

# **Sedia™Asanté™ Dried Blood Specimen Collection Strips**

## **Name and Intended Use**

The Asanté™ Dried Blood Specimen Collection Strip (“DBS Strip”) is intended for the collection, transport, storage, testing and archiving of blood specimens, including finger stick blood or venous blood, serum or plasma. Applications include blood specimen collection for analysis of antibodies, proteins, DNA and other biomarkers. The DBS Strips may be used for DNA/RNA molecular studies, pharmacokinetic studies, forensic studies, and immunologic studies. The collection pad on the DBS Strip is designed to minimize non-specific binding of such target analytes and is suitable for elution with deionized water or mild buffer solutions in most cases.

Collection of other biological specimens such as buccal cells, other animal or plant tissue, cultured cells, and microorganisms may also be possible with the DBS Strips. However, these applications have not been evaluated by Sedia and should be validated by the user prior to use.

## **Materials Available**

The Asanté™ Dried Blood Specimen Collection Strip is available in three (3) strip sizes. Additional accessories are also available:

<u>Catalog Number</u>	<u>Size of DBS Strip Sample Pad*</u>	<u>Quantity per Pack**</u>
1818	Varies, Sample Pack	Contact Customer Service
1819-100	60 mm <sup>2</sup> (5 x 12 mm)	100 Strips
1820-100	100 mm <sup>2</sup> (5 x 20 mm)	100 Strips
1821-100	200 mm <sup>2</sup> (10 x 20 mm)	100 Strips

Accessories:

1822-100	Dried Blood Specimen Strip Shipping Cards	100 Cards
1823-025	Biohazard Bags, Ziplock, 4 x 6 in.	25 Bags

\*Note: the 60 mm<sup>2</sup> Strip collects approximately 16 µl of whole blood; the 100 mm<sup>2</sup> Strip collects approximately 27 µl of whole blood; and the 200 mm<sup>2</sup> Strip collects approximately 54 µl of whole blood.

\*\*Customized packaging available for large orders. Contact Customer Service for more details.

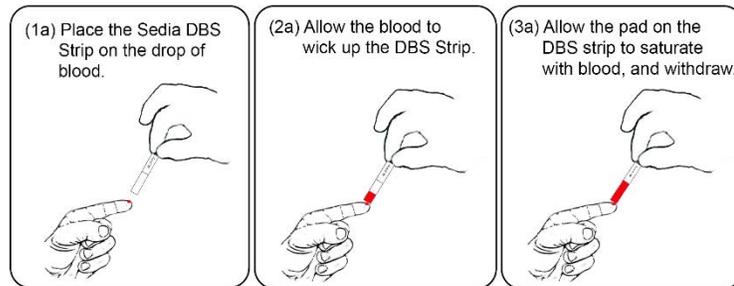
## **Warnings and Precautions**

1. Always wear gloves to avoid contamination of the DBS Strips. Avoid touching the absorbent sample pad of the DBS Strip, except for wicking the specimen onto the pad.
2. Follow universal precautions when handling biological specimens.
3. Keep vials containing the DBS Strips closed except when removing the DBS Strips. Store unused DBS Strips in original packaging at room temperature in a dry environment.
4. After specimens are collected, allow them to dry and then store at room temperature in a dry environment. Drying time for strips will vary with room temperature and humidity. However, in most laboratory settings, strips are dry between 20 minutes and one hour after specimen collection.
5. Sedia Biosciences studies indicate that DBS Strips containing dried blood specimens may be stored several years without significant loss of activity for most analytes of interest.
6. Do not use Asanté™ Dried Blood Specimen Collection Strips beyond the expiration date shown on the package.
7. Clotted or partially clotted blood will adversely affect flow rate and may also not provide consistent volume uptakes due to clotted material. Aged liquid blood collected with anti-coagulant may also become partially clotted over time despite the presence of anti-coagulant and may also perform differently. For best performance, use freshly collected specimens.

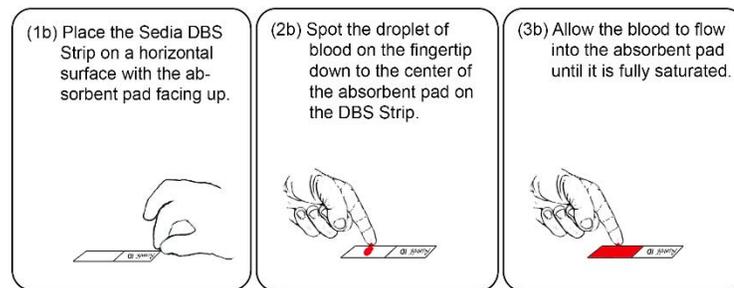
## **Procedure for Collecting a Blood Specimen**

1. Open the package and remove one DBS Strip for each blood specimen to be collected, holding the DBS Strip by the end with the Asanté ID label. Each DBS Strip is intended to collect a single specimen. However, multiple replicates from the same subject may be collected by using multiple DBS Strips.

2. Do not touch the sample pad of the DBS Strip or allow the sample pad to come into contact with anything other than the drop of blood to be collected.
3. Write the appropriate specimen identification on the label of the DBS Strip in the space provided to the right of "Asanté ID".
4. For **finger stick blood**, wipe the finger with an alcohol wipe and allow to dry. Puncture the finger pad with an unused sterile lancet and gently squeeze the finger to produce a blood droplet. Do not repeatedly milk the finger. Blood specimens may then be collected by either of the following methods:
  - a. Place the bottom tip of the DBS Strip against the drop of blood and allow blood to wick up the absorbent sample pad on the DBS Strip. Remove the DBS Strip as soon as fully saturated. (Figures 1a-3a, below). This method ensures that the absorbent pad is not oversaturated, but will take longer than the next method to fill the pad.



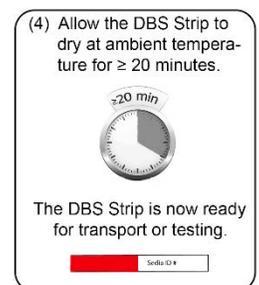
- b. Place the DBS strip with absorbent pad side up on a non-absorbent surface (e.g. plastic sheet or plate) (Fig. 1b below). Spot the droplet of blood on the fingertip down onto the center of the absorbent pad, allowing the pad to absorb the blood until just about completely filled and withdraw the finger (Fig. 2b below). Allow the blood to continue to flow into the absorbent pad, and if necessary, briefly touch additional blood to the pad to completely fill the pad (Fig. 3b below). This method requires greater care to ensure the pad is not oversaturated (e.g. excess blood sitting on top of the pad) but enables the pad to be filled more quickly than the previous method.



5. To collect DBS Strips of **venous blood, serum or plasma**, place the DBS Strip into the tube of venous collected liquid specimen until the absorbent end of the DBS Strip just touches the top surface of the liquid. Allow the liquid specimen to wick up the collection pad on the DBS Strip. Blood may also be pipetted directly onto the absorbent pad with the strip laid horizontally, similar to the method described in Step 4b, above. Remove the DBS Strip as soon as it is fully saturated to ensure oversaturation does not occur.

**Note:** Coagulated blood or aged blood with an anticoagulant is likely to flow more slowly and may not fully saturate the absorbent pad.

6. Avoid immersing the DBS Strip sample pad into the blood specimen, or allowing it to continue to wick onto the pad once it is initially saturated, as this may affect final volume collected.
7. Repeat the process if more specimens are to be collected from the subject, making sure each DBS Strip is appropriately identified.
8. Allow the DBS Strip containing the collected blood specimen to dry at ambient temperature for at least 20 minutes (Figure 4, at right). Actual drying time may vary depending on room temperature or humidity, but in most cases drying time will be under one hour. Do not heat to shorten the drying period.
9. The DBS Strip containing the dried blood specimen is now ready for transport, testing and/or archiving.

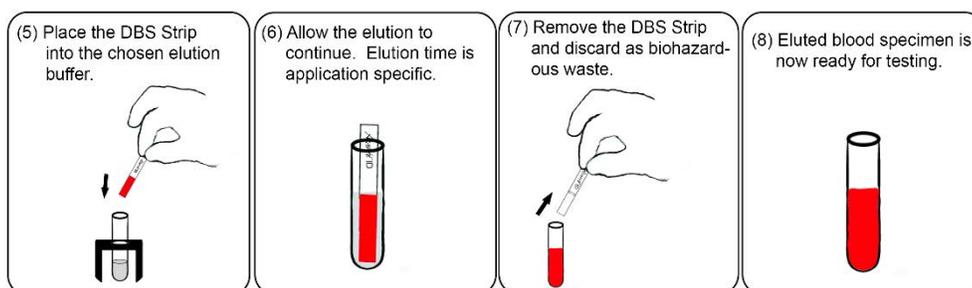


## Transporting, Storing and Archiving Dried Blood Specimen Collection Strips Containing Collected Dried Blood Specimens

1. The DBS Strip(s) containing the collected dried blood specimens(s) can now be transported for testing at a later date or may be stored for archiving. Sedia Biosciences makes available a convenient Dried Blood Specimen Strip Shipping Card (Cat No. 1822-100), sold separately, which is ideal for transport, storage or archiving specimens.
2. The U.S. Department of Transportation (DOT)<sup>1-2</sup> and the United States Postal Service<sup>7</sup> consider dried blood specimens non-regulated, exempt materials. DOT has harmonized its regulations with the regulations issued by the International Air Transport Association (IATA)<sup>3</sup>, the World Health Organization (WHO) Guidance on Regulations for the Transport of Infectious Substances<sup>4</sup> and the International Civil Aviation Organization's (ICAO) Technical Instructions for Safe Transport of Dangerous Goods by Air<sup>5</sup>. Dried blood specimens can be shipped by mail or other carrier with no reasonable expectations of occupational exposure to blood or other potentially infectious material.
3. To mail DBS Strips containing dried blood specimens, basic triple-packaging must be used, which is comprised of: a) the primary container of the DBS Strip itself which is the absorbent matrix containing the dried blood; b) the DBS Strip Shipping Card (Cat. No. 1822-100) enclosing the DBS Strips, folding over the flaps to secure the DBS Strips; and c) an outer envelope of sturdy, high-quality paper. These containment precautions provide reasonable safety from occupational exposure and maintain optimal specimen integrity.<sup>4</sup>
4. The outer shipping container must have a complete return address and delivery address. No content markings are required on the outer shipping container to comply with U.S. Mail regulations<sup>7</sup>. If the DBS Strip Shipping Card is not used, but another secondary barrier is used, the international biohazard symbol must be affixed or printed onto the secondary container to meet U.S. Occupational Safety and Health Administration requirements<sup>8</sup>.
5. Follow any other applicable local postal, courier and other transport regulations. If local regulations require enclosure in airtight, leak-proof sealed containers for transportation, then include sufficient number of desiccant packages to ensure specimens are exposed only minimally to excessive moisture.
6. If shipping specimens known to contain an infectious agent, use special precautions and follow international, national, and local regulations (e.g., required packaging and an outside warning label).

## Recovery of Blood from the Dried Blood Specimen Collection Strip

1. Place the DBS Strip for testing in the chosen elution buffer. For many analytes, 500 µl of either deionized water or a mild buffer may be adequate. The volume used should, at a minimum, cover the absorbent pad on the DBS Strip (Figure 5, below). If the assay to be used contains sample diluent that is normally used for liquid blood, serum or plasma specimens, it is recommended to evaluate that buffer as an elution buffer.
2. Allow the elution to continue. Elution time is application specific but typically 20 minutes at room temperature will be adequate. The tube may be gently mixed if desired (Figure 6, below). Specific analytes may require longer elution times.
3. If the tube is not already labeled with specimen ID, do so before removing strip.
4. Remove the DBS Strip and discard as bio-hazardous waste (Figure 7, below).
5. The eluted blood specimen is now ready for testing (Figure 8, below).



## References

1. Federal Register, 39 CFR part 111 New Mailing Standards for Division 6.2 Infectious Substances. 2006; Section 10.17.9(b).
2. Federal Register. 49 CFR part 173 Shippers General Requirements for Shipments and packaging. 2013; Section 173.134(b).
3. United States Postal Service (USPS). 346 Toxic Substances and Infectious Substances (Hazard Class 6). 346.234 Nonregulated Materials.
4. International Air Transport Association (IATA). Division 6.2-Infectious Substances. World Health Organization. Guidance on regulations for the transport of infectious substances 2013-2014. Geneva: WHO/HSE/IHR/2012.12.
5. International Civil Aviation Organization (ICAO). International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air, 2013-2014.
6. United States Postal Service (USPS). Publication 52. Hazardous Restricted and Perishable Mail. USPS Packaging Instruction 6G. Nonregulated Infectious Materials, May 2014.
7. Occupational Health and Safety Administration. 29 CFR 1910.1030(g)(1)(i) Occupational Safety and Health Standards, Bloodborne pathogens.

### **FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.**

#### Contact Information:

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For the collection and preservation of DNA collected from the mouth, use our Asanté DNA Specimen Collection Kit (Cat. No. 1800).

For the collection and preservation of antibodies and analytes collected from the mouth, use our Asanté Oral Ab Specimen Collection Kit (Cat. No. 1830).