produced on the building site of large projects.

Foamed Ceramics

Foamed clay is the newest of Neopor's own developments and is expected to be marketed in 2002 only. As all clay-based material, primary energy is required (traditional clay brick sintering). Fine airbubbles embedded in the clay offer reduced weight and high thermal insulation.

Equipment

In cooperation with renowned concrete and construction machinery builders Neopor has developed a number of special plants and equipment. These include :

- **Foam generator with variable and continuous output, fully automatic, drawing direct supply of air, water and foaming agent.**
- **CLC mixing and conveying system to continuously mix and pump CLC in lower densities. Works either on silo (cement) or feeding bags (cement only or dry/pre-mix)**

- **Mobile mixers with integrated concrete pump and volumetric feeding system for sand. Output 10 m³/h.**
Fully automatic batching plant, inclusive scraper cement silo and hopper to also allow production of conventional concrete. Output > then 25 m³/h.
- **Special moulds to allow casting of hollow blocks or hollow core building elements (p.e. for partitions)**
- **Complete plants to produce blocks for either ;**
 - **air-curing**
 - **steam-curing**
 - **autoclaving**
- **3-step block plant initially starting :-**
 - **manual operation**
 - **machanized**
 - **automized**

Technical Assistance

Neopor offers full technical assistance in : -

- **Setting up Equipment and Plant**
- **Teach local labour how to operate equipment and plant**
- **Select the most suitable material**
- **Teach how to produce CLC in different densities**

Our customers are regularly updated on new technologies and developments. Our experts are monitoring the production of CLC by our customers if fed with results.