**Recipe for RNALater-like buffer solution**

To make 200mL of **0.5M EDTA solution**:

1. Add 37.224g dihydrate EDTA into 150mL of miliQ or DI water in an autoclaved 250mL beaker. Fill to 250mL.
2. Set to stir with stir bar
3. Standardize pH meter with buffers (rinse probe with DI water, pat dry, dip in standard of pH4, hit standardize (repeat with pH7 and pH10 standards)
4. Add sodium hydroxide pellets (about 15-20) until at pH 8 (Important! EDTA will only dissolve into solution at pH8. Add one by one and wait for pH meter to equilibrate)
5. Label properly for future use as this recipe will make extra

To make 200mL of **1M Sodium Citrate solution**:

1. Add 58.82g solid Sodium Citrate to 150mL of miliQ or DI water in an autoclaved 250mL beaker. Fill to 250mL.
2. Set to stir with stir bar until sodium citrate dissolves
3. Label properly for future use as this recipe will make extra

To make **250mL of RNALater**:

1. Add 154.25mL DI water/autoclaved milli-Q water into 250mL or larger clean beaker
2. Place flask on stir/heat plate with stir bar, set stir on and low heat (1 on heat plate)
3. Add 115.5g ammonium sulfate. For larger amounts, add 100g at a time to not overload scale
4. Add 4.125mL of 1M Sodium Citrate
5. Add 6.6mL of 0.5M EDTA
6. Turn off heater on plate and let cool briefly (heat can affect the pH measurement). Temperature should be as close to room temperature.
7. Recalibrate pH meter (pH4, 7, and 10). Add Sulfuric Acid (about 6 drops) until at pH of 5.2. (Add one drop at a time and wait for pH meter to equilibrate)
8. Label properly and store at room temperature
9. Recommended storage for transport: in 1L or smaller, clean Nalgene bottles with screw lids. Wrap lid with parafilm, wrap bottle in bubble wrap and place in a small cardboard box in your bag.

To make **1L of RNALater**:

617mL DI water/autoclaved MilliQ water

462g ammonium sulfate, 100g at a time to not overload scale

16.5mL of 1M Sodium Citrate

26.4mL of 0.5M EDTA

Sulfuric Acid (about 25 drops) until at pH 5.2

Store at room temp

To make **1.5L of RNALater**:

935mL DI water/autoclaved MilliQ water

700g ammonium sulfate, 100g at a time to not overload scale

25mL of 1M Sodium Citrate

40mL of 0.5M EDTA

Sulfuric Acid (about 20 drops) until at pH 5.2

Store at room temp

To make **2L of RNALater**:

1234mL DI water/autoclaved MilliQ water

924g ammonium sulfate, 100g at a time to not overload scale

33mL of 1M Sodium Citrate

52.8mL of 0.5M EDTA

Sulfuric Acid (about ? drops) until at pH 5.2

Store at room temp

To make **4L of RNALater**:

2468 mL MiliQ/autoclaved MilliQ water

1848g Ammonium Sulfate

66mL 1M Sodium Citrate

105mL 0.5M EDTA

Add Sulfuric Acid to pH 5.2

Store at room temp

To make **15L of RNALater**:

9.35 L DI water/autoclaved MilliQ water (autoclave in 20L carboy)

7000 g ammonium sulfate

250mL of 1M Sodium Citrate

400mL of 0.5M EDTA

Sulfuric Acid (about 10mL) until at pH 5.2

Store at room temp

To make **60L of RNALater (three 20L carboys)**:

37.4 L DI water/autoclaved MilliQ water (~12.5L per 20L carboy)

28kg ammonium sulfate (9.3kg per 20L carboy)

1L of 1M Sodium Citrate (333mL per 20L carboy)

1.6L of 0.5M EDTA (533 mL per 20L carboy)

Sulfuric Acid (about 40mL) until at pH 5.2 (~13.3mL per 20L carboy)

Store at room temp

Using the pH meter:

* Probe is very sensitive so don’t use anything to acidic or basic
* Inside has KCl solution that keeps it hydrated
* Label a waste beaker (pH waste, name, date)
* To calibrate pH meter
  + Rinse probe with DI water. Pat dry with Kim wipe
  + Push the button on top of broke UP (push back down when you’re done!!)
  + Immerse probe in pH 4 solution. Wait until it beeps.
  + Rinse with DI and pat dry. Repeat with pH 7 and pH 10
  + Rinse with DI water
* After finishing with sulfuric acid, remove the bulb from the glass pipette. Rinse the inside and outside of glass tip with DI water. (Glass tip goes in sharps waste)
* Test the pH waste with a pH strip. If pH is less than 7, add baking soda until it stops bubbling/dissolving. Test liquid again with pH strip. Once it’s pH7, can go down the drain