



Product Catalog



Product Catalog

This catalog contains a summary for the traditional high-quality products in addition to the value added ones offered by Lafarge Egypt. Characteristics, applications and technical features are included to nurture the understanding of the products' technical information.

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Lafarge Egypt

Lafarge's position as a leading company in building materials is underpinned by its comprehensive product and service offerings to its customers. In Egypt, Lafarge offers cement, concrete and aggregates.

Lafarge works with all players in the building industry of Egypt, from do-it-yourself builders to large construction companies, architects and local artisans. Whether supplying high-quality cement to a craftsman or helping leading architects explore and deliver creative possibilities, Lafarge Egypt is committed to providing solutions that fit the needs of all its customers .

Lafarge Egypt has the second biggest cement plant in the world. In 2008, Lafarge Cement Egypt gained the second largest market share of approximately 21% with a capacity of 10.6 million tons of Cement and employing more than 2000 employees & sub contractors.

01

OVERVIEW

BUILDING BETTER CITIES

Innovation

Lafarge's commitment to innovation is the key to its leadership in the building materials industry. The Group was the first in its sector to have a dedicated research and development unit, and work continues there to this day, ensuring our products anticipate the changing needs of our customers.

Lafarge's research orientation is driven by customers' needs. Understanding how customers use its products enables Lafarge to develop innovative, high-performance solutions. Lafarge research and marketing teams build close relationships with the construction industry to create breakthrough products that add value for everyone.

Lafarge concretes exemplify the customer-driven innovation positions Lafarge as the industry leader.



02

AGGREGATES

Lafarge is the world's second largest producer of aggregates, thanks in large part to its mineral reserves in key markets and to its history of responsible environmental management and land restoration.

AGGREGATES





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Aggregates™



Aggregates Quarries in Egypt:

Lafarge Aggregates Quarries currently has 3 sites (Attaka, Adabya and Alex) strategically located to support all of Egypt.

Lafarge Aggregate quarries is recognized in the production of very high quality aggregates. The dolomite aggregate sources are recognized as the best in Egypt. The production process includes many screening steps that produce excellent gradation, which allows Lafarge to consistently exceed very strict standard required in road building, asphalt and ready mix concrete.

Lafarge owns a large fleet of Aggregates delivery trucks giving us the ability to supply the highest standard of aggregates rapidly and on time in large quantities as required for all size construction projects, road building, asphalt and concrete production.

Quarries distribution and Production capacity

Attaka : 1000 Ktons / year

Addabya : 1200 Ktons/ year

Alexandria: 800 Ktons/ year

Special Production

- Small Aggregates: with chemical content suitable for glass production factory.
- Blasted Aggregates: which extracted from sub-surface deep layers with better mechanical and physical properties.
- Washed Aggregates: with less fine and chloride ion content.
- Crushed Sand: which improve all in aggregates grading curve and save binder materials.

Types of Aggregates

Aggregates size# 1

Aggregates size# 2

Aggregates size# 3

Aggregates size# 6

Products used in Ready mix and Precast industry:

- Aggregate 1 (Dry & Washed)
- Aggregate 2 (Dry & Washed)
- Crushed Sand (Dry & Washed)

Assured Compliance with:

- ASTM C33 – 13
- Egyptian Code : ECP 203 – 2007

Products used in Asphalt and Road construction industry:

- Aggregate 1 (Collecting & Blasted)
- Aggregate 2 (Collecting & Blasted)
- Aggregate 3 (Collecting & Blasted)
- Aggregate 6 (Collecting & Blasted)
- Armour rocks (from 4 tons to 100kg according to specification)

Assured Compliance with:

- ASTM D448 – 12
- ASTM D692 / D692M – 09
- D2940 / D2940M - 09
- Egyptian Code : ECP 104 - 2008

Products used in Glass industry:

- Small Aggregate (1 mm : 2 mm)
- Small Aggregate (1 mm : 3 mm)

Assured Compliance with:

<i>Required Chemical analysis</i>			
<i>Parameter</i>	<i>RLL ≥</i>	<i>RHL ≤</i>	<i>Range≤</i>
<i>SiO2</i>		<i>0.60</i>	<i>± 20 % relative</i>
<i>Al2O3</i>		<i>0.30</i>	<i>± 15 % relative</i>
<i>Fe2O3</i>		<i>0.25</i>	<i>± 1.5 % relative</i>
<i>CaO</i>	<i>30</i>		<i>± 1.5 % relative</i>
<i>MgO</i>	<i>20</i>		
<i>H2O</i>		<i>1.0</i>	



03

CEMENT

CEMENT

Based on both internal and external research, Lafarge is a world leading producer of cement, taking into account sales, production capacity, geographical positions, technological development and quality of service. Lafarge has designed a diversified product range intended for construction professionals. Lafarge cements are designed to respond to the requirements of all of the Group's customers.

Its broad range of products is suitable for industrial players, individual customers and architects:

- **Portland cements:** high-quality basic building materials that are both efficient and versatile;
- **Cements for different types of environments:** products suitable for exposure to sulfates and other aggressive environments;
- **Special cements for specific applications:** including oil well cements and cement for massive structures;
- **Cements for masonry and mortars** for concrete blocks, tiles, rendering, stucco, etc.



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ALMOMTAZ



GENERAL purpose CEMENT

Portland Cement:

Portland cement is a general - purpose cement suitable for all uses where the special properties of other types are not required.

Assured Compliance with:

European Standards:

BS EN 197-1:2000

CEM I 42,5N

Egyptian Standards:

ES 4756-1/2009

CEM I 42,5N



Applications:

It's uses in concrete include pavement, floors, reinforced concrete buildings, bridges, railway, tanks, reservoirs, pipes, masonry units, and precast concrete products.

Typical Analysis and Physical Properties:

The listed test results below are typical and for information only. Analytical details of the product should be sought in writing from the Lafarge Cement Egypt.

Chemical Analysis

	Typical Values	Standard Limit
Loss on Ignition	2.8	5.0% Max.
Insoluble Residue %	0.65	5.0% Max.
Sulphate as SO ₃ %	3.0	3.5% Max.
Chloride %	0.06	0.1% Max.

Setting & Expansion Behavior

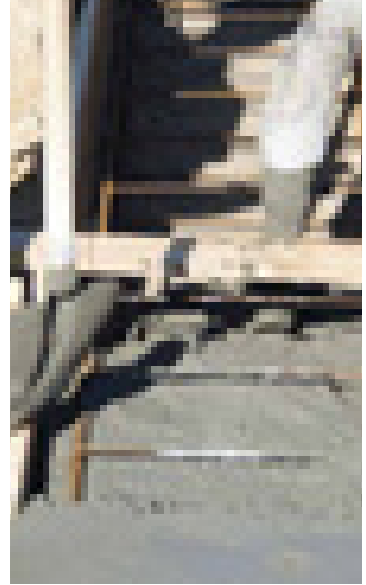
Initial Setting Time (Minutes)	165	60 Min.
Final Setting Time (Minutes)	270	-
Soundness (Expansion)(mm)	1.0	10.0 Max.

Compressive Strength Performance Mortar EN 196-1 Testing Method

Early Strength-2 Days (N/mm ²)	19	10 Min.
28 Days (N/mm ²)	47	42,5 Min. 62,5 Max.

Storage:

Cement will not deteriorate significantly if it is protected from exposure to moisture (humid air, rain condensation, etc). Cement bags should be stacked close together to reduce air circulation but should never be stacked against outside walls. Bags to be stored for long periods should be covered with tarpaulins or other waterproof covering. Bags should be stored so that the first in are the first out.



Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

SAKARA



FINISHING, BUILDING & PLASTERING

Portland Limestone Cement

Portland Limestone Cement is designed for basic building applications, excluding reinforced concrete & foundation.

Assured Compliance with:

European Standards:
 BS EN 197-1:2000
 CEM II/B-L32,5N
 Egyptian Standards:
 ES 4756-1/2009
 CEM II/B-L32,5N



Applications:

It is used in concrete with no reinforcement we recommend it for mortars, plastering, and masonry units.

Typical Analysis and Physical Properties:

The listed test results below are typical and for information only. Analytical details of the product should be sought in writing from the Lafarge Cement Egypt.

Chemical Analysis

	Typical Values	Standard Limit
Sulphate as SO ₃ %	2.6	3.5% Max.
Chloride %	0.06	0.1 % Max.

Setting & Expansion Behavior

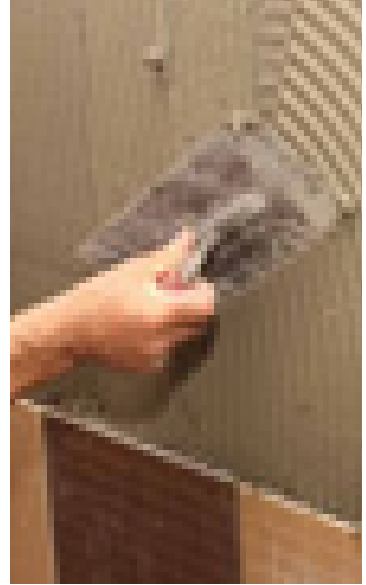
Initial Setting Time (Minutes)	145	75 Min.
Final Setting Time (Minutes)	250	-
Soundness (Expansion)(mm)	1.0	10.0 Max.

Compressive Strength Performance Mortar EN 196-1 Testing Method

Early Strength-7 Days (N/mm ²)	26	16 Min.
Standard Strength 28 Days (N/mm ²)	38	32,5 Min. 52,5 Max.

Storage:

Cement will not deteriorate significantly if it is protected from exposure to moisture (humid air, rain condensation, etc). Cement bags should be stacked close together to reduce air circulation but should never be stacked against outside walls. Bags to be stored for long periods should be covered with tarpaulins or other waterproof covering. Bags should be stored so that the first in are the first out.



Safety Precautions

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LAFARGE

KAHER ALBEHAR



HIGH sulfate RESISTANCE

Sulfate Resisting Portland Cement:

Sulphate resisting portland cement is used in concrete exposed to severe sulfate action - principally where soils or groundwaters have a high sulfate content.

Assured Compliance with:

European Standards:

BS 4027:1996

SRC 42,5N

Egyptian Standards:

ES 583/2005

SRC 42,5N

American Standards:

ASTM C150-09

Type V



Applications:

It is mainly used in concrete where soils or groundwaters have a high sulfate content (mainly in foundations).

Typical Analysis and Physical Properties:

The listed test results below are typical and for information only. Analytical details of the product should be sought in writing from the Lafarge Cement Egypt.

Chemical Analysis

	Typical Values	Standard Limit
Loss on Ignition %	1.1	3.0% Max.
Insoluble Residue %	0.5	0.75% Max.
Sulphate as SO ₃ %	2.0	2.3% Max.
Chloride %	0.05	0.1% Max.
Tricalcium Aluminate C ₃ A %	2.8	3.5% Max.

Setting & Expansion Behavior

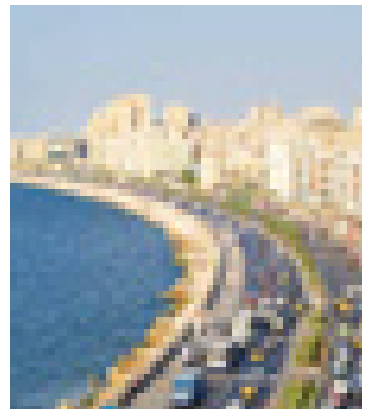
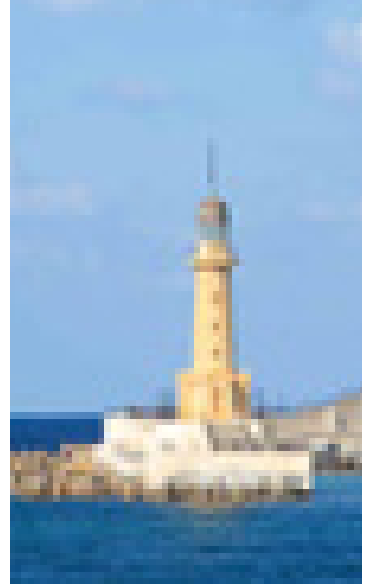
Initial Setting Time (Minutes)	180	60 Min.
Final Setting Time (Minutes)	290	-
Soundness (Expansion)(mm)	1.0	10.0 Max.

Compressive Strength Performance Mortar EN 196-1 Testing Method

Early Strength-2 Days (N/mm ²)	19	10 Min.
Standard Strength 28 Days (N/mm ²)	48	42,5 Min. 62,5 Max.

Storage:

Cement will not deteriorate significantly if it is protected from exposure to moisture (humid air, rain condensation, etc). Cement bags should be stacked close together to reduce air circulation but should never be stacked against outside walls. Bags to be stored for long periods should be covered with tarpaulins or other waterproof covering. Bags should be stored so that the first in are the first out.



Safety Precautions

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- Wear Safety glasses, etc... (MS DS available upon request)



ALAHRAM



GENERAL purpose CEMENT

Portland Cement:

Portland cement is a general - purpose cement suitable for all uses where the special properties of other types are not required.

Assured Compliance with:

European Standards:

BS EN 197-1:2000

CEM II/B - S32,5R

Egyptian Standards:

ES 4756-1/2009

CEM II/B - S32,5R



Applications:

It's uses in concrete include pavement, floors, reinforced concrete buildings, bridges, railway, tanks, reservoirs, pipes, masonry units, and precast concrete products.

Typical Analysis and Physical Properties:

The listed test results below are typical and for information only. Analytical details of the product should be sought in writing from the Lafarge Cement Egypt.

Chemical Analysis

	Typical Values	Standard Limit
Sulphate as SO ₃ %	2.8	3.5% Max.
Chloride %	0.04	0.1% Max.

Setting & Expansion Behavior

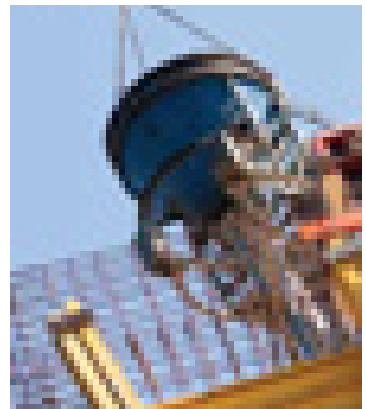
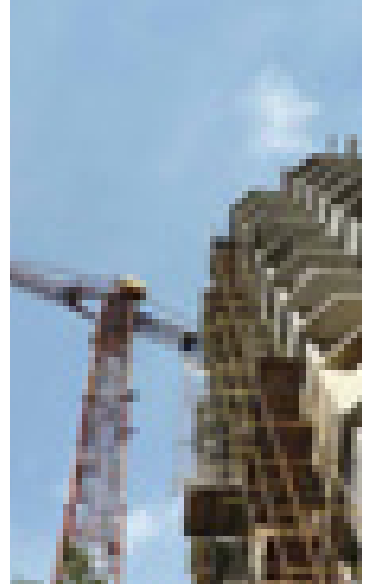
Initial Setting Time (Minutes)	180	75 Min.
Final Setting Time (Minutes)	300	-
Soundness (Expansion)(mm)	1.0	10.0 Max.

Compressive Strength Performance Mortar EN 196-1 Testing Method

Early Strength-2 Days (N/mm ²)	14	10 Min.
28 Days (N/mm ²)	37	32,5 Min. 52,5 Max.

Storage:

Cement will not deteriorate significantly if it is protected from exposure to moisture (humid air, rain condensation, etc). Cement bags should be stacked close together to reduce air circulation but should never be stacked against outside walls. Bags to be stored for long periods should be covered with tarpaulins or other waterproof covering. Bags should be stored so that the first in are the first out.



Safety Precautions

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04

CONCRETE

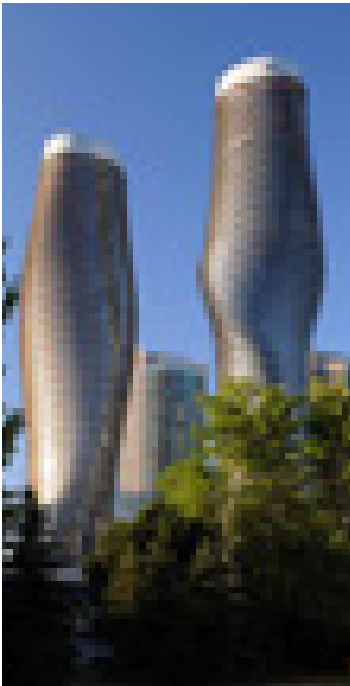
As the world fourth largest producer of ready mix concrete, according to internal and external analyses, Lafarge is known for its innovation with sophisticated, high value added concretes. In a highly competitive market, Lafarge works to set itself apart based on the quality and consistency of its products, the breadth of its product line and, especially, the innovative products by its research center. These products include ultra high performance concrete, self compacting concrete, decorative concrete, low heat concrete, insulating concrete and pervious concrete, etc.



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Agilia ARCHITECTURAL



AGILIA™ Architectural

is an excellent self compacting concrete for high performance finishes

Applications

- Walls, Panels, Columns and any structural form of concrete.
- For jobs or work units in which concrete conventional methods do not offer the required quality of finish.
- A range of colours available.
- Exciting range of finishes available e.g. polished, exposed.
- Complex architectural designs are achievable.
- All structures where concrete finish is critical.

Characteristics

Agilia™ Architectural is the self compacting concrete of choice for all high profile exposed concrete finishes, as it is able to flow without any compaction but simply by the action of its own weight and covers every corner of the form work through the reinforcement without causing segregation or blocking.

- The mix design and production of Agilia™ Architectural meets Egypt Construction in terms of raw materials, production, quality control and results.
- The compressive strength at 28 days is given by the requirements of the client and is designed to meet project specific requirements.
- High flow characteristics of Agilia™ Architectural concrete makes it a high performance concrete capable of meeting the most demanding durability requirements.
- Agilia™ Architectural is subject to the most comprehensive manufacturing processes and quality controls to meet the international protocol of the brand.

Advantages

Due to its high fluidity, stability, absence of vibration and wide range of abilities Agilia™ Architectural offers.

- The ability to achieve various projects in complex shapes with aesthetically pleasing and highly congested, heavily reinforced areas.
- Ideal solution for areas of difficult access and complex form configurations.
- Improved safety and working conditions for workers.
 - Reduced stress.
 - Suppression of vibrators.
 - Noise reduction.
 - Reduction of handling crane, pump and energy savings.

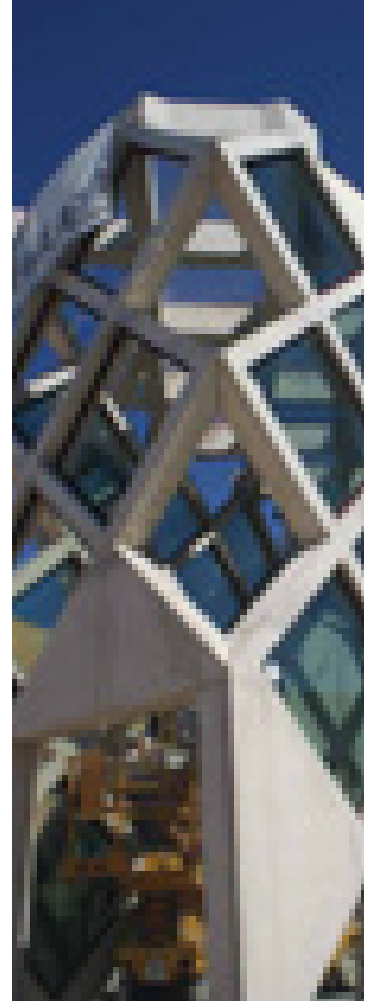
Placing

Agilia™ Architectural can be placed either by skip or pump, Due to Agilia's™ high fluidity the distance between pouring points can be significantly increased. In order to achieve high quality finish for Agilia™ Architectural a high quality 'watertight' form work is recommended.

Lafarge Ready mix will be happy to advice on the formworks requirements, release agents, placing and curing methods. Contact Leafarge Ready mix technical centre for specialized applications and guidance in relation to Agilia™ Architectural.

Surface Finish

Agilia™ Architectural will replicate the detail of any form surface allowing the creation of customized finishes not available with conventional concretes. The success of Agilia™ Architectural is reliant upon the provision and correct use of high quality form work in order to achieve the desired finish. Form materials should be cleaned thoroughly between uses, should be defect-free and should be treated with a suitable release agent applied in line with the manufacturer's recommendations.



Summary of Characteristics

- Outstanding Architectural finishes achievable
- Compressive strength can be tailored to meet individual project requirements
- Excellent workability retention
- High flow characteristics
- Highly durable

Agilia™ Architectural is a high performance concrete which is self compacting and self levelling and is designed to provide excellent workability retention in the highly challenging ambient conditions prevalent in the middle east and allows the creation of surface finishes unachievable by the use of conventional concrete.

Agilia™ Architectural complies with the requirements of ES 260/2007 Specifications.

Safety Precautions

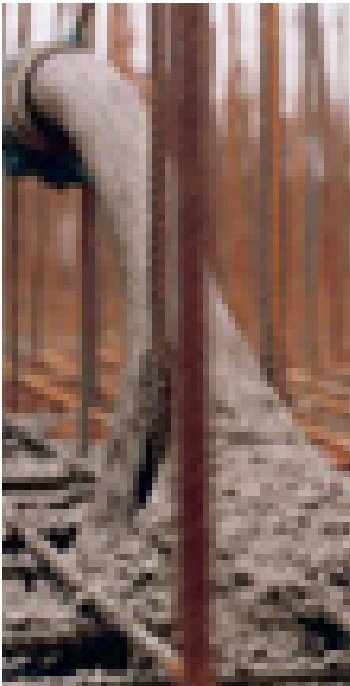
Respect the rules of occupational Health and Safety:

- Wear gloves,
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AgiliaTM Foundation



AGILIATM Foundation

is a superior quality concrete that reduces labour over heads on site - typically one man can place, level and finish the concrete

Applications

AgiliaTM Foundation is a self-placing and self-compacting concrete for use in foundation construction.

AgiliaTM Foundation is delivered in a highly fluid form with a high deformability that will quickly allow changes of direction and enables it to flow easily around foundation trenches.

AgiliaTM Foundation has a high resistance to segregation and the way it consolidates within the trench removes the need for vibration.

AgiliaTM Foundation meets the requirements for blinding and mass fill concrete, mass concrete foundation and trench fill foundation specifications.

AgiliaTM Foundation is intended for use in all mass fill concrete foundation applications.

ADVANTAGES

Reduced labour – Typically one man can place and finish the concrete.

Health and safety – By reducing the number of people needed on site.

No vibration – No need for vibration, eliminating vibration while finger.

Flexible placing – The properties of AgiliaTM Foundation allow foundations to be typically poured from one or two discharge to points.

Early strength – The mix achieves sufficient strength to allow the block-laying process to proceed, typically at 24 hours.

Compaction – concrete completely fills the trench, leaving no voids, with little or no surface bleeding or surface laitance.

No need to add water – Does not require the addition of water on site to aid placement of concrete.

Fluidity – AgiliaTM Foundation is specially formulated to follow around all types of trenches, even those containing steel reinforcement.

Characteristics

Agilia™ Foundation is delivered to site by a truck mixer from our network of plants.

There is no need for subsequent admixture addition on site.

The concrete can be placed via truck chute, pump or skip.

No vibration procedures are required, eliminating the inherent problems of “vibration while finger”.

Agilia™ Foundation properties allow a foundation to be typically poured from one or two discharge points.

Is of a liquid consistency.

Reduces labour overheads on site.

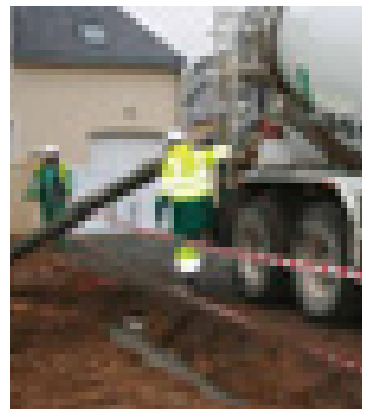
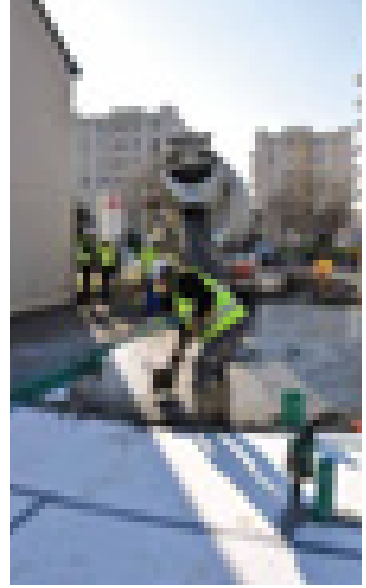
Contributes to speeding up the entire construction process

Agilia™ Foundation is a robust product that does not segregate or require the addition of water on site to aid placement.

Little or no surface bleeding or surface laitance.

Agilia™ Foundation fills the trench completely, leaving no voids.

Early strength – mix achieves sufficient strength at 24 hours to follow the block laying process to proceed.



Placing

Agilia™ Foundation is suitable for reinforced and non reinforced trenches and foundations.

Remove standing water from the trenches before placing the concrete.

Remix the concrete in drum before pouring.

Pour the concrete at a recommended speed.

Contact Lafarge Readymix sales representative for advice prior to ordering Agilia™ Foundation.

Agilia™ Foundation fully complies with ES 260/2007 Specifications.

Summary of Characteristics

Maintenance of fluidity = two hours

Agilia™ Foundation can be formulated to suit all environmental classifications.

If a greater strength at 28 days is required, Lafarge Readymix will work towards the customer's specification.

The grading of aggregates will always be conducive for achieving self-compacting concrete the durability of Agilia™ Foundation is greater than that of conventional concrete with the same cement content and water-cement ratio.

The technical characteristics of Agilia™ Foundation can be formulated to comply with all the foundation requirements and customer specifications.

Slump flow

Agilia™ Foundation's slump flow / consistency is recommended at 600mm - 800

Safety Precautions

Respect the rules of occupational Health and Safety:

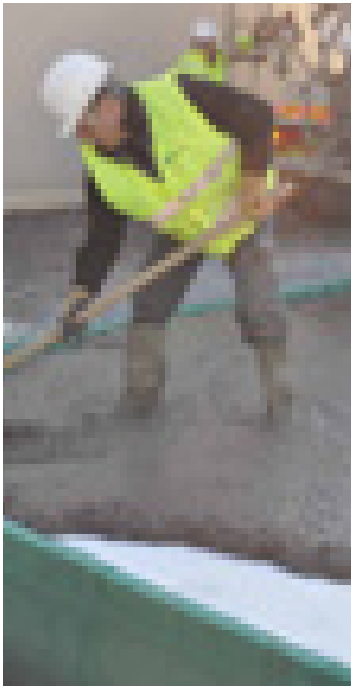
- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

Agilia

Horizontal



AGILIA™ Horizontal

finishing characteristics and high fluidity will produce excellent surface finish with minimal labour

Agilia™ Horizontal is designed with a higher slump flow for easier placing & levelling making it ideal for use in all horizontal applications

Agilia™ Horizontal can be used for slabs, structural toppings, oversites, Domestic floors, commercial slabs and industrial floor slabs.

Characteristics

Agilia™ Horizontal enables the rapid and effortless casting of slabs and floors.

Agilia™ Horizontal Provides high quality surface finish .

Agilia™ Horizontal can be laid over any stable substrate.

Agilia™ Horizontal is highly fluid and this requires the membrane to be substantially watertight to prevent loss of material floor finish tolerance to BS 8204 – 1 SR2.

ADVANTAGES

Ease of Placing The products impressive ease of levelling enables swift and easy coverage of large surface and flat toppings.

High Surface Quality to meet the most demanding needs and flatness requirements for slabs and floors.

Worksite Flexibility is realized with reduced pouring points, crane handling & more efficient labour utilization when placing the concrete.

Worksite Flexibility is realized with reduced pouring points, crane handling & more efficient labour utilization when placing the concrete.

Reduced Placing Time It is possible to pour seven to ten meters at a time, requiring less labour, no vibration, and giving excellent concrete surfaces.

Reduced Costs and more efficient utilization of time.

Recommendations

Agilia™ Horizontal

- Can be laid over any stable substrate. Standard concretes must be applied.
- Recommended for flatwork only
- Formwork must be watertight to avoid any grout loss
- Joints need to be cut according to standard concrete practices
- Always involve a Lafarge Readymix sales representative for advice prior to ordering Agilia™

Pump Priming

If the concrete is to be pumped, prior to pumping it is essential that the pump is primed. The pipes must be systematically “lubricated”. The slurry should be fed through the pipes and fully recovered at the other end before any of the concrete is discharged.

Pumping

When placing the product, the hose should be held approximately 500mm from the substrate. The pipe should be moved in a sweeping motion and should not be held stationary above any fixed point. Agilia™ Horizontal should be poured until the pre-set levels (as denoted by the tripods) have been reached.

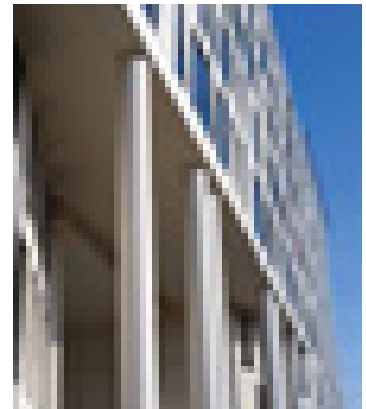
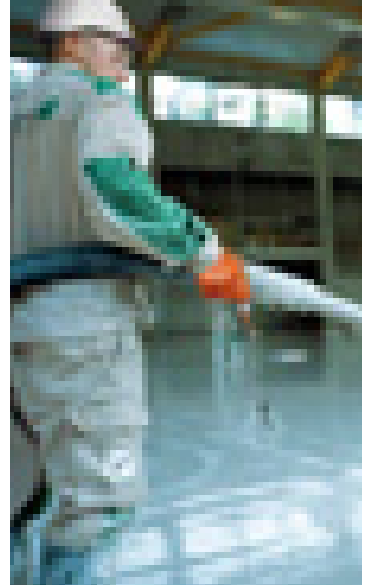
Dappling

When the materials has been placed to the desired levels within a room/area, it should be dappled immediately to obtain the best surface finish. The T-bar should be moved across the surface of the concrete with a dappling motion to generate a wave-like ripple across the surface. The dappling should occur in two directions, the second being perpendicular to the first. The first pass should be a deep pass to approximately two-thirds of the depth of the concrete the second a light pass over the surface.

Curing

Following placement, a curing membrane should be sprayed over the surface using a mist sprayer.

It is essential to ensure complete coverage of the surface as per manufacturer's guidelines.



Agilia™ Horizontal fully complies with ES 260/2007 Specifications.

Summary of Characteristics

- Outstanding Architectural finishes achievable
- Compressive strength can be tailored to meet individual project requirements
- Excellent workability retention
- High flow characteristics
- Highly durable

Bay sizes

Saw cut joints should be detailed at 40 times the depth of the slab (in mm)e.g. A slab that is 150mm deep = $150 \times 40 = 6,000\text{mm}$ therefore joints must be at $6\text{m} \times 6\text{m}$.

Slump-flow measurement

When Agilia™ Horizontal arrives on site, the slump-flow of the materials should be 600mm – 800mm when measured using the appropriate equipment.

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE



Agilia[™] Vertical



AGILIA[™] Vertical

offers exceptional quality on vertical applications without remedial work.

Applications

Agilia[™] Vertical is designed with improved viscosity to ensure better off shutter finishes and better flowability between reinforcement making it ideal for use in all vertical applications.

Agilia[™] Vertical can be used for:

Walls, columns and any vertical structure

For areas of congested rebar where conventional vibration methods may not be possible

Structures with heavily congested reinforcement

Causing complex shapes and long panels

Characteristics

Agilia[™] Vertical Mixes are designed specially for each contract taking into account such factors as placing techniques strength, and Agilia[™] technology provides the highest quality surface finish, the highly fluid material will replicate the shape and texture of formwork and is ideal for use in complex design and shapes.

Unlike traditional concrete Agilia[™] is measured by its flow and viscosity and not by slump.

Agilia[™] performs in the same way as standard concrete with regard to strength and setting characteristics. The durability is greater than the standard concrete with same cement content and water cement ratio.

Advantages

Reduced Labour Convenient and time saving, permitting the flexible use of labour on site.

Health and safety Reduced number of employees needed on site to lay Agilla™ Vertical, reducing the health and safety risks on site.

No Vibration This procedure needs no vibration at any stage of the placing process, eliminating the inherent problem of vibration white finger and reducing noise pollution.

Reduces Cost Speeds up project time and reduces costs. Reduces overheads (labour, pumping and vibration).

Flexible Placing Can be placed either by pump. Crane or skip.

Noise Eliminates traditional methods of placing and finishing concrete and is ideal when working in inner-city and built-up residential areas.

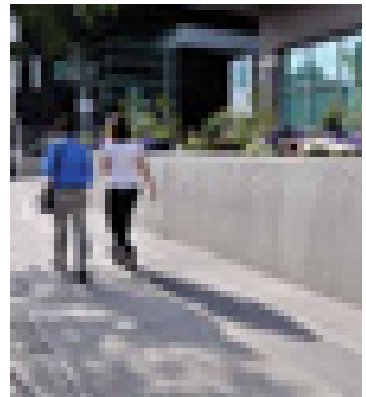
Placing

Agilla™ Vertical Can be placed either by skip or pump. Due to Agilla's™ high fluidity the distance between pouring points can be significantly increased. In order to achieve high quality finish for Agilla™ Vertical a high quality "Mortar tight" formwork is recommended. Lafarge Readymix will provide all the necessary guidance and support with regard to the placement methodology. However, Agilla is slightly thixotropies which helps prevent segregation once poured and reduces the hydrostatic pressure on the high height formworks. However, the responsibility for the calculation of the formwork structure must be completed by the forming company, or the manufacturer of the forms. By all means the pressure calculations should not be lower than the hydrostatic pressure of the Agilla concrete up to 9m in height. Contact Mortar tight technical centre for specialized applications and guidance in relation to Agilla™ Vertical.

Recommendations

- Suitable formwork design is required to withstand the addition hydrostatic pressures of Agilla™
- All joints need to be sealed with a joint sealer to avoid grout loss.
- The correct demoulding oils need to be applied to the formwork to ensure high quality off-shutter finishes. Bio degradable oils are recommended.
- Shutters can be removed as per standard concrete practices.
- Always seek a Readymix sales representative for advice prior to ordering

Agilla™ Foundation



SOME GENERAL GUIDELINES

- Outstanding Vertical finishes achievable
- Compressive strength can be tailored to meet individual project requirements
- Excellent workability retention
- High flow characteristics
- Highly durable

Agilla™ Vertical is a high performance concrete which is self compacting and self levelling and is designed to provide excellent workability retention in the highly challenging ambient conditions prevalent in the Middle East and allows the creation of surface finishes unachievable by the use of conventional concrete.

Agilla™ Vertical complies with the ES 260/2007

Safety Precautions

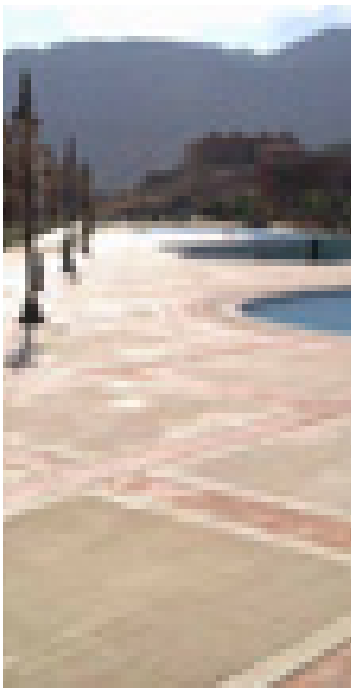
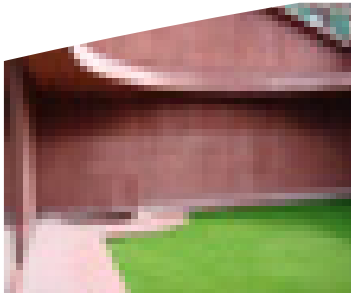
Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



Artevia

THE ART OF CONCRETE



ARTEVIA™ Color

Artevia™ Color is a range of pigmented concretes in a broad palette of colour tones. It provides wide ranging scope to meet architectural and aesthetic requirements providing decorative finishes that blend well with the environment and overall project design.

Applications

- Environmentally-attractive pathways for parks
- Swimming pool surrounds
- Enhancement of architectural features
- Highlighting of demarcation zones
- Precast elements
- Floors (industrial, domestic, retail outlets)

Advantages

- Integral homogeneous colour will not fade or wear off
- Should the concrete chip, the underlying concrete is of similar colour
- Cost-effective with very low maintenance
- Long lasting and UV-resistant
- Wide range of colours
- Polyfiber reinforced to minimise plastic shrinkage cracking

Limitations

- Concrete is a composite material and even though every care is taken to keep the material as homogeneous as possible, the colour of different loads may show marginal variations. (This is minimised by blending the first concrete discharged from a truck load with the last concrete from the previous truck.)

General

- Artevia™ mixes are suitable for most domestic, structural and precast concrete applications.
- All Artevia™ mixes are designed to have an optimum fines content, allowing for a superior blend of coloured concrete.
- Artevia™ is Lafarge Readymix's range of superior decorative concretes, which offer architects, developers, contractors and specifiers, a wide scope for aesthetic, durable and cost effective finishes.
- Lafarge Readymix is backed by the technical resources of the Lafarge Group, the world leader in building materials, ensuring the high standard of our quality and service.
- Our Sales and Technical support teams will be pleased to help you with Artevia™ queries at any time.

Ensuring satisfaction

As with any concrete work, the quality of the final product is strongly influenced by the quality and consistency of the application work. We recommend that you use one of our Approved Applicator Network Contractors (a list of approved applicators in your area is available on request) to obtain the best results from our Artevia™ range.

“We aim to deliver an excellent customer experience through service, quality, accountability and value.”



SOME GENERAL GUIDELINES

Surface Retardation:

- Artevia™ concrete will behave in a similar way to conventional concrete. Good concrete site practices should always be maintained.
- The concrete will be delivered in a uniform consistency: it is advisable not to add water on site.
- The correct workability for your chosen application must be agreed at the time of ordering.

Effects on Colour:

- Ensure the correct slump is specified: adding water on site will impact the colour.
- Finishing techniques can affect colour. For the best results, it is essential to ensure consistency in placing and finishing the product.
- Always cure and seal the concrete surface using our recommended curing and finishing materials.

- Poor curing of Artevia™ Colour can lead to lighter colours or shade variations in final surface finish

Safety Precautions

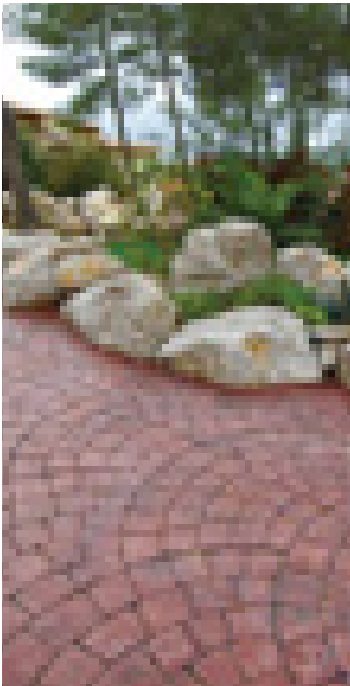
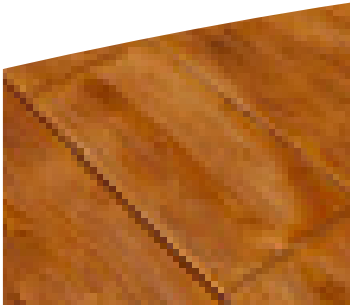
Respect the rules of occupational Health and Safety:

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- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



Artevia

THE ART OF CONCRETE



ARTEVIA™ Print

Artevia™ Print is a system for creating incredibly lifelike simulated paving, stone and natural effect finishes, using our specially designed concrete.

Applications

- Walkways
- Patios
- Swimming pool surrounds
- Enhancement of architectural features
- Floors (domestic, retail outlets, shopping malls)

Advantages

- Unlimited potential for different patterns and finishes
- Monolithic construction with minimal joints prevents unevenness developing
- Less weed growth than with traditional paving
- Vandal-proof paving solution
- Cost-effective alternative to natural stone
- Long lasting
- Polyfiber reinforce to minimise plastic shrinkage cracking
- Durable low-maintenance paving solution

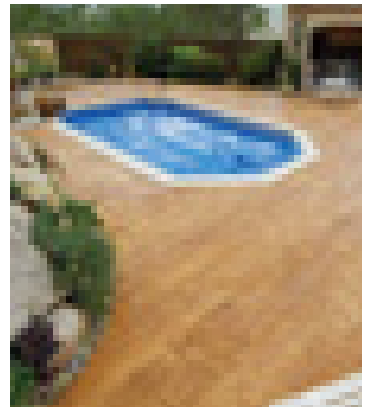
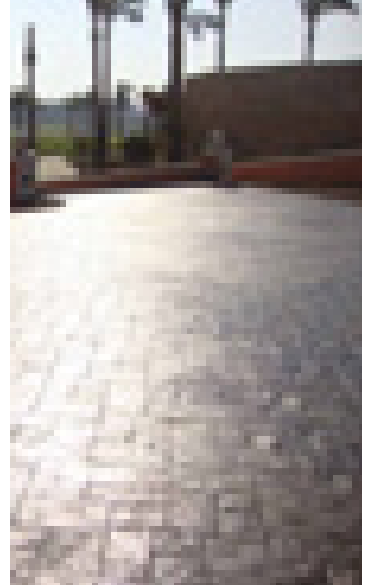
General

- Artevia™ mixes are suitable for virtually any domestic, structural and precast concrete applications.
- Artevia™ is Lafarge Readymix's range of superior decorative concretes, which offer architects, developers, contractors and specifiers, a wide scope for aesthetic, durable and cost effective finishes.
- Lafarge Readymix is backed by the technical resources of the Lafarge Group, the world leader in building materials, ensuring the high standard of our quality and service.
- Our Sales and Technical support teams will be pleased to help you with Artevia™ queries at any time.

Ensuring satisfaction

As with any concrete work, the quality of the final product is strongly influenced by the quality and consistency of the application work. We recommend that you use one of our Approved Applicator Network Contractors (a list of approved applicators in your area is available on request) to obtain the best results from our Artevia™ range.

“We aim to deliver an excellent customer experience through service, quality, accountability and value.”



SOME GENERAL GUIDELINES

- Artevia™ concrete will behave in a similar way to conventional concrete.
- The concrete will be delivered in a uniform consistency: it is advisable not to add water on site.
- The correct workability for your chosen application must be agreed at the time of ordering.
- Always cure and seal the concrete as early as possible concrete surface using our recommended curing and finishing materials.
- Poor curing of Artevia™ Polish can lead to lighter colours or shade variations in final surface finish.

Safety Precautions

Respect the rules of occupational Health and Safety:

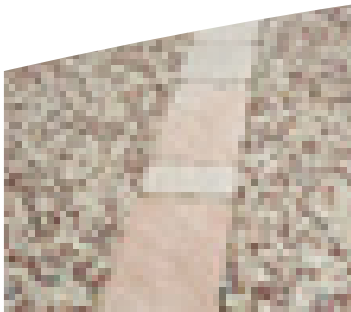
- Wear gloves,
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- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

Artevia

THE ART OF CONCRETE



ARTEVIA™ Exposed

Artevia™ Exposed is a natural exposed aggregate concrete in a broad range of colours and textures. It is a reliable and robust exterior concrete with exceptional aesthetically pleasing finishes.

Applications

- Driveways and walkways
- Ramped areas
- Traffic circles and roads
- Demarcated areas
- Paths and parklands
- Cityscapes
- Terraces
- Precast elements

Advantages

- A natural gravel look
- Cost-effective solution
- Durable (excellent ageing properties)
- Extremely low maintenance (less weed growth than with traditional paving)
- Slip/skid-resistant surface
- Will not sink or heave as can happen with traditional paving
- Other materials (natural stones, paving blocks etc) can be used in place of expansion joints
- Wide choice of colours and aggregate finishes
- Polyfiber reinforced to minimise plastic shrinkage cracking
- Low porosity
- Frost-resistant surface

Limitations

- Concrete is a composite material and even though every care is taken to keep the material as homogeneous as possible, the colour of different loads may show marginal variations. (This is minimised by blending the first concrete discharged from a truck load with the last concrete from the previous truck.)
- Artevia™ Exposed should not be used as a screed.

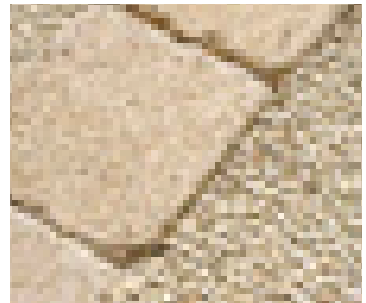
General

- Artevia™ mixes are suitable for most domestic, structural and precast concrete applications.
- All Artevia™ mixes are designed to have an optimum fines content, allowing for a superior blend of coloured concrete.
- Artevia™ is Lafarge Readymix's range of superior decorative concretes, which offer architects, developers, contractors and specifiers, a wide scope for aesthetic, durable and cost effective finishes.
- Lafarge Readymix is backed by the technical resources of the Lafarge Group, the world leader in building materials, ensuring the high standard of our quality and service.
- Our Sales and Technical support teams will be pleased to help you with Artevia™ queries at any time.

Ensuring satisfaction

As with any concrete work, the quality of the final product is strongly influenced by the quality and consistency of the application work. We recommend that you use one of our Approved Applicator Network Contractors (a list of approved applicators in your area is available on request) to obtain the best results from our Artevia™ range.

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SOME GENERAL GUIDELINES

- Artevia™ concrete will behave in a similar way to conventional concrete. Good concrete site practices should always be maintained.
- The concrete will be delivered in a uniform consistency: it is advisable not to add water on site.
- The correct workability for your chosen application must be agreed at the time of ordering. Ensure the correct slump is specified: adding water on site will impact the colour.

Surface Retardation:

- A surface retarder should be applied while the concrete surface has a sheen.
- There should not be any standing bleed water but the surface must not be allowed to dry.

Pressure Washing:

- Can be carried out approximately 4 to 24 hours after finishing the concrete (this will vary according to different weather conditions)
- Care should be taken while washing off to avoid blocking storm water drainage

Curing and Sealing:

- Always cure the concrete surface using our recommended curing and finishing materials.
- Poor curing of Artevia™ Exposed can lead to lighter colours or shade variations in final surface finish
- To prevent ingress of dirt and staining of the surface, it is recommended that you use only Lafarge recommended products

Safety Precautions

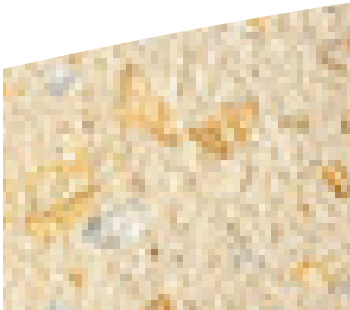
Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



Artevia

THE ART OF CONCRETE



ARTEVIA™ Stone

Artevia™ Stone looks and feels like natural stone in every detail . Elegant and impressive, it has all the character and beauty of premium quarried stone at a fraction of the cost.

Applications

- Pool Decks
- Slab On Grades
- Walk Ways
- Station concourses
- Parking Area
- Patios
- Floors (domestic, retail outlets, shopping malls)
- Tramway

Advantages

- Can be formulated to fit most colour schemes.
- Wide scope for creativity: any material hard enough to be polished can be incorporated (e.g. glass chips, aluminium).
- Gives a unique, customised look.
- Durable low maintenance finish for long-lasting service.
- Abrasion resistant and hard wearing.
- Integral homogeneous colour will not fade or wear off.
- Comfortable to walk on with bear feet- Good anti-slip properties.
- Polyfiber reinforced to minimise plastic shrinkage cracking.

Limitations

- Concrete is a composite material and even though every care is taken to keep the material as homogeneous as possible, the colour of different loads may show marginal variations. (This is minimised by blending the first concrete discharged from a truck load with the last concrete from the previous truck.)
- Artevia™ Stone should not be used as a screed

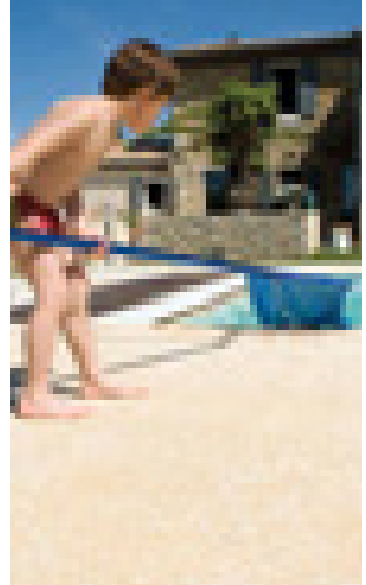
General

- Artevia™ mixes are suitable for most domestic, structural and precast concrete applications.
- All Artevia™ mixes are designed to have an optimum fines content, allowing for a superior blend of coloured concrete.
- Artevia™ is Lafarge Readymix's range of superior decorative concretes, which offer architects, developers, contractors and specifiers, a wide scope for aesthetic, durable and cost effective finishes.
- Lafarge Readymix is backed by the technical resources of the Lafarge Group, the world leader in building materials, ensuring the high standard of our quality and service.
- Our Sales and Technical support teams will be pleased to help you with Artevia™ queries at any time.

Ensuring satisfaction

As with any concrete work, the quality of the final product is strongly influenced by the quality and consistency of the application work. We recommend that you use one of our Approved Applicator Network Contractors (a list of approved applicators in your area is available on request) to obtain the best results from our Artevia™ range.

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SOME GENERAL GUIDELINES

- Artevia™ concrete will behave in a similar way to conventional concrete. Good concrete site practices should always be maintained.
- The concrete will be delivered in a uniform consistency: it is advisable not to add water on site.
- The correct workability for your chosen application must be agreed at the time of ordering. Ensure the correct slump is specified: adding water on site will impact the colour.
- Finishing techniques can affect colour. For the best results, it is essential to ensure consistency in placing and finishing the product.
- When placing the concrete, avoid walking in wet concrete, otherwise footprints will remain visible.
- Always cure the concrete as early as possible concrete surface using our recommended curing and finishing materials.
- Poor curing of Artevia™ Stone can lead to lighter colours or shade variations in final surface finish.
- The strength of the concrete should be at least 25MPa.
- Cure for at least 4 days before bush hammering the concrete work.

Safety Precautions

Respect the rules of occupational Health and Safety:

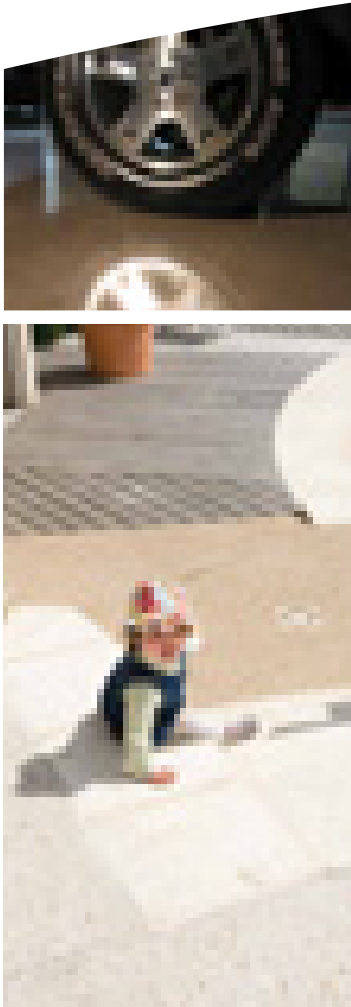
- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

Artevia

THE ART OF CONCRETE



ARTEVIA™ Polish

Artevia™ Polish is a range of concretes that have the smooth surface texture of polished marble. Available in an almost unlimited choice of colours and aggregates, the special concrete is ground and polished to an elegant silky finish.

Applications

- Hotels and museums
- Showrooms
- Restaurants
- Station concourses
- Patios
- Floors (domestic, retail outlets, shopping malls)
- Industrial floors

Advantages

- Can be formulated to fit most colour schemes
- Wide scope for creativity: any material hard enough to be polished can be incorporated (e.g. glass chips, aluminium)
- Gives a unique, customised look
- Durable low maintenance finish for long-lasting service
- Abrasion resistant and hard wearing
- Integral homogeneous colour will not fade or wear off
- Eliminates the need for expensive protective coatings (e.g. epoxy) in industrial applications
- Polyfiber reinforced to minimise plastic shrinkage cracking

Limitations

- Concrete is a composite material and even though every care is taken to keep the material as homogeneous as possible, the colour of different loads may show marginal variations. (This is minimised by blending the first concrete discharged from a truck load with the last concrete from the previous truck.)
- Artevia™ Polish should not be used as a screed

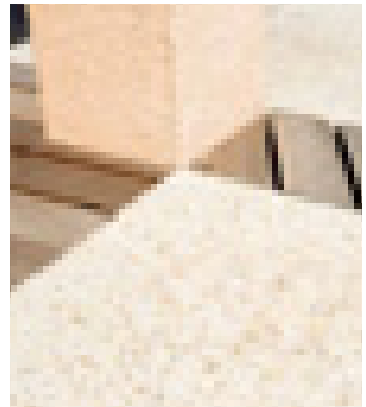
General

- Artevia™ mixes are suitable for most domestic, structural and precast concrete applications.
- All Artevia™ mixes are designed to have an optimum fines content, allowing for a superior blend of coloured concrete.
- Artevia™ is Lafarge Readymix's range of superior decorative concretes, which offer architects, developers, contractors and specifiers, a wide scope for aesthetic, durable and cost effective finishes.
- Lafarge Readymix is backed by the technical resources of the Lafarge Group, the world leader in building materials, ensuring the high standard of our quality and service.
- Our Sales and Technical support teams will be pleased to help you with Artevia™ queries at any time.

Ensuring satisfaction

As with any concrete work, the quality of the final product is strongly influenced by the quality and consistency of the application work. We recommend that you use one of our Approved Applicator Network Contractors (a list of approved applicators in your area is available on request) to obtain the best results from our Artevia™ range.

“We aim to deliver an excellent customer experience through service, quality, accountability and value.”



SOME GENERAL GUIDELINES

- Artevia™ concrete will behave in a similar way to conventional concrete. Good concrete site practices should always be maintained.
- The concrete will be delivered in a uniform consistency: it is advisable not to add water on site.
- The correct workability for your chosen application must be agreed at the time of ordering. Ensure the correct slump is specified: adding water on site will impact the colour.
- Finishing techniques can affect colour. For the best results, it is essential to ensure consistency in placing and finishing the product.
- When placing the concrete, avoid walking in wet concrete, otherwise footprints will remain visible.
- Always cure the concrete as early as possible concrete surface using our recommended curing and finishing materials.
- Poor curing of Artevia™ Polish can lead to lighter colours or shade variations in final surface finish
- The strength of the concrete should be at least 25MPa.
- Cure for at least one week before polishing the concrete work.

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)

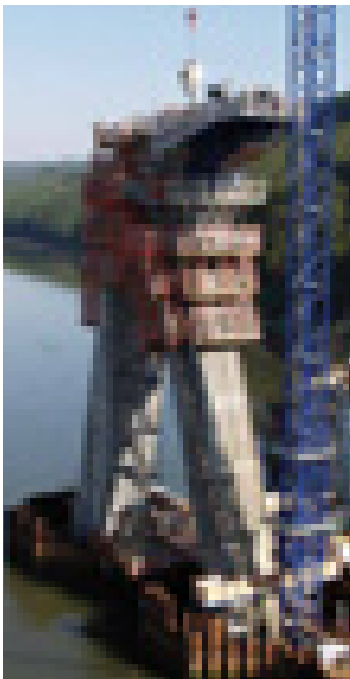
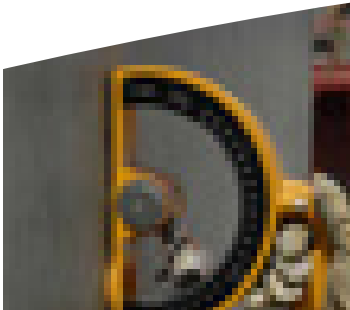


LAFARGE



CHRONOLIA

FAST TRACK WITH CONCRETE



CHRONOLIA™ 15/24/48 HOUR

Chronolia™ is the range of very high early strength concretes, defined by a rapid surface setting and rapid hardening properties with a very high early strength. Chronolia uses advanced technology allowing for achieving very early high strength gain with the same comfort of use as any standard ready mix concrete (2 hours slump retention).

Applications

- Accelerate critical sections of the construction process.
- Regain time if the construction process has been previously delayed.
- Ideal for areas where early trafficking is a critical construction issue such as yards, car parks, access roads and floor areas.
- Release areas for use earlier, so causing less disruption for the client during repair and refurbishment contracts.
- Infrastructure contracts such as road, rail, airports and dockyards.
- Water control structures where long term diversion of water is impractical.

Advantages

- Users can choose at what time the guaranteed specified early strength is achieved i.e. at 15 hours, 24 hours or 48 hours.
- Placing techniques and use of Chronolia™ are exactly the same as conventional concrete.
- High early strength is achieved but also a high ultimate strength reached giving a very durable concrete.
- Introduces a new flexibility into construction schedules.

Guidance

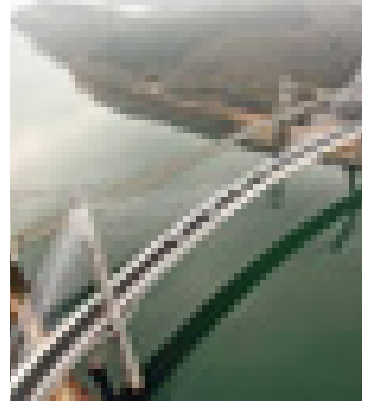
Many applications are possible. When ordering Chronolia™ the following information should be provided to Lafarge Readymix:

- End use.
- Strength gain criteria (including the compressive strength and the time frame this is required in i.e. 15 hours, 24 hours or 48 hours...etc).
- The workability.

When the concrete needs to be coated, the curing times of Chronolia™ are shorter than that of conventional concrete.

Characteristics

- Chronolia™ is fully compliant with EN206 – 1:2000 and BS 8550 – 2:2002.
- It's make up and the production techniques comply with the above standards in regard to:
 - › Compressive strength and exposure class.
 - › Slump/consistency requirements.
 - › Aggregate specification.



PRECAUTIONS OF USE

Ordering

Indicate, when ordering:

- The compression strength
- Class of exposure
- Class of slump consistency
- Aggregates specification
- Class of chloride content
- Exact volumes required

Transport

- Confirm site access is suitable for truck deliveries
- For sites with access difficulties, the use of a concrete pump should be considered
- Ensure there are no height restrictions that hinder access

Use

- Water addition is forbidden by site personnel
- Concrete should not be poured outside the temperature ranges mentioned above
- All health and safety regulations must be adhered to when handling concrete. Wearing of goggles, hard hats, gloves, boots and reflective clothing is mandatory
- Chronolia™ has a working life of 2 hours, from time of batching indicated on delivery ticket; this limit must not be exceeded. Delays in the pouring process and the use of a pump must be factored into this 2 hour period

Placing

- Chronolia™ can be placed by all conventional methods
- Placing of Chronolia™ follows guidelines laid out in BS 8110 / Eurocode2, BS 8500 / 2 :2002 and EN 206 - 1 :2000
- Appropriate curing agents need to be used on horizontal slab applications

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

Hydromedia

FASTER DRAINING THROUGH CONCRETE



HYDROMEDIA™

Sustainable urban drainage

Hydromedia™ is a new fast draining concrete pavement solution designed and engineered to rapidly direct stormwater from streets, parking surfaces, driveways, and sidewalks.

A cutting-edge development, Hydromedia™ also minimizes longterm maintenance costs for local authorities and developers of drainage management.

Lafarge's world-class R&D laboratories designed an innovative sustainable drainage solution. Hydromedia's™ advanced engineering design offers best-in-class drainage and a resilient surface. No other permeable solution offers increased ease of placement and an industry-leading aesthetic appeal.

Key Benefits

Hydromedia™ is a sustainable solution that combines the durability of concrete with the values of Triple Bottom Line as defined by the ICLEI*.

Hydromedia™ contributes to LEED® S.S. 6.1& 6.2 & 7.1; W.E. 1; M.R.4&5 and 7.1 credits.

Advantages

- Reduces need for man-made drains.
- Reduces footprint; more efficient use of land.
- Safer roads and parking areas no standing water.
- Smoother, cleaner look than other permeable pavements.
- Enhanced with a wide range of Artevia shades; subtle, standard, and premium.
- Reduces long-term maintenance costs; durable surface.
- Reduces energy costs due to high SRI* values
- Greater fluidity means better flow into formwork; easier to place.
- More consistent; easier to estimate volumes from production to placement.
- Promotes natural ground recharge.
- Reduces risk of flash flooding; high permeability and drainage capacity.

(*International Council for Local Environmental Initiatives)

The unique mix design technology behind Hydromedia creates a no-fines concrete with the intention of a fluid application which is highly robust and resilient after placement and curing.

Lafarge's breakthrough paste technology precisely calculates the rheological properties and creates a balance between fluidity and viscosity. This innovation provides short-term flexibility and long-term strength along with improved workability, consistency and a less labor-intensive application.

The aggregate matrix is designed to minimize compaction and provide a predictable and homogeneous permeability in the final hardened product.

The choice of materials, combined with the specially created mix design tool, allow that the final properties of the concrete can be engineered prior to placement. This allows for a predictable and consistent designed solution to the management of stormwater.

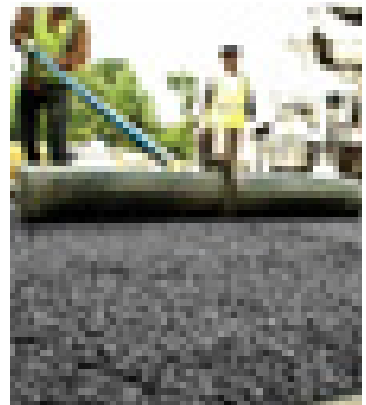
Applications

- Commercial and residential parking lots.
- Pavements, bike & pedestrian pathways.
- Patios.
- Courtyards.
- Swimming pool decks.
- Alleyways.
- Driveways.
- Pavement edge drains and gutters.

CONCRETE GENERAL SPECIFICATIONS

Hydromedia by Lafarge; proprietary ready-mix concrete with the following characteristics:

- Porosity: 20 to 35%.
- Permeability: 150 to 1000 L/min/m².
- Compressive Strength at 28 days: 10MPa to 20MPa (1,450 psi to 2,176psi).
- Flexural Strength at 28 days: 1.5MPa to 3MPa (217psi to 435psi).
- Maximum water cementitious ratio: the maximum water cementitious ratio is specified by the Designer Project Engineer.
- Unit weight is up to 30% less than conventional concrete.
- Workable for up to 90 minutes.
- Slump approx 150mm.
- Void content: Minimum 20%.



Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear Safety glasses, etc... (MS DS available upon request)



LAFARGE

UltraTM series



UltraSeriesTM Low Heat



UltraSeriesTM Low Heat is a concrete specified when the excessive heat due to the hydration process is a concern and needs to be mitigated. It has been designed to reduce the elevation of concrete temperature, thus reducing the thermal stress in mass concrete.

Brief on Mass Concrete

Mass concrete is defined ACI 116R as “any volume of concrete with dimensions large enough to require that measures be taken to cope with generation of heat from hydration of the cement and attendant volume change to minimize cracking”.

Mass concrete includes not only low-cement-content concrete used in dams and other massive structures but also moderate-to high-cement-content concrete in structural members for all types of construction.

Applications

- Massive concrete structures, i.e.(gravity dams, barrages, huge rafts).
- Big structural elements when the minimum cross-sectional dimensions of a solid concrete member approach or exceed 1 meter.
- When high cement content >450kg/m³ is required.
- High durability and good structural integrity.
- Extended lifetime projects exceeding 50 years.

Benefits

- Reducing concrete core and differential temperature for massive elements.
- Mitigate the risk of internal and external thermal cracks.
- Higher durability levels due to cementitious materials addition.
- Better impermeability due to higher packing density of cementitious particles.

The aforementioned benefits are attained through the following measures:

Reduced Hydration Heat

- Using low cement content that reduces the concrete core temperature.
- Using low heat cement and cementitious materials blends of reduced hydration heat.

Effective Cooling

A. Concrete ingredients cooling

- Using chilled mixing water that can be cooled to as low as 1 C using water chillers, or through placing ice blocks or crushed ice in the water storage tanks.
- Using shaded aggregates, and cool cement.

B. Concrete cooling through mixing / transportation

- Transporting the concrete in white reflecting drum mixers, such white paint dissipates the heat of direct sunlight.
- Cooling the concrete itself via crushed ice addition during mixing (if needed)

Site Practice and Recommendations

All precautions and recommendations concerning placement, and curing on site should be followed in accordance with the ACI 305 for "Hot Weather Concreting", and the ACI 207 "Guide for Mass Concrete".

Reference Standards

- ACI 207 Guide to Mass Concrete
- ACI 308.1 Standard Specification for Curing Concrete
- ACI 301M Specifications for Structural Concrete (metric)
- ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete

Reference Testing Standards

- ASTM C186 Heat of Hydration of Hydraulic Cement
- ASTM C1064 Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete



First Aid

This product contains cement, which may cause irritation. Avoid contact with eyes and prolonged contact with skin. If contact occurs, wash thoroughly with water and call a doctor. (eyes, ingestion, Skin, Inhalation)

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)



UltraTM series



UltraSeriesTM Steel Fiber Reinforced Concrete



UltraSeriesTM Steel Fiber Reinforced Concrete (SFRC); is a system containing Lafarge globally recognized concrete containing short disconnected steel fibers that are uniformly distributed and randomly oriented.

Unlike traditional reinforcing mesh – which strengthens in one or possibly two directions – steel fibers reinforced concrete acts as a uniform composite material. Steel work in three dimensions throughout the entire concrete matrix; this significantly increases the structural integrity.

Applications

- Industrial Ground Floor Slabs – Warehouse, Factories.
- Aircraft Hangers.
- Concrete Roads, Parking Areas.
- Mezzanine Floors With Steel Decking.
- Commercial and Residential Slabs On Ground.
- Raft Slabs, Foundations.
- Pre-Cast Application.

Advantages of UltraSeriesTM Steel Fiber Reinforced Concrete Time Effective

- Saves time consumed in preparing and placing the traditional steel mesh.
- Saves time consumed for checking the reinforcement positioning and taking the final approval for pouring.
- Increases production rate up to 5 times.

Cost Effective

- Completely eliminate traditional steel reinforcement: saving on both materials and labor.
- Reduce slab thickness: saving in concrete and placement costs
- Possibility of wider joint spacing: saving on joint forming costs and joint maintenance.

Improved Technical Properties

- Flexural Strength – significant increase (more than 1.5 times) in the first-crack and ultimate flexural (bending) strength can be achieved over plain concrete with Ultra SFRC
- Fatigue Resistance – the fatigue strength of Ultra SFRC concrete is far greater (1.6 times) than the conventional concrete
- Impact-Ultra SFRC greatly increase (1.5 to 5.0 times) concrete's resistance to damage from heavy impact.
- Shear Strength – is much improved (1.25 to 2.0 times) over unreinforced concrete.
- Shrinkage- although the steel fibers themselves do not affect shrinkage-rate, they can minimize and help eliminate shrinkage cracks, particularly in restrained situation.

Technical Features

Ultra SFRC is a composite material of hydraulic cements , fine and / or coarse aggregates with discrete steel fibers of rectangular / circular cross - section randomly dispersed throughout the matrix.

Key factors for specifying the fibers dosage largely depend on the several application parameters and consideration together with the type of finish required and its relevant physical properties.

References

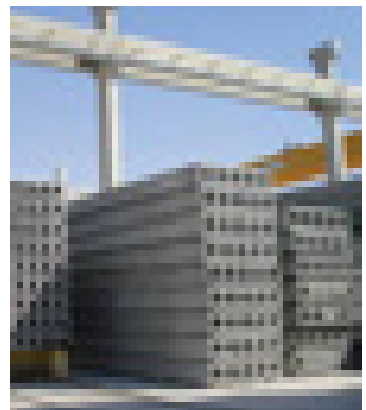
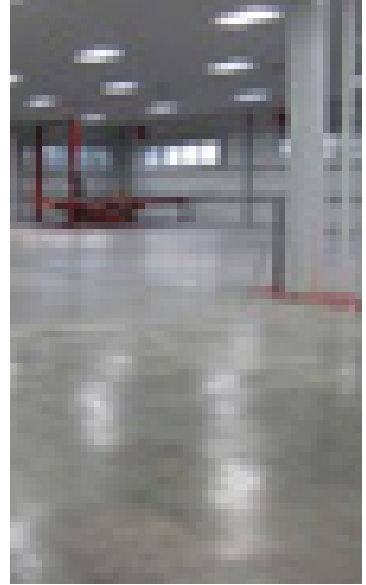
Slab design complies with;

- ACI 360R-06 “Design of Slabs on Ground”
- ACI 544.4R-88” Design Considerations for Steel Fibers Reinforced Concrete,”

Steel Fibers used in the mix are complying with ASTM 820/96, ASTM C1116/95, DIN 1045

Recommendations

The standard rules for good practice and placing must be strictly observed with proper curing procedures as required for normal concrete and project specifications.



First Aid

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Safety Precautions

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LAFARGE

UltraTM series



UltraSeriesTM Stabilized Mortar



UltraSeriesTM Stabilized Mortar is a ready to use - factory made - cement:sand mortar which contains a cement-set-retarding admixtures and requires no further treatment before use. The cement set retarding admixtures delays the initial set of the cement thus allowing the mortar to remain workable for a longer specified time before use, which is generally 12hrs or 24hrs.

After this time or when the mortar is used and suction has occurred, commencement of set takes place in a normal manner.

UltraSeriesTM Stabilized Mortar is batched in Lafarge plants and supplied through truckmixres to be distributed all over the job site upon the client request.

Upon storage, the product should be maintained in non-absorptive containers and covered with vapor barriers (plastic sheets) in order to prevent any moisture loss during the fresh status.

UltraSeriesTM Stabilized Mortar is similar to the traditional when applied to the walls as plaster or between bricks as jointing mortar. It needs no special tools or techniques upon application.

Applications

- Masonry works (blocks laying & jointing).
- Plastering and rendering works for interior walls.
- Plastering and rendering works for exterior walls.
- Blocks filling.

Main Product Features

Higher Productivity

Using the Ultra Stabilized Mortar, all traditional batching, mixing and transportation time are eliminated. Consequently the productivity of masonry and plastering works is significantly increased as the stabilized mortar is available and ready to use through the whole working day.

Lower Waste

Using the Ultra Stabilized Mortar, all raw materials waste shall be eliminated as well as losses due to raw materials thefts or supplies discrepancies. Moreover, mortar waste upon application can be recovered by remixing with fresh mortar in the tubs.

More Economical

Using the Ultra Stabilized Mortar, a direct reduction in hidden costs associated with traditional site mixed mortar is attained, i.e.(electricity & fuel expenses, buying water expenses, wastage expenses, low productivity expenses, low quality and repair expenses and downtime penalties).

Better Management & Flexibility

Using the Ultra Stabilized Mortar, raw material storage areas are removed creating more space for other project activities and safer work environment with better manoeuvring and reduced accidents probability. Precise coverage of the Ultra Stabilized Mortar allows client to make good estimates of the required quantities and enables better cost control.

Better Quality & Durability

Using the Ultra Stabilized Mortar, better quality and durability are attained due to restrict quality control measures applied on both, raw materials and final product. This in addition to providing a consistent product overruled by international standards and criteria that guarantee a typical performance and measures.

Managed Deliveries

Using the Ultra Stabilized Mortar, any mortar quantities can be supplied upon the client request subject to 24h scheduled notice. It is recommended by Lafarge that the minimum ordered mortar quantity shall not be less than 4m3.



Mortar Mix	Strength Grade (N/mm2)	Setting Time (hours)
M5/12H	5 – 7.5	12
M5/24H	5 – 7.5	24
M10/12H	10 – 12	12
M10/24H	10 – 12	24

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Safety Precautions

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LAFARGE

UltraTM series



UltraSeriesTM Sulfate Resistant

UltraSeriesTM Sulfate Resistant is a perfect solution to use wherever moderate to aggressive sulfate attacks are found, as in brackish contaminated soil, ground water and sewer treatment plants environments and in grounds containing sulfates.

Sulfates may occur naturally in soil and groundwater, enter the concrete and react first with the hydrated C3A contained in the cement, resulting in expansion, scaling, and cracking of concrete, and rapidly exposing the reinforcing steels to accelerated corrosion by chlorides or other ions encountered. Some sulfate compounds, such as magnesium sulfate, directly react with the calcium silicate hydrates.

UltraSeriesTM Sulfate Resistant has been developed by Lafarge Technical teams for customers who seek high durability in aggressive environments where the corrosion of steel in concrete structures by sulfates and chlorides is a risk. It has been designed to ensure good physical and chemical resistance of the concrete to limit both the penetration of sulfate ions and their deleterious reaction with the cement matrix of the concrete.

Applications

- Underground footings and foundations.
- Sewer treatment plants.
- Embedded concrete ducts and pipes.
- Tunnels and culverts.
- Piles and diaphragm walls.

Benefits

- High durability and good structural integrity.
- Reduced occurrence of efflorescence.
- High flowability and easy pumping
- Various levels of strength depending on need

Technical Specifications

- Complies with BS EN 206 for standard concretes and with BS EN 4027 for concretes exposed to chemically aggressive environments.
- Cement: mixes available with various types of sulfate resisting cements depending on need.
- Aggregates: Available with all standard aggregate sizes.
- Water / Cement ratio **0.35 – 0.6 (for plain concrete)**.
- Low permeability **<30mm**.
- Concrete grades are available from 30MPa to 60MPa depending on need.
- Setting time **(8h – 11h)**.
- Consistency: **(Slump 15cm – 23cm)**.
- Workability can be adapted depending on need.

Site Practice and Recommendations

- Can be placed by crane or by pump.
- Does not need any special tools or techniques in placing.
- The standard rules for good concrete practice and placing must be strictly observed with proper curing procedures as required by normal concrete mixes.

Ultra Series TM Sulfate Resistant fully complies with local norms and construction specifications. Consult the local Lafarge Technical Department for specialized applications and requirement.



The comparison of concrete prisms after immersion during 2 years in a solution of Na₂SO₄ (equivalent 16g of SO₄ per liter) at 20°C at Lafarge Research Center illustrates the good behavior of Ultra Sulfate Resistant whereas standard concrete samples are heavily cracked and deteriorated.

Source : Lafarge Research Center

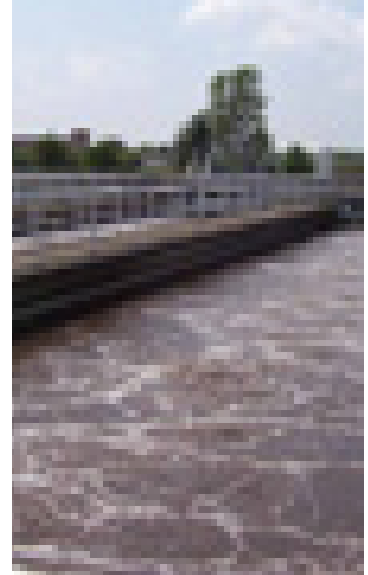
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Safety Precautions

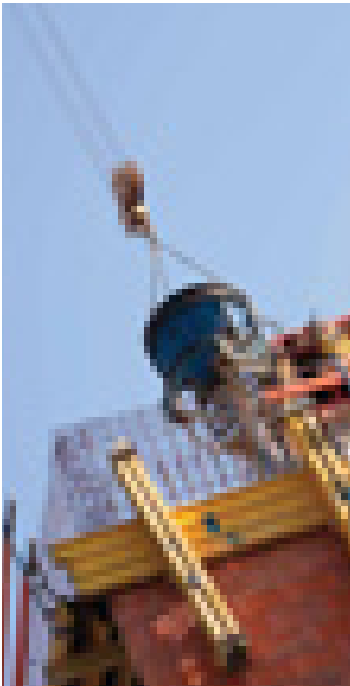
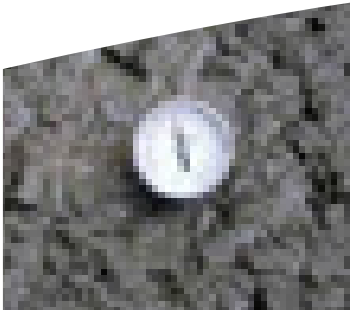
Respect the rules of occupational Health and Safety:

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- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)



LAFARGE

Ultra™ series



UltraSeries™ Weathermix

UltraSeries™ Weathermix is specially designed to cover all hot weather conditions that could not be tolerated by conventional concrete.

UltraSeries™ Weathermix is an ideal solution provided to residential, commercial and industrial design professionals, owners and contractors that enables them concreting safely in hot climates.

UltraSeries™ Weathermix has recorded high performance indicators all over the country, where ambient temperatures could be as high as 40C during the summer time. In such cases, only Ultra Weathermix concrete range can guarantee high quality concreting.

Applications

- Structural and non-structural elements cast in hot weather.
- Long distance trips in summer time.
- Big pours that requires concreting during daytime in summer.
- High durability and good structural integrity.

Benefits

- Permits placement of concrete in temperatures above 30 degrees and up to 48 degrees.
- Superior workability with reduced bleeding and with no segregation.
- Superior finishing characteristics for flatwork and cast surfaces.
- Meets the performance criteria of the ACI 305 for "Hot Weather Concreting"

The aforementioned benefits are attained through the following measures:

UltraSeries™ Weathermix success in tolerating hot weather is founded on two main levers, the effective cooling methods and the high adaptability to hot weather.

Using chilled mixing water:

In general, lowering the temperature of the batch water by 2.0 to 2.2C will reduce the concrete temperature approximately 0.5 C. For producing **UltraSeries™ Weathermix**, the mixing water can be cooled to as low as 1 C using water chillers, or through placing ice blocks or crushed ice in the water storage tanks.

Adding crushed ice to concrete

Using crushed ice as part of the mixing water has remained a major mean for reducing concrete temperature. On melting, ice absorbs heat at the rate of 335 J/g. This huge cooling energy can help in producing concrete with temperatures below 25C through ultimate hot weather.

Transporting concrete

Transporting the concrete in white reflecting drum mixers, such white paint dissipates the heat of direct sunlight.

Site Practice and Recommendations

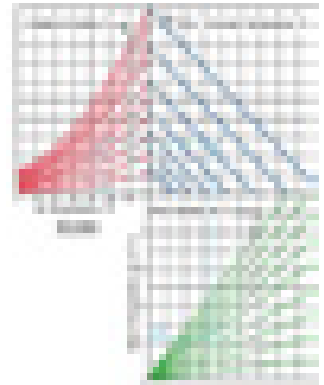
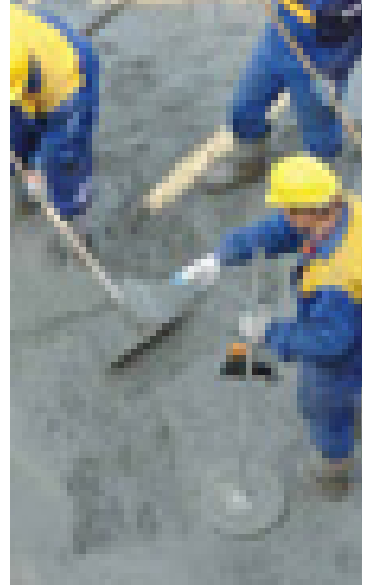
All precautions and recommendations of the ACI 305 for "Hot Weather Concreting" should be followed.

Reference Standards

- ACI 305.1 Standard Specification for Hot Weather Concreting
- ACI 308.1 Standard Specification for Curing Concrete
- ACI 301M Specifications for Structural Concrete (metric)
- ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete
- ACI 302.1R Guide for Concrete Floor and Slab Construction

Reference Testing Standards

ASTM C1064 Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete



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Safety Precautions

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LAFARGE

UltraTM series



UltraSeriesTM Lightweight

General Introduction of the Product

UltraSeriesTM Lightweight is a low density concrete - also called insulating concrete - is similar to normal-weight concrete except that it has a lower density. It is made with lightweight aggregates (all-lightweight concrete) or with a combination of lightweight and normal-weight aggregates. The oven-dry density ranges from 500 to 1900 kg/m³.

UltraSeriesTM Lightweight can be grouped as follows:

Group I is made with expanded polystyrene beads or with foaming agent. Oven-dry concrete densities generally range between 500 to 1900 kg/m³. This group is used primarily in insulating concrete. Some low strength records can be attained in this group at higher densities.

Group II is made with expanded aggregates such as perlite or vermiculite. Oven-dry concrete densities using these aggregates generally range between 500 to 1900 kg/m³. This group is used primarily in insulating concrete as well, but in case of using perlite low to moderate strength results can be attained.

Group III is made with aggregates manufactured by expanding clay (Leca), diatomite, or by processing natural materials such as pumice. Oven-dry concrete densities using these aggregates can range between 800 to 1900 kg/m³ for Leca and 1500 to 1450 to 1900 kg/m³ for pumice. Moderate to high strength results could be attained within this group

Main Applications

- Thermal and sound insulation for roof decks and walls,
- Lightweight underlayment and bonded toppings
- Lightweight backfill,
- Leveling courses for floors or roofs,
- Blocks filling for firewalls,
- Underground thermal conduit linings.

Key Benefits

Better flexibility:

- Available in a wide density range, and different types of compatible cement .
- The product is supplied "ready to use" round the clock, just place your order 24hrs before via phone.
- No need to find a place for the lightweight sub-contractor to store his machine, his raw materials on site (cement, sand, admixtures) as well no need to mess the job site with preparing and batching concrete on site.
- Freedom of supply points, not likely to happen when batching on site.
- The same product could be used for more than one application (the same mix can be used for several lightweight applications).

Better Quality:

- Provides durable insulation structures and consistent performance with time.
- Ensures low density controlled materials with typical ingredients automatically batched and mixed at concrete central plants to guarantee homogeneity and consistency.

Better management ,control and HSE:

- Better production rates are attained with the Ready-mix compared to batching on site, thus leading the project schedule and pulls the dependent tasks.
- Better control of the overall quantities delivered in cubic meter.
- Better resources optimization (labor, power supply), and better utilization of job site mobilization areas.
- Better on site traffic, less accidents, better housekeeping

Saving expenses:

- Better quality of the final product, and good technical support will save repair and the rework loops costs.
- Saves the hidden expenses of breakdowns, penalties, getting behind schedules, operational expenses of new subcontractor on site, and low production rates.
- Saves the hidden costs due to low waste control of many raw materials and focusing controls in product.



First Aid

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Safety Precautions

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- Wear safety glasses, etc... (MSDS available upon request)



LAFARGE

UltraTM series



UltraSeriesTM Poly Fiber

General Introduction of the Product

UltraSeriesTM Poly Fiber is a concrete reinforced with polypropylene fibers suitable for several concrete construction applications providing an effective form of secondary reinforcement to address your specific needs as a contractor or owner.

Brief on using Poly Fiber in Concrete

Using the appropriate polypropylene fiber in concrete can improve concrete structures such as residential and commercial pavements, decorative and architectural concrete, residential foundations walls, concrete on metal decks, and shotcrete.

Polypropylene fiber should be considered in any application where steel reinforcement such as Welded Wire Fabric, Steel Fiber Reinforced Concrete or conventionally reinforced concrete is used for temperature and shrinkage performance.

Main Applications

- Rigid pavement and concrete roadways construction.
- Industrial floors for factories and warehouses.
- Suspended slabs.
- Decorative hardscapes.
- Screed toppings for internal and external applications.
- Shrinkage compensating concrete.
- Water structures, i.e.(water tanks, culverts, barrages...etc).
- Retaining walls.
- Deep and shallow foundation in aggressive environments.

Key Benefits

- Improves durability within aggressive environments by reducing permeability.
- Reduces plastic shrinkage and settlement cracking through controlling and reducing stresses.
- Improves resistance to thermal cracking specially in the early ages
- Reduces creep and spalling.
- Reduces the probability of segregation.
- Increases the concrete tensile strength in the early ages.

Recommended dosages and best practices for featured applications

- Residential Paving – 0.9 kg/m³

Proven fiber to replace 150mm x 150mm 10 gauge Welded Wire Fabric. Best Practice is not to start the finishing procedures too early to reduce the amount of fibres that are exposed on the surface. Can be hard troweled, broomed, or other coarser finishes. Reduces plastic shrinkage, plastic settlement, and increases durability.

- Architectural & Hardscapes – 0.45 kg/m³

Fiber is invisible when stamping or staining and is a compliment to integral color. Use monofilament fibres of 9mm to 12mm length and avoid over troweling the concrete surface.

- Commercial Paving – 1.8 kg/m³

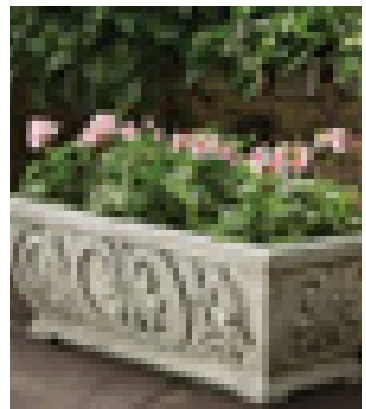
Eliminates the use of welded wire mesh and conventional rebar in light load applications. Use surface evaporation retarders for initial curing for exteriors pavements and start the final curing as soon as the concrete final setting occurs.

- Shotcrete – 1.8 kg/m³

Designed for shotcrete applications, this product improves green strengths, reduces plastic shrinkage cracking, reduces rebound, and improves post first crack performance.

- Municipal 0.9 kg/m³

Proven fibre to replace 150mm x 150mm 10 gauge WWF. Excellent for walls, overlays, whitetopping, and extruded concrete. Can be hard troweled, broomed or other coarser finishes. Reduces plastic shrinkage cracking, plastic settlement, and increases durability.



First Aid

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Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)





UltraTM series



UltraSeriesTM Watertight

General Introduction of the Product

UltraSeriesTM Watertight is a low permeability concrete designed to be used in wet and aggressive environments, for water containment structures and for water retaining structures to guarantee optimum pores-blocking structure and more durable construction.

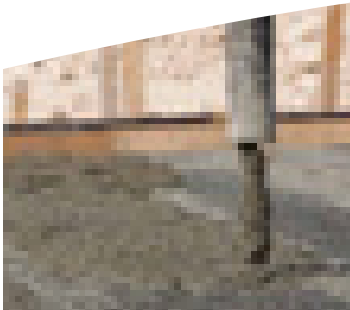
Brief on Low Permeability Concrete

Low permeability is one of the major durability requirements for better service of any concrete construction. **UltraSeriesTM Watertight** is designed on the basis of reducing W/C ratio and attaining maximum packing density that reduce the percentage of the open cell air voids inside concrete.

In addition, bore-blocking chemical admixtures are used to enhance concrete resistance to water seepage and mitigate the risk of deleterious materials penetration inside the concrete and to the reinforcement.

Main Applications

- Water vessels / containing structures, i.e.(water tanks, swimming pools, settlement ponds, artificial lakes ...etc).
- Ground water retaining walls.
- Deep and shallow foundation in aggressive environments.
- Water way structures, i.e.(culverts, sluiceways, navigation locks...etc).
- Water dams and barrages
- Roofs and suspended slabs for washrooms and kitchens.
- Cross river bridges
- Onshore bridges and marine terminals



Key Benefits

- Available in a wide strength range, and different types of compatible cement
- Enhance the concrete elements structural integrity and extend the structural service life.
- Reduces the probability of steel reinforcement corrosion.
- Reduces the probability of chemical attack to concrete.
- Increases the concrete tensile strength in the early ages.
- Improves durability through reducing permeability and seepage.

Technical Specifications

- Complies with BS EN 206 for standard concretes and with BS EN 4027 for concretes exposed to chemically aggressive environments.
- Cement: mixes available with various types of sulfate resisting cements depending on need
- Aggregates: Available with all standard aggregate sizes
- Water / Cement ratio 0.35 – 0.6 (for plain concrete)
- Low permeability <30mm.
- Concrete grades are available from 30MPa to 60MPa depending on need.
- Setting time (8h – 11h).
- Consistency: (Slump 15cm – 23cm).
- Workability can be adapted depending on need.

Site Practice and Recommendations

- Can be placed by crane or by pump
- Can be used as any standard readymix concrete.
- The standard rules for good concrete practice and placing must be strictly observed with proper curing procedures as required by normal concrete mixes.



First Aid

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Safety Precautions

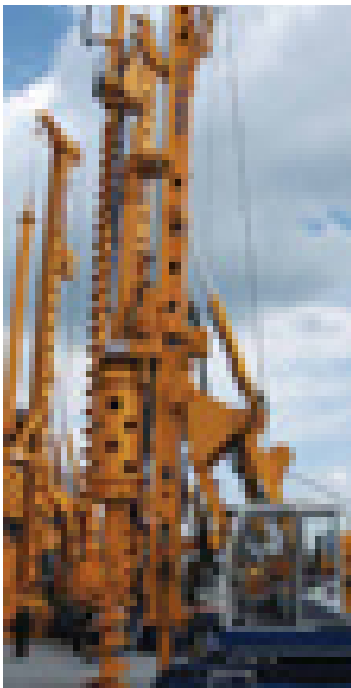
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- Wear safety glasses, etc... (MSDS available upon request)



 **LAFARGE**

Ultra™ series



UltraSeries™ Piling

UltraSeries™ Piling concrete is specially designed for piling applications requiring enhanced homogeneity, better slump retention, and workability.

Where to Use:

- Housing deep foundation
- Industrial & commercial high rise buildings
- Bored piles and diaphragm walls
- Soil bearing strengthening

Advantages of UltraSeries™ Piling Concrete:

- Increased workability
- Optimum slump retention
- Reduced segregation
- High durability

Technical Features

- Water Cement Ratio 0.5 -0.60 Complies to Egyptian and International specifications
- Slump + 180mm
- Slump Retention + 2 hours
- Cement type (OPC or SRC)

Important Recommendations

The standard rules for good concrete practice and placing must be strictly observed with proper curing procedures as required by normal concrete and project specifications.

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)



Ultra™ series



UltraSeries™ Delayed Set

DESCRIPTION

UltraSeries™ Delayed Set is a retarded set concrete designed to extend the working life of the concrete to be used for prolonged applications requiring enhanced slump, slump retention, and good workability with time.

Where to Use:

- Inaccessible placements where manpower should be used
- Confined beams
- Repair jobs
- Lintels and small finishing jobs

Advantages of UltraSeries™ Delayed Set:

- Increased workability
- Optimum slump retention
- Reduced segregation
- Provide consistent homogeneous product for small jobs

Technical Features:

- Available in a wide range of retardation times
- Available in several strength grades
- Slump + 200mm
- Slump retention + 5 hours
- Available in OPC or SRC mixtures

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)



Ultra™ series



UltraSeries™ Filling Mortar

DESCRIPTION

UltraSeries™ Filling Mortar is a high flow sand cement mortar designed for filling applications of narrow and inaccessible spaces. The product is factory made ready-to-use supplied in ready mix trucks

Where to Use:

- Load bearing walls (blocks filling).
- Trench backfill and pipelines strengthening.
- Rock and stone works injection and repair jobs.
- Concrete walls backfill.
- Filling inaccessible narrow spaces.

Advantages of UltraSeries™ Filling Mortar:

- Increased filling-ability and spreading-ability that enables filling voids and encapsulating reinforcement.
- Pumpable through flexible hose applications and narrow pipelines
- Reduced permeability and optimum adhesion
- Provide consistent homogeneous product for all filling jobs applications

Technical Features:

- Available in several strength grades
- Slump: Collapse
- Slump retention + 2 hours
- Available in OPC or SRC mixtures
- Pumpable

Safety Precautions

Respect the rules of occupational Health and Safety:

- Wear gloves,
- Wear helmet,
- Wear safety shoes,
- Wear safety glasses, etc... (MSDS available upon request)



