

UltraTech
CONCRETE 
WE MAKE GOOD CONCRETE BETTER



SPECIALTY CONCRETE

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UltraTech Concrete

UltraTech Concrete is a part of the Aditya Birla Group. Our vast experience in cement production, using state of the art technology, has helped us in meeting the requirements of discerning customers by providing a variety of specialised cements to suit different needs. The Group has forward integrated into high quality concrete in production, delivery and placing. UltraTech has developed expertise to meet national and international standards to meet customer expectations.

The Aditya Birla Group, has 10 integrated plants, 7 split grinding units and 5 bulk terminals, including one in Sri Lanka. UltraTech is India's largest exporter of cement / clinker. Total cement capacity of the Aditya Birla Group is 36.25 million MT pa.

UltraTech Concrete plants are located in Mumbai, Pune, Nasik, Nagpur, Ahmedabad, Surat, Baroda, Gurgaon, Noida, Jaipur, Chandigarh, Ludhiana, Lucknow, Chennai, Bangalore, Hyderabad, Cochin, Vizag, Coimbatore, Mangalore, Mysore, Raipur and Kolkata with more on the anvil.

UltraTech Concrete is a part of Grasim Industries Ltd and UltraTech Cement Ltd.

Aditya Birla Group

A US \$28 billion corporation with a market cap of US \$23 billion and in the League of Fortune 500, the Aditya Birla Group is anchored by an extraordinary force of 100,000 employees, belonging to 25 different nationalities. Over 50 per cent of its revenues flow from its operations across the world.

The Aditya Birla Group's products and services offer distinctive customer solutions worldwide. The Group has operations in 25 countries - India, Thailand, Laos, Indonesia, Philippines, Egypt, China, Canada, Australia, USA, UK, Germany, Hungary, Brazil, Italy, France, Luxembourg, Switzerland, Dubai, Singapore, Myanmar, Bangladesh, Vietnam, Malaysia and Korea.

In India, the Group has been adjudged "The Best Employer in India and among the top 20 in Asia" by the Hewitt-Economic Times and Wall Street Journal Study 2007.

Globally, the Aditya Birla Group is :

- A metals powerhouse, among the world's most cost-efficient aluminium and copper producers. Hindalco, from its fold, is a Fortune 500 Company. It is also the largest aluminium rolling company and one of the 3 biggest producers of primary aluminium in Asia, with the largest single location copper smelter
- No. 1 in viscose staple fibre
- The 4th largest producer of insulators
- The 4th largest producer of carbon black
- The 11th largest cement producer globally and the 2nd largest in India
- Among the world's top 15 BPO companies and among India's top 4
- Among the most energy efficient fertiliser plants



Concrete is a heterogeneous material having constituent materials of different density. The constituent material tends to segregate out. Separation of water from the mix is termed as bleeding. As per the ambient conditions, the evaporation of water takes place from the surface of concrete. Whenever the rate of evaporation is more than the rate of bleeding, volume change takes place in the surface of concrete resulting in minor surface cracks. This phenomenon is known as plastic shrinkage. This can be very well taken care of by addition of fibres in the concrete and/or by proper placement control.

To overcome the problems of plastic shrinkage cracks of concrete in the green stage, UltraTech Concrete has introduced a special concrete "UltraTech Fibrecon" for the benefit of customers. "UltraTech Fibrecon" is produced by using different types of fibres like polyester, polypropylene, glass & steel, etc. Plain concrete possesses very low tensile strength, limited ductility and little resistance to cracking. The addition of closely spaced and uniformly dispersed fibre in concrete acts as a crack arrester in the green stage and substantially improves its static and dynamic properties. Steel fibres in particular significantly improve concrete's flexural, impact and tensile strength in the hardened stage.



Advantages of “UltraTech Fibrecon”

1. Improvement in cohesiveness of concrete due to improvement of bond between concrete ingredients
2. Increase in the homogeneity of the concrete and arresting of segregation
3. Highly improved resistance against cracking due to shrinkage when concrete is in green stage
4. Impermeable and more durable since micro cracks are arrested
5. Practically leak proof, resulting in improved hygienic conditions, reduced maintenance and repair costs and increased protection against corrosion
6. Enhancement in toughness and impact resistance
7. Increased abrasion resistance
8. Better fire resistance
9. Better ductility of material

Recommendations for using “UltraTech Fibrecon” for getting better results

1. Concrete should not be allowed to dry in green stage
2. Curing should be started immediately after concrete starts showing signs of dryness
3. Concrete should be thoroughly remixed at the time of placement for further uniform redistribution of fibre in concrete mass
4. Concrete should be finished with “broom” finish

Recommended applications for “UltraTech Fibrecon”

1. All the concrete elements that require crack resistance in the green stage e.g. slabs, thin RCC elements (precast and cast-in-situ)
2. RCC elements that require additional flexural strength like concrete roads, beams, girders etc.
3. Pavements and floors
4. Water retaining structures
5. Wearing surfaces subjected to heavy traffic and loads such as warehouses, industrial floors, railway platforms, container yards, etc.
6. Blast resistant structures
7. Repair and rehabilitation works
8. Concrete exposed to hot weather and aggressive environments e.g. concrete roads



Elegant and intricate architectural shapes and designs are the current trend in the construction industry. These involve RCC elements of intricate shape & size. Multistoried towers are a common feature of any metro city. It leads to very heavy loads coming on RCC elements, requiring a heavy amount of steel reinforcement, thus leading to congestion of rebars. The amount of steel is further increased if earthquake loads are also considered.

Having designed complicated structures, the challenge is to place and compact the concrete efficiently without leaving any voids. For such structures, use of ordinary concrete poses a lot of problems, as it cannot reach every nook and corner of the form work. This is aggravated further by difficulty faced in compacting the concrete, as needle vibrators prove to be inefficient in doing so. Partially compacted concrete contains lot of voids which lead to leakages, reduction in strength of concrete and service life of the structure.

To overcome these problems, UltraTech Concrete has introduced a special concrete called "UltraTech Freeflow". It is produced in the state-of-the-art, fully computerized ready mix concrete plants, by using very high quality ingredients, including latest 4th generation acrylic based super plasticizers and viscosity modifying agents, which gives the self-compacting feature to "UltraTech Freeflow".

UltraTech
CONCRETE
FREEFLOW
Self Compacting Concrete



Advantages of “UltraTech Freeflow”

1. Faster construction, as placement of concrete is done very fast and no compaction is required
2. Reduction in manpower at site for placement and compaction
3. Superior surface finish
4. Easier placement of concrete and uniform quality of concrete in structure
5. Improved durability due to denser micro-structure of concrete
6. Greater freedom in designing complicated structures
7. Reduction in noise pollution due to no use of vibrators
8. Reduction in time and resources required for compaction and placement of concrete

Recommendations for using “UltraTech Freeflow” for getting better results

1. Concrete should not be allowed to dry and early curing should be commenced at site as soon as possible
2. The shuttering should be properly designed to support the dead load and liquid pressure exerted by the concrete in green stage
3. Shuttering needs to be erected and firmly supported to avoid bulging and dislocation
4. Shuttering should be water tight
5. Curing of concrete should be done as per IS:456-2000. As concrete contains more powder content, prolonged curing is recommended

Recommended applications for “UltraTech Freeflow”

1. RCC columns
2. RCC beams columns junction provided with heavy reinforcement
3. RCC members with intricate and complicated shape and size
4. Repair and rehabilitation work involving jacketing, etc.
5. Retaining walls
6. Basement slabs, raft slabs
7. Industrial flooring and machine foundations
8. Footings and pile foundations
9. Precast RCC elements
10. All concrete elements with thin sections



Ultra modern construction is conceived by Architects keeping the aesthetic factor at the top of their minds. High end commercial and business centers are specially designed, with a lot of precision in the architectural layout design, innovative shapes and colour combinations. These give a unique elevational treatment to the building. Normal concrete made with grey cement cannot provide the liberty to Architects to explore their vision and bring variety in the facade treatment. It is customary to apply different shades of paint to the concrete surfaces to achieve the desired results. One of the major problems with this is that the colours fade over time due to the effect of ultraviolet rays. This necessitates painting of the whole structure again and again which is expensive and time consuming.

To facilitate the Architects to explore various options in providing special architectural treatment to the project, UltraTech Concrete has introduced a special concrete called "UltraTech Colourcon".

"UltraTech Colourcon" is coloured concrete available in different shades as per the specification of Architects. The uniqueness of "UltraTech Colourcon" is that it uses consistent quality UV resistant pigments sourced from highly reputed manufacturers, which help in retaining the true colour/shades for longer duration. "UltraTech Colourcon" is available in a large variety of colours, with customized shades being made available as per Architectural requirements.



Advantages of “UltraTech Colourcon”

1. Highly aesthetic and colourful designs are possible for elevational treatment in high end projects
2. Enhancement in the appearance of the structure
3. Various options can be explored by the Architects as per their vision and imagination
4. Easily available

Recommendations for using “UltraTech Colourcon” for getting better results

1. Concrete must be finished before lapse of final setting time
2. While finishing the concrete, use of grey cement or any other similar material should be strictly avoided
3. The finished concrete should be protected by polythene sheet so as to avoid damage to finished surface
4. For cleaning the coloured surfaces, use of acid and alkalis should be avoided
5. Cleaning and washing of coloured surfaces with clean water at a regular interval is highly recommended
6. Water used for curing should be free from any contamination

Recommended applications for “UltraTech Colourcon”

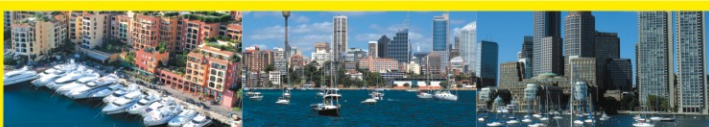
1. Concrete floorings for both cast-in-situ and precast type
2. Pathways and gangways for residential, commercial and industrial buildings
3. Precast fascia panels
4. Interlocking pavers, blocks & bricks
5. Parking bays in shopping malls, IT parks, dockyards, airports and residential/ commercial complexes
6. Footpaths & cycle / two wheelers tracks
7. Taxi ways and aprons in the airport
8. Flooring in no entry/ no parking zones
9. Walk ways in gardens and entertainment parks



The problem of corrosion of reinforcement steel in concrete is universal. It is one of the major reasons for failure of concrete due to loss of durability. If concrete is compacted well, leaving no voids in it, then the rate of corrosion can be controlled very well. For all practical purposes, even well compacted concrete is likely to have 1-2% voids through which ingress of moisture can take place, which leads to corrosion of the steel. Steel embedded in concrete can expand 5-6 times more than its original volume due to corrosion, causing internal stresses and cracks in the concrete cover. These cracks further aggravate the corrosion process by allowing exposure of the steel to atmosphere. Concrete exposed to saline, brackish water and industrial corrosive fumes are more prone to get affected by the steel corrosion. It has been proven across the globe that corrosion of steel is responsible for most of the failures in RCC structures.

To overcome the ill effects of corrosion of the steel reinforcement on the durability of concrete, UltraTech Concrete has introduced a special concrete called "UltraTech Stainless". It is a special concrete that uses high quality, corrosion inhibiting agents. These agents impart protection to the steel reinforcement by providing a protective coating to it, reducing the rate of corrosion of steel embedded in the concrete.

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STAINLESS
Corrosion Resistant Concrete



Advantages of “UltraTech Stainless”

1. Provides protection against corrosion of steel reinforcement
2. Allows the concrete cover to remain intact for longer duration
3. Improves the durability and service life of the structure
4. Saves costs involved in providing pre-coating to steel bars and concrete surfaces

Recommendations for using “UltraTech Stainless” for getting better results

1. Steel reinforcement used should be free of any rust
2. Before concrete is placed, steel reinforcement should be given cement water slurry wash
3. The concrete should be compacted well, leaving practically no voids
4. Specified depth of cover, as per BIS standards, should be strictly provided
5. During compaction it must be ensured that the cover blocks provided to the reinforcement are not displaced
6. If cover blocks are displaced the same should be restored immediately before placing the concrete
7. In very aggressive and saline exposure condition protective epoxy or equivalent coatings to the concrete may also be provided

Recommended applications for “UltraTech Stainless”

1. RCC structures in marine construction
2. All RCC work in coastal belts
3. RCC in underground construction
4. RCC work in high water table area
5. RCC work in marshy land
6. Pile foundation and pile caps
7. Terraces and toilet slabs
8. RCC water tanks and effluent treatment plants (Underground and Overhead)
9. RCC exposed to corrosion prone chemical fumes
10. RCC footings, foundation for bridges across the rivers / sea



Indian fast track infrastructure is developing at compounding rate. To keep the pace with the requirements, the speed and size of projects is increasing day by day and the time for completion is being squeezed. Further, construction specifications are being maintained as per the international standards.

As the hydration of cement is associated with liberation of heat, limiting the temperature generation within specified limit can only ensure the durability of structures. Where mass concreting work is involved, large differences in temperature between the core and surface of structures results in thermal cracks.

Higher concrete temperature means a lot of disadvantages to concrete properties. For example, high temperature leads to faster drying of concrete, loss of workability, formation of cold joints, excessive plastic shrinkage cracks, rapid evaporation of curing water, and difficulties in finishing concrete and overall reduction in the 28 day compressive strength.

To overcome these disadvantages, UltraTech Concrete has introduced a special concrete "UltraTech Thermocon". It is produced with chilled water / ice flakes in a state-of-the-art, fully computerized ready mix concrete plant, which controls the temperature of the concrete and maintains it within acceptable limits. The other ingredients used in this concrete are also thermally controlled to bring down the temperature within acceptable limits at the time of placing.

UltraTech
CONCRETE
THERMOCON
Temperature Controlled Concrete



Advantages of “UltraTech Thermocon”

1. Rapid loss of slump and drying of concrete, under very good control
2. Early setting and stiffening of concrete, under very good control
3. Reduced plastic shrinkage
4. Ease for finishing
5. No loss of compressive strength at 28 days
6. Temperature rise inside concrete mass over the ambient temperature is under control leading to reduction in thermal tensile cracks

Recommendations for using “UltraTech Thermocon” for getting better results

1. Steel reinforcement and shuttering should be sprinkled with cool water, before placing the concrete
2. Placing of concrete should be done immediately after receiving the concrete at site
3. Delayed compaction of the concrete should be avoided
4. Finishing should be done immediately after compaction
5. Early curing is highly recommended by way of covering the concrete with wet hessian cloth
6. Broom finish texture should be provided for the finished concrete surface of slab in particular

Recommended applications for “UltraTech Thermocon”

1. Mass concrete work having large dimensions e.g. concrete dams
2. Raft slabs in foundations
3. Machine foundations
4. Pile caps of large sizes
5. Bridge piers and girders
6. Large size columns
7. Retaining walls



With increasing population and their needs, there is a lot of pressure on the urban infrastructure. There is a growing requirement for multistoried buildings, public transport systems like Metro rails, links through sea routes, roads, bridges, flyovers, commercial establishments, etc. But geographic space in cities and their suburbs is limited. In order to ensure maximum space utilization, architects and structural designers are now going with relatively thin sections. Standard concrete covers concrete up to grades M55. Any concrete having grade M60 and above is classified as high strength concrete. The recent advancement in concrete technology addresses these issues.

With standard concrete, columns and beams with larger size and depth are required to be provided to transfer the structural loads to the foundations. This results in lesser usable area per floor. To overcome this disadvantage, UltraTech Concrete has introduced a special concrete "UltraTech Hypercon" for the benefit of customers. It is produced by blending a combination of different cementitious materials along with advanced quality superplasticizers, in state-of-the-art, fully computerized ready mix concrete plants. Optimal use of multiple blends of cementitious materials results in refinement of the micro pore structure of the concrete, which leads to very dense, impervious and long lasting structures - an imperative requirement for modern construction.

UltraTech
CONCRETE
HYPERCON
High Strength Concrete



Advantages of “UltraTech Hypercon”

1. Dense micro pore structure & high strength
2. Assurance of long-term durability
3. Optimal floor space utilization
4. Enables innovative sleek designs
5. Economy in the structural design due to reduction in dead loads

Recommendations for using “UltraTech Hypercon” for getting better results

1. Placing of concrete should be done immediately after receiving the concrete at site
2. Delayed, over/ under compaction of the concrete should be avoided
3. Finishing should be done immediately after compaction
4. Ensure early and initial curing by way of covering the concrete with wet hessian cloth
5. Broom finish texture should be provided for the finished concrete surface of slab in particular

Recommended applications for “UltraTech Hypercon”

1. RCC beams and columns in High rise Towers
2. Long span girders
3. Precast RCC/ PCC elements
4. RCC in aggressive environments
5. Civil works with Marine applications

Contact Us



**Because every
construction
is a different
ball game**

For more information, please call 1800-220-466 (BSNL / MTNL) or SMS UltraTech to 56161.
Visit us at www.ultratechconcrete.com