

Protectosil® CIT Corrosion Inhibitor

FAQ #3

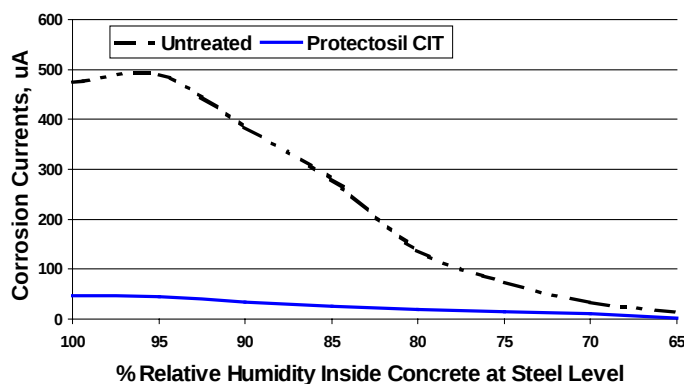
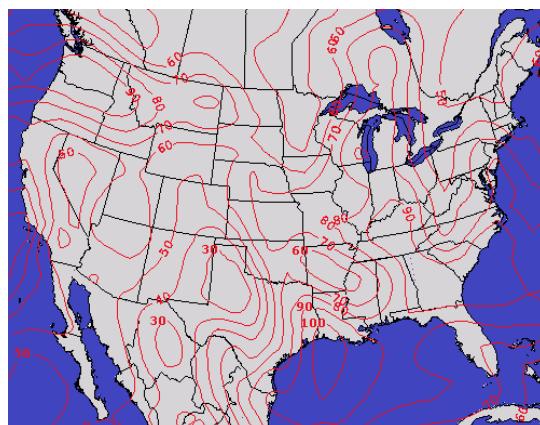
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FAQ #3: What effect does temperature and humidity have on corrosion and the performance of Protectosil CIT?

Corrosion of steel reinforcement in concrete is greatly influenced by temperature and humidity. Higher temperatures will stimulate corrosive attack by increasing the rate of electrochemical reactions and diffusion processes. An increase in temperature will result in higher corrosion rates if all other variables are unchanged. For example, a temperature rise from 50°F to 75°F would double the corrosion rate!

Regarding relative humidity, the American Concrete Institute Committee 222 publication *Protection of Metals in Concrete Against Corrosion* states "... there is a threshold value of relative humidity within concrete, in the range of 70 to 85% relative humidity, below which active corrosion cannot take place". These values represent the humidity inside the concrete. Since concrete is a hygroscopic material it will hold more moisture than the surrounding air. That is why in most areas of the world it is almost impossible to stop corrosion of steel reinforced concrete simply by waterproofing the structure.

Average % Relative Humidity



Protectosil CIT is the only surface applied corrosion inhibitor proven to work in high humidity environments. Steel reinforced concrete starts to exhibit corrosion when the internal relative humidity is 70% and increases rapidly. The same concrete once treated with Protectosil CIT has a much lower corrosion rate even as the concrete's internal relative humidity increases.