

## InPouch™ *Tritrichomonas foetus* Bovine (TF) Test

### PRODUCT BIO

BioMed's InPouch™ TF test is a microbiology sample collection, transport, and culture device that allows for simultaneous growth and observation of *Tritrichomonas foetus*, the parasite responsible for the sexually transmitted infection (STI) trichomoniasis in cattle. **By combining several procedures into a single device, BioMed's patented InPouch™ TF test saves time and money, while reducing exposure to collected samples.**



The patented InPouch™ system consists of a high barrier, oxygen resistant, plastic pouch with two V-shaped chambers connected by a narrow passage. The innovative two-compartment system allows for direct preliminary observation of a newly collected

specimen in the upper chamber, before expressing the contents into the lower chamber for culture and further observation when necessary.

**Combining both growth and observation into one fully enclosed system removes the need to prepare wet mount slides increasing efficiency and throughput while decreasing the cost of laboratory materials and medical waste.**

Additionally, the InPouch's™ design lends itself to high performance in off-site or austere environments with limited reliance on laboratory equipment. The InPouch™ TF can be stored for up to a year at room temperature (18-25 °C) and can be incubated at this temperature for up to 48 hours (37°C is required for longer incubation

periods). **Transport from off-site locations and point-of-care testing can be performed easily due to the flexible packaging and robust, integral design of the InPouch™ system.**

As the first, most robust and economical IVD designed specifically for bovine trichomoniasis, **the InPouch™ TF is known as "The Gold Standard" diagnostic for this STI.** The proprietary medium of the InPouch™ TF is selective for the transport and growth of *T. foetus* and increases specificity by inhibiting the growth of yeasts, mold, and bacteria. **The specially formulated media of the InPouch™ TF reduces the potential for interference in obtaining accurate results.**

### QUALITY CONTROL

Quality control testing is performed on each lot of InPouch™ TF prior to shipment in order to ensure viability, doubling time and sterility. **Quality control tests are repeated throughout the product shelf life** by BioMed Diagnostics confirming the ability of the InPouch™ TF to support the growth of *T. foetus*, while maintaining specificity against other organisms.

### BACKGROUND

#### *Trichomoniasis*

*Trichomoniasis*, commonly known as "trich," is a veterinary sexually transmitted infection responsible for significant losses in the cattle industry. The causative agent of this venereal disease is a single celled, flagellated protozoan parasite known as *Tritrichomonas foetus*. Bovine trichomoniasis is transmitted to the vagina and uterus of the cow from the prepuce cavity or foreskin of the bull, where the organism resides permanently once a bull is infected. *T. foetus* in cows is characterized by early fetal death as well as various other infections, such as: postcoital pyometra, vaginitis, cervicitis, endometritis, and salpingitis.<sup>1 2 3 4 5</sup> Bulls, however, are usually asymptomatic. Abortions usually occur early in pregnancy, but

### VALUE

**High Throughput** – Once the device is inoculated no other preparation is required saving time

**Cost Savings** – The InPouch™ TF reduces laboratory materials and medical waste

**Specificity** – Selective for the growth of *Tritrichomonas foetus* by inhibiting the growth of yeasts, mold, and bacteria

### BENEFITS

**Convenient** - Combines collection, culture, and observation into one device

**Easy to use** - Minimal lab procedures and equipment needed

**Easy to store** - One year shelf life at room temperature

**Mobile** - Compact and non-breakable package is ideal for off-site sampling or for point-of-care testing

**Safe** - Fully enclosed InPouch™ system prevents contamination and reduces exposure to collected samples

**Functional** - PCR compatible incubation and transport device

### PRODUCT SPECIFICS

**Storage** - Room Temperature (18-25 °C)

**Shelf Life** - 12 months

**Incubation** - 48 hours at room temp, 37 °C if longer

**Quantity Sold** - 10 PCK and 100 PCK

## CORPORATE OVERVIEW

BioMed Diagnostics, Inc., a boutique biotech firm and an industry leader for the past 20 years, develops and produces *in vitro* diagnostic devices. BioMed's point of care ready tests provide accurate diagnostic tools to scientists and research professionals worldwide for the identification of bacteria, parasites and fungi. The company formed out of a mercy mission conducted by a group of physicians to Central America. There they discovered the need for robust diagnostic tools designed especially for use austere environments. Their experience unleashed the inspiration for BioMed's innovative products that support medical professionals, veterinarians, research teams, and environmental and industry scientists.

## BIOMED DIAGNOSTICS

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can be midterm or late-term and it is unclear how they occur.<sup>3 5 6</sup> It is believed that trichomonads get caught in the amniotic fluid and sac during development. The fetus then ingests the fluid allowing trichomonads to enter areas such as the fetal stomach, intestine, and lungs.

Bulls are usually mature at the time of infection, greater than 3-4 years.<sup>5 6 7</sup> Inflammation of the prepuce and glans penis can occur. Trichomonads can be found in the smegma within crypts of the penile midshaft and caudal regions, as well as the prepuccial cavity of infected bulls.<sup>1 2 5 6 7</sup>

Economic losses occur primarily due to open cows, repeat breeding, and subsequent longer calving intervals. This affects herds by causing smaller and less uniform calf crops resulting in increased culling rates, demand for replacement females, and veterinary expense.<sup>3</sup>

Infection rates of *T. foetus* in the western United States are higher due to large, free-roaming herds that are allowed to breed freely, however, *T. foetus* infections can be found in eastern regions as well. Studies have shown that approximately 11.9% of bulls on beef cattle ranches in central Florida were infected with *T. foetus*.<sup>7</sup>

### INPOUCH™ TF DIRECTIONS

Samples should be taken from scrappings of the bull's prepuccial, or by collecting a sample from the muco-purulent vaginal discharge or uterine discharge of the cow.

To inoculate the upper chamber, tear along the notched area and pull the tabs to open the InPouch™, squeeze the top to close and fold the top edge down, roll twice and fold the wire tabs to prevent the InPouch™ from opening. Immediate specimen concentration can be observed under the microscope using the accompanying viewing clip. Only a few viable organisms are needed for detection; an inoculum containing 1 to 10

organisms is sufficient to result in a presumptive positive test.

To culture the InPouch™ TF, express all liquid from the upper chamber into the lower chamber; use the edge of a straight hard surface, such as a workstation or table, for best results. Roll down the pouch until it reaches the top of the lower chamber then fold the wire tabs to lock the InPouch™ into position. Inoculated InPouch™ TF medium can be held up to 48 hours at room temperature (18°-25°C), but if held longer incubation at 37°C is required. Specimens should be examined every 24 hours. *T. foetus* begins replicating within several hours after inoculation into the InPouch™ TF and can grow in the pouches for up to 5 days. However, after day 3 the organisms begin to die as the nutrients contained in the InPouch™ TF are exhausted. If no trichomonads are observed after 3 days and incubation at 37°C, the test is presumptive negative for *T. foetus*.

### DETECTION

As the parasites multiply, white sediment along the sides and bottom of the chamber will become visible. Five flagella arise from the organism, four immediately extend out, while the fifth wraps backwards along the surface of the organism and a barb-like axostyle projection can be seen across from the four-flagella bundle. If *T. foetus* organisms are present, they will be identifiable by their distinct features; characteristically the rolling, jerky motions exhibited by the protozoan.

**An InPouch™ TF subculture medium is also available from Biomed Diagnostics Inc. as well as live viable cultures of *Tritrichomonas foetus* to be used as a positive control in diagnosing an infection.** Live cultures are only available within the United States.

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### REFERENCES

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