GENERAL CATALOGUE

LIGHTWEIGHT EXPANDED CLAY AGGREGATES AND BAGGED PREMIXED PRODUCTS

Laterlite
lightweight insulating solutions

Laterlite

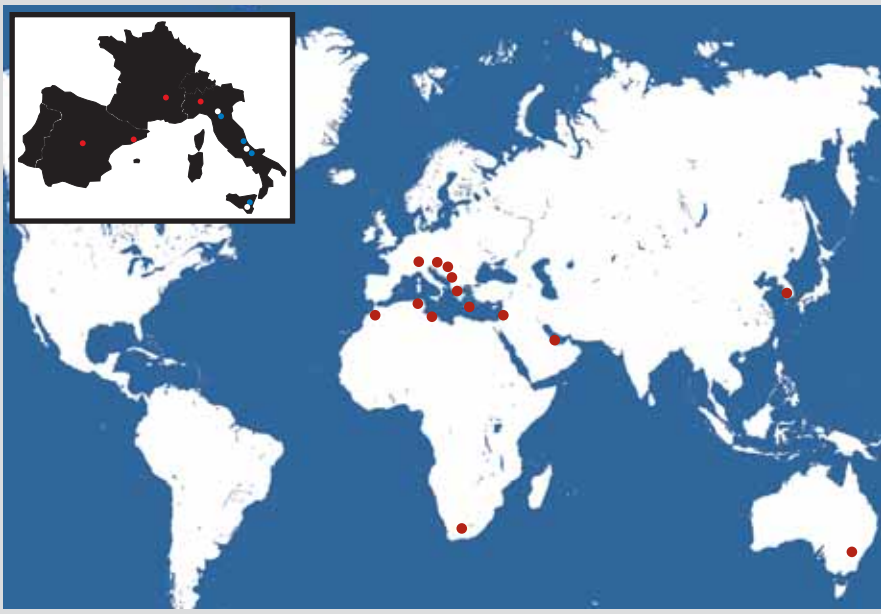
Our company

Laterlite is an Italian company that manufactures and develops lightweight insulating products for construction, civil engineering, geotechnical engineering, industrial uses, agriculture, and landscaping.

Our company history began in 1964 when we first introduced lightweight expanded clay aggregates into Italy. Today we have four Italian manufacturing plants, main offices in Milan, and a network that covers all of Italy. Later on during the 1990s we expanded internationally; we now have a structured presence in France, Switzerland, and Spain and we export to more than 20 countries in five continents.

Our research and development from the beginning was focused on creating innovative products based on the material in which we specialise: expanded clay. Currently our range includes lightweight granular materials of various types, special concretes for structural applications, a range of screeds and mortars, and a wide selection of lightweight insulating blocks that are manufactured by our sister company Lecasistemi.

Over these 50 years we have produced and sold more than 50,000,000 cubic metres of expanded clay products: long experience that has made Laterlite the leader in its field, helping designers and construction professionals to choose lightweight insulating products for use in construction, sustainable renovation projects, and complex engineering projects.



Sustainability

Laterlite expanded clay, as well as the rest of our range, are manufactured using the Best Available Technology (BAT) that uses natural resources efficiently, obtaining more than 5 m^3 of expanded clay from 1 m^3 of our abundant natural local clay. We operate an environmental management system that complies with voluntary international standard ISO 14001:2004, and Health and Safety Management Best Practice that meets British Standard BS OHSAS 18001.

Whilst we are continuing to reduce emissions from our manufacturing plants, for some time we have also been implementing a long-term programme of further development to make them more energy-efficient. At all of our factories we have replaced fossil fuels with alternative recycled combustibles and/or biomass, whilst a significant part of the electrical energy we use is now generated on site from renewable sources.

Laterlite is a partner member of the CASA CLIMA energy certification agency and is actively involved in promoting energy efficiency as a member of the Green Building Council for Italy: promoting the retention and upgrading of existing buildings and encouraging sustainability throughout the construction Industry supply chain. Most of our products are certified by ANAB-ICEA, the Italian Accreditation Institute, for use in sustainable construction.

Laterlite
Expanded Clay

Our products

Laterlite Expanded Clay

The core component of Laterlite products is expanded clay, a lightweight aggregate that has a cellular structure enclosed within a hard, strong ceramic "clinkered" outer shell that optimises the weight-to-strength relationship and gives outstanding thermal insulation characteristics. Expanded clay is inalterable, recyclable, re-usable, durable, contains no organic materials, and is resistant to fire. It is a sustainable, ecological product of natural origin that is certified for use in sustainable construction.
Laterlite can manufacture expanded clay that meets various different technical specifications, optimising the material for various uses: as the standard product, as Laterlite Agri with neutral ph for agricultural use, or as Laterlite Plus with extremely low water absorption.

Bagged pre-mixes

Laterlite has been commercialising and developing its Latermix range of lightweight insulating bagged pre-mixes, based on hydrorepellent Laterlite Plus expanded clay, for use as backfill or insulation or as a component of base layers, screeds, and structural concretes, since the 1990s.
These lightweight insulating pre-mixes all give guaranteed performance, are easy to lay, practical to work, and can be used in all types of construction, particularly in reconstruction.
The range includes a selection of non-lightweight screeds and other complementary products.

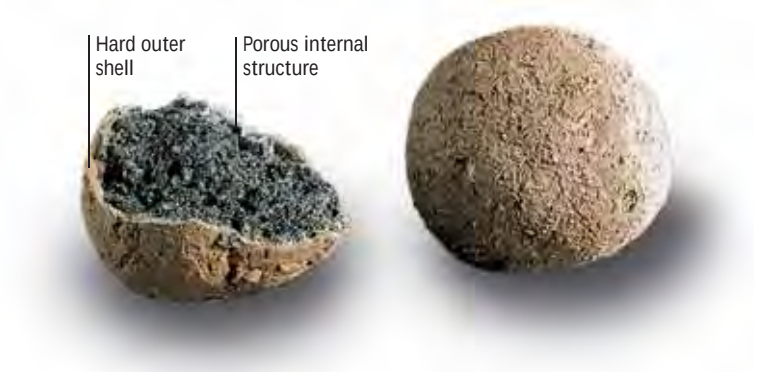
CONTENTS

Laterlite
Expanded Clay

LIGHTWEIGHT, INSULATING, STRONG, NATURAL NON-COMBUSTIBLE AGGREGATE

FOR WEIGHT REDUCTION, INSULATION, BACKFILL, DRAINAGE, AND IN LIGHTWEIGHT CONCRETES AND MORTARS, GARDENING, AND AGRICULTURE

Laterlite Expanded Clay is a lightweight aggregate made by expanding special natural clays at high temperature (1200°C). It is supplied either as granules in a range of sizes or as a crushed version, with a peculiar set of characteristics.



CHARACTERISTICS

Lightweight, insulating, strong

Its porous internal structure means it is lightweight (from approx. 320 kg/m^3), thermally insulating (from lambda [λ] 0.09 W/mK), and sound-absorbent. The ceramic "clinkered" outer shell surrounding the granules makes them very hard and resistant to compression (up to 12 N/mm).

Non-combustible and fire-resistant

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire. It is commonly used in refractory applications.

Extremely stable and durable

iIt will not rot, cannot be attacked by parasites (fungus, rodents, insects, etc.), is resistant to acids, bases, solvents, and freeze-thaw cycles, is dimensionally stable and non-deformable, and retains its properties unaltered over time; for all practical purposes this material will last forever.

A natural material for sustainable construction

The natural raw materials used in Laterlite Expanded Clay, its manufacturing process that respects the environment, and the total absence of harmful emissions (even in the presence of fire), make it ideal for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

Versatility

Laterlite Expanded Clay is used extensively in construction, both loose on its own or mixed with binders (cement, lime, resins, etc.). It is widely used as a component of concretes (p. 24-25), in blocks and precast elements (p. 26-27), for agricultural and horticultural applications, and in geotechnical engineering and infrastructure works.

High drainage capacity

Because of its granular nature, which consists of a dense network of intergranular voids with high drainage capacity, it can be used to create lightweight drainage layers of high strength.

CE-marked

It is manufactured and tested in accordance with international reference standards, and is CE-marked to denote conformity to EN 13055-1, EN 14063-1, and EN 13055-2.

TYPES

GRANULAR

Laterlite Expanded Clay in granular form optimises the relationship between weight, lightness, and insulating ability. The characteristic spherical granules come in a wide range of sizes (denominations 0/2 – 2/3 – 3/8 – 8/20).

CRUSHED

Laterlite Expanded Clay can also be supplied in crushed form, in a range of sizes (denominations 0/2 FRT, 0/4 FRT and 2/4 FRT) suitable for use as a component in some lightweight concrete (e.g. for lightweight blocks and refractory products) and wherever there is a need for a lightweight fine material that has good insulation characteristics.

STRUCTURAL

We use a particular manufacturing process to obtain a special type of expanded clay that has a denser and porous internal nucleus and a thicker, more tenacious ceramic "clinkered" external shell of particularly high compressive strength. Structural Laterlite Expanded Clay is available in a range of sizes (denominations 0/5 – 5/15 – 5/15) for use as a component of lightweight structural concrete mixes (p. 24-25) and for all applications where particularly good mechanical performance is required.

DRY

All the standard versions of Laterlite Expanded Clay normally contain a varying percentage of humidity but on request, can be supplied dry (humidity approx. 1%). Expanded clay can also be manufactured as the Laterlite Plus variant, which is dry and hydrophobic (p. 10).

GRANULAR 0/2

GRANULAR 2/3

GRANULAR 3/8

GRANULAR 8/20

CRUSHED

STRUCTURAL

TECHNICAL CHARACTERISTICS

LATERLITE EXPANDED CLAY	Granular				Crushed	
Denomination *	0 - 2	2 - 3	3 - 8	8 - 20	FRT 0 - 2	FRT 2 - 4
Density in kg/m³ (approx.) **	680	480	380	350	600	350
Resistance to granule fragmentation N/mm² **	≥ 5,0	≥ 3,0	≥ 1,5	≥ 1,0	-	-
Certified thermal conductivity λ W/mK	0,12	0,10	0,09	0,09	0,10	0,08
Reaction to fire	Euroclass fire rating – A1 (non-combustible)					

LATERLITE DRY **EXPANDED CLAY**	Granular				Crushed	
Denomination *	0 - 2	2 - 3	3 - 8	8 - 20	FRT 0 - 2	FRT 2 - 4
Density in kg/m³ (approx.) **	560	440	350	320	560	330
Resistance to granule fragmentation N/mm² **	≥ 5,0	≥ 3,0	≥ 1,5	≥ 1,0	-	-
Certified thermal conductivity λ W/mK	0,12	0,10	0,09	0,09	0,10	0,08
Reaction to fire	Euroclass fire rating – A1 (non-combustible)					

STRUCTURAL	Granular		
Denomination *	0 - 5	5 - 15	0 - 15
Density in kg/m³ (approx.) **	720	600	680
Resistance to granule fragmentation N/mm² **	≥ 12,0	≥ 5,0	≥ 9,0
Certified thermal conductivity λ W/mK	0,12	0,12	0,13
Reaction to fire	Euroclass fire rating – A1 (non-combustible)		

Refer to the Technical Data Sheet and the Safety Information Sheet.

* "Denomination" means the commercial denomination of the product. It does not refer to the diameter in mm of the Laterlite Expanded Clay granules.
** the densities and strengths given are indicative averages based on annual production checks at each manufacturing unit and may deviate by ± 15% as permitted by European Standard EN 13055-1. On request, Laterlite Technical Support can provide Product Data Sheets that are produced by each manufacturing unit. These give the most detailed and up-to-date information.
For specific applications that use denominations 0/2, 2/3 of Laterlite Expanded Clay and denomination 0/4 of Laterlite Plus in components that are intended to remain visible, particular measures have to be taken (contact Laterlite Technical Support).

PRINCIPAL METHODS OF APPLICATION: GRANULAR PRODUCT

Support

The bearing layer must be solid, stable, free of cracks, discontinuities or loose parts, of high compressive strength, and free of dust or the remains of other materials. Any services previously laid on the bearing layer (electrics, water, drainage, etc.) must be adequately protected and distanced to prevent them from being damaged whilst the Laterlite granules are being laid. If the product is to be spread on the ground, a separating layer (such as a geotextile membrane) must first be laid.

APPLICATION METHODS

Loose application

In order to exploit to the full the insulating and lightness characteristics of granular Laterlite Expanded Clay, the material should be laid loose and simply levelled to the thickness desired (with slight falls if required). If the top surface is not to be walkable it can be left as it is. If it is to be accessible or walkable or if a surface finish, such as an impermeable layer or paving, is to be applied, it must be covered with a layer of another material (various types of panel, a screed, a non-structural or structural floor slab, or plant growth soil), incorporating separation layers if required.
N.B. the space to be filled with Laterlite Expanded Clay must be adequately contained at the sides, particularly if the layers are thick and if the material is to serve as backfill.

Surface bonding with cement slurry

The topmost granules of a layer of loose Laterlite Expanded Clay can be fixed with a cement slurry to make the surface easy to walk on for completing the job (by adding a top slab, a screed, etc.).
The cement slurry (a mixture of cement and water) should be spread over the surface of the loose Laterlite Expanded Clay after it has been levelled. By varying the proportions of water and cement (w/c), the slurry can be made more on less fluid and will penetrate to a greater or lesser depth into the layer of expanded clay. The suggested approximate w/c ratio is 0.8 (equivalent to 1 no. 25 kg bag of cement + 20 litres of water).
If the top surface is to be accessible/walkable, or if a top finish is to be applied (such as an impermeable layer or paving), an appropriate levelling or top screed will be required.

Binding with cement

Permeable concrete (open-pore structure)
Laterlite Expanded Clay binds easily with cement to give a lightweight insulating permeable concrete with better mechanical strength as compared to the loose product. These concrete mixes can be prepared using ordinary batchers or mixers.

Typical formulation per m^3:
- 1 m^3 (20 bags) of expanded clay in the desired grain size;
- 150 kg of type 32.5 cement;
- 80-90 litres of clean water (or less if the material is already wet).

Preparation in a concrete mixer:
Pre-humidify the granules by emptying 3 bags of expanded clay (150 litres) into the mixer along with 10 litres of water. Then add 1 bag of cement (25 kg) and 5 more litres of water. Mix for approx. 3 minutes.

No sand should be included in the mix. The dosages of cement should not be increased as this would increase the weight of the mix and reduce its insulating characteristics.

Due to the open-pore structure of a porous concrete of this type, it cannot take reinforcement. If the final surface is to be accessible or walkable or if a top finish is to be applied (such as an impermeable layer or paving) a screed will be required.

Other binders

other types of binder, such as hydraulic lime and resins, can also be used with Laterlite Expanded Clay. In some situations it may be necessary to use the hydrophobic version of Laterlite Plus (p. 10). For further information, consult Technical Support.

LAYING WATERPROOFING AND PAVING: LEVELLING/COVER SCREEDS

If paving or waterproofing is to be laid on top of loose Laterlite Expanded Clay whose surface has been consolidated with slurry or that has been bound with cement, a top screed is required to level the surface and distribute the loading. This screed can be made using one of the Latermix range of pre-mixed screeds, or a traditional sand/cement mix. It can vary in thickness from 3 cm if it is to take an impermeable membrane to 5 cm if a residential type of floor finish is to be applied.

CONSIGNMENT

BAGS

Granular Laterlite Expanded Clay is consigned in easy-to-handle 50-litre polythene bags (20 bags/m^3), on non-returnable wooden pallets each holding the following quantities:

- 30 bags (1.5 m^3) of the 0/2 denomination.
- 60 bags (3.0 m^3) of the 2/3 denomination.
- 75 bags (3.75 m^3) of the 3/8 and 8/20 denominations.

By request, the 3/8 and 8/20 denominations of Laterlite Expanded Clay can be consigned on pallets each holding 35, 50, or 65 bags.

BIG BAGS

By request, all types of Laterlite Expanded Clay can be consigned in big bags of capacity approx. 1 – 1.5 – 2 – 2.2 – 3 m^3.

LOOSE

All types of Laterlite Expanded Clay can be consigned loose:

- in tipper trailer trucks (bulk cereal side or rear tipping type) of capacity up to 65 m^3 depending on the denomination and type, or in "walking floor" trailer trucks of capacity up to 80 m^3.
- in silo trailer trucks of capacity up to 60 m^3 fitted with pumping gear of power sufficient to move the material for a distance of up to 30m vertically or 80m horizontally.
- in containers for sea transport
- by ship for large quantities of product in bulk.

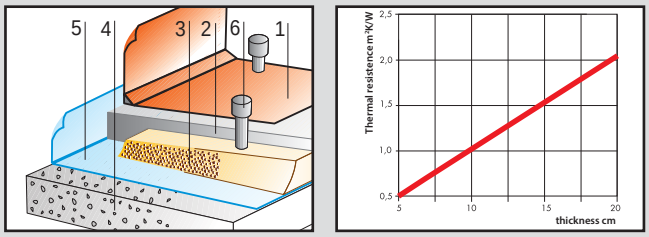
By request, different denominations can be delivered in a mix of sizes.

PRINCIPAL APPLICATIONS

Flat and sloping roofs

When used on a roof Laterlite Expanded Clay ensures that the necessary degree of insulation combined with high thermal inertia - the two indispensable requirements for comfortable winter and summer habitation - will be met. Because it is a lightweight material it can be laid to a considerable thickness without excessively loading the structure.

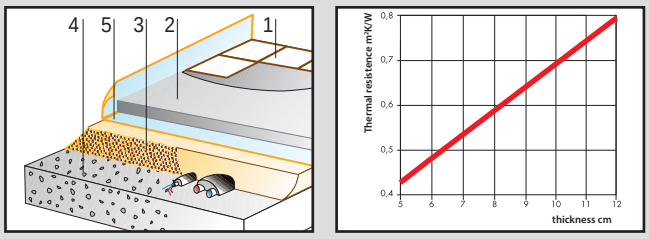
In its loose form, after it has been consolidated on its top surface, or has been bound with cement, it can be used as an insulation layer that can incorporate falls for rainwater run-off, or as ballast on top of a waterproof layer. If it is to take an impermeable membrane, a screed will be required (see p. 7). It can also be applied on roof pitches if is consolidated with cement.



1 Impermeable membrane.
2 Sand/cement screed or Latermix lightweight levelling screed.
3 Weight reducing/insulation/ fall layer of Laterlite Expanded Clay.
5 Vapour barrier.
4 Slab.
6 Vent.

As a base layer for a floor finish

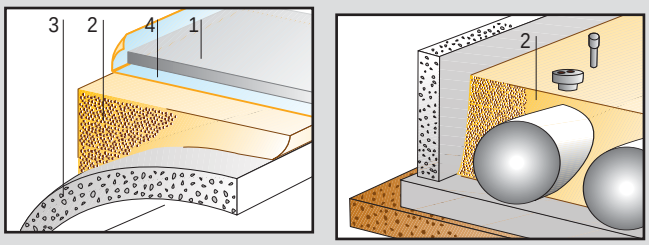
Because of the low specific weight of Laterlite Expanded Clay it can be laid to considerable thicknesses, and can incorporate services (electrical, water), whilst keeping the structural loading low.
The porous nature of the expanded clay granules gives excellent thermal installation and improves acoustic insulation.
For laying the floor finish, a lightweight insulating top screed is required, either using one of the mixes in the Latermix range or a traditional sand/cement mix.



1 Floor finish.
2 Latermix or sand/cement screed.
3 Lightweight insulating substrate of Laterlite Expanded Clay.
5 If required, elastic layer for impact sound installation and/or as a vapour barrier.
4 Slab.

Lightweight insulating backfill, including for refractory purposes

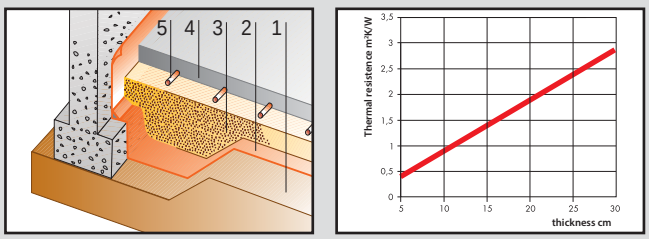
New construction often requires a backfill material that is stable, durable, lightweight, and non-combustible. It is even more frequently required for structural purposes in the refurbishment of old buildings, for instance as a lightweight fill on top of old structural vaults and different types of floors and decks, etc. Laterlite Expanded Clay is extremely well-suited to these applications. It can also be used as backfill in proximity to structural elements that are combustible (such as timber stairs and suspended floors, in relation to which see also Laterlite Plus p. 10-11). Laterlite Expanded Clay is also extensively used as an insulation material in civil and industrial construction as fire protection, for making safe active or redundant cisterns and storage tanks, for laying underground pipelines, and as insulation at high temperatures, including of refractory type.



1 Latermix or sand/cement screed.
2 Lightweight Laterlite Expanded Clay backfill/Insulation.
4 If required, elastic layer for impact sound installation and/or as a vapour barrier.
3 Structure.

Insulation for foundations and earth retaining walls

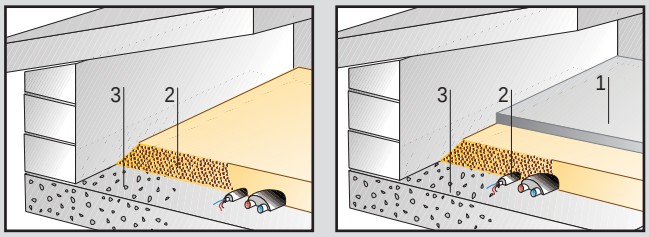
The underground parts of buildings must be adequately insulated to reduce heat loss into the ground. Laterlite Expanded Clay can be used for this purpose in civil, industrial, and zootechnical buildings, and as a hardcore layer with effective insulating characteristics below most floors, including industrial floors, refrigerated cold stores, or floors that incorporate heating pipework. For these types of application the recommended product is Laterlite Plus Hydrophobic Expanded Clay (p. 10-11), which is also very effective against rising damp or as insulation and drainage behind vertical earth-retaining structures.



1 Ground.
2 Impermeable separating layer
3 Laterlite Expanded Clay or Laterlite Plus insulation
4 Floor slab, industrial floor, or screed.
5 Underfloor heating if required.

Roof voids

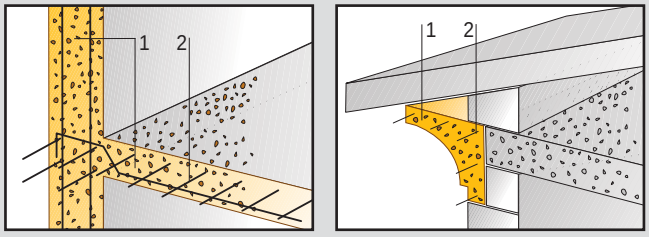
Laterlite Expanded Clay can be used in roof voids as a durable insulating layer of high compressive strength that is impenetrable to rodents or birds. Its very good thermal inertia makes it particularly effective as insulation that reduces summer overheating. If the roof void is not walkable the product can be laid loose (or in bags placed directly on the floor). If the roof void is to be accessible, the surface can be slurried or covered with wood-cement slabs; if it is to be walkable the product can be mixed with cement and topped with a screed.



1 Screed (if required) in Latermix or sand/cement.
2 Laterlite Expanded Clay insulation.
3 Floor slab.

Lightweight structural cast concrete

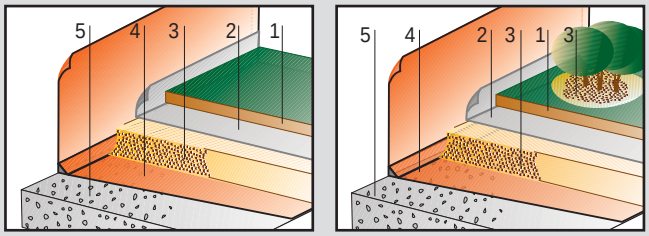
Laterlite Expanded Clay and Laterlite Structural are special high-strength aggregates that can be used as a component of lightweight structural concretes for the construction of collaborating floors, strengthening existing floors, and for in-situ or precast structures, giving significant weight savings as well as a number of other significant benefits (p. 24 – 25).



1 Lightweight structural concrete with Laterlite Expanded Clay.
2 Reinforcement.

Landscaping and roof gardens

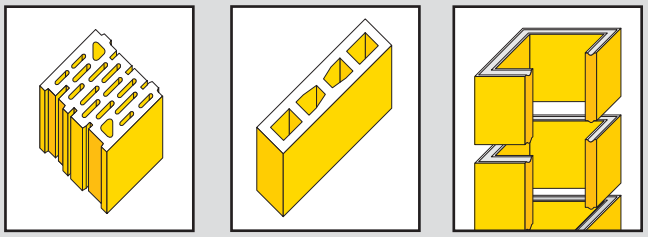
Laterlite Expanded Clay is widely used as a lightweight drainage layer in landscaped areas (green roofs, roof gardens, ponds, planters), or as a component of the growing or mulching layer for all types of garden. Laterlite Agri Expanded Clay (p. 12-13), the special aggregate with neutral pH, is a suitable product for these applications and for hydroculture.



1 Growing soil.
2 Filtering layer.
3 Laterlite Expanded Clay drainage or mulching layer.
4 Impermeable layer.
5 Structure.

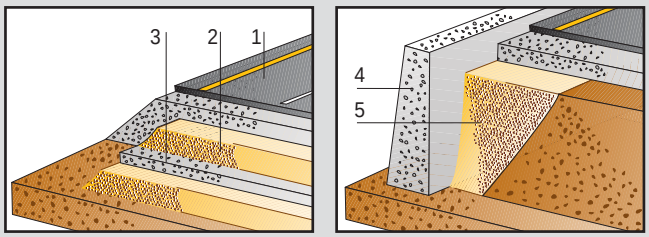
Blocks and small precast elements, including refractory products

The lightness, insulating, and fire resistance characteristics of Laterlite Expanded Clay make it the most important base material for fabricating a wide range of precast elements and components including refractory and sound absorbing products. such as blocks for construction, precast panels, chimneys and flues, fireplaces, and barbecues (p. 26-27).



Geotechnical engineering and road construction

The lightness and strength characteristics (its high angle of internal friction) of Laterlite Expanded Clay enable it to be used as a lightweight gravel for constructing embanked roads, reducing the weight of foundations, backfilling behind gravity retaining walls and reinforced retaining walls, stabilising slopes, backfilling tunnels and underground cavities, drainage, and in all geotechnical engineering applications (a specific manual is available for these types of application). Laterlite Expanded Clay and Laterlite Strutturale Expanded Clay can also be used as components of bituminous mixes for high-adhesion sound-absorbing asphalts.



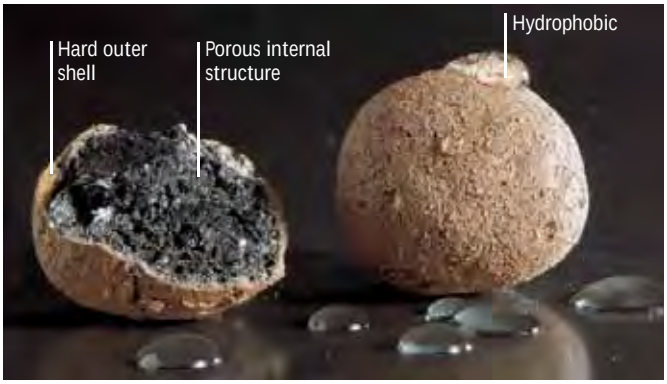
1 Roadbed.
2 Laterlite Expanded Clay embankment.
3 Quarry mix ballast layer.
4 Retaining wall.
5 Laterlite Expanded Clay drainage backfill.

Laterlite Plus

A SPECIAL, DRY, HYDROPHOBIC, INSULATING, STRONG, NATURAL, NON-COMBUSTIBLE LIGHTWEIGHT AGGREGATE

FOR USE IN DRY CONSTRUCTION SYSTEMS, AS INSULATING BACKFILL, FOR INSULATION IN FOUNDATIONS AND EARTH RETAINING WALLS, AND IN LIGHTWEIGHT LIME/CEMENT CONCRETES

Laterlite Plus is a lightweight expanded clay aggregate of very low capillarity that is manufactured by expanding special natural clays at high temperature (1200°C). It is supplied either as granules in a range of sizes or, by request, as a crushed version, with a peculiar set of characteristics.



CHARACTERISTICS

Dry and hydrophobic

Thanks to its exclusive manufacturing process, Laterlite Plus is dry and does not retain water. In construction, it is suitable for all typical situations where Laterlite Expanded Clay is used, particularly where humidity has to be minimal (in dry screeds, in proximity to moisture-sensitive materials, etc.).

Effective against rising damp and with good drainage capacity

Thanks to the hydrophobic properties of Laterlite Plus, when is laid in contact with the ground it protects structures and finishes from capillary rising damp. It will not retain water and drains it away.

Lightweight, insulating, and robust

Its porous internal structure makes it lightweight (from approx. 320 kg/m^3), thermally insulating (from lambda [ ] 0.09 W/mK), and sound-absorbent. The ceramic "clinkered" outer shell surrounding the granules makes them very hard with good resistance to compression.

Easy to mix with binders

Laterlite Plus binds well with cement, hydraulic lime, and resins, and since it does not require pre-wetting it makes mortars and concretes easier to mix, improves their workability, and reduces drying time.

Extremely stable and durable

Laterlite Plus will not rot, cannot be attacked by parasites (fungus, rodents, insects, etc.), is resistant to acids, bases, solvents, and freeze-thaw cycles, is dimensionally stable and non-deformable, and retains its properties unaltered over time; for all practical purposes this material will last forever.

Non-combustible and fire-resistant

Laterlite Plus is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire. It is widely used in refractory applications.

A natural material

Thanks to its use of natural raw materials, its manufacturing process, which respects the environment, and the total absence of harmful emissions (even in the presence of fire), Laterlite Plus is ideal for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

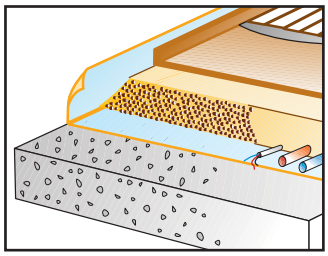
TECHNICAL CHARACTERISTICS

Denomination	2/3	3/8	8/20	0/4 FRT
Density in kg/m^3 (approx.)	440	350	320	520
Resistance to granule fragmentation N/mm^2	≥ 3,0	≥ 1,5	≥ 1,0	≥ 3,5
Certified thermal conductivity λ W/mK	0,10	0,09	0,09	0,12
Reaction to fire	Euroclass fire rating A1 (non-combustible)			
Package: bags each of 50 litres. on non-returnable wooden pallets. 2/3: 60 bags/pall. - 3,0 m^3/pall.; 3/8: 75 bags/pall. - 3,75 m^3/pall.; 8/20: 75 bags/pall. - 3,75 m^3/pall. By request, the 3/8 and 8/20 denominations can be consigned on pallets each holding 35, 50, or 65 bags.				

Refer to the Technical Data Sheet and the Safety Information Sheet.

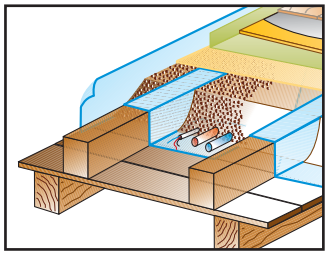
PRINCIPAL APPLICATIONS

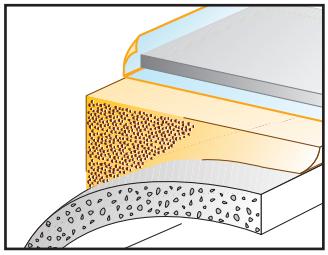
DRY USE



Dry screeds

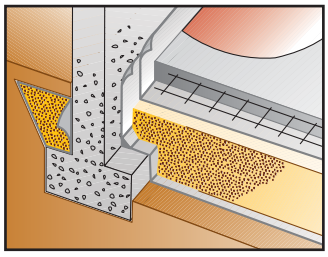
Laterlite Plus 2/3 in granular form is used as a continuous lightweight levelling, compensating, and insulating screed. It does not require compaction and can be applied in thicknesses of 1 cm and above. When used as part of a screeding system it can be finished by laying specific types of panelling (SmartPly OSB, plasterboard, fibreboard, chipboard, etc..) to take the flooring.





Lightweight insulating backfill

Laterlite Plus Expanded Clay in granular form of 3/8 size can be used as insulating backfill between rafters and joists in timber suspended floors to improve thermal and acoustic performance whilst excluding humidity and not increasing the fire load. Its high strength enables it to support the weight of the finishing layers and it is also ideal as lightweight insulating backfill on top of vaulted structures.



Insulation and humidity control in contact with the ground

Laterlite Plus 8/20 in granular form is ideal for quickly creating backfilled underfloor voids to prevent rising damp. Its excellent stability and durability also enables it to be used at ground floors as a reliable hardcore layer below a ground slab or under foundations. It can also be used as insulation, drainage, or to reduce the thrust of basement retaining walls. The layer thickness can be controlled by using special TermoBag modular packs.

APPLICATIONS WHEN MIXED WITH BINDERS

Laterlite Plus binds well with cement, hydraulic lime, and resins, and because it does not require pre-wetting it makes mortars and non-structural concretes easier to mix, improves their workability, and reduces drying time. Mortars and lightweight concretes mixed with Laterlite Plus are suitable for the same uses as for Laterlite Expanded Clay. The top surface of loose Laterlite Plus can also be consolidated with a cement slurry (see p. 6).

CEMENT		HYDRAULIC LIME	
Porous lightweigt concrete		Porous lightweigt concrete	
Laterlite Plus 3/8	1000 L	Laterlite Plus 3/8	1000 L
Cement 32,5	150 kg	Hidraulic Lime NHL 5 or 3,5	350 kg
Water	50 -60 L	Water	220-230 L
Lightweigt concrete		Lightweigt concrete	
Laterlite Plus 3/8	700 L	Laterlite Plus 3/8	1000 L
Cement 32,5	280 kg	Hidraulic Lime NHL 5 or 3,5	385 kg
Sand	380 L	Sand	380 L
Water	200 L	Water	210-220 L

Laterlite Agri

Incombustible
Euroclasse A1

ECO CONSTRUCTION

A N A B
PRODOTTO BIOEDILIZIA
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A SPECIAL pH NEUTRAL LIGHTWEIGHT, ROBUST, NATURAL, INERT INSULATING AGGREGATE

FOR GREEN ROOFS, LANDSCAPING, HORTICULTURE, FLORICULTURE, AND HYDROCULTURE

Laterlite Agri is a lightweight expanded clay aggregate optimised to give excellent properties for use in contact with plants. It is made by expanding special natural clays at high temperature (1200°C) and is supplied either as granules (expanded clay pebbles or grow rocks) in a range of sizes or as a crushed version.

CHARACTERISTICS

Neutral pH and chemically inert

Laterlite Agri is specifically formulated to be chemically inert with a neutral pH, and is therefore highly compatible with all types of plants and crops.

Air and water reservoir

Its high total porosity (approx. l'85% by volume) gives very good root ventilation and oxygenation to plants, whilst its high hydric retention (approx. 30%) makes it a valuable humidity reservoir: water is stored in the internal porosity of the clay granules and is slowly released to the plants.

Excellent draining capacity

Its dense network of intergranular voids of high drainage capacity prevents water from stagnating.

Lightweight

Its low density (approx. 330 kg/m^3) is particularly appreciated in green roof systems and roof gardens because it reduces loading on the structure, and is widely used to the preparation of substrates to improve their physical characteristics.

Mineral, rotproof, and non-combustible

As a 100% mineral product it will not rot, cannot be attacked by parasites (fungus, rodents, insects, etc.), is not conducive to the spread of plant diseases, is completely non-combustible (Euroclass fire rating – A1), fire-resistant, and safe.

Stable and durable

It is dimensionally stable and non-deformable. It Is not adversely affected by freeze/thaw cycles, is resistant to acids and bases, and retains its properties unaltered over time.

Insulating characteristics

Its low thermal conductivity (lambda [λ] 0.09 W/mK) reduces sudden temperature changes in the substrate and increases the thermal resistance of green roof systems.

A natural and certified product

The natural origin of Laterlite Agri, combined with its manufacturing process, which respects the environment, make it a highly sustainable product. It is also certified for use in sustainable construction by ANAB-ICEA, the Italian Accreditation Institute.

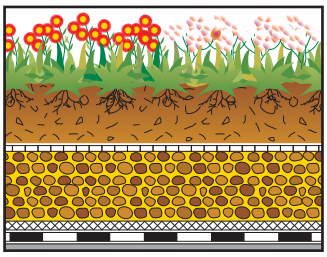
TECHNICAL CHARACTERISTICS

	Crushed		Granular	
Denomination	2/4 FRT	2/8 FRT	3/8	8/20
Density in kg/m^3 (approx.)	350	330	380	350
Total porosity	ca. 86%			
Speed of infiltration (mm/min)	42	157	200	> 500
Electrical Conductivity (mS/m)	25	21	8	7
Water volume at pF1 (%V/V)	21	18	13	10
pH	6 - 7			
Package: bags each of 50 litres. on non-returnable wooden pallets. 65 bags/pall. - 3,25 m^3/pall.;				

Refer to the Technical Data Sheet and the Safety Information Sheet.

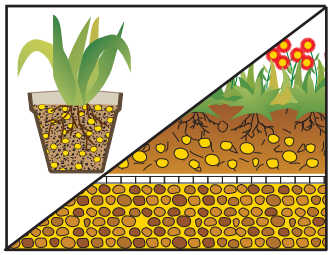
APPLICATIONS

Drainage and moisture retention



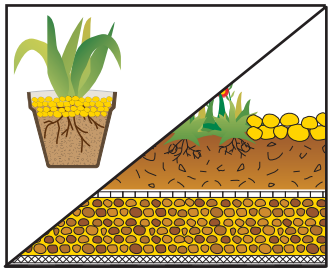
Laterlite Agri is ideal as a lightweight draining layer in roof gardens and green roofs (both extensive and intensive), tubs, planters, vases, or in natural soil. It prevents water stagnation and acts as a valuable water reserve for plants, without increasing the weight of the structure. Laterlite Agri is used by placing a layer of the material, in the desired grain size, of variable thickness (not less than 5 cm), below the growing medium on a roof, in a container, or in a planting pit.

Growth substrate



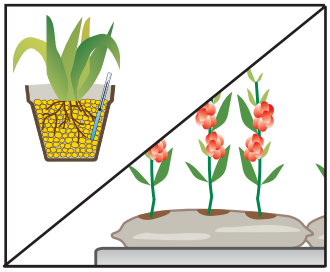
Laterlite Agri can be mixed with the other components of a growth substrate (peat, compost, etc.) to improve its physical and chemical properties (humidity control, aeration, dimensional stability, lightness, durability,etc.). It is ideal for any type of cultivation, both domestic and intensive, and particularly in green roof systems. A lightweight substrate can be created in situ by mixing the individual ingredients and adding a percentage of 20% to 40% Laterlite Agri, or a substrate can be supplied pre-mixed ready for use. The characteristics of LaterliteGreen premixed lightweight substrate are optimised for use in green roof systems and roof gardens. It is consigned in big bags or can be pumped from a silo/tanker truck.

For improving garden appearance and mulching



A layer of 3/8 or 8/20 Laterlite Agri (of recommended minimum thickness 10 cm) placed on top of the soil at the bottom of plants will hinder the growth of weeds, minimise loss of humidity from the substrate due to evaporation, reduce plant water stress and summer watering frequency, protect the soil from erosion and sudden temperature changes, and will give the garden a more orderly appearance. It is ideal for use with plants in pots, planters, outdoors, in roof gardens, vegetable gardens, or on green roofs.

Hydroponics and aquaponics



Laterlite Agri is the ideal inert substrate for hydroponic and acquaponic crops, thanks to its standardisable chemical and physical characteristics, its excellent insulating characteristics, which reduce sudden temperature changes, its freedom from phytotoxic substances, and its resistance to crushing. It is suitable for indoor or outdoor domestic use (in pots or in automated systems) and for intensive soilless cultivation in greenhouses, for which the specific product IdroLaterlite in grow-bags (in 33.3 litre bags) can also be used.

BAGGED PRE-MIXED CONCRETES AND MORTARS

The Laterlite range of bagged pre-mixes results from twenty years of technical development and refinement. They include a wide variety of products for use in construction based either on hydrophobic Laterlite Plus expanded clay, to give a lightweight insulating product (Latermix range), or on traditional aggregates (Massettomix Range). The properties of these high-performance technical products are optimised for specific applications (as shown in the table below).
Laterlite pre-mixes are easy and safe to use: each bag contains the optimised mixture of aggregates, binders and additives. By adding only water and mixing these components in an ordinary concrete mixer, an excellent and consistent performance can be achieved, ensuring success for the construction project. On the construction site, delivery of the mixed concrete or mortar to the floor where it is required can be simplified using a floor screed conveyor. The laying procedure is simple and is the same as that used for traditional products. Laterlite pre-mixes are also ideal for use on small sites. They simplify logistics on sites where access is difficult, particularly in the case of the lightweight products, which are easier to handle and can be transported very efficiently (up to 3 more product can be delivered and placed in position for the same transported weight as a traditional product).

Non structural lightweight concretes

Latermix Cem Classic Latermix Cem Mini

- Density (approx.) 600 kg/m^3
- Resistance 2,5 - 5 MPa (EN 13813)
- Thermal conductivity λ 0,134 - 0,142 W/mk
- Consistency semi fluid

Lightweight screed mortars

Latermix Facile Latermix Forte Latermix Fast

- Density (approx.) 1000 - 1150 kg/m^3
- Resistance 9 - 16 MPa (EN 13813)
- Thermal conductivity λ 0,251 - 0,291 W/mK
- Consistency semi-dry “damp soil”

Screed mortars

PaRis 2.0 Heated floor screed Pronto Quick drying screed

- Density > 2000 kg/m^3
- Resistance 25 MPa (EN 13813)
- Thermal conductivity λ 2,02 - 1,43 W/mk
- Consistency semi-dry “damp soil”

Lightweight structural concretes

Latermix Béton 1400 Latermix Béton 1600

- Density 1400 - 1600 kg/m^3
- Resistance 25 - 35 MPa (EN 206-1)
- Thermal conductivity 0,42 - 0,54 W/mk
- Consistency semi fluid

Easy to mix with only water

Latermix Cem Classic

Incombustible
Euroclasse A1

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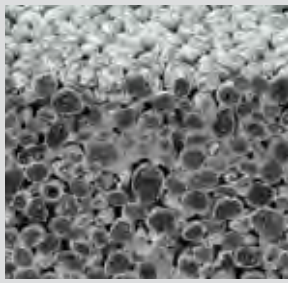
ECO CONSTRUCTION



QUICK-DRYING LIGHTWEIGHT INSULATING PERMEABLE CONCRETE

FOR USE (INCLUDING IN THICK SCREEDS) AS A BASE OR BACKFILL, A SUBSTRATE, FOR CREATING FALLS AND FOR INSULATION AND DRAINAGE

Latermix Cem Classic is a bagged pre-mixed lightweight permeable insulating no fines concrete based on special Laterlite Plus hydrophobic expanded clay of intermediate grain size, and is ready for use after mixing with only water.

CHARACTERISTICS

Quick-drying
The mix requires only minimal amounts of water and dries quickly even in thick layers, thanks to its open-pore structure and its formulation based on hydrophobic Laterlite Plus expanded clay.

Lightweight
Latermix Cem Classic, in situ, weighs approx. 600 Kg/m^3, less than one third the weight of a traditional or flowing screed and less than a quarter of that of structural concrete. It reduces dead loading and is particularly suitable for reconstructing existing floors, vaults, or roofs, or to prevent excessive loading in seismic zones.

Insulating characteristics
Because is over than 10 times more insulating than traditional concrete products (λ =0.134 W/mK), it can be used to supplement or replace the insulation in flat or pitched roofs, floor slabs, and vaults, and reduces thermal bridging. Its porosity improves acoustic insulation.

Strong, stable, and durable
It has high compressive strength (2,5 MPa), is dimensionally stable and non-deformable, and retains its properties unaltered over time. It is the ideal support to take top screed layers.

Non-combustible and fire-resistant
This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire.

High drainage capacity
Thanks to its network of intergranular voids it is extremely permeable to water and can also be used as support, backfill, or as a layer of draining ballast on a roof or on the ground.

Suitable for sustainable construction
The natural raw materials used in Latermix Cem Classic, its manufacturing process, which respects the environment, and the absence of harmful emissions (even in the presence of fire), make it suitable for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

APPLICATIONS

- For creating falls and thermally insulating flat roofs.
- As a lightweight insulating substrate on a floor slab (incorporating services if required)
- As a lightweight insulating backfill and levelling including in thick layers (vaults, etc.)
- As a lightweight draining layer of high compressive strength.

N.B. if an impermeable layer or top finish is to be applied, a levelling screed is required (see p. 7).

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	500 kg/m^3
In-place density (approx.)	600 kg/m^3
Certified average compressive strength	2,5 N/mm^2 (25 kg/cm^2)
Certified thermal conductivity λ	0,134 W/mK
Drying times (3% RH)	7 days (th. 5 cm)
Suggested thicknesses	≥ 5 cm
Bags required per 1 m^2 of floor area	0,21 bags per 10 mm depth
Package: bags each of 50 litres on non-returnable wooden pallets, 60 bags/pallet - 3,0 m^3/pallet.	
Storage life: 12 months from date of packaging .	

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Latermix Cem Mini

Incombustible
Euroclasse A1

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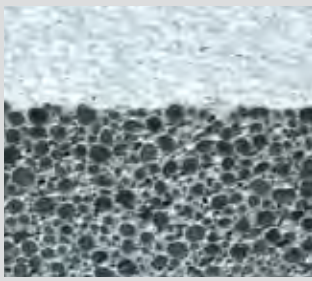
Istituto per la Certificazione Etica e Ambientale

ECO CONSTRUCTION

CE



A MULTIPURPOSE LIGHTWEIGHT INSULATING CONCRETE

FOR USE AS A BASE SCREED OR BACKFILL, AS A TOP SCREED, OR FOR CREATING FALLS ON FLAT ROOFS WITH A DIRECTLY APPLIED TOP FINISH

Latermix Cem Mini is a bagged, pre-mixed semi-fluid lightweight insulating concrete with a closed structure based on special Laterlite Plus fine-grained hydrophobic expanded clay, and is ready for use after mixing with only water.

CHARACTERISTICS

Multipurpose
Latermix Cem Mini can be used as a substrate, for incorporating services in floors, as a base or top screed, or for creating falls on flat roofs. Because of its closed surface, an impermeable layer or ceramic and stone paving can be laid on it directly.

Lightweight
It weighs approx. 600 Kg/m^3 when laid: less than one third the weight of traditional or flowing screeds and less than a quarter of that of structural concrete. It reduces dead loading and is particularly suitable for reconstructing existing floors, vaults, and roofs, or to prevent excessive loading in seismic zones.

Strong, stable, durable, and CE-marked
It has high compressive strength (5 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds), is dimensionally stable and non-deformable, and retains its properties unaltered over time.

Insulating characteristics
It is 10 times more insulating than traditional concrete products (λ =0.142 W/mK), can be used to supplement or replace the insulation on flat or pitched roofs, floor slabs, and vaults, and reduces thermal bridging. Its porosity improves acoustic insulation.

For interior and exterior use
Can be used to lay screeds and falls internally or externally.

Non-combustible and fire-resistant
This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire.

Suitable for sustainable construction
The natural raw materials used in Latermix Cem Mini, its manufacturing process, which respects the environment, and the absence of harmful emissions (even in the presence of fire), make it suitable for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

APPLICATIONS

- As thermal insulation and for creating falls on flat roofs (an impermeable layer can be laid directly on the surface).
- As a lightweight insulating substrate or base screed on top of a floor slab (including the incorporation of services and levelling them).
- As a lightweight insulating screed to take a ceramic or stone floor finish.

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	600 kg/m^3
In-place density (approx.)	600 kg/m^3
Certified average compressive strength	5,0 N/mm^2 (50 kg/cm^2)
Certified thermal conductivity λ	0,142 W/mK
Suggested thicknesses	≥ 5 cm
Bags required per 1 m^2 of floor area	0,21 bags per 10 mm depth
Package: bags each of 50 litres on non-returnable wooden pallets, 50 bags/pallet - 2,5 m^3/pallet.	
Storage life: 12 months from date of packaging.	

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Latermix Facile

LIGHTWEIGHT MULTIPURPOSE INSULATING SCREED

FOR CREATING SLOPED SURFACES, BASE AND TOP SCREEDS, AND ROOF SCREEDS WITH A DIRECTLY BONDED TOP LAYER

Latermix Facile is a bagged pre-mixed lightweight insulating mortar screed of semi-dry "damp soil" consistency based on special Laterlite Plus hydrophobic expanded clay, and is ready for use after mixing with only water.

CHARACTERISTICS

Lightweight

It weighs approximately half as much as a traditional or flowing screed (approx. 1,000 Kg/m^3 when laid). It reduces dead loading and is particularly suitable for reconstructing existing floors and roofs, or to prevent excessive loading in seismic zones.

Insulating characteristics

Because it is over 6 times more insulating than traditional or flowing screeds (λ =0.251 W/mK) it improves the thermal resistance of floor and roof slabs and reduces thermal bridging. Its porosity improves acoustic insulation, including in association with specific resilient layers (see impact sound, P 21).

For interior and exterior use

It can be used in screeds and to create falls internally or externally, including for the application of "wet-on-wet" flooring. It is ideal for use on roofs, including sloping roofs, where its very smooth pore-free surface enables impermeable layers or paving to be directly applied.

Suitable for sloping surfaces and details

Thanks to its semi- dry "damp soil" consistency it can also be applied to sloping or uneven surfaces and can be shaped to create details, such as the falls in a screed for a wet room or shower.

Strong, stable, durable, and CE-marked

It has high compressive strength (9 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds), is dimensionally stable and non-deformable, and retains its properties unaltered over time.

Non-combustible and fire-resistant

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire.

Suitable for sustainable construction

The use of natural raw materials in Latermix Facile, its manufacturing process, which respects the environment, and the absence of harmful emissions (even in the presence of fire), make it suitable for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

APPLICATIONS

- As a lightweight insulating screed to take a ceramic or stone floor finish
- As thermal insulation and for creating falls including on flat or pitched roofs (on which the impermeable layer can be laid directly).
- As a lightweight interlinking substrate on a floor slab (incorporating levelled service runs if required).

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	800 kg/m^3	
In-place density (approx.)	1.000 kg/m^3	
Certified average compressive strength	9 N/mm^2 (90 kg/cm^2)	
Certified thermal conductivity λ	0,251 W/mK	
Laying of ceramic or stone finishes	after 7 days	
Suggested thicknesses	Unbonded screed	≥ 5 cm
	Bonded screed	≥ 3,5 cm
	Floating screed	≥ 6 cm
Bags required per 1 m^2 of floor area	0,38 bags per 10 mm depth	
CE marking	EN 13813 CA-C7-F3	
Package: bags each of 32 litres on non-returnable wooden pallets, 60 bags/pallet - 1,92 m^3/pallet.		
Storage life: 12 months from date of packaging.		

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Latermix Fast

Incombustible
Euroclasse A1

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ECO CONSTRUCTION

CE

QUICK-DRYING LIGHTWEIGHT INSULATING SCREED

IDEAL FOR MOISTURE-SENSITIVE ADHESIVE AND FLOATING FLOORING

Latermix Facile is a bagged pre-mixed lightweight insulating screed mortar of semi-dry "damp soil" consistency based on special Laterlite Plus hydrophobic expanded clay, and is ready for use after mixing with only water.

CHARACTERISTICS

Quick-drying

Its special formulation makes possible rapid drying times that enable moisture-sensitive types of flooring (parquet, carpet, vinyl, etc.) to be laid after 7 days (on a thickness of 50 mm) and ceramics or stone to be fixed with adhesive (after only 3 days).

Lightweight

It weighs approximately half as much as a traditional or flowing screed (approx. 1.150 Kg/m^3 when laid), reducing dead loading. It is particularly suitable for reconstructing existing floors and roofs, or to prevent excessive loading in seismic zones.

Strong, stable, durable, and CE-marked

It has high compressive strength (16 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds), is dimensionally stable and non-deformable, and retains its properties unaltered over time.

Insulating characteristics

Because it is 6 times more insulating than traditional or flowing screeds (λ =0.291 W/mK) it improves the thermal resistance of floor and roof slabs and reduces thermal bridging. Its porosity improves acoustic insulation, including in association with specific resilient layers (see impact sound, Calpestop: P 21).

Non-combustible and fire-resistant

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire.

Suitable for sustainable construction

Its use of natural raw materials, its manufacturing process, which respects the environment, and the absence of harmful emissions (even in the presence of fire), make it suitable for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

APPLICATIONS

- As a lightweight insulating screed for moisture-sensitive flooring and all other types of floor.

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	1.100 kg/m^3	
In-place density (approx.)	1.200 kg/m^3	
Certified average compressive strength	16 N/mm^2 (160 kg/cm^2)	
Certified thermal conductivity λ	0,291 W/mK	
Laying of ceramic or stone finishes	after 3 days	
Laying of moisture sensitive finishes (3% RH)	after 7 days (th. 5 cm)	
Suggested thicknesses	Unbonded screed	≥ 5 cm
	Bonded screed	≥ 3,5 cm
	Floating screed	≥ 6 cm
Bags required per 1m^2 of floor area	0,69 bags per 10 mm depth	
CE marking	EN 13813 CA-C16-F4	
Package: bags each of 16 litres on non-returnable wooden pallets, 84 bags/pallet for 1,34 m^3/pallet.		
Storage life: 12 months from date of packaging.		

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Latermix Forte

Incombustible
Euroclasse A1

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ECO CONSTRUCTION

CE

LIGHTWEIGHT, DRYING AND SHRINKAGE CONTROLLED, INSULATING SCREED.

SUITABLE TO TAKE ALL TYPES OF ADHESIVE AND FLOATING FLOORING

Latermix Forte is a bagged pre-mixed lightweight insulating mortar of semi-dry "damp soil" consistency for internal use as a screed, and is based on special Laterlite Plus hydrophobic expanded clay, and is ready for use after mixing with only water.

CHARACTERISTICS

For all types of flooring
Its special formulation gives controlled drying times for moisture-sensitive finishes, and permits any type of flooring to be applied.

Ideal for large surfaces
Its extremely low shrinkage enables large areas to be laid without joints (up to 100 m^2).

Lightweight
It weighs approximately half as much as a traditional or flowing screed (approx. 1.050 Kg/m^3 when laid). It reduces dead loading and is particularly suitable for reconstructing existing floors and roofs or to prevent excessive loading in seismic zones.

Strong, stable, durable, and CE-marked
It has high compressive strength (16 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds), is dimensionally stable and non-deformable, and retains its properties unaltered over time.

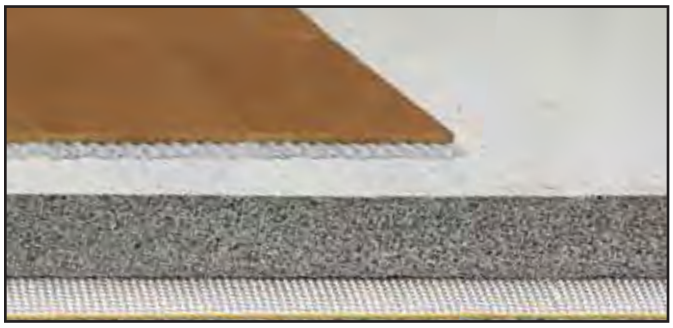
Insulating characteristics
Because it is 6 times more insulating than traditional or flowing screeds (λ =0.258 W/mK) it improves the thermal resistance of floor and roof slabs and reduces thermal bridging. Its porosity improves acoustic insulation, including in association with specific resilient layers (see impact sound, Calestop: P 21).

Non-combustible and fire-resistant
This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is fire-resistant and safe, including in the presence of fire.

Suitable for sustainable construction
Its use of natural raw materials, its manufacturing process, which respects the environment, and the absence of harmful emissions (even in the presence of fire), make it suitable for sustainable construction as certified by ANAB-ICEA, the Italian Accreditation Institute.

APPLICATIONS

- As a lightweight insulating screed to take all types of flooring, including moisture-sensitive finishes.
- As a lightweight insulating screed to cover large areas.
- For internal use only.



TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	850 kg/m^3	
In-place density (approx.)	1.050 kg/m^3	
Certified average compressive strength	15 N/mm^2 (150 kg/cm^2)	
Certified thermal conductivity λ	0,258 W/mK	
Laying of ceramic or stone finishes	after 15 days	
Laying of moisture sensitive finishes (3% RH)	after 35 days (th. 5 cm)	
Suggested thicknesses	Unbonded screed	≥ 5 cm
	Bonded screed	≥ 3,5 cm
	Floating screed	≥ 6 cm
Maximum area to be laid without joints	100 m^2	
Bags required per 1m^2 of floor area	0,38 bags per 10 mm depth	
CE marking	EN 13813 CA-C12-F4	
Package: bags each of 32 litres on non-returnable wooden pallets, 60 bags/pallet - 1,92 m^3/pallet.		
Storage life: 12 months from date of packaging.		

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

PaRis 2.0

Heated floor screed

Incombustible

Euroclasse A1

CE

FIBRE-REINFORCED, CONTROLLED-SHRINKAGE, RAPID DRYING SCREED WITH HIGH THERMAL CONDUCTIVITY

FOR HEATED FLOORS AND THIN SCREEDS. SUITABLE TO TAKE ALL TYPES OF ADHESIVE FLOORING

Massettomix Paris 2.0 is a fibre-reinforced mortar of semi-dry "damp soil" consistency for internal use as a screed. It is pre-mixed and bagged ready for use after mixing with only water.

CHARACTERISTICS

High thermal conductivity

Thanks to its specific formulation, which includes rust proof metal fibres, it has a high certified coefficient of thermal conductivity (λ = 2.02 W/mK) that gives better heat transmission in heated floor systems, i.e. it reduces operating costs and improves comfort levels.

Quick-drying

Its special formulation and rapid drying time enable moisture-sensitive flooring (parquet, carpet, vinyl, etc.) to be laid after only 7 days (on a thickness of 50 mm).

Early start-up of underfloor heating systems

Underfloor heating can be turned on after only 7 days.

Ideal for large surfaces

Its extremely low shrinkage enables large areas to be laid without joints (up to 150 m^2).

Can be used in reduced thicknesses

Its excellent mechanical properties and the inclusion of rust proof metal fibres enables its thickness to be reduced to a minimum of 2 cm if it is bonded to a supporting layer with bonding slurry (or 3 cm if not bonded to a supporting layer), and does not require mesh reinforcement.

Strong, stable, durable, and CE-marked

It has high compressive strength (25 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds), is dimensionally stable and non-deformable, and retains its properties unaltered over time.

Non-combustible

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is safe, including in the presence of fire.

Certified λ=2,02 W/mK

APPLICATIONS

- Screeds that incorporate water or electrical underfloor heating, or in cooled floors.
- Screeds in general, including those of reduced thickness, and is suitable to take all types of floor finish.
- Screeds covering large areas.

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	1.620 kg/m^3	
In-place density (approx.)	> 2.000 kg/m^3	
Certified average compressive strength	25 N/mm^2 (250 kg/cm^2)	
Certified thermal conductivity λ	2,02 W/mK	
Laying of ceramic or stone finishes	after 7 days	
Laying of moisture sensitive finishes (2% RH)	after 7 days (th. 3 cm)	
	after 10 days (th. 5 cm)	
Maximum area to be laid without joints	150 m^2	
Suggested thicknesses	Unbonded screed	≥ 3 cm
	Bonded screed	≥ 2 cm
	Floating screed	≥ 4 cm
Quantity required per 1 m^2 of floor area	18-20 kg per 10 mm depth	
CE marking	EN 13813 CA-C12-F4	
Package: bags each of 25 kg on non-returnable wooden pallets, 64 bags/pallet - 1.600 kg/pallet.		
Storage life: 12 months from date of packagin.		

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Pronto

Quick drying screed

TRADITIONAL QUICK-DRYING SCREED

SUITABLE TO TAKE ALL TYPES OF ADHESIVE FLOORING

Massettomix Pronto is a bagged pre-mixed screed mortar of consistency that is ready for use after mixing with only water.

CHARACTERISTICS

Quick-drying

Massettomix Pronto gives rapid drying times for moisture-sensitive floors, which can be laid after only 4 days (on a thickness of 3 cm) and ceramics and stone to be fixed with adhesive, including "wet-on-wet", which can be laid after 24 h.

Reduced thickness

Can be used in thicknesses of 2 cm or above if bonded to a supporting layer, and does not require mesh reinforcement

Strong, stable, durable, and CE-marked

It has high compressive strength (25 MPa), is CE-marked to denote conformity to EN 13813 (screed materials and floor screeds) and is dimensionally stable, non-deformable, and durable.

Also suitable for sloping surfaces and details:

thanks to its semi-dry "damp soil" consistency it can also be applied to sloping or uneven surfaces internally or externally and can be moulded to create details, such as the falls of a screed for a shower.

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	1.700 kg/m^3	
In-place density (approx.)	> 2.000 kg/m^3	
Certified average compressive strength	25 N/mm^2 (250 kg/cm^2)	
Certified thermal conductivity λ	1,43 W/mK	
Laying of ceramic or stone finishes	after 4 days	
Laying of moisture sensitive finishes (2% RH)	after 4 days (th. 3 cm)	
	after 9 days (th. 5 cm)	
Suggested thicknesses	Unbonded screed	≥ 3 cm
	Bonded screed	≥ 2 cm
	Floating screed	≥ 4 cm
Maximum area to be laid without joints	25 m^2	
Quantity required per 1 m^2 of floor area	18-20 kg per 10 mm depth	
CE marking	EN 13813 CA-C25-F5	
Package: bags each of 25 kg on non-returnable wooden pallets, 64 bags/pallet - 1.600 kg/pallet.		
Storage life: 12 months from date of packaging.		

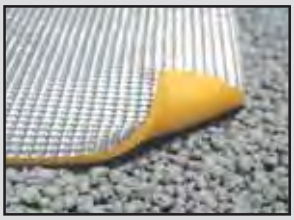
For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

UNDER-SCREED IMPACT SOUND INSULATION MATTING

The CalpeStop range consists of closed cell expanded polyethylene foam elastic matting of density approx. 30 kg/m^3, for use where there is a need to supplement the impact sound insulation given by Laterlite screeds.

It is available in the following versions

- SUPER, faced on one side with a sheet of goffered aluminium that increases resistance to abrasion and vapour. Available in thicknesses of 3, 5, and 10 mm.
- 8 TNT: the matting (thickness 5 mm) is faced on its lower side with special wadding (approx. thickness 3 mm) and on its upper side with a special nonwoven fabric that increases its resistance to abrasion. Overall thickness: approx. 8 mm.
- SUPER 5 TNT: the matting (thickness 5 mm) is faced on its lower side with a sheet of goffered aluminium foil and on its upper side with a special nonwoven fabric that increases its resistance to abrasion. Overall thickness: approx. 5 mm.



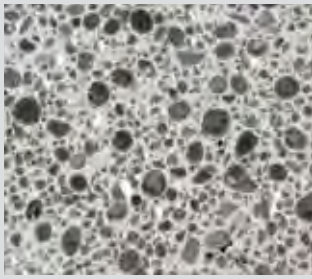
Calpestop Super

Calpestop Super 5 TNT

Calpestop 8 TNT

Side adhesive band

Latermix Béton 1400



LIGHTWEIGHT INSULATING STRUCTURAL CONCRETE

FOR STRENGTHENING FLOOR SLABS, CONSTRUCTING COMPOSITE SLABS, AND REDUCING THERMAL BRIDGING

Latermix Beton is a bagged pre-mixed lightweight insulating structural concrete based on special Laterlite Plus hydrophobic expanded clay of medium-fine grain, and is ready for use after mixing with only water.

CHARACTERISTICS

Structural strength

Latermix Beton 1400 is a true structural concrete of class LC 20/22 (Rck 25 MPa – 250 kg/cm^2) that can be used for load-bearing structures compliant with EN 206 and Eurocode 2.

Lightweight

Latermix Beton 1400 contains Laterlite Expanded Clay as a replacement for traditional aggregates that significantly reduces weight by at least 1,000 kg (1 tonne) per m^3. It has a density of 1400 kg/m^3 (as opposed to 2400/2500 kg/m^3 of an ordinary concrete) and is classified as an LWAC (lightweight aggregate concrete). It is particularly suitable for reconstruction work, for strengthening existing structures, or to prevent excessive loading in seismic zones.

Insulating characteristics

Its lambda (λ -thermal conductivity) is 4,5 times lower than that of an ordinary concrete (λ = 0.42 W/mK as opposed to 1.9 W/mK). It reduces thermal bridging, increases the energy efficiency of buildings, and prevents the development of building pathologies such as condensation and mould.

Reliable performance

The binder dosage and grading curve of the components are factory checked and maintained constant. Using only water for the mix means that the performance of the completed component can be controlled effectively; this is particularly important for guaranteeing strength in structural applications and eliminates the risk and inaccuracy associated with products mixed on site.

Non-combustible

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is safe, including in the presence of fire.

APPLICATIONS

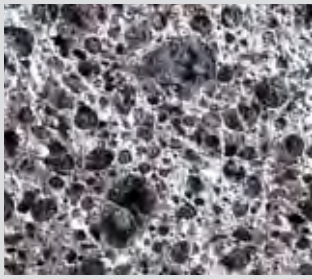
- Structurally strengthening existing floors (in timber, steel, or concrete) by means of the composite floor construction
- New structural floors (steel + concrete or timber + concrete composite floors, concrete floor slabs, etc.)
- Strengthening and stiffening loadbearing masonry (edge beams, columns, etc.)
- Reducing thermal bridging in the structural elements of a building envelope

TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	1.150 kg/m^3
Density (UNI EN 206-1) (approx.)	1.400 kg/m^3 (classe D 1,5)
Average compressive strength (certified)	25 N/mm^2 (250 kg/cm^2)
Modulus of elasticity (certified)	E = 15.000 N/mm^2
Thermal conductivity λ	0,42 W/mK
Bags required per 1m^2 of floor area	0,47 bags per 10 mm depth
Reaction to fire	Euroclass fire rating A1
Package: bags each of 25 litres. on non-returnable wooden pallets, 56 bags/pallet - 1,4 m^3/pallet.	
Storage life: 12 months from date of packaging.	

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

Latermix Béton 1600



HIGH-STRENGTH LIGHTWEIGHT INSULATING STRUCTURAL CONCRETE

FOR STRENGTHENING FLOOR SLABS, CONSTRUCTING COMPOSITE SLABS, REDUCING THERMAL BRIDGING, AND FOR ALL TYPES OF MASONRY CONSTRUCTION

Latermix Beton is a bagged pre-mixed lightweight insulating structural concrete based on Laterlite Structural special expanded clay, and is ready for use after mixing with only water.

CHARACTERISTICS

High structural strength

Latermix Beton 1600 is a genuine high-strength class LC 30/33 (Rck 35 MPa – 350 kg/cm^2) structural concrete that can be used for loadbearing structures in compliance with EN 206 and Eurocode 2.

Lightweight

Latermix Beton 1600 contains Laterlite Structural Expanded Clay as a replacement for traditional aggregates that significantly reduces weight by at least 800 kg (0.8 tonne) per m^3. With a density of 1600 kg/m^3 (as opposed to 2400/2500 kg/m^3 of an ordinary concrete), it is classified as an LWAC (lightweight aggregate concrete) and is particularly suitable for reconstruction work, for strengthening existing structures, or to prevent excessive loading in seismic zones.

Insulating characteristics

Thanks to its lambda (λ -thermal conductivity) approx. 3 times lower than that of an ordinary concrete (λ = 0.55 W/mK as opposed to 1.9 W/mK), it reduces thermal bridging, increases the energy efficiency of buildings, and prevents the development of building pathologies such as condensation and mould.

Reliable performance

The binder dosage and grading curve of the components is factory checked and maintained constant. Using only water for the mix means that the performance of the completed component can be controlled effectively; this is particularly important for guaranteeing strength in structural applications and eliminates the risk and inaccuracy associated with products mixed on site.

Multipurpose

Can be used as a replacement for traditional concrete in any external or internal application including where a fair-faced finish is required, or for industrial floors.

Non-combustible

This is a 100% mineral non-combustible product (Euroclass fire rating – A1) that is safe, including in the presence of fire.

APPLICATIONS

- Structurally strengthening existing floors (timber, steel, or concrete) using composite floor construction
- New structural floors (mixed floors in steel + concrete, timber + concrete, concrete floor slabs, etc.)
- Improving the strength of loadbearing masonry (edge beams, columns, etc.)
- Industrial floors
- Reducing thermal bridging in the structural elements of a building envelope
- As a replacement for concrete in all situations where traditional concrete is ordinarily used.

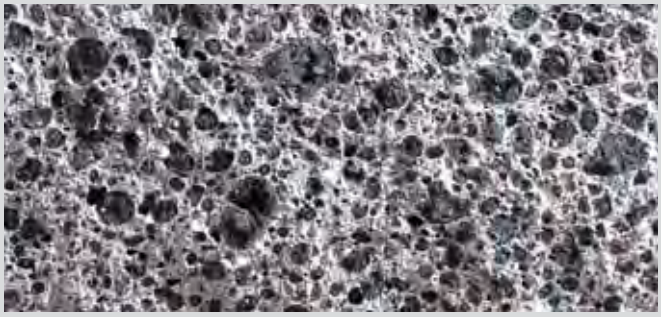
TECHNICAL CHARACTERISTICS

Apparent packed density (approx.)	1.300 kg/m^3
Density (UNI EN 206-1) (approx.)	1.600 kg/m^3 (classe D 1,5)
Average compressive strength (certified)	35 N/mm^2 (350 kg/cm^2)
Modulus of elasticity (certified)	E = 20.000 N/mm^2
Thermal conductivity λ (certified)	0,55 W/mK
Bags required per 1m^2 of floor area	0,47 bags per 10 mm depth
Reaction to fire	Euroclass fire rating A1
Package: bags each of 25 litres. on non-returnable wooden pallets, 48 bags/pallet for 1,2 m^3/pallet.	
Storage life: 12 months from date of packaging.	

For further information consult the Technical Data Sheet, the Safety Sheet, and our website at www.laterlite.com.

CONCRETE BATCHING AND PRECASTING PLANTS

LIGHTWEIGHT STRUCTURAL CONCRETES MIXED WITH LATERLITE EXPANDED CLAY IN CONCRETE BATCHING PLANTS OR PRECASTING FACTORIES



Thanks to its mechanical strength and lightness, the different versions of Laterlite Expanded Clay make it the ideal aggregate for formulating lightweight structural concrete mixes. By completely or partly replacing traditional aggregates with Laterlite Expanded Clay, in fact, the properties of the concrete can be varied to give a wide range of densities and strengths.
These can be used both for in situ casting and for making precast elements in dedicated manufacturing plants. The different mix designs are generally configured to meet the final design requirements, using whatever aggregates are locally available.

PRINCIPAL CHARACTERISTICS

CE-marked mineral aggregate

Laterlite Expanded Clay is a lightweight aggregate that is suitable for use as a component of lightweight structural concrete because:

- As a 100% mineral product it is stable, durable, and will not rot
- It is manufactured and tested in accordance with international reference standards and is therefore CE-marked to denote conformity to EN 13055-1 (Lightweight aggregates for concrete, mortar and grout)

Weight reduction

Laterlite Expanded Clay/Laterlite Structural can be used in lightweight structural concretes of density between 1,400 kg/m^3 and 2,000 kg/m^3, saving up to 1,000 kg (1 tonne) of dead load per m^3 as compared to traditional concretes (2,400-2,500 kg/m^3). On average, structures can be reduced in weight by 25% to 40%.

Good mechanical performance

Laterlite Expanded Clay/Laterlite Structural can be used in lightweight structural concretes of high compressive strength from 15 to 60 MPa (150 – 600 kg/cm^2). i.e. for all the same purposes as traditional concretes.
The tensile strength, flexural strength, pullout strength, and dimensional stability (shrinkage and creep) of these concretes are comparable to those of traditional concretes in the same class.

Structural calculation and statutory verification

Lightweight concretes based on Laterlite Expanded Clay can be formulated and designed to comply with international reference standards (EN 206, Eurocode 2, etc.)

Good insulating characteristics

The lambda (λ -thermal conductivity) of lightweight structural concretes based on Laterlite Expanded Clay/Laterlite Structural is up to 4,5 times lower than that of an ordinary concrete, reducing thermal bridging through external facades and increasing the energy efficiency of buildings.

Easy to pour

Most lightweight structural concretes based on Laterlite Expanded Clay are pumpable (particularly those of density greater than 1650 kg/m^3), This simplifies the site pouring process which is similar to that of an ordinary concrete. (Consult Technical Support).

Better behaviour in the presence of fire

The insulating and refractory properties of Laterlite Expanded Clay used in lightweight structural concretes give a better performance than that of ordinary concretes in the same class.

More efficient transportation and simplified handling

Thanks to the lower density of the concrete, particularly in precast components of large size.

APPLICATIONS

In structures where the self-weight is greater than the loads carried

In large-span bridges, precast Y-shaped roof beams, large precast panels, floor slabs with wide spans etc., the use of lightweight structural concrete enables structures of reduced cross-section to be created that require smaller amounts of concrete and reinforcement whilst also giving aesthetic and economic advantages.

Reconstruction work in general

The use of lightweight structural concrete for reconstructing floor slabs, for adding floors to existing buildings, and all other types of strengthening works to structural concrete (columns, loadbearing walls, edge beams, floor slabs, staircases, balconies etc.) helps to avoid overloading the existing structure and foundations.

New construction and reconstruction work in seismic zones.

The extent of seismic action is proportional to the mass of the structural elements affected; the use of lightweight structural concrete reduces the seismic stresses acting on them by reducing the inertial masses of the structure.

Structures bearing on soils of low bearing capacity

The complexity and cost of foundations can be minimised by reducing their structural weight. This enables the same loads to be supported, enabling larger buildings to be constructed.

Complex architectural projects

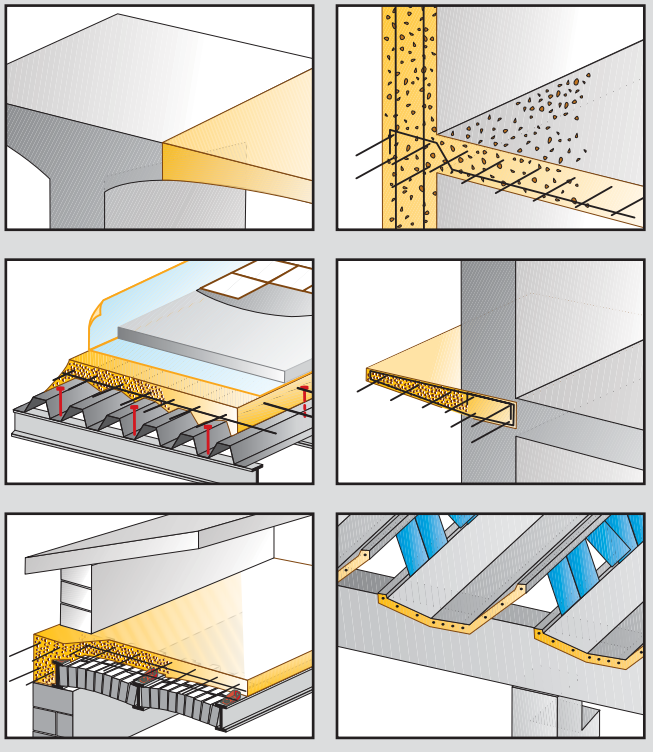
When the weight of concrete elements is reduced, greater design freedom, leaner structures, and fewer structural constraints become possible.

Reduced thermal bridging in the building envelope

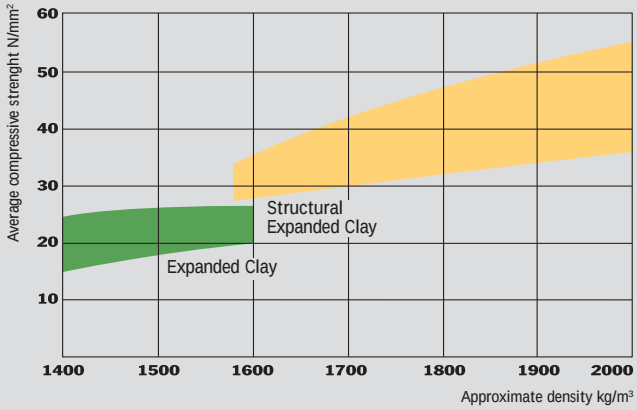
Thermal bridging caused by structural elements that pass through the external envelope (facades, roofs, foundations, etc.) is reduced by up to 4 or five times, reducing heat loss and the risk of building pathologies, and making it easier to comply with more restrictive regulations and certification protocols.

Precast structures and elements

Precast lightweight structural concrete elements are easier to manoeuvre, more economical to transport, have a leaner cross-section, give better insulation, and have better fire resistance than precast elements made with ordinary concrete.



LATERLITE EXPANDED CLAY CONCRETE DIAGRAM



METHOD OF USE

MIX PREPARATION

Laterlite Expanded Clay structural concretes are mixed in batching or precasting plants. For traditional pouring (using a chute or a bucket) the process is the same as for traditional concrete. Pumped pouring requires the correct mix design to be defined (contact Laterlite Technical Support). The following processes can be used:

- SCC Technology (self-compacting concrete)
- Pre-hydrating the expanded clay.

For specific information and for the mix design of lightweight structural concretes, contact Laterlite Technical Support.

NON-STRUCTURAL LIGHTWEIGHT INSULATING CONCRETES

Concrete batching plants can also be used to mix very lightweight non-structural concretes for use as lightweight backfill and in levelling layers. For more information contact Technical Support.

TECHNICAL CHARACTERISTICS

Examples of structural concretes with expanded clay

Density kg/m³ (approx.) (UNI EN 206-1)	1500	1600
Expanded clay type	Expanded Clay Laterlite	Structural Expanded Clay
Density (fresh)	1.650 kg/m³	1.750 kg/m³
Thermal conductivity λ	0,47 W/mK	0,42 W/mK
Compressive strength (car.) 28 days	15 N/mm² (150 kg/cm²)	25 N/mm² (250 kg/cm²)
Compressive strength (ave.) 28 days	20 N/mm² (200 kg/cm²)	30 N/mm² (300 kg/cm²)²
Modulus of elasticity (certified)	approx. 10.000 N/mm²	approx. 15.000 N/mm²

For further information contact Laterlite technical support

BLOCKS, PANELS AND SMALL PRECAST ELEMENTS FOR USE IN CONSTRUCTION

STRONG, FIREPROOF, LIGHTWEIGHT INSULATING PRODUCTS INCORPORATING LATERLITE EXPANDED CLAY

Thanks to their unique mix of intrinsic properties, Laterlite Expanded Clay lightweight granules are ideal for manufacturing blocks and small precast concrete elements, and give numerous other advantages.

PRINCIPAL CHARACTERISTICS

Good thermal performance
Combined with their high thermal inertia, the insulating characteristics of insulating blocks manufactured from expanded clay make them ideal for use in both cold and warm climates, giving the advantages of thermal comfort and reduced heating and cooling costs.

Acoustic insulation
The high degree of porosity of Laterlite Expanded Clay, in combination with the specific design of the block or product, gives excellent insulation even at reduced thicknesses.

Fire resistance
Laterlite Expanded Clay is a naturally non-combustible, insulating, refractory product that is easy to manufacture in blocks with high fire resistance. These are ideal for constructing firebreak walls and parts of buildings that are to be used at high temperatures or will be in direct contact with fire.

Mechanical strength
The strength of blocks based on expanded clay is comparable to that of best-quality concrete blocks. They can therefore be used to construct loadbearing masonry, including in earthquake zones.

Weight reduction
Expanded clay blocks significantly reduce structural loading as compared to traditional products, and are ideal both for reconstruction work and new construction. This enables the design of loadbearing structures to be simplified.

Ease of installation and transport
Expanded clay blocks are used in the same way as traditional blocks but thanks to their lower density they are much easier to handle and transport.

Good durability
Expanded clay blocks are made from a 100% mineral non-degradable product that cannot be attacked by parasites (fungus, rodents, insects, etc.) and is resistant to aggressive environments and freeze-thaw cycles.

LATERLITE KNOW-HOW AT YOUR SERVICE

Thanks to its 50 years of experience Laterlite is the leading Italian manufacturer of blocks and other products based on expanded clay, In addition to its own three block manufacturing plants it has 200 manufacturer clients and a network of partner companies throughout Italy that are members of ANPEL (the National Association of Expanded Clay Element Manufacturers), The experience and know-how of Laterlite are at the service of international partners wishing to develop and manufacture blocks or related products based on expanded clay. For further information please contact our Technical and Sales Offices.

The thermal performances of brick walls on site not only depend on the block, but olso the mortar.

BLOCKS, PANELS AND SMALL PRECAST ELEMENTS FOR USE IN CONSTRUCTION

BLOCKS FOR CONSTRUCTION

- **Thermal blocks for the external building envelope**
  Thanks to the insulation and thermal inertia (attenuation and phase shift) of blocks based on expanded clay, winter and summer comfort is guaranteed. Composite blocks with incorporated insulation can also be manufactured for constructing extremely energy-efficient buildings in cold climates.
- **Sound-insulating blocks**
  Excellent performance (up to 57 dB) even without additional insulation.
- **Lightweight blocks for partition walls**
  A single, solid, thin, equippable layer gives excellent acoustic insulation and fire resistance without excessively loading floor slabs.
- **Blocks for loadbearing masonry, including in earthquake zones**
  High-strength blocks and construction systems can be used to construct all parts of buildings, including those that are designed to comply with the most recent antiseismic criteria
- **Fire-break blocks**
  Blocks based on expanded clay can be used to construct thin walls that have excellent REI or EI fire ratings, for civil use (in multi-storey or underground car parks, boiler rooms, stair and lift wells, etc.) and industrial situations (warehouses, etc.)

REFRACTORY ELEMENTS

Laterlite Expanded Clay associated with refractory binders is widely used in the manufacture of various elements where high temperatures or contact with fire are expected such as:

- Chimneys
- Fireplaces
- Barbecues
- Precast ovens

It is also used to produce ready mixed concrete and mortars

RECONSTITUTED STONE (CULTURED AND VENEER STONE)

The use of expanded clay reduces the weight of reconstituted stone mixes but does not reduce their strength and makes them easier to apply.

SUSPENDED FLOOR SLAB COMPONENTS

Laterlite Expanded Clay can also be used to reduce the weight of concrete on rafters infill of beam and block floors and roof slabs.

PANELS FOR EXTERNAL WALLS

Full-height panels for partitions or facades that incorporate Laterlite Expanded Clay reduce weight, give better thermal, acoustic, and fire resistance performance, and are easier to manoeuvre and install.

SOUND-ABSORBENT PANELS

These are available in a range of formats and designs. The porosity of the expanded clay reduces noise propagation when the panels are used in the vicinity of urban transport infrastructure or industry.

Laterlite
lightweight insulating solutions

Technical Assistance
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