

Quality Sampling Techniques - Urine Samples

Taking Quality Samples – Sheet 2 – Urine Samples in Boric Acid

Sample Collection and Preparation

Catheterisation – animals may require sedation prior to catheterisation although there is minimal risk of contamination using this technique. The catheter is slowly passed up the urethra and gently into the bladder and urine is collected aseptically as it flows out of the catheter into a sterile universal container.

Cystocentesis – this method minimises the risk of contamination. A needle is inserted into the bladder through the ventral wall and enables the removal of urine by aspiration. The method reduces the risk of contamination of the urine sample with bacteria, cells and debris from the lower urogenital tract, although there is a risk of mild haemorrhage with this procedure.

Free flow mid stream urine samples - Urine may be voided naturally or by the application of gentle pressure to the patient's bladder, although manual expression of the bladder should not be performed where there is suspicion of urethral obstruction. There is some risk of contamination although most debris should be flushed away by the initial flow of urine. Mid stream samples are more representative of the urine in the bladder as the initially passed urine may contain mucoid material from other parts of the urogenital tract.

Plain sample – urine should be collected into a sterile, clean, dry universal container. This sample should be used for sediment examination, urine chemistries and the measurement of specific gravity.

Boric acid sample – this is the preferred sample for culture since the numbers of bacteria present at the time of sampling remain static in the boric acid until the sample reaches the laboratory for testing.

Boric Acid Tubes

Boric acid is used as a preservative in urine samples and prevents the overgrowth of bacteria in urine samples submitted for culture and sensitivity. These should be used when submitting urine samples for culture and sensitivity. They should not be used for labstix and microscopy or cytology – in these cases a plain urine sample should be submitted also.

The Boric Acid Urine Tubes supplied by CTDS are smaller than the 25 ml universal tubes you have probably traditionally been used to. Traditional boric acid tubes are primarily manufactured for the human industry and contain enough boric acid (0.36gram) to prepare 25- 30 ml of fresh urine. In most veterinary cases, especially for feline samples, it is very difficult to obtain this volume of urine so the effect is that the urine sample is taken into excess boric acid. Excess levels of boric acid may inhibit bacteria in the urine and can lead to false negative results in urine culture results. To ensure that the correct ratio of boric acid to urine is achieved please fill the CTDS 5ml Boric acid tubes to around $\frac{3}{4}$ (i.e. to the fill line) full if possible.

CTDS Test requirements

Microbiology	Code	Sample Requirements
Urine analysis including culture* & P:Cr	M2	>1ml Plain Urine and 4 ml Urine in Boric Acid
Urine analysis including P:Cr ratio	M13	>1ml Plain Urine and 4ml Urine in Boric Acid
Urine analysis partial (labstix/microscopy)	M13P	Plain Urine
Urine cytology	C6	>1ml Plain Urine and Air dried smear of urine sediment
Aerobic culture* (only)	M7	Charcoal Swab and/or 4ml Urine in Boric Acid

* culture includes identification and sensitivity of microorganisms.