MarleyGard™ Water Management Solutions

SPX Marley has several water management solutions to help owners/operators, and their water treatment specialists manage the water quality within their cooling towers. Cooling towers are susceptible to adverse water conditions depending on the makeup source. These makeup sources contain two forms of solids that can negatively impact the cooling tower. These forms are TDS and TSS.

TDS vs. TSS

Total Dissolved Solids (TDS) refer to substances that are completely dissolved in water. Examples include metals, salt, minerals, and many other organic and inorganic compounds. Typical applications that produce TDS include natural mineral deposits, industrial processes, wastewater discharge, and agricultural runoffs.

Total Suspended Solids (TSS) refer to particles that float or are “suspended” in water, rather than dissolved. Examples include sand, sediment, silt, clay, airborne particles, and even some organic matter. Typical applications that introduce TSS into water streams are stormwater runoff, soil erosion, and wastewater discharge. TSS can lead to deposits in fill, resulting in fouling, and in basins, which can lead to under-deposit corrosion.

Both TDS and TSS cause problems for cooling towers and associated equipment within the process loop. Dissolved solids have the potential for causing scaling within piping and cause heat exchanger tubes or plates to fail. This is especially prevalent with high levels of calcium and magnesium in the recirculating water. TDS also can corrode components, specifically with high levels of chloride and sulfate within the water. Suspended solids can carry bacteria, viruses, and other contaminants within the water. Applications with high concentrations of TSS can even promote the growth of waterborne diseases.

Product Solutions

Listed below are several water management solutions SPX Marley has to offer to help reduce the amount of TDS and TSS that enter and linger within a cooling tower.

1. Marley WaterGard™

The Marley WaterGard cooling tower filtration system physically blocks and rejects TDS commonly found in municipal water streams (chlorides, calcium carbonate, silica, etc.), reducing makeup water TDS content and enabling higher operating cycles of concentration (COC), resulting in reduced volume requirements for both blowdown and supply water. LEED points can be earned.

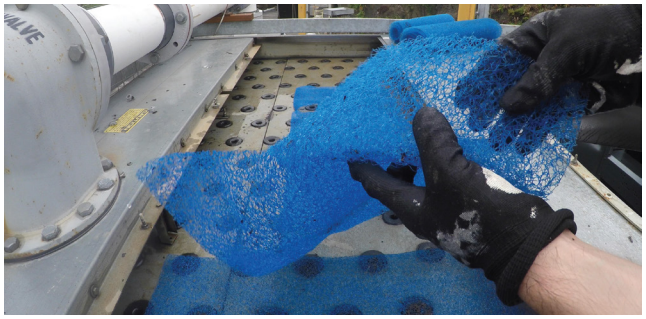
Marley WaterGard does not replace a side stream separator as both products preform different tasks. Water treatment is still recommended as Marley WaterGard is not a replacement for water treatment.

2. MarleyGard Basin Sweeper Piping

The MarleyGard Basin Sweeper Piping System, installed in a cooling tower's cold-water basin to help remove TSS, discourages "slow-flow" areas and helps prevent biofilm formation and bacterial growth.

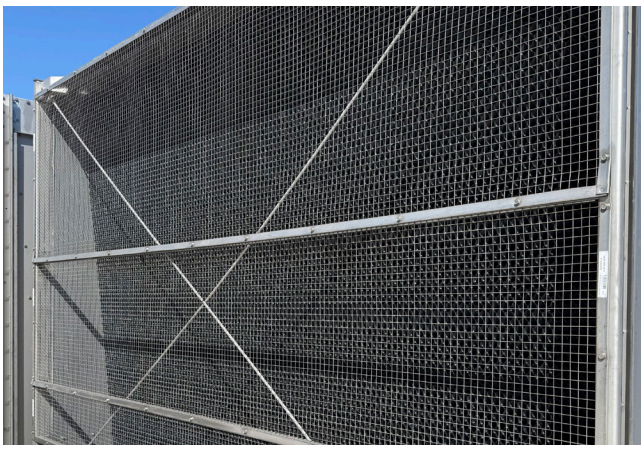
Customers will still need a side stream separator or sand filter to remove the TSS from the MarleyGard Basin Sweeper Piping System. Side stream separators are not provided by Marley.

3. MarleyGard Basin Filter



The MarleyGard Basin Filter maintains the cooling tower's hot water basin flow by capturing mineral scale, pipe rust, fibers and debris. Its patent-pending filter is infused with silver-based biocide, offering antimicrobial benefits to help maintain cooling tower hygiene. Because it ensures free flow of water to the nozzles – even with up to 75% heavy debris blockage – the MarleyGard Basin Filter reduces the risk of basin overflow, guards against premature component replacement and helps maintain cooling tower performance.

4. MarleyGard Air Inlet Screens



MarleyGard Air Inlet Screens, with 1"x1" wire mesh, protect your fill from large debris such as leaves and litter. Capturing this waste before it enters the fill or water system allows for easier maintenance and fewer tower cleanings.

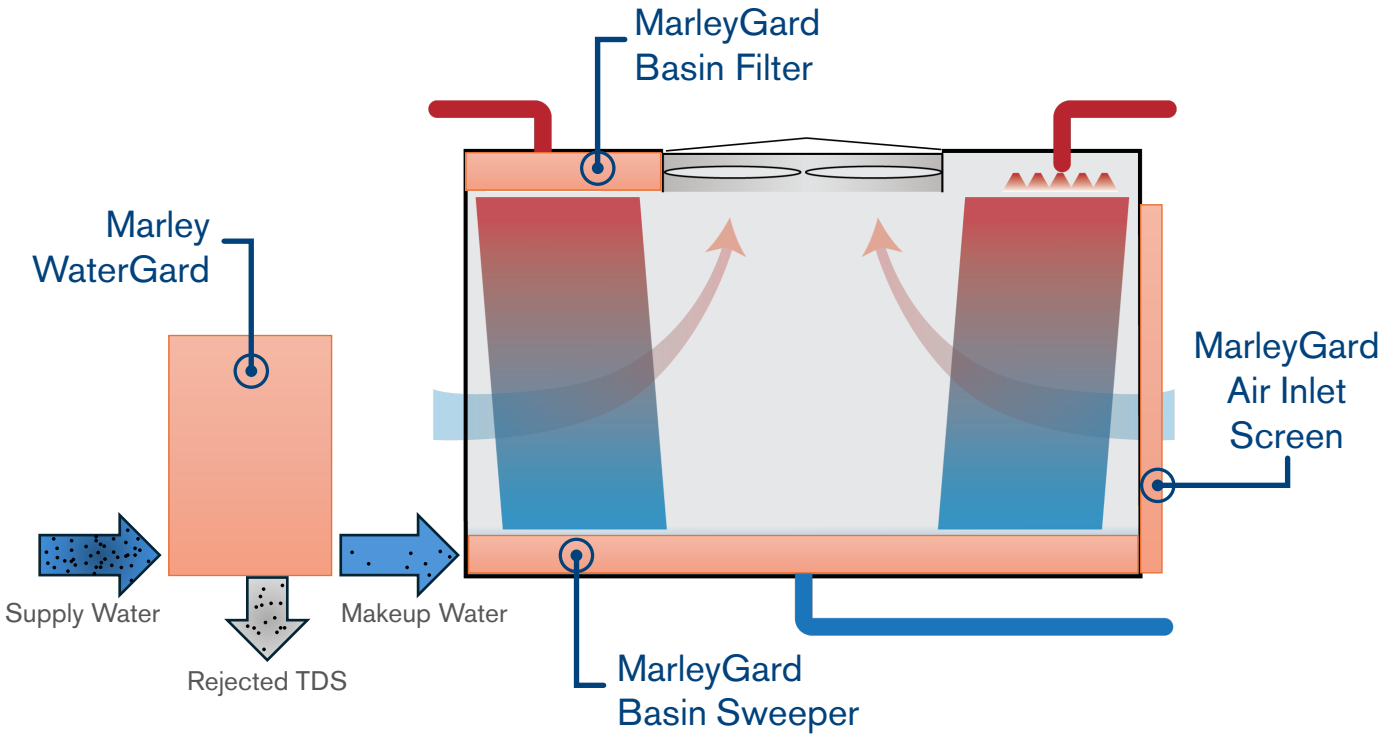
Key Takeaways

- TDS affects scale formation and corrosion while TSS primarily influences the fouling and deposition.
- Marley WaterGard mitigates external TDS saving water and proving LEED points.
- MarleyGard Basin Sweeper Piping removes TSS within the recirculating water loop.
- MarleyGard Basin Filter reduces frequency of basin cleaning.
- MarleyGard Air Inlet Screens reduce large TSS from entering the fill and tower.
- All solutions are not needed but rather provide solutions for high TDS and TSS applications.

Product TDS vs. Mitigation

MarleyGard Solutions	Mitigations		Location of Solids	
	Total Dissolved Solids	Total Suspended Solids	Outside System	Inside System
Marley WaterGard	✓		✓	
MarleyGard Basin Sweeper piping		✓		✓
MarleyGard Basin Filter		✓		✓
MarleyGard Air Inlet Screens		✓	✓	

Product Locations



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