



Division of Kingscote Chemicals

WATER TRACING DYE

General User Information

TECHNICAL DATA BULLETIN

Dye tracing products are used in many analytical applications. The unique needs of our customers seem almost unlimited. Some of the most common uses are:

- Plumbing tracing
- Flow mapping and rate of flow studies
- Power plant piping tracing
- Pollution studies
- Lake, river and pond analysis
- Storm & sewer drain analysis
- Retention time studies
- Condenser coil and tube studies
- Septic system analysis
- Leak detection in many fluid carrying systems
- Check for illegal connections

How Fluorescent Dye Tracing Products Work:

The “visual” aspect of Bright Dyes products refers to normal reflection of light as color. The “fluorescent” aspect refers to special properties of some chemicals to absorb certain wavelengths and then emit, rather than reflect, light in response. The emission can be seen by using a “black” ultraviolet light or precisely measured with a fluorometer. The reflected and emitted light have different wavelengths and are, therefore, not the same color.

Fluorescent properties are of greatest value when:

- Tracing must be done when there is no sun or sufficient artificial light (in a sewer or a cave, for instance)
- Precise quantified data is required
- Very small amounts of tracing material is allowed

The maximum absorbance/emission wavelengths of our products are:

<u>Product</u>	<u>Absorption</u>	<u>Emission</u>
FWT Red	550 nm	588 nm
FLT Red	550 nm	588 nm
Industrial Red	550 nm	588 nm
FLT Yellow/Green	490 nm	520 nm
Clear	349 nm	430 nm
Blue	630 nm	na

Normally, the blue products are for visual tracing only.

What PPB means?

Most of our products contain fluorescent dyes, which can be detected visually, or with the use of ultraviolet light or fluorometer.

As used in Bright Dyes literature, “ppb” refers to one part of active dye per billion parts of water. Using a fluorometer, the active dye can often be detected at levels less than one ppb. All data is presented as reference points only and should not be regarded as a recommendation.

Users should make their own determination of appropriate dilution levels in any specific situation, which will vary with the nature, condition, and use of the water or liquid and the specific evaluation to be performed.

How to calculate the size of a body of water:

One gallon of water occupies .1337 cubic feet. For a rectangular tank, multiply depth in feet times width times length divided by the factor .1337 to establish the number of gallons. For ore complicated bodies of water, formulas can be found in scientific texts on water utility management, hydrology etc.

Other User Information

For stream tracing and pollution detection

Introduce tracers into the water at the source or suspected source of pollution. Allow sufficient time as calculated, to permit the dye tracer to reach the effluent or recipient location. Take samples of water for analysis.

Dye tablets

May be dropped or flushed directly into drains, sewers or other points in the system. However, it may be desirable to dissolve them in a small amount of water to form a calculated concentration prior to use.

Special larger shapes (cakes, cones, and donuts) have been designed to provide optimum dissolution rates in large systems. Donuts are frequently suspended from a line or string into the body of water. Cakes and donuts are sealed in a handy water-soluble film for ease of use.

Light stability

Blue has the highest degree of light stability and red is recommended for yellow and green backgrounds such as algae rich water. FWT Red, Blue and FLT Yellow/Green should be used in water bearing heavy sediment loads or when passing through soil with high clay content. Industrial Red will absorb onto either.

Photo degradation takes place in sunlight at different rates for different dyes. Red takes from approximately five to seven days and yellow/green fades in two to three days. Blue, on the other hand, breaks down in three to four weeks.

The color of all dyes will disappear if the solution is mixed with chlorine. Add approximately 4 grams of 12% bleach to every gram of product in solution.

Examples of Specific Projects

Test sewer lines for infiltration

Locate sewer lines

Check for illegal connections

Prove septic bypasses

Identify indirect cross-connections

Check drain pipes, downspouts, and gutters to assure drainage into proper channels.

Use in inspection service for certification and reinspection documentation

Analyze travel times

Toilet leak detective kits are frequently used by plumbers; municipalities and utilities use them as part of public relations and water conservation programs.

Detect leaks in closed systems and cooling systems of steel manufacturers.

Study infiltration and industrial water piping systems

Trace acid coming through cooling systems

Check pump systems flow in fleet trucks, and for preventative maintenance programs

Detect sewer leaks into ponds, lagoons and reservoir lines

Check circulation through sludge beds and to measure discharge flow from water tanks

Illustrate the hydraulic characteristics of streams and other water bodies

Identify and differentiate batches of slurry before the brick firing process

Measure the speed and longevity of material passing through a system (i.e. retention time studies)

The logo for Kingscote Chemicals features the word "Kingscote" in a large, stylized, serif font with a drop shadow effect. Below it, the word "CHEMICALS" is written in a smaller, all-caps, serif font. A horizontal line is positioned between the two words.

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