



# Product Catalogue

## BD Diagnostics Preanalytical Systems

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**Pacific Laboratory Products**  
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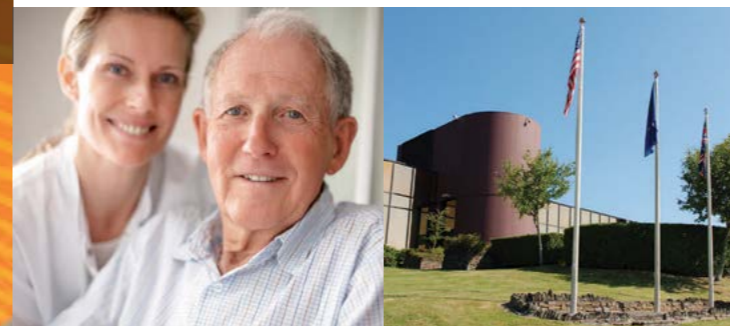


# Meeting Clinical Demands Exceeding Expectations

BD works in collaboration with healthcare professionals and industry partners, to maintain uncompromising standards of quality, integrity and safety.

As the field of diagnostic testing continues to present complex and developing phenomena, BD is assuming a leadership role in the diagnostic industry to ensure the highest level of excellence for products, services, and programs.

Since 1943, **BD Diagnostics - Preanalytical Systems** has maintained traditions of innovation, customer focus, and putting healthcare workers and patients first. These have helped us to transform emerging challenges into opportunities for even greater accuracy and product dependability.



To learn about BD Vacutainer® specimen collection products, educational materials, or services offered by **BD Diagnostics - Preanalytical Systems**, please contact your local BD Account Manager.

**You can also contact us via:**

**BD Customer Service Australia:**

Toll Free Phone **1800 656 100**; Toll Free Fax **1800 656 110**

or e-mail [customerservice\\_anz@bd.com](mailto:customerservice_anz@bd.com)

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Venous blood sampling

Cell, protein and nucleic acid blood stabilisation

Accessories

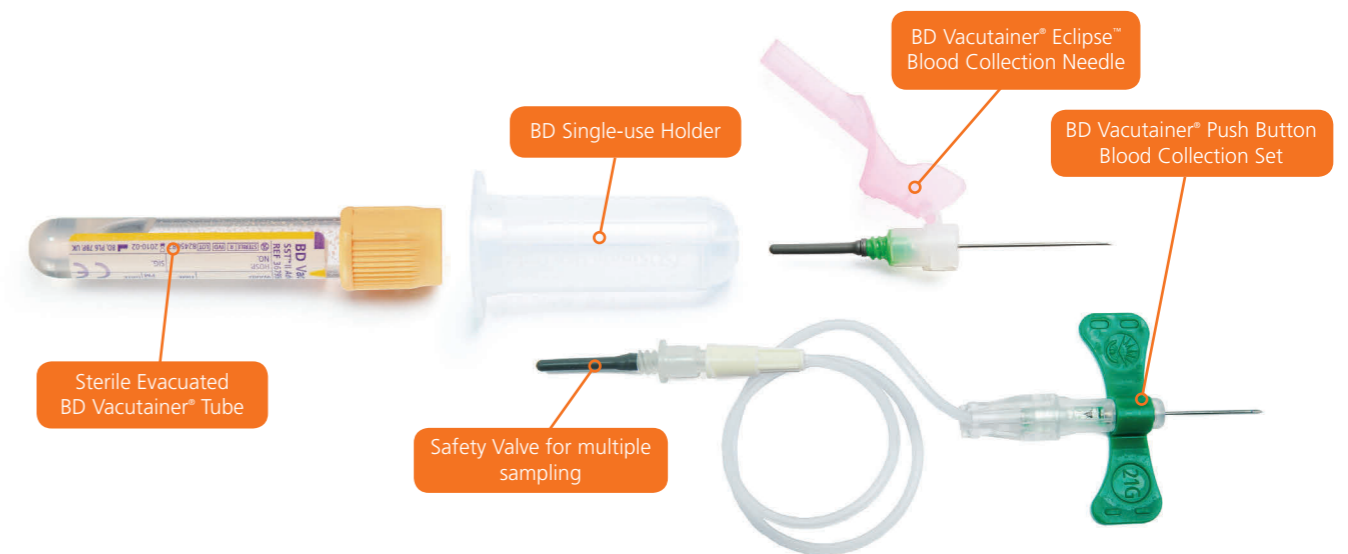
Capillary blood sampling

Arterial blood sampling (Critical Care Collection syringes)

Urine collection

Appendix and Index

BD Vacutainer® Evacuated Blood Collection System



- Reproducible blood draw with each tube having a predetermined vacuum
- Comprehensive range of additives to stabilise most blood components
- BD Hemogard™ safety closure aids in providing optimal protection for users from patient blood
- Sterile tube ensures no contamination of samples
- A range of labels to ensure traceability of collected patient samples

**BD Diagnostics** - Preanalytical Systems full range of products includes:

- Safety engineered devices such as the **BD Vacutainer® Eclipse™ Blood Collection Needle** and **BD Vacutainer® Push Button Blood Collection Sets** which allow for collection from patients of all types with the added benefit of reducing healthcare workers risk of needle stick injuries.
- **BD Microtainer®** Tubes for paediatric patients and capillary sampling used to collect blood with **BD Contact-Activated Lancets** and **BD QuikHeel™ Lancets**.
- **BD Vacutainer®** Urine Collection System for the collection and transport of urine samples.
- **BD Vacutainer®** Blood Collection Adapters which are compatible with all BD Infusion devices.
- **Critical Care Collection syringes** including safety products for arterial blood collection and analysis.
- An expanding range of **Molecular Diagnostic** products.

## BD Laboratory Consulting Services™

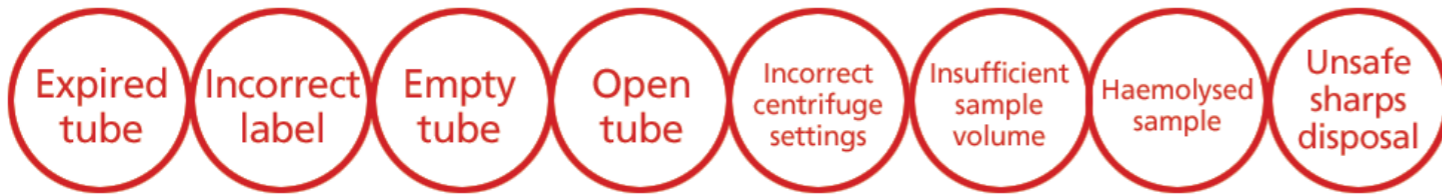
Preanalytical errors impact the patient, clinician, the laboratory and your healthcare system. So where do these errors occur? For a sample to be analysed, there are three phases to the testing process.

- Preanalytical
- Analytical
- Post-analytical

## The Facts

70-85% of clinical decisions are based upon information derived from laboratory test results<sup>1,2</sup>. Poor quality samples can lead to inaccurate test results which, in turn, can have a huge impact on your institution's ability to provide optimal clinical outcomes for your patients.

Up to 75% of all laboratory test errors occur in the preanalytical phase<sup>3,4,5</sup>. These errors can be as basic as an unlabelled or mislabelled specimen or incorrect sample collection technique. Just one small failure in your system can have disastrous consequences, both financially and in terms of patient diagnosis and care.



## BD Laboratory Consulting Services Preanalytical Review

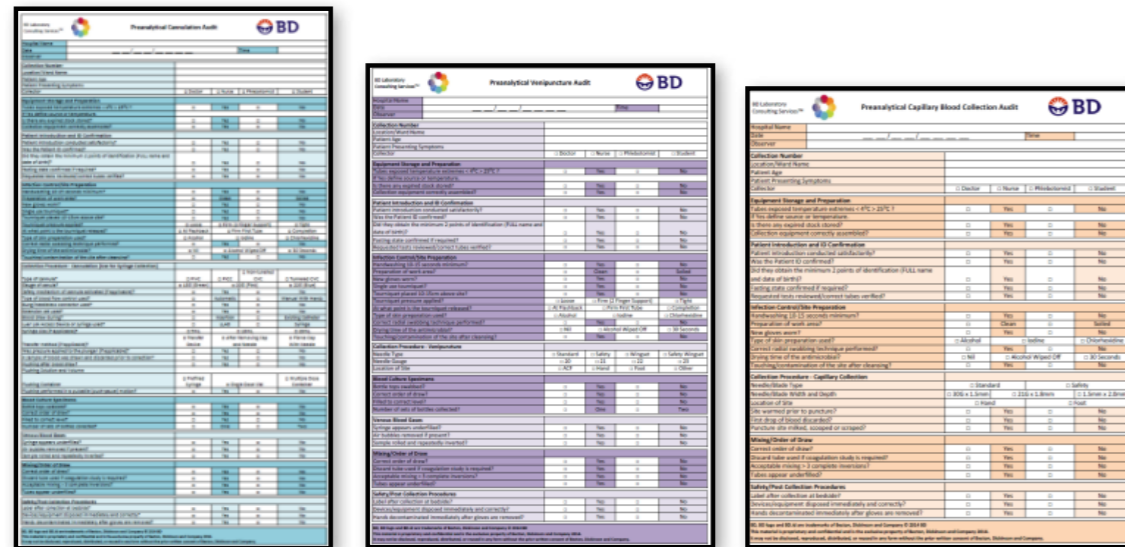
BD has a service, the Preanalytical Review, which is delivered by a BD Continuous Improvement Consultant. This Review helps maximise your blood or urine specimen collections through auditing of the preanalytical phase.

## What Does It Achieve?

**Auditing** – Identifies and quantifies the causes and impacts of preanalytical errors.

**Reporting** – Analysed results delivered in a customised presentation.

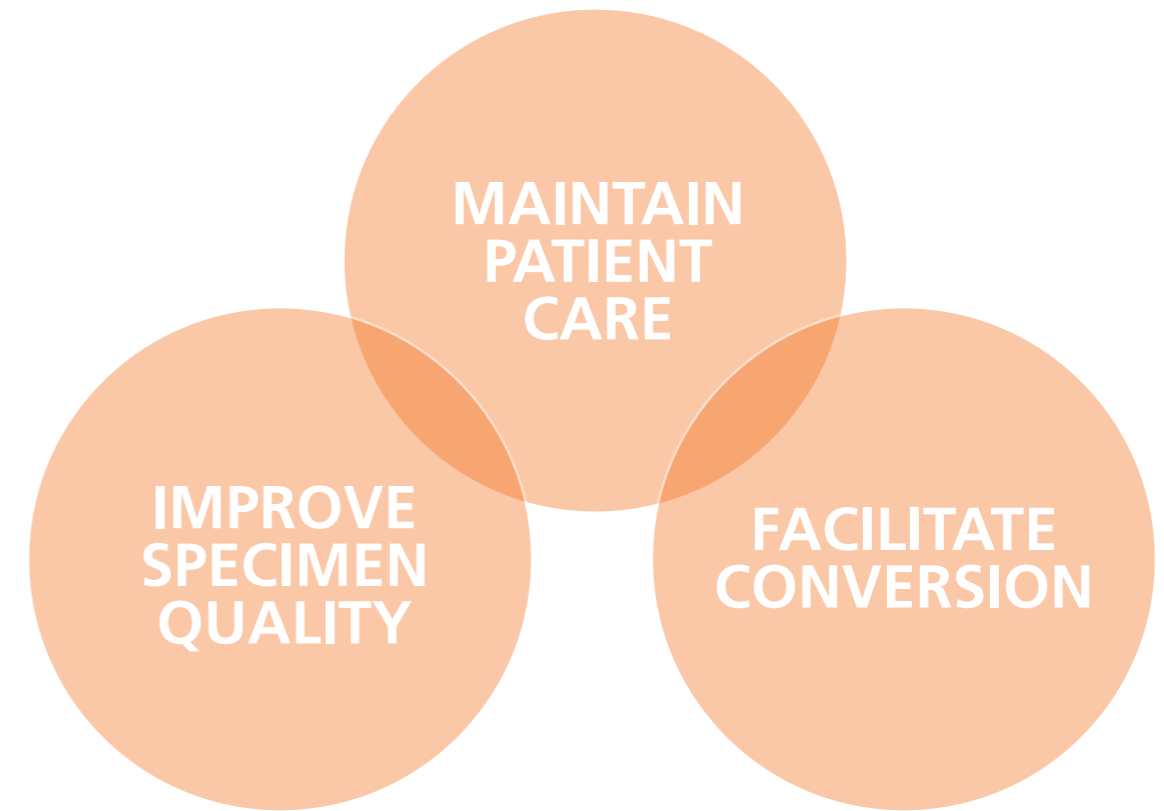
**Stronger Compliance** – Proposes and implements corrective actions to empower your organisation to improve sample quality, workflow and efficiency.



At BD, we have learned from experience with many healthcare facilities that effective education is one of the essential building blocks for optimising and sustaining patient care, specimen quality and/or facilitating a conversion.

The customised program that will be developed for your facility begins with an educational framework based on

proven workplace learning and adult education models. The educational framework and BD training resources are combined with content specific to your clinical practice and delivered by our experienced BD Clinical Nurse Educators. By selecting BD you can be assured of comprehensive training that will fulfill your educational program needs.



## Education Delivery Methods

### Train the Trainer

In this educational partnership, BD trains a select group of hospital staff to act as early adopters and clinical education specialists. In this role, they will be responsible for training unit staff and providing troubleshooting assistance. BD will continue to support ongoing training and development of educators and staff.

- Facilitates rapid conversion of product or process changes
- Creates buy-in by developing quality or product champions
- Sustainable in-house education resources
- Offers in-house educators opportunities for job enhancement

1. Foubister, Vida. Cap Today Bench Press: The Technologist/technician shortfall is putting the squeeze on laboratories nationwide; September 2000 Platelet poor plasma (< 10,000/μl)  
 2. Datta, P. Resolving Discordant Samples. Advance for the Administrators of the Laboratories; July 2005; p.60.  
 3. Bonini P, Plebani M, Cerotti F, Bubboli F. Errors in laboratory medicine. Clin Chem 2002; 48:691-698  
 4. Plebani M & Carraro P. Mistakes in a Stat Laboratory: types and frequency. Clinical Chemistry 1997, 43(8): 1348-1351  
 5. Carraro P & Plebani M. Errors in a Stat Laboratory: types and frequency 10 years later. Clinical Chemistry 2007, 53(7): 1338-1342

## Registered Training Organisation

Becton Dickinson Pty Ltd is a Registered Training Organisation (RTO #31738) offering two recognised units of competency.

### HLTPAT306D Collection of Quality Blood Specimens

is an interactive unit focussed on the preanalytical phase of laboratory testing, quality sample collection and processing. The unit is divided into eight sections:

1. Infection Control and Safety.
2. Anatomy and Physiology of Routine Blood Collection.
3. Preanalytical Factors.
4. Selection and Safe Use of Equipment for Routine Blood Collection.
5. Patient Preparation for Routine Blood Collection.
6. Routine Venipuncture of Quality Blood Samples.
7. Special Considerations and Common Complications Associated with Routine Venipuncture.
8. Quality Collection of Capillary Blood Specimens.

The course is delivered in the following manner:

- Two days of theoretical interactive education by a BD Clinical Nurse Educator.
- Practical workplace and written assessment to be completed by the student.

Upon satisfactory completion, students have completed a unit that can be used towards a Certificate III or IV in Pathology.

**HLTPAT304D – Collect Pathology Specimens Other than Blood** is a 1 day course that provides instruction on collection, packing and sending of a sample to a laboratory.

On completion of either course you will receive a Certificate of Qualification outlining the units of competency, the qualification is recognised within the Australian Qualifications Framework.

## Clinical Unit Inservicing

BD Clinical Nurse Educators provide training throughout the facility, targeting specified units. This training occurs on a one-to-one or small group basis.

- Customised to meet unit-specific practice
- Independent of unit schedules
- Small groups or individual attention

## Online Resource Centre

In an effort to continually provide high-quality tools and support for students and professionals in diagnostic specimen management and healthcare delivery, BD Diagnostics – Preanalytical Systems sponsor [specimenscare.com](http://specimenscare.com). [Specimenscare.com](http://specimenscare.com) is an online resource to identify, evaluate and promote the application of best practices in all aspects of the preanalytical phase of clinical laboratory testing.

- Facilitates remote location training
- Can be used exclusively or in combination with other delivery methods
- Repository of current training materials and resources
- Facilitates communication of practice and protocol changes



Sponsored by BD, [specimenscare.com](http://specimenscare.com) is edited by the Global Preanalytical Scientific Committee (GPSC), a group of respected clinicians and scientist.

## Discovery

Your BD Account Manager will meet with the educators at your facility to understand your clinical needs and help determine what delivery methods will achieve the best educational results.

## Development

After the educational needs and delivery methods have been determined, BD will design content consistent with your clinical protocols, staff and patient needs.

## Delivery

The customised training for your facility will be implemented by BD Clinical Nurse Educators to meet your education timelines.

## Monitoring

Essential to a successful training program is the ability to measure training outcomes. BD can provide staff lists confirming attendance for record keeping purposes. Post education audits of work practices and surveys allow us to measure training program effectiveness and target areas for additional training. Ask your BD Account Manager for more information about the BD Diagnostics – Preanalytical Review.

## Resources:

- Marketing brochures
- Nurses guide to specimen collection
- Product specific CD's
- Reference cards with instructions for use
- Wall charts / posters
- White papers





# Venous blood sampling

## Tube dimensions and sample volumes

### Tube dimensions and sample volumes

BD Vacutainer® Tubes are available in three different sizes as pictured below, each with different sample volumes. Tubes for special analysis may have a different size (e.g. sedimentation tubes).

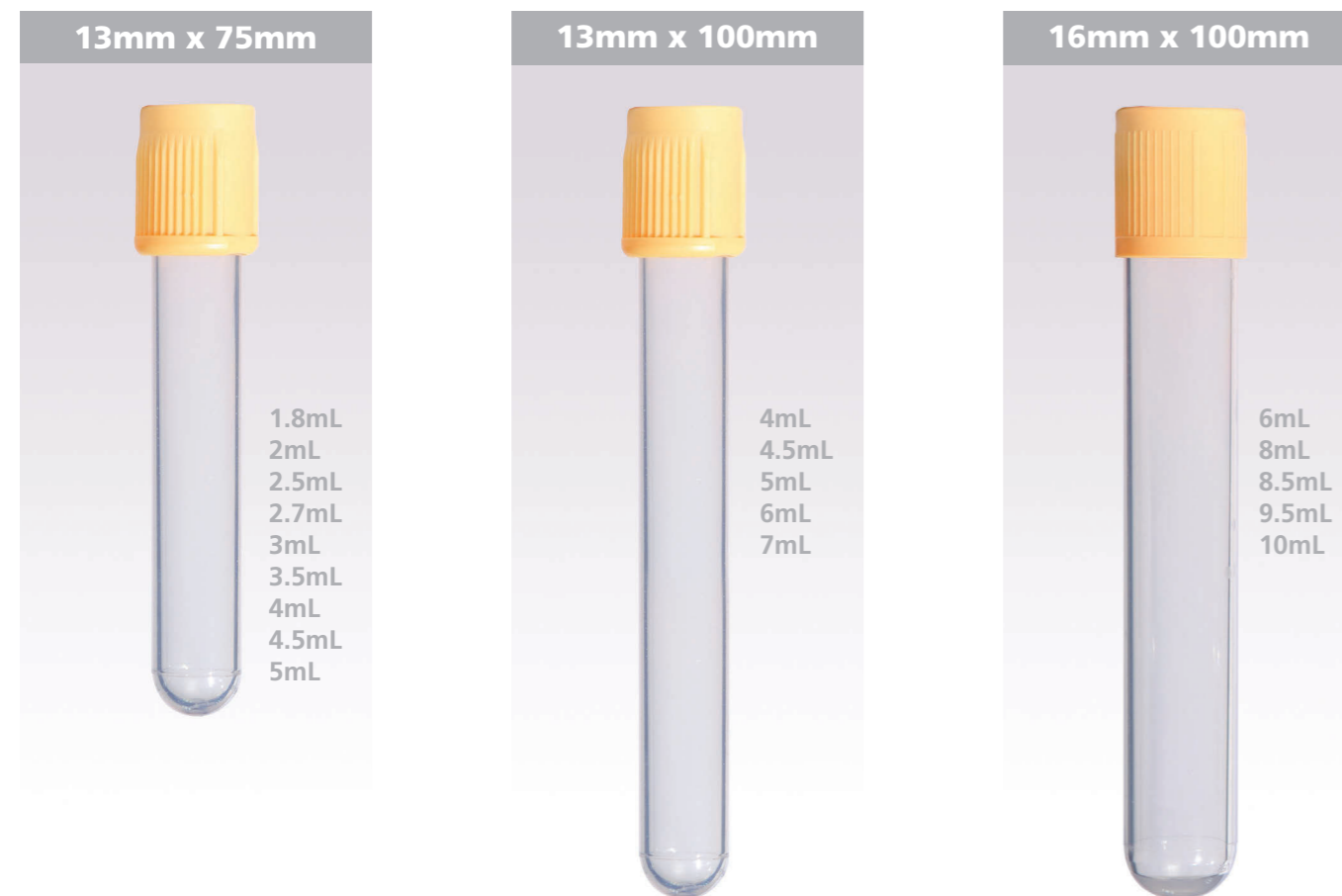
The volume given in mL on the tube refers to the amount of blood that will be taken from the patient. For tubes with a fluid additive, the final volume may deviate from this (amount of blood + additive).

### Centrifugation

The centrifugation conditions for the various BD Vacutainer® Tube types are listed on the corresponding pages of the catalogue. The times given refer only to the relative centrifugal force (RCF) and do not include the centrifuge acceleration and braking times.

BD Vacutainer® Glass Tubes should not be centrifuged at more than 2200 g (RCF). BD Vacutainer® Plus plastic tubes can withstand up to 10,000 g (RCF). We do not advise the centrifuging of damaged tubes.

For centrifuging BD Vacutainer® Tubes, the use of a swing-out rotor is beneficial.



# Venous blood sampling

## Order of draw and specimen handling

Order of draw	Colour coding	Tube type	Recommended inversions	Minimum clotting time	Centrifuging conditions
Discard tubes		EST or other suitable tube	not necessary	n/a	n/a
Blood culture		Anaerobic blood culture bottle	n/a	n/a	n/a
		Aerobic blood culture bottle	n/a	n/a	n/a
Citrate		Sodium citrate, plastic	3-4	n/a	2000-2500 g (RCF) for 10-15 min. at 18-25°C <sup>2</sup>
		Sodium citrate & CTAD, glass	3-4	n/a	1500 g (RCF) for 15 min. at 18-25°C <sup>2</sup>
		Sodium citrate, ESR, glass	8-10	n/a	n/a
		ACD	8-10	n/a	n/a
Serum		Serum with clot activator (silica particles)	5-6	60 min.	≤1300 g (RCF) for 10 min. at 18-25°C
		BD RST (serum with gel)	5-6	5 min.	4000 g (RCF) for 3 min. or 2000 g (RCF) for 4 min. or alternative centrifugation conditions are available <sup>4</sup>
		BD SST™ II Advance (serum with gel)	6	30 min.	1300-2000 g (RCF) for 10 min. or 3000 g (RCF) for 5 min. at 18-25°C <sup>3</sup>
Heparin		Lithium & sodium heparin	8-10	n/a	≤1300 g (RCF) for 10 min. at 18-25°C
		BD PST™ II (plasma with gel)	8-10	n/a	1300-2000 g (RCF) for 10 min. or alternative centrifugation conditions are available <sup>4</sup>
Haematology		EDTA	8-10	n/a	n/a
Crossmatch		Blood banking	8-10	n/a	≤1300 g (RCF) for 10 min. at 18-25°C
PPT		BD PPT™ EDTA with gel	8-10	n/a	1100 g (RCF) for 10 min. at 18-25°C
Trace elements		Trace elements with EDTA	8-10	n/a	≤1300 g (RCF) for 10 min. at 18-25°C
		Trace elements serum with clot activator (silica particles)	5-6	60 min.	≤1300 g (RCF) for 10 min. at 18-25°C
Glucose		Glucose	8-10	n/a	≤1300 g (RCF) for 10 min. at 18-25°C

n/a = not applicable

Centrifugation acceleration and deceleration time is not included, this must be added to the time stated.

For fixed angle rotors, a longer centrifuging time may be required for the optimal development of the gel barrier.

\*See Page 19 for different plasma specifications.

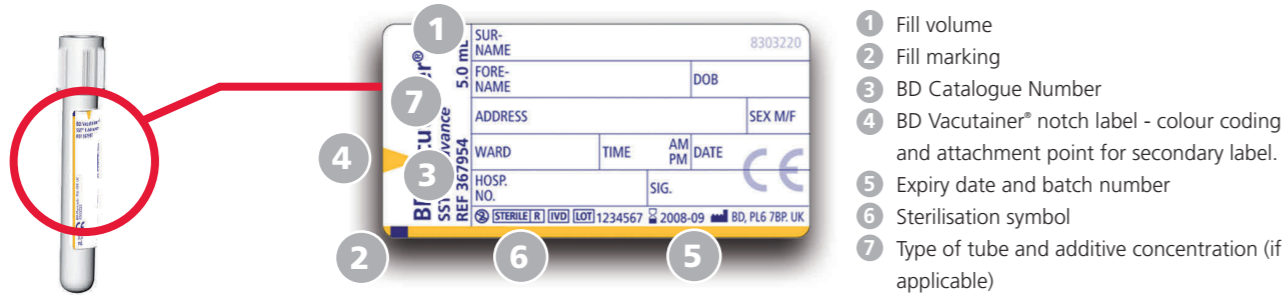
1. Sequence for sample taking according to Clinical and Laboratory Standards Institute (CLSI), Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard - Sixth Edition, CLSI document H3-A6 (ISBN 1-56238-650-6), Clinical and Laboratory Standards Institute, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania 19087-1898 USA, 2007,

2. Platelet poor plasma (< 10,000/μl)

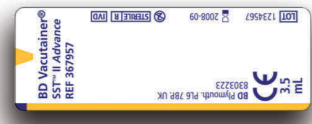
3. BD White Paper VS7228: Performance of BD Vacutainer® SST™ II Advance Tubes at Four and Five Minute Centrifugation Times

4. BD White Paper VS7513: Performance of BD Vacutainer® PST™ II PLUS Tubes at Four and Five Minute Centrifugation Times, 2002

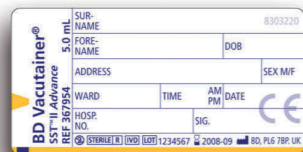
### Labelling



- 1 Fill volume
- 2 Fill marking
- 3 BD Catalogue Number
- 4 BD Vacutainer® notch label - colour coding and attachment point for secondary label.
- 5 Expiry date and batch number
- 6 Sterilisation symbol
- 7 Type of tube and additive concentration (if applicable)



**Paper label**  
Patient data can be written directly onto the white surface of the standard label.



**Block label**  
Paper label with form for patient data.

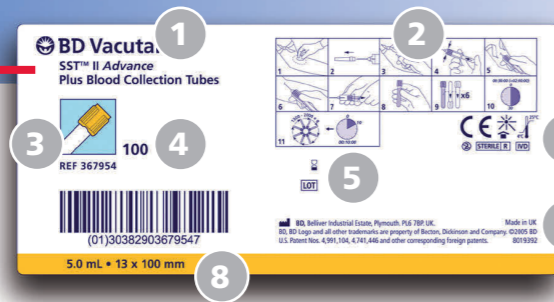


**No label**  
The product specifications are printed directly onto the tube. This system reduces the risk of the tubes sticking in the analyser rack due to several patient identification labels being stuck over each other on the tube. It also enables better visual inspection of the tubes.



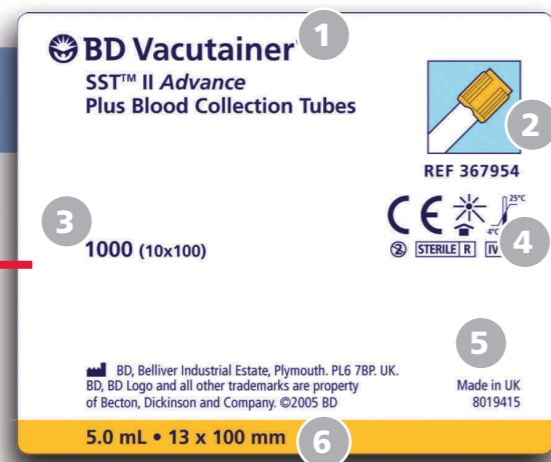
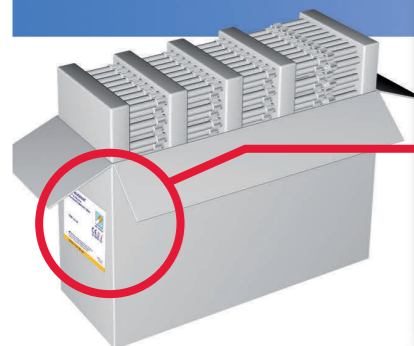
**Transparent label**  
Same format as the paper label, but has the advantage that it is transparent and thus allows a better visual inspection of the tube.

### Box



- 1 Type of tube and additive concentration (if applicable)
- 2 Instructions for use as pictograms
- 3 BD Catalogue Number
- 4 Number of tubes in the box
- 5 Expiry date and batch number
- 6 Applicable symbols
- 7 Country of origin
- 8 Volume and size of the tubes

### Case



- 1 Type of tube and additive concentration (if applicable)
- 2 BD Catalogue Number
- 3 Number of tubes in the case
- 4 Applicable symbols
- 5 Country of origin
- 6 Volume and size of the tubes

### Serum tubes

In order to obtain serum samples from plastic tubes, the tube must have a coagulation activator added. As the plastic surface alone is insufficient to trigger the coagulation within an acceptable time, BD Vacutainer® Plastic Serum Tubes have silica particles added for this purpose. These tubes are marked with the acronym CAT (Clot Activator Tube).

### Clotting times

The recommended minimum time for the coagulation of serum tubes from patients who have not been treated with anticoagulants is 60 minutes.

### Centrifuging conditions:

≤ 1300 g for 10 minutes at 18-25°C

### Studies

Studies are available on request.

### BD Vacutainer® Serum Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
368493	2	13x75	Silica (Clot Activator)	PET	Block	BD Hemogard™	
369032	4	13x75	Silica (Clot Activator)	PET	Block	BD Hemogard™	
367837	6	13x100	Silica (Clot Activator)	PET	Block	BD Hemogard™	
367895	10	16x100	Silica (Clot Activator)	PET	Block	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000



# Venous blood sampling

## Serum analysis

### BD Vacutainer® SST™ II Advance Tubes

During the centrifugation of the BD Vacutainer® SST™ II Advance Tubes, an inert gel separates the serum and the blood clot preventing the contamination of the serum from the separated cellular components. For example, the serum for certain analytes such as potassium, phosphorus and glucose must be separated from the cells within a few hours - otherwise the results will be significantly distorted. Using BD SST™ II Advance Tubes routine analytes in clinical chemistry such as potassium and glucose are still stable after a week of storage at 2-8°C. Clinical evaluation of special chemistries such as therapeutic drugs, proteins, peptides, steroids and vitamins demonstrates a high degree of stability with the acrylic gel in the BD SST™ II Advance Tubes<sup>1,2,3</sup>.

As a result of the type of gel used in the BD Vacutainer® SST™ II Advance Tubes, short centrifugation times of 5 minutes at 3000 g can be achieved. The stability of the gel barrier is a distinct advantage during transport and storage.

The main advantages of gel tubes versus non-gel tubes are:

- Stable barrier between serum and clotted blood, therefore better analyte stability.
- Better sample quality.
- Optimisation of the work flow: Short centrifugation time, sample processing and archiving in the primary tube.
- No possibility of misidentification due to the use of secondary tubes.

#### Clotting times

The minimum recommended coagulation time for BD Vacutainer® SST™ II Advance Tubes for patients who have not received anti-coagulation treatment is 30 minutes.

#### Centrifugation conditions:

1300-2000 g for 10 minutes or alternatively, for 5 minutes at 18-25°C<sup>4</sup>.

1. BD White Paper VS7050: Therapeutic Drug Compatibility in BD Vacutainer® SST™ II Plus Tubes, 2004  
 2. BD White Paper VS7051: Performance of BD Vacutainer® SST™ II Plus Tubes for Special Chemistry Testing, 2004  
 3. BD White Paper VS5778: Comparison of BD Vacutainer® SST™ Plus Tubes with SST™ II Plus Tubes for Common Analytes, 2001  
 4. BD White Paper VS7228: Performance of BD Vacutainer® SST II Advance tubes at Four and Five Minute Centrifugation Times



#### Effects of temperature

BD Vacutainer® SST™ II Advance Tubes should be stored at 4-25°C and protected from direct sunlight during storage. Cooling of the tube by or during centrifuging can affect the movement capability of the gel. The optimum separation of serum and coagulated blood is achieved at a temperature of 20-25°C.

#### Clot activator

BD Vacutainer® SST™ II Advance Tubes contain silica particles.

#### Studies

Studies are available on request..

Patented separating gel technology with unique gel design.



# Venous blood sampling

## Serum analysis

### BD Vacutainer® SST™ II Advance Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367956	3.5	13x75	Silica (Clot Activator)/Gel	PET	Block	BD Hemogard™	
367954	5	13x100	Silica (Clot Activator)/Gel	PET	Block	BD Hemogard™	
367958	8.5	16x100	Silica (Clot Activator)/Gel	PET	Block	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

#### BD Vacutainer® Rapid Serum Tube (RST)

This tube combines the advantages of a thrombin based clot activator with a gel barrier and enables rapid results as well as optimising the process.

The clot activator produces high quality serum.

- These tubes can be centrifuged 5 minutes after the blood sample is taken.
- The gel barrier optimises the sample workflow.

#### Clotting times

The recommended minimum coagulation time for serum tubes from patients not receiving anti-coagulant therapy is 5 minutes for BD Rapid Serum tubes.

### BD Vacutainer® Rapid Serum Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
368774	5	13x100	Thrombin based medical clotting agent/gel	PET	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

#### Centrifuging conditions:

4000 g for 3 minutes at 23-27 °C or  
 2000 g for 4 minutes at 23-27 °C or  
 1500-2000 g for 10 minutes at 23-27 °C

#### Studies

Studies are available on request.





# Venous blood sampling

## Plasma analysis

### Lithium Heparin/Sodium Heparin

BD Vacutainer® Plasma Tubes for clinical chemistry are available with spray-dried sodium heparin or lithium heparin additives. Heparin acts as an anticoagulant as it develops an antithrombin complex. This complex inhibits thrombin and the activated factor X and thus prevents coagulation.

The optimum anticoagulation is achieved in all BD Vacutainer® Tubes by the use of 17 IU pharmaceutical grade heparin per mL of blood when the fill level is correct. The lithium heparin in BD Vacutainer® Tubes is spray dried onto the inner walls of the tubes using a special procedure so that the additive is evenly distributed to achieve the best possible solubility. For clinical chemistry, lithium heparin is generally preferred over sodium heparin.





### Mixing the tube

Correct mixing (8-10 inversions) of the BD Vacutainer® Heparin Tube immediately after the blood sample has been taken is extremely important to avoid microclotting.

### Centrifugation conditions:

≤ 1300 g for 10 minutes at 18-25°C

### BD Vacutainer® Heparin Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
368494	2	13x75	Lithium Heparin	PET	Block	BD Hemogard™	
367883	4	13x75	Lithium Heparin	PET	Block	BD Hemogard™	
367885	6	13x100	Lithium Heparin	PET	Block	BD Hemogard™	
367876	6	13x100	Sodium Heparin	PET	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000



### Studies

Studies are available on request.

# Venous blood sampling

## Plasma analysis

### BD Vacutainer® PST™ II Tubes

Plasma tubes with separating gel for clinical chemistry are available with spray-dried lithium heparin additives. During the centrifugation of the BD Vacutainer® PST™ II Tubes, an inert gel separates the serum and the blood clot preventing the contamination of the plasma from the separated cellular components. For example, the plasma for certain analytes such as potassium, phosphorus and glucose must be separated from the cells within a few hours - otherwise the results will be significantly distorted. Using BD Vacutainer® PST™ II Tubes routine analytes in clinical chemistry such as potassium and glucose are still stable after a week of storage at 2-8°C. Clinical evaluation of special chemistries such as therapeutic drugs, proteins, peptides, steroids and vitamins demonstrates a high degree of stability<sup>1,2,3</sup>.




The main advantages of gel tubes versus non-gel tubes are:

- Stable barrier between plasma and red blood cells, therefore better analyte stability.
- Better sample quality.
- Optimisation of the work flow: short centrifugation time, sample processing and archiving in the primary tube.
- No possibility of confusion due to the use of secondary tubes.

### Effects of temperature

BD Vacutainer® PST™ II Tubes should be stored at 4-25°C and protected from direct sunlight during storage. Cooling of the tube by or during centrifugation can affect the

### BD Vacutainer® PST™ II Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367373	3	13x75	Lithium Heparin/Gel	PET	Block	BD Hemogard™	
367375	4.5	13x100	Lithium Heparin/Gel	PET	Block	BD Hemogard™	
367377	8	16x100	Lithium Heparin/Gel	PET	Block	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000



movement. The optimum separation of sediment and plasma is achieved at a temperature of 20-25°C.

### Mixing the tube

Correct mixing (8-10 inversions) of the BD Vacutainer® PST™ II Tube immediately after the blood sample has been taken is extremely important to avoid microclotting.

### Centrifugation conditions:

1300-2000 g for 10 minutes at 18-25°C  
3000 g for 5 minutes at 18-25°C<sup>4</sup>

### Studies

Studies are available on request.

1. BD White Paper VS5919: Comparison of BD Vacutainer® PST™ II Plastic Tubes to BD Vacutainer PST™ Plastic Tubes for 22 Routine Chemistry Analytes and 3 Cardiac (STAT) Analytes, 2003  
2. BD White Paper VS5925: Analyte Stability Supports Extended Use of Plasma Collected in BD Vacutainer PST™ II Plastic Tubes, 2001  
3. BD White Paper VS7597: A comparative evaluation of PST II with Lithium Heparin Plus and Serum Plus for selected hormones, therapeutic drugs, tumor markers and other chemistry analytes, 2008  
4. BD White Paper VS7513: Performance of BD Vacutainer® PST™ II PLUS Tubes at Four and Five Minute Centrifugation Times, 2002



# Venous blood sampling

## Glucose analysis

### Glucose and lactate determination

BD Vacutainer® Glucose Tubes are available in Sodium Fluoride, Potassium Oxalate and Sodium Fluoride EDTA.

Glucose values in unpreserved blood samples decrease quickly after collection as glucose is metabolised by the blood cells. The additives contained in BD Vacutainer® Fluoride/Oxalate and Fluoride/EDTA tubes will stop enzymatic activity at the glycolytic pathway.


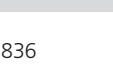


### HbA1c determination

One advantage of the Fluoride/EDTA tube over the Fluoride Oxalate tube is that the marker HbA1c can be determined from the same tube, so no additional tube sample needs to be taken.

### Centrifugation conditions:

≤1300 g for 10 minutes at 18-25°C

### BD Vacutainer® Tubes for glucose and lactate determination

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367934	2	13x75	Fluoride/Oxalate	PET	Block	BD Hemogard™	
368201	5	13x100	Fluoride/Oxalate	PET	Paper	BD Hemogard™	
367935	4	13x75	Fluoride/Oxalate	PET	Paper	BD Hemogard™	
368520	2	13x75	Fluoride/EDTA	PET	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000



### Studies

Studies are available on request.

# Venous blood sampling

## Haematology

### EDTA





EDTA salts (ethylenediaminetetraacetic acid) are used to anticoagulate whole blood for haematological investigations as the cellular components of the blood are particularly well preserved by EDTA. It works as an anticoagulant as it forms complexes with metal ions such as calcium, therefore inhibiting the coagulation cascade. Anticoagulation with EDTA is irreversible.

The EDTA concentration in BD Vacutainer® Tubes is 1.8 mg per mL of complete blood when the fill level is correct, as recommended by the ICSH (International Council Society of Haematology)<sup>1</sup>. The ICSH recommends dipotassium EDTA salt (K<sub>2</sub>EDTA) for haematological investigation. BD Vacutainer® plastic tubes are available with spray dried K<sub>2</sub>EDTA and K<sub>3</sub>EDTA.

### Mixing the tube


Correct mixing (8-10 inversions) of the EDTA tube immediately after the blood sample has been taken is extremely important to avoid microclotting.

### BD Vacutainer® K<sub>2</sub>EDTA Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367838	3	13x75	K <sub>2</sub> EDTA	PET	Block	BD Hemogard™	
367839	4	13x75	K <sub>2</sub> EDTA	PET	Block	BD Hemogard™	
367873	6	13x100	K <sub>2</sub> EDTA	PET	Block	BD Hemogard™	
367525	10	16x100	K <sub>2</sub> EDTA	PET	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

### BD Vacutainer® K<sub>3</sub>EDTA Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367836	2	13x75	K <sub>3</sub> EDTA	PET	Block	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000



### Studies

Studies are available on request.

1. International Council for Standardisation in Haematology and: Expert Panel on Cytometry, Recommendations of the International Council for the Standardisation in Haematology for Ethylenediaminetetraacetic Acid Anticoagulation of Blood for Blood Cell Counting and Sizing, Am J Clin Pathol 1993;100: 371-372.

# Venous blood sampling

## Coagulation analysis

### Sodium citrate

Trisodium citrate is used as an anticoagulant for coagulation investigations. It works as an anticoagulant by forming complexes with metal ions such as calcium inhibiting the coagulation cascade. Anticoagulation with trisodium citrate is reversible.

BD Vacutainer® Citrate Tubes contain buffered citrate in accordance with recommendations:

- 0.105 M or 0.109 M of buffered trisodium citrate solution, equivalent to 3.2% trisodium citrate

The blood to additive ratio is 9:1.

BD Vacutainer® Citrate Tubes are also suitable for carrying out special test procedures such as the platelet function test PFA-100®\*. Special tubes and the associated additional costs are therefore unnecessary.

### BD Vacutainer® Plus (plastic) Citrate Tubes

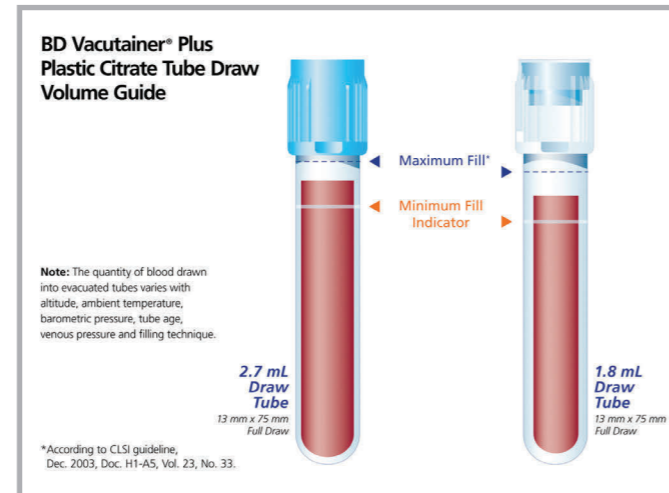
The Plus citrate tubes feature innovative Tube geometry that minimises tube headspace and associated platelet activation to optimise APTT monitoring of unfractionated heparin patients.

BD Vacutainer® Plus Citrate Tubes combine the following advantages:

- Clinically equivalent performance to the recognised global 'Gold Standard', the 4.5mL BD Vacutainer® Glass Buffered Citrate tube<sup>1,2</sup>.
- Clinically proven in multi-centre clinical trials for coagulation testing across all major patient populations.
- Evaluated with the most widely used coagulation analytical systems.

### Fill line marking

The significance of the correct ratio of blood to additive for coagulation samples is well documented. The correct fill amount is critical for correct coagulation analysis. All BD Vacutainer® Plus plastic coagulation tubes have a mark indicating the minimum fill level.



### Centrifuging conditions:

For coagulation analyses different plasma specifications can be obtained from the citrated blood

- Platelet rich plasma: 150-200 g for 5 minutes at 18-25°C
- Platelet poor plasma: 2000-2500 g for 10-15 minutes at 18-25°C
- Platelet free plasma: >3000 g for 15-30 minutes at 18-25°C

BD recommends that glass tubes are not centrifuged at more than 2200 g in a swing-out rotor (for fixed angle rotor not more than 1300g).

\* PFA-100 is a registered trade mark of Siemens.

1. BD Ref. VS5936 Evaluation of BD Vacutainer® Plus 2.7 and 1.8mL Sodium Citrate Coagulation Tubes Using The ELECTRA 1400c™ Analyser. BD, Franklin Lakes, NJ, USA November 2001
2. BD Ref. VS5966 Evaluation of 0.109M BD Vacutainer® Plus Plastic and 0.105M BD Vacutainer® Glass Sodium Citrate Tubes for PT and APTT Using the Sysmex CA - 1500 Analyser. BD, Franklin Lakes, NJ, USA June 2002

# Venous blood sampling

## Coagulation analysis

### BD Vacutainer® Citrate Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
363093	1.8	13x75	Sodium Citrate	PET	Block	BD Hemogard™	Blue
363095	2.7	13x75	Sodium Citrate	PET	Block	BD Hemogard™	Blue

All tubes are supplied in boxes of 100 / cases of 1000

### BD Vacutainer® CTAD Tubes

The CTAD solution consists of:

- 0.11 M buffered trisodium citrate solution
- 15 M theophylline
- 3.7 M adenosine
- 0.198 M dipyridamole

The pH value is 5.0.

The additives act directly on the platelets and inhibit the platelet factor 4.

BD Vacutainer® CTAD Tubes are ideal for patients undergoing anticoagulant therapy, but it can also be used for routine coagulation analysis.

### Centrifugation conditions:

1500 g for 15 minutes at 18-25°C

### Studies

Studies are available on request.

### BD Vacutainer® CTAD Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
367599	4.5	13x75	CTAD	Glass	Paper	BD Hemogard™	Blue

All tubes are supplied in boxes of 100 / cases of 1000





# Venous blood sampling

## Crossmatch

### BD Vacutainer® Crossmatch Tubes

BD Vacutainer® Crossmatch Tubes are available in plastic EDTA and plain clot activator tubes. The BD Vacutainer® Crossmatch tube is identified by:

- a pink cap
- large block label



### BD Vacutainer® Crossmatch Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366164	4	13x75	K <sub>2</sub> EDTA (Spray)	PET	Block	BD Hemogard™	
367941	6	13x100	K <sub>2</sub> EDTA (Spray)	PET	Block	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

### BD Vacutainer® EST™ Tubes

BD Vacutainer® EST™ Tubes have no additives and is suitable as a secondary tube for anti-coagulated blood samples, for example for taking plasma samples from blood bags. The EST can also be used as a discard tube.

### BD Vacutainer® EST Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
362725	3	13x75	No additive	PET	See through	BD Hemogard™	

# Venous blood sampling

## Trace element

### Trace element determination

BD Vacutainer® Tubes for the analysis of trace elements have controlled amounts of trace elements. Maximum concentrations are defined for the trace elements antimony, arsenic, lead, chromium, iron, cadmium, calcium, copper, magnesium, manganese, mercury, selenium and zinc that could be extracted by blood from the tube itself or the stopper.

Every production batch is checked and only released if the given maximum value is not exceeded. The values given take into account the use of a standard BD needle.

Analyte	Glass µg/l	PET µg/l	Analyte	Glass µg/l	PET µg/l
Antimony	0.8	-	Copper	8.0	5.0
Arsenic	1.0	0.2	Magnesium*	60	40
Lead	2.5	0.3	Manganese	1.5	1.5
Chromium	0.9	0.5	Mercury**	-	3.0
Iron	60	25	Selenium	-	0.6
Cadmium	0.6	0.1	Zinc*	40	40
Calcium*	400	150			

The maximum values were determined by aqueous extraction of the sealed tube by atomic absorption spectrometry (AAS).

\* Determined using heat, \*\* Cold vapour, remainder without heat

### BD Vacutainer® Tubes for trace element determination

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
368380	6	13x100	Coagulation activator	PET	Paper	BD Hemogard™	
368381	6	13x100	K <sub>2</sub> EDTA	PET	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

### Blood group determination

The anti-coagulant ACD (Acid Citrate Dextrose/Glucose) is used for the conservation of erythrocytes. ACD exists in two forms: Solutions A and B, each with different mixture ratios.

	ACD solution A	ACD solution B
Na <sub>3</sub> citrate	3.3 mg/mL	1/89 mg/m
Citric acid	1.2 mg/mL	0.69 mg/m
Glucose	3.68 mg/mL	2.1 mg/mL
Potassium sorbate	0.03 mg/mL	0.03 mg/mL

The figures represent the final concentration in the blood in each case.



### BD Vacutainer® Tubes for blood group determination

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366645	8.5	16x100	ACD Solution A	Glass	Paper	Conventional	
367756	6	13x100	ACD Solution B	Glass	Paper	BD Hemogard™	

All tubes are supplied in boxes of 100 / cases of 1000

### BD Vacutainer® Seditainer™ Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366676	1.8	8x100	Sodium Citrate	Glass	Block	Conventional	Black
367740	1.6	13x75	Sodium Citrate	Glass	Block	BD Hemogard™	Black

### BD Seditainer™ System

The BD Seditainer™ Tubes are designed for ESR determination without the use of sedimentation pipettes. The blood is taken directly into the BD Seditainer™ Tubes and mixed by inversion 8-10 times. Immediately before the tubes are placed in the BD Seditainer™ Manual ESR stand for measurement, the tubes must be mixed again. After one or two hours the results are read. The BD Seditainer™ Stand holds a maximum of 10 BD Seditainer™ Tubes and has a height adjustable zero mark. The measurement results achieved correspond to the Westergren method.



### BD Vacutainer® Seditainer™ Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366671	5	10.25x120	Sodium Citrate	Glass	Block	BD Hemogard™	Black

All tubes are supplied in boxes of 100 / cases of 1000

### BD Vacutainer® Seditainer™ Manual ESR stand

Cat No.	Description	Quantity
366016	BD Seditainer™ Manual ESR Stand	1

### BD CPT™ System (Cell Preparation Tube)

The BD CPT™ Tube provides a single-step, standardised method for the isolation of Peripheral Blood Mononuclear Cells (PBMCs) - lymphocytes and monocytes from whole blood. In a single process step up to 15 million PBMCs can be isolated within 20 minutes. The BD CPT™ Tube enables:

- **Sample preparation yield and consistency**
  - Standardised process when compared to manual FICOLL™ gradient separations
  - Reproducibility between sample preparations and technical operators.
- **Separations**
  - No need to prepare FICOLL™ gradients
  - Optimises processing time with less manipulation of the sample.
- **Isolation of cells**
  - Limits risk of cellular contamination with the cells enclosed in the sterile BD Vacutainer® tube.

The BD CPT™ Tube is CE marked for *in vitro* diagnostic use.

### Studies

Studies are available on request.

### Centrifuging conditions:

1500-1800 g for 15 minutes at 18-25°C

### BD Vacutainer® CPT™ Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
362781	4	13x100	Sodium Citrate/FICOLL™	Glass	See through	Conventional	Blue
362782	8	16x125	Sodium Citrate/FICOLL™	Glass	See through	Conventional	Blue
362780	8	16x125	Sodium Heparin/FICOLL™	Glass	See through	Conventional	Red

\*FICOLL is a registered trademark of GE Healthcare Companies.

All tubes are supplied in boxes of 60





# Cell and biomarker preservation

## BD PPT™ blood collection tubes

### BD PPT™ System (Plasma Preparation Tube)

The BD PPT™ Tube is used for the separation of undiluted plasma from whole blood for molecular diagnostic test methods. These methods include, but are not limited to, Polymerase chain reaction (PCR) or branched DNA (bDNA) amplification techniques. The BD PPT™ Tube is also applicable to other MDx analysis where an undiluted plasma specimen is required. The BD PPT™ Tube ensures:

- **Handling of infectious samples**

The user is not exposed to blood samples enclosed in the BD Vacutainer® Tube. Plasma is prepared in the closed BD Vacutainer® Tubes that can be directly transported, eliminating the need for aliquoting from primary BD Vacutainer® Tube to secondary container and re-labelling.

- **Plasma quality is maintained**

The gel barrier prevents plasma from coming in contact with red blood cells to maintain stability of the plasma. Viral load will be stable for:

- 6 hours - whole blood at room temperature
- 24 hours - separated plasma at room temperature
- 5 days - separated plasma refrigerated at 4°C.

Plasma may be stored frozen *in situ* in the BD PPT™ Tube. However, freezing plasma *in situ* in BD PPT™ Tubes may be prohibited for some assays and the assay manufacturer's guidelines should be consulted.

The BD PPT™ Tube is CE marked for *in vitro* diagnostic use.



### Studies

Studies are available on request.

### Centrifuging conditions:

1100 g for 10 minutes at 18-25°C

### BD Vacutainer® PPT™ Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
362795	5	13x100	K <sub>2</sub> EDTA/Gel	Plastic	See through	BD Hemogard™	<input type="checkbox"/>
362791	5	13x100	K <sub>2</sub> EDTA/Gel	Plastic	Paper	BD Hemogard™	<input type="checkbox"/>

All tubes are supplied in cases of 100

# Cell and biomarker preservation

## PAXgene® Blood RNA System

### PAXgene® Blood RNA System

The PAXgene® Blood RNA tube is a development of PreAnalytiX, the joint venture between QIAGEN and BD. The PAXgene® Blood RNA system consists of the PAXgene® Blood RNA tube and PAXgene® Blood RNA kits available from QIAGEN.

The PAXgene® Blood RNA tube contains a proprietary reagent that immediately stabilises all intracellular RNA (mRNA and sRNA). The PAXgene® RNA tube ensures:

- **Immediate stabilisation of intracellular RNA in whole blood.**

The intracellular RNA will be stable for:

- 3 days – whole blood at room temperature (18-25°C)
- 5 days – whole blood refrigerated (2-8°C)
- 60 months – whole blood frozen (-20 and -70°C).

- **RNA yield**

The yield, dependent upon the sample, is  $\geq 3 \mu\text{g}$  for >95% of the samples (healthy subjects with a leukocyte count of  $4.8 - 11 \times 10^6/\text{mL}$ ).

- **RNA quality**

The  $A_{260}/A_{280}$  quotient is 1.8-2.2 for 95% of all samples. Genomic DNA contamination is  $\leq 1\%$  in  $\geq 95\%$  of all samples.

- **Stabilisation of miRNA**

The PAXgene® Blood miRNA Kit, for manual or automatic purification of miRNA after blood collection with a PAXgene® Blood RNA tube, is available from QIAGEN.



For more information please visit [www.PreAnalytiX.com](http://www.PreAnalytiX.com). The PAXgene™ Blood RNA system is CE marked for *in vitro* diagnostic use.

### Studies

Studies are available on request.

### PAXgene® Blood RNA tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
762165	2.5	16x100	Proprietary	Plastic	Paper	BD Hemogard™	<input type="checkbox"/>

All tubes are supplied in cases of 100

\*PAXgene® is a trademark of PreAnalytiX GmbH

# Cell and biomarker preservation

## PAXgene® Blood DNA System

### PAXgene® Blood DNA System (IVD)

The PAXgene® Blood DNA System (IVD) is a development of PreAnalytiX, the joint venture between QIAGEN and BD. The performance of the PAXgene® Blood DNA System has been verified with automated and manual DNA isolation kits available from QIAGEN using magnetic bead, silica membrane and precipitation technologies.

The PAXgene® Blood DNA Tube contains a proprietary EDTA formulation that immediately stabilises intracellular DNA. The PAXgene® Blood DNA Tube ensures sufficient DNA quantity and quality for molecular diagnostic assays that require DNA from whole blood.

### Documented DNA stability and performance data.

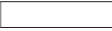
DNA samples purified from the 2.5mL draw volume tube will have a purity ( $A_{260}/A_{280}$ ) of 1.7-1.9 and a DNA concentration of  $\geq 12.5\text{ng DNA}/\mu\text{l}$  eluate for 95% of samples and ensure DNA stability after blood collection for:

- 14 days at room temperature (18-25°C)
- 28 days refrigerated (2-8°C)
- 3 days at 35°C

### Increased traceability

The PAXgene® Blood DNA Tube (IVD) has human readable and bar-coded information on the label. Each tube has a unique identification code that can be associated to the patient blood specimen, which can potentially avoid expensive tube labelling.

## PAXgene™ Blood DNA Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
761165	2.5	13x100	K <sub>2</sub> EDTA	Plastic	Paper	BD Hemogard™	

All tubes are supplied in cases of 100



### Complete solution for all laboratory sample throughputs

The world leaders in blood biomolecular stabilisation and isolation of DNA can provide a complete workflow solution optimised to your laboratory.

The PAXgene™ Blood DNA System (IVD) is CE marked for *in vitro* diagnostic use.

# Cell and biomarker preservation

## BD™ P100 for stabilising proteins

### BD™ P100 System (Plasma Protein Preservation tube)

The BD™ P100 Tube is a plasma protein preservation tube that contains K<sub>2</sub>EDTA anticoagulant and a broad spectrum protease inhibitor cocktail optimised for human blood. The BD™ P100 Tube also features a novel mechanical separator which provides high quality plasma suitable for many downstream protein analysis platforms including mass spectrometry and immunoassays.

The blend of broad spectrum proteases inhibitors in the BD™ P100 Tube has been specifically developed and optimised for human plasma to ensure the broadest range of plasma proteins are stabilised.

The innovative separator provides a solid barrier between plasma and cellular material, ensuring a significant reduction in cellular contamination to further increase the stability of the plasma proteins.

### Centrifugation:

For best sample quality the centrifugation of the BD™ P100 Tube should be performed as soon as possible after the blood sample has been collected.


Optimum centrifugation conditions:  
2500 g for 20 min.

(Swing-out rotor or fixed rotor with 45° angle)

If 2500 g cannot be achieved:

- 1600 g for 30 min. or
- 1100 g for 30 min.

## BD™ P100 Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366448	8.5	16x100	K <sub>2</sub> EDTA/Protease Inhibitor	PET	Paper	BD Hemogard™	

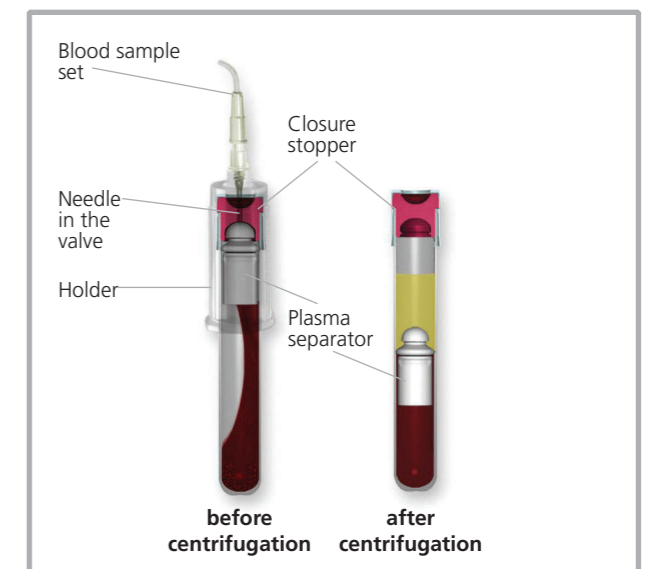
All tubes are supplied in boxes of 24

The BD™ P100 Plasma Protein Tube is for research use only. Not for use in diagnostic procedures. No claim or representation is intended to provide information for the diagnosis, prevention or treatment of a disease.

### Studies

Studies are available on request.

### Mechanical plasma separator





# Cell and biomarker preservation

BD™ P700 and BD™ P800


## BD™ P700 system (Plasma GLP-1 Preservation tube)

The BD™ P700 Tube is a plasma protein preservation tube that contains a proprietary dipeptidyl peptidase IV (DPP-IV) inhibitor that immediately solubilises during blood collection. The BD™ P700 Tube provides protection and preservation of Glucagon Like Peptide I (GLP-1). GLP-1 is a peptide associated with metabolic diseases, such as Type II Diabetes. GLP-1 is a target of the DPP-IV enzyme and thus

quantitation of GLP-1 in plasma is not reliable without the use of a DPP-IV inhibitor.

The BD™ P700 Tube is for research use only. Not for use in diagnostic procedures. No claim or representation is intended to provide information for the diagnosis, prevention or treatment of a disease.

## BD™ P700 Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366473	3.0	13x75	K <sub>2</sub> EDTA/Proprietary DPP-IV Protease Inhibitor Cocktail	PET	Paper	BD Hemogard™	

All tubes are supplied 10 per foil pouch, 2 foil pouches per kit

## BD™ P800 System (Plasma GLP-1, GIP, Glucagon & Ghrelin Preservation Tube)

The BD™ P800 Tube is a plasma protein preservation tube that contains a proprietary cocktail of protease, esterase and dipeptidyl peptidase IV (DPP-IV) inhibitors that immediately solubilises during blood collection. The BD™ P800 Tube provides preservation of the Incretin peptides released during feeding - Glucagon Like Peptide I (GLP-1), Gastric Inhibitory Peptide (GIP), Glucagon and Ghrelin. The Incretin peptides are associated with metabolic diseases, such as Type II Diabetes and obesity.

to provide information for the diagnosis, prevention or treatment of a disease.

### Stability

The stability of the peptides in BD™ P800 Tubes in comparison to BD EDTA Tubes for routine measurements is set out in the following table:

Peptides	T ½ EDTA (h)	T ½ P800 (h)
GLP-1 (7-37)	4-8	> 96
GLP-1 (7-37)	5-23	> 96
GIP (1-42)	~ 5	> 96
Ghrelin	~ 15	> 48-72
Glucagon	~ 5-15	>48

\*Incubated at room temperature

### Centrifuging conditions:



2mL tubes: 1100 - 1300 g for 10 min  
8.5mL tubes: 1100 - 1300 g for 20 min

### Studies

Studies are available on request.

The BD™ P800 Tube is for research use only. Not for use in diagnostic procedures. No claim or representation is intended

## BD™ P800 Tubes

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour
366420	2.0	13x75	K <sub>2</sub> EDTA/Protease, Esterase and DPP-IV Inhibitor	PET	Paper	BD Hemogard™	
366421	8.5	16x100	K <sub>2</sub> EDTA/Protease, Esterase and DPP-IV Inhibitor	PET	Paper	BD Hemogard™	

All tubes are supplied in cases of 100





# Safety blood collection needles

## BD Vacutainer® Eclipse™ Blood Collection Needle

The BD Vacutainer® Eclipse™ Blood Collection needle for venous blood sampling has a fully integrated safety shield over the needle, which once activated protects against needle stick injuries. This safety shield is an integral part of the needle and its orientation corresponds to the needle bevel. This ensures simple taking of the blood sample. The safety mechanism is designed for single handed activation. The fully integrated safety shield engages over the needle with an audible click, irreversibly locking with a triple closure mechanism.



## BD Vacutainer® Eclipse™ Blood Collection Needles



Cat No.	Size	Needle length	Colour code	Box/case
368609	21G (0.8mm)	32mm		48/480
368610	22G (0.7mm)	32mm		48/480

## BD Vacutainer® Eclipse™ Blood Collection Needle with pre-attached holder

With this pre-attached safety needle, the holder is already fitted, so it is not necessary to manually assemble the needle and holder. This ready-for-use blood collection needle and holder is supplied individually in sterile blister packaging.



## BD Vacutainer® Eclipse™ Blood Collection Needles with pre-attached holder

Cat No.	Size	Needle length	Colour code	Box/case
368650	21G (0.8mm)	32mm		100/1000
368651	22G (0.7mm)	32mm		100/1000

## BD Vacutainer® Eclipse™ Signal™ Blood Collection Needle

BD Vacutainer® Eclipse™ Signal™ offers a combination of proven robust safety technology with the additional benefit of improved in-vein confirmation (speed and visibility of flash) resulting in ease of use and confidence during venous blood collection. It also minimises the risk of needle stick injuries during blood collection, thereby increasing both healthcare worker and patient safety.



## BD Vacutainer® Eclipse™ Signal™ Blood Collection Needles with integrated holder

Cat No.	Size	Length	Colour code	Box/case
368835	21G (0.8mm)	32mm		50/400
368836	22G (0.7mm)	32mm		50/400

## BD Vacutainer® Eclipse™ Signal™ Blood Collection Needles

Cat No.	Size	Length	Colour code	Box/case
368837	21G (0.8mm)	32mm		50/400
368838	22G (0.7mm)	32mm		50/400



## BD Vacutainer® Blood Collection Needles

The BD Vacutainer® Multi Sample Blood Collection Needles utilise the BD PrecisionGlide™ Technology to ensure highest quality and needle sharpness, resulting in positive patient and user experience.



## BD Vacutainer® Multi Sample Blood Collection Needles

Cat No.	Size	Needle length	Colour	Box/case
360214	20 (0.9mm)	25mm		100/1000
360215	20 (0.9mm)	38mm		100/1000
360212	21 (0.8mm)	25mm		100/1000
360213	21 (0.8mm)	38mm		100/1000
360210	22 (0.7mm)	25mm		100/1000
360211	22 (0.7mm)	38mm		100/1000

## BD Vacutainer® Flashback Needle

Cat No.	Size	Needle length	Colour coding	Box/case
301746	21 (0.8mm)	25mm		50/1000
301747	22 (0.7mm)	25mm		50/1000
301748	22 (0.7mm)	32mm		50/1000

## BD Vacutainer® Single Sample Needle

Cat No.	Size	Needle length	Colour coding	Box/case
360747	18 (1.3mm)	25mm		100/1000
360748	18 (1.3mm)	38mm		100/1000

## Safety blood collection sets

### BD Vacutainer® Push Button Blood Collection Set

The BD Vacutainer® Push Button Blood Collection Set with in-vein activation offers split-second protection for that single moment which could potentially change your life. The push-button safety mechanism assists in protecting you against needle stick injury.

- Protection against needle injuries:  
On pressing the button, the needle is withdrawn straight from the vein and disappears permanently inside the housing of the blood collection set. This provides an extremely high level of protection against needle injuries.
- Single hand activation possible:  
The activation of the safety mechanism with a single hand allows greater attention to be paid to the patient and the venepuncture site.
- Indication of successful venepuncture:  
When the vein has been penetrated, blood flows immediately into the flashback chamber.
- Versatile:  
For taking blood samples and for short-term infusions of up to two hours.



### BD Vacutainer® Push Button Blood Collection Sets

Cat No.	Size	Needle length	Length of tube	Luer adapter	Colour coding	Box/case
367326	21G (0.8mm)	19mm	305mm	None		50/200
367324	23G (0.6mm)	19mm	305mm	None		50/200
367323	25G (0.5mm)	19mm	305mm	None		50/200
367338	21G (0.8mm)	19mm	178mm	With		50/200
367336	23G (0.6mm)	19mm	178mm	With		50/200
367335	25G (0.5mm)	19mm	178mm	With		50/200
367344	21G (0.8mm)	19mm	305mm	With		50/200
367342	23G (0.6mm)	19mm	305mm	With		50/200
367341	25G (0.5mm)	19mm	305mm	With		50/200

## Safety blood collection sets

### BD Vacutainer® Push Button Blood Collection Set with pre-attached holder

With the pre-attached products, the holder is already fitted, so it is not necessary to manually assemble the needle and holder. The sterile closed system comes individually blister packed to minimise the risk of contamination of blood cultures. It is ideally suited for the taking of samples using the BD Bactec™ Blood Culture Bottles.



### BD Vacutainer® Push Button Blood Collection Sets with pre-attached holder

Cat No.	Size	Needle length	Length of tube	Colour coding	Box/case
367355	21G (0.8mm)	19mm	178mm		20/100
367354	23G (0.6mm)	19mm	178mm		20/100
368657	21G (0.8mm)	19mm	305mm		20/100
368658	23G (0.6mm)	19mm	305mm		20/100









## BD Vacutainer® Safety-Lok™ Blood Collection Set

BD Vacutainer® Safety-Lok™ Blood Collection Sets are sterile closed systems for venous blood collection. The safety mechanism is designed to help prevent needle stick injuries.

- Protection against needle injuries:  
Following successful venepuncture, the integrated safety shield is pushed over the needle, surrounding it completely. It engages irreversibly with an audible click over the needle.
- Single hand activation possible:  
The activation of the safety mechanism with a single hand allows greater attention to be paid to the patient and the venepuncture site.
- Versatile:  
For taking blood samples and for short-term infusions of up to two hours.



## BD Vacutainer® Safety-Lok™ Blood Collection Sets



Cat No.	Size	Needle length	Length of tube	Luer adapter	Colour coding	Box/case
367246	21G (0.8mm)	19mm	305mm	None		50/200
367247	23G (0.6mm)	19mm	305mm	None		50/200
368383	25G (0.5mm)	19mm	305mm	None		50/200
367282	21G (0.8mm)	19mm	178mm	With		50/200
367286	21G (0.8mm)	19mm	305mm	With		50/200
367284	23G (0.6mm)	19mm	178mm	With		50/200
367288	23G (0.6mm)	19mm	305mm	With		50/200
367295	25G (0.5mm)	19mm	178mm	With		50/200
368382	25G (0.5mm)	19mm	305mm	With		50/200

## BD Vacutainer® Safety-Lok™ Blood Collection Set with pre-attached holder

With the pre-attached products, the holder is already fitted, so it is not necessary to manually assemble the needle and holder. The sterile closed system comes individually blister packed to minimise the risk of contamination of blood cultures. It is ideally suited for the taking of samples using the BD Bactec™ Blood culture Bottles.



## BD Vacutainer® Safety-Lok™ Blood Collection Sets with pre-attached holder

Cat No.	Size	Needle length	Length of tube	Colour coding	Box/case
368652	21G (0.8mm)	19mm	305mm		25/200
368653	23G (0.6mm)	19mm	305mm		25/200

# Accessories

## Adapter and holder

### BD Vacutainer® Tube Holders, BD Luer Adapters and Adapters with pre-attached holders

**1** The BD Vacutainer® Blood Transfer Device is a pre-assembled and easy-to-use device designed with safety in mind. It is used for needleless specimen transfer from a syringe to an evacuated tube or blood culture bottle and has a red colour-coded connection to provide easy differentiation from other holder based products.

**2** The BD Vacutainer® Luer-Lok™ Access Device is a preassembled multisample BD Luer-Lok™ and holder which is compatible with female luer connections or IV ports designed for luer access and has a blue colour-coded connection to provide easy differentiation from other holder based-products.

**3** BD Vacutainer® Holders are compatible with all BD Vacutainer® Tubes and Needles, including BD Eclipse™ Blood Collection Needles, BD Safety-Lok™ Blood Collection Sets and BD Push Button Blood Collection Sets. BD Vacutainer® Holders are also compatible with BD BACTEC™ Blood Culture Bottles.



**4** BD Vacutainer® Luer Adapters are sterile devices with a multi-sampling valve and are designed for use with a catheter to collect blood with BD Vacutainer® Blood Collection Tubes. They are also ideal for use with any female luer fitting.

### BD Vacutainer® Luer Adapter

Cat No.	Description	Colour coding	Box/case
367300	BD Vacutainer® Luer Adapter		100/1000

### BD Vacutainer® holder

Cat No.	Description	Box/case
364815	BD Vacutainer® One Use Holder	250/1000
364879	BD Vacutainer® Re-usable Holder	250/1000
368872	BD Pronto™ Quick Release Holder	20/1000

### BD Luer adapters with pre-attached holders

These single use products are ready-to-use, sterile, individually blister packaged holders, with the Luer adapter ready fitted.

Cat No.	Description	Colour	Box/case
364902	BD Vacutainer® Luer-Lok™ Access Device ("male Luer")		100/200
364880	BD Vacutainer® Blood Transfer Device ("female Luer")		100/200

# Accessories

### BD Vacutainer® Stretch Tourniquet

BD offers the BD Vacutainer® Stretch Tourniquet which is latex-free. A study found that blood contamination of tourniquets was common, occurring in 31% of tourniquets examined<sup>1</sup>. A single-use tourniquet will minimise the risk of infection to healthcare workers and patients. The BD Vacutainer® Stretch Tourniquet is packaged in an easy-to-use dispenser which is also convenient for storage purposes.

1. Forester G, Joline C, Wormser GP. Blood Contamination of tourniquets used in routine phlebotomy. Am J Inf Control 1990; 18:386-90



### Tourniquet

Cat No.	Description	Box/case
367204	Single use tourniquet, latex-free, 25 tourniquets in one packaging unit, perforated for separation without other equipment	25/500

### DIFF-SAFE®

BD Preanalytical Systems offers the DIFF-SAFE® Blood Dispenser for preparing blood slides from a blood collection tube.

### Blood dispenser

Cat No.	Description	Colour coding	Box/case
366005	DIFF-SAFE®** Blood Dispenser		100/1000

\*DIFF-SAFE® is a registered trademark of Alpha Scientific Corporation.

# Capillary blood sampling

## Safety lancets

### Finger tip sampling

The ergonomic design of the BD Microtainer® Contact-Activated Lancet enables it to be held securely and the sampling point precisely located.

Its intuitive handling requires minimum training. The Lancet is activated by being pressed onto the sampling location. The sharp point then retracts automatically into the housing. (Single use)

This lancet is available in three sizes: for a single drop of blood, and for a medium or large flow of blood. The sampling depth is predefined in each case and cannot be altered by the user.



A study has shown that this lancet causes significantly less pain than comparable products.<sup>1</sup>

### BD Microtainer® Contact-Activated Lancets

Cat No.	Piercing width and depth	Blood volume	Colour	Box/case
366592	30G x 15mm	One drop		200/2000
366593	21G x 1.8mm	Medium blood flow		200/2000
366594	21G x 1.5mm	Large blood flow		200/2000

### Heelstick sampling

The BD Microtainer® QuikHeel™ safety single-use incision lancet is for taking capillary blood samples from the heels of premature and new-born babies, and infants. When the button is pressed, an extra thin steel blade provides a fine, clean, surgical cut and ensures a good flow of blood. The penetration depth is predetermined to protect against bone infections and cannot be altered. The permanently shielded blade excludes the possibility of injury, or reuse.



The ergonomic design enables it to be held securely and the piercing point precisely located. The incision lancets are sterile and individually packed in blister packaging.

### BD Microtainer® QuikHeel™ incision lancets

Cat No.	Description	Piercing depth	Piercing width	Colour	Box/case
368102	Incision lancet for premature babies	0.85mm	1.75mm		50/200
368103	Incision lancet for newborn babies and infants	1mm	2.5mm		50/200

# Capillary blood sampling

## BD Microtainer® MAP Tubes

### Process optimisation for capillary blood samples

The BD Microtainer® MAP Tube for automated processing enables efficient workflow, both on the ward and in the laboratory.

- The first capillary blood tube with standard blood collection tube dimensions (13 x 75mm) and penetrable closure.
- Compatible with haematology analysers without the need for a tube adapter.
- Three clearly visible fill markings ensure the correct sample volume (250-500µL).
- A standard label can be attached directly to the sample, minimising the risk of misidentification due to missing or incomplete labelling.



- Easy to open with twist locking mechanism that ensures no leakage.
- Colour marking for identification of the type of sample and the correct positioning of the patient label.

### BD Microtainer® MAP Tube

Cat No.	Description	Closure	Cap colour	Box/case
363706	EDTA tube for blood profile analysis with 1.0 mg K <sub>2</sub> EDTA, dimensions 13 x 75mm	BD Microgard™		200/200



1. BD Clinical White Paper V57499 – A Comparison of BD Microtainer® Contact-Activated Lancet (Low Flow, purple) with BD Microtainer® Genie™, LifeScan OneTouch® SureSoft™ Gentle, and SurgiLance™ One-Step PLUS Safety Lancets for Comfort, Ease of Use and Blood Volume.



# Capillary blood sampling

## BD Microtainer® Tubes

### BD Microtainer Tubes®

BD Microtainer® Tubes are for collection, transport and processing of capillary or venous blood from infants, children, geriatrics and emergency patients, whenever only the smallest amounts of blood are required.

In order to ensure tube identification, the tubes are marked with the colour code that corresponds to the venous blood collection tubes. There are fill marks on the tubes that ensure the correct blood to anti-coagulant ratio.

### BD Microgard™ closure

The special design of the BD Microgard™ Closure substantially reduces blood splashing after the tube has been opened.









A larger diameter facilitates handling of the tube.

In combination with a tube extender, the BD Microtainer® Tubes with Microgard™ Closure fit into 13 x 75mm racks.

#### Fill volume

Haematology tubes:	250–500 µL
Serum tubes, without additive:	according to requirement
Serum tubes, without separating gel:	according to requirement
Serum tubes, with separating gel and UV protection:	according to requirement
Plasma tubes:	200-400 µL
Plasma tubes with separating gel:	400-600 µL
Glucose tubes:	400-600 µL

### BD Microtainer® Tubes with Microgard™ Closure

Cat No.	Description	Closure	Cap colour	Box/case
365964	Serum tubes with coagulation activator	BD Microgard™		200/200
365968	Serum tubes with separating gel	BD Microgard™		200/200
365979	Serum tubes with separating gel and UV protection (coloured for sensitive tests e.g. bilirubin)	BD Microgard™		200/200
365966	Plasma tubes with lithium heparin	BD Microgard™		200/200
365986	Plasma tubes with separating gel and lithium heparin	BD Microgard™		200/200
365988	Plasma tubes with separating gel, lithium heparin and UV protection (coloured for sensitive tests e.g. bilirubin)	BD Microgard™		200/200
365975	EDTA tubes for blood profile analysis with 0.8 mg K <sub>2</sub> EDTA	BD Microgard™		200/200
365993	Glucose tubes with sodium fluoride and Na <sub>2</sub> EDTA	BD Microgard™		200/200
368933	BD Microtainer® Tube Extender for attachment to all BD Microtainer® Tubes with Microgard™ Closure (10mm diameter)			50/200

# BD Critical Care blood collection syringes

## BD blood gas syringes



BD Critical Care Collection syringes can be used to collect blood from a patient's artery. They contain spray-dried calcium-balanced Lithium Heparin that enables the specimen to be analysed for Arterial Blood Gases (ABGs) and a host of critical care analytes.

### BD A-Line™ Blood Gas Syringes

BD A-Line™ syringes are used for blood collection by manual aspiration. They can be used for arterial blood collection from an arterial line, and are available in 1mL slip tip, 3mL slip tip and 3mL BD Luer-Lok™ Syringes.

### BD A-Line™ Blood Gas Syringes

Cat No.	Syringe volume (mL)	Recommended fill volume (mL)	Units of heparin* (IU)	Gauge	Needle length	Connection	Closure cap
364356	1	0.6	30	-	-	Luer	-
364378	3	1.6	80	-	-	Luer-Lok™	BD Hemogard™
364376	3	1.6	80	-	-	Luer	-

Syringes supplied in cases of 100

# Arterial blood sampling

## BD blood gas syringes

### BD Preset™ Blood Gas Syringe

BD Vacutainer® Preset™ Syringes are used for critical care testing on venous or arterial whole blood. The syringe plunger can be preset to the recommended volume. As arterial blood fills the syringe, the residual air is expelled through the self-venting membrane.

### BD Preset™ Blood Gas Syringes without needle

Cat No.	Syringe volume (mL)	Recommended fill volume (mL)	Units of heparin* (IU)	Gauge	Needle length	Connection	Closure cap
364416	1	0.6	30	-	-	Luer	-
364316	3	1.6	80	-	-	Luer-Lok™	Hemogard™

Syringes supplied in cases of 100

### BD Preset™ Safety Blood Gas Syringe

BD Critical Care Collection syringes are available with the BD Eclipse™ safety-engineered device, offering enhanced safety for the healthcare worker. The safety shield is integrated and is not an accessory to the needle. The needle bevel and safety shield are in alignment, ensuring no extra manipulation. The single-handed technique ensures no change in the collection technique and the double-locking mechanism is both visually and audibly confirmed for the healthcare worker.



### BD Preset™ Blood Gas Syringes with Needle

Cat No.	Syringe volume (mL)	Recommended fill volume (mL)	Units of heparin* (IU)	Gauge	Needle length	Connection	Closure cap
364390	3	1.6	80	22G (0.7mm) BD Eclipse™	25mm	Luer-Lok™	BD Hemogard™
364391	3	1.6	80	23G (0.6mm) BD Eclipse™	25mm	Luer-Lok™	BD Hemogard™

\* Spray dried, calcium balanced lithium heparin

Syringes supplied in cases of 100

### Studies

Studies are available on request.

# Urine collection products

### BD Vacutainer® Urine Collection System

BD Vacutainer® Urine Collection System is a standardised and hygienic system that can be used right where the sample is taken. It provides both patient and user with the advantages of a closed system that will provide reliable diagnostic results.

For urinalysis, BD offers a wide range of tube volumes for all patient types, with or without preservative, to be used with BD collection devices, specimen cups, 24 hour 3L containers and transfer straws.

For microbiology determinations, BD also offers a wide range of tube volumes for all patient types with boric acid based preservative tubes, all clinically validated for 48 hour specimen stability at room temperature<sup>1,2,3</sup>. Once sampled from the various patient collection sites, the BD leak proof evacuated urine tubes can be safely transported to the laboratory for analysis. The BD Vacutainer® Closed Urine Collection System is designed to provide accurate patient results with reduced risk of healthcare worker exposure to hazardous specimens.



### BD Vacutainer® tubes for urinalysis

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour	Box/case
364938	10	16x100	Without additive	PET	Paper	Conventional	Yellow	100/1000
364992	8	16x100	Stabiliser* mercury free	PET	Paper	Conventional	Yellow/Red	100/1000
365000	9.5	16x100	Without additive	PET	Paper	BD Hemogard™	Orange	100/1000
368501	6	13x100	Without additive	PET	Paper	BD Hemogard™	Orange	100/1000
368500	4	13x75	Without additive	PET	Block	BD Hemogard™	Orange	100/1000
364915	11	16x100	Without additive	PET	Block	BD Hemogard™	Orange	100/1000
365017	8	16x100	Stabiliser* mercury free	PET	Paper	BD Hemogard™	Yellow	100/1000

\* With stabiliser (chlorhexidine, ethyl paraben and Na propionate)

1. Kouri T, Vuotari L, Pohjavaara S, Laippala P. Preservation of Urine for Flow Cytometric and Visual Microscopic Testing. *Clin. Chem.*, Jun 2002; 48: 900-905  
 2. BD White Paper VS7097: Evaluation of BD Vacutainer® Urine Culture & Sensitivity PLUS Tube vs. Refrigerated BD Vacutainer® Non-Additive PLUS Tube for Microbiological Testing - Seeded Urine, 2003  
 3. BD White Paper VS7099: Evaluation of BD Vacutainer® Urine Culture & Sensitivity PLUS Tube vs. BD Vacutainer® Urine Culture & Sensitivity Glass Tube for Microbiological Testing - Patient Urine, 2003

## Foley Catheter Collection

Cat No.	Description	Box/case
364902	BD Vacutainer® Luer-Lok™ Access Device for Bard® EZ-Lok™ Sampling Port	50 Box/ 200 Case

## BD Vacutainer® Urine Tubes for microbiology

Cat No.	Volume (mL)	Size (mm)	Specification	Material	Label	Closure cap	Cap colour	Box/case
364958	4	13x75	Stabiliser**	PET	Paper	BD Hemogard™		100/1000
364955	10	16x100	Stabiliser**	PET	Paper	BD Hemogard™		100/1000
364944*	10	16x100	Stabiliser**	PET	Paper	BD Hemogard™		50/200
364959*	4	13x75	Stabiliser**	PET	Block	BD Hemogard™		50/200

\* Includes urine transfer straw

\*\* Stabiliser for microbiological investigations consisting of boric acid, sodium formate and sodium borate, up to 48 hours stabilisation of bacteria growth at room temperature.

## BD Vacutainer® urine collection containers and transfer units

Cat No.	Description	Box/case
364941	Polypropylene urine beaker with screw closure and integrated transfer unit, capacity 120mL, internally sterile	200/200
364982	Coloured polypropylene 24 hour collection container for the protection of sensitive analytes, with screw closure and integrated urine transfer unit, capacity 3 litres, with scale for volume checking	40/40
364940	Specimen transfer straw	100/1000

## Studies

Studies are available on request.

The CE mark, signifying compliance with the European IVD MD Directive, 98/79/EC or the MD Directive 93/42/EEC.			
REF	Catalogue or re-order number	LOT	Lot number or batch number
	Use by, expires		Use once or do not reuse
	Sterilised by moist heat		Sterilised by irradiation
	"Caution" - consult instructions for use for important cautionary information		Sterilised by Ethylene Oxide gas
	Keep away from sunlight (may show temperature range)		Protect from any light source
	Fragile		Storage temperature range
	This way up		Recycle
	Date of manufacture		Serial number
	Latex free		Keep dry
	Manufacturer		In vitro diagnostic medical device
	Consult instructions for use		Authorised representative in the EU community

<b>K2E</b>	EDTA - Dipotassium salt
<b>K3E</b>	EDTA - tripotassium salt
<b>N2E</b>	EDTA - disodium salt
<b>9NC</b>	Trisodium citrate 9:1
<b>4NC</b>	Trisodium citrate 4:1
<b>FX</b>	Fluoride/Oxalate
<b>FE</b>	Fluoride/EDTA
<b>FH</b>	Fluoride/Heparin
<b>LH</b>	Lithium Heparin
<b>NH</b>	Sodium Heparin
<b>Z</b>	None (no additive)

The abbreviations used in this catalogue have the following meanings:  
 PU = Packaging unit  
 G = Gauge  
 RT = Room temperature  
 RCF = Relative centrifugal force = g-number



# BD Vacutainer® Blood Collection Tubes

Catalogue Numbers at a glance

Type	Additive	Size mm	1.6mL	1.8mL	2mL	2.7mL	3mL	3.5mL	4mL	4.5mL	5mL	6mL	8mL	8.5mL	10mL
Serum	Clot Activator (Silica Particles)	13 x 75			368493				369032						
		13 x 100										367837			
		16 x 100													
BD SST™ II	Clot Activator (Silica Particles) with Gel	13 x 75						367956							
		13 x 100									367954				
		16 x 100												367958	
RST	Thrombin with Gel	13 x 100									368774				
Plasma	Li Heparin	13 x 75			368494				367883						
	Na Heparin														
	Li Heparin	13 x 100										367885			
	Na Heparin	13 x 100										367876			
	Na Heparin	16 x 100													
BD PST™ II	Li Heparin with Separating Gel	13 x 75					367373								
		13 x 100								367375					
		16 x 100											367377		
Blood Profile/ Haematology	K <sub>2</sub> EDTA	13 x 75					367838		367839						
		13 x 100										367873			
		16 x 100													367525
	K <sub>3</sub> EDTA	13 x 75			367836										
Coagulation	0.109 M Na Citrate	13 x 75		363093		363095									
	CTAD	13 x 75									367599*				
Glucose and Lactate	Na Fluoride K <sub>2</sub> EDTA	13 x 75			368520										
	Na Fluoride K Oxalate	13 x 75			367934				367835						
	Na Fluoride K Oxalate	13 x 100									368201				
Crossmatch	EDTA	13 x 75							366164						
	EDTA	13 x 100										367941			
Trace Element	Serum	13 x 100										368817			
	Clot Activator	13 x 100										368380			
Blood Group	K <sub>2</sub> EDTA	13 x 100										368381			
	ACD Solution B	13 x 100										367756*			
Secondary or Disposable Tube	ACD Solution A	16 x 100												366645*	
	None	13 x 75					362725								
ESR	ESR	8 x 100	367740	366676											
		10.25 x 120													366671*
		10.25 x 120													

\* Glass tube



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