KB17: How to Dilute Rhodamine Dye

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Description

How to Dilute Rhodamine Dye

Keywords

Rhodamine, Dilutions, Concentration

Resolution

Diluting Rhodamine WT for Desired Concentrations

1. Introduction:

Turner Designs supplies Rhodamine WT dye in liquid as 20% active ingredient. The Rhodamine dye can be purchased in 8 oz (240 ml) or 1 Gallon bottles.

The supplied concentration of the Rhodamine WT can be described as approximately 200 x 10E-6 ppb of actual dye. (1 billion ppb x 20%).

If you require very accurate concentrations, then please refer to the paper titled "Preparation of Standards for Dye Studies Using Rhodamine Wt" in the Applications Note section at www.turnerdesigns.com

Typically, the dye is initially diluted down to an intermediate concentration that we will call the "Working Stock" concentration. This allows the subsequent dilutions to use volumes that are easier to work with, for making the final "Target "concentrations.

For this exercise we will assume the Rhodamine WT "working stock" has been diluted down to 20,000 ppb from the initial concentration.

2. Dilution Calculation:

Suppose it is desired to create a target concentration of 100 ppb, and to have a volume of 1,000 ml.

To calculate how much of the working stock is required, use the following formula:

C working stock x Vol working stock = Ctarget x Voltarget

(where "C" is the Concentration of the various solutions as shown)

Solving this equation for required volume of Rhodamine WT Working Stock,

Volworking stock = (Ctarget x Voltarget)/ Cworking stock

= (100 x 1,000)/20,000

= 5 ml of Working Stock

3. Dilution Procedure:

Start with a 1,000 ml volumetric flask. Fill with approx 100 ml of de-ionized water. Pipette 5 ml of Working Stock into the flask. Then add more DI water until you have exactly 1,000 ml of total volume and mix. This will result in 1,000 ml of Rhodamine WT with the target concentration of 100 ppb.

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