Separation of scale - prevents the Corrosion, Bio-fouling, Scaling, Micro-Organism growth & spread of airborne bacteria in CW structure.
Continuous scale/hardness removal and onsite disinfectants generation - mitigate the scaling, corrosion, bio-fouling & bacterial infection in Cooling Tower Water Distribution System. In order to overcome the limitations of conventional cooling water treatment (addition of chemicals or by water softening), Tiaano ventured with M/s. HVS, Singapore and developed "Tiaano-HVS ElSr" - removal or separation of scale/hardness by electrolytic operation. Tiaano-HVS Elsr produces Oxidants in the water; Oxidants prevents the Corrosion, Bio-fouling, Scaling, Micro-Organism growth & spread of airborne bacteria.

**Cooling Tower Operation:**

- **Chilled Water Pump**
- **Compressor**
- **Condenser Pump**
- **Cooling Tower Fan**

Air Handler Warm Air → Warm Water → Warm Gas Refrigerant → Hot Water → Cooling Tower Fan → Evaporation → Hot Air to Atmosphere → Cold Air to Building

- **Refrigerant**
- **Cold Water**

Cold Liquid Refrigerant → Refrigerant → Cold Water → Cold Air Through Tower Fill

**How Tiaano-HVS ElSr works:**
- Accelerated scale precipitation within a reactor.
- Production of active alkaline ionic species - enabling automatic active pH manipulation to control corrosion.
- Continuous online generation of active oxidants - as a replacement to biocides and oxidising agents.

**Technical Innovation:**
- Proprietary Ultra-Short Pulsed DC Technology.
- Highly Efficient Oxidation - Reduction Process.
- Cold Electrochemical Activation System.
- Functionalised Electrodes Design.
- Self-Cleaning Electrodes.

**Potential Benefits for Cooling Tower operation:**
- 100% savings on chemicals.
- 70%–100% savings on blowdown water.
- 10%–50% savings on labour cost.
- 20%–40% of water savings.
- 05%–15% of energy savings of cooling fan.
- 02%–04% energy savings of chiller.

**Advantages over existing non-chemical treatment system:**
- Green technology.
- Zero Bleed Loss.
- Low energy Consumption.
- Modular design.
- Zero Toxic Sewer Load.
- No toxic chemical storage hazard.
- Small footprint.
- Easy operation.
- Low maintenance.
One mm thick of scale/slume fouling (acting as insulator) will cause 30% more energy consumed.

The scale/slume formed on cooling tower infills affect water distribution and dirty condenser tubes will reduce overall heat transfer efficiency.

**Cooling Tower Saving Calculation**

- **Basic Assumptions:**
  - Saving calculation is based on actual case studies done by Tiaano-HVS.
  - Chemicals cost: 0.3$/m3 (make up water)
  - Water cost = 1.5$/m3 (including sewage disposal costs)
  - Tower operation: 2000 hrs/yr.

**Scale Separated as Mg/L by Tiaano-HVS EISr**

- Sample 1
- Sample 2
- Sample 3

- Alkalinity as CaCO3
- Hardness as CaCO3
- Ca
- Mg
- Na
- K
- NO3
- Cl
- F
- SO4
- Si
- Fe
- Al
- Cu
- S
Quality Policy

“To deliver products of the highest attainable quality in accordance with applicable codes, standards and customer’s specifications by continually improving the effectiveness of the quality management system” is our Quality Policy.

ASME code fabrication standard.
TEMA design standards for heat exchanger.
API standards for tank & Pump fabrication.
ANSI B16.9 specifications for piping.
Full NDT capabilities.
Complete in-plant testing.
Scheduled or emergency repair or replacement service.
ASME code-qualified welders on 24 hours call.
Warehouse stock of Titanium, Tantalum, Niobium, Zirconium, Nickel, Hastelloy, Monel, Inconel, X-750, Ruthenium, Platinum & Iridium.
ISO 9001-2008 certified quality source.

Plants & Services Approved by:

- Lloyd’s Register
- TUV India
- D&B
- NSIC
- CE
- SGS
- H blue
- Bella
- Velosi
- EIL
- IGCar
- IGC
- Certified Co.
- CEI
- IGC
- IGC

Authorized Dealer: