

# Abstract for Blood Tube Production

*The following abstract copes with IVD blood collection tube production*



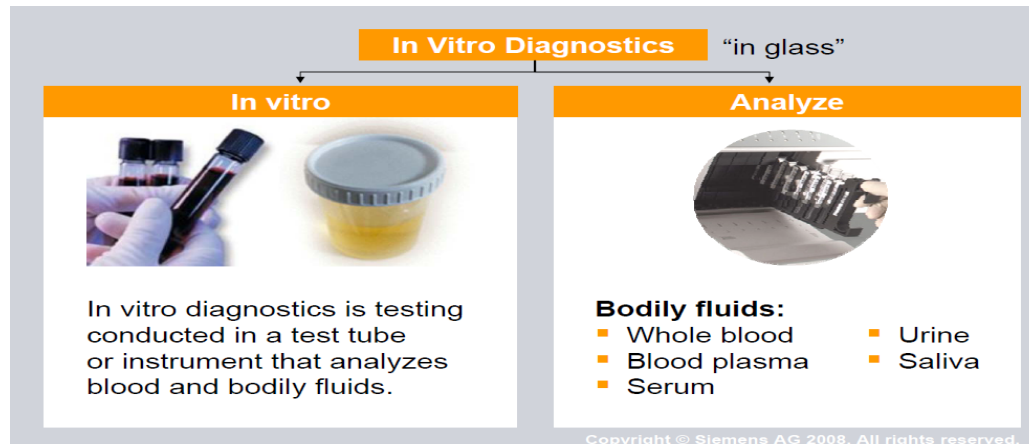
# TECHNICAL ASPECTS

A vacuum collection tube consists of a container (plastic tube) sealed with a partial vacuum inside by rubber stoppers. The air pressure inside is less than the normal environment.

This blood collection tubes are part of the IVD (In-vitro diagnostic) market, being essential part of the IVD analysis performed. A blood col-

lection tube is basically a cylindrical, transparent PET tube with a color-cap and a rubber stopper. BD, one of the leading producer, offers over 100 different tubes available in the market. This vast product array is due to the size and additives, for the stabilization of the sample, in each available tube in the market.

Different blood test require different types of blood specimens. Most tubes have additives like anticoagulants which prevent clotting/coagulation of blood. Anticoagulants are already in the tubes in the precise amount needed to mix with the amount of blood that will fill the tube. The color of the stopper on each tube indicates what, if any, anticoagulant the tube contains.



# TECHNICAL ASPECTS

The collection of blood, and therefore the use of evacuated blood tubes, is of extreme importance in medical diagnostics. The following figure shows some examples of conducted tests.


## Application

The vacuum blood collection system, which consists of a double-pointed needle, a plastic holder or adapter, and a series of blood collection evacuated tubes with

rubber stoppers of various colors.

These evacuated tubes enable the best blood samples for analysis, since the collected blood goes directly from the patient into the appropriate test tube. Since different blood tests require different types of blood specimens, most tubes have additives called anticoagulants, which prevent the clotting/coagulation of the blood. After inserting the longer needle into the vein, the phlebotomist pushes the tube into the holder so that the shorter needle pierces the stopper. The difference in pressure between the inside of the tube and the vein causes blood to fill the tube.

The tubes, after blood collection, are suitable to go directly into the analyzers. The following picture is an example of analyzers for hematology.



**Examples of types of tests:**

Chemistry	Immunoassay	Hematology	Hemostasis	Microbiology	Molecular
<ul style="list-style-type: none"> <li>Cholesterol</li> <li>Glucose</li> <li>Therapeutic drug monitoring</li> <li>Drugs of abuse testing</li> </ul>	<ul style="list-style-type: none"> <li>Cardio-vascular</li> <li>Hormones</li> <li>Cancer</li> <li>Allergy</li> </ul>	<ul style="list-style-type: none"> <li>Cell counting</li> </ul>	<ul style="list-style-type: none"> <li>Pre- &amp; post-operatives</li> <li>Deep vein thrombosis</li> <li>Hemophilia</li> <li>Aspirin resistance</li> </ul>	<ul style="list-style-type: none"> <li>Bacteria               <ul style="list-style-type: none"> <li>Meningitis</li> <li>Staphylococcus</li> </ul> </li> <li>Antibiotics               <ul style="list-style-type: none"> <li>Penicillin</li> <li>Streptomycin</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>HIV</li> <li>Hepatitis</li> <li>Cancer</li> </ul>

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# PRODUCTION



Injection machine for blood tube



Blood tube filling machine



Vacuum cap assembly machine



Auto vacuum tube & cap capping  
& labeling machine



Injection machine for blood tube caps



The filling process takes  
place under clean room  
conditions

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