



Perlite



Lightweight, fireproof insulation and soil conditioner

USES

Lightweight Concrete
Concrete roof decks
Under floor insulation
Soil conditioner
Plant propagation
Hydroponic delivery of nutrients
Paint, Grout and general fillers
Lightweight plasters and renders
Animal and poultry feed
Hydrophobic insulation aggregate
(coated expanded perlite)

Drying agent
Refractory applications
Fireproofing compounds
Artificial stone
Low temperature cryogenic storage
Super chill insulation for fractional distillation
Processing of Liquefied Natural Gas
Insulation of cold boxes
Anti-caking additive
Chimney lining

Perlite, a naturally occurring mineral, which develops into a pure white and inert material of varying sizes, when expanded in our dedicated Perlite Expander, at temperatures up to 1000 Deg C.

The resulting pH neutral and biologically stable material has many uses, from thermally insulating materials at around Absolute Zero, through to high temperature applications at 1100 Deg. C.

Low Bulk Density and High Absorbency make the material ideal for paints, fillers and other decorative applications.

Extensive use of Perlite in horticulture, includes hydroponic delivery of nutrients, plant rooting and water holding, together with propagation and compaction.

Uses in the construction industry range from Lightweight Concrete through Concrete roof decks and under floor insulation.

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DINEEN PERLITE PROPERTIES

TYPICAL CHEMICAL PROPERTIES

SiO ₂	73%
Al ₂ O ₃	15%
Fe ₂ O ₃	2%
Na ₂ O	3%
K ₂ O	5%
CaO + MgO	1%
Trace	1%
Organic	nil
Moisture content	< 0.8%

TYPICAL PHYSICAL PROPERTIES

Refractive Index	1.5
Free Moisture	< 0.5%
pH of Water Slurry	6.5 – 7.5
Softening Point	890 – 1100 °C
Fusion Point	1280 – 1350 °C
Specific Heat	837 J kg ⁻¹ K ⁻¹
Thermal Conductivity (loose)	0.05 W m ⁻¹ K ⁻¹
Bulk Density	90 – 120 kg m ³



PERLITE APPLICATIONS

PERLITE CONCRETE

Perlite concrete is utilised when low mass and or insulation are required in applications where load bearing is not an issue. Typical examples are Floor Screeds, Chimney Lining, Thermal insulation, Lightweight Concrete Blocks and Roof Screeds.

A typical mix of 1 part Portland Cement to 6 parts Perlite will return a Density of 430 kg/m³; Thermal Conductivity of 0.09 W/m/Deg K; and Compressive Strength of 1.0 Mpa.

The mixing of Perlite concrete is particularly important as the Perlite should be added last; following the addition of water, to prevent segregation due to over mixing, which should not last more than 2 to 3 minutes.

PERLITE IN HORTICULTURE

The Primary role of expanded perlite in soilless growing mixes is aeration when added to composts, coir and other water holding aggregates. The porous surface of expanded perlite provides room alternately for both air and water in the mixes; each required for vigorous root growth. Different sizes of perlite are produced for this purpose, offering growers various amounts of air space after drainage. Usage rates by volume vary from 5% to 100% in green roots and hydroponics applications.

Perlite use is increasing in agricultural and turf grass applications, to break up compacted soils and retain water in dry climates.

PERLITE IN INSULATION

Expanded perlite provides a quick, inexpensive and permanent method for insulating masonry walls. Depending upon design conditions, reductions in heat transmissions of 50% or more can be obtained when loose fill is used in the hollow cores of concrete blocks or cavity type masonry walls. Perlite is a non-combustible, industrial mineral yielding superior dynamic thermal performance.

Super-cold cryogenic fluids such as hydrogen and helium are normally stored in double-walled vessels with perlite-filled annular spaces.

Perlite insulation is an inorganic product that does not support combustion, or rot, nor does it provide a habitat for rodents. It is ideal for use under concrete slabs, in chimneys and other high temperature applications such as pizza ovens, etc.