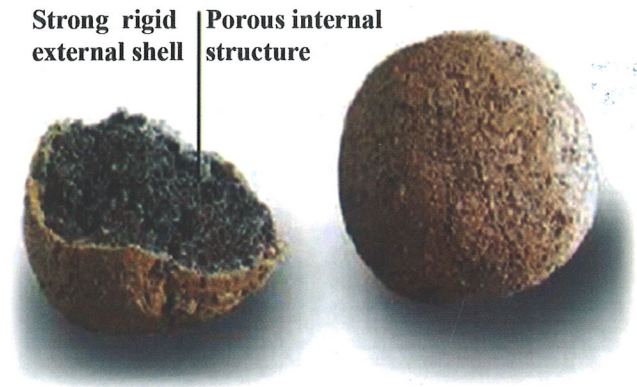


## THE MAIN BENEFITS OF LECA® IN GEOTECHNICAL APPLICATIONS ARE

- Low bulk density
- High insulation capacity
- Excellent drainage properties
- Non combustible
- Resistance to heat and frost
- Low capillarity
- Easy to spread and compact
- Large load bearing capacity
- Deformation resistance
- Inert and chemically neutral
- Resistant to fungus, rot, insect and pest
- Constant and high quality of the lightweight material
- Low transportation costs



### Geotechnical description

#### Grain size

Light Expanded Clay Aggregate is produced in form of a round shaped brown pellets with a resistant exterior skin and a porous and lightweight interior nucleus. The optimum grain size distribution can be cut out in function of the specific application. The grading of LECA® for most geotechnical applications is 10-25 or 0-25 mm.

#### Density

LECA® loose dry density is around 250 Kg/m<sup>3</sup> in function of the grain size distribution.

#### Resistance

Like all the other granular loose material, LECA® offers a frictional resistance without any cohesion. The internal friction angle is very high (42° -standard tri-axial test) and the stiffness measured on load plate test is exceptional for a lightweight material.

#### Optimum water absorption

Expanded clay consisting of separated bubbles has optimum water absorption. Leca water absorption varies up to 20 percent of its weight by time which offers low buoyancy. Therefore Leca is suitable for marine coastal conditions or in the fields with high water table.

#### Durability

LECA® is totally inert. It contains no harmful substances or gases and is absolutely neutral. Its resistance to chemicals is comparable to that of glazed tile or glass.

## Advantages

LECA® has been used as a geotechnical fill material in many European countries since as far as back as 1958. It possesses properties that can solve many problems simultaneously, providing simple solutions to a wealth of civil engineering challenges.

**Stability** - reduced risk of landslide and deformation

**Reduced settlements** - less damage to road structures, rail beds, pipelines and other structures

**Reduced earth pressure** - in structural backfill against foundations, retaining walls and bridge abutments

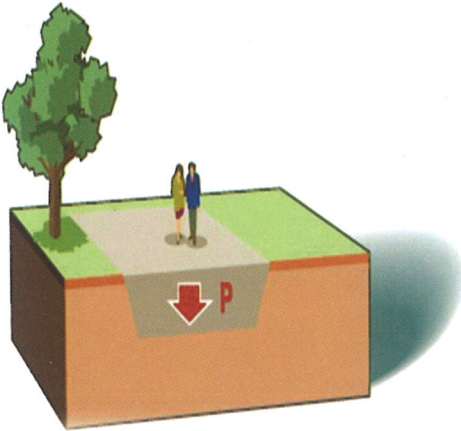
**Drainage** - on sports grounds, fields, slopes and roads

**Insulation** - protection for roads surface, pipelines and service mains

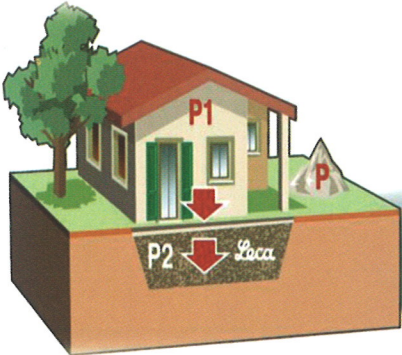
**Frost stability** - in road and rail beds

**Compaction** - When properly compacted, the compaction degree will be approximately 10 - 12%. Low density and ease of handling, coupled with consistent high quality, make LECA® a highly competitive alternative to other lightweight materials.





$$P = P_1 + P_2$$



## SUB BASE COMPENSATION

A loose lightweight material can grant high drainage capacity with a very low density.

These features may solve problems in the filling of foundations on soft layers that could not support the whole building load. In case of soils with low bearing capacity that will have non acceptable settlements, the foundation with LECA is a proper solution.

The load compensation method consists in the substitution of a natural soil mass with an equivalent LECA thickness so that the new load of LECA foundations plus the whole building load doesn't exceed the natural soil load that has been removed.



## FILLINGS IN FOUNDATIONS AND BEHIND RETAINING WALLS

When used against retaining walls LECA will reduce the weight acting on the rear of the structure by at least 75%, in comparison to traditional fill materials. This reduction in weight avoids potential sliding, overturning, slip and tilting or bearing failures and enables savings by increasing spacing between buttressing walls and reducing structural dimensions.

The bulk weight of the wall can also be reduced and more cost efficient, attractive materials can be used in place of costly, unattractive structural concrete.

The use of LECA will also minimize the differential settlement between piled bridge abutments and the embankment fill. As it is a free draining material LECA, can also eliminate the need for rear wall block drainage.

The 'pull out' resistance of LECA also makes it an ideal solution for reinforced soil retaining walls. Particularly when constructed over weak sub-soils or voids, this method can cut overall construction costs considerably.

