

Introduction To Concrete Admixtures

Understanding Concrete Admixtures – Concrete admixtures are a complex subject, but it is very important and useful to understand what admixtures are available and what they do. This makes the workability of the concrete easy and also improve the final quality of the concrete. There are a number of these admixtures for different usage and supplied by different chemical manufacturers. Some cements such as “Multicem” are sold with admixtures already added. A list of the and a short description of these admixtures are given below.



Admixtures	Comments
Water reducing concrete admixtures	<p>Water-reducing admixtures are water-soluble organic materials, which reduce the amount of water needed to achieve given workability without affecting the air content or curing of the concrete. They perform three functions:</p> <ul style="list-style-type: none"> • Increase strength and rate of strength gain. • Economies in the mix design and reduced carbon footprint. • Increased workability.
Superplasticising concrete admixtures	<p>High range water reducing admixtures are called Superplasticising admixtures are synthetic, water-soluble organic chemicals, usually polymers, which significantly reduce the amount of water required to achieve a given consistency in plastic concrete. They reduce water content without reducing strength for high workability requirements. They also improve durability. When these admixtures are used it improves the workability of the motor / cement mixture.</p>
Set retarding concrete admixtures.	<p>Set retarding admixtures are water-soluble chemicals that delay the setting of the cement. They do not plasticise significantly and have little or no effect on the water demand or other properties of the concrete. Set retarding water-reducing admixtures not only delay the setting of the cement but also increase initial workability by plasticising the concrete or reduce its water demand. The majority of commercially available retarding admixtures are of this type.</p>
Accelerating concrete admixtures	<p>Accelerating admixtures can be used either to increase the rate of stiffening/setting of the concrete or to increase the rate of hardening and early strength gain to allow earlier de-moulding and handling. Most accelerators primarily achieve one rather than both of these functions. These are ideal for fence post and where the moulds have to be removed and reused.</p>
Air-entraining concrete admixtures	<p>Air Entraining admixtures are surface active chemicals which cause small stable bubbles of air to be formed uniformly through a concrete mix. The bubbles are mostly below 1 mm diameter with a high proportion being below 0.3 mm. The benefits of entraining air in the concrete include:</p> <ul style="list-style-type: none"> • Increased resistance to the action of freezing and thawing. • Increased cohesion resulting in less bleed and mix segregation. Improved compaction in low workability mixes. • Gives stability to extruded concrete. • Gives improved cohesion and handling properties to bedding mortars.
Water resisting concrete admixtures.	<p>Water resisting admixtures are more commonly called ‘waterproofing’ admixtures and may also be called permeability reducing’ admixtures. Their main function is to reduce either the surface absorption into the</p>

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	<p>concrete and / or the passage of water through the hardened concrete.</p> <p>These are used for water proving water tanks. These may be used to prevent water entering through the base of rooms.</p>
Retarded, ready to use mortars.	<p>Retarded Ready-to-use Mortars are based on a combination of a mortar plasticiser (air entraining/plasticising admixture) and a mortar retarder. This combination is adjusted to give extended retention of consistence, typically for 36 hours. However, when the mortar is placed between absorbent masonry units, setting is accelerated and the mortar sets normally.</p>
Sprayed concrete admixtures.	<p>Sprayed concrete is pumped to the point of application and then pneumatically propelled into place at high velocity. The applications are frequently vertical or overhead and this requires rapid stiffening if slumping or loss by concrete detaching from the substrate under its own weight is to be avoided. This is only used for concretes used in high-rise buildings in Sri Lanka.</p>
Corrosion inhibiting concrete admixtures.	<p>Most houses with reinforced concretes suffer from the steel bars corroding. This is a good solution. Ideally the reinforced bars should be cleaned and painted to avoid corrosion. Understanding Concrete Admixtures – Corrosion inhibiting admixtures increase the passivation state of reinforcement and other embedded steel in concrete structures. This can inhibit the corrosion process over extended periods when passivation would otherwise have been lost as a result of chloride ingress or carbonation.</p>
Foamed concrete admixtures.	<p>Foamed Concrete Admixtures are surfactants that are diluted with water before passing the solution through a foam generator which produces a stable pre foam, similar to shaving cream. This pre foam is then blended into a cementitious mortar in a quantity that produces the required density in the foamed mortar (more usually called foamed concrete).</p> <p>Low Density Fill Admixtures are also surfactants but are added directly into a sand rich, low cement content concrete to give 15 to 25% air. This low density fill; also called Controlled Low Strength Material (CLSM), has good flow properties and finds use in trench filling applications and other similar low strength void filling jobs.</p>
<p>For more information, please contact InnoBlocks and we will provide you with the correct contact person who can help if we cannot help.</p>	