



An Introduction to the InfiniPlex for Milk (IPM) Test



INTRODUCING THE INFINIPLEX FOR MILK RESIDUE TEST

The InfiniPlex for Milk (IPM) is a multiple assay test for detecting medicine residues and other contaminants in milk.

Predominantly, it is used to detect antibiotics, anti-inflammatory medicines, and flukicides. It can also be used to detect other potentially harmful compounds, such as melamine and aflatoxin M1.

Q AND A'S

How does the test work?

The test is an immunoassay, similar to an ELISA. It involves using antibodies to detect specific analytes, which indicate the presence of medicines or other compounds.

Where it differs from other milk residue tests which are commercially available is that it uses multiplex technology which enables multiple assays to be carried out simultaneously using a single sample. This reduces the testing time to four hours and only a small sample volume (25µl) is required.

What antibiotics and other medicines does it detect?

The test can detect up to 43 different analytes, which cover 91 different antibiotic compounds, 11 different anti-inflammatory compounds, a flukicide and four other potentially harmful residues. This represents 98% of the antibiotics that have a MRL (Maximum Residue Level) established in milk, including Beta-lactams (penicillins and penicillin derivatives), tetracyclines, sulphonamides, macrolides, aminoglycosides and quinolones.

The test will detect all antibiotics that are currently licensed for use in milking cows as well as most other antibiotic compounds which are not licensed, or which are licensed for other (non-cattle) species.

Does the test replace the Delvotest® or the LCMS test?

No. It is too sensitive to use as a routine screening test of bulk milk samples and the Delvotest® remains the most appropriate test for this purpose.

The LCMS (Liquid Chromatography Mass Spectroscopy) test remains the gold standard as it detects residues with the greatest sensitivity and gives a quantitative result. However, the InfiniPlex test is far quicker and less costly which facilitates Delvotest® failures to be routinely investigated. It also detects a larger array of medicine residues in a single test.

At what level will it detect residues?

The InfiniPlex test is very sensitive but is not quantitative. In other words, it simply gives a positive or a not detected (n/d) result, based on validated cut-off points for each analyte.

The InfiniPlex Full Guidance Notes (www.NML.com/xxxx/xxx) lists the actual cut-off points, or decision levels, for each compound included in the test. These are expressed in parts per billion (ppb). Medicine compounds are detected at different levels, but in general, the detection limit is below the Maximum Residue Limit (MRL) for those antibiotics and medicines for which an MRL has been established.

This is why the test is too sensitive to be used as a first-line screening test for medicine residues in milk. Where milk has failed a prior screening test, such as the Delvotest® or Betastar® test, the InfiniPlex test is very valuable to further investigate the sample to determine the cause of failure. In normal circumstances, the InfiniPlex test is more sensitive than the Delvotest® or Betastar® test for all classes of antibiotics.

The assay may also be used to detect some compounds for which there is no safe residue limit (no established MRL), or products not licensed for use in animals producing milk for human consumption.

Can the test be used to identify the exact product which caused a residue screening test failure?

The test will identify up to 107 different compounds present above the test decision level, which directly identifies the product which caused the failure, or enormously narrows the field of potential candidates.

Some compounds are antigenically similar and cannot be distinguished using the test. A positive result for tetracycline, for example, could indicate the presence of any one of tetracycline, oxytetracycline, chlortetracycline or doxycycline, or a combination of these compounds.

The range of analytes included in the test will often allow a specific medicinal product to be pinpointed, particularly as many lactating cow antibiotic tubes contain a combination of compounds. For example, an InfiniPlex test which is positive for β -lactams, neomycin, novobiocin and methylprednisolone would indicate Tetra Delta™ milking cow tubes as this combination of compounds would be unique to that product.

The InfiniPlex Full Guidance Notes (www.NML.com/xxxx/xxx) contains reference tables to help identify specific products from the analytes detected by the InfiniPlex assay.

What help is available interpreting results?

Interpreting the infiniplex results should always be done in conjunction with someone with a thorough understanding of the test and test limitations, for example the herd's vet. Results are always reported with a brief interpretation guide and the analytes detected above the decision level are listed. The InfiniPlex Full Guidance Notes (www.NML.com/xxxx/xxx) can be used to understand the full interpretation and to cross-reference the EU Maximum Residue Limits against the decision levels for each compound.

What further help is available to investigate a residue failure?

Always discuss residue failures with your milk buyer and your vet. There are certain protocols to follow to investigate milk residue failures. Using the InfiniPlex test can be an important part of the investigation as it increases the certainty about which product(s) were involved in the particular failure. Previous studies have shown that the actual reason for a residue failure is often either not known, or different to the initially assumed reason.

MilkSure is a training course for farmers designed to reduce the risk of residue failure. The course contains useful information on how residue failures occur and provides staff training on how to avoid them. A Dairy UK/ BCVA checklist, Investigation of Inhibitory Substances in Milk, is included in the MilkSure workbook. For more information check out www.milksure.co.uk.

How much does the test cost and how do I request testing?

The test costs £55 (excl. VAT) per sample.

Contact the office team at National Milk Laboratories to arrange testing (01902 749920).



For further information, please contact:

National Milk Laboratories

Tel: 01902 749920

Email:

milk@nationalmilklabs.co.uk

www.nationalmilklabs.co.uk