



Water Tracing Dye

Document Number: 1245

Common Uses:

- Plumbing tracing.
- Flow mapping and rate of flow studies.
- Pollution studies.
- Storm and sewer drain analyses.
- Retention time studies.
- Lake river and pond analyses.
- Septic system analysis.
- Leak detection in fluid carrying systems.

The FWT Red (Rhodamine WT) and FLT Yellow/Green (Fluorescein) are both certified under ANSI/NSF Standard 60 for use in potable water. The Industrial Red is not certified for use in potable water, and should be used only in closed system, industrial applications. Industrial Red should not be used near drinking water or water system intakes, in water where downstream impoundments for drinking water systems might occur, or where chronic exposure to aquatic ecosystems would occur. We recommend using the FWT Red or FLT Yellow/Green for most applications.

The "visual" aspect of dye 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" ultra-violet 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 in low light conditions, when precise quantified data is required or when very small amounts of tracing material are used.

Visual Detection:

The FWT Red, FLT Yellow/Green and Industrial Red are fluorescent dyes suitable for use with a black light or fluorometer to very low concentration levels, (<0.1 ppb). Visual detection under ideal conditions is possible in the range of 100 ppb. Also, FWT Red and FLT Yellow/Green are sometimes used jointly in dual tracing studies - both visually and in fluorometric analysis.

Maximum absorbance/emission wavelengths of selected dyes are:

Product	Absorption	Emission
FWT Red	550 nm.	588 nm.
Industrial Red	550 nm.	588 nm.
FLT Yellow/Green	490 nm.	520 nm.

Red vs. Yellow

There are several factors to consider when choosing a dye color. Yellow/Green is more resistant to absorption by suspended material in the water and is significantly less resistant to photo degradation than Red dye. Red dye stands out more clearly from normal background fluorescence and in the presence of green algae. As shown in the previous table, the absorption/emission wavelengths are also different.

User Information

Dye tablets may be dropped or flushed directly into drains, sewers or other points in the system. It may be desirable to dissolve them in a small amount of water to form a calculated concentration prior to use. Cakes have been designed to provide optimum dissolution rates in large systems. Cakes are sealed in a water soluble film for ease of use. Photo degradation takes place in sunlight and varies from 2 to 5 days. Industrial Red is significantly less resistant to photo degradation. Chlorine speeds the degradation for all of the dyes.

How to Calculate the Size of a Body of Water

One gallon of water occupies 0.1337 cubic feet. Divide the known volume in cubic feet of a tank or impoundment by 0.1337 to determine gallons. The following dilution table shows the amount of water (gallons) the dye will treat for visual detection at 100 ppb.

Gallons Treated by Product:

	FWT Red	FLT Yellow/Green	Industrial Red
Tablet	444	481	2000
Cake	3600	3600	15,000
Pint of Liquid	64,40098,400	420,000	

The suitability of these products for a specific application should always be evaluated and determined by a qualified hydrologist or industry professional!

Ordering Information:

	FWT Red % Active Ing.	FLT Yellow/Green % Active Ing.	Industrial Red % Active Ing
200 Tablets	23680 16%	not available	85158 20%
2 oz. Cake	221441 16%	221384 13.5%	221380 20%
Pint Liquid	23682 5%	23681 7.5%	not available
Gallon Liquid	23684 5%	23683 7.5%	85161 10%

FREE Technical Support

If you have specific questions on product specifications, product applications or installation, personal safety gear, regulatory compliance requirements, or any other technical questions [E-mail our Technical Support staff](#). Or, call **800-241-6401** or **608-743-8001** from 7 a.m. to 7 p.m. CT, Monday--Friday.

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