

BlueTrace™ - Advanced Chemical Technology for Control of Chemical Dosage

A Safe, Simple, Economic, and Environmentally Responsible
Technology for Control of Chemical Usage in Cooling Towers

TAB 07/05

What's In Your Cooling Tower??



That's a hard question to answer! The phosphonate and polymer field test methods presently used for controlling dosage of water treatment products are clearly inaccurate, difficult to use, and, in some cases, very costly. Use of inaccurate control tests can result in either over treatment, increasing costs and the potential for system corrosion, or under treatment, resulting in a scaled system. Molybdate use as a tracer, while well established and accurate at higher levels, has become very costly and its use has been banned in some areas by environmental agencies.

The solution to these problems is use of BlueTrace for testing and control of cooling water treatment products.

Technology Development

ProChemTech International, a world leader in water treatment chemistry, has developed a new tracer technology for control of difficult to test for phosphonate - polymer cooling water treatment products; **BlueTrace**. This patent pending technology replaces use of molybdate as a tracer with a non-toxic organic colorant. Via use of an inexpensive laser diode based, specific wavelength field grade spectrometer, the test method provides for simple, fast, and very accurate determination of **BlueTrace** concentration in the treated water. In the typical 100 to 200 mg/l working range of most cooling water treatments, **BlueTrace** has error limits of just +/- 5 mg/l.

Health&Safety

From the health&safety aspect, the majority of **BlueTrace** products are DOT/OSHA/USEPA non-hazardous, in contrast to many standard chemical treatment products and acid, which are hazardous, providing further benefits in the areas of reduced health&safety worries. Use of **BlueTrace** with the ProChemTech patent pending, non-hazardous, electrolytic bromine generation technology provides for a **completely non-hazardous product water management technology**.

Toxicity data on **BlueTrace** colorant show oral rat LD 50 values exceeding 2 g/kg, which is similar to common table salt. **BlueTrace** colorant contains no toxic heavy metals and is totally biodegradable in the environment.

Aesthetics

BlueTrace imparts a pleasant, faint blue coloration to treated waters at typical usage levels.

Economics

At the typical treated water levels of 0.25 to 1.0 mg/l active, use of **BlueTrace** is very economical, adding a few cents per pound to a typical phosphonate - polymer product designed to be maintained at 100 to 200 mg/l in the treated water. Control testing cost is reduced; the **BlueTrace** spectrometer kit is the one time cost as **no costly chemical reagents are used in the control test procedure**, only filter paper if the sample is turbid.

Test Procedure



BlueTrace Spectrometer Calibration

The test procedure for **BlueTrace** is simplicity itself; turn on the spectrophotometer, blank the unit with a city water sample, place a cooling water sample in the cell, read the absorbance, and multiply by a factor to obtain mg/l of the product in use. With turbid cooling waters, a filtration step is needed to remove interference by suspended solids.

We have determined that the **BlueTrace** test procedure is linear and is not affected by the level of hardness or alkalinity in the cooling water; no effects have been noted with all commonly used

polymers, copolymers, terpolymers, or phosphonates; and it is halogen stable at typical cooling water treatment levels. Bromine/chlorine tests can be used when **BlueTrace** colorant is in use.

Product Availability

BlueTrace technology is presently available in a complete line of ready to use mildly acidic and alkaline products covering the full spectrum from simple, low cost phosphonate - polymer scale inhibitors to complex formulations incorporating combinations of such proprietary ProChemTech technologies as HighCycle, LowTen, SoftTek, and ZincGard. Many **BlueTrace** products are DOT/OSHA/USEPA non-hazardous to minimize health&safety concerns during use and costly hazardous material transportation surcharges. Please contact our corporate office, or your local PCT representative, for additional product information on this new testing and control technology.

BlueTrace products are supplied in returnable 5 to 250 gallon containers from our manufacturing plants in Apache Junction, AZ, and Brockway, PA.

ProChemTech International, Inc.
"Innovation in Water Management"
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