

Coagulation Specimen Criteria

In order to produce valid results for hemostasis/thrombosis tests, specimen integrity is crucial and must be maintained. All specimens sent for testing must be collected and shipped in the following manner:

- Draw blood into a 3.2% sodium citrate vacuum tube, making sure the tube fills appropriately, 9:1 ratio. Mix by gentle inversion several times.
- If blood is drawn with a syringe, it must be added to the anticoagulant within one minute of completion of draw.
- The ratio of sodium citrate to blood should be adjusted for patients with hematocrits above 55%. You may use the following formula:

$0.00185 \times \text{volume of coagulation tube} \times (100 - \text{hct}) = \text{volume of anticoagulant needed in tube.}$

Example: 3 mL NaCitrate tube contains 0.3 mL anticoagulant and will draw 2.7 mL blood. 5 mL NaCitrate tube contains 0.5 mL anticoagulant and will draw 4.5 mL blood, or you can contact NPL for specific instructions, 701-530-5700.

- Suitable needle gauges for coagulation tests range from 19-22. For pediatric patients, a 21-23 gauge needle may be used.
- Do not collect blood from lines that have previously been flushed with heparin.
- Check the whole blood specimen for clot formation by gentle inversion and observation.
- Specimens for PT assays are stable for up to 24 hours in the original unopened tube, uncentrifuged, and kept at 18-24°C.
- For all other coagulation testing, please follow the double centrifuge technique below to achieve platelet-poor plasma.
 1. Spin down the specimen at 3000 RPM (1600g) for a full 10 minutes.
 2. Transfer the plasma to a plastic tube with a plastic pipet, staying clear from the buffy coat layer. Do not use glass tubes or glass Pasteur pipets as glass can activate the clotting cascade.
 3. Spin down the plasma portion again at 3000 RPM for 10 minutes. With another plastic pipet, transfer the plasma to another plastic tube, staying clear of the bottom portion of the tube where the platelets lie.
 4. Freeze the sample. The sample must remain frozen in transit. Ship on dry ice.

SPECIMEN STABILITY AND STORAGE

Stored as Whole Blood				Processed and Plasma Aliquotted			
Assay	Room Temp	Refrig *	Frozen	Room Temp	Refrig *	Frozen -20C	Frozen -70C
PT	Up to 24 hr	Unacceptable	Unacceptable	Up to 24hr	Unacceptable	2 wk	12 mo
APTT	Up to 4 hr ****	Unknown	Unacceptable	4 hr	4 hr	2 wk	12 mo
APTT for UFH analysis	1 hr	Unknown	Unacceptable	4 hr	4 hr	*** 2 wk	*** Unknown
APTT for VWF & VIII analysis	4 hr	Unacceptable	Unacceptable	4 hr	4 hr	** 2 wk	** 6 mo
Other	4 hr	Unknown	Unacceptable	4 hr	4 hr	Depends on analyte	

***Placing whole blood specimens directly on ice or in an ice water bath simulates refrigeration.**

** Must be thoroughly mixed before testing

*** Must be platelet-poor

**** Available for Bismarck/Mandan clients only

REFERENCE:

CLSI. Collection, Transport, and Processing of Blood Specimens for Testing Plasma-Based Coagulation Assays and Molecular Hemostasis Assays; Approved Guideline—Fifth Edition