



+ Fluke User Guide





Fluke testing reimagined.

This guide contains everything you need to know to perform a rapid Fluke test with Micron Kit +Fluke.



Fluke Test Guide Version 1.0

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support@micronagritech.com

By using the Micron Kit and Services, you agree to the Terms
and Conditions of Micron Kit which can be found at
<https://micronagritech.com/terms-and-conditions/>

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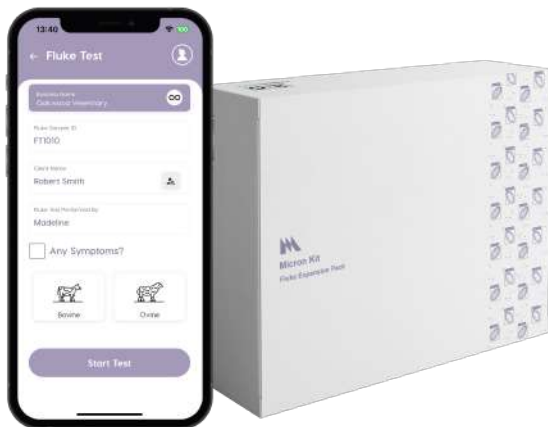
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+Fluke Contents.

The +Fluke contains all the components you need to prepare a sample for fluke analysis with the Micron Kit. Below is a list of the box contents. Micron Kit and a suitable mobile phone are required in addition to the +Fluke add-on to test for fluke.



60 mL Pot



Fluke Slide



Stacked Filters



15 mL & 50 mL Tube



Fluke Test Solution



Glass Beaker



Spatula



Pipette



5 mL Syringe



20 mL Syringe



Gloves



Eye Protection



Spray Bottle



Cleaning Swabs



Cable

Other items you will need to prepare a Fluke test.



Tap Water



Slide Plugs



Micron Kit Reader



Protective Clothing



Phone



Setting Up the App.

Step 1

Download Micron Kit App



Step 2

Create Your Account

Start by scanning your Micron Kit and following the on-screen instructions



Step 3

Start Fluke Test

Press 'New Test' in the bottom navigation bar and then select 'Fluke'



Phone Requirements

Minimum system (phone) requirements for use with Micron Kit.

Animal testing through Micron Kit uses your phone for sample recording and analysis. For the best user experience, we recommend you use a phone with the following specifications. Note, these specifications may change as the app gets updates and additional features are added.

Supported Platforms



Minimum hardware requirements for iOS (Apple) devices

4GB
AT LEAST

RAM

5GB
FREE STORAGE

Storage

Minimum hardware requirements for Android devices

6GB
AT LEAST

RAM

5GB
FREE STORAGE

Storage

Minimum network (internet connection) requirements

A stable internet connection with a minimum upload speed of 5MBPS.

Note some devices may not be compatible with the Micron Kit. You can check whether your device is compatible by getting in contact with our support team by emailing support@micronagritech.com or using the live chat function in our app.

Sample Collection Tips

Fluke testing through the Micron Kit is done on animal faecal matter. Special care should be taken when handling animal faeces and PPE should be worn. Fresh samples may be collected directly from an individual via the rectum by a trained professional or from fresh faeces on the ground.

When collecting a sample take care to ensure the following:

1

Faecal samples should be tested within 2 days, testing samples older than this may impact results. Samples can be stored in a refrigerator for up to 5 days at 1-5°C.

2

Faeces with evidence of burrowing beetles should be avoided as it may not be fresh enough.

3

It is advisable to scrape away any crust from a fresh faecal sample and collect from a more liquid portion.

Objective of the Fluke test

- Confirm the presence of rumen and/or liver fluke within a population, thereby helping to determine if treatment is needed.
- Provide information on the level of pasture contamination.
- Test the efficacy of a medication after it's administered when considering anthelmintic resistance.

Understanding Fluke

Liver and rumen fluke are parasitic flatworms capable of infecting animals at pasture. Once ingested, they develop within the animal until they reach maturity and begin to excrete eggs. These are passed in the faeces, which can be examined under a microscope to confirm the presence of the parasite.

It is important to sample animals regularly, as only mature parasites release eggs and these may be shed intermittently in low numbers. It is also possible for an animal to show signs of illness before the presence of eggs can be confirmed.

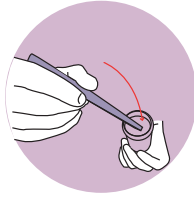
As both rumen and liver fluke eggs have a unique appearance, Micron Kit can identify both within a sample, helping to guide treatment decisions.



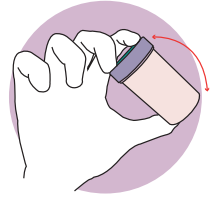
How to Prepare a Sample?



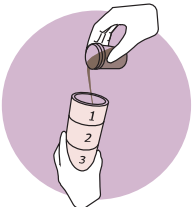
1 Add water to 1st line on container.



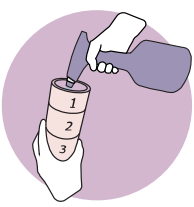
2 Add sample to 2nd line on container.



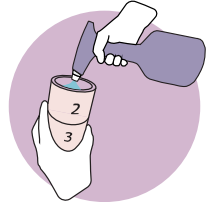
3 Shake to break up faeces.



4 Filter the sample.



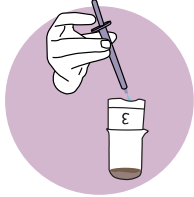
5 Wash out the filter and tap.



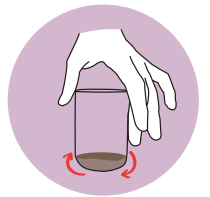
6 Wash out the 2nd filter and tap.



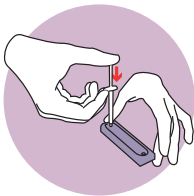
7 Flip the filter onto the beaker.



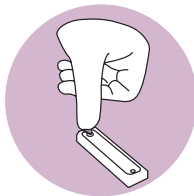
8 Wash with 15 mL Fluke solution.



9 Swirl to homogenise.



10 Insert sample into slide.



11 Insert the plug in the slide.



12 Rest slide 5 min, then start test.

Preparing a Sample for Analysis

1

Using the spatula, mix the sample thoroughly to evenly distribute any potential parasite eggs.
Add tap water to one of the empty containers (provided with the Kit) up to the lower black line.

Note:

When measuring the water level, the container should be on a flat, level surface. Always read from the bottom of the meniscus, observing the black line at eye level.

2

Add the sample to the container of water. When the correct amount is added the water level will reach the upper black line.

3

Mix the water and faeces until there are no clumps of material remaining. If the faeces is very dry, use the spatula to break up the sample. Shake the sample several times until it is well homogenised.

4

Filter the sample through the triple stacked filters. This should be carried over a sink/tray which you plan to discard.

Note:

Any contents left in the container should be rinsed out with additional tap water and poured into the filter.

5

Take out the electronic Spray Bottle. Rinse out the first filter for 30 seconds so that the sample has been thoroughly washed, giving the fluke eggs opportunity to pass through.

Note:

Tap the filter unit against the sink/tray to help the sample to go through the meshes. Please hold the 3 filters in the unit as you tap against the sink/tray.

6

Repeat step 5 with the filter numbered 2.

7

Detach the third filter from the unit. Tap well and swirl gently to ensure excess water has gone through the last filter. Invert the third filter onto the clean beaker carefully so that the colour bar on the filter and the beaker are together.

Note:

Excess water will dilute the Fluke Test Solution and may result in false negatives.

8

Draw 15 mL of Fluke Test Solution into the 20 mL syringe provided. Attach the 21-gauge purple needle. Backwash the bottom filter into the beaker by slowly ejecting the Fluke Test Solution in the needle across the entire filter using 10 mL of the Fluke Test Solution. Once 5 mL remains in the syringe, assess the inside of the filter. Some debris may collect on the edges of the filter, use the remaining 5 mL of solution to rinse this into the beaker.

Tip

Tap the filter against the beaker to ensure all potential fluke eggs are in the test.

Note:

Please be cautious of this needle when handling the Fluke Test Solution and biohazardous animal products.

9

Homogenise the mixture by swirling the beaker.

Note:

Do not let the mixture settle before drawing it into the syringe as this may cause false negatives. When homogenising take care not to add any air bubbles into the mixture as this will affect the accuracy of the test.

10

Using the 5 mL syringe, draw roughly 6 mL from the beaker. Inject the sample slowly into the intake port of the slide. Fill the slide until it reaches the end of the chamber.

Tip:

Slightly tip the slide to avoid air bubbles.

Note:

It can be helpful to place the spatula under the air vent end of the slide to get the correct angle. To ensure an accurate test, it is important not to leave the sample sitting for more than a few seconds in the container or in the syringe before filling the slide.

11

Ensuring the slide is completely filled with the sample and there are no visible air bubbles, plug the small hole with one of the plugs provided and wipe the slide dry using a paper towel.

12

Allow the slide to rest for at least 5 minutes to allow eggs to float and insert the slide into the Micron reader.

Analysing a sample for Fluke

01

Turn on the Reader by holding the button at the front for 3 seconds.

02

Open the Micron Kit app.

03

Select 'New Test' and follow the on screen instructions.

04

When prompted, select 'Start Test' and attach the phone to the reader. The primary phone camera should be identified and aligned with the hole in the adhesive pad. Ensure there are no obstructions visible on the screen and the entire lense is visible through the pad when observed from underneath.

05

Once aligned correctly, place the phone and attachment onto the reader. The phone must be oriented on the right side of the reader, with the button facing towards you as shown below.

06

Single press the power button to start the motor.

07

Gently pick up and insert the slide into the left-hand side of the reader, taking care not to disturb the liquid inside.

08

As soon as the slide begins to move, start the recording in the app to capture a video of the slide.

Note: The video must include the coloured bars at the start and end of the slide to ensure the full video is captured.

Further details on using the reader can be found in the "Reader" section of the Micron Kit user guide. If you require assistance, please do not hesitate to contact customer support or revise the instructional videos found in the Micron Kit app.



Quality Control

Ensuring a rapid result

Quality control and troubleshooting.

To ensure an accurate, rapid result, each sample should be prepared carefully following the instructions provided. This ensures high quality data is generated and accurate identification of eggs. You can ensure the test you are submitting receives a rapid, high quality result by comparing what you see against our handy quality checking guide.

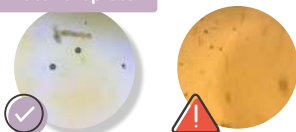
Focus & blur.



Tips

Clean phone camera and reader lens (using microfibre cloth) before attaching phone. Allow the slide to rest before inserting into the reader.

Water droplets.



Tips

Wipe drops of liquid away from the slide. Visually inspect the surface and ensure it is dry.

Bubbles.

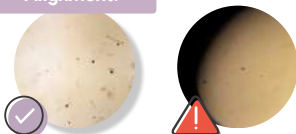


Tips

Gently swirl sample or push and pull the syringe plunger repeatedly to mix slowly, taking care not to create any bubbles to the sample.

Don't
Shake sample.

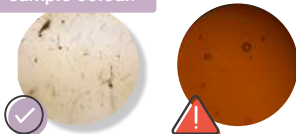
Alignment.



Tips

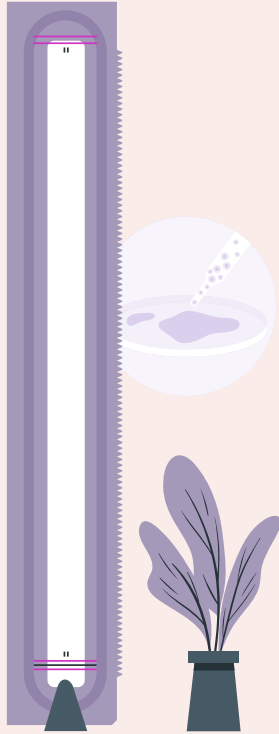
Begin test when you can see a full circle lit up in view.

Sample colour.



Tips

Only add the recommended amount of faeces. Do not exceed above the upper measuring line on the pot. Use the correct amount of Fluke Test Solution.



Fluke Slide

Using the Fluke Slide

Here are some tips for you to get the most out of your reusable Fluke slide.



The Fluke slide is fully reusable. However to extend its life span, it is recommended to take special care of the slide and treat it gently.



When filling the slide do not insert the syringe into the port. This can cause the viewing window to lift when the syringe is removed. This will cause your slide to leak and poor visibility.



Ensure the intake port is unobstructed and fill the slide slowly with a test sample (using a syringe or pipette), with care to avoid large air bubbles. Should a large air bubble occur, empty the sample and refill the slide. The slide will not fill correctly if this hole is covered or a slide plug is inserted. If air bubbles are forming, gently elevate the air vent end of the slide while injecting into the lower intake port. The spatula can be placed under the air vent end of the slide to achieve the correct angle. You can also refer to our instructional video to see this method being used.



Once the slide is filled, insert one of the slide plugs provided into the air vent to help prevent spillages. Failure to insert the slide plug will increase the risk of spillages inside the reader which may negatively impact the performance of the internal components.



Before inserting the filled slide into the reader, wipe down and ensure the slide is dry. Pay particular attention that the top of the slide is not wet, as you may have to repeat the test if a correct count cannot be obtained.



Leave the filled slide to rest for at least 5 minutes to allow eggs to float to the top before starting the analysis.



Insert the slide into the left-hand side of the reader. When inserting the slide, the slide teeth should be pointed away from the user. The end with the plug/air vent should be inserted first. Do this gently and carefully to avoid disturbing or spilling the sample. Be careful to avoid fingers being pinched when inserting the slide.



Once the test has finished running and the slide has stopped moving, carefully remove the slide from the reader. Remove the plug and discard the sample safely as instructed.

Maintaining Your Reusable Fluke Slide

- » Never wash out the Fluke Slide using a harsh chemical. We recommend rinsing the slide with water or to leave to soak in water post rinsing, if a deeper clean is necessary. Please contact support@micronagritech.com if you are having any issues with the slide.
- » Rinse the Fluke Slide immediately after use with cold water and place this water into the Fluke Test Solution special waste bin. Once the Fluke Test Solution has been rinsed out, any additional washes can be washed down the sink.

Note:

Samples and waste left to dry inside the slide could potentially make the slide unusable for future tests.

- » To wash the inside of the slide, pump lukewarm water (max 30°C) through the sample intake hole using a syringe/pipette or hold under a running tap until all visible debris has been rinsed out. If debris still remains, add more lukewarm water and leave to soak overnight to soften the adhered debris.
- » Ensure there is no Fluke Test Solution or dirt left on the slide teeth as this could damage the internal components of the reader.
- » Tap any remaining water out of the slide and air dry after washing.

Note:

It is imperative that no water remains in the slide when adding a sample. This will reduce the specific gravity of the Fluke Test Solution and increase the chance of a false negative.

- » Wash the slide plug in lukewarm (less than 40°C) water between uses.
- » If the slide plug tears, breaks, or is no longer sealing the slide, replace it with another slide plug.

Important



Wash the slide immediately after a test is completed and tap excess water out of the slide each time.



Do not use the slide if the viewing window is lifting or cracked or the slide is leaking.



Never leave a slide in the reader after use.



Do not pull or push the slide while it is moving through the reader during a test.



Always use the slide plugs provided. Failure to insert the slide plug into the slide before testing could lead to internal spillages in the reader which may cause damage to the reader components or prevent the internal components from performing correctly.



Once the Fluke Test Solution has been added to a sample, the test becomes time sensitive. For accurate results the slide must be inserted into the reader for testing after 5 minutes and video recorded immediately. The Fluke Test Solution will cause the fluke eggs to rupture and collapse over time.



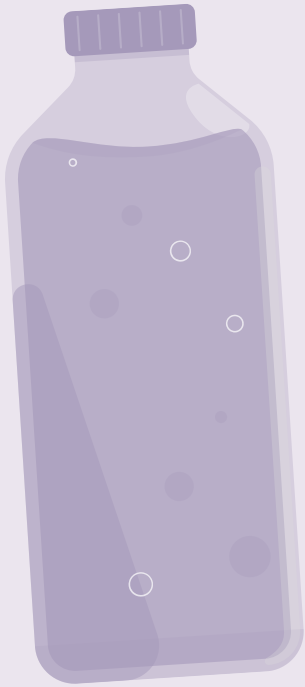
Correct PPE (eye protection, nitrile gloves and lab coat) must be worn when working with the Fluke Test Solution.



Slide plugs may cause choking hazard. Keep out of sight and out of reach from animals and small children.



Do not wash the slide in boiling water.



Fluke Test Solution

About the Fluke Test Solution

The Fluke Test Solution contains Zinc Sulphate and has a specific gravity of 1.38 (+/- 0.005). The solution is used to float rumen and liver fluke eggs to separate them from debris, aiding detection under the kit microscope.

Note:

Once the solution has been added to a sample, the test becomes time sensitive. Only begin the backwash step with the Fluke Test Solution once you are ready to analyse the sample. Prolonged exposure of the eggs to the Fluke Test Solution may cause egg deformation or membrane rupture.

How do I purchase additional Fluke Test Solution?

Fluke Test Solution can be purchased through one of our local distribution partners or alternatively contact us via support@micronagritech.com for more information. Third-party solutions are not supported and should not be used with the Micron Kit system.

Disposal

As Zinc Sulphate is toxic to the environment, waste solution must be disposed of correctly. Please dispose of the contents to an appropriate facility.

Warning

Pictograms: GHS05, GHS09, GHS07



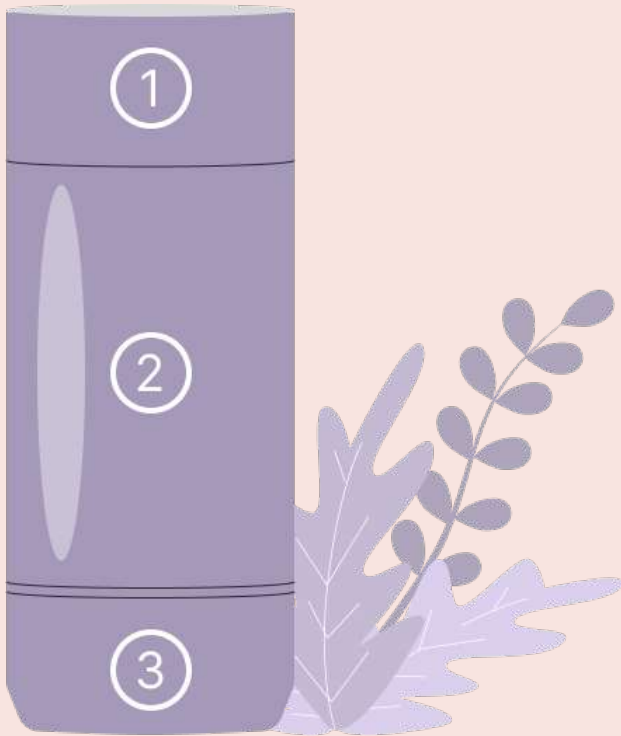
- Harmful if swallowed.



- Causes serious eye damage.

Wear protective gloves/protective clothing/eye protection/face protection. If contact with eyes occurs, rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing. Seek medical assistance or advice if concerned.

- Very toxic to aquatic life with long lasting effects.
- Do not leave unattended near children or animals



Fluke Filters

Using the Fluke Filters

- The Fluke Filter system is composed of three separate sieves. Sample filtration is based on differential sieving. Faeces prepared as 5g in 40 mL of water is poured through the stacked filters.
- The filters are stacked in order from 1 on top to 3 at the bottom. Pour the mixture into the top of the first filter (600 µm).
- Care should be taken to rinse the sample pot with water and add this to the top filter. This is necessary to collect all remaining sample adhered to the pot. This filter is then rinsed thoroughly with the spray bottle on the jet setting to wash the eggs through the first filter and trap the heavy debris.
- The middle filter (125 µm) should also be thoroughly washed with the spray bottle. To help move the sample through, tap the filter on the side of a sink or the edge of a basin on the workbench that will capture the runoff. Alternatively, if you are running a pen-side, tap the filter to help the sample pass through, and the runoff can go wherever it is convenient.
- The filters may require repeated tapping depending on the debris remaining.
- After the sample has gone through, remove the second filter and make sure no excess water drops on the bottom (42 µm) filter.
- This bottom filter contains the liver and rumen fluke eggs. To collect the eggs from this filter, the filter must be inverted over a beaker and backwashed with 15 mL of Fluke Test Solution.
- Dispense the Fluke Test Solution slowly using the 20 mL syringe and needle into the clean beaker. Take care to make sure you wash out the entire filter including the walls on the side where eggs may get trapped. Carefully tap the filter over the beaker to help free the trapped eggs. The eggs will be dispersed across the bottom filter. Therefore, the zinc flotation solution must be evenly distributed across the filter.
- Once the sample has been collected into the beaker, the stacked filters must be thoroughly washed using either the spray bottle or tap water. Ensure all debris is removed from the filters to avoid cross-contamination between samples.
- Only use tap water or lukewarm water to clean the filters. Never use boiling water. Allow the filters to air dry; do not use paper towels, as the residue may build up.

General Maintenance

- » It is important to take care of the filters that are provided in the +Fluke. The filters need to be washed thoroughly with water after every test. If you do not wash the filters they can be permanently damaged from dried faeces. If the filters are damaged, Micron Agritech cannot guarantee that the filters will perform as they were intended.
- » Do not use hard objects such as metal spoons to clean the filters as the material is delicate and may become damaged.
- » Should these filters become damaged or unusable in any way please contact Micron Agritech customer support, support@micronagritech.com.

Important



Ensure all filters are stacked correctly on top of each other in the correct order before starting the filtering step.



**Spray
Bottle**

Using The Spray Bottle

The spray bottle consists of a bottle, rubber lid, electronic sprayer, charging port, charging cable and an on/off button with LEDs.

- » Press and hold the button for a constant spray.
- » Alternatively you can double press the button for the spray to turn on and stay on.
- » Press once to turn off the spray.
- » Twist the nozzle clockwise to tighten and create a narrow spray pattern.
- » Twist the nozzle anti-clockwise to create a broader spray pattern.

General Maintenance

- Keep the nozzle of the spray bottle clean to ensure it is working properly and washes the filters effectively. Be careful not to loosen the nozzle too much as it may get lost.
- Do not run the spray bottle dry as it may cause damage to the pump.
- Ensure the charge port is dry before charging.
- Charge the spray bottle full before leaving it idle for more than 2 months.
- Not for use with chemicals, inner seals will split and cause issues.
- Only use charger and charging cable supplied with +Fluke to charge sprayer.

Important



Keep the the spray bottle charged. Do not charge the spray bottle while you are using it. If the charging cable is broken or if wire is exposed, do not attempt to use it.



Cleaning & Safety Procedures

Cleaning Components

To avoid cross contamination, it is important that all kit components are thoroughly cleaned after each use.

- » Clean the sample pots using warm soapy water and lay them on a paper towel to dry.
- » Tap out and discard any faecal matter left in the filter after use. Clean the spatula and filter in warm soapy water ensuring that there is no faecal matter caught in the filter mesh.
To clean the slide, pump water through the intake port using a syringe/pipette or hold under a running tap allowing the water to exit through the air vent. Do not use boiling water or soap to clean the slide. Take care that all visible debris has been rinsed out and the teeth of the slide are clean. Tap the water out of the slide and allow it to dry.
- » Use antibacterial surface wipes to wipe down the reader, the phone, and the work surface.
- » To clean the sticky pad, remove the phone attachment from the reader and wash with warm water and liquid (not hard) soap, gently rubbing the sticky pad surface with your hands. Allow the sticky pad to air dry.
- » Rinse out the syringes with warm water and replace as needed.

Troubleshooting

Should issues be encountered while using Micron Kit, please see the relevant component section in this booklet to help with any queries. For more troubleshooting information please visit the FAQ section of our website at micronagritech.com/faq

Otherwise you can contact us by email at support@micronagritech.com or use our live messaging support service in the app or on the website.

Safety Procedures

Intended Use

Micron Kit +Fluke is intended for use in veterinary practices and laboratory environments. It is not intended for use in domestic environments. The Kit is designed to be used by trained staff to check the presence of Fluke eggs in animal faecal samples. The system is not suitable for any other use. If the equipment is used in a way not intended by the manufacturer, then the protection provided by the equipment may be impaired. Micron Agritech cannot accept any responsibility for the consequences of improper use. Before using the Kit, carefully read and follow the instructions. This manual should always be kept close to the Micron Kit.

For Your Safety

Working with animal faecal samples is a biohazard, and precautions must be followed to ensure safety for the user while conducting the test.

- » Read the instructions provided thoroughly before use.
- » Do not perform this test in a living, eating or food preparation area.
- » Gloves and eye protection should be worn at all times. Protective clothing should also be worn.
- » Disinfect any surface that faecal matter may come into contact with.
- » To avoid cross contamination, it is very important to thoroughly clean all of the components within the Kit after each use. Clean all components apart from the slide with warm soapy water and leave on a paper towel to dry.
- » The internal battery is not designed to be end user replaceable.
- » This product is not recommended for use in extreme weather conditions.
- » This kit contains a Fluke Test Solution that is not safe for human consumption and must be disposed of appropriately in the method described in the Fluke Test Solution section of this booklet.
- » Do not leave the +Fluke unattended near children or animals. Slide plugs may cause a choking hazard.
- » Beware of pinch point hazard at the slide entry and exit of the Reader. Always remain alert and be careful of fingers when inserting or removing a slide. Do not introduce any foreign objects, liquids, or fingers inside the slide track of the Reader other than the slide(s) provided with Micron Kit +Fluke as this could result in injury.

Support

If you require support at anytime, you can request a call back through the website at micronagritech.com

To use the in-app live chat function, you can select profile >> customer support >> live chat.

Technical Data

Spray Bottle

29cm x 11cm x 13.8cm

Water Volume: 1000 mL

Battery Capacity: 1200mAh

Battery Type: Li-Ion

Voltage: 3.7v

Charge port: Micro 3.5mm DD Cable (Type C adapter Incl.)

Material: ABS, HEPE



Welcome to the future
of animal health.





Micron Agritech

micronagritech.com

support@micronagritech.com

This user guide contains everything needed to understand and run a Fluke test using
Micron Kit +Fluke.

Read this user guide in its entirety before processing a test.

Ensure to pay close attention to all notices and warnings for your safety and the
safety of others.