

**REMARKABLE
RESISTANCE.
UNBREAKABLE
STRUCTURES.**



**Corrosion Resistant
Concrete that
extends the service-life
of a structure**

CONCRETO[®]
CORROSAFE
Corrosion Resistant Concrete



CONCRETO[®]

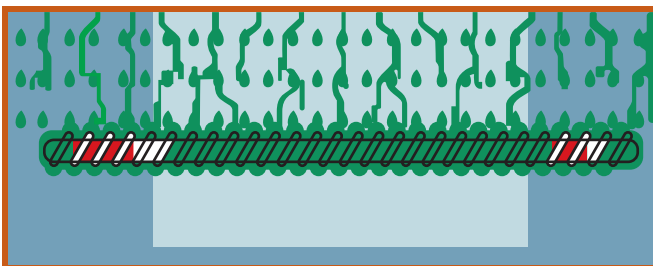
CORROSAFE

Corrosion Resistant Concrete

Consultants and developers across the globe are aiming for sustainable Green Constructions with reduced cement and water usage during construction and minimised power consumption in post construction. However, durability and service life of sustainability is overlooked. As a result, reinforcement corrosion has a significant negative impact on durability of the concrete and subsequently on the structure.

Steel corrosion in concrete occurs due to:

- **Carbonation** occurs when CO_2 penetrate in concrete and reacts with H_2O . It produces H_2CO_3 (Carbonic acid), which reacts with $\text{Ca}(\text{OH})_2$ and produces CaCO_3 which reduces the pH value of concrete and corrosion starts in the steel
- **Sulphate ions** penetrate in concrete to react with CH and form gypsum which reacts with tri-calcium aluminates to form ettringite that expands and creates cracks in the concrete
- **Chloride ions** penetrate from the surface through pores



Nuvoco Corrosafe

Nuvoco Corrosafe is a double-action, corrosion-resistant concrete with service life prediction, designed on the basis of:

- **Specialized corrosion resistant admixtures (inhibitors)**
- **Advanced concrete mix design to increase density and durability**

Parameter	Standard*	Corrosafe*	Corrosafe Plus*	Codal Compliance
Grade of concrete		M20 – M40	M30 – M80	IS 456 IS 4962
w/b ratio	0.3 – 0.55	0.3 – 0.55	0.2 – 0.4	IS 456
Avg. chloride penetration depth	Moderate	Low	Very low	NT Build 492
Chloride migration coefficient	Moderate	Low	Very low	NT Build 493
Chloride Ion penetration (coulombs)	4000 – 7500	2500 – 6000	500 – 2500	ASTM C 1202
Depth of water penetration (mm)	25 to 30	10 to 25	5 to 10	BSEN 12390– 8
Drying shrinkage (%)	> 0.05%	< 0.04%	< 0.035%	ASTM C 157
Carbonation depth	Moderate	Low	Very low	BS EN 14630
Corrosion inhibitor Chemical base	None	Inorganic	MCI Based	ASTM C 1582
Structural service life prediction ** (e.g. M-30 grade in moderate condition)		24 years	87 years	As per "Life 365 V2.2" software

*All results are as per standard lab conditions, results may vary as per the site location and conditions

**Service life prediction is as per the software simulations which depends on the input data, grade of concrete, site location and concrete mix design etc.. Results are only indicative further it may change as per the local site conditions.

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Advantages

- Provides dense concrete to minimise carbonation, chloride penetration & sulphate attack
- Uses specialized admixture for more effectiveness



Application Areas

- Pile, Pile Caps or any other substructures ● Marine Structures: Jetty & Dolphin Structure ● Bridges ● Metro Stations ● Industrial Buildings
- Residential Buildings ● Coastal Belt Structures



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