

LECA® HD - LOW WEIGHT / HIGH STRENGTH AGGREGATE LWAC

Structural applications where normal weight concrete is not the preferred solution and a **Higher Strength Leca® Lightweight Aggregate Concrete (LWAC)** is the solution, Leca® HD is the aggregate of choice.

Reduce deadloads and **achieve high strength** equivalent to Normal density concrete.

Leca® HD, Lightweight Aggregate (LWA) is a natural, unique and sustainable lightweight clay aggregate. Leca® LWA has remarkable properties which ensure its versatility for use in Lightweight Aggregate Concrete (LWAC) applications.

Concrete can be considered Lightweight when its density is not more than 2200 kg/m³.

The notation LC for strength class is typically used in specification, for Leca® HD e.g. LC 45/50 with a **cylinder strength 45 MPa and a cube strength of 50MPa**.

Typically, in LWAC concrete of same cylinder strength, the tensile strengths and strains and shear strengths are lower than Normal density concrete.

LWAC concrete is usually less stiff, consideration needs to be given to the reduction of self-weight and the resulting reduction in the depth of a beam or slab. Creep and Shrinkage should be considered at design stages.



Solutions

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Structural lightweight aggregate concretes have taken a leading role since the 1990s, being the chosen solution for the development of many bridges in Nordic countries, allowing structures to be established that defy gravity. In simple words, light weight concrete can be made with high resistance and **reduced weight, of typically 25 %**. Combining design parameters, structural LWAC can fit in wide range of density classes, from **1000 to 2000 kg/m³**, and wide range of strength classes, from **8 to 80 MPa**.

One of the big questions is how and where to utilize the LWAC. LWAC can be used in the same structures as NDA, using traditional admixtures and local cements. **The only difference is the use of high-performance Leca LWA that allows to reduce weight without significantly reducing the mechanical characteristics.**

Primary properties

Leca® LWA Material Characteristics

- Made of natural raw material
- Low to Mid density
- Greater pellet Strength
- Improved thermal Properties
- A1 fire rating
- Frost resistant
- Reduce transport cost

Leca® LWAC Concrete Characteristics

- Less reinforcement required
- Lighter than Normal Density concrete
- Good workability
- Low thermal conductivity
- High Temperature resistance
- Potential reduction in depth of beam and slab
- Reduction in deadload
- Improved Homogeneous properties
- Can be pumped**

Technical Specifications

- **The product complies with:** EN 13055-1
- **Fraction:** 4-12 mm
- **Loose bulk density:** 610-700 kg/m³
- **Crush resistance:** 5 N/mm²
- **Thermal conductivity:** $\lambda = \text{approx. } 0.100 \text{ W/mK}^*$
- **Reaction to fire:** class A1 (non-flammable)

*For dry aggregate