**INTENDED USE**

BD Vacutainer® Tubes, Needles and Holders are used together as a system for the collection of venous blood. BD Vacutainer® Tubes are used to transport and process blood for testing serum, plasma or whole blood in the clinical laboratory.

**PRODUCT DESCRIPTION**

BD Vacutainer® Tubes are evacuated tubes with color-coded (see table below) conventional stoppers or BD Hemogard® Closures. BD Vacutainer® Plus Tubes are plastic tubes. Most tube types contain additives in varying concentrations dependent upon the amount of vacuum and the required additive to blood ratio for the tube. See each blood additive or color case label for specific quantity and approximate draw volume. Additive choice depends on the analytic test method. It is specified by the manufacturer of the test reagents and is documented in the test kit performed. Tube interiors are sterile. Tube stoppers are lubricated with silicone or glyceral (see individual shelf package or case label) to facilitate stopper insertion.

**ADDITIVE GROUP/ADDITIVE**

<table>
<thead>
<tr>
<th>GENERATION</th>
<th>CONVENTIONAL CLOSURE</th>
<th>BD HEMOGARD® CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BD SST™ Tubes with Gel and Clot Activator</td>
<td>Red/Grey</td>
<td>Gold</td>
</tr>
<tr>
<td>BD SST™ II Advance Tubes with Gel and Clot Activator</td>
<td>Red/Grey</td>
<td>Gold</td>
</tr>
<tr>
<td>BD SST™ II Advance Tubes with Gel and Lithium Heparin</td>
<td>N/A</td>
<td>Gold</td>
</tr>
</tbody>
</table>

**Non-Additive Tubes**

Coat Type | Color | Color | Color |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Silicone Coated</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Uncoated</td>
<td>Red</td>
<td>Red</td>
<td>N/A</td>
</tr>
<tr>
<td>Bovine Polyethylene</td>
<td>Cherry/Red</td>
<td>Light Grey</td>
<td>Clear</td>
</tr>
</tbody>
</table>

**Sodium Polyanethol Sulfonate (SPS) Yellow**

BD SST™ Tubes reduces adherence of red cells to tube walls. See Limitations of System, Precautions, Specimen Collection and Handling Sections.

**Thrombin 3**

BD SST™ Tubes with Gel and Clot Activator.

**Glass K**

BD SST™ Tubes.

**Silicone Coated Red**

BD SST™ Tubes.

**Uncoated Red**

BD SST™ Tubes.

**No Additive**

BD SST™ Tubes.

**EDTA N/A Tan***

Serum tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Trace Element Tubes**

**Sodium Polyanethol Sulfonate (SPS) Yellow**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.

**Calcium 400**

BD SST™ Tubes.

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**Caerulein**

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**EDTA or K**

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**EDTA spray coated additives**

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**EDTA spray coated additives**

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**Antimony 0.8**

BD SST™ Tubes.

**Caerulein**

BD SST™ Tubes.

**EDTA or K**

BD SST™ Tubes.

**EDTA spray coated additives**

BD SST™ Tubes.
Preparation for Specimen Collection

To ensure the following materials are readily accessible before performing venipuncture:

1. Required Equipment Not Provided for Specimen Collection above.
2. All necessary tubes, identified for size, draw, and additive.
3. Labels for positive patient identification of samples.

Recommended Order of Draw

1. Tubes for serum samples.
2. Tubes for coagulation studies (e.g., citrate).
3. BD SST™, BD SST™ II Advance and Serum Tubes.
4. Tubes with other additives (e.g., heparin, EDTA, fluoride).

When using a wicking system to collect serum and a coagulation (citrate) tube, the first specimen tube to be drawn is a discard tube should be used prior to the first specimen collection. The discard tube must be used to fill the discard collection set tubing’s "dead space" with blood. The discard tube does not need to be filled completely. This step will ensure maintenance of the proper blood additive ratio of the specimen. The discard tube should be a non-additive or coagulation tube. BD Vacutainer™ SST™ Tubes, BD Vacutainer™ SST-II Advance Tubes and BD Vacutainer™ Plus Serum Tubes / CAT Tubes contain particulate clot activators and are considered additive tubes. Therefore, Plus Serum Tubes are not to be used as discard tubes before drawing citrate tubes for coagulation studies.

Prevention of Backflow

Since some evacuated blood collection tubes contain chemical additives, it is important to avoid possible backflow from the tube, with the possibility of adverse patient reactions. To guard against backflow, observe the following precautions:

1. Place patient’s arm in a downward position.
2. Hold tube with the stopper upward.
3. Release tourniquet as soon as blood starts to flow into tube.
4. Make sure tube additives do not touch stopper or end of the needle during venipuncture.

Venipuncture Technique and Specimen Collection

General Instructions

GIVE AWAYS DURING VENIPUNCTURE AND WHEN HANDLING BLOOD COLLECTION TUBES TO MINIMIZE EXPOSURE HAZARD:

1. Select tube or tubes appropriate for required specimen. For sterility, see the specific instructions noted in the collection device product circular.
2. Assemble needle in hub. Be sure needle is firmly seated to ensure needle does not unthread during use.
3. Gently tap tubes containing additives to dislodge any material that may be adhering to the stopper.
4. Place tube into holder. Do not puncture stopper.
5. Select site for venipuncture.
6. Apply tourniquet. Prepare venipuncture site with an appropriate antiseptic. DO NOT PAINFULLY VENIPUNCTURE AREA AFTER CLEANING.
7. Place patient’s arm in a downward position.
8. Remove needle shield. Perform venipuncture WITH ARM DOWNWARD AND TUBE DURING swaying (bucket) heads than those with fixed angle heads. Tubes should not be re-centrifuged once barrier has formed. Barriers are more stable when tubes are spun in centrifuges with horizontal (swinging bucket) head settings than those with fixed angle heads. Separated serum or plasma is ready for use. The tubes may be placed directly on the instrument carrier or serum/plasma may be pipetted into an analyzer cup. Some instruments can sample directly from a separate tube with the stopper in place. Follow the instrument manufacturer’s instructions.

Clotting Instructions

Allow blood to clot before centrifugation. The following table gives the recommend minimum clotting times for specific tube types or additives.

<table>
<thead>
<tr>
<th>Minimum Clotting Time Recommendations</th>
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<tbody>
<tr>
<td><strong>PRODUCT</strong></td>
</tr>
<tr>
<td>Serum / CAT Tubes</td>
</tr>
<tr>
<td>BD SST™ / BD SST™ II Advance Tubes</td>
</tr>
<tr>
<td>Thrombin Tubes</td>
</tr>
</tbody>
</table>

Recommended times are based upon intact clotting process. Patients with abnormal clotting due to disease, or those receiving anticoagulant therapy require more time for complete clot formation.

Instructions for Removal of BD Hemogard™ Closure

1. Push the BD Vacutainer® Tube with one hand, placing the thumb under the BD Hemogard™ Closure. (For added stability, place arm on solid surface. With the other hand, hold the BD Hemogard™ Closure simultaneously pushing up with the thumb of the other hand ONLY until the TUBE STOPPER IS GLOOSEMED.
2. Move thumb away before lifting closure. Do NOT use thumb to push closure off. Caution: Any glass tube has the potential to crack or break. If the tube contains blood, an exposure hazard exists. To guard against backflow, observe the following precautions:

- If second tube does not draw, remove needle and discard. Repeat procedure from Step 1.
- Confirm correct position of needle cannula in vein.
- Always centrifuged before attempting to remove tubes. When centrifuged has been performed for an array of analytes over a variety of test methods and time periods. BD Life Sciences - Preanalytical Systems is available to answer questions regarding these studies. Please contact to obtain reference and technical reports on these evaluations and any other information regarding the use of BD Vacutainer® Tubes with your instrument/hemat system.

TECHNICAL SERVICES

For the U.S., please contact:

1. 800-633-0174
2. Technical Services
   BD Life Sciences - Preanalytical Systems
   1 Box Driveline
   Franklin Lakes, NJ 07477


Gottfried, EL and Adachi, MM. Prothrombin time (PT) and activated partial prothrombin time (APTT) can be performed on the first tube.


Gottfried, EL and Adachi, MM. Prothrombin time (PT) and activated partial prothrombin time (APPT) can be performed on the first tube.


CTAD Tubes must be protected from fluorescent light. Preliminary data indicate unacceptable photoinactivation of dipirydramine after 48 hours exposure to fluorescent light.