

What is an FTA card?

- FTA (Flinders Technology Associates) cards are cotton-based, cellulose paper containing chemicals that burst cells, denature proteins and protect DNA, leaving a sample suitable for molecular identification without the risk of disease contamination.
- They are a user-friendly way to send samples from the field to the laboratory for the identification of avian pathogens or biological analysis.



What are the uses of FTA cards?

- FTA cards are used to confirm the presence of a disease/etiologic agent and allow the appropriate diagnosis and treatment.
- Samples can be used for Polymerase Chain Reaction (PCR) testing, Real-time Polymerase Chain Reaction (RT-PCR) testing, and genetic sequencing allowing the rapid identification of suspected poultry diseases. Samples are in a format that is easy to use, store and ship to a laboratory.
- There is no need for the use of phenol (a fixative used to preserve samples) or refrigeration, and there is no risk of contamination.

Samples that can be taken with FTA cards

- Blood
- Cell culture
- Allantoic fluid
- Tissue impressions or scrapings
- Tissue swabs
- Bacterial culture solution

Procedure

Types of FTA cards

- FTA cards are available in either white (classic) or pink (indicating) formats.
- Although both classic and indicating cards can be used for sampling, it is recommended that classic FTA cards be used only for blood, as other samples may not show up very well on the white background. Indicating cards may be used for all types of samples as they contain a color-changing component that allows the user to see exactly where the sample was placed.
- FTA cards come in a variety of configurations, allowing multiple options for the user.
- Some of the most commonly used FTA cards have a 4 circle configuration.

Examples of types and configurations of FTA cards.



Examples of the most commonly used FTA cards, both classic and indicating.



Care and handling of FTA cards

- Unused FTA cards should be stored at room temperature (20-24°C, 68-75°F) in a zip-sealed (zip-lock) plastic bag if possible. Cards should be protected from light to ensure that the chemicals contained within are not damaged.
- Always wear gloves when handling FTA cards to ensure that contaminants from human hands are not transferred onto the card.

Important notes when taking FTA samples

- Use fresh tissues for sampling and avoid using dead birds found in the pen when possible, as nucleic acid quality could be compromised.
- Use ethanol to disinfect handling equipment between samples.
- Clearly label the card/and or application circles with the identity of the sample.
- Use only a pencil to write on FTA cards as ink from a pen may run, possibly contaminating the sample.

Equipment needed for sampling

- Scissors
- Scalpel
- Forceps
- Gloves
- Sterile swabs in individual containers
- FTA Card
- Pencil for identifying sample
- Syringe for liquid samples



Suspected diseases and recommended samples to confirm diagnosis

02

Suspected Disease	Recommended Samples
Infectious Bronchitis (IB)	Tracheal scraping / impressions Kidney impressions and tracheal scraping (renal) Cecal tonsils impressions Allantoic fluid
Infectious Laringotracheitis (ILT)	Tracheal and eyelid scraping / impressions Lung impressions
Newcastle Disease (ND)	Tracheal scraping and cecal tonsils impressions
Infectious Bursal Disease (IBD)	Bursal impressions
Reovirus (Reo)	Synovial fluid, liver and heart impressions
Malabsorption Syndrome / Runting Stunting Syndrome (RSS)	Gut scraping of duodenum, ileum and / or jejunum
Avian Pneumovirus / Turkey Rhinotracheitis (TRT) / Swollen Head Syndrome (SHS)	Turbinate impressions / scraping (acute)
Inclusion Body Hepatitis Avian Adenovirus	Liver impressions from affected birds
Enteric Viruses	Gut scraping of the duodenum, ileum and / or jejunum
Chicken Anemia Virus	Thymus impressions, bone marrow impressions
Salmonella	Apply culture with loop or swabs or culture can be diluted to 0.5 McFarland before placing 50 microliters or two drops of the solution in the card
Mycoplasma	Tracheal swab, impressions or scraping
Marek's Disease Virus (MDV)	Tissue impressions / feather pulp sample
Reticuloendotheliosis Virus (REV)	Tissue impressions
Avian Leukosis Virus (ALV)	Tissue impressions

Procedure for taking tissue impressions

- Step 1** Cut the organ open so that either the mucosa or the internal tissue is exposed.
- Step 2** Using a scalpel and forceps, cut a sample of tissue and make a generous impression on the FTA card by pressing and rubbing the cut tissue onto the application circle.
- Step 3** Remove the cut tissue from the card, leaving behind the impression.
- Step 4** Let the impression air dry on the card for at least 30 minutes, keeping the card away from extreme heat, humidity or direct sunlight.



Step 1



Step 2-3

Procedure for taking swab impressions

- Step 1** Cut the internal organ open so that either the mucosa or internal tissue is exposed.
- Step 2** Thoroughly swab the sampling area with a sterile swab.
- Step 3** Transfer the contents of the swab onto the FTA card by pressing it onto the application circle. It may be best to use an indicating FTA card to ensure that the sample can be identified within the circle.
- Step 4** Let the impression air dry on the card for at least 30 minutes, keeping the card away from extreme heat, humidity or direct sunlight.



Step 2



Step 2

Note - Swab samples from live bird orifices can be used for FTA, however these samples should be collected humanely and by a trained individual.

Procedure for taking liquid impressions

- Step 1** Using a graduated pipet or syringe, remove 5-50 microliters (or two drops) of liquid (whole blood, allantoic fluid, etc.) from the sampling area.
- Step 2** Place the sample within the application circle on the FTA card.
- Step 3** Let the impression air dry on the card for at least 30 minutes, keeping the card away from extreme heat, humidity or direct sunlight.



Step 1



Step 2

Note - Blood samples from live bird veins may be used for FTA, however these samples should be collected humanely and by a trained individual.

Correct storage of FTA cards

- After the FTA card is dry, put it into an air-tight, zip-sealed (zip-loc) plastic bag, ensuring the card is kept as dry as possible.
- The FTA card is now ready to be sent to a laboratory that is properly equipped to run the desired analyses.

Sending FTA cards to the laboratory

- Due to the biological hazard with sending tissue samples through the mail, you must obtain the proper documentation from the receiving laboratory before sending samples.
- When sending FTA cards, you must have the following:
 - An updated import permit (should be sent from the receiving laboratory in the case of the U.S.A).
 - Correctly filled-in laboratory submission form.
 - Proper customs declaration form (for international shipments) from the relevant authorities.