Ring Bioscience Technologies Ltd
Antibiotics Residue & Mycotoxin Rapid Test for Milk

Authorized Distributor

Ring Bioscience Technologies Ltd
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Being the result of obtaining high milk yield, cow mastitis is quite common in modern dairy farms, thus antibiotics like β-Lactams including penicillin, ampicillin and amoxicillin, etc., are frequently administered in veterinary clinical practice. However, these antibiotics residues in milk may cause potential damage to human health, which is now strictly controlled and supervised in many countries.

This product utilizes the high affinity of β-Lactams capture protein against the antibiotics, which can easily identify these potential hazardous substances in milk without any instrument. The detection limit of the kit can meet both European and USA MRLs.

**Detection Limit (LOD)**

<table>
<thead>
<tr>
<th>β-lactams</th>
<th>MRL(μg/L)</th>
<th>LOD(μg/L)</th>
<th>Cephalosporins</th>
<th>MRL(μg/L)</th>
<th>LOD(μg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin G</td>
<td>4</td>
<td>2-4</td>
<td>Cefquinome</td>
<td>20</td>
<td>15-20</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>4</td>
<td>3-4</td>
<td>Cefacetrile</td>
<td>125</td>
<td>50</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>4</td>
<td>3-4</td>
<td>Cefalonomium</td>
<td>20</td>
<td>6-8</td>
</tr>
<tr>
<td>Oxacillin</td>
<td>30</td>
<td>6-8</td>
<td>Cefazolin</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Cloxacillin</td>
<td>30</td>
<td>6-8</td>
<td>Cefoperazone</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Dicloxacillin</td>
<td>30</td>
<td>6-8</td>
<td>Cephapirin</td>
<td>60</td>
<td>8-10</td>
</tr>
<tr>
<td>Nafcillin</td>
<td>30</td>
<td>20-30</td>
<td>Ceftiofur</td>
<td>100</td>
<td>50-70</td>
</tr>
</tbody>
</table>

**Kit Specifications**

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Being the result of obtaining high milk yield, cow mastitis is quite common in modern dairy industry, thus antibiotics like β-Lactams and tetracyclines, etc., are frequently administered in veterinary clinical practice. However, these antibiotics residues in milk may cause potential damage to human health, which is now strictly controlled and supervised in many countries.

This product utilizes the high affinity of β-Lactams capture protein against the β-Lactams and antibody against tetracyclines, which can easily identify these potential hazardous substances in milk without any instrument. The detection limit of the kit can meet both European and USA MRLs.

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<td>6-8</td>
<td>Cefazolin</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Cloxacillin</td>
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<td>6-8</td>
<td>Cefoperazone</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Dicloxacillin</td>
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<td>6-8</td>
<td>Cephapirin</td>
<td>60</td>
<td>8-10</td>
</tr>
<tr>
<td>Nafcillin</td>
<td>30</td>
<td>20-30</td>
<td>Ceftiofur</td>
<td>100</td>
<td>50-70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tetracyclines</th>
<th>MRL(μg/L)</th>
<th>LOD(μg/L)</th>
<th>Tetracyclines</th>
<th>MRL(μg/L)</th>
<th>LOD(μg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetracycline</td>
<td>100</td>
<td>60-80</td>
<td>Doxycycline</td>
<td>100</td>
<td>40-60</td>
</tr>
<tr>
<td>Oxytetracycline</td>
<td>100</td>
<td>80-100</td>
<td>Chlortetracycline</td>
<td>100</td>
<td>40-60</td>
</tr>
</tbody>
</table>

### Kit Specifications

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Being the result of obtaining high milk yield, cow mastitis is quite common in modern dairy industry, thus antibiotics like β-Lactams and tetracyclines, etc., are frequently administered in veterinary clinical practice. However, these antibiotics residues in milk may cause potential damage to human health, which is now strictly controlled and supervised in many countries.

Beta-Lactamase, as the enzyme which can decompose Beta-Lactam antibiotics, exists originally in milk at a very small amount. If it is added in milk artificially, the antibiotic will be decomposed and the detection of the antibiotics will be invalid.

This product utilizes the principle of Beta-Lactamase can decompose the antibiotics. Certain amount of antibiotics is added in the milk sample, if the enzyme exists to a certain amount, the original antibiotic residue test will be negative, on the contrary, if the enzyme does not exist, the test result will be positive due to the adding of the antibiotics.

Detection Limit (LOD)  4 U/L

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- Positive result, please further confirm with other methods
Aflatoxins are naturally occurring mycotoxins, which are extremely toxic and among the most carcinogenic substances known. After entering the animal body, aflatoxins may be metabolized by the liver to a new substance - aflatoxin M1. Thus it is of great importance to monitor the residue of aflatoxin M1 in foods, especially in daily consumptions, such as milk and many other dairy products.

This product utilizes the high affinity of monoclonal antibody against aflatoxin M1, which can easily identify its contamination in milk without any instrument. The detection limit of the kit can meet both European and USA MRLs when use properly.

**Detection Limit (LOD)**  
0.05ppb or 0.5ppb

- for 0.05ppb: Line C and Line T are both red, but Line T has a deeper color than Line C.
- for 0.5ppb: Line C is red, and Line T has no color.
- Negative: Line T and Line C are both red, and color of Line T is deeper than Line C.

**Kit Specifications**

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12 months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Tetracyclines are a group of broad-spectrum antibiotics whose general usefulness has been reduced with the onset of bacterial resistance. Despite this, they remain the treatment of choice for some specific indications, especially in cattle veterinary clinical practice. Due to the potential hazard to human, strict MRLs have been set in EU, US and other countries in the world.

This product utilizes the high affinity of monoclonal antibody against tetracyclines, which can identify a broad spectrum of tetracyclines. The detection limit of the kit can meet both European and USA MRLs when use properly.

**Detection Limit (LOD)**

Product #: 100006 / for Russian Federation

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>LOD (ppb)</th>
<th>Antibiotics</th>
<th>LOD (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetracycline</td>
<td>8-10</td>
<td>doxycycline</td>
<td>6-8</td>
</tr>
<tr>
<td>oxytetracycline</td>
<td>10-12</td>
<td>chlortetracycline</td>
<td>4-6</td>
</tr>
</tbody>
</table>

Product #: 100007 / for other countries

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>LOD (ppb)</th>
<th>Antibiotics</th>
<th>LOD (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetracycline</td>
<td>80-100</td>
<td>doxycycline</td>
<td>60-80</td>
</tr>
<tr>
<td>oxytetracycline</td>
<td>80-100</td>
<td>chlortetracycline</td>
<td>40-60</td>
</tr>
</tbody>
</table>

**Kit Specifications**

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12 months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Sulfonamides are synthetic antimicrobial agents that contain the sulfonamide group, which are widely used in veterinary practice. Due to the potential hazard to human, strict MRLs have been set in EU, USA and other countries. This product utilizes the high affinity of monoclonal antibody against sulfonamide common structure, which can identify a broad spectrum of sulfonamides. The detection limit of the kit can meet both European and USA MRLs when use properly.

### Detection Limit (LOD)

<table>
<thead>
<tr>
<th>Sulfonamides</th>
<th>LOD(ppb)</th>
<th>Sulfonamides</th>
<th>LOD(ppb)</th>
<th>Sulfonamides</th>
<th>LOD(ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfaquinoxaline</td>
<td>70</td>
<td>Sulfamethoxazole</td>
<td>70</td>
<td>Sulfachlorpyridazine</td>
<td>20</td>
</tr>
<tr>
<td>Sulfamethoxypyridazine</td>
<td>60</td>
<td>Sulfadoxine</td>
<td>60</td>
<td>Sulfamethoxydiazine</td>
<td>20</td>
</tr>
<tr>
<td>Sulfabenzamine</td>
<td>40</td>
<td>Sulfadiazine</td>
<td>50</td>
<td>Sulfamethazine</td>
<td>10</td>
</tr>
<tr>
<td>Sulfamonomethoxine</td>
<td>40</td>
<td>Sulfadimethoxypyrimidine</td>
<td>40</td>
<td>Sulfafurazole</td>
<td>10</td>
</tr>
</tbody>
</table>

### Kit Specifications

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12 months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Fluoroquinolones are a class of broad-spectrum antibiotics that play an important role in treatment of serious bacterial infections, especially hospital-acquired infections and others in which resistance to older antibacterial classes is suspected. Due to the potential hazard to human, strict MRLs have been set in EU, USA and other countries. This product utilizes the high affinity of monoclonal antibody against quinolone common structure, which can identify a broad spectrum of fluoroquinolones. The detection limit of the kit can meet both European and USA MRLs when use properly.

**Detection Limit (LOD)**

<table>
<thead>
<tr>
<th>Fluoroquinolones</th>
<th>LOD(ppb)</th>
<th>Fluoroquinolones</th>
<th>LOD(ppb)</th>
<th>Fluoroquinolones</th>
<th>LOD(ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrofloxacin</td>
<td>20</td>
<td>Flumequine</td>
<td>20</td>
<td>Ciprofloxacin</td>
<td>20</td>
</tr>
<tr>
<td>Difloxacin</td>
<td>20</td>
<td>Danofloxain</td>
<td>20</td>
<td>Pefloxacin</td>
<td>20</td>
</tr>
<tr>
<td>Norfloxacin</td>
<td>20</td>
<td>Sarafloxacin</td>
<td>20</td>
<td>Oxilinic acid</td>
<td>40</td>
</tr>
<tr>
<td>Enoxacin</td>
<td>40</td>
<td>Ofloxacin</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Kit Specifications**

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12 months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Neomycin is an aminoglycoside antibiotic which has been used for a long time in veterinary clinical practice. Due to the potential hazard to human, strict MRLs have been set in EU, USA and other countries. This product utilizes the high affinity of monoclonal antibody against neomycin, which can identify neomycin in milk easily. The detection limit of the kit can meet both European and USA MRLs when use properly.

Detection Limit (LOD) 200ppb

- Positive: Line C is red, Line T has a lighter color than Line C or has no color.
- Negative: Line T and Line C are both red, and color of Line T is deeper than Line C.

Kit Specifications

- 96 Tests, every 8 strips and 8 microwells in a plastic container, 12 plastic containers in a package
- One strip and One microwell can be used for one, not reusable
- Valid for 12 months when stored at 2-8 degree Celsius in dark place. Avoid direct sunlight.
- Positive result, please further confirm with other methods
Ring Bioscience has developed a series of rapid test for milk safety tests. The test operation are similar, and takes only 3-5min to get a direct result without any reader and incubator.

**Step 1:** Number the samples so you will not mix them in the next steps.

**Step 2:** Take test kit according to your sample number and also number the kit wells to keep record and consistency.

**Step 3:** Take 200ul sample into the wells using pipet. You can also then put the well into the well holder to avoid sample spill.

**Step 4:** Absorb up and down for 5 times to mix sample with reagent completely.

**Step 5:** Insert the "MAX" end of the strip into the mixture; Incubate for 5min at room temperature again.

**Step 6:** Take out the strip; judge the result.
Manufactured and distributed by Ring Bioscience, the MilkSafe™ Rapid Test Kits are intended for rapid test of antibiotics residue in raw milk samples, the detection limit of which meets EU MRLs. Although the kits are designed user-friendly, much attention should be paid when doing the assay.

**Sample**

Milk sample only. Fully liquid without agglomeration and deposition. Fresh sample is recommended.

**Test Kit**

Store the kits at 2-8°C. Do not freeze. Bring the test kit to room temperature before use. The test strip can be used for only once. Use new test strip for different sample.

Cut the wells according to your requirement. Always use new wells for new sample.

Always hold the hand-holding end with your finger and do not touch the membrane that will show the Line T & C.

**Assay Operation**

- The sample should be added into the wells, do not exceed the marker line on the well.
- Using micropipette is recommended for adding the sample, for this can control the sample volume to 200ul very strictly.
- After adding sample, using the pipet or tip to mix the sample with reagent in the well completely by absorbing and dropping repeatedly.
- After adding sample and mixing completely with reagent in the well, keep still for at least 1-2min, then insert the strip into the well.
- Insert the strip into the well with MAX end dipped into the sample solution. Watch the liquid flow to the strip carefully.
- Viscous or thick sample will flow very slowly on the strip. In this case, please prolong the second step to 7-10min to obtain a better result.
- For the whole operation, 10°C or more is recommended.
- Lower temperature may lead to slow liquid flow, in this case, please also prolong the second incubation time.

**Result determination:** Please refer to the kit insert.

**Result recording**

If you want to keep the test record, please cut off the max end using scissors, and then store the test strip in dry file shelf for future use.