

KML, Inc.

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Closed System Water Treatment

Does your closed cooling system need a quality chemical treatment program? Here are some good reasons why the answer is "yes".

Closed systems are sealed off from the atmosphere and circulate the same body of fluid all the time. Therefore they are quite stable and never need any form of chemical treatment to protect them. Right?

Well of course we all know this isn't true. Modern automobile cooling systems are essentially closed loops, but would you ever consider running one with just plain water? We know what the result would be—rusty water and pretty soon, a bill for a new water pump.

The effects on a closed loop system used for any kind of heating or cooling are the same—corrosion, deterioration of components, and loss of heat transfer efficiency.

How will KML restore control to my system and regain this lost efficiency?

KML's program takes total control of your system and makes some fundamental changes needed for your local conditions. A few of these changes are listed below:

- **Adjustment of make-up or system water:** Local water is extremely hard containing high levels of calcium and magnesium. The effect on any untreated system will be loss of efficiency and higher energy bills. KML will work with your facility to provide higher quality water and thus save you money.
- **Film-forming, corrosion inhibitor:** By coating all internal surfaces of piping and equipment with protective, monomolecular film, we ensure that minimal attack is possible.
- **Start with a clean system:** If the loop contains dirty water and large amounts of rust mill scale, clean and flush it using KML citric acid, a purging compound designed for this purpose. The corrosion inhibitor will then be able to provide protection to all parts of the system. Pumps and heat-transfer equipment will operate at design efficiency lowering your operating costs.
- **Measure chemical and corrosion rates:** **KML** will monitor both of these elements for you. The water will be tested to maintain set levels. The corrosion rate will be monitored through the use of a corrosion coupon rack. Pre-weighed samples of metal are installed and removed on a periodic basis to accurately determine over all system corrosion rates. This gives KML the ability to prove to you that our program is working as promised. Do you know the corrosion rate of your system?
- **Check for leaks:** If leaks are suspected, installation of an inexpensive totalizing water meter in the makeup line will provide early detection.
- **Check the filter element:** Regularly inspect the filter element to maintain clean water. If there is not a filter installed, install one to remove suspended particles and corrosion by-products.

What KML's Chemical Treatment Program Provides:

- Chemical Shot Feeders, where necessary
- Water Meters, where necessary
- Corrosion Coupon Racks, where necessary
- All chemical inhibitor to maintain < 1.5 mils of mild steel corrosion, < 0.5 mils copper corrosion, and controlled deposition.
- All biocide additions necessary to maintain <10⁵ bacteria cultures with no detrimental affect to employees or WWT
- Periodic water testing by a KML service technician with a written report
- Periodic corrosion analysis by KML service technician and KML laboratories
- A monthly summary report detailing water-testing data, makeup water usage, bacteria culture results, and corrosion rates
- Assistance in installing and maintaining a water filter
- KML service technician performs all chemical additions necessary
- Any technical assistance needed from KML

KML's fundamental goal is to lower your operating costs while increasing your level of service, reporting and accountability.