

# The Fritsma Factor

YOUR INTERACTIVE HEMOSTASIS RESOURCE

## 3.2% Sodium Citrate for Hemostasis Specimens



These are unreferenced formulas and instructions for preparing 3.2% sodium citrate solution for use as a whole blood anticoagulant in the preparation of hemostasis specimens. The citrate solution may be used for open specimen management as it substitutes for evacuated blue-closure tubes. Courtesy of **Emmanuel Favaloro**, PhD with comments from **Robert Gosselin**, MLS.

### 3.2% buffered sodium citrate solution; pH 7.0

Anticoagulates and preserves whole blood for *standard adult and pediatric hemostasis assay specimens*, excluding platelet function assays. Materials:

- HEPES buffer powder: 4-[2-hydroxyethyl]-1-piperazineethanesulfonic acid
- Trisodium citrate powder:  $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$
- Deionized water, pipettes, quantitative flasks

Component	dL	Liter
0.11 M [3.2%] trisodium citrate	3.16 g	31.6 g
0.05 M HEPES buffer	1.19 g	11.9 g
Deionized water	To volume	
Adjust pH to 7.0		

### 3.2% unbuffered sodium citrate solution

Anticoagulates and preserves whole blood for *platelet function assays*.

Component	dL	Liter
0.11 M [3.2%] trisodium citrate	3.16 g	31.6 g
Deionized water	To volume	

## Blood Specimen Preparation

Immediately transfer 9 parts fresh whole blood to 1 part 3.2% sodium citrate solution, seal and mix by gentle inversion. Examples:

- 10 mL citrated blood: 1.0 mL citrate to 9.0 mL whole blood
  - Recommended for platelet function assays
- 5 mL citrated blood: 0.5 mL citrate to 4.5 mL whole blood.
- 1 mL citrated blood: 0.1 mL citrate to 0.9 mL whole blood.

## Comments

Collectors employ skilled safe syringe-based whole blood collection and transfer techniques. Collectors avoid needle self-sticks as they immediately and gently transfer fresh blood to anticoagulant tubes, seal the tubes, and gently mix 4–6 times by inversion. Collection in an open non-sterile system may raise the risk of specimen contamination or instability.

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