



### OVERVIEW

A Global Multinational company having their R&D and IT center at a South India facility consists of 8 buildings and equipped with 1,200TR Chillers to maintain the right temperature. They were using traditional chemicals for Scale, Corrosion and Bio growth fouling which increase the operational cost of cooling system, with descaling done once in every 4 months.

### WATER SYSTEM CHALLENGES

**Mineral Scaling:** Makeup water that is supplied to the condenser basin in an open cooling water system contains dissolved minerals. As evaporates the water becomes supersaturated with these minerals. Calcium carbonate, for example, precipitates as scale on pipe, equipment and surfaces, impeding heat transfer and reducing system efficiency.

**Microbiological Contamination:** Algae and bacteria make the treatment of cooling tower water particularly difficult. Warm, wet, nutrient-rich environments are ideal for micro-organism growth, leading to biofilms and slimes. Slime restricts airflow in cooling tower fill, clogs filters and creates corrosive conditions. Some biologic outbreaks can also be harmful to humans if not controlled properly.

**Corrosion:** Most of the corrosion on iron, steel, and galvanized surfaces is microbial induced. Biofilms allow microbes to create highly corrosive environments which result in corrosion pits. General corrosion can also occur due to low pH conditions in the water. Copper corrosion control is critical to protect the investment in chillers, condensers, and other refrigeration equipment.

### SOLUTION

Two parallel SB200-EF-16 ScaleBuster conditioners were installed in the suction piping of the condenser circulation. Two more SB25-ET conditioners were installed in the make-up pipes. A filtration skid (5µm running at 80m<sup>3</sup>/h) was installed as a side stream to remove precipitated hardness and other solids. A controller monitoring pH and Corrosion (Cu and MS) and controlling blow down by TDS (Total Dissolved Solids).

The solution (based on the **ScaleBuster**<sup>®</sup> technology) protects the cooling system (chillers and cooling towers) against scale and corrosion, while the filtration system captures and eliminates the precipitated hardness and old corrosion released into the water while allowing the operators to stop chemical use and cycle up the cooling towers from 4.5 to 6 COC to save over 10% water, TDS dropped from 12 NTU to below 2 NTU (!) all this while saving energy by keeping the systems free of scale - after less than 3 months the VFDs dropped from 45 Hz to about 33Hz, Chillers' ΔT dropped from 5.5-6.0°C to 4.0-4.5°C.

### ABOUT THE TECHNOLOGY

The **ScaleBuster**<sup>®</sup> technology completely replaces traditional chemical treatment; providing control of scale and corrosion in various water process systems to create an exceptionally clean system. This dramatically reduces energy and water consumption, while reducing or, in certain cases, eliminating toxic water discharge to the environment.