

Preparing pH Adjusted Rinsing Solutions

These recipes allow you to prepare the pH adjusted aqueous rinsing solutions at their listed pH and with a conductivity of approximately 1,000 μ S/cm or 6,000 μ S/cm. All that is required is a pH meter to set the solution to the appropriate pH. If you have a conductivity meter, dilute until the desired conductivity is obtained. Glacial acetic acid is pure acetic acid. (It's called glacial because on a cold morning in an unheated lab it will begin to freeze and form large chunks of solid acetic acid floating in the remaining liquid.) 10% ammonium hydroxide refers to a 10% dilution of the 27% solution that is in the bottle of concentrated ammonium hydroxide (i.e., 10 mL ammonium hydroxide into 90 mL distilled or deionized water). If you only have access to 60% acetic acid, begin each recipe with 1.7 mL of the 60% acetic acid.

For acrylics and stock solutions, we want to use a higher ionic strength solution. The following recipes are for 6,000 μ S/cm solutions.

pH 5.0

1mL Glacial Acetic Acid in 100 mL distilled or deionized water (0-5 μ S)
Set pH to 5.0 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 125 mL final volume if you don't have a conductivity meter

pH 5.5

1mL Glacial Acetic Acid in 100 mL distilled or deionized water (0-5 μ S)
Set pH to 5.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 160 mL final volume if you don't have a conductivity meter

pH 6.0

1mL Glacial Acetic Acid in 100 mL distilled or deionized water (0-5 μ S)
Set pH to 6.0 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 170 mL final volume if you don't have a conductivity meter

pH 6.5

1mL Glacial Acetic Acid in 100 mL distilled or deionized water (0-5 μ S)
Set pH to 6.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 175 mL final volume if you don't have a conductivity meter

pH 7.5

1mL Glacial Acetic Acid in 100mL distilled or deionized water (0-5 μ S)
Set pH to 7.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 235 mL final volume if you don't have a conductivity meter

pH 8.5:

1mL Glacial Acetic Acid in 100mL distilled or deionized water (0-5 μ S)
Set pH to 8.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 6,000 μ S or
Dilute to 230 mL final volume if you don't have a conductivity meter

To dilute 6,000 μ S stock adjusted waters to lower conductivities:

percentage	proportions	conductivity
100%	1	6,000 μ S/cm
50%	1:1	3,300 μ S/cm
33%	1:2	2,300 μ S/cm
25%	1:3	1,900 μ S/cm
20%	1:4	1,540 μ S/cm
17%	1:5	1,440 μ S/cm
14%	1:6	1,300 μ S/cm
12.5%	1:7	1,000 μ S/cm

For traditional paints we want to use a moderate ionic strength solution: 1,000 μ S/cm. For smaller amounts, simply dilute the 6,000 μ S stock solution down 1 part to 7 parts distilled or deionized water. For making 1,000 μ S adjusted water in larger quantities, use the following recipes.

pH 5.5:

1mL Glacial Acetic Acid in 1L distilled or deionized water (0-5 μ S)
Set pH to 5.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 1,000 μ S or
Dilute to 1,600 mL final volume if you don't have a conductivity meter.

pH 6.5:

1mL Glacial Acetic Acid in 1L distilled or deionized water (0-5 μ S)
Set pH to 6.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 1,000 μ S or
Dilute to 2,000 mL final volume if you don't have a conductivity meter

pH 7.5

1mL Glacial Acetic Acid in 1L distilled or deionized water (0-5 μ S)
Set pH to 7.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 1,000 μ S or
Dilute to 1,900 mL final volume if you don't have a conductivity meter

pH 8.5:

1mL Glacial Acetic Acid in 1L distilled or deionized water (0-5 μ S)
Set pH to 8.5 with 10% Ammonium Hydroxide
Dilute to a final conductivity of 1,000 μ S or
Dilute to 3,000 mL final volume if you don't have a conductivity meter