

## You Can Choose to Run the Right (Distilled) Water!

### Water Cooling Systems

A racecar cooling system is a closed loop water cooling system, similar to a boiler. The function of the water held within this system is to remove heat (BTU's) from the engine (quench) and then transport the heat from the engine to the radiator (by water flow) for dissipation into the air passing through the radiator (radiation). Amazingly, this water continually heats and cools in a very short 3 - 10 second cycle, over and over.

### Boilers

In boilers, the water used to transfer the heat is first chemically balanced to "Langliers Index". Water is either chemically corrosive (dissolves metal), scale forming, or neutral. Chemically balancing this water to neutral by Langlier's Index permits the ongoing use of the water within the boiler system to efficiently exchange heat without corrosion to the heat exchanger, or without scale buildup. Scale on the metal wetted surfaces inside a water cooling system undesirably insulates the metal from the water, and impedes the heat exchange process and also blocks the flow of water resulting in diminished performance.

### Racecars

The cooling systems in racecars operate at much higher temperatures than boilers. These elevated temperatures within race engine water cooling jackets are right off the Langlier's Index Scale. At these elevated temperatures, the scale-forming calcium carbonate (water hardness: dissolved rock) will precipitate to the hot metal and FORM AN INSULATING BARRIER, regardless of the water chemistry, HINDERING THE HEAT EXCHANGE PROCESS.

### Vapor Trail Recommendation

The ongoing integrity of the wetted metal in the coolant water is really not a consideration for a racecar, because they are only in contact for the few days at the race. The main consideration is PERFORMANCE.

Therefore, our recommendation is to always use DI STILLED WATER for racecar cooling systems. It has a ZERO HARDNESS LEVEL, and a LOW LEVEL OF DISSOLVED OXYGEN. DI STILLED WATER CANNOT SCALE THE METAL SURFACES in the water jackets and radiator fintubes. By using distilled water you avoid scaling, AND ELIMINATE ANY NEED TO EVER ULTRASONICALLY CLEAN THE RADIATOR. The low level of dissolved oxygen MINIMIZES PROBLEMATIC BUBBLES, which tend to cling to metal and disrupt heat transfer. The slightly corrosive nature of DI STILLED WATER simply will provide a MILD ACID BATH to the water jackets and radiator, which will keep these heat-exchanging METAL SURFACES CLEAN and OXIDATION FREE, and operating at MAXIMUM HEAT TRANSFER PERFORMANCE.