

**Product** : CORCHEM 210 (I)  
**Client** : SIMHADRI THERMAL POWER PROJECT (N.T.P.C.)  
**Contractor** : NATIONAL BUILDINGS CONSTRUCTION CORPORATION LTD.  
**Period** : JANUARY 2002 – JULY 2002.

**NTPC** has put up a 2x500 MW state of art Thermal Power Station at Simhadri, 40km away from Visakhapatnam, Andhra Pradesh. Sea Water is used for Circulating Water Cooling (C.W.C.) system. 2 Nos. natural draft Concrete Cooling Towers are designed and Constructed by N.B.C.C for the same. These are the largest cooling towers in Asia. This has 110 mete diameter at bottom, 72 meter diameter at top and 165 meter high with a capacity of 60,000 cum/hours & cooling range of 11°C.

**NTPC** specifications stipulated to admix organic corrosion inhibitor (MCI Type) in concrete above water zone and apply 2mm thick 100% Solid Polyurethane Coating on all concrete & Steel members in water zone (upto 18M)and Hot water basin (1.8m ) to protect from the affect of Sea water. Total area for P. U. coating (2mm) measured as 57500 sq. m involving 88 racker columns supporting shell structure & 1220 columns, 3375 beams, 268 baffles and 260 bracing etc. internal support of structure for distribution basin.

**CICO Technologies Ltd. (CTL)** supplied the total quantity of Corchem 60, (Organic Corrosion Inhibitor) meeting **NTPC** Specification. CTL also executed the application of 2mm thick 100% solid P.U. coating with **NTPC** approved material CORCHEM 210 (I) on Cooling Tower No. 2. The entire job was completed meeting the tight commissioning schedule. The P.U. coating job was started just after the completion of shell structure.

The pre-cast concrete members were erected and screed concrete on floor was also done during P.U. Coating job was in progress. This required very close co-ordination with various agencies working simultaneously at site and strict compliance of safety norms.

Technically, it was very difficult to comply with very strict environmental requirement such as temperature, humidity due point, moisture content of concrete and required progress of the work. Practically it has totally thrown out the planned working schedule of very sensitive Polyurethane coating.

**CTL** Team in close consultation with **Indian Institute of Chemical Technology (I.I.C.T)** Hyderabad rescheduled the various application activities to reasonably suit the environmental conditions and specified conditions to achieve the required for progress of P.U. coating.

**CTL** could achieve the same by deploying man & machine round the clock with additional maintenance gang ensuring availability of all spare parts at site of work. The change in environmental conditions were also managed by extensively using hot air blower before application of primer & P.U. coating. Single component moisture cured P.U. primer was also used where the moisture content in concrete were anticipated to be lower than permissible due to various construction activities around the coating area. This enabled NBCC to simultaneously carry out the overhead erection of AC pipe, stainless steel channels & fills etc.

This also resulted in planning parallel activities of testing and commissioning of C.W.C pump, Hot water Header & Connected pipe line and ensuring commissioning of the 2nd unit as per schedule.